Healthier Moms & Babies

ANALYSIS OF 2016-2020 CDC NATALITY DATA FOR ALLEN COUNTY AND INDIANA

November 17, 2022

Prepared by the Purdue University Fort Wayne Community Research Institute for Healthier Moms and Babies

Includes parental demographics, use of prenatal care, maternal and infant health characteristics, and labor and delivery data.

PURDUE UNIVERSITY FORT WAYNE
Community Research Institute

Rachel Blakeman
rachel.blakeman@pfw.edu

Contents

Executive summary

Using publicly available data from the Centers for Disease Control and Prevention's database of birth certificate records, the Purdue University Fort Wayne's Community Research Institute (CRI) compared Allen County's data for all births, births paid for by Medicaid, and births paid for with private insurance between 2016 and 2020 with Indiana as the comparison geography.

Key findings from this data include:

- **Annual number of births:** Allen County's total number of births remained relatively steady over the five years studied while Indiana's total births declined year over year.
- **Number of births by payment source:** Allen County's number of Medicaid births declined while private insurance births increased, likely reflecting the strength of the local job market, which improved access to employer-based health insurance during the five years studied.
- **Parental race and ethnicity:** Allen County's mothers are more racially diverse when compared to Indiana but mirror the state's share who identify as Hispanic. For fathers, Allen County had a larger share of non-white for race and slightly lower for non-Hispanic and most other Hispanic categories with a larger share of paternal race and ethnicity not identified compared to Indiana.
- **Birth rate and fertility rate:** Allen County had both a higher birth rate, which is measured against the total population, and fertility rate, which is measured against the population of women of child-bearing age, than Indiana.
- **Birth interval:** Allen County's average birth interval, when measured by the time between current and previous live birth, was shorter than Indiana's in all years studied, ranging between about 2.5 to 3.5 months shorter. The most common interval cohort was 24 to 35 months for not-first live birth across all geographies and payment sources. Allen County's Medicaid births were more likely to report a birth interval of less than 24 months compared to the other populations studied.
- **Mother's age:** Women giving birth with Medicaid tend to be younger than the women giving birth with private insurance in both geographies.
- **Mother's education level:** Births with private insurance more likely to have a mother with a bachelor's degree or higher in Allen County and Indiana, which is consistent with the older maternal age of women who give birth with private insurance.
- **Marital status:** About 72% of Medicaid births were to unmarried women compared to less than a quarter of births with private insurance.
- **Paternity acknowledgement:** Allen County consistently reported a larger share of births to unmarried women without paternity acknowledgement for all time periods and populations studied.
- **Father's age:** Just over half of births in Allen County and Indiana with reported paternity were to men ages 25 to 34.
- S**tart of prenatal care by trimester:** The majority of women got prenatal care in the first trimester locally and in Indiana, regardless of payment source. More Medicaid births in Allen County had care start between the 4th and 6th month as compared to private insurance births despite being a smaller number of total births.

- **Start of prenatal care by month:** Women in Allen County were more likely than women statewide to start prenatal care in the third month, regardless of payment source. Indiana women were more likely to start prenatal care in the second month. More than half of Allen County births covered by private insurance had prenatal care start in the third month.
- **Tobacco use:** The majority of births involving tobacco use across both geographies were Medicaid births.
- **Gestational diabetes:** Allen County's birth showed an up-and-down trend for the number of infants born to mothers with gestational diabetes, with numbers going up between 2016 and 2018, going down for 2019 and then going up again in 2020.
- **Gestational hypertension:** Gestational hypertension showed an up-and-down trend during the time studied for Allen County and an upward trend in Indiana.
- **Induction of labor:** Medicaid births were less likely than private insurance births to be induced, although that separation started to shrink in Allen County over time while it remained constant with Indiana's births.
- **Anesthesia:** Allen County and Indiana births showed a downward trend for births using anesthesia over time. This cannot be fully attributed to the pandemic's onset in 2020 as it was declining in the years preceding that public health event.
- **Delivery method:** Women were more likely in Allen County than Indiana to delivery vaginally, excluding vaginal births after a Cesarean delivery, during the time period studied. Consistent with the vaginal delivery data, Allen County women were less likely to have a repeat C-section.
- **Gestational age:** Most births in Allen County and Indiana, regardless of payment source, occurred between 37 and 39 weeks. Allen County's number of reported preterm births – infants born before 37 weeks – went up during the time period studied.
- **Low birthweight:** Allen County's number of reported low birthweight births went up slightly while the number of reported very low birthweight births showed an up-and-down trend but the data is incomplete so any conclusions about the findings should be balanced against the potential for missing data. Allen County's number of reported very low birthweight births showed an up-and-down trend in the five years studied. Again, since this is incomplete data, this variation should be interpreted with caution.
- **Breastfeeding at birth:** Most infants in Allen County and Indiana received breastmilk before being discharged from the hospital.
- **NICU admissions:** Local NICU admissions remained relatively even while Indiana's admissions increased over time.

Introduction

Healthier Moms and Babies contracted with Purdue University Fort Wayne (PFW) to collect and analyze data about infants and their families to understand the events and circumstances that may lead to or directly cause infant mortality, which for this project is defined as death before the infant's first birthday.

PFW's Center for Social Research (CSR) with help from the Community Research Institute (CRI) conducted a survey of women in Allen County who either had a baby in the past year, were currently pregnant, or were thinking about getting pregnant in the future, and a separate survey of women in

Allen County who could become pregnant in the future. The surveys' findings are in reports separate from this data.

For this portion of the project, CRI focused on publicly available data from the Centers for Disease Control and Prevention's Wonder data portal for Allen County with Indiana as the comparison geography. Data were available annually for 2016 to 2020 when CRI pulled the data in March 2022.

The CDC's data here are remarkably comprehensive and inclusive because it is pulled from birth certificate records to capture essentially all births that occurred during the period studied. The information is reported based on the county of residence, not the county of birth.

For most of the charts and tables, CRI compared total births to births covered by Medicaid and births paid for with private insurance. When possible, CRI converted number of births to percentage of births to make a direct comparison between the two geographies. When that was not possible, total numbers are reported. Each chart or table identifies the measure, geography, and when relevant, the population (all, Medicaid, and private insurance).

This report includes annual information about the following:

- Number of live births
- Payment source for the birth
- Averages about infants and mothers including mother's age, infant's birthweight, and gestational age
- Parental demographic information include race, Hispanic origin, education level, and marital status
- Interval since last live birth
- Use of prenatal care including number of prenatal visits and when prenatal care began
- Maternal health characteristics including gestational diabetes, gestational hypertension, and tobacco use
- Labor and delivery data including induction of labor, anesthesia, and delivery method
- Maternal morbidity including unplanned hysterectomy, admission to the intensive care unit, or a blood transfusion to mother
- Infant health characteristics including gestational age, birthweight, Apgar scores, and abnormal or congenital conditions

When comparing the data over the reported timeseries as presented, it is important to remember that the number of total live births in Allen County stayed essentially level during the five years studied while the total births statewide declined year over year. Accordingly, when statewide total numbers trend upward on specific measures, it represents a larger share of live births because the state's overall births declined by more than 5% in the five years studied. In comparison, the percentage decline between Allen County's highest and lowest birth years was 2.8% with no consistent pattern or trend of increase or decline during the five years studied.

Data source

CRI used the CDC's Wonder Natality Data Extended for years 2016 to 2020. It uses information collected from mothers and birthing facilities (hospitals, birthing centers, other clinics) for the birth certificate for live births occurring within the United States to U.S. residents.

The CDC suppresses public data release for counts on any measure with fewer than 10 births for the respective geography. Blank cells could be between 0 and 9 births.

The extended natality data from the CDC has information in the following categories, although not all data categories were used for this report:[1]

- Parental demographics
    - Race
    - Hispanic origin
    - Age
    - Education level
    - Marital status and paternity acknowledgement
- Pregnancy history of mother
    - Interval since last live birth, last other pregnancy outcome, and interval of last pregnancy
    - Prior pregnancy outcomes including prior births now living and prior births now dead
    - Birth order
    - Prenatal care including number of prenatal visits and when prenatal care began
    - WIC use
    - External cephalic version obstetric procedures
- Maternal risk factors
    - Height
    - Pre-pregnancy weight and body mass index
    - Delivery weight
    - Weight gain
    - Tobacco use including number of cigarettes before and during pregnancy
- Pregnancy risk factors
    - Pre-pregnancy and gestational diabetes
    - Pre-pregnancy and gestational hypertension
    - Eclampsia
    - Previous pre-term birth
    - Previous and number of cesarean deliveries
    - Fertility assistance including infertility treatments, fertility-enhancing medications, and assistive reproduction technology
- Maternal infections
    - Gonorrhea
    - Syphilis
    - Chlamydia

[1] https://wonder.cdc.gov/wonder/help/Natality-expanded.html#

    - Hepatitis B
    - Hepatitis C
- Labor characteristics
    - Induction and augmentation of labor
    - Steroids
    - Antibiotics for mother
    - Chorioamnionitis
    - Anesthesia
- Delivery characteristics
    - Year
    - Month
    - Weekday
    - Time of day
    - Location of birth
    - If mother was transferred to another hospital/medical facility
    - Medical attendant
    - Fetal presentation
    - Final route and method of delivery
    - Trial of labor attempted for cesarean deliveries
    - Delivery payment source
- Maternal morbidity
    - Maternal transfusion
    - Third or fourth degree perineal laceration
    - Ruptured uterus
    - Unplanned hysterectomy
    - Admission to intensive care unit
- Infant characteristics
    - Sex
    - Birth weight
    - Multiple births
    - Gestational age at birth
    - Apgar score
    - Infant breastfed at discharge
    - Infant transferred to another hospital/medical facility
    - Infant living at time of report
- Abnormal conditions of newborn
    - Assisted ventilation
    - NICU admission
    - Surfactant replacement therapy
    - Antibiotics for suspected neonatal sepsis
    - Seizures
- Congenital anomalies of newborn:
    - Anencephaly
    - Cleft Palate Alone

- Cleft Lip with or without Cleft Palate
- Cyanotic Congenital Heart Disease
- Congenital Diaphragmatic Hernia
- Omphalocele
- Gastroschisis
- Hypospadias
- Meningocele / Spina Bifida
- Limb Reduction Defect
- Down Syndrome
- Suspected Chromosomal Disorder
- Congenital Anomalies Checked

Data use restrictions

From the CDC's website:

> These data are provided for the purpose of statistical reporting and analysis only.
> The *CDC/ATSDR Policy on Releasing and Sharing Data* prohibits linking these data with other data sets or information for the purpose of identifying an individual. If the identity of a(n) individual described in a data set is discovered inadvertently, make no disclosure or other use of this information and report the discovery to:
>
> Associate Director for Science
> Office of Science Policy and Technology Transfer, CDC
> Mail Stop D50
> Phone: 404-639-7240
>
> The Public Health Service Act (42 U.S.C. 242m(d)) provides that the data collected by the National Center for Health Statistics (NCHS) may be used only for the purpose for which they were obtained; any effort to determine the identity of any reported cases, or to use the information for any purpose other than for statistical reporting and analysis, is against the law. Therefore users will:
>
> - Use these data for statistical reporting and analysis only.
> - For sub-national geography, do not present or publish death or birth counts of 9 or fewer or rates based on counts of nine or fewer (in figures, graphs, maps, table, etc.).
> - Make no attempt to learn the identity of any person or establishment included in these data.
> - Make no disclosure or other use of the identity of any person or establishment discovered inadvertently and advise the Director, NCHS of any such discovery.
>
> Confidentiality Officer
> National Center for Health Statistics
> 3311 Toledo Road
> Hyattsville, MD 20782
> Phone: 888-642-4159
> Email: nchsconfidentiality@cdc.gov

Datasets, presentation

This report reflects information gathered for the CDC Wonder Natality Extended Dataset 2016-2020.

The CDC publishes annual county-level natality data for counties with a population of more than 100,000. For this project, CRI used information for select measures for Allen County and Indiana by the following births:

- All births
- Medicaid births
- Private insurance births

CRI opted not to include the data for self-pay and "other" births because of the small total number, which would then encounter significant suppression issues across the studied data points because the CDC does not publish information for less than 10 births. CRI encountered suppressed data in Allen County for select measures even with the larger populations studied.

CRI selected the measures within this report with guidance from Healthier Moms and Babies to identify events or circumstances that may be related to risk for infant mortality or death of an infant before his or her first birthday. Some measures are general in nature, like parental demographics while others are key health indicators like mothers' gestational diabetes or infants' admission to NICU.

The CDC natality data set does not collect any information specifically about household income so Medicaid use is the best proxy for household income. Information about parents' education levels indicates that births with private insurance reflect higher-income parents.[2]

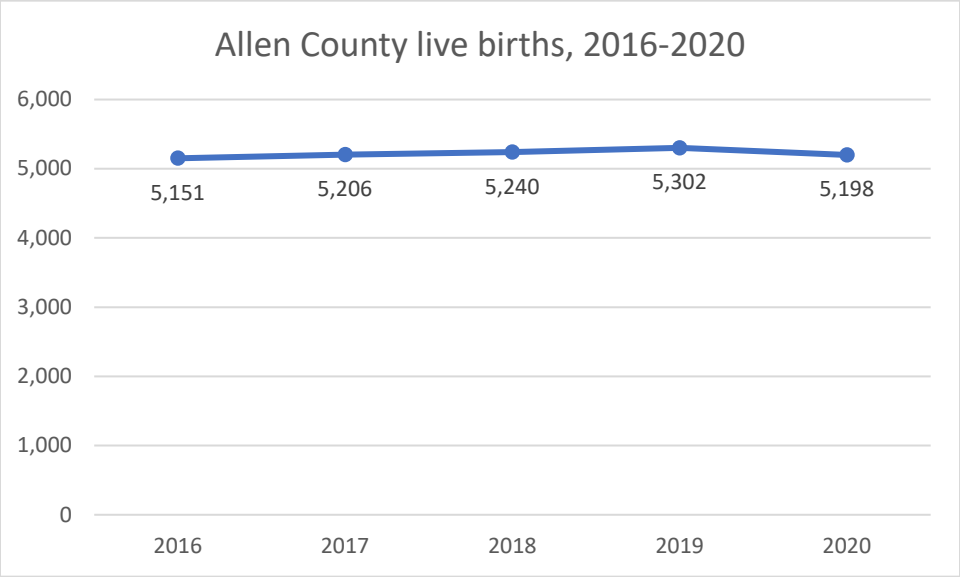
Births and payment source

This section looks at the number of live births of the two geographies studied from 2016 to 2020. When CRI pulled this data in March 2022 from the CDC Wonder website,[3] 2020 was the most recent year available for this project in spring 2022.

[2] American Community Survey data from the U.S. Census Bureau consistently reflects that people with a bachelor's degree have higher income than their peers who ended their education with a high school diploma or with some college or an associate's degree.

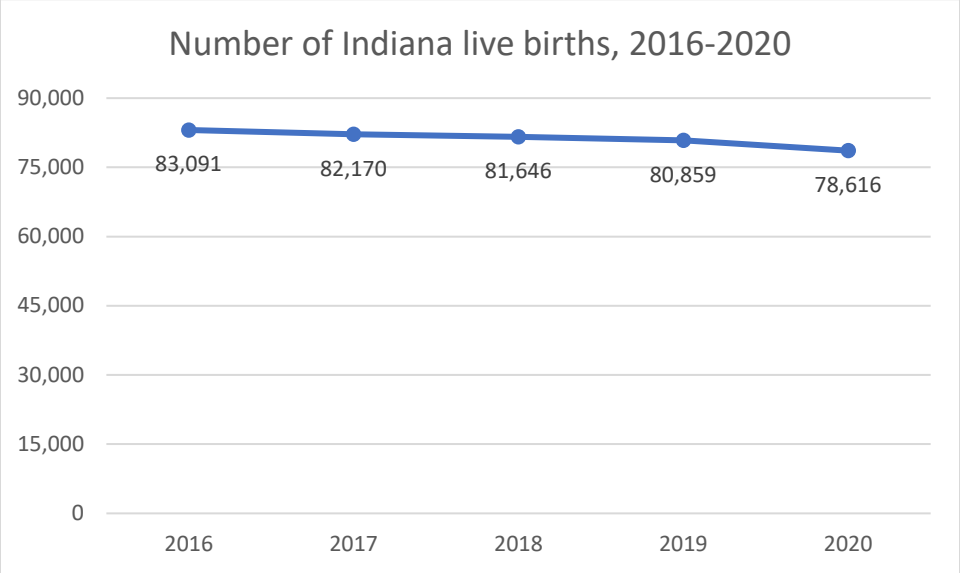
[3] https://wonder.cdc.gov/controller/datarequest/D149

Chart 1: Allen County live births



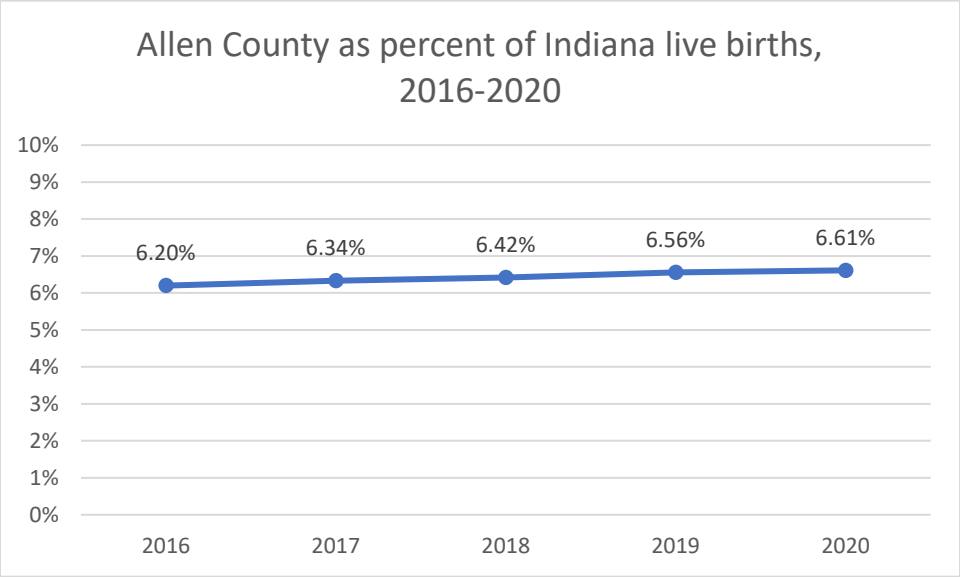
Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 2: Indiana live births



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 3: Allen County's births as percentage of state total



Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

The CDC reports the delivery payment source in the following four categories:[4]

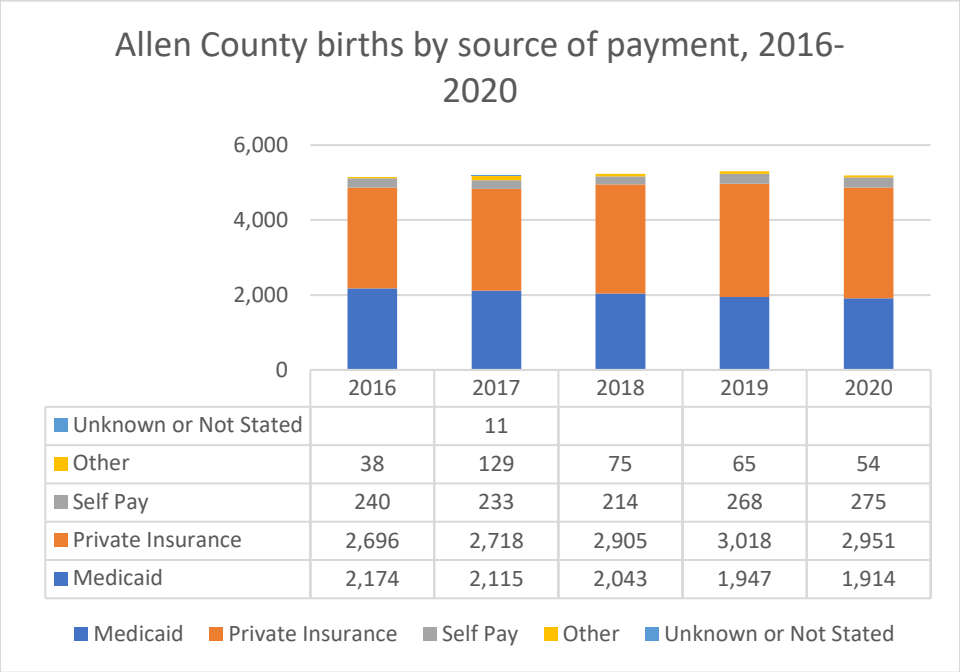
- Private insurance
- Medicaid
- Self-pay
- Other with source listed

If none of the boxes were checked in the facility worksheet, it is reported as "not stated."[5]

The CDC did not report total number of births for Allen County so CRI is providing the annual count for Allen County and Indiana.

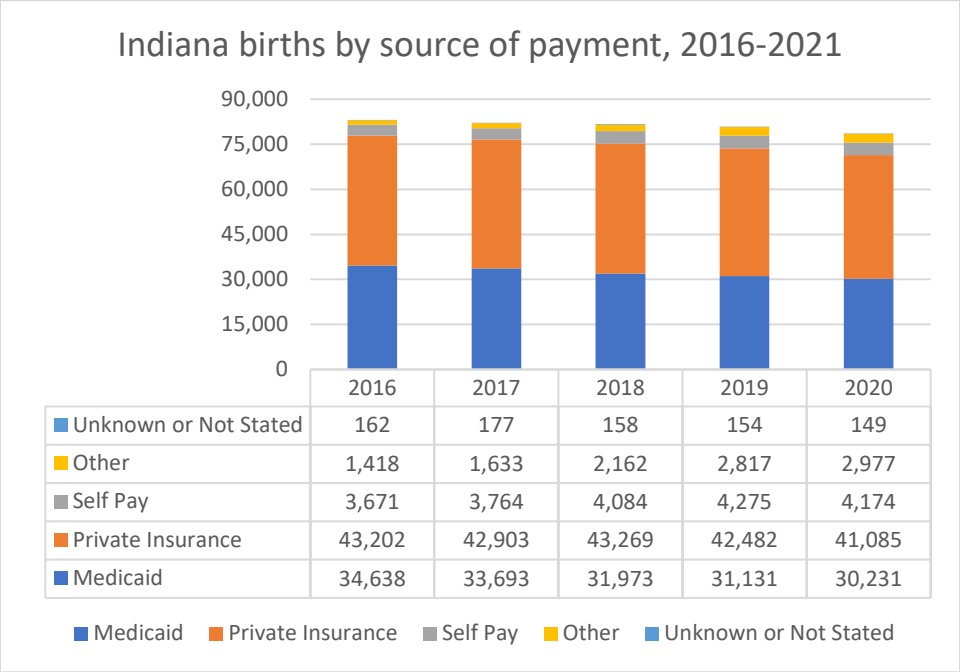
[4] User Guide to the 2020 Natality Public Use File, CDC, p. 62.
[5] Ibid.

Chart 4: Allen County births by payment source



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 5: Indiana births by payment source



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Allen County's number of annual live births remained essentially flat during the time period studied while Indiana's number declined 5.39% between 2016 and 2020.

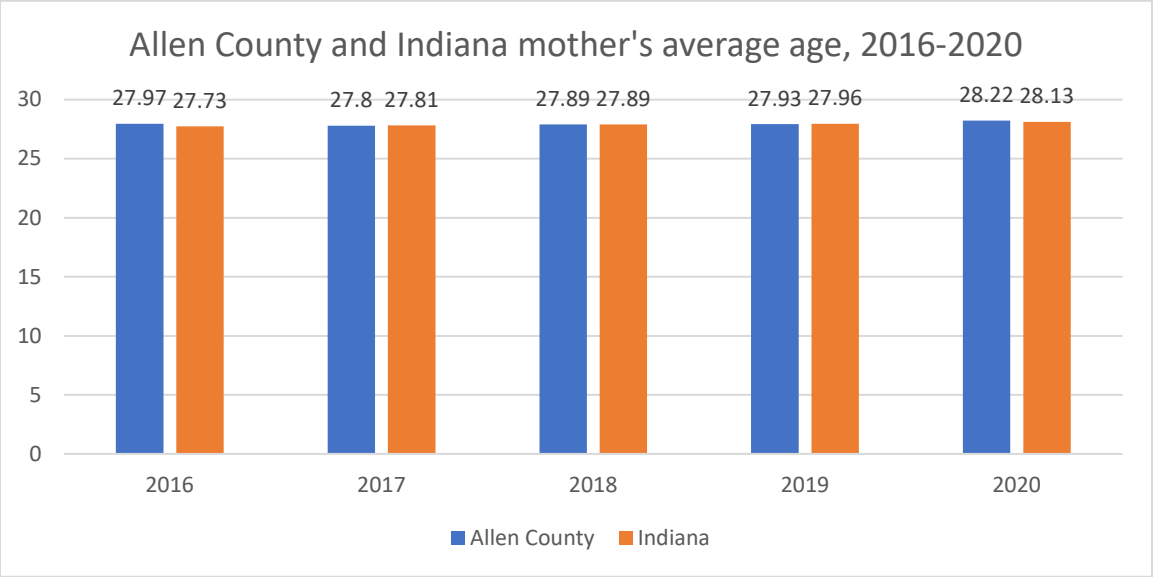
    - Allen County's share of total births statewide increased as a result.
- While Allen County's births remained steady, the number of Medicaid births went down while the number of private insurance births went up.
- The number of self-pay births in Allen County remained relatively constant during the time period studied, yet Indiana's self-pay births increased.

General pregnancy, birth data

To provide some general data about pregnancies and births in Allen County compared to Indiana, CRI pulled some annual data averages from the CDC Wonder Natality database.

The first chart here looks at the average age of mothers in Allen County and Indiana.

Chart 6: Allen County and Indiana mother's average age

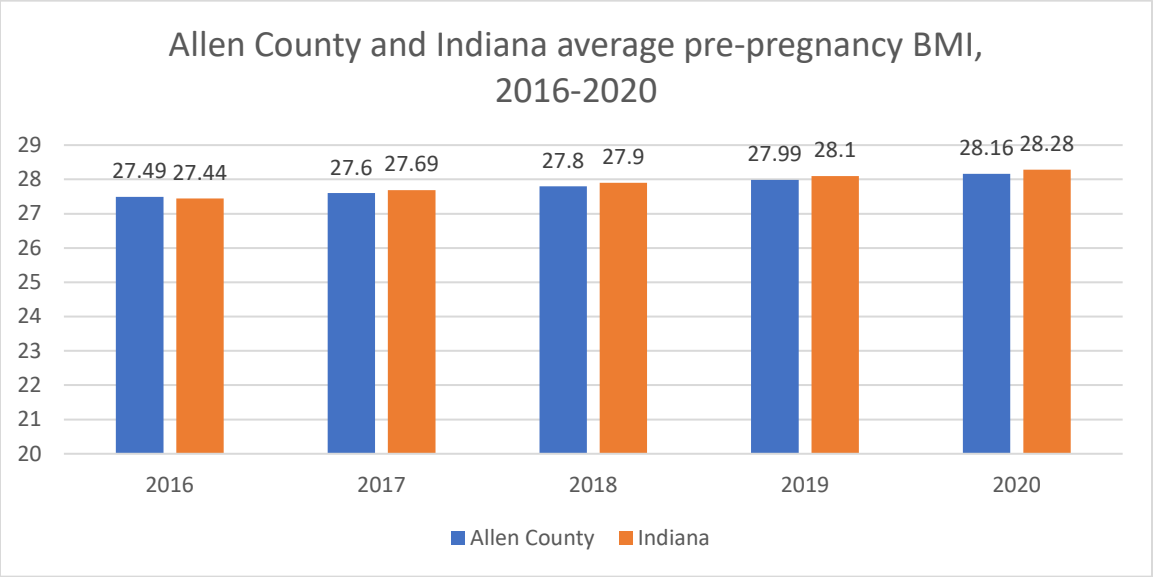


Source: CDC Wonder Natality Data Expanded, 2016-2020

The body mass index (BMI) is calculated by a formula to account for an individual's height and weight. The CDC calculates mothers' pre-pregnancy BMI using data collected from the mother's birth certificate worksheet.[6] Adults with a BMI of 25.0 or more are considered overweight.[7]

[6] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p. 2 and p. 6.
[7] See https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html

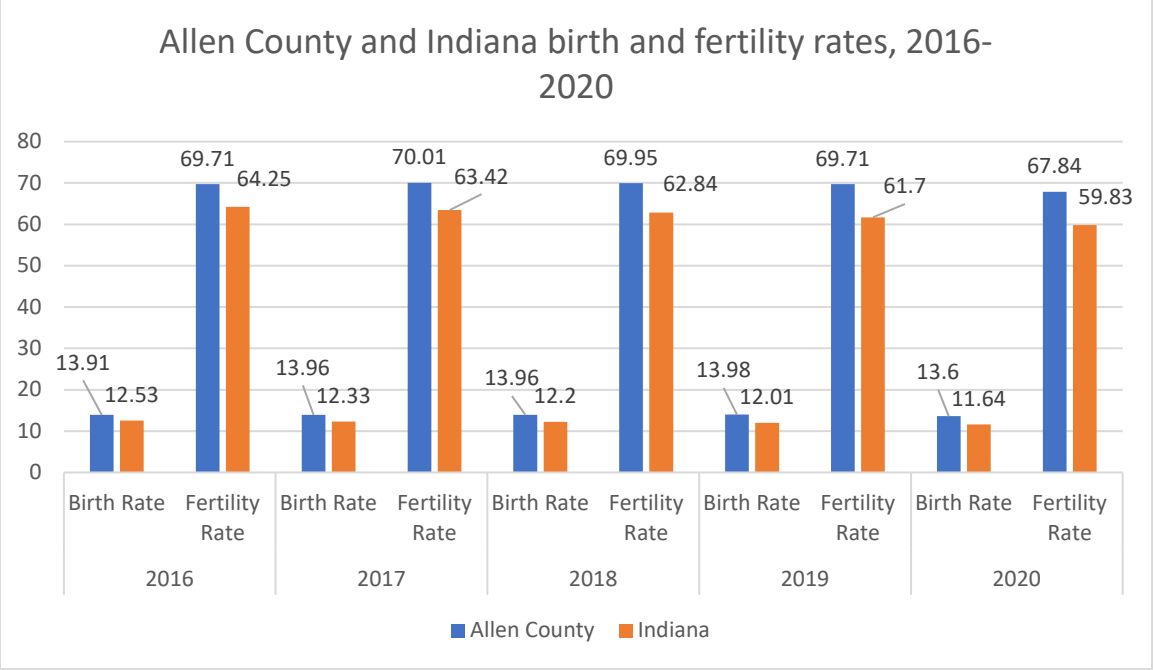
Chart 7: Allen County and Indiana average pre-pregnancy body mass index



Source: CDC Wonder Natality Data Expanded, 2016-2020

The birth rate is calculated based total population and expressed as per 1,000 persons. The fertility rate is calculated from total females of traditional childbearing ages and like birth rate, expressed per 1,000 females ages 15 to 44. For comparison, the United States' 2020 birth rate was 11.0 and the fertility rate was 56.0.[8]

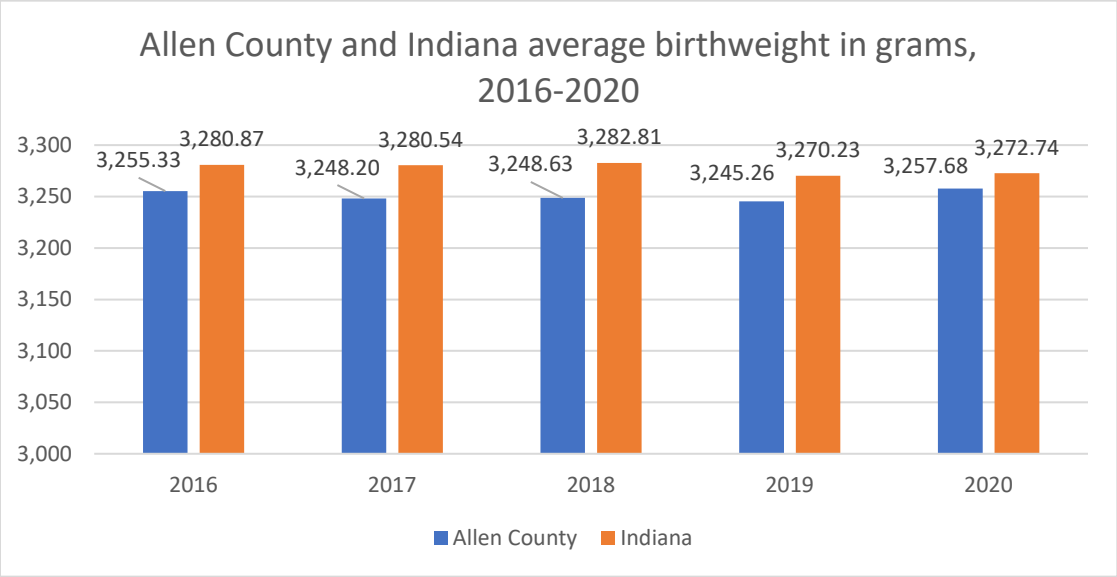
Chart 8: Allen County and Indiana birth and fertility rates



Source: CDC Wonder Natality Data Expanded, 2016-2020

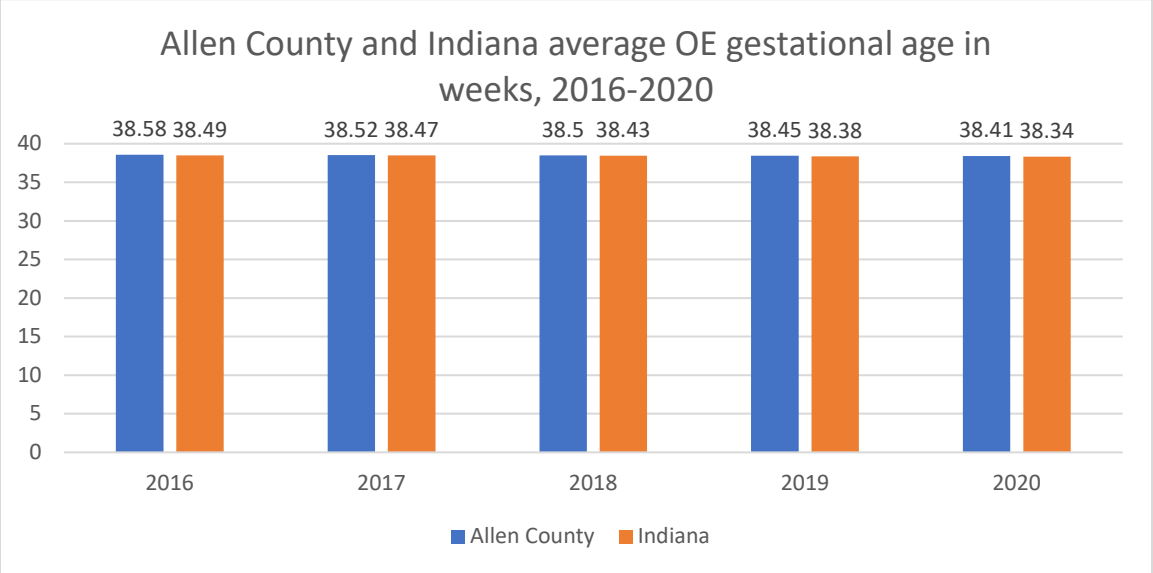
[8] https://www.cdc.gov/nchs/nvss/births.htm

Chart 9: Allen County and Indiana average birthweight



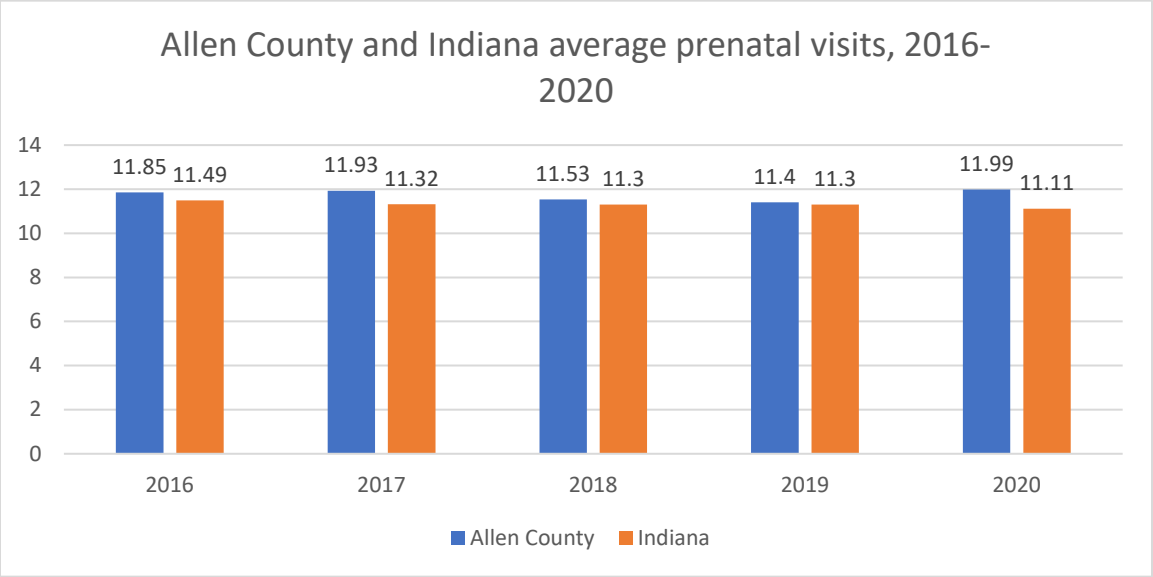
Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 10: Allen County and Indiana average gestational age



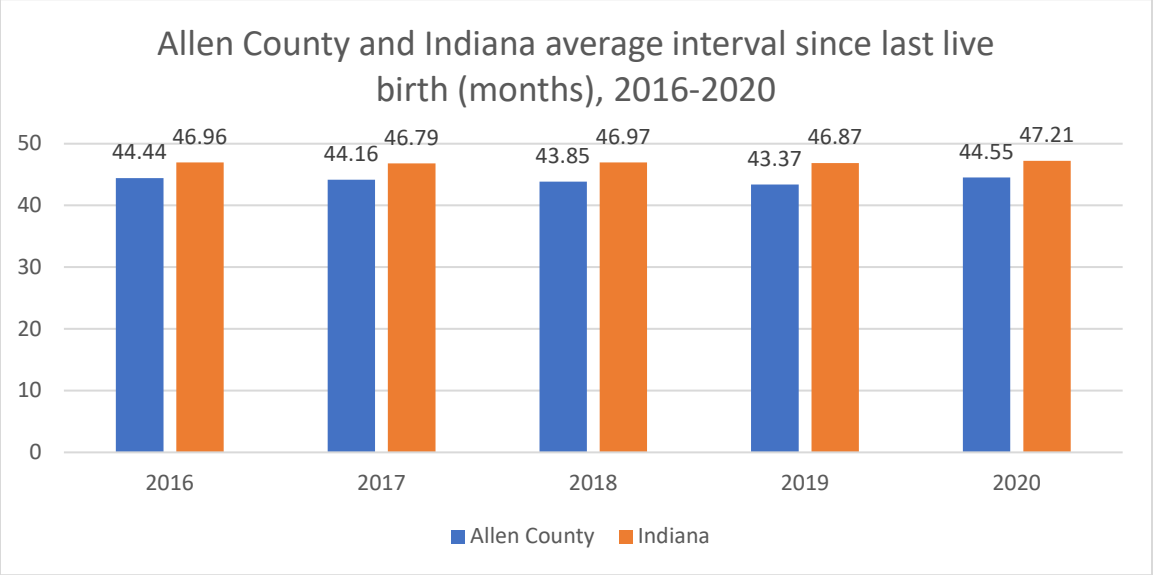
Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 11: Allen County and Indiana average number of prenatal visits



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 12: Allen County and Indiana average interval since last live birth



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- The mother's average age for Allen County and Indiana were essentially equivalent during the time studied.
- The average pre-pregnancy body mass index had little variation between the two geographies, but both were within the overweight classification with the average above 25.0.[9] The average BMI trended upward over time for Allen County and Indiana.
- Allen County's birth and fertility rates consistently exceeded that of Indiana across all five years. For 2020, both the state and local rates were above the national rates.

9

- Allen County's mothers with previous live births had a shorter average birth interval than Indiana, ranging from 2.52 to 3.5 months.

Demographic characteristics of parents

This section looks at the demographics of both mothers and fathers including race, ethnicity, age, education level, parents' marital status, and acknowledgment of paternity for unmarried couples. This also includes data about the intervals between the current and previous live births.

Mother's race

The CDC collects very detailed about the race of the parents, both mother and father, as reported by the infant's mother on the Mother's Worksheet for Child's Birth Certificate. It also collects Hispanic origin in a separate category, which is also listed in this report.

The worksheet offers the following categories:[10]

- White
- Black or African American
- American Indian or Alaska Native and list name of enrolled or principal tribe
- Asian Indian
- Chinese
- Filipino
- Japanese
- Korean
- Vietnamese
- Other Asian and list other
- Native Hawaiian
- Guamanian or Chamorro
- Samoan
- Other Pacific Islander and list other
- Other and list other

Mothers are advised to check all racial categories that apply to themselves.

To simplify data reporting, the CDC categorizes the responses into various segments. To best reflect the racial make-up of Allen County and Indiana, CRI opted to use the six-race data set:

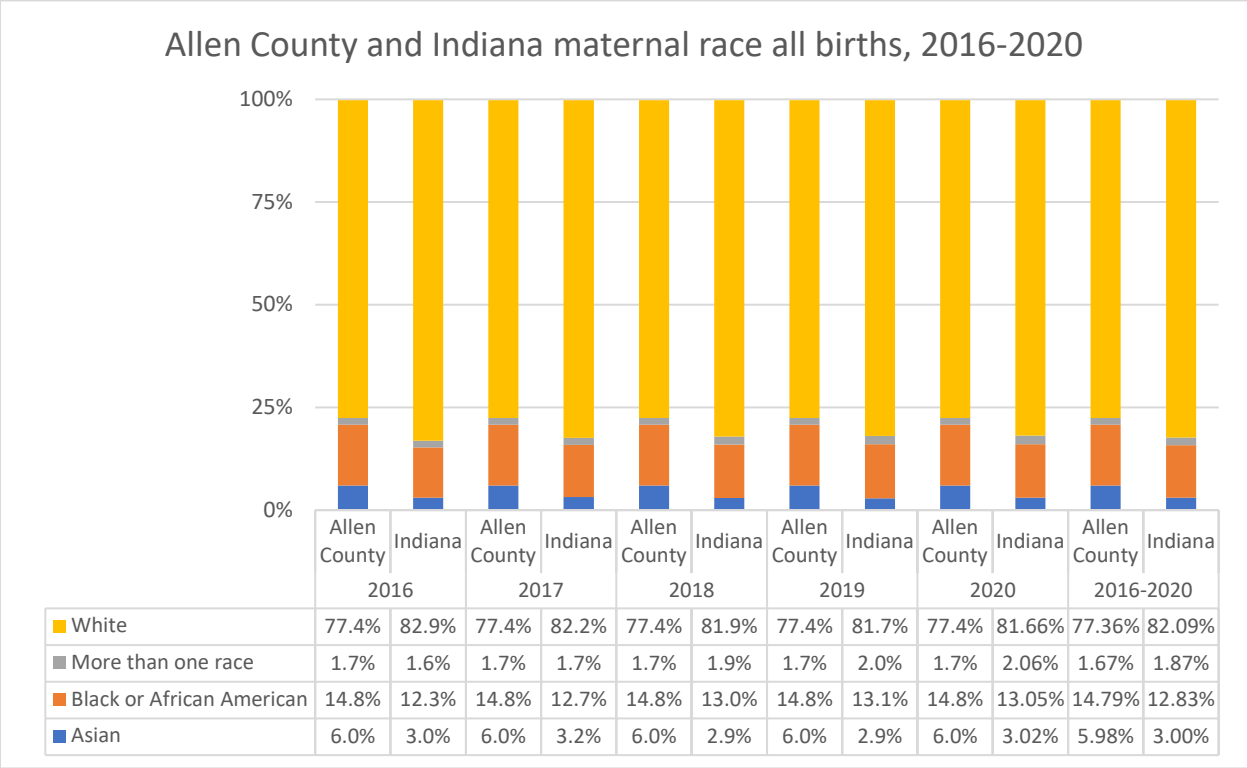
- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- More than one race

[10] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 3.

Consistent with other racial demographic data locally, the CDC did not report any births in Allen County for mothers identifying exclusively as American Indians/Alaska Natives or Native Hawaiians/other Pacific Islanders so CRI removed those numbers from the comparison data in Indiana. CDC reported 470 births to American Indian/Alaska Native mothers and 384 births to Native Hawaiian or other Pacific Islander mothers between 2016 and 2020 in Indiana.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

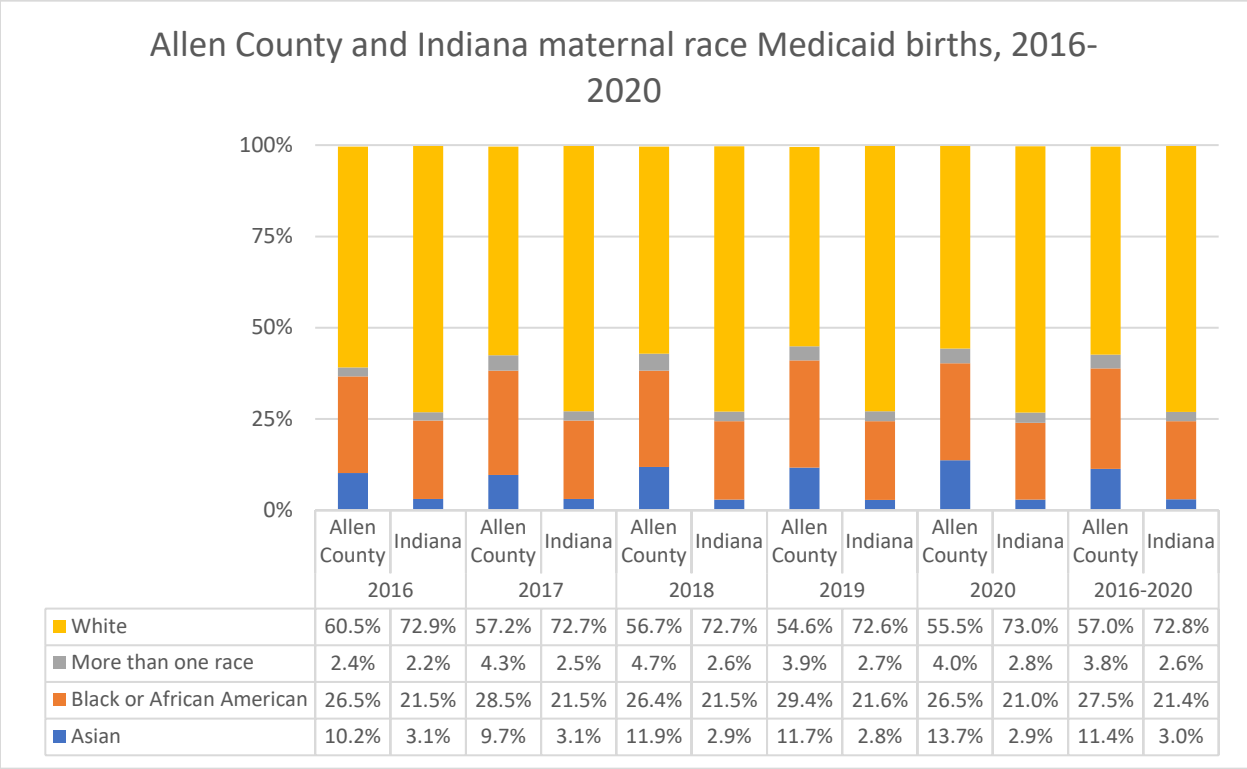
Chart 13: Local and state maternal race all births



	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
	2016		2017		2018		2019		2020		2016-2020	
White	77.4%	82.9%	77.4%	82.2%	77.4%	81.9%	77.4%	81.7%	77.4%	81.66%	77.36%	82.09%
More than one race	1.7%	1.6%	1.7%	1.7%	1.7%	1.9%	1.7%	2.0%	1.7%	2.06%	1.67%	1.87%
Black or African American	14.8%	12.3%	14.8%	12.7%	14.8%	13.0%	14.8%	13.1%	14.8%	13.05%	14.79%	12.83%
Asian	6.0%	3.0%	6.0%	3.2%	6.0%	2.9%	6.0%	2.9%	6.0%	3.02%	5.98%	3.00%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

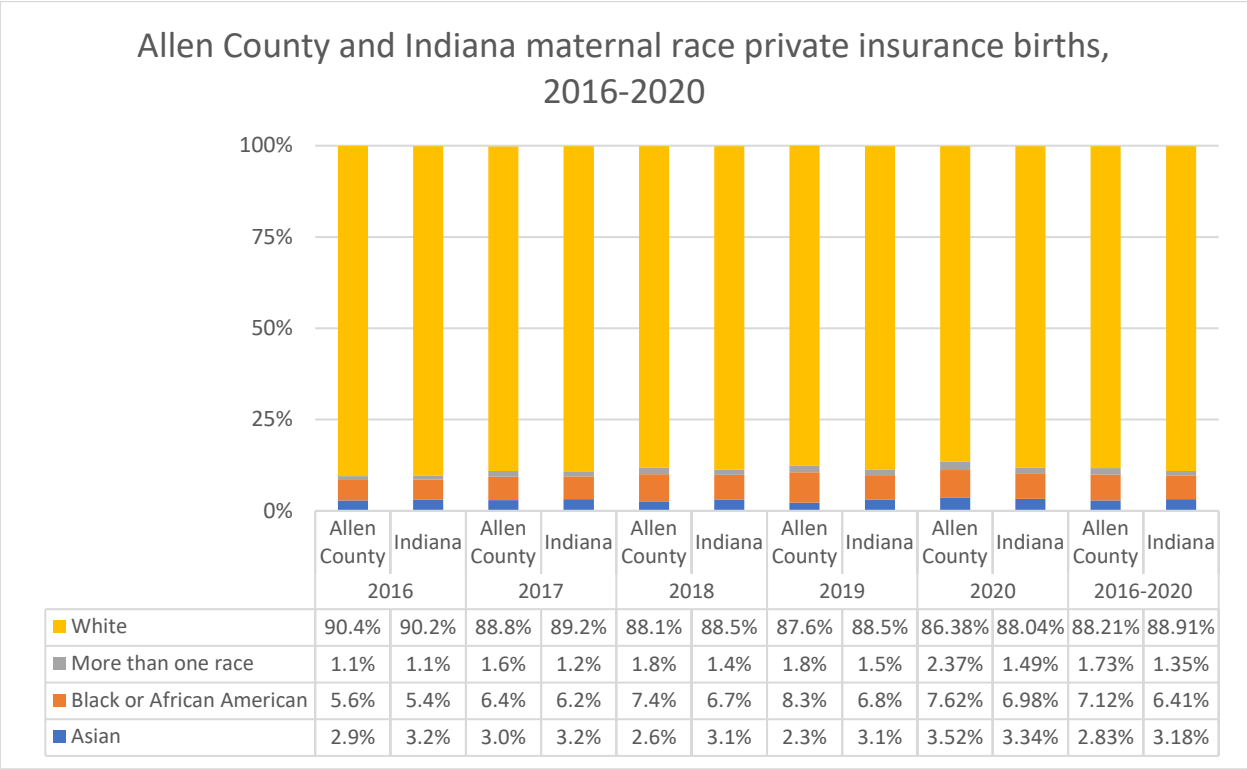
Chart 14: Local and state maternal race Medicaid births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
White	60.5%	72.9%	57.2%	72.7%	56.7%	72.7%	54.6%	72.6%	55.5%	73.0%	57.0%	72.8%
More than one race	2.4%	2.2%	4.3%	2.5%	4.7%	2.6%	3.9%	2.7%	4.0%	2.8%	3.8%	2.6%
Black or African American	26.5%	21.5%	28.5%	21.5%	26.4%	21.5%	29.4%	21.6%	26.5%	21.0%	27.5%	21.4%
Asian	10.2%	3.1%	9.7%	3.1%	11.9%	2.9%	11.7%	2.8%	13.7%	2.9%	11.4%	3.0%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Chart 15: Local and state maternal race private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
White	90.4%	90.2%	88.8%	89.2%	88.1%	88.5%	87.6%	88.5%	86.38%	88.04%	88.21%	88.91%
More than one race	1.1%	1.1%	1.6%	1.2%	1.8%	1.4%	1.8%	1.5%	2.37%	1.49%	1.73%	1.35%
Black or African American	5.6%	5.4%	6.4%	6.2%	7.4%	6.7%	8.3%	6.8%	7.62%	6.98%	7.12%	6.41%
Asian	2.9%	3.2%	3.0%	3.2%	2.6%	3.1%	2.3%	3.1%	3.52%	3.34%	2.83%	3.18%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment source.

Table 1: Difference between local and state maternal race all births

	2016	2017	2018	2019	2020	2016-2020
Asian	2.97%	2.83%	3.03%	3.09%	2.95%	2.97%
Black or African American	2.52%	2.10%	1.79%	1.65%	1.75%	1.96%
More than one race	0.08%	-0.05%	-0.25%	-0.37%	-0.39%	-0.20%
White	-5.54%	-4.87%	-4.54%	-4.35%	-4.29%	-4.73%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 2: Difference between local and state maternal race Medicaid births

	2016	2017	2018	2019	2020	2016-2020
Asian	7.08%	6.55%	8.97%	8.81%	10.82%	8.38%
Black or African American	4.98%	7.06%	4.88%	7.83%	5.54%	6.04%
More than one race	0.22%	1.77%	2.02%	1.16%	1.15%	1.26%
White	-12.43%	-15.51%	-15.98%	-17.99%	-17.43%	-15.78%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 3: Difference between local and state maternal race private insurance births

	2016	2017	2018	2019	2020	2016-2020
Asian	-0.30%	-0.25%	-0.55%	-0.81%	0.18%	-0.35%
Black or African American	0.23%	0.13%	0.69%	1.59%	0.65%	0.71%
More than one race	-0.05%	0.42%	0.32%	0.26%	0.88%	0.38%
White	0.24%	-0.40%	-0.47%	-0.88%	-1.66%	-0.70%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Allen County was more likely to have mothers identifying of a race other than white compared to Indiana.
- Allen County's Medicaid births were more likely than the state to show births to mother identifying as Asian, Black or African American, or more than one race.
- Mothers identifying as Asian in Allen County were underrepresented in private insurance births during this five-year window.

Mother's Hispanic origin

As noted in the maternal race section, the CDC collects information about the parents' race separately from Hispanic origin. The mother's worksheet offers the following choices about her Hispanic origin:[11]

- No, not Spanish/Hispanic/Latina
- Mexican, Mexican American, Chicana
- Puerto Rican

[11] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 3.

- Cuban
- Other Spanish/Hispanic/Latina (e.g. Spaniard, Salvadoran, Dominican, Colombian) and list other

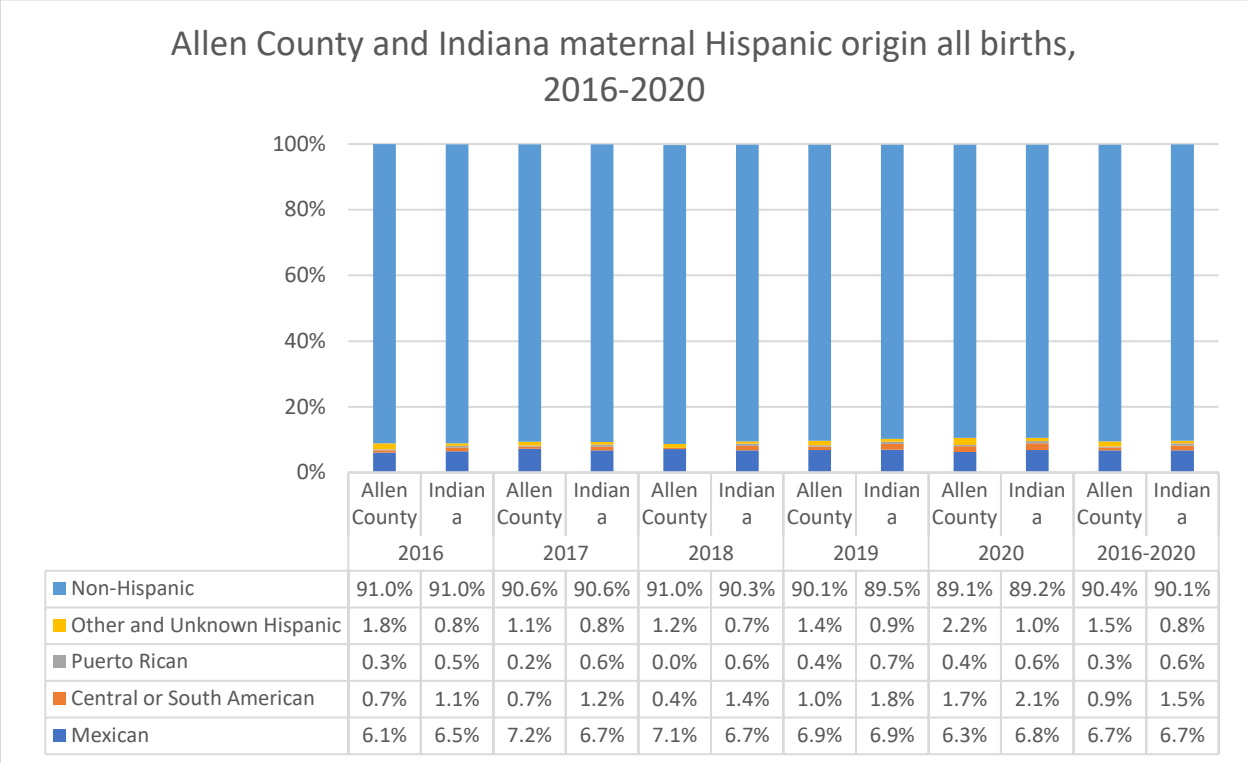
The CDC then reports out the following categories for the expanded Hispanic origin category:[12]

- Mexican
- Puerto Rican
- Cuban
- Central and South American
- Dominican
- Other and unknown Hispanic
- Unknown/not stated

Starting in 2018, the CDC started reporting Dominican as a separate category; previously it was part of the other/unknown category.[13] Since Cuban, Dominican and unknown/not stated totals were not reported for Allen County, CRI left Indiana's numbers out of the Hispanic origin charts.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

Chart 16: Local and state maternal Hispanic origin all births

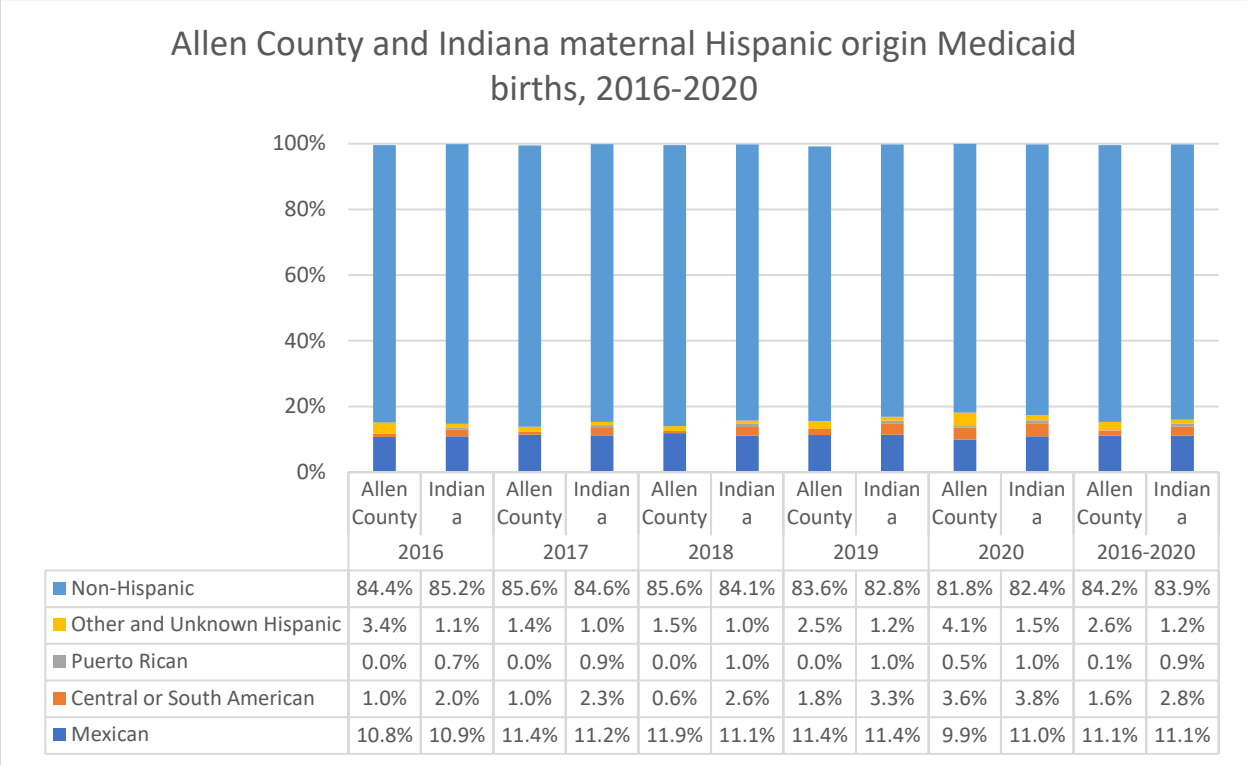


	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Non-Hispanic	91.0%	91.0%	90.6%	90.6%	91.0%	90.3%	90.1%	89.5%	89.1%	89.2%	90.4%	90.1%
Other and Unknown Hispanic	1.8%	0.8%	1.1%	0.8%	1.2%	0.7%	1.4%	0.9%	2.2%	1.0%	1.5%	0.8%
Puerto Rican	0.3%	0.5%	0.2%	0.6%	0.0%	0.6%	0.4%	0.7%	0.4%	0.6%	0.3%	0.6%
Central or South American	0.7%	1.1%	0.7%	1.2%	0.4%	1.4%	1.0%	1.8%	1.7%	2.1%	0.9%	1.5%
Mexican	6.1%	6.5%	7.2%	6.7%	7.1%	6.7%	6.9%	6.9%	6.3%	6.8%	6.7%	6.7%

[12] User Guide to the 2020 Natality Public Use File, CDC, p. 53.
[13] Ibid.

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020; excludes Indiana's reported Cuban, Dominican and unknown/not stated share

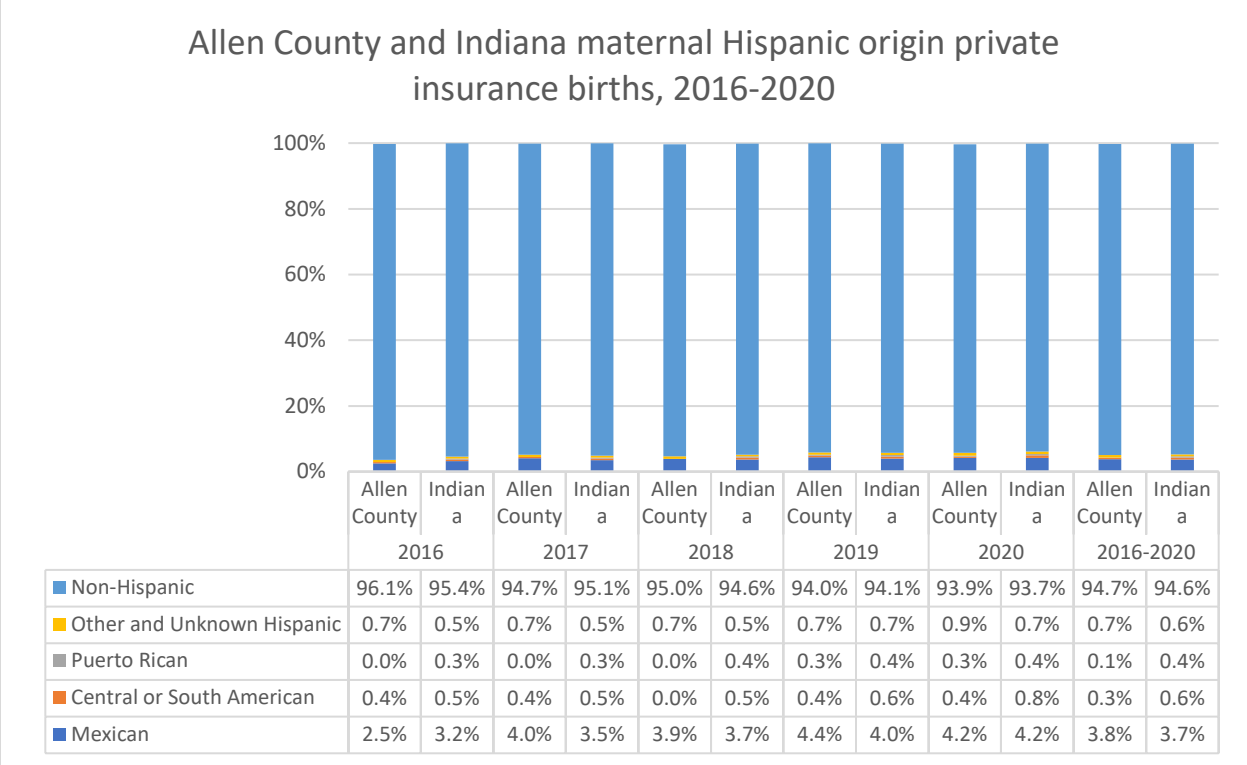
Chart 17: Local and state maternal Hispanic origin Medicaid births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Non-Hispanic	84.4%	85.2%	85.6%	84.6%	85.6%	84.1%	83.6%	82.8%	81.8%	82.4%	84.2%	83.9%
Other and Unknown Hispanic	3.4%	1.1%	1.4%	1.0%	1.5%	1.0%	2.5%	1.2%	4.1%	1.5%	2.6%	1.2%
Puerto Rican	0.0%	0.7%	0.0%	0.9%	0.0%	1.0%	0.0%	1.0%	0.5%	1.0%	0.1%	0.9%
Central or South American	1.0%	2.0%	1.0%	2.3%	0.6%	2.6%	1.8%	3.3%	3.6%	3.8%	1.6%	2.8%
Mexican	10.8%	10.9%	11.4%	11.2%	11.9%	11.1%	11.4%	11.4%	9.9%	11.0%	11.1%	11.1%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Chart 18: Local and state maternal Hispanic origin private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Non-Hispanic	96.1%	95.4%	94.7%	95.1%	95.0%	94.6%	94.0%	94.1%	93.9%	93.7%	94.7%	94.6%
Other and Unknown Hispanic	0.7%	0.5%	0.7%	0.5%	0.7%	0.5%	0.7%	0.7%	0.9%	0.7%	0.7%	0.6%
Puerto Rican	0.0%	0.3%	0.0%	0.3%	0.0%	0.4%	0.3%	0.4%	0.3%	0.4%	0.1%	0.4%
Central or South American	0.4%	0.5%	0.4%	0.5%	0.0%	0.5%	0.4%	0.6%	0.4%	0.8%	0.3%	0.6%
Mexican	2.5%	3.2%	4.0%	3.5%	3.9%	3.7%	4.4%	4.0%	4.2%	4.2%	3.8%	3.7%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment.

Table 4: Difference between local and state maternal Hispanic origin all births

	2016	2017	2018	2019	2020	2016-2020
Mexican	-0.42%	0.52%	0.38%	-0.06%	-0.55%	-0.02%
Central or South American	-0.46%	-0.53%	-0.98%	-0.74%	-0.34%	-0.61%
Puerto Rican	-0.19%	-0.31%	-0.63%	-0.24%	-0.23%	-0.32%
Other and Unknown Hispanic	1.09%	0.38%	0.48%	0.51%	1.11%	0.71%
Non-Hispanic	0.03%	-0.07%	0.65%	0.55%	-0.02%	0.22%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 5: Difference between local and state maternal Hispanic origin Medicaid births

	2016	2017	2018	2019	2020	2016-2020
Mexican	-0.15%	0.22%	0.81%	-0.10%	-1.04%	-0.04%
Central or South American	-1.00%	-1.27%	-2.01%	-1.51%	-0.19%	-1.20%
Puerto Rican	-0.70%	-0.86%	-0.98%	-0.97%	-0.50%	-0.80%
Other and Unknown Hispanic	2.27%	0.39%	0.54%	1.27%	2.54%	1.39%
Non-Hispanic	-0.77%	1.07%	1.48%	0.77%	-0.60%	0.39%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 6: Difference between local and state maternal Hispanic origin private insurance births

	2016	2017	2018	2019	2020	2016-2020

Mexican	-0.69%	0.54%	0.16%	0.39%	-0.04%	0.10%
Central or South American	-0.05%	-0.06%	-0.55%	-0.17%	-0.39%	-0.24%
Puerto Rican	-0.34%	-0.33%	-0.42%	-0.11%	-0.05%	-0.24%
Other and Unknown Hispanic	0.19%	0.11%	0.24%	0.04%	0.15%	0.15%
Non-Hispanic	0.73%	-0.37%	0.32%	-0.09%	0.16%	0.11%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Allen County's maternal Hispanic origin percentages largely matched the state across the three payment sources studied.
- Just less than 10% of births in Allen County were to women with Hispanic origin, but more than 15% of Medicaid births and just under 5% of private insurance births were to women identifying as having Hispanic origin.
- The vast majority of mothers with Hispanic origin in both Allen County and Indiana identified as Mexican.

Mother's age

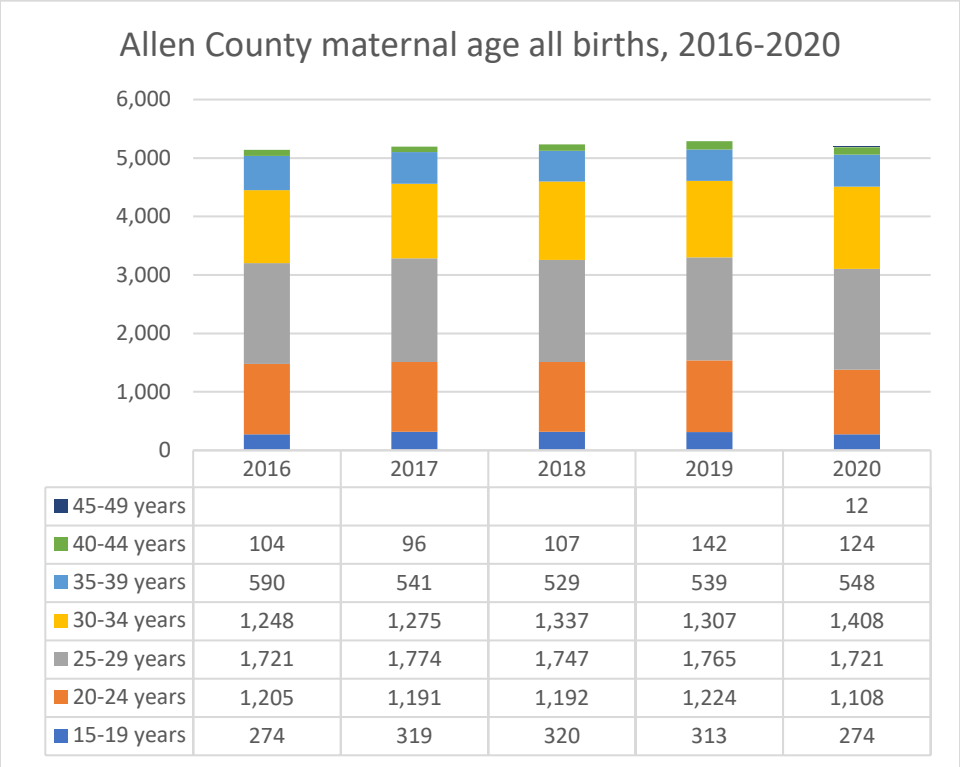
CRI used the following CDC categories to report the mother's age:

- Under 15 years
- 15-19 years
- 20-24 years
- 25-29 years
- 30-34 years
- 35-39 years
- 40-44 years
- 45-49 years
- 50 years and over

Allen County did not have reported data for any births for mothers younger than 15 and older than 49, and no data for Medicaid and private insurance births older than 44.

The CDC did not report total number of births for this measure by payment category so CRI is providing an annual count by all births, Medicaid births, and private insurance births for Allen County and Indiana by maternal age cohorts.

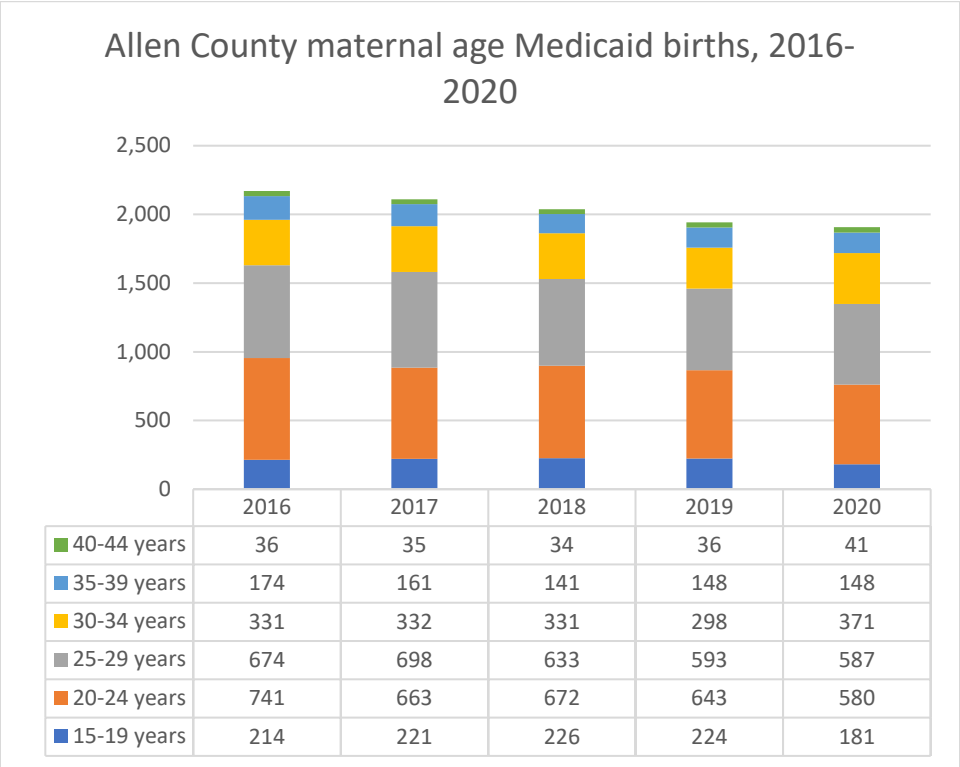
Chart 19: Local maternal age all births



	2016	2017	2018	2019	2020
45-49 years					12
40-44 years	104	96	107	142	124
35-39 years	590	541	529	539	548
30-34 years	1,248	1,275	1,337	1,307	1,408
25-29 years	1,721	1,774	1,747	1,765	1,721
20-24 years	1,205	1,191	1,192	1,224	1,108
15-19 years	274	319	320	313	274

Source: CDC Wonder Natality Data Expanded, 2016-2020

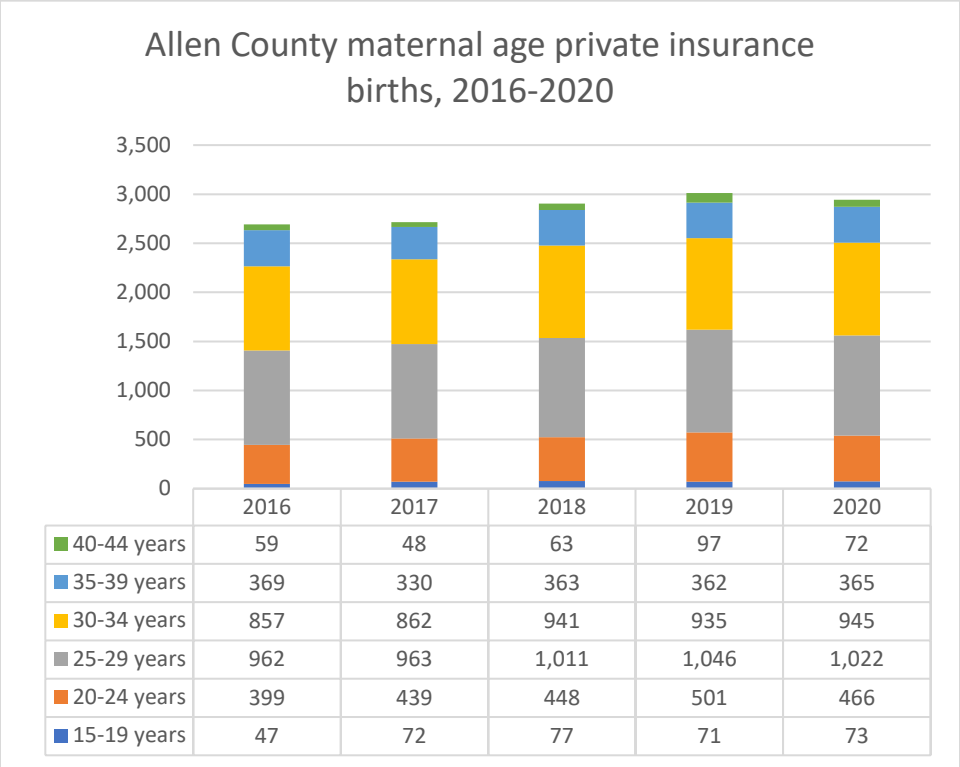
Chart 20: Local maternal age Medicaid births



	2016	2017	2018	2019	2020
40-44 years	36	35	34	36	41
35-39 years	174	161	141	148	148
30-34 years	331	332	331	298	371
25-29 years	674	698	633	593	587
20-24 years	741	663	672	643	580
15-19 years	214	221	226	224	181

Source: CDC Wonder Natality Data Expanded, 2016-2020

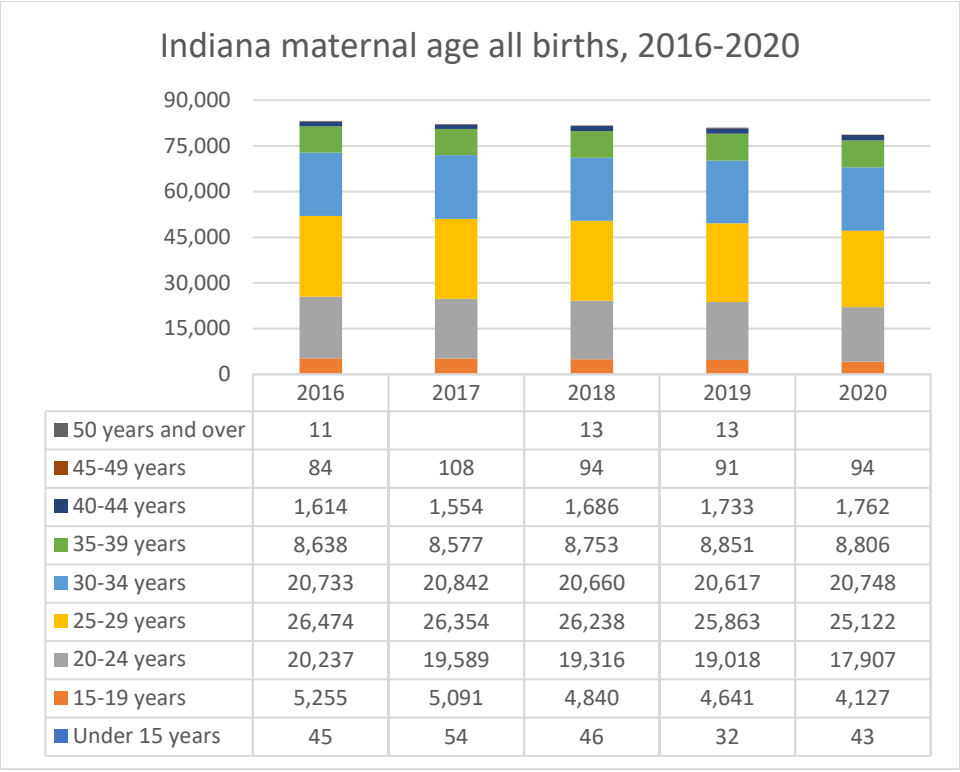
Chart 21: Local maternal age private insurance births



	2016	2017	2018	2019	2020
40-44 years	59	48	63	97	72
35-39 years	369	330	363	362	365
30-34 years	857	862	941	935	945
25-29 years	962	963	1,011	1,046	1,022
20-24 years	399	439	448	501	466
15-19 years	47	72	77	71	73

Source: CDC Wonder Natality Data Expanded, 2016-2020

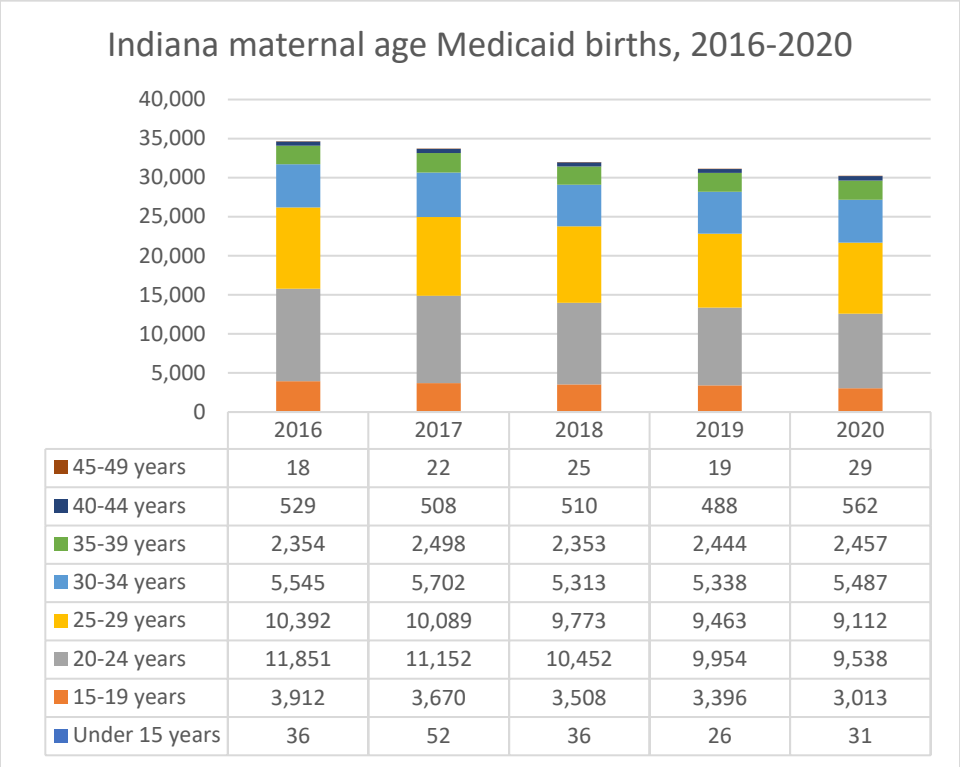
Chart 22: State maternal age all births



	2016	2017	2018	2019	2020
50 years and over	11		13	13	
45-49 years	84	108	94	91	94
40-44 years	1,614	1,554	1,686	1,733	1,762
35-39 years	8,638	8,577	8,753	8,851	8,806
30-34 years	20,733	20,842	20,660	20,617	20,748
25-29 years	26,474	26,354	26,238	25,863	25,122
20-24 years	20,237	19,589	19,316	19,018	17,907
15-19 years	5,255	5,091	4,840	4,641	4,127
Under 15 years	45	54	46	32	43

Source: CDC Wonder Natality Data Expanded, 2016-2020

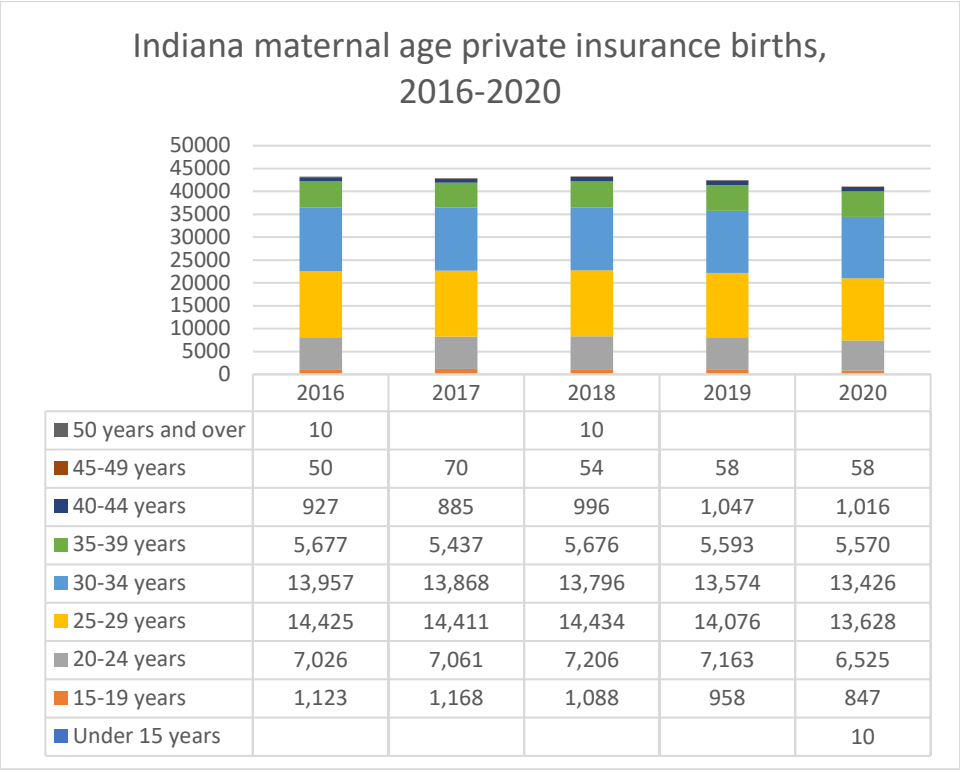
Chart 23: State maternal age Medicaid births



	2016	2017	2018	2019	2020
45-49 years	18	22	25	19	29
40-44 years	529	508	510	488	562
35-39 years	2,354	2,498	2,353	2,444	2,457
30-34 years	5,545	5,702	5,313	5,338	5,487
25-29 years	10,392	10,089	9,773	9,463	9,112
20-24 years	11,851	11,152	10,452	9,954	9,538
15-19 years	3,912	3,670	3,508	3,396	3,013
Under 15 years	36	52	36	26	31

Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 24: State maternal age private insurance births



	2016	2017	2018	2019	2020
50 years and over	10		10		
45-49 years	50	70	54	58	58
40-44 years	927	885	996	1,047	1,016
35-39 years	5,677	5,437	5,676	5,593	5,570
30-34 years	13,957	13,868	13,796	13,574	13,426
25-29 years	14,425	14,411	14,434	14,076	13,628
20-24 years	7,026	7,061	7,206	7,163	6,525
15-19 years	1,123	1,168	1,088	958	847
Under 15 years					10

Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- During the time period studied, the most common age cohort for all and private insurance births in Allen County and Indiana was 25 to 29 years while it was 20 to 24 years for Medicaid births.
- The second most common age group for all and private insurance births in Allen County and Indiana was 30 to 34 while it was 25 to 29 years for Medicaid births.

Mother's education level

Like much of the other demographic information, the education level of the infant's parents come from the mother's worksheet.[14] It asks for the highest level completed at the time of birth. In the event the parent is currently enrolled in school, the mother is to list the highest level completed at the time of the birth.

The CDC uses the following categories for educational attainment, which are consistent with the Census Bureau's American Community Survey:

- 8th grade or less
- 9th - 12th grade, no diploma
- High school graduate or GED completed
- Some college credit, but no degree
- Associate degree, includes AA, AS
- Bachelor's degree, includes BA, AB, BS
- Master's degree, includes MA, MS, MEng, MEd, MSW, MBA
- Doctorate, includes PhD and EdD, or professional degree, includes MD, DDS, DVM, LLB, JD

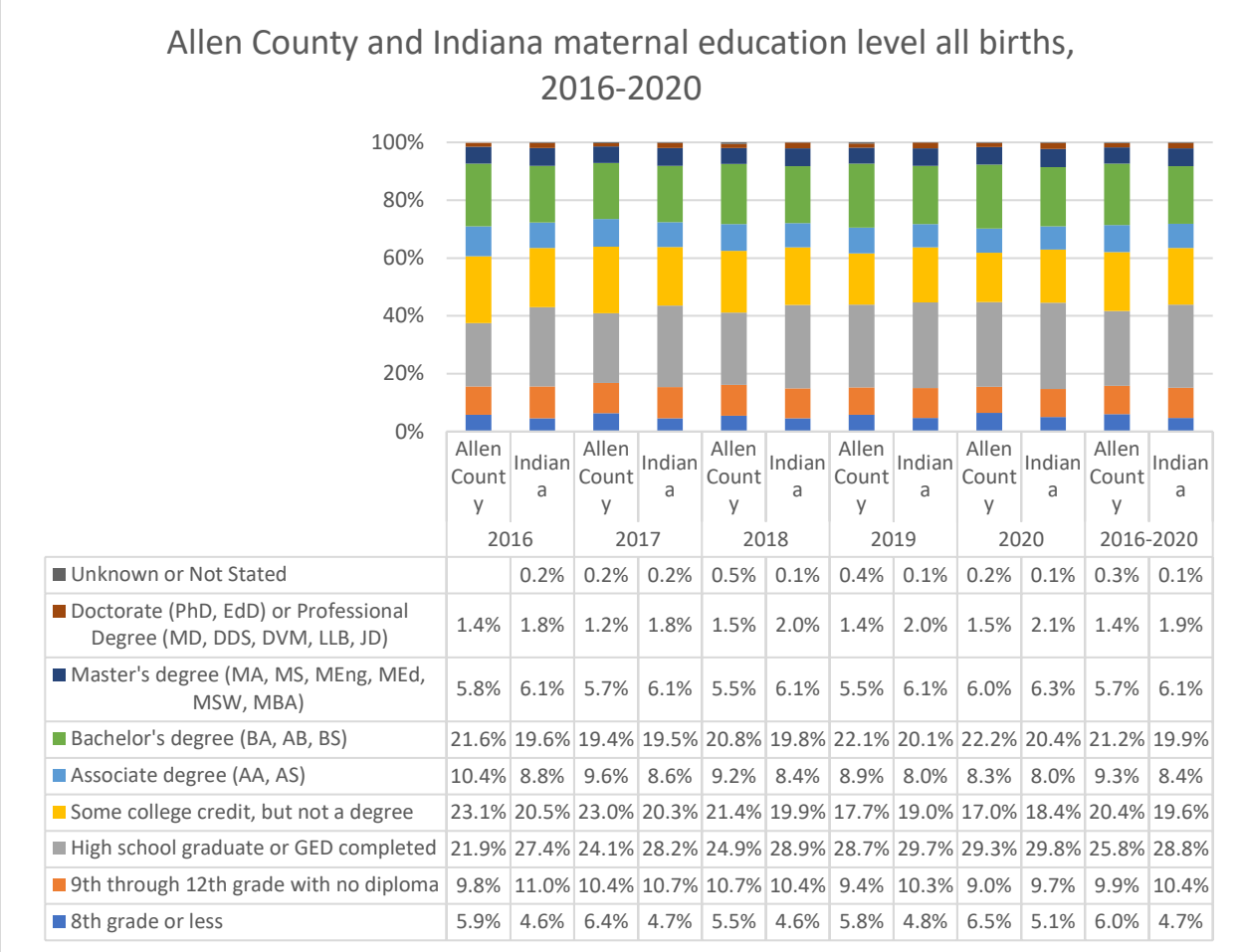
Like other federal data sources including the U.S. Census Bureau, the CDC does not ask about industry-recognized certificates or certifications.

CRI cautions against comparing the parents' education levels here to reported educational attainment levels from other data sources. The Census Bureau's most commonly used educational attainment metric reflects adults ages 25 and older to better reflect the age by which many adults have completed their formal education. As identified in the mother's age section, many women, especially those with Medicaid, are likely to be at an age before they may have completed their formal education, especially if they are pursuing post-secondary education options like a bachelor's degree or an advanced degree like a master's or doctorate.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

[14] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p. 2 and p. 6.

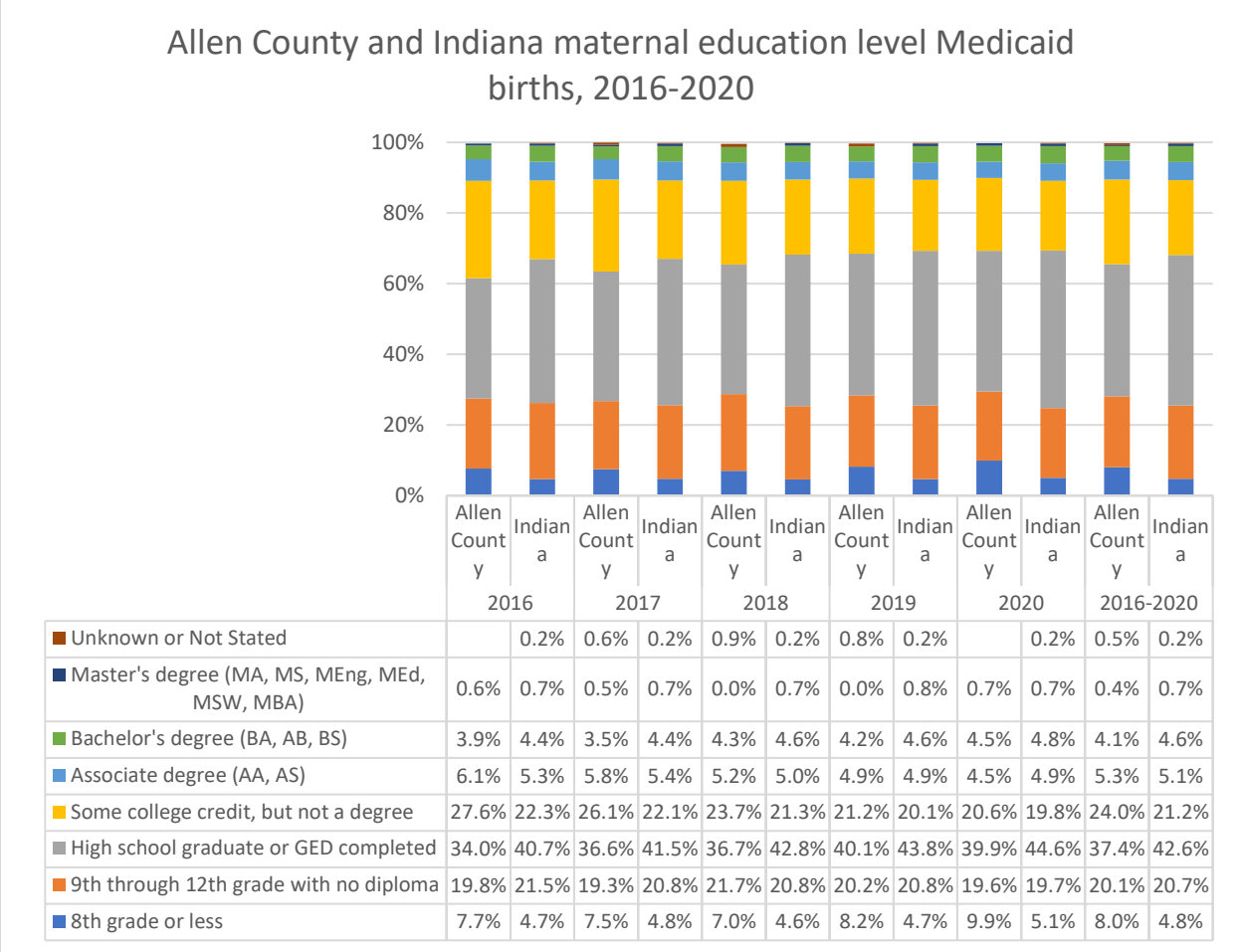
Chart 25: Local and state maternal education level all births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
Unknown or Not Stated		0.2%	0.2%	0.2%	0.5%	0.1%	0.4%	0.1%	0.2%	0.1%	0.3%	0.1%
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	1.4%	1.8%	1.2%	1.8%	1.5%	2.0%	1.4%	2.0%	1.5%	2.1%	1.4%	1.9%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	5.8%	6.1%	5.7%	6.1%	5.5%	6.1%	5.5%	6.1%	6.0%	6.3%	5.7%	6.1%
Bachelor's degree (BA, AB, BS)	21.6%	19.6%	19.4%	19.5%	20.8%	19.8%	22.1%	20.1%	22.2%	20.4%	21.2%	19.9%
Associate degree (AA, AS)	10.4%	8.8%	9.6%	8.6%	9.2%	8.4%	8.9%	8.0%	8.3%	8.0%	9.3%	8.4%
Some college credit, but not a degree	23.1%	20.5%	23.0%	20.3%	21.4%	19.9%	17.7%	19.0%	17.0%	18.4%	20.4%	19.6%
High school graduate or GED completed	21.9%	27.4%	24.1%	28.2%	24.9%	28.9%	28.7%	29.7%	29.3%	29.8%	25.8%	28.8%
9th through 12th grade with no diploma	9.8%	11.0%	10.4%	10.7%	10.7%	10.4%	9.4%	10.3%	9.0%	9.7%	9.9%	10.4%
8th grade or less	5.9%	4.6%	6.4%	4.7%	5.5%	4.6%	5.8%	4.8%	6.5%	5.1%	6.0%	4.7%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

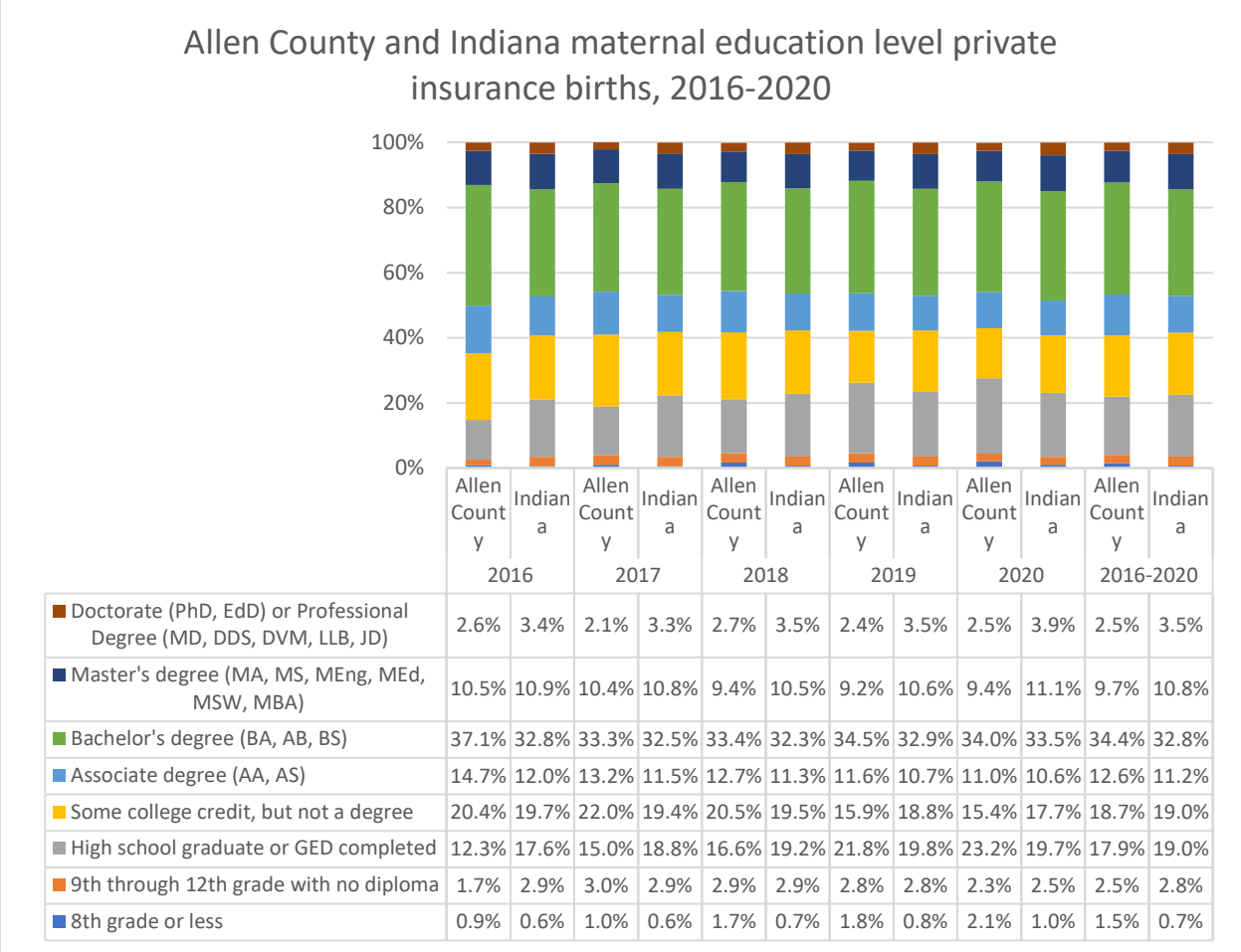
Chart 26: Local and state maternal education level Medicaid births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
Unknown or Not Stated		0.2%	0.6%	0.2%	0.9%	0.2%	0.8%	0.2%		0.2%	0.5%	0.2%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	0.6%	0.7%	0.5%	0.7%	0.0%	0.7%	0.0%	0.8%	0.7%	0.7%	0.4%	0.7%
Bachelor's degree (BA, AB, BS)	3.9%	4.4%	3.5%	4.4%	4.3%	4.6%	4.2%	4.6%	4.5%	4.8%	4.1%	4.6%
Associate degree (AA, AS)	6.1%	5.3%	5.8%	5.4%	5.2%	5.0%	4.9%	4.9%	4.5%	4.9%	5.3%	5.1%
Some college credit, but not a degree	27.6%	22.3%	26.1%	22.1%	23.7%	21.3%	21.2%	20.1%	20.6%	19.8%	24.0%	21.2%
High school graduate or GED completed	34.0%	40.7%	36.6%	41.5%	36.7%	42.8%	40.1%	43.8%	39.9%	44.6%	37.4%	42.6%
9th through 12th grade with no diploma	19.8%	21.5%	19.3%	20.8%	21.7%	20.8%	20.2%	20.8%	19.6%	19.7%	20.1%	20.7%
8th grade or less	7.7%	4.7%	7.5%	4.8%	7.0%	4.6%	8.2%	4.7%	9.9%	5.1%	8.0%	4.8%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Chart 27: Local and state maternal education level private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	2.6%	3.4%	2.1%	3.3%	2.7%	3.5%	2.4%	3.5%	2.5%	3.9%	2.5%	3.5%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	10.5%	10.9%	10.4%	10.8%	9.4%	10.5%	9.2%	10.6%	9.4%	11.1%	9.7%	10.8%
Bachelor's degree (BA, AB, BS)	37.1%	32.8%	33.3%	32.5%	33.4%	32.3%	34.5%	32.9%	34.0%	33.5%	34.4%	32.8%
Associate degree (AA, AS)	14.7%	12.0%	13.2%	11.5%	12.7%	11.3%	11.6%	10.7%	11.0%	10.6%	12.6%	11.2%
Some college credit, but not a degree	20.4%	19.7%	22.0%	19.4%	20.5%	19.5%	15.9%	18.8%	15.4%	17.7%	18.7%	19.0%
High school graduate or GED completed	12.3%	17.6%	15.0%	18.8%	16.6%	19.2%	21.8%	19.8%	23.2%	19.7%	17.9%	19.0%
9th through 12th grade with no diploma	1.7%	2.9%	3.0%	2.9%	2.9%	2.9%	2.8%	2.8%	2.3%	2.5%	2.5%	2.8%
8th grade or less	0.9%	0.6%	1.0%	0.6%	1.7%	0.7%	1.8%	0.8%	2.1%	1.0%	1.5%	0.7%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment.

Table 7: Difference between local and state maternal education level all births

	2016	2017	2018	2019	2020	2016-2021
8th grade or less	1.28%	1.72%	0.90%	1.04%	1.41%	1.27%
9th through 12th grade with no diploma	-1.23%	-0.23%	0.31%	-0.85%	-0.66%	-0.54%
High school graduate or GED completed	-5.54%	-4.10%	-3.91%	-0.97%	-0.51%	-2.97%
Some college credit, but not a degree	2.64%	2.75%	1.51%	-1.32%	-1.39%	0.81%
Associate degree (AA, AS)	1.57%	1.00%	0.86%	0.91%	0.34%	0.93%
Bachelor's degree (BA, AB, BS)	2.05%	-0.16%	1.03%	2.02%	1.74%	1.34%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	-0.30%	-0.38%	-0.60%	-0.57%	-0.33%	-0.44%

Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	-0.47%	-0.68%	-0.47%	-0.54%	-0.65%	-0.56%
Unknown or Not Stated		0.08%	0.37%	0.27%	0.06%	*0.13%*

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 8: Difference between local and state maternal education level Medicaid births

	2016	2017	2018	2019	2020	2016-2021
8th grade or less	2.97%	2.68%	2.49%	3.44%	4.79%	3.24%
9th through 12th grade with no diploma	-1.72%	-1.49%	0.95%	-0.51%	-0.14%	-0.61%
High school graduate or GED completed	-6.63%	-4.82%	-6.18%	-3.71%	-4.72%	-5.24%
Some college credit, but not a degree	5.29%	3.96%	2.39%	1.10%	0.87%	2.80%
Associate degree (AA, AS)	0.74%	0.35%	0.26%	0.00%	-0.40%	0.21%
Bachelor's degree (BA, AB, BS)	-0.51%	-0.83%	-0.31%	-0.40%	-0.25%	-0.47%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	-0.11%	-0.16%			-0.07%	*-0.35%*
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)		0.40%	0.76%	0.60%	-0.21%	*0.26%*
Unknown or Not Stated	2.97%	2.68%	2.49%	3.44%	4.79%	3.24%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 9: Difference between local and state maternal education level private insurance births

	2016	2017	2018	2019	2020	2016-2021
8th grade or less	0.29%	0.39%	0.98%	0.98%	1.15%	0.78%
9th through 12th grade with no diploma	-1.21%	0.07%	-0.01%	-0.08%	-0.22%	-0.29%
High school graduate or GED completed	-5.28%	-3.81%	-2.54%	1.95%	3.52%	-1.06%
Some college credit, but not a degree	0.67%	2.57%	1.02%	-2.92%	-2.36%	-0.32%
Associate degree (AA, AS)	2.62%	1.68%	1.34%	0.91%	0.44%	1.34%
Bachelor's degree (BA, AB, BS)	4.24%	0.80%	1.13%	1.59%	0.49%	1.63%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	-0.48%	-0.41%	-1.17%	-1.38%	-1.72%	-1.05%
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	-0.82%	-1.20%	-0.84%	-1.11%	-1.35%	-1.06%
Unknown or Not Stated	0.29%	0.39%	0.98%	0.98%	1.15%	0.78%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

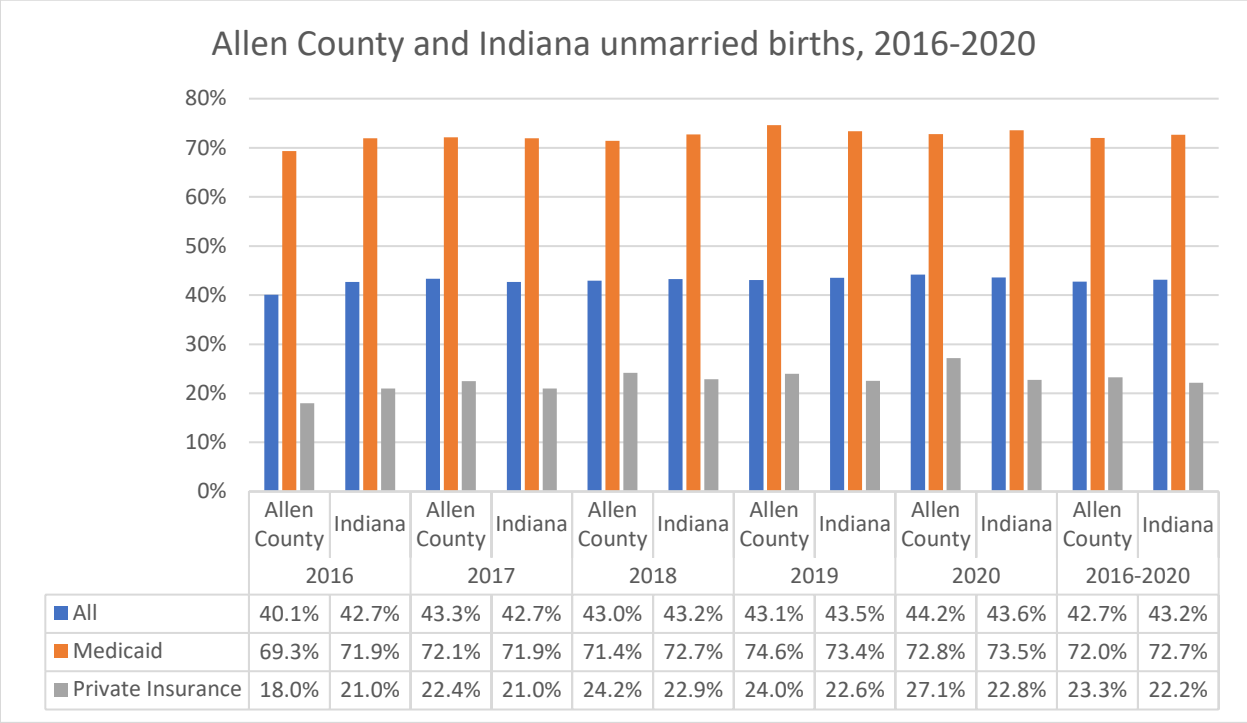
- Births with private insurance more likely to have a mother with a bachelor's degree or higher in Allen County and Indiana, which is consistent with the older maternal age of women who give birth with private insurance.
- Births with Medicaid were more likely to have a mother who did not graduate from high school at 28.1% and 25.5% for Allen County and Indiana respectively for the five years studied, while it was 15.9% and 15.1% for all births and 4% and 3.5% for private insurance births.
- Allen County's births were more likely to have a mother who completed 8th grade or less, some college, an associate's degree, or a bachelor's degree than the state.

Marital status

The CDC collects information about mothers' marital status during their pregnancy, asking if they were married when the child was conceived, at the time of birth, or at any point between conception and birth.[15] Marital status can also be imputed if the information is incomplete in the mother's record.[16]

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages. CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment.

Chart 28: Local and state unmarried births by percentage



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
All	40.1%	42.7%	43.3%	42.7%	43.0%	43.2%	43.1%	43.5%	44.2%	43.6%	42.7%	43.2%
Medicaid	69.3%	71.9%	72.1%	71.9%	71.4%	72.7%	74.6%	73.4%	72.8%	73.5%	72.0%	72.7%
Private Insurance	18.0%	21.0%	22.4%	21.0%	24.2%	22.9%	24.0%	22.6%	27.1%	22.8%	23.3%	22.2%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

[15] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 5.
[16] User Guide to the 2020 Natality Public Use File, CDC, p. 56.

Table 10: Difference between local and state unmarried births

	2016	2017	2018	2019	2020	2016-2020
All	-2.59%	0.63%	-0.28%	-0.45%	0.57%	-0.43%
Medicaid	-2.61%	0.17%	-1.33%	1.23%	-0.76%	-0.68%
Private Insurance	-2.97%	1.48%	1.29%	1.43%	4.39%	1.08%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- The vast majority of Medicaid births were to unmarried women in both Allen County and Indiana at 72% and 72.7% respectively in the five years studied.
    - For all births, it was 42.75 and 43.2% for local and state numbers. For private insurance, it was 23.3% and 22.2%.
- Allen County's total and Medicaid births were slightly more likely to be to unmarried women while the county's private insurance births were slightly more likely to be to married women.

Paternal acknowledgement

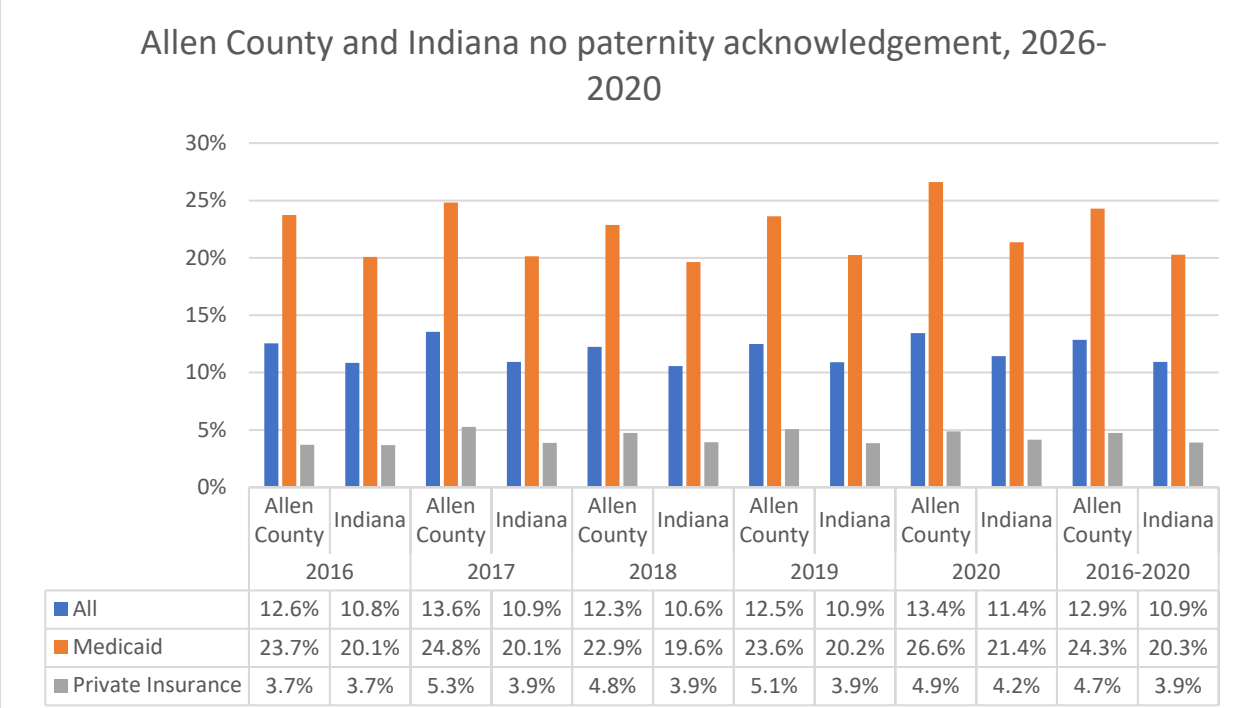
If the mother does not identify as being married while pregnant, the CDC asks about the state's paternity acknowledgement form.[17] If the mother is not married or the paternity acknowledgement form was not completed, the father will not be listed on the birth certificate.[18]

If the father is listed on the birth certificate, the mother is directed to provide demographic information about the father on her worksheet, some of which is included later in this report.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

[17] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 5.
[18] Ibid.

Chart 29: Local and state births with no paternity acknowledgement by percentage



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
All	12.6%	10.8%	13.6%	10.9%	12.3%	10.6%	12.5%	10.9%	13.4%	11.4%	12.9%	10.9%
Medicaid	23.7%	20.1%	24.8%	20.1%	22.9%	19.6%	23.6%	20.2%	26.6%	21.4%	24.3%	20.3%
Private Insurance	3.7%	3.7%	5.3%	3.9%	4.8%	3.9%	5.1%	3.9%	4.9%	4.2%	4.7%	3.9%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 11: Difference between local and state births without paternal acknowledgement

	2016	2017	2018	2019	2020	2016-2020
All	1.72%	2.64%	1.68%	1.59%	2.00%	1.93%
Medicaid	3.66%	4.70%	3.24%	3.38%	5.23%	4.03%
Private Insurance	0.04%	1.39%	0.83%	1.22%	0.72%	0.85%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Consistent with marital status trends, Medicaid births in Allen County and Indiana were more likely to report no paternity acknowledgement than all or private insurance births at 24.3% of Medicaid births compared to 12.9% for all births and 4.7% for private insurance births locally and 20.3%, 10.9% and 3.9% respectively at the state.
- Allen County consistently reported a larger share of births without paternity acknowledgement for all time periods and populations studied.

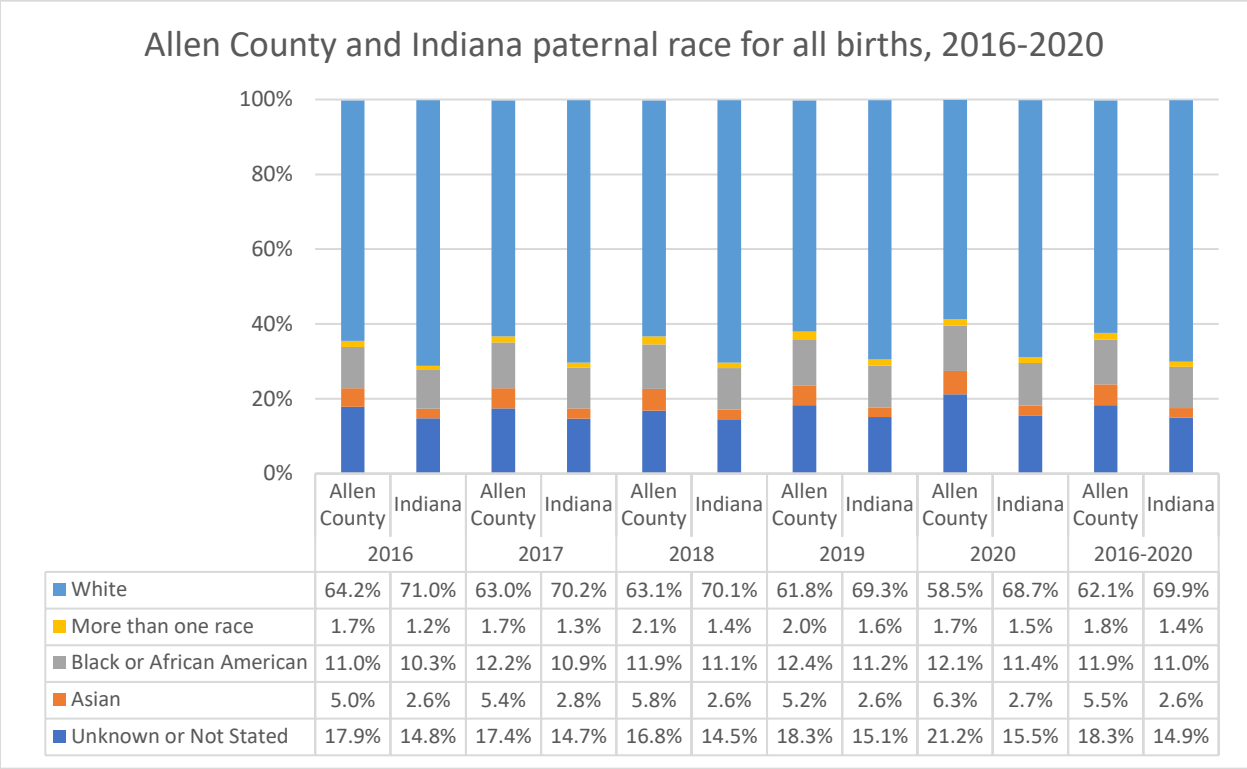
Father's race

The CDC uses the same categories and procedures for the father's race[19] as listed with the mother's race earlier in this report but also includes an unknown category.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

[19] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 7.

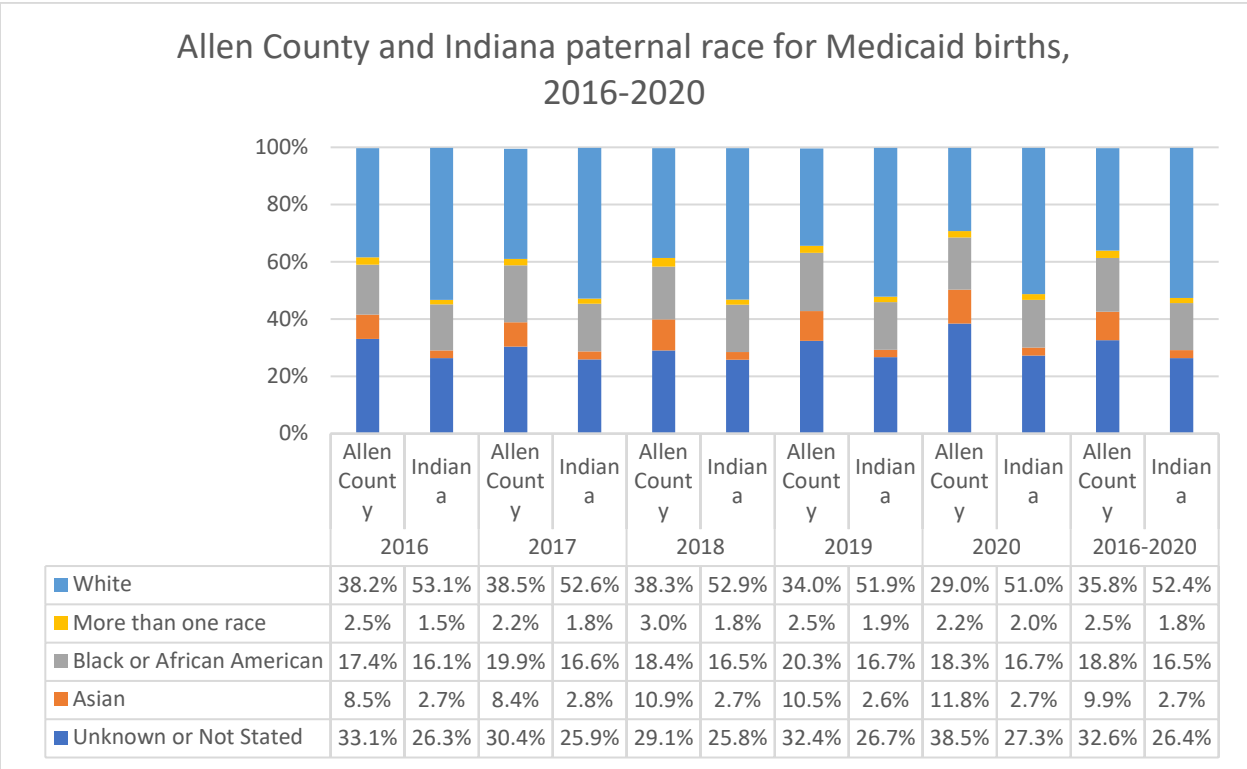
Chart 30: Local and state paternal race all births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
White	64.2%	71.0%	63.0%	70.2%	63.1%	70.1%	61.8%	69.3%	58.5%	68.7%	62.1%	69.9%
More than one race	1.7%	1.2%	1.7%	1.3%	2.1%	1.4%	2.0%	1.6%	1.7%	1.5%	1.8%	1.4%
Black or African American	11.0%	10.3%	12.2%	10.9%	11.9%	11.1%	12.4%	11.2%	12.1%	11.4%	11.9%	11.0%
Asian	5.0%	2.6%	5.4%	2.8%	5.8%	2.6%	5.2%	2.6%	6.3%	2.7%	5.5%	2.6%
Unknown or Not Stated	17.9%	14.8%	17.4%	14.7%	16.8%	14.5%	18.3%	15.1%	21.2%	15.5%	18.3%	14.9%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020; excludes Indiana's American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander share

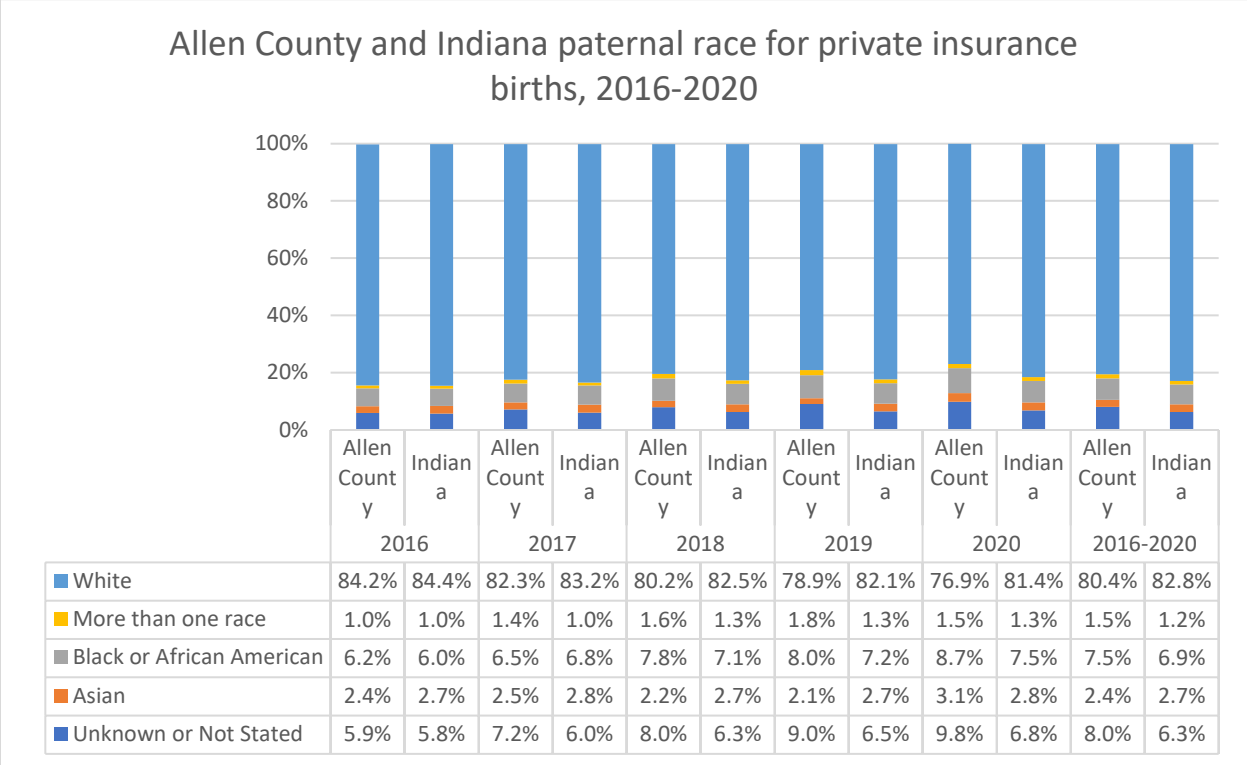
Chart 31: Local and state paternal race Medicaid births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
White	38.2%	53.1%	38.5%	52.6%	38.3%	52.9%	34.0%	51.9%	29.0%	51.0%	35.8%	52.4%
More than one race	2.5%	1.5%	2.2%	1.8%	3.0%	1.8%	2.5%	1.9%	2.2%	2.0%	2.5%	1.8%
Black or African American	17.4%	16.1%	19.9%	16.6%	18.4%	16.5%	20.3%	16.7%	18.3%	16.7%	18.8%	16.5%
Asian	8.5%	2.7%	8.4%	2.8%	10.9%	2.7%	10.5%	2.6%	11.8%	2.7%	9.9%	2.7%
Unknown or Not Stated	33.1%	26.3%	30.4%	25.9%	29.1%	25.8%	32.4%	26.7%	38.5%	27.3%	32.6%	26.4%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020; excludes Indiana's American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander share

Chart 32: Local and state paternal race private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
White	84.2%	84.4%	82.3%	83.2%	80.2%	82.5%	78.9%	82.1%	76.9%	81.4%	80.4%	82.8%
More than one race	1.0%	1.0%	1.4%	1.0%	1.6%	1.3%	1.8%	1.3%	1.5%	1.3%	1.5%	1.2%
Black or African American	6.2%	6.0%	6.5%	6.8%	7.8%	7.1%	8.0%	7.2%	8.7%	7.5%	7.5%	6.9%
Asian	2.4%	2.7%	2.5%	2.8%	2.2%	2.7%	2.1%	2.7%	3.1%	2.8%	2.4%	2.7%
Unknown or Not Stated	5.9%	5.8%	7.2%	6.0%	8.0%	6.3%	9.0%	6.5%	9.8%	6.8%	8.0%	6.3%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020; excludes Indiana's American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander share

CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment.

Table 12: Difference between local and state paternal race all births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	3.09%	2.76%	2.29%	3.19%	5.68%	3.40%
Asian	2.40%	2.60%	3.23%	2.67%	3.62%	2.90%
Black or African American	0.68%	1.33%	0.85%	1.16%	0.73%	0.96%
More than one race	0.46%	0.36%	0.70%	0.41%	0.19%	0.43%
White	-6.74%	-7.15%	-7.08%	-7.54%	-10.13%	-7.75%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 13: Difference between local and state paternal race Medicaid births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	6.79%	4.57%	3.26%	5.65%	11.14%	6.22%
Asian	5.73%	5.57%	8.15%	7.87%	9.08%	7.22%
Black or African American	1.29%	3.26%	1.82%	3.63%	1.60%	2.31%
More than one race	1.05%	0.46%	1.28%	0.55%	0.26%	0.73%
White	-14.95%	-14.11%	-14.59%	-17.90%	-22.04%	-16.60%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 14: Difference between local and state paternal race private insurance births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	0.17%	1.16%	1.68%	2.56%	3.00%	1.77%
Asian	-0.26%	-0.34%	-0.46%	-0.58%	0.26%	-0.28%
Black or African American	0.17%	-0.22%	0.71%	0.77%	1.21%	0.57%
More than one race	0.01%	0.40%	0.36%	0.49%	0.19%	0.30%
White	-0.24%	-0.98%	-2.31%	-3.28%	-4.55%	-2.39%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Father's race was more likely to be unstated/not known for Allen County births, regardless of payment source.
    - Almost one third of Medicaid births in Allen County during the time period studied has an unknown/not stated father's race, compared to just over one quarter for the state.
- Allen County's Medicaid births were more likely to have a father with a non-white race than Indiana, especially for fathers who were Asian.
- Fathers of infants born to private insurance were overwhelmingly listed as white in both geographies at 80.4% and 82.% for Allen County and Indiana respectively.
- Some of the disparity of the father's race in Allen County may be explained by the larger unknown/not stated share.

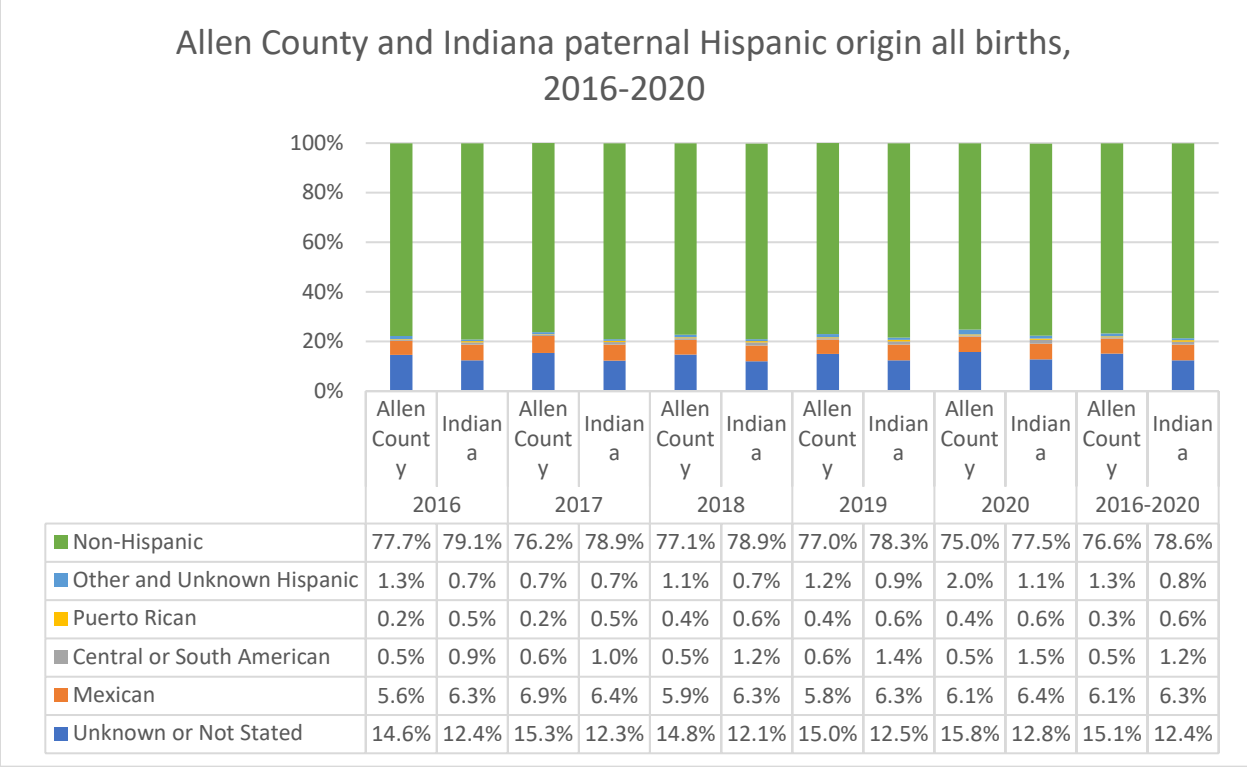
Father's Hispanic origin

The CDC uses the same categories and procedures for the father's Hispanic origin[20] as listed with the mother's Hispanic origin earlier in this report but also includes an unknown category.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

[20] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 7.

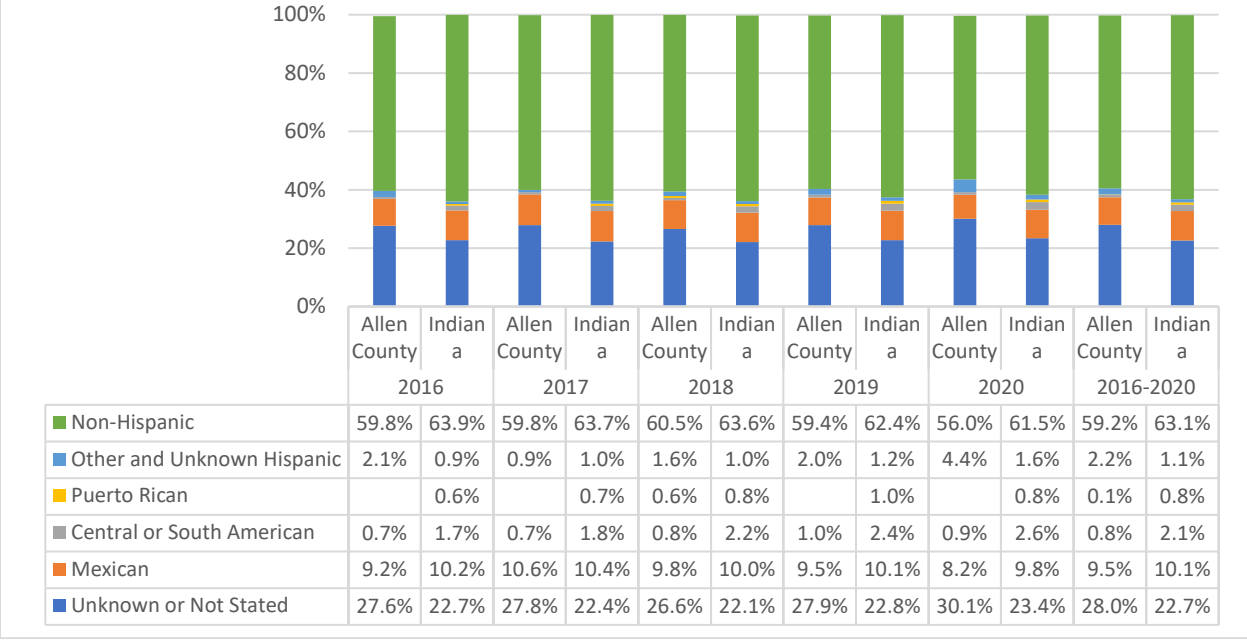
Chart 33: Local and state paternal Hispanic origin all births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
Non-Hispanic	77.7%	79.1%	76.2%	78.9%	77.1%	78.9%	77.0%	78.3%	75.0%	77.5%	76.6%	78.6%
Other and Unknown Hispanic	1.3%	0.7%	0.7%	0.7%	1.1%	0.7%	1.2%	0.9%	2.0%	1.1%	1.3%	0.8%
Puerto Rican	0.2%	0.5%	0.2%	0.5%	0.4%	0.6%	0.4%	0.6%	0.4%	0.6%	0.3%	0.6%
Central or South American	0.5%	0.9%	0.6%	1.0%	0.5%	1.2%	0.6%	1.4%	0.5%	1.5%	0.5%	1.2%
Mexican	5.6%	6.3%	6.9%	6.4%	5.9%	6.3%	5.8%	6.3%	6.1%	6.4%	6.1%	6.3%
Unknown or Not Stated	14.6%	12.4%	15.3%	12.3%	14.8%	12.1%	15.0%	12.5%	15.8%	12.8%	15.1%	12.4%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

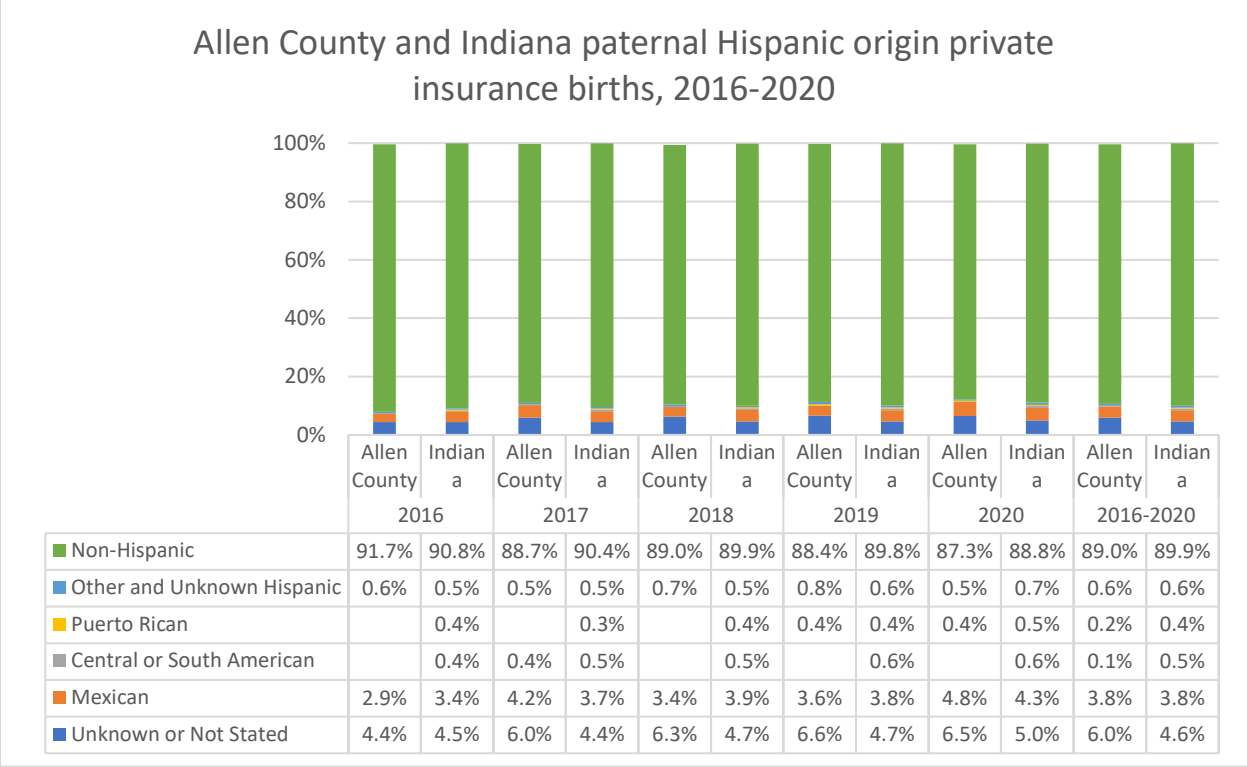
Chart 34: Local and state paternal Hispanic origin Medicaid births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
Non-Hispanic	59.8%	63.9%	59.8%	63.7%	60.5%	63.6%	59.4%	62.4%	56.0%	61.5%	59.2%	63.1%
Other and Unknown Hispanic	2.1%	0.9%	0.9%	1.0%	1.6%	1.0%	2.0%	1.2%	4.4%	1.6%	2.2%	1.1%
Puerto Rican		0.6%		0.7%	0.6%	0.8%		1.0%		0.8%	0.1%	0.8%
Central or South American	0.7%	1.7%	0.7%	1.8%	0.8%	2.2%	1.0%	2.4%	0.9%	2.6%	0.8%	2.1%
Mexican	9.2%	10.2%	10.6%	10.4%	9.8%	10.0%	9.5%	10.1%	8.2%	9.8%	9.5%	10.1%
Unknown or Not Stated	27.6%	22.7%	27.8%	22.4%	26.6%	22.1%	27.9%	22.8%	30.1%	23.4%	28.0%	22.7%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Chart 35: Local and state paternal Hispanic origin private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Non-Hispanic	91.7%	90.8%	88.7%	90.4%	89.0%	89.9%	88.4%	89.8%	87.3%	88.8%	89.0%	89.9%
Other and Unknown Hispanic	0.6%	0.5%	0.5%	0.5%	0.7%	0.5%	0.8%	0.6%	0.5%	0.7%	0.6%	0.6%
Puerto Rican		0.4%		0.3%		0.4%	0.4%	0.4%	0.4%	0.5%	0.2%	0.4%
Central or South American		0.4%	0.4%	0.5%		0.5%		0.6%		0.6%	0.1%	0.5%
Mexican	2.9%	3.4%	4.2%	3.7%	3.4%	3.9%	3.6%	3.8%	4.8%	4.3%	3.8%	3.8%
Unknown or Not Stated	4.4%	4.5%	6.0%	4.4%	6.3%	4.7%	6.6%	4.7%	6.5%	5.0%	6.0%	4.6%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment.

Table 15: Difference between local and state paternal Hispanic origin all births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	2.19%	3.07%	2.74%	2.56%	3.01%	2.72%
Mexican	-0.67%	0.49%	-0.37%	-0.46%	-0.24%	-0.25%
Central or South American	-0.48%	-0.47%	-0.70%	-0.80%	-0.96%	-0.68%
Puerto Rican	-0.25%	-0.28%	-0.19%	-0.29%	-0.25%	-0.25%
Other and Unknown Hispanic	0.59%	0.01%	0.44%	0.39%	0.91%	0.47%
Non-Hispanic	-1.39%	-2.76%	-1.82%	-1.26%	-2.44%	-1.94%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 16: Difference between local and state paternal Hispanic origin Medicaid births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	4.94%	5.49%	4.52%	5.10%	6.67%	5.32%
Mexican	-0.99%	0.22%	-0.24%	-0.63%	-1.58%	-0.63%
Central or South American	-0.96%	-1.05%	-1.36%	-1.45%	-1.71%	-1.29%
Puerto Rican			-0.24%			*-0.66%*
Other and Unknown Hispanic	1.21%	-0.15%	0.63%	0.81%	2.76%	1.03%
Non-Hispanic	-4.03%	-3.92%	-3.16%	-2.93%	-5.50%	-3.90%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 17: Difference between local and state paternal Hispanic origin private insurance births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	-0.04%	1.55%	1.63%	1.88%	1.48%	1.33%
Mexican	-0.50%	0.48%	-0.46%	-0.21%	0.56%	-0.01%
Central or South American		-0.14%				*-0.47%*
Puerto Rican				-0.02%	-0.01%	-0.23%
Other and Unknown Hispanic	0.06%	-0.06%	0.21%	0.15%	-0.21%	0.04%
Non-Hispanic	0.93%	-1.66%	-0.88%	-1.39%	-1.45%	-0.95%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Allen County's fathers for total births were less likely to listed as non-Hispanic but more likely to be listed as unknown/not stated. For the Hispanic categories, it was slightly lower than the state but less than 1% difference.
- Almost 90% of private insurance births were to fathers who were not identified as having Hispanic origin.
- For births identifying the father's Hispanic origin, Mexican was the most popular choice across geographies and payment sources.
- Some of the disparity of the father's Hispanic origin in Allen County may be explained by the larger unknown/not stated share.

Father's age

Father's age, if known, is calculated from the birthdate provided on the mother's worksheet.[21] If the father's age is less than 10, it is tabulated as "not stated" and reported in that category.[22]

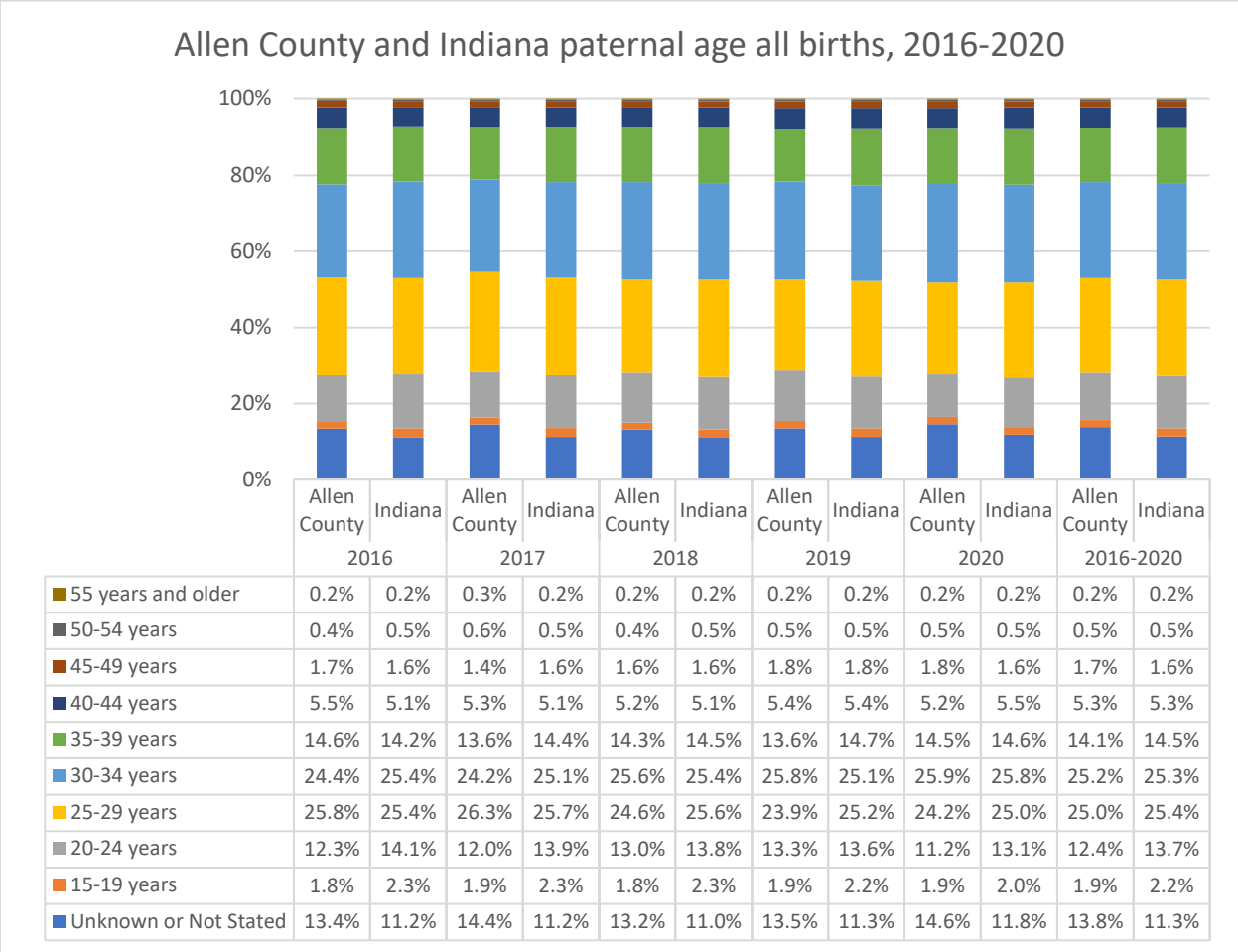
The father's age for Allen County and Indiana was reported in the following age cohorts:

- Unknown or Not Stated
- 15-19 years
- 20-24 years
- 25-29 years
- 30-34 years
- 35-39 years
- 40-44 years
- 45-49 years
- 50-54 years
- 55 years and older[23]

Since this measure could be calculated into percentages because of the reported category births and total births, CRI created an equitable comparison between local and state numbers using percentages.

[21] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p. 6.
[22] User Guide to the 2020 Natality Public Use File, CDC, p. 55.
[23] No Allen County data reported for Medicaid and private insurance births in this cohort

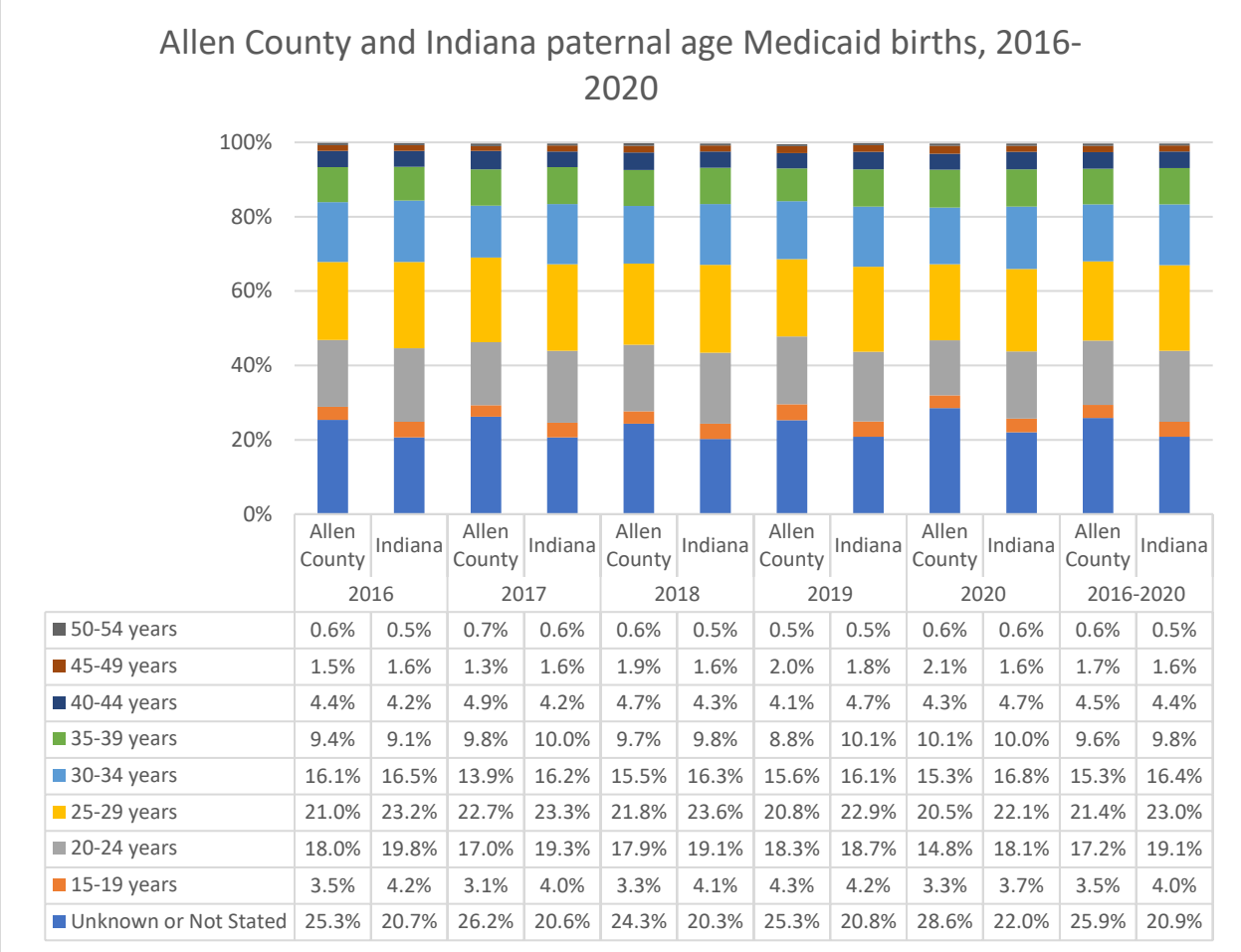
Chart 36: Local and state paternal age all births



	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
	2016		2017		2018		2019		2020		2016-2020	
55 years and older	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
50-54 years	0.4%	0.5%	0.6%	0.5%	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
45-49 years	1.7%	1.6%	1.4%	1.6%	1.6%	1.6%	1.8%	1.8%	1.8%	1.6%	1.7%	1.6%
40-44 years	5.5%	5.1%	5.3%	5.1%	5.2%	5.1%	5.4%	5.4%	5.2%	5.5%	5.3%	5.3%
35-39 years	14.6%	14.2%	13.6%	14.4%	14.3%	14.5%	13.6%	14.7%	14.5%	14.6%	14.1%	14.5%
30-34 years	24.4%	25.4%	24.2%	25.1%	25.6%	25.4%	25.8%	25.1%	25.9%	25.8%	25.2%	25.3%
25-29 years	25.8%	25.4%	26.3%	25.7%	24.6%	25.6%	23.9%	25.2%	24.2%	25.0%	25.0%	25.4%
20-24 years	12.3%	14.1%	12.0%	13.9%	13.0%	13.8%	13.3%	13.6%	11.2%	13.1%	12.4%	13.7%
15-19 years	1.8%	2.3%	1.9%	2.3%	1.8%	2.3%	1.9%	2.2%	1.9%	2.0%	1.9%	2.2%
Unknown or Not Stated	13.4%	11.2%	14.4%	11.2%	13.2%	11.0%	13.5%	11.3%	14.6%	11.8%	13.8%	11.3%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

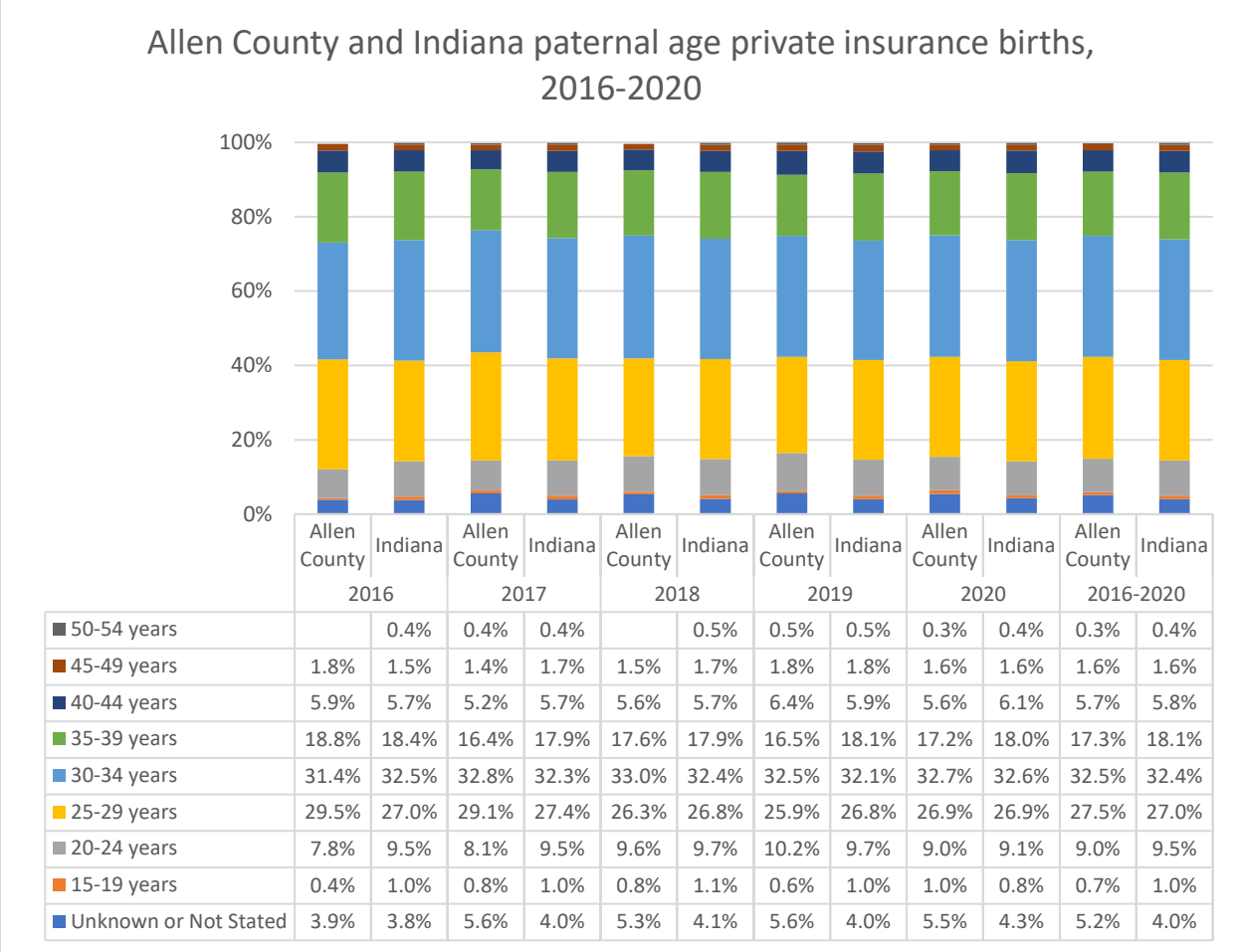
Chart 37: Local and state paternal age Medicaid births



	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
	2016		2017		2018		2019		2020		2016-2020	
50-54 years	0.6%	0.5%	0.7%	0.6%	0.6%	0.5%	0.5%	0.5%	0.6%	0.6%	0.6%	0.5%
45-49 years	1.5%	1.6%	1.3%	1.6%	1.9%	1.6%	2.0%	1.8%	2.1%	1.6%	1.7%	1.6%
40-44 years	4.4%	4.2%	4.9%	4.2%	4.7%	4.3%	4.1%	4.7%	4.3%	4.7%	4.5%	4.4%
35-39 years	9.4%	9.1%	9.8%	10.0%	9.7%	9.8%	8.8%	10.1%	10.1%	10.0%	9.6%	9.8%
30-34 years	16.1%	16.5%	13.9%	16.2%	15.5%	16.3%	15.6%	16.1%	15.3%	16.8%	15.3%	16.4%
25-29 years	21.0%	23.2%	22.7%	23.3%	21.8%	23.6%	20.8%	22.9%	20.5%	22.1%	21.4%	23.0%
20-24 years	18.0%	19.8%	17.0%	19.3%	17.9%	19.1%	18.3%	18.7%	14.8%	18.1%	17.2%	19.1%
15-19 years	3.5%	4.2%	3.1%	4.0%	3.3%	4.1%	4.3%	4.2%	3.3%	3.7%	3.5%	4.0%
Unknown or Not Stated	25.3%	20.7%	26.2%	20.6%	24.3%	20.3%	25.3%	20.8%	28.6%	22.0%	25.9%	20.9%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020; excludes Indiana's 55 years and older

Chart 38: Local and state paternal age private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
50-54 years		0.4%	0.4%	0.4%		0.5%	0.5%	0.5%	0.3%	0.4%	0.3%	0.4%
45-49 years	1.8%	1.5%	1.4%	1.7%	1.5%	1.7%	1.8%	1.8%	1.6%	1.6%	1.6%	1.6%
40-44 years	5.9%	5.7%	5.2%	5.7%	5.6%	5.7%	6.4%	5.9%	5.6%	6.1%	5.7%	5.8%
35-39 years	18.8%	18.4%	16.4%	17.9%	17.6%	17.9%	16.5%	18.1%	17.2%	18.0%	17.3%	18.1%
30-34 years	31.4%	32.5%	32.8%	32.3%	33.0%	32.4%	32.5%	32.1%	32.7%	32.6%	32.5%	32.4%
25-29 years	29.5%	27.0%	29.1%	27.4%	26.3%	26.8%	25.9%	26.8%	26.9%	26.9%	27.5%	27.0%
20-24 years	7.8%	9.5%	8.1%	9.5%	9.6%	9.7%	10.2%	9.7%	9.0%	9.1%	9.0%	9.5%
15-19 years	0.4%	1.0%	0.8%	1.0%	0.8%	1.1%	0.6%	1.0%	1.0%	0.8%	0.7%	1.0%
Unknown or Not Stated	3.9%	3.8%	5.6%	4.0%	5.3%	4.1%	5.6%	4.0%	5.5%	4.3%	5.2%	4.0%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020; excludes Indiana's 55 years and older

CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment.

Table 18: Difference between local and state father's age all births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	2.19%	3.18%	2.20%	2.21%	2.80%	2.52%
15-19 years	-0.53%	-0.39%	-0.44%	-0.28%	-0.09%	-0.35%
20-24 years	-1.88%	-1.88%	-0.72%	-0.33%	-1.87%	-1.34%
25-29 years	0.35%	0.62%	-0.97%	-1.27%	-0.80%	-0.43%
30-34 years	-0.93%	-0.85%	0.19%	0.68%	0.10%	-0.16%
35-39 years	0.39%	-0.76%	-0.20%	-1.10%	-0.04%	-0.34%
40-44 years	0.35%	0.19%	0.08%	0.04%	-0.29%	0.08%
45-49 years	0.15%	-0.22%	-0.06%	0.01%	0.21%	0.02%
50-54 years	-0.08%	0.08%	-0.06%	0.03%	-0.05%	-0.02%
55 years and older	0.02%	0.04%	-0.01%	0.00%	0.01%	0.01%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 19: Difference between local and state father's age Medicaid births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	4.69%	5.62%	4.06%	4.45%	6.58%	5.06%
15-19 years	-0.68%	-0.91%	-0.72%	0.10%	-0.35%	-0.53%
20-24 years	-1.77%	-2.37%	-1.23%	-0.46%	-3.26%	-1.82%
25-29 years	-2.22%	-0.54%	-1.76%	-2.05%	-1.65%	-1.64%
30-34 years	-0.38%	-2.22%	-0.86%	-0.58%	-1.54%	-1.11%
35-39 years	0.31%	-0.17%	-0.08%	-1.24%	0.11%	-0.20%
40-44 years	0.13%	0.71%	0.34%	-0.60%	-0.37%	0.06%
45-49 years	-0.05%	-0.24%	0.22%	0.17%	0.51%	0.11%
50-54 years	0.07%	0.14%	0.09%	0.01%	-0.04%	0.06%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 20: Difference between local and state father's age private insurance births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	0.08%	1.56%	1.20%	1.61%	1.19%	1.15%
15-19 years	-0.52%	-0.18%	-0.32%	-0.43%	0.17%	-0.26%
20-24 years	-1.65%	-1.41%	-0.12%	0.59%	-0.17%	-0.52%
25-29 years	2.46%	1.67%	-0.54%	-0.89%	0.02%	0.48%
30-34 years	-1.07%	0.52%	0.58%	0.39%	0.07%	0.11%
35-39 years	0.47%	-1.49%	-0.38%	-1.65%	-0.77%	-0.78%
40-44 years	0.16%	-0.50%	-0.04%	0.52%	-0.45%	-0.05%
45-49 years	0.24%	-0.22%	-0.14%	-0.01%	0.00%	-0.02%
50-54 years		0.02%		0.01%	-0.10%	*-0.19%*

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Just over half of all the births in Allen County and Indiana had fathers ages 25 to 34, with an essentially even split between 25 to 29 and 30 to 34.
- For Medicaid births, 25 to 29 years was the most common age cohort for fathers while 20 to 24 was the second most common age cohort for both geographies.
- For private insurance births, 30 to 34 was the most common age cohort for fathers with 25 to 29 as the second most common for Allen County and Indiana.
- Some of the disparity of the father's age cohorts in Allen County may be explained by the larger unknown/not stated share.

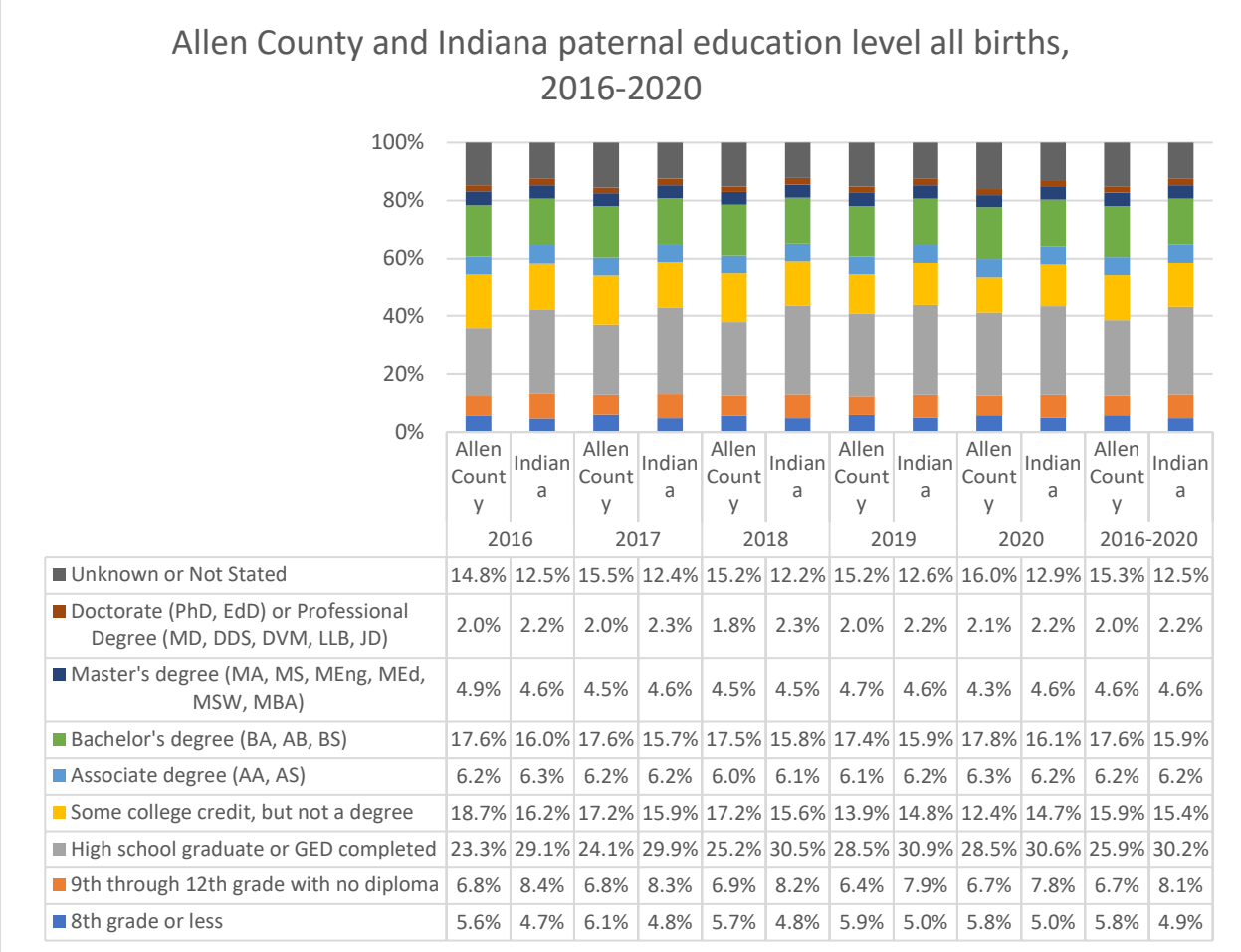
Father's education level

Father's education level is provided via the mother's worksheet with the same categories listed for the mother's education level,[24] which is discussed in detail in the mother's education section of this report.

[24] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p. 6.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

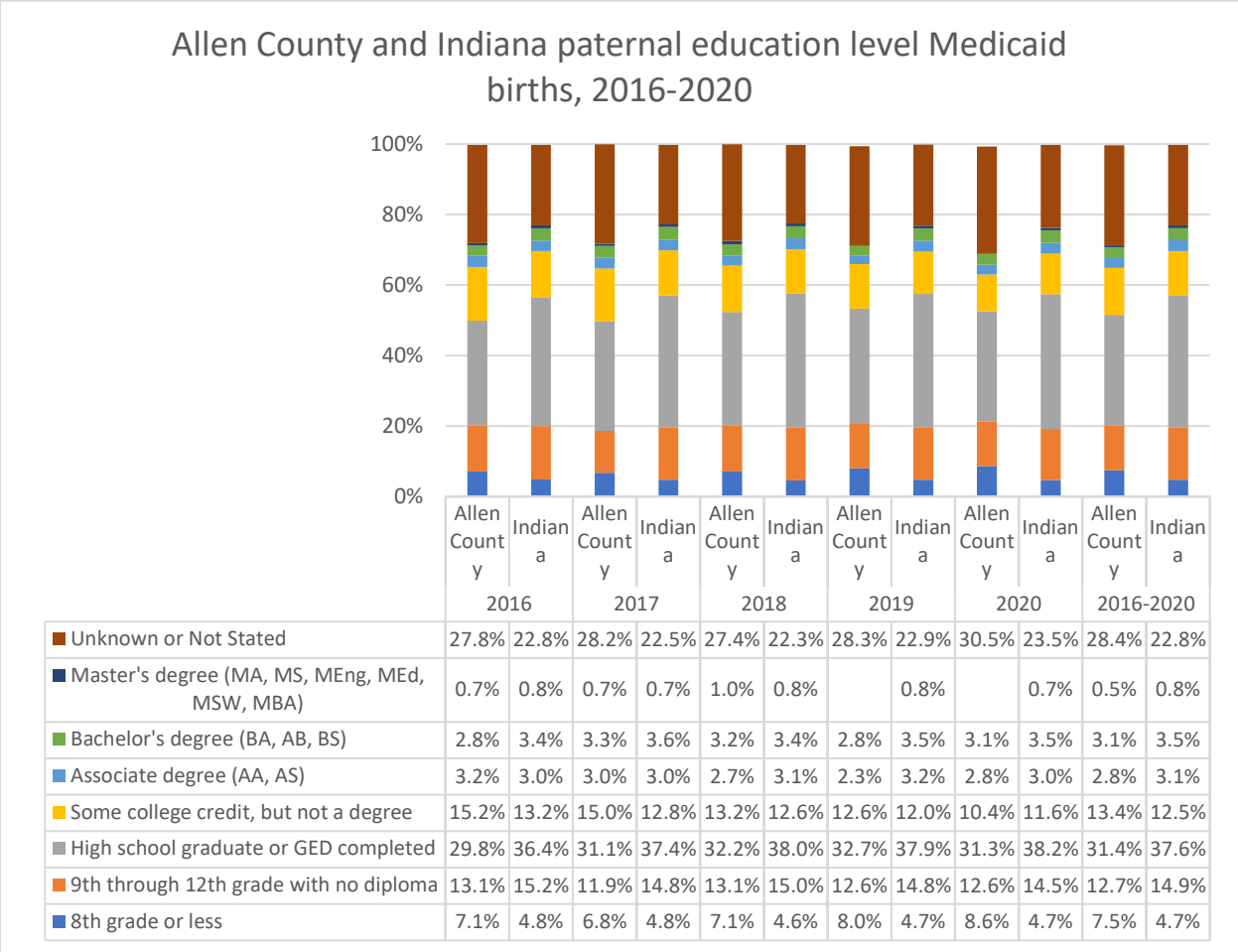
Chart 39: Local and state paternal education level all births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
Unknown or Not Stated	14.8%	12.5%	15.5%	12.4%	15.2%	12.2%	15.2%	12.6%	16.0%	12.9%	15.3%	12.5%
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	2.0%	2.2%	2.0%	2.3%	1.8%	2.3%	2.0%	2.2%	2.1%	2.2%	2.0%	2.2%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	4.9%	4.6%	4.5%	4.6%	4.5%	4.5%	4.7%	4.6%	4.3%	4.6%	4.6%	4.6%
Bachelor's degree (BA, AB, BS)	17.6%	16.0%	17.6%	15.7%	17.5%	15.8%	17.4%	15.9%	17.8%	16.1%	17.6%	15.9%
Associate degree (AA, AS)	6.2%	6.3%	6.2%	6.2%	6.0%	6.1%	6.1%	6.2%	6.3%	6.2%	6.2%	6.2%
Some college credit, but not a degree	18.7%	16.2%	17.2%	15.9%	17.2%	15.6%	13.9%	14.8%	12.4%	14.7%	15.9%	15.4%
High school graduate or GED completed	23.3%	29.1%	24.1%	29.9%	25.2%	30.5%	28.5%	30.9%	28.5%	30.6%	25.9%	30.2%
9th through 12th grade with no diploma	6.8%	8.4%	6.8%	8.3%	6.9%	8.2%	6.4%	7.9%	6.7%	7.8%	6.7%	8.1%
8th grade or less	5.6%	4.7%	6.1%	4.8%	5.7%	4.8%	5.9%	5.0%	5.8%	5.0%	5.8%	4.9%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

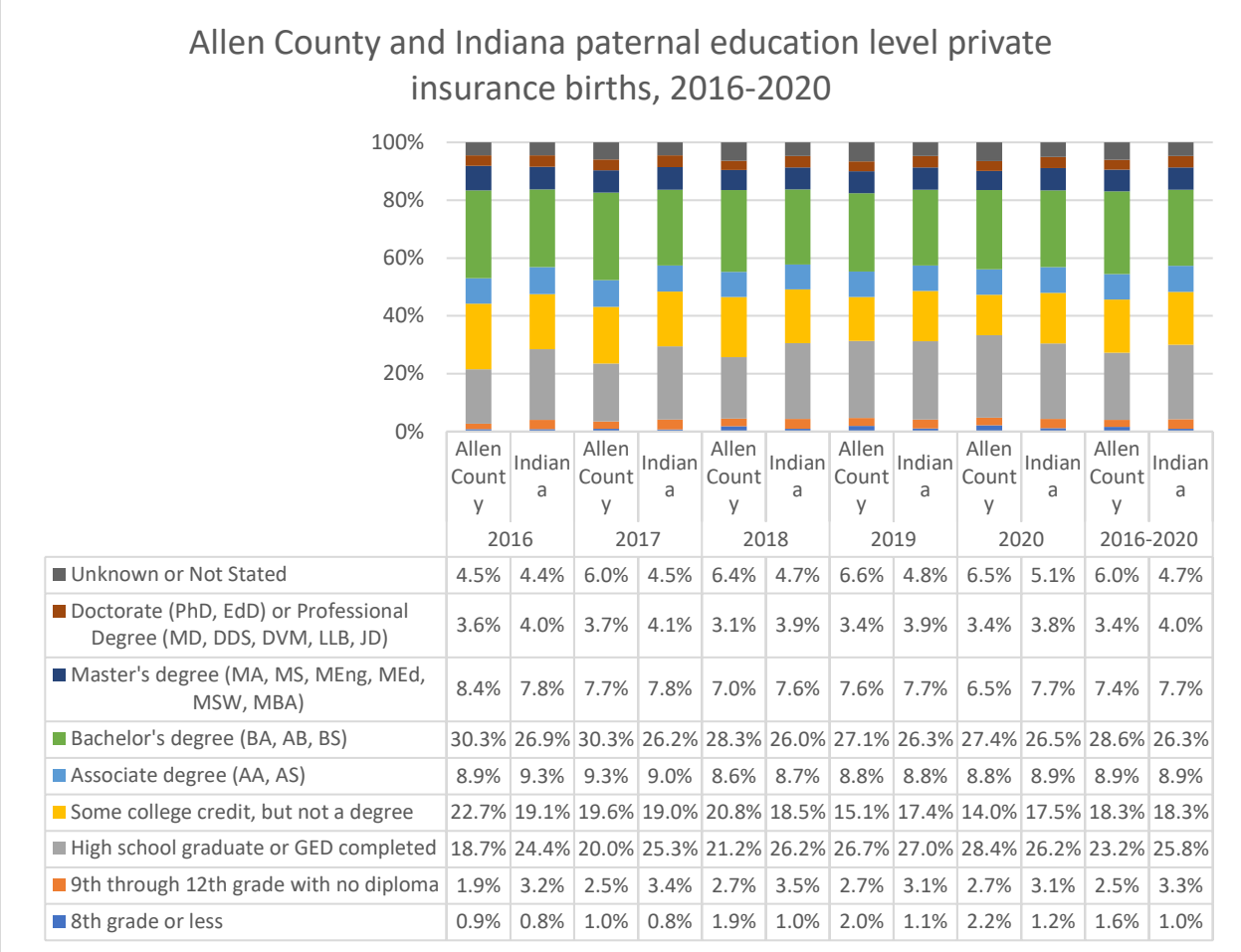
Chart 40: Local and state paternal education level Medicaid births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Unknown or Not Stated	27.8%	22.8%	28.2%	22.5%	27.4%	22.3%	28.3%	22.9%	30.5%	23.5%	28.4%	22.8%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	0.7%	0.8%	0.7%	0.7%	1.0%	0.8%		0.8%		0.7%	0.5%	0.8%
Bachelor's degree (BA, AB, BS)	2.8%	3.4%	3.3%	3.6%	3.2%	3.4%	2.8%	3.5%	3.1%	3.5%	3.1%	3.5%
Associate degree (AA, AS)	3.2%	3.0%	3.0%	3.0%	2.7%	3.1%	2.3%	3.2%	2.8%	3.0%	2.8%	3.1%
Some college credit, but not a degree	15.2%	13.2%	15.0%	12.8%	13.2%	12.6%	12.6%	12.0%	10.4%	11.6%	13.4%	12.5%
High school graduate or GED completed	29.8%	36.4%	31.1%	37.4%	32.2%	38.0%	32.7%	37.9%	31.3%	38.2%	31.4%	37.6%
9th through 12th grade with no diploma	13.1%	15.2%	11.9%	14.8%	13.1%	15.0%	12.6%	14.8%	12.6%	14.5%	12.7%	14.9%
8th grade or less	7.1%	4.8%	6.8%	4.8%	7.1%	4.6%	8.0%	4.7%	8.6%	4.7%	7.5%	4.7%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Chart 41: Local and state paternal education level private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Unknown or Not Stated	4.5%	4.4%	6.0%	4.5%	6.4%	4.7%	6.6%	4.8%	6.5%	5.1%	6.0%	4.7%
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	3.6%	4.0%	3.7%	4.1%	3.1%	3.9%	3.4%	3.9%	3.4%	3.8%	3.4%	4.0%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	8.4%	7.8%	7.7%	7.8%	7.0%	7.6%	7.6%	7.7%	6.5%	7.7%	7.4%	7.7%
Bachelor's degree (BA, AB, BS)	30.3%	26.9%	30.3%	26.2%	28.3%	26.0%	27.1%	26.3%	27.4%	26.5%	28.6%	26.3%
Associate degree (AA, AS)	8.9%	9.3%	9.3%	9.0%	8.6%	8.7%	8.8%	8.8%	8.8%	8.9%	8.9%	8.9%
Some college credit, but not a degree	22.7%	19.1%	19.6%	19.0%	20.8%	18.5%	15.1%	17.4%	14.0%	17.5%	18.3%	18.3%
High school graduate or GED completed	18.7%	24.4%	20.0%	25.3%	21.2%	26.2%	26.7%	27.0%	28.4%	26.2%	23.2%	25.8%
9th through 12th grade with no diploma	1.9%	3.2%	2.5%	3.4%	2.7%	3.5%	2.7%	3.1%	2.7%	3.1%	2.5%	3.3%
8th grade or less	0.9%	0.8%	1.0%	0.8%	1.9%	1.0%	2.0%	1.1%	2.2%	1.2%	1.6%	1.0%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment.

Table 21: Difference between local and state paternal education level all births

	2016	2017	2018	2019	2020	2016-2020
8th grade or less	0.88%	1.29%	0.92%	0.94%	0.82%	0.97%
9th through 12th grade with no diploma	-1.55%	-1.46%	-1.32%	-1.49%	-1.06%	-1.38%
High school graduate or GED completed	-5.75%	-5.76%	-5.27%	-2.46%	-2.03%	-4.23%
Some college credit, but not a degree	2.58%	1.34%	1.63%	-0.88%	-2.22%	0.47%
Associate degree (AA, AS)	-0.09%	0.06%	-0.11%	-0.08%	0.09%	-0.03%
Bachelor's degree (BA, AB, BS)	1.59%	1.83%	1.70%	1.44%	1.70%	1.65%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	0.28%	-0.04%	-0.07%	0.10%	-0.29%	-0.01%

Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	-0.20%	-0.33%	-0.45%	-0.19%	-0.09%	-0.25%
Unknown or Not Stated	2.27%	3.07%	2.98%	2.62%	3.09%	2.81%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 22: Difference between local and state paternal education level Medicaid births

	2016	2017	2018	2019	2020	2016-2020
8th grade or less	2.25%	1.96%	2.53%	3.26%	3.92%	2.75%
9th through 12th grade with no diploma	-2.05%	-2.89%	-1.95%	-2.17%	-1.86%	-2.19%
High school graduate or GED completed	-6.67%	-6.36%	-5.81%	-5.19%	-6.87%	-6.19%
Some college credit, but not a degree	2.03%	2.16%	0.61%	0.62%	-1.13%	0.91%
Associate degree (AA, AS)	0.16%	0.03%	-0.39%	-0.84%	-0.26%	-0.25%
Bachelor's degree (BA, AB, BS)	-0.64%	-0.30%	-0.17%	-0.67%	-0.44%	-0.44%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	-0.10%	-0.06%	0.26%			*-0.27%*
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	4.99%	5.69%	5.12%	5.35%	6.92%	5.59%
Unknown or Not Stated	2.25%	1.96%	2.53%	3.26%	3.92%	2.75%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 23: Difference between local and state paternal education level private insurance births

	2016	2017	2018	2019	2020	2016-2020
8th grade or less	0.08%	0.18%	0.91%	0.89%	0.98%	0.63%
9th through 12th grade with no diploma	-1.34%	-0.84%	-0.80%	-0.43%	-0.46%	-0.76%
High school graduate or GED completed	-5.67%	-5.31%	-4.98%	-0.31%	2.27%	-2.65%
Some college credit, but not a degree	3.56%	0.65%	2.32%	-2.27%	-3.44%	0.03%
Associate degree (AA, AS)	-0.39%	0.27%	-0.03%	0.04%	-0.12%	-0.05%
Bachelor's degree (BA, AB, BS)	3.48%	4.12%	2.33%	0.88%	0.95%	2.29%
Master's degree (MA, MS, MEng, MEd, MSW, MBA)	0.60%	-0.12%	-0.60%	-0.07%	-1.15%	-0.29%
Doctorate (PhD, EdD) or Professional Degree (MD, DDS, DVM, LLB, JD)	-0.40%	-0.37%	-0.78%	-0.53%	-0.45%	-0.51%
Unknown or Not Stated	0.08%	1.42%	1.63%	1.81%	1.44%	1.31%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- High school graduate was the most common paternal education level for all and Medicaid births in both geographies. A bachelor's degree was the most common for private insurance births.
- Medicaid births were more likely to have a father who did not complete high school than all or private insurance births at 20.2% and 19.6% for Allen County and Indiana's Medicaid births, compared to 12.5% and 13% for all births respectively and 4.1% and 4.3% for private insurance births locally and statewide.

Interval since last live birth

The CDC collects information about the interval since the last live birth, computed based on the month and year of the current delivery compared to the month and year of the last live birth.[25] For plural births, the subsequent infants are tracked with an interval of 0 to 3 months.[26] If this birth is the first natality event, it is noted as such.

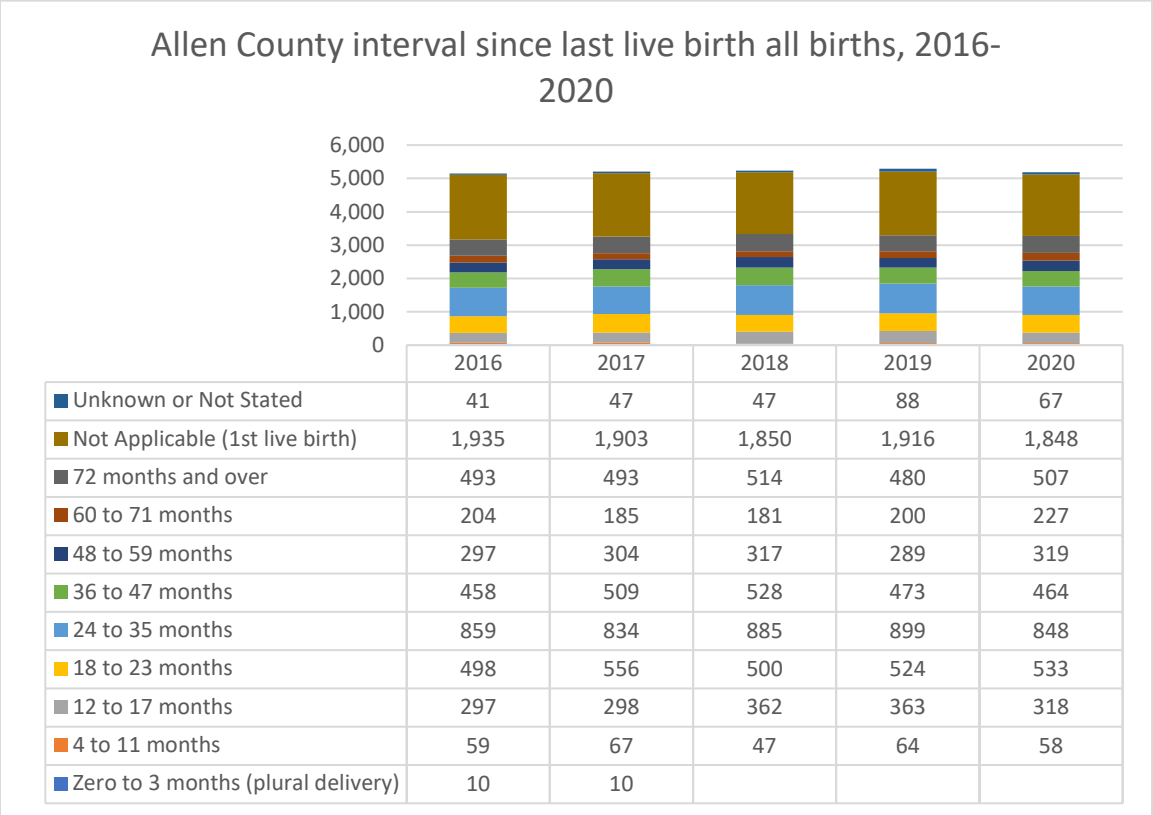
The CDC uses the following intervals:

- Zero to 3 months (plural delivery)
- 4 to 11 months
- 12 to 17 months
- 18 to 23 months
- 24 to 35 months
- 36 to 47 months
- 48 to 59 months
- 60 to 71 months
- 72 months and over
- Not Applicable (1st live birth)
- Unknown or Not Stated

The CDC did not report total number of births for this measure by payment category so CRI is providing an annual count by all births, Medicaid births, and private insurance births for Allen County and Indiana as measured by interval since last live birth.

[25] User Guide to the 2020 Natality Public Use File, CDC, pp. 57-58.
[26] Ibid.

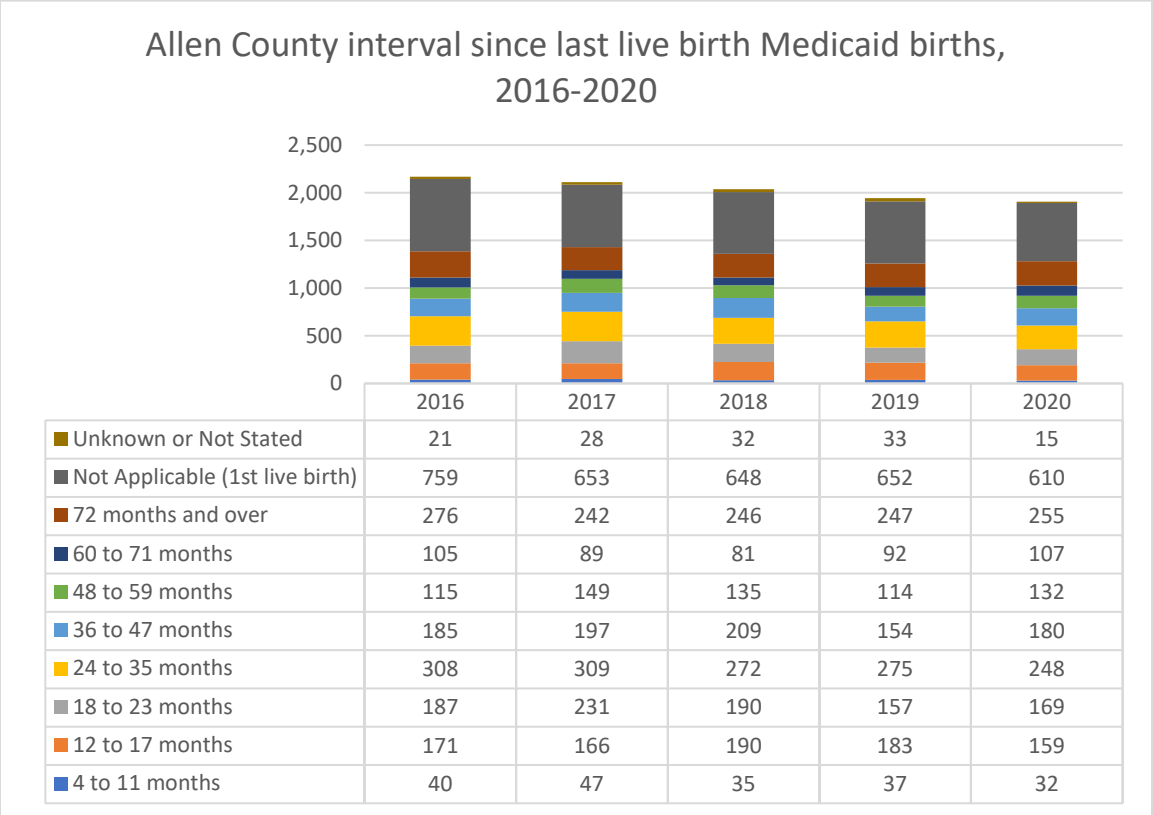
Chart 42: Local interval since last live birth all births



	2016	2017	2018	2019	2020
Unknown or Not Stated	41	47	47	88	67
Not Applicable (1st live birth)	1,935	1,903	1,850	1,916	1,848
72 months and over	493	493	514	480	507
60 to 71 months	204	185	181	200	227
48 to 59 months	297	304	317	289	319
36 to 47 months	458	509	528	473	464
24 to 35 months	859	834	885	899	848
18 to 23 months	498	556	500	524	533
12 to 17 months	297	298	362	363	318
4 to 11 months	59	67	47	64	58
Zero to 3 months (plural delivery)	10	10			

Source: CDC Wonder Natality Data Expanded, 2016-2020

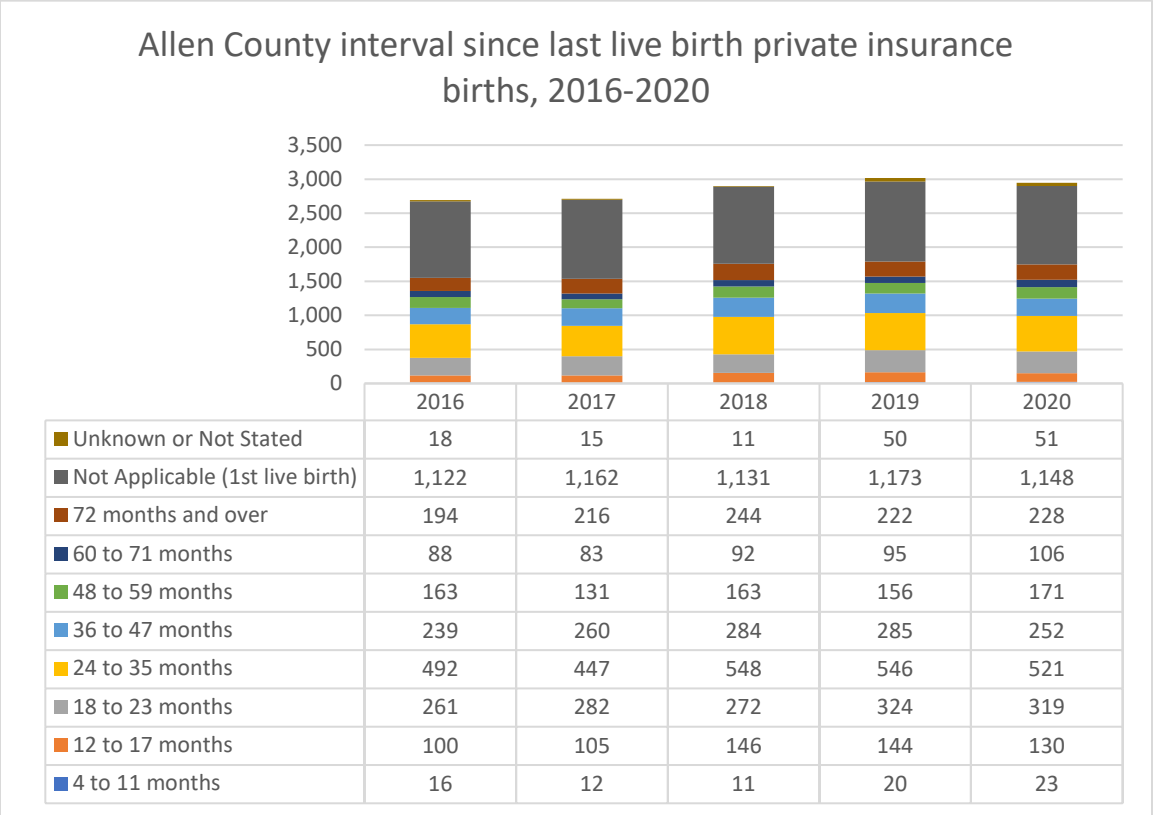
Chart 43: Local interval since last live birth Medicaid births



	2016	2017	2018	2019	2020
Unknown or Not Stated	21	28	32	33	15
Not Applicable (1st live birth)	759	653	648	652	610
72 months and over	276	242	246	247	255
60 to 71 months	105	89	81	92	107
48 to 59 months	115	149	135	114	132
36 to 47 months	185	197	209	154	180
24 to 35 months	308	309	272	275	248
18 to 23 months	187	231	190	157	169
12 to 17 months	171	166	190	183	159
4 to 11 months	40	47	35	37	32

Source: CDC Wonder Natality Data Expanded, 2016-2020

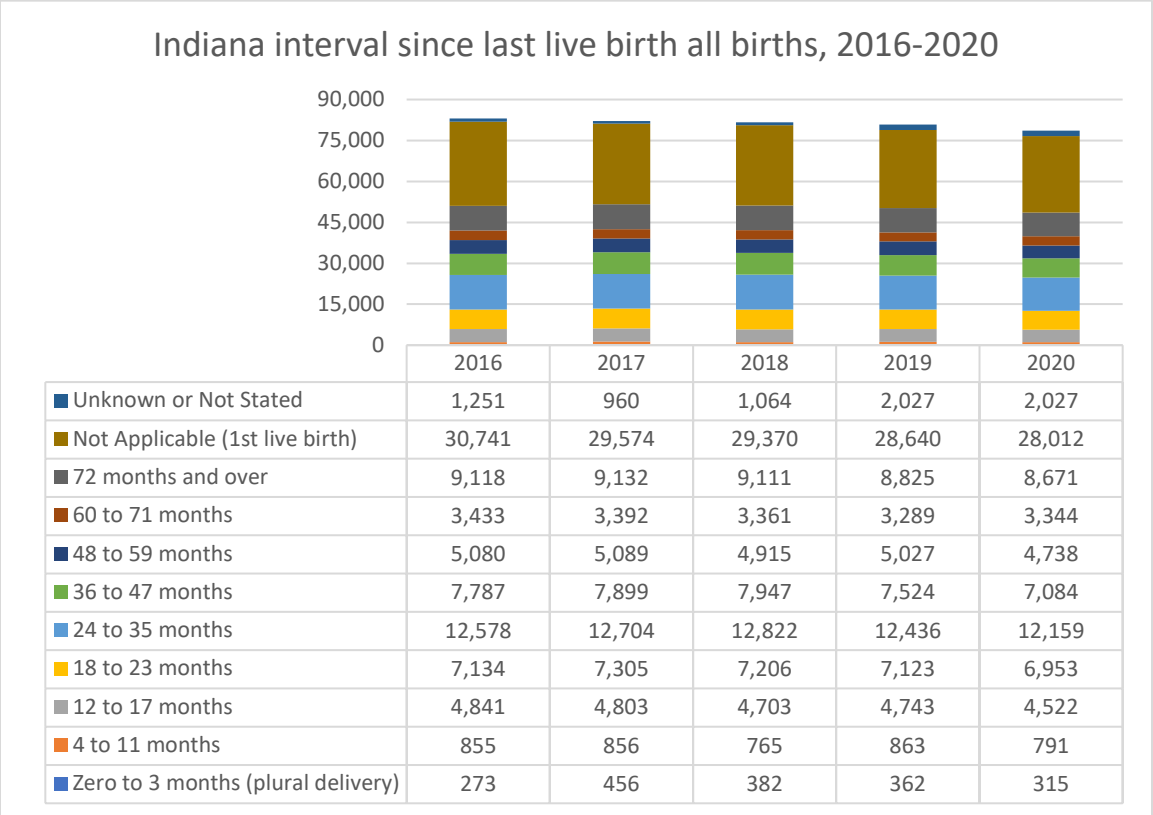
Chart 44: Local interval since last live birth private insurance births



	2016	2017	2018	2019	2020
Unknown or Not Stated	18	15	11	50	51
Not Applicable (1st live birth)	1,122	1,162	1,131	1,173	1,148
72 months and over	194	216	244	222	228
60 to 71 months	88	83	92	95	106
48 to 59 months	163	131	163	156	171
36 to 47 months	239	260	284	285	252
24 to 35 months	492	447	548	546	521
18 to 23 months	261	282	272	324	319
12 to 17 months	100	105	146	144	130
4 to 11 months	16	12	11	20	23

Source: CDC Wonder Natality Data Expanded, 2016-2020

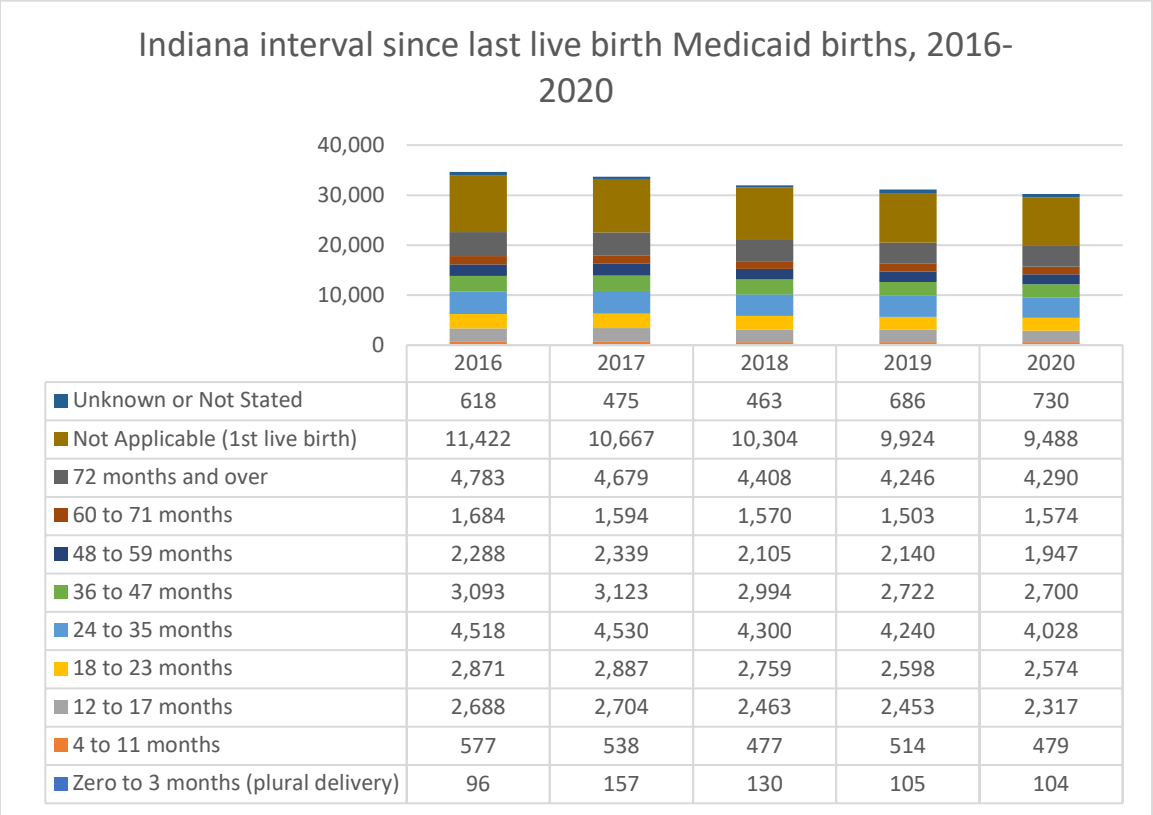
Chart 45: State interval since last live birth all births



	2016	2017	2018	2019	2020
Unknown or Not Stated	1,251	960	1,064	2,027	2,027
Not Applicable (1st live birth)	30,741	29,574	29,370	28,640	28,012
72 months and over	9,118	9,132	9,111	8,825	8,671
60 to 71 months	3,433	3,392	3,361	3,289	3,344
48 to 59 months	5,080	5,089	4,915	5,027	4,738
36 to 47 months	7,787	7,899	7,947	7,524	7,084
24 to 35 months	12,578	12,704	12,822	12,436	12,159
18 to 23 months	7,134	7,305	7,206	7,123	6,953
12 to 17 months	4,841	4,803	4,703	4,743	4,522
4 to 11 months	855	856	765	863	791
Zero to 3 months (plural delivery)	273	456	382	362	315

Source: CDC Wonder Natality Data Expanded, 2016-2020

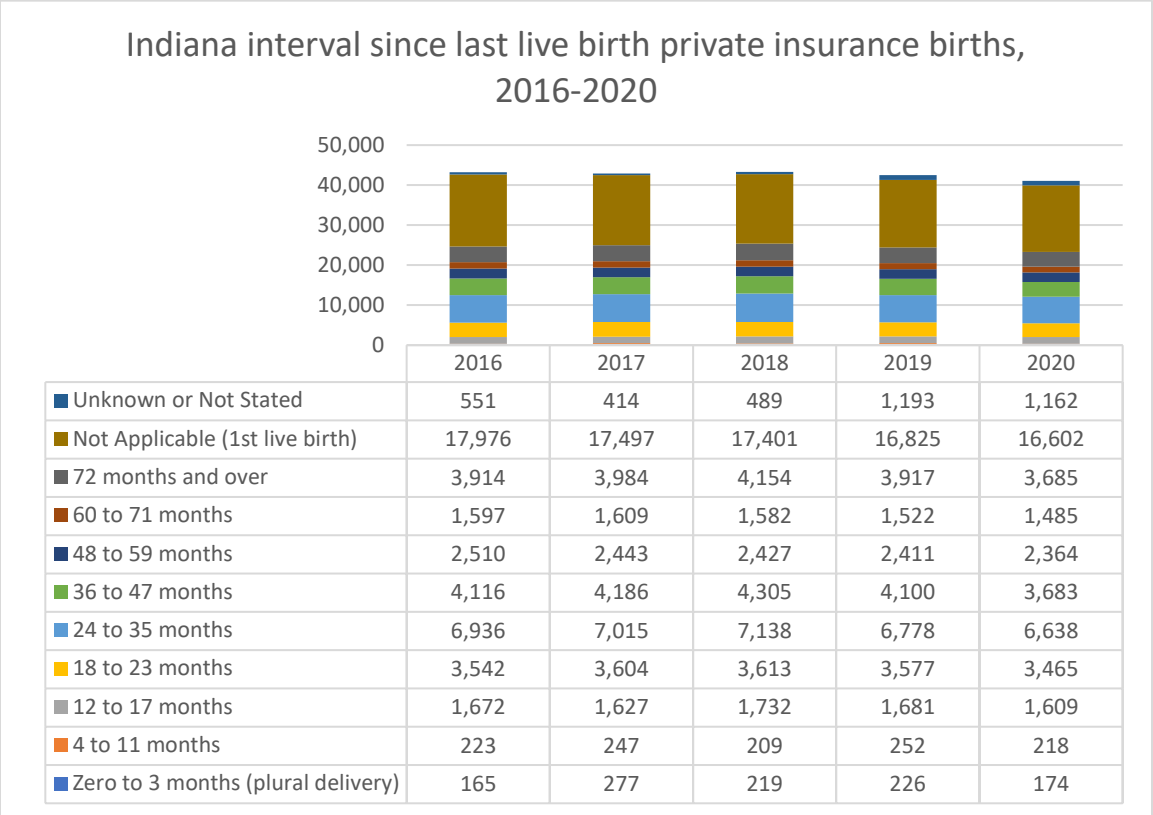
Chart 46: State interval since last live birth Medicaid births



	2016	2017	2018	2019	2020
Unknown or Not Stated	618	475	463	686	730
Not Applicable (1st live birth)	11,422	10,667	10,304	9,924	9,488
72 months and over	4,783	4,679	4,408	4,246	4,290
60 to 71 months	1,684	1,594	1,570	1,503	1,574
48 to 59 months	2,288	2,339	2,105	2,140	1,947
36 to 47 months	3,093	3,123	2,994	2,722	2,700
24 to 35 months	4,518	4,530	4,300	4,240	4,028
18 to 23 months	2,871	2,887	2,759	2,598	2,574
12 to 17 months	2,688	2,704	2,463	2,453	2,317
4 to 11 months	577	538	477	514	479
Zero to 3 months (plural delivery)	96	157	130	105	104

Source: CDC Wonder Natality Data Expanded, 2016-2020

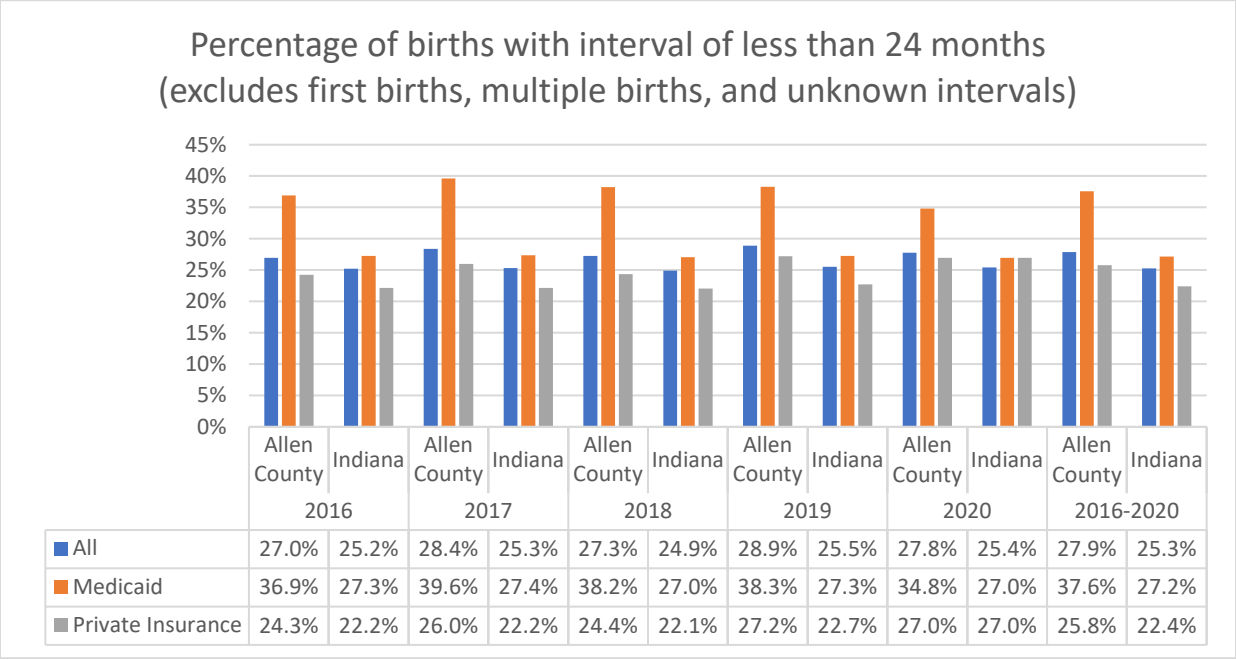
Chart 47: State interval since last live birth private insurance births



	2016	2017	2018	2019	2020
Unknown or Not Stated	551	414	489	1,193	1,162
Not Applicable (1st live birth)	17,976	17,497	17,401	16,825	16,602
72 months and over	3,914	3,984	4,154	3,917	3,685
60 to 71 months	1,597	1,609	1,582	1,522	1,485
48 to 59 months	2,510	2,443	2,427	2,411	2,364
36 to 47 months	4,116	4,186	4,305	4,100	3,683
24 to 35 months	6,936	7,015	7,138	6,778	6,638
18 to 23 months	3,542	3,604	3,613	3,577	3,465
12 to 17 months	1,672	1,627	1,732	1,681	1,609
4 to 11 months	223	247	209	252	218
Zero to 3 months (plural delivery)	165	277	219	226	174

Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 48: Share of births with birth intervals of less than 24 months between live births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
All	27.0%	25.2%	28.4%	25.3%	27.3%	24.9%	28.9%	25.5%	27.8%	25.4%	27.9%	25.3%
Medicaid	36.9%	27.3%	39.6%	27.4%	38.2%	27.0%	38.3%	27.3%	34.8%	27.0%	37.6%	27.2%
Private Insurance	24.3%	22.2%	26.0%	22.2%	24.4%	22.1%	27.2%	22.7%	27.0%	27.0%	25.8%	22.4%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Not applicable/1st live birth was the most common category across all geographies and payment sources.
- 24 to 35 months was the most common interval for not-first live birth across all geographies and payment sources.
- Allen County's Medicaid births were more likely to report a birth interval of less than 24 months compared to the other five populations: all and private insurance births in Allen County and all, Medicaid, and private insurance births in Indiana
- No plural-delivery numbers were reported Allen County's Medicaid and private insurance births, indicating fewer than 10 for each year studied, and only for all births in 2016 and 2017.

Use of medical, public services

The CDC tracks the use of certain medical and public services as part of its natality extended data. It collects information on the following:[27]

- Prenatal care
- WIC use during pregnancy
- Successful and failed external cephalic obstetric procedures in an attempt to turn the fetus out of the breech position
- Characteristics of labor and delivery
- Place of birth: hospital, freestanding birthing center, doctor's office/clinic, home birth or other
- Time of birth using a 24-hour clock
- Birth attendant: MD, DO, certified nurse midwife/certified midwife, other midwife, other
- Fetal presentation at birth: cephalic, breech or other
- Final route/method of delivery: vaginal spontaneous, vaginal forceps, vaginal vacuum, cesarean
- Payment source for delivery: private insurance, Medicaid, self-pay, and other

For this project, CRI evaluated the following medical and public services:

- WIC use
- Number of prenatal visits
- Trimester prenatal began
- Month prenatal began
- Payment source for delivery (listed in initial section of this report)
- Select labor and delivery measures (listed in the labor and delivery section of this report)

WIC

The CDC asks about the mother's use of Special Supplemental Nutrition Program for Women, Infants and Children (WIC) food program on the mother's worksheet for child's birth certificate.[28] Funded by the U.S. Department of Agriculture, administered by the states, and operated at the local level by various agencies, WIC serves the following low-income, nutritionally at-risk populations:[29]

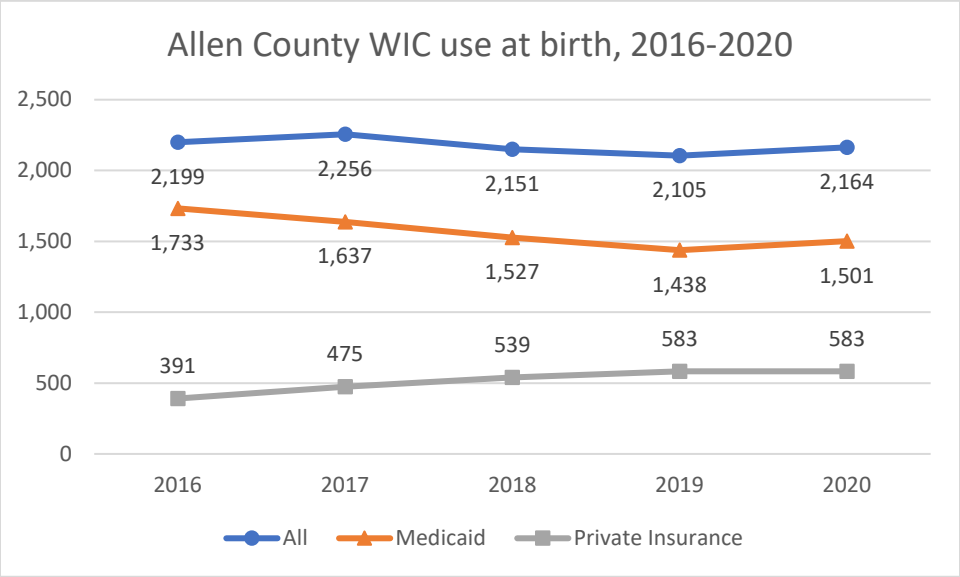
[27] User Guide to the 2020 Natality Public Use File, CDC, pp. 58-62.
[28] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 3.
[29] https://www.fns.usda.gov/wic/about-wic-glance

- Pregnant women through pregnancy and up to 6 weeks after birth or after pregnancy ends
- Breastfeeding women up to infant's 1st birthday
- Non-breastfeeding postpartum women up to 6 months after the birth of an infant or after pregnancy ends
- Infants up to 1st birthday
- Children up to 5th birthday

WIC benefits are supplemental nutritious foods purchased from grocery stores, nutrition education and counseling at WIC clinics, and screening and referrals to other health, welfare, or social service programs.[30] In Allen County, the WIC clinics are available at Neighborhood Health Clinic, 1717 S. Calhoun St., and Paulding Road WIC, 3350 E. Paulding Road.[31]

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births for Allen County and Indiana using WIC at birth.

Chart 49: Local WIC use at birth

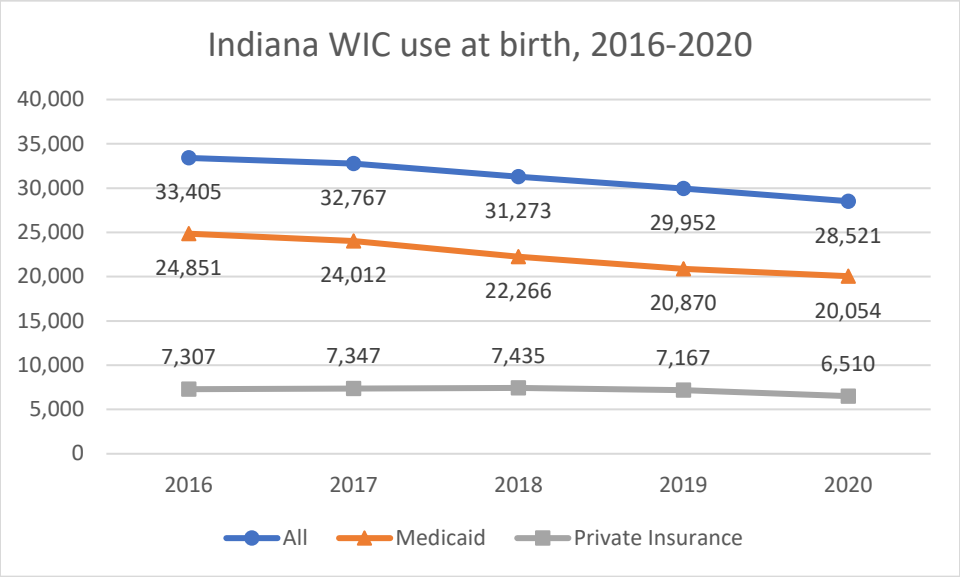


Source: CDC Wonder Natality Data Expanded, 2016-2020

[30] Ibid.

[31] https://www.in.gov/health/reports/WIC_Clinics/counties/allen.html

Chart 50: State WIC use at birth



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- As would be expected for a program that serves low-income mothers and children, most WIC births were also Medicaid births for both Allen County and Indiana.
- Consistent with local births trends by payment source, Allen County's total WIC use remained steady, while Medicaid WIC use went down slightly while private insurance WIC use went up.
- At the state level, WIC use declined in all three groups studied, which is consistent with the declining birth numbers in the state during the time period studied.

Number of prenatal visits

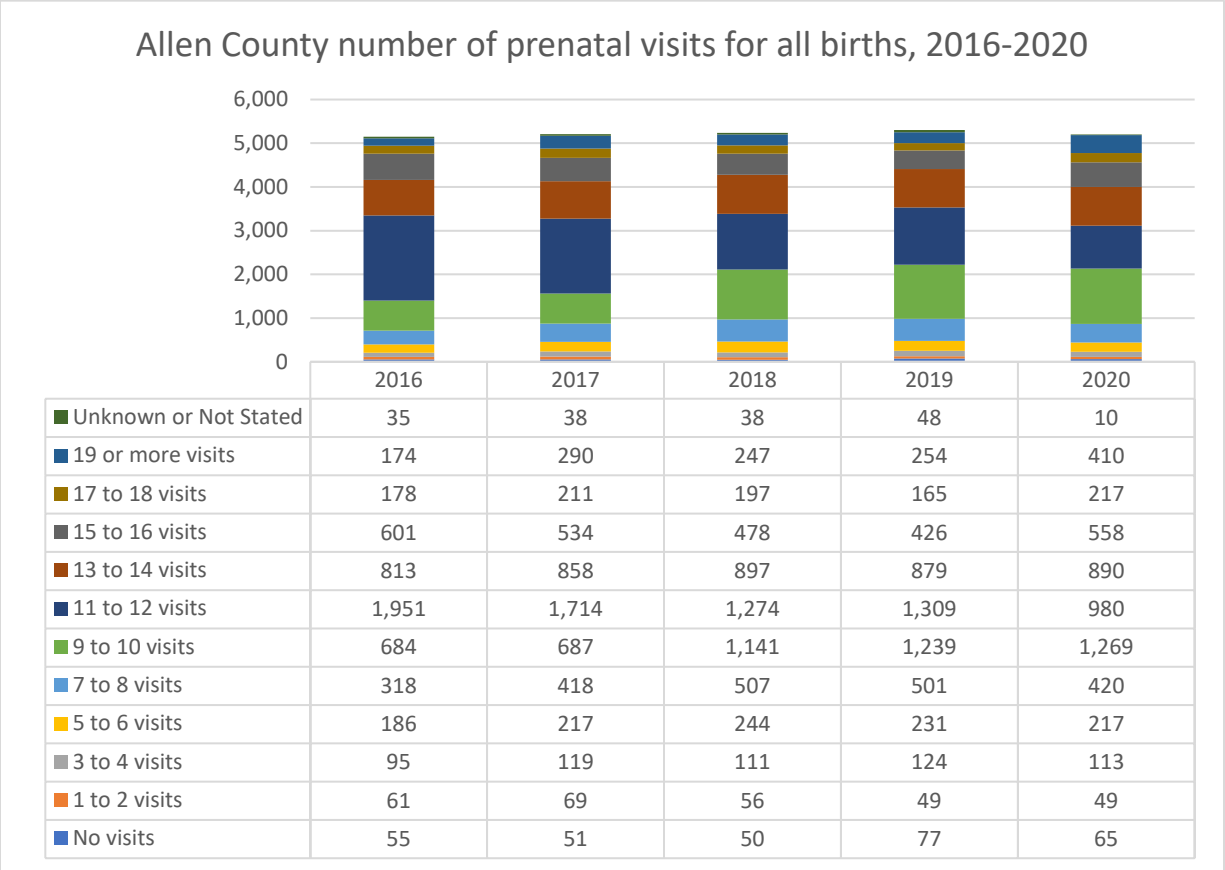
The CDC collects information about the number of prenatal visits the mother had, using the Facility Worksheet.[32] Hospitals are directed to gather information about the use of prenatal care from the respective healthcare provider, not provided by the mother.[33]

While data are available on the exact number of prenatal visits, CRI opted to use the recoded information that provided categories so that the information was easier to understand and interpret instead of having close to two dozen lines of data.

The CDC did not report total number of births for this measure by payment category so CRI is providing an annual count separated by number of prenatal visits by all births, Medicaid births, and private insurance births for Allen County and Indiana on separate charts for visual simplicity.

[32] User Guide to the 2020 Natality Public Use File, CDC, p. 58.
[33] Facility Worksheet for the Live Birth Certificate (2016), CDC, p. 2.

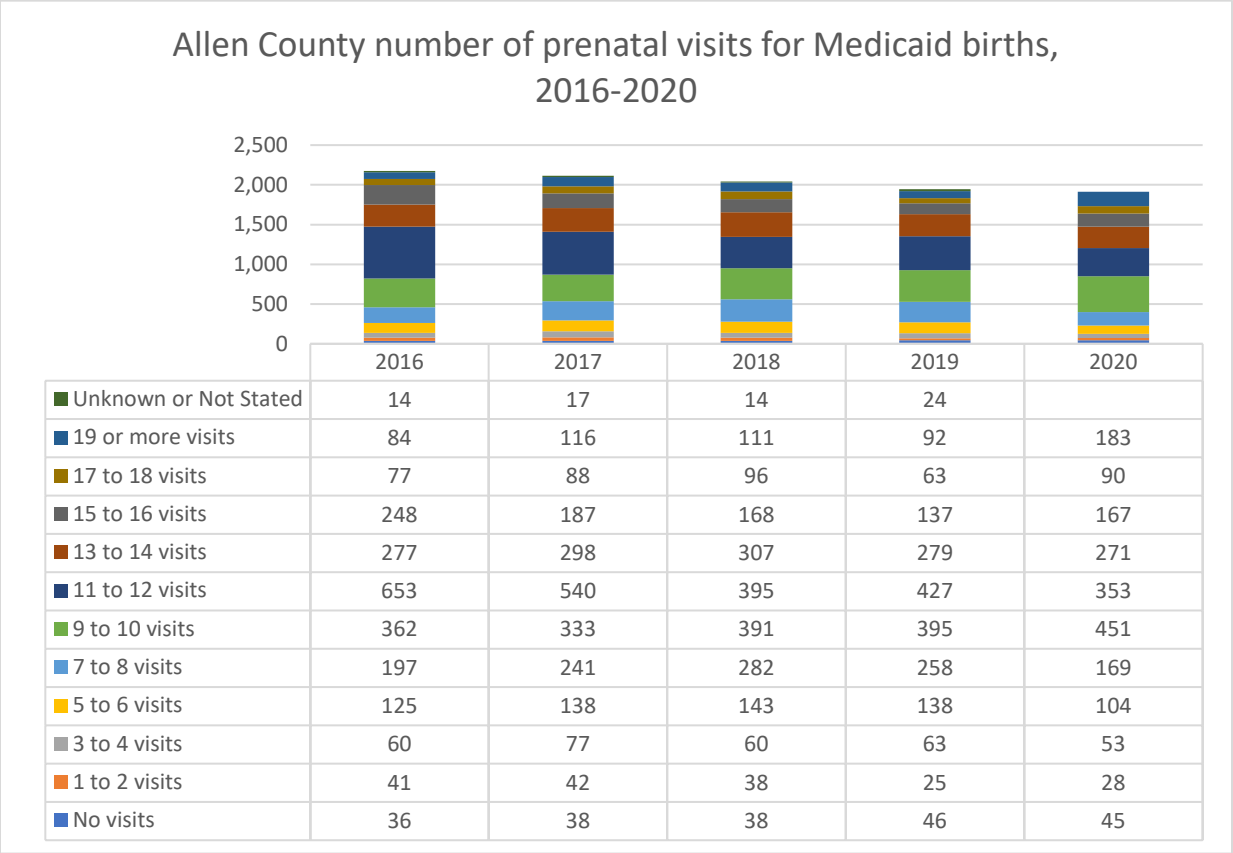
Chart 51: Local number of prenatal visits for all births



	2016	2017	2018	2019	2020
Unknown or Not Stated	35	38	38	48	10
19 or more visits	174	290	247	254	410
17 to 18 visits	178	211	197	165	217
15 to 16 visits	601	534	478	426	558
13 to 14 visits	813	858	897	879	890
11 to 12 visits	1,951	1,714	1,274	1,309	980
9 to 10 visits	684	687	1,141	1,239	1,269
7 to 8 visits	318	418	507	501	420
5 to 6 visits	186	217	244	231	217
3 to 4 visits	95	119	111	124	113
1 to 2 visits	61	69	56	49	49
No visits	55	51	50	77	65

Source: CDC Wonder Natality Data Expanded, 2016-2020

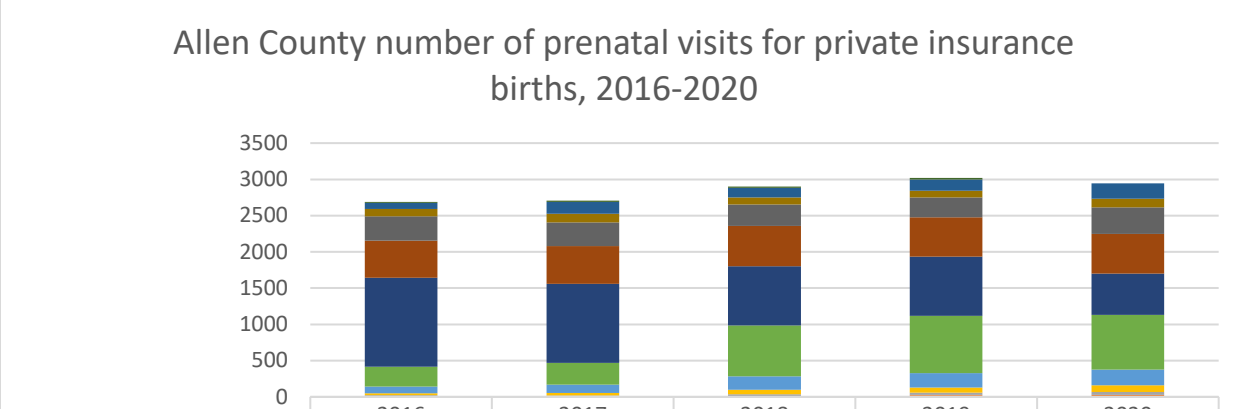
Chart 52: Local number of prenatal visits for Medicaid births



	2016	2017	2018	2019	2020
Unknown or Not Stated	14	17	14	24	
19 or more visits	84	116	111	92	183
17 to 18 visits	77	88	96	63	90
15 to 16 visits	248	187	168	137	167
13 to 14 visits	277	298	307	279	271
11 to 12 visits	653	540	395	427	353
9 to 10 visits	362	333	391	395	451
7 to 8 visits	197	241	282	258	169
5 to 6 visits	125	138	143	138	104
3 to 4 visits	60	77	60	63	53
1 to 2 visits	41	42	38	25	28
No visits	36	38	38	46	45

Source: CDC Wonder Natality Data Expanded, 2016-2020

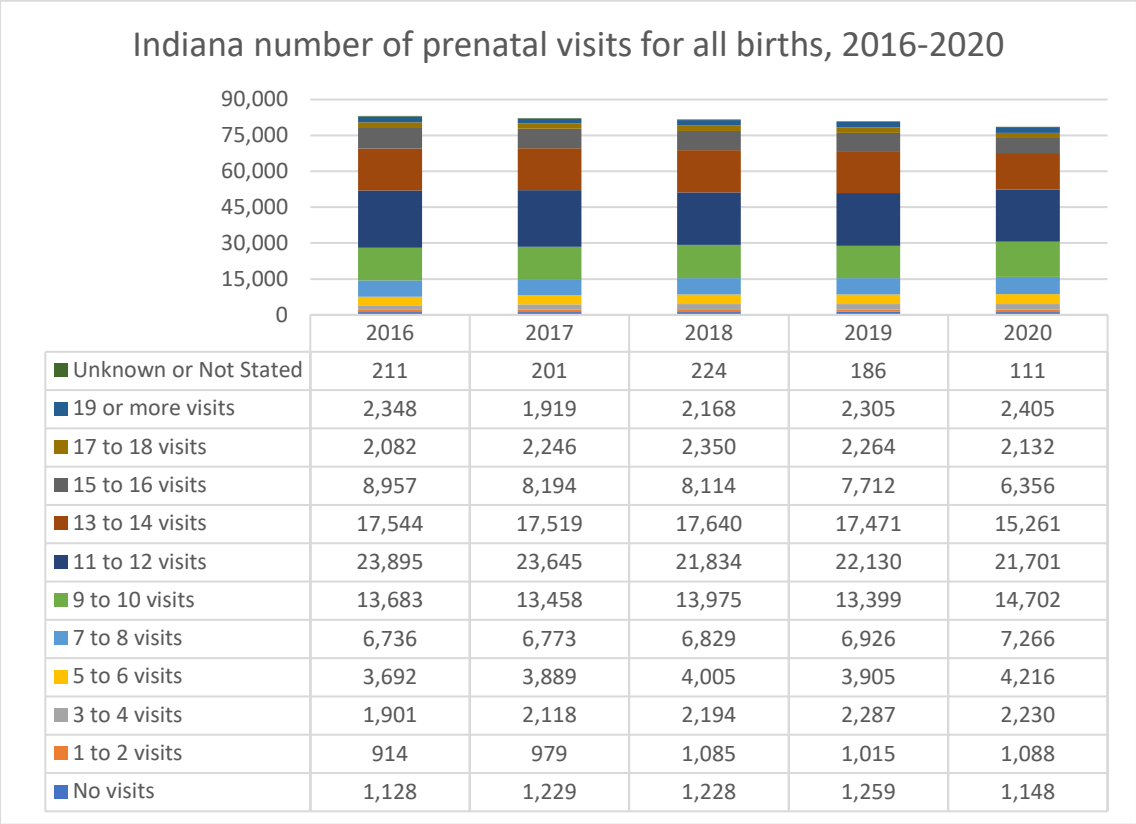
Chart 53: Local number of prenatal visits for private insurance births



	2016	2017	2018	2019	2020
Unknown or Not Stated	16	16	17	22	
19 or more visits	84	166	132	154	210
17 to 18 visits	100	118	98	92	121
15 to 16 visits	338	326	294	272	366
13 to 14 visits	508	522	558	544	546
11 to 12 visits	1,228	1,088	816	817	570
9 to 10 visits	273	300	700	789	755
7 to 8 visits	93	116	186	199	218
5 to 6 visits	28	37	64	70	91
3 to 4 visits	13	18	25	31	41
1 to 2 visits	10		10	15	17
No visits				13	10

Source: CDC Wonder Natality Data Expanded, 2016-2020

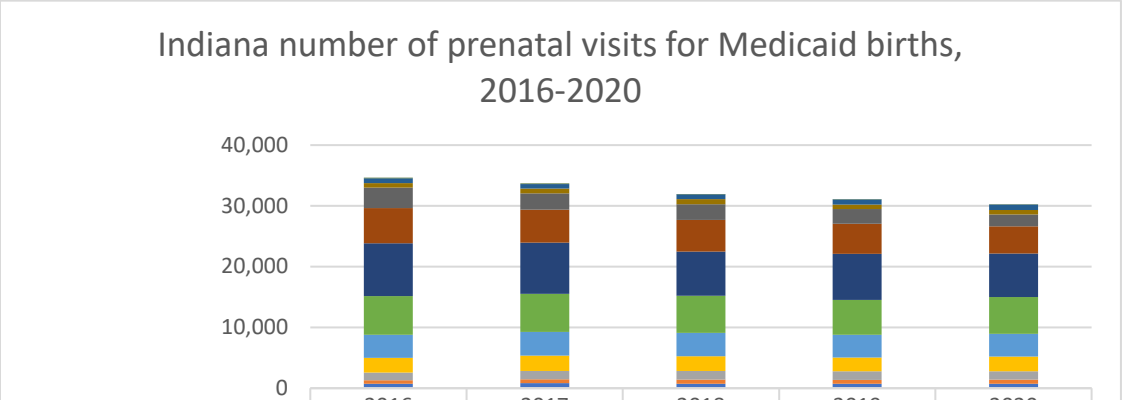
Chart 54: State number of prenatal visits for all births



	2016	2017	2018	2019	2020
Unknown or Not Stated	211	201	224	186	111
19 or more visits	2,348	1,919	2,168	2,305	2,405
17 to 18 visits	2,082	2,246	2,350	2,264	2,132
15 to 16 visits	8,957	8,194	8,114	7,712	6,356
13 to 14 visits	17,544	17,519	17,640	17,471	15,261
11 to 12 visits	23,895	23,645	21,834	22,130	21,701
9 to 10 visits	13,683	13,458	13,975	13,399	14,702
7 to 8 visits	6,736	6,773	6,829	6,926	7,266
5 to 6 visits	3,692	3,889	4,005	3,905	4,216
3 to 4 visits	1,901	2,118	2,194	2,287	2,230
1 to 2 visits	914	979	1,085	1,015	1,088
No visits	1,128	1,229	1,228	1,259	1,148

Source: CDC Wonder Natality Data Expanded, 2016-2020

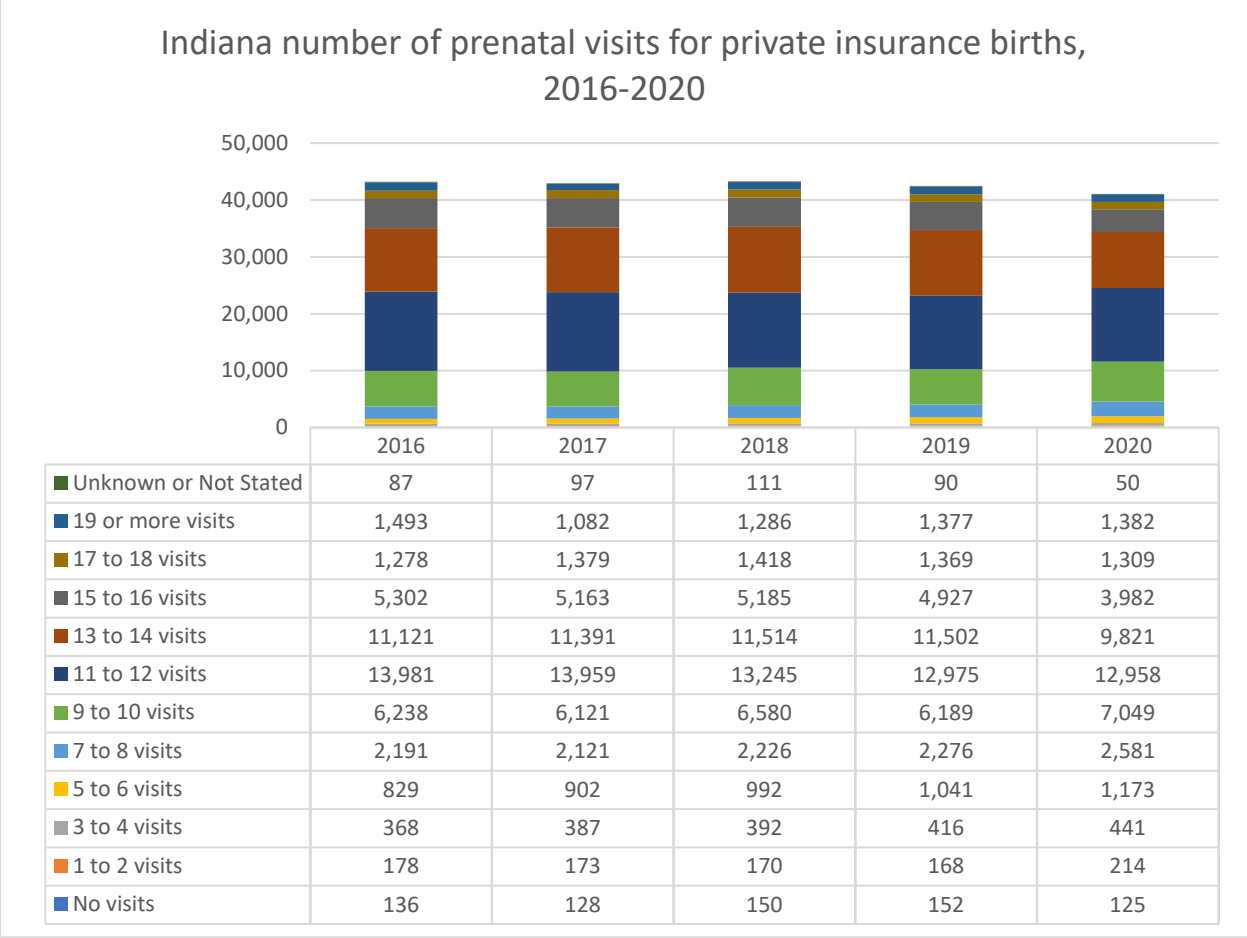
Chart 55: State number of prenatal visits for Medicaid births



	2016	2017	2018	2019	2020
Unknown or Not Stated	92	79	70	78	35
19 or more visits	790	768	806	816	890
17 to 18 visits	741	785	826	767	702
15 to 16 visits	3,372	2,701	2,580	2,387	1,985
13 to 14 visits	5,784	5,395	5,200	4,948	4,456
11 to 12 visits	8,720	8,421	7,262	7,611	7,142
9 to 10 visits	6,368	6,263	6,125	5,740	6,090
7 to 8 visits	3,797	3,923	3,827	3,731	3,731
5 to 6 visits	2,405	2,510	2,424	2,247	2,419
3 to 4 visits	1,236	1,381	1,418	1,463	1,379
1 to 2 visits	577	635	697	601	669
No visits	756	832	738	742	733

Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 56: State number of prenatal visits for private insurance births



	2016	2017	2018	2019	2020
Unknown or Not Stated	87	97	111	90	50
19 or more visits	1,493	1,082	1,286	1,377	1,382
17 to 18 visits	1,278	1,379	1,418	1,369	1,309
15 to 16 visits	5,302	5,163	5,185	4,927	3,982
13 to 14 visits	11,121	11,391	11,514	11,502	9,821
11 to 12 visits	13,981	13,959	13,245	12,975	12,958
9 to 10 visits	6,238	6,121	6,580	6,189	7,049
7 to 8 visits	2,191	2,121	2,226	2,276	2,581
5 to 6 visits	829	902	992	1,041	1,173
3 to 4 visits	368	387	392	416	441
1 to 2 visits	178	173	170	168	214
No visits	136	128	150	152	125

Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- The number of Medicaid and private insurance births in Allen County with 11 to 12 visits shrank over the time period studied while those with 9 to 10 visits grew, and not just for 2020, making 9 to 10 visits the most common number of visits for births in all three categories for 2020.
- Allen County's Medicaid insurance births with 19 or more visits grew during the time period studied from 84 in 2016 to 183 in 2020.
- Allen County's private insurance births with 19 or more visits grew during the time period studied from 84 in 2016 to 210 in 2020.
- 11 to 12 visits was the most common number of visits for Indiana births regardless of payment source across the years studied.

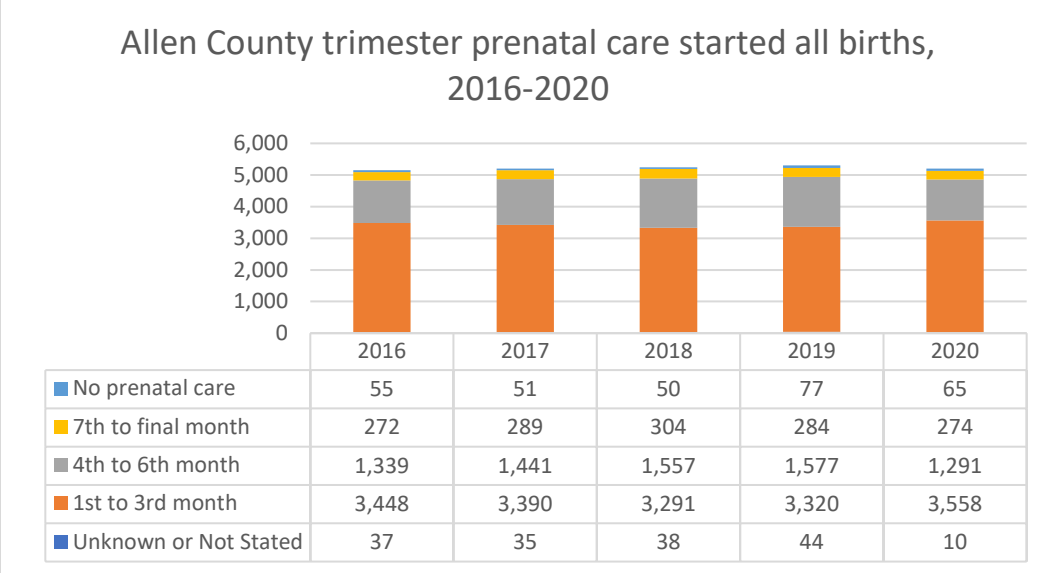
Trimester prenatal care began

The CDC reports when prenatal care began under two metrics, using OE gestational age: the trimester care began and the month care began, as tracked on the mother's medical record.[34] For this report, CRI looked at both measures.

[34] User Guide to the 2020 Natality Public Use File, CDC, p. 58.

The CDC did not report total number of births for the trimester prenatal began by payment category so CRI is providing an annual count by all births, Medicaid births, and private insurance births for Allen County and Indiana for trimester when prenatal care started.

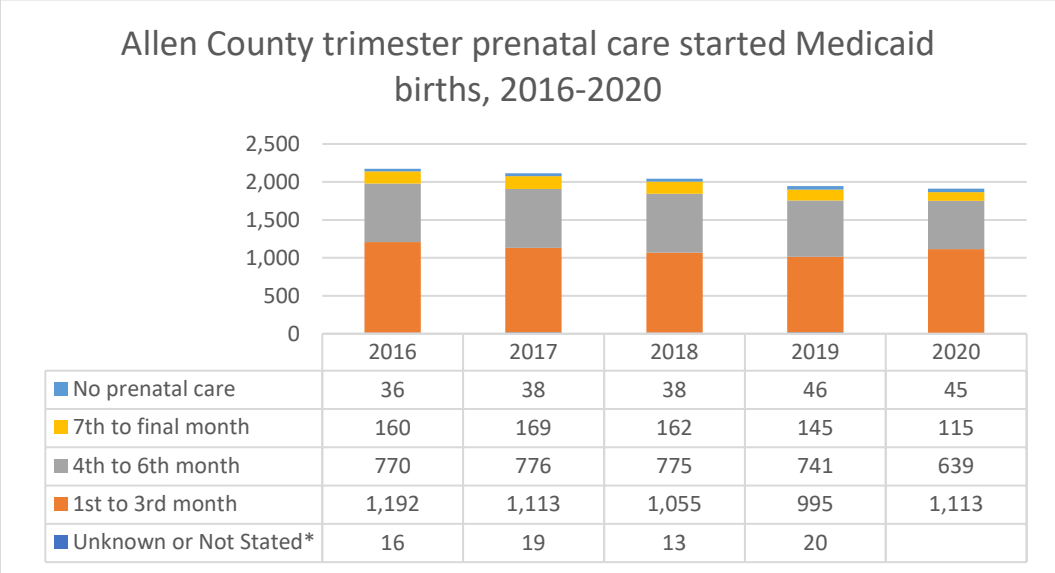
Chart 57: Local trimester prenatal care started all births



	2016	2017	2018	2019	2020
No prenatal care	55	51	50	77	65
7th to final month	272	289	304	284	274
4th to 6th month	1,339	1,441	1,557	1,577	1,291
1st to 3rd month	3,448	3,390	3,291	3,320	3,558
Unknown or Not Stated	37	35	38	44	10

Source: CDC Wonder Natality Data Expanded, 2016-2020

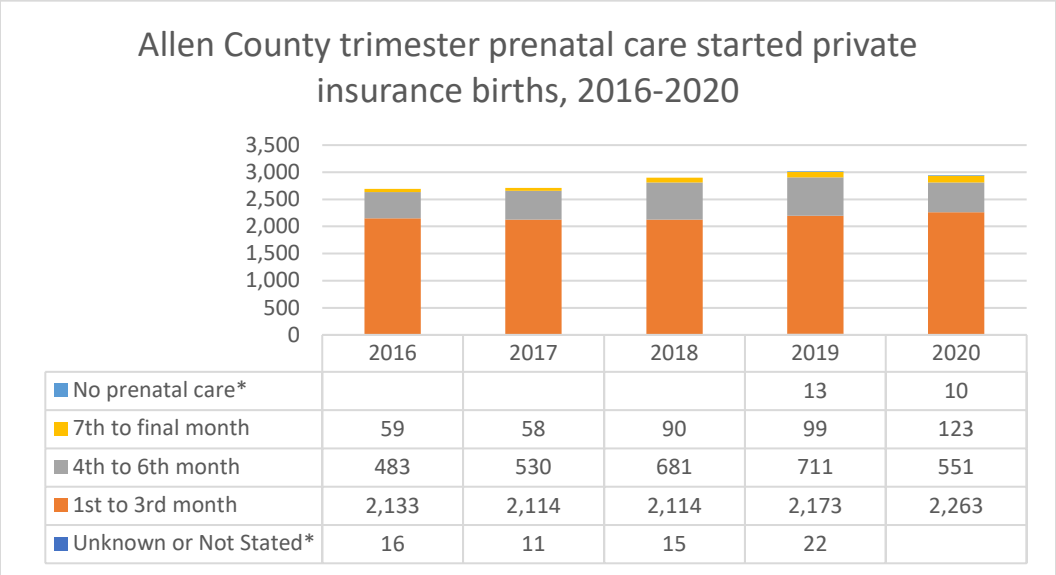
Chart 58: Local trimester prenatal care started Medicaid births



	2016	2017	2018	2019	2020
No prenatal care	36	38	38	46	45
7th to final month	160	169	162	145	115
4th to 6th month	770	776	775	741	639
1st to 3rd month	1,192	1,113	1,055	995	1,113
Unknown or Not Stated*	16	19	13	20	

Source: CDC Wonder Natality Data Expanded, 2016-2020

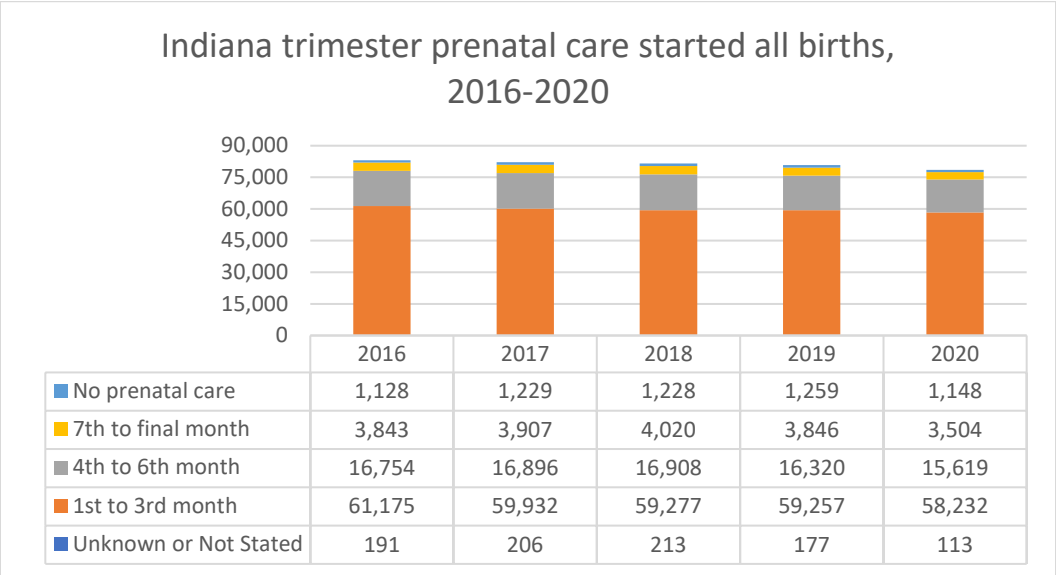
Chart 59: Local trimester prenatal care started private insurance births



	2016	2017	2018	2019	2020
No prenatal care*				13	10
7th to final month	59	58	90	99	123
4th to 6th month	483	530	681	711	551
1st to 3rd month	2,133	2,114	2,114	2,173	2,263
Unknown or Not Stated*	16	11	15	22	

Source: CDC Wonder Natality Data Expanded, 2016-2020

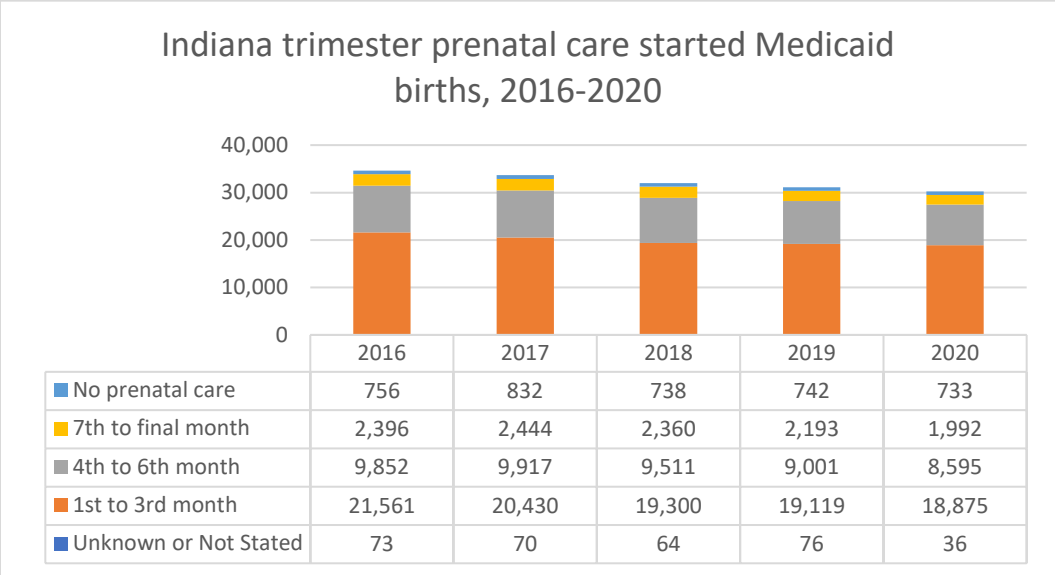
Chart 60: State trimester prenatal care started all births



	2016	2017	2018	2019	2020
No prenatal care	1,128	1,229	1,228	1,259	1,148
7th to final month	3,843	3,907	4,020	3,846	3,504
4th to 6th month	16,754	16,896	16,908	16,320	15,619
1st to 3rd month	61,175	59,932	59,277	59,257	58,232
Unknown or Not Stated	191	206	213	177	113

Source: CDC Wonder Natality Data Expanded, 2016-2020

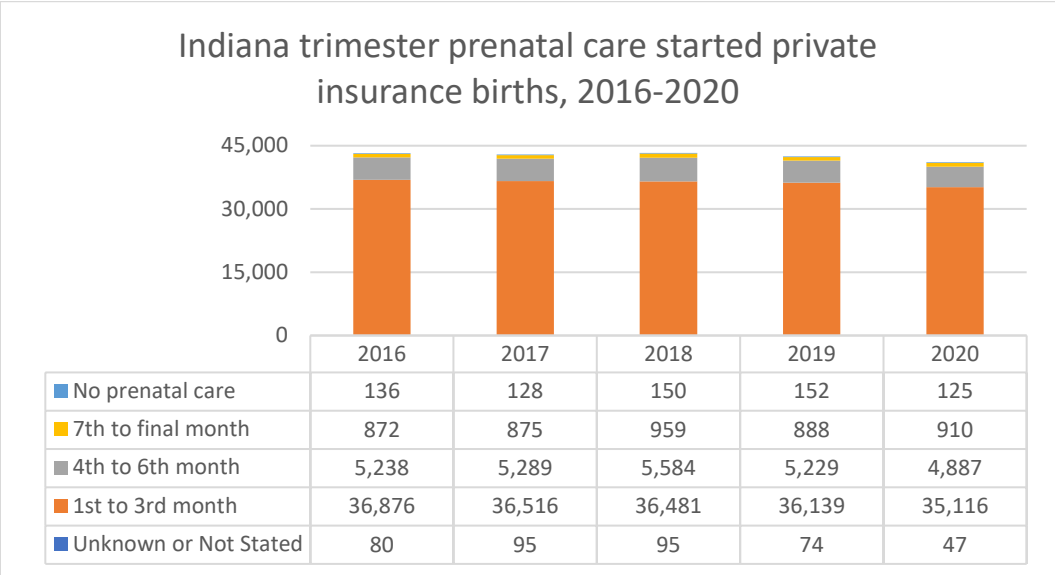
Chart 61: State trimester prenatal care started Medicaid births



	2016	2017	2018	2019	2020
No prenatal care	756	832	738	742	733
7th to final month	2,396	2,444	2,360	2,193	1,992
4th to 6th month	9,852	9,917	9,511	9,001	8,595
1st to 3rd month	21,561	20,430	19,300	19,119	18,875
Unknown or Not Stated	73	70	64	76	36

Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 62: State trimester prenatal care started private insurance births



	2016	2017	2018	2019	2020
No prenatal care	136	128	150	152	125
7th to final month	872	875	959	888	910
4th to 6th month	5,238	5,289	5,584	5,229	4,887
1st to 3rd month	36,876	36,516	36,481	36,139	35,116
Unknown or Not Stated	80	95	95	74	47

Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

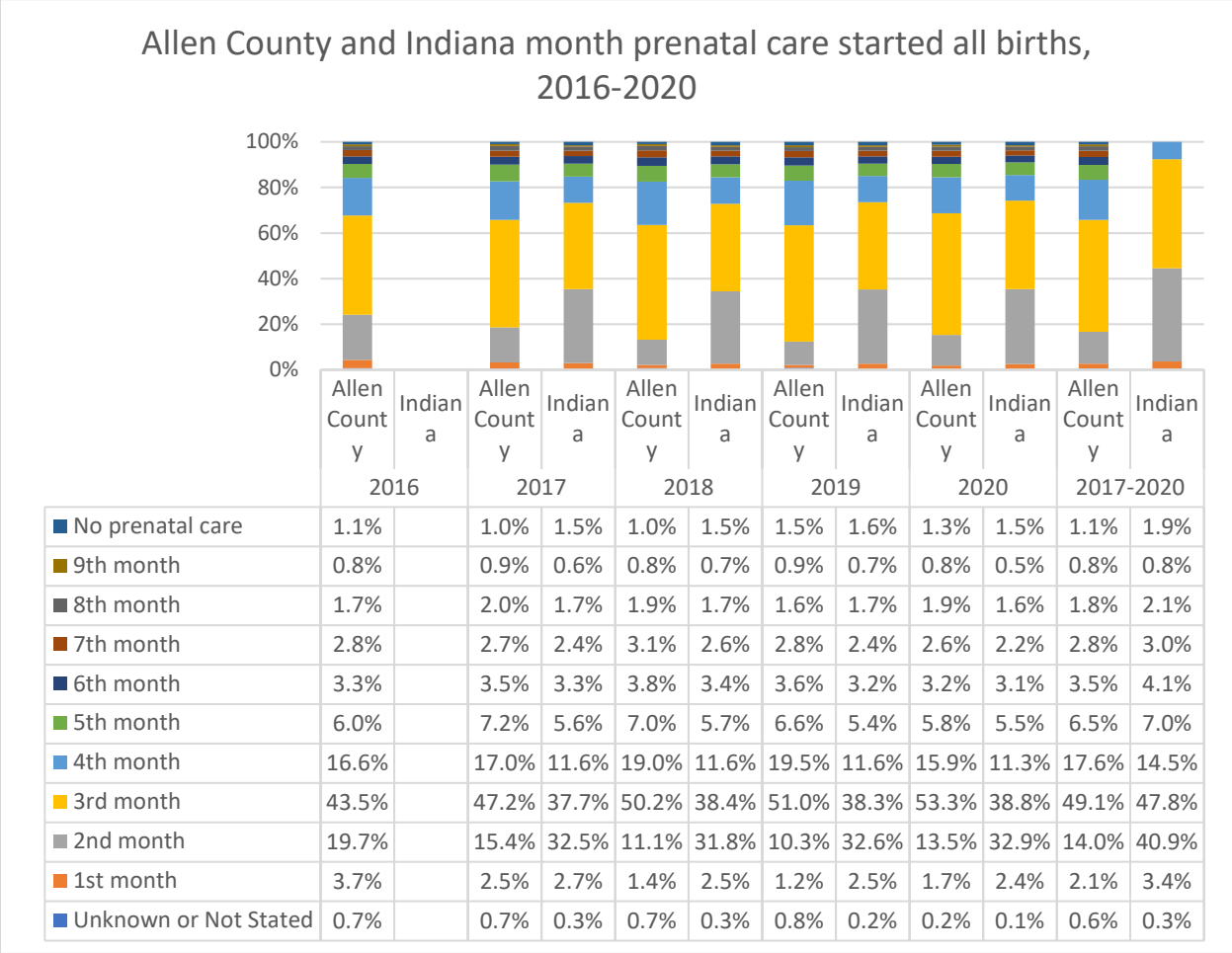
- The majority of women got prenatal care in the first trimester locally and in Indiana, regardless of payment source.
- More Medicaid births in Allen County had care start between the 4th and 6th month as compared to private insurance births despite being a smaller number of total births.
- Most Allen County and Indiana births with no prenatal care were covered by Medicaid.

Month prenatal care began

In addition to trimester that prenatal started, the CDC reports the month prenatal care started.

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages. CRI compared the Allen County percentages to the comparable state numbers in the following tables, separated by payment. No data were reported for Indiana in 2016.

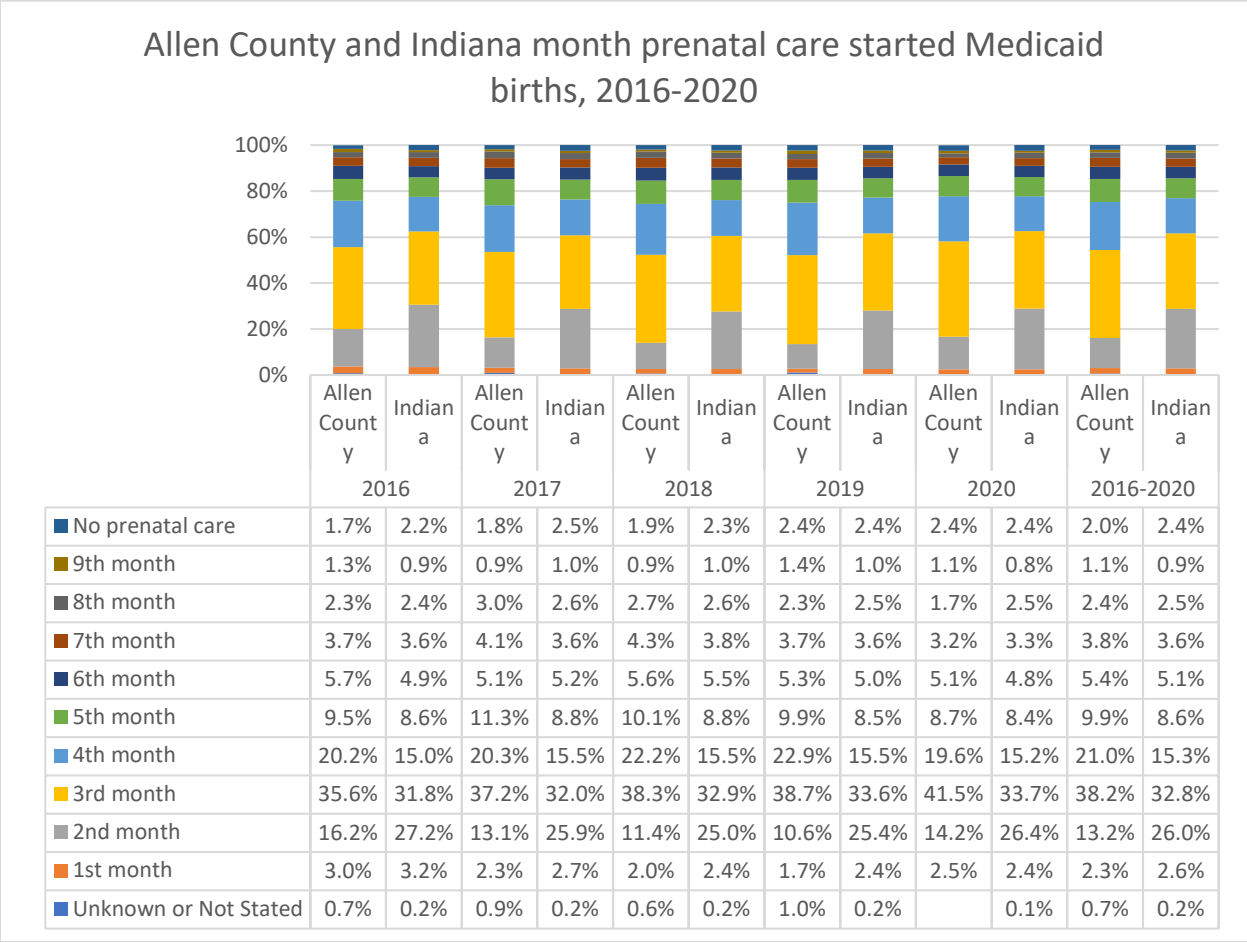
Chart 63: Local and state month prenatal care started all births



	2016		2017		2018		2019		2020		2017-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
No prenatal care	1.1%		1.0%	1.5%	1.0%	1.5%	1.5%	1.6%	1.3%	1.5%	1.1%	1.9%
9th month	0.8%		0.9%	0.6%	0.8%	0.7%	0.9%	0.7%	0.8%	0.5%	0.8%	0.8%
8th month	1.7%		2.0%	1.7%	1.9%	1.7%	1.6%	1.7%	1.9%	1.6%	1.8%	2.1%
7th month	2.8%		2.7%	2.4%	3.1%	2.6%	2.8%	2.4%	2.6%	2.2%	2.8%	3.0%
6th month	3.3%		3.5%	3.3%	3.8%	3.4%	3.6%	3.2%	3.2%	3.1%	3.5%	4.1%
5th month	6.0%		7.2%	5.6%	7.0%	5.7%	6.6%	5.4%	5.8%	5.5%	6.5%	7.0%
4th month	16.6%		17.0%	11.6%	19.0%	11.6%	19.5%	11.6%	15.9%	11.3%	17.6%	14.5%
3rd month	43.5%		47.2%	37.7%	50.2%	38.4%	51.0%	38.3%	53.3%	38.8%	49.1%	47.8%
2nd month	19.7%		15.4%	32.5%	11.1%	31.8%	10.3%	32.6%	13.5%	32.9%	14.0%	40.9%
1st month	3.7%		2.5%	2.7%	1.4%	2.5%	1.2%	2.5%	1.7%	2.4%	2.1%	3.4%
Unknown or Not Stated	0.7%		0.7%	0.3%	0.7%	0.3%	0.8%	0.2%	0.2%	0.1%	0.6%	0.3%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020 (10th month Indiana data excluded; no reported Indiana data for 2016)

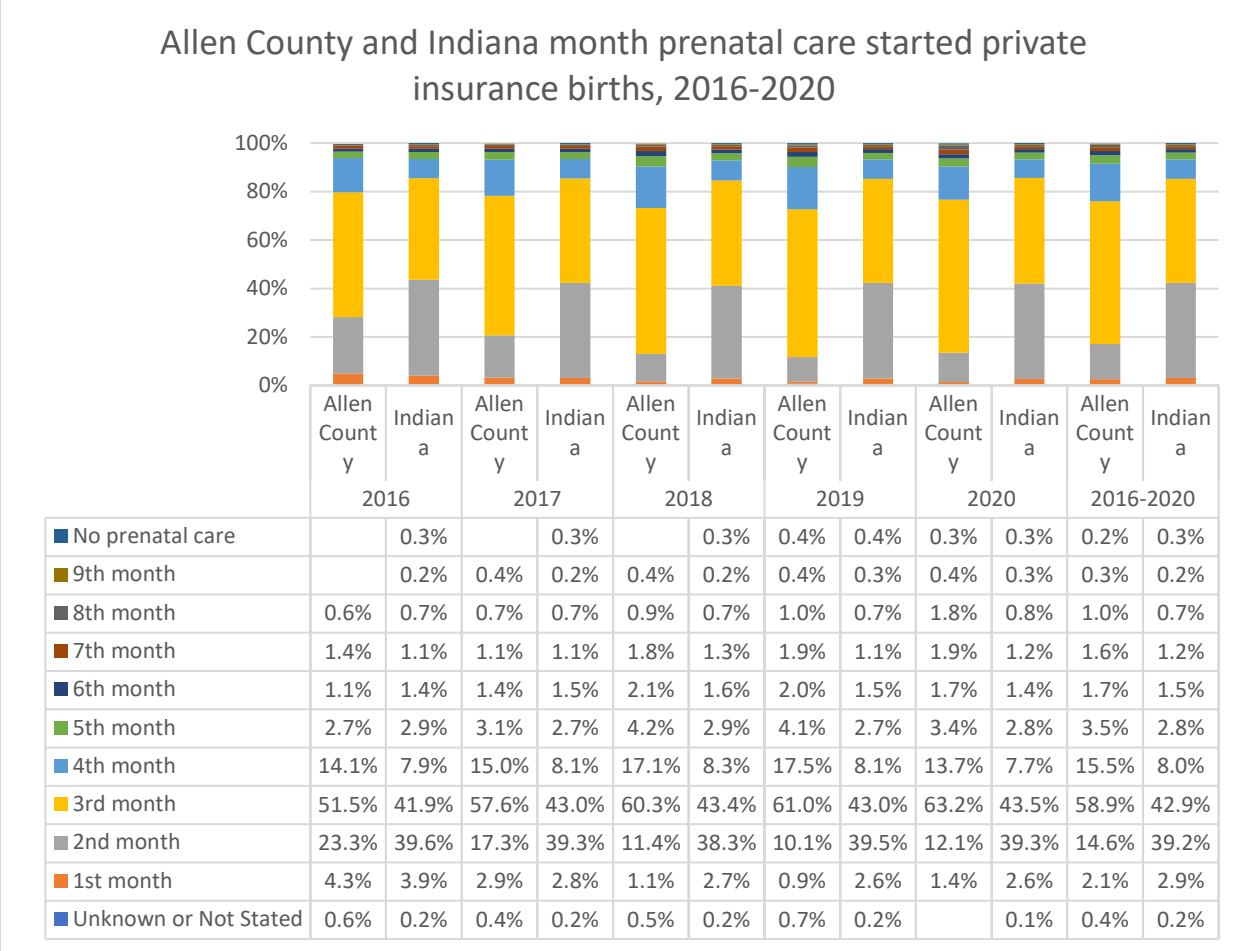
Chart 64: Local and state month prenatal care started Medicaid births



	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
	2016		2017		2018		2019		2020		2016-2020	
No prenatal care	1.7%	2.2%	1.8%	2.5%	1.9%	2.3%	2.4%	2.4%	2.4%	2.4%	2.0%	2.4%
9th month	1.3%	0.9%	0.9%	1.0%	0.9%	1.0%	1.4%	1.0%	1.1%	0.8%	1.1%	0.9%
8th month	2.3%	2.4%	3.0%	2.6%	2.7%	2.6%	2.3%	2.5%	1.7%	2.5%	2.4%	2.5%
7th month	3.7%	3.6%	4.1%	3.6%	4.3%	3.8%	3.7%	3.6%	3.2%	3.3%	3.8%	3.6%
6th month	5.7%	4.9%	5.1%	5.2%	5.6%	5.5%	5.3%	5.0%	5.1%	4.8%	5.4%	5.1%
5th month	9.5%	8.6%	11.3%	8.8%	10.1%	8.8%	9.9%	8.5%	8.7%	8.4%	9.9%	8.6%
4th month	20.2%	15.0%	20.3%	15.5%	22.2%	15.5%	22.9%	15.5%	19.6%	15.2%	21.0%	15.3%
3rd month	35.6%	31.8%	37.2%	32.0%	38.3%	32.9%	38.7%	33.6%	41.5%	33.7%	38.2%	32.8%
2nd month	16.2%	27.2%	13.1%	25.9%	11.4%	25.0%	10.6%	25.4%	14.2%	26.4%	13.2%	26.0%
1st month	3.0%	3.2%	2.3%	2.7%	2.0%	2.4%	1.7%	2.4%	2.5%	2.4%	2.3%	2.6%
Unknown or Not Stated	0.7%	0.2%	0.9%	0.2%	0.6%	0.2%	1.0%	0.2%		0.1%	0.7%	0.2%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Chart 65: Local and state month prenatal care started private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
No prenatal care		0.3%		0.3%		0.3%	0.4%	0.4%	0.3%	0.3%	0.2%	0.3%
9th month		0.2%	0.4%	0.2%	0.4%	0.2%	0.4%	0.3%	0.4%	0.3%	0.3%	0.2%
8th month	0.6%	0.7%	0.7%	0.7%	0.9%	0.7%	1.0%	0.7%	1.8%	0.8%	1.0%	0.7%
7th month	1.4%	1.1%	1.1%	1.1%	1.8%	1.3%	1.9%	1.1%	1.9%	1.2%	1.6%	1.2%
6th month	1.1%	1.4%	1.4%	1.5%	2.1%	1.6%	2.0%	1.5%	1.7%	1.4%	1.7%	1.5%
5th month	2.7%	2.9%	3.1%	2.7%	4.2%	2.9%	4.1%	2.7%	3.4%	2.8%	3.5%	2.8%
4th month	14.1%	7.9%	15.0%	8.1%	17.1%	8.3%	17.5%	8.1%	13.7%	7.7%	15.5%	8.0%
3rd month	51.5%	41.9%	57.6%	43.0%	60.3%	43.4%	61.0%	43.0%	63.2%	43.5%	58.9%	42.9%
2nd month	23.3%	39.6%	17.3%	39.3%	11.4%	38.3%	10.1%	39.5%	12.1%	39.3%	14.6%	39.2%
1st month	4.3%	3.9%	2.9%	2.8%	1.1%	2.7%	0.9%	2.6%	1.4%	2.6%	2.1%	2.9%
Unknown or Not Stated	0.6%	0.2%	0.4%	0.2%	0.5%	0.2%	0.7%	0.2%		0.1%	0.4%	0.2%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Since CRI could calculate the percentages of each month for the populations studied, CRI also calculated the differences between Allen County and Indiana for the respective payment source as shown in the following tables.

Table 24: Difference between local and state respective month prenatal care began all births

	2016	2017	2018	2019	2020	2017-2020
Unknown or Not Stated		0.42%	0.46%	0.61%	0.05%	0.35%
1st month		-0.21%	-1.07%	-1.22%	-0.70%	-1.32%
2nd month		-17.06%	-20.62%	-22.22%	-19.40%	-26.93%
3rd month		9.45%	11.89%	12.77%	14.48%	1.28%
4th month		5.34%	7.37%	7.92%	4.60%	3.15%
5th month		1.62%	1.29%	1.22%	0.27%	-0.47%
6th month		0.16%	0.34%	0.42%	0.09%	-0.59%
7th month		0.23%	0.51%	0.39%	0.37%	-0.24%
8th month		0.33%	0.25%	-0.03%	0.22%	-0.27%
9th month		0.24%	0.13%	0.24%	0.24%	0.05%

No prenatal care		-0.52%	-0.55%	-0.10%	-0.21%	-0.71%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020 (excludes Indiana's 10th month data; 2016 Indiana total for all births not reported)

Table 25: Difference between local and state respective month prenatal care began Medicaid births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	0.53%	0.69%	0.44%	0.78%		0.47%
1st month	-0.18%	-0.46%	-0.45%	-0.65%	0.08%	-0.33%
2nd month	-10.94%	-12.72%	-13.69%	-14.81%	-12.16%	-12.83%
3rd month	3.71%	5.16%	5.41%	5.15%	7.79%	5.39%
4th month	5.18%	4.82%	6.71%	7.38%	4.38%	5.68%
5th month	0.91%	2.58%	1.33%	1.39%	0.36%	1.33%
6th month	0.89%	-0.15%	0.15%	0.38%	0.22%	0.30%
7th month	0.15%	0.43%	0.50%	0.19%	-0.09%	0.24%
8th month	-0.15%	0.36%	0.18%	-0.22%	-0.83%	-0.12%
9th month	0.41%	-0.04%	-0.11%	0.46%	0.35%	0.21%
No prenatal care	-0.53%	-0.67%	-0.45%	-0.02%	-0.07%	-0.36%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020 (no Allen County data reported for blank cells)

Table 26: Difference between local and state respective month prenatal care began private insurance births

	2016	2017	2018	2019	2020	2016-2020
Unknown or Not Stated	0.41%	0.18%	0.44%	0.55%		0.26%
1st month	0.42%	0.05%	-0.45%	-1.78%	-1.24%	-0.87%
2nd month	-16.33%	-21.96%	-13.69%	-29.32%	-27.21%	-24.54%
3rd month	9.67%	14.58%	5.41%	18.03%	19.67%	15.92%
4th month	6.17%	6.87%	6.71%	9.36%	5.98%	7.47%
5th month	-0.11%	0.41%	1.33%	1.45%	0.51%	0.73%
6th month	-0.26%	-0.11%	0.15%	0.44%	0.29%	0.17%
7th month	0.33%	-0.02%	0.50%	0.71%	0.71%	0.46%
8th month	-0.18%	-0.03%	0.18%	0.35%	1.06%	0.29%
9th month		0.15%	-0.11%	0.13%	0.18%	0.09%
No prenatal care				0.07%	0.03%	-0.16%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020 (no Allen County data reported for blank cells)

Analysis and trends

- Women in Allen County were more likely than women in Indiana to start prenatal care in the third month, regardless of payment source. Indiana women were more likely to start prenatal care in the second month.
- More than half of Allen County births covered by private insurance had prenatal care start in the third month.

- The second-third month disparity was higher for private insurance births in Allen County compared to Medicaid births.

Maternal health characteristics

The CDC collects the following information about maternal physical health:[35]

- Pre-pregnancy body mass index
- Height
- Pre-pregnancy weight
- Weight at delivery
- Weight gain during pregnancy
- Cigarette smoking before and during pregnancy
- Diabetes: pre-pregnancy and gestational
- Hypertension: pre-pregnancy and gestational
- Eclampsia
- Previous preterm births
- Pregnancy resulting from infertility treatment
- Previous cesarean delivery
- Infections present and/or treated during pregnancy: gonorrhea, syphilis, chlamydia, hepatitis B, and hepatitis C

For this project, CRI evaluated the following:

- Maternal risk factors checked
- Tobacco use
- Gestational diabetes
- Pre-pregnancy hypertension
- Gestational hypertension

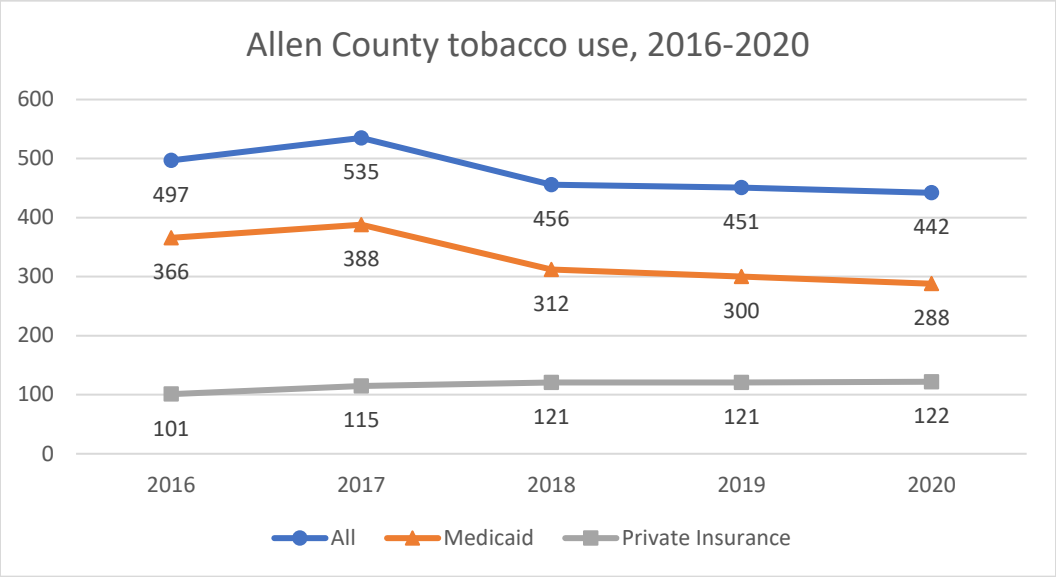
Tobacco use

The CDC's mother's worksheet asks about the woman's use of cigarettes, not including e-cigarettes, in the three months before becoming pregnant and then for each of the trimesters.[36] It specifically asks about the number of cigarettes or number of packs.[37] The data here reflect any tobacco use during pregnancy.

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births for Allen County and Indiana with reported tobacco use.

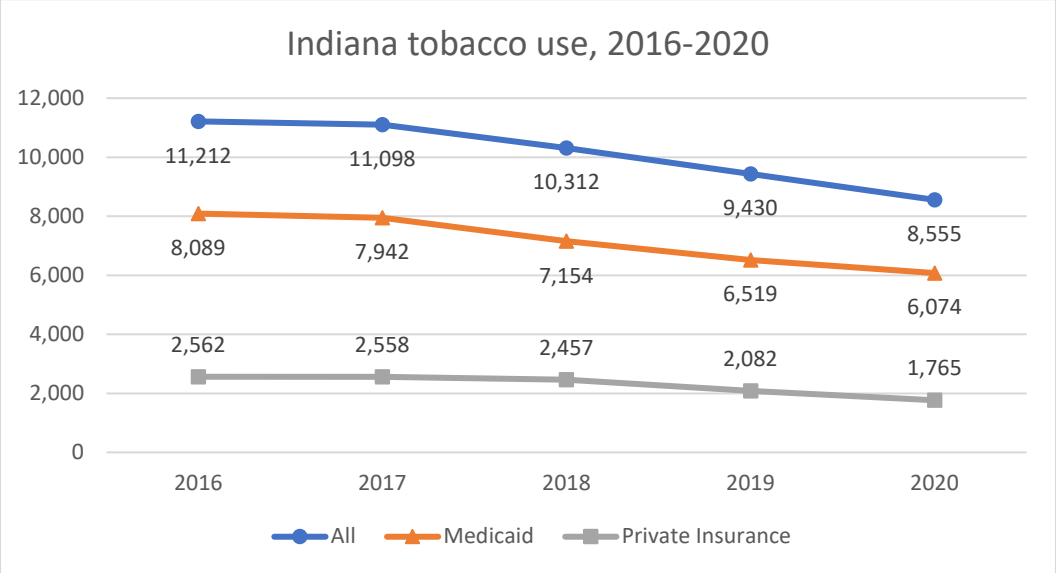
[35] User Guide to the 2020 Natality Public Use File, CDC, pp. 63-67.
[36] Mother's Worksheet for Child's Birth Certificate (2016), CDC, p 4.
[37] Ibid.

Chart 66: Local births with reported tobacco use



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 67: State births with reported tobacco use



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- The majority of births involving tobacco use across both geographies were Medicaid births.
- In Allen County, the number of all and Medicaid births with tobacco use went down with time while private insurance births with tobacco use went up slightly, which is consistent with the number of private insurance births increasing during the time period studied.
- Indiana's births with tobacco use went down for all, Medicaid, and private insurance, but this also mirrors Indiana's trend for fewer total births over time.

- Since the total number of births were not provided for this measure, CRI could not calculate with specificity if the percentage of births with tobacco use had gone commiserate with the number of births.

Maternal health risk factors checked

The CDC reports if any of the following six risk factors are checked on a birth:[38]

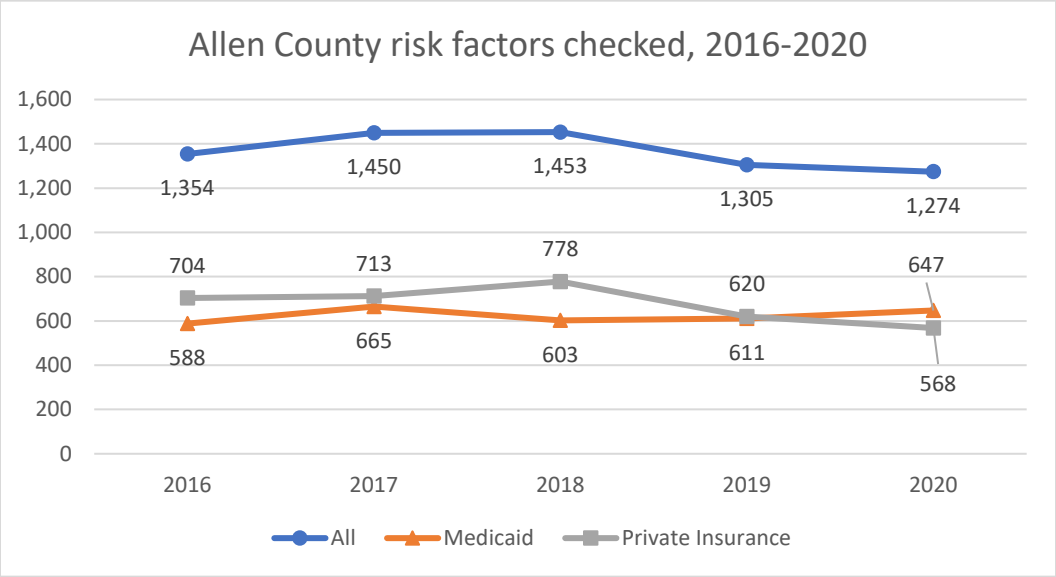
- Pre-pregnancy or gestational diabetes: Glucose intolerance requiring treatment; if diabetes was diagnosed before pregnancy, it is pre-pregnancy; diabetes diagnosed during pregnancy is gestational; only box should be checked, not both.[39]
- Pre-pregnancy or gestational hypertension: Elevated blood pressure above normal for age, gender, and physiological condition. Chronic or high blood pressure diagnosed before pregnancy is pre-pregnancy hypertension; gestational high blood pressure was diagnosed during pregnancy and includes pre-eclampsia. Like diabetes, pre-pregnancy or gestational hypertension should be checked but not both.[40]
- Eclampsia: Hypertension with proteinuria with generalized seizures or coma and can include pathologic edema. If eclampsia is present, pre-pregnancy or gestational hypertension could be checked.[41]
- Previous preterm births: Mother had one or more previous pregnancies ending with a live birth before 37 weeks of gestation[42]
- Pregnancy resulting from infertility treatment: Any assisted reproduction treatment used to initiate the pregnancy, including fertility-enhancing drugs like Clomid or Pergonal, artificial or intrauterine insemination, and assisted reproduction technology procedures including invitro fertilization[43]
- Previous cesarean delivery

On the respective paperwork, more than one risk factor can be included with a choice of "None of the above." If no boxes were checked, it is classified as "Not stated."[44]

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births for Allen County and Indiana for maternal health risk factors.

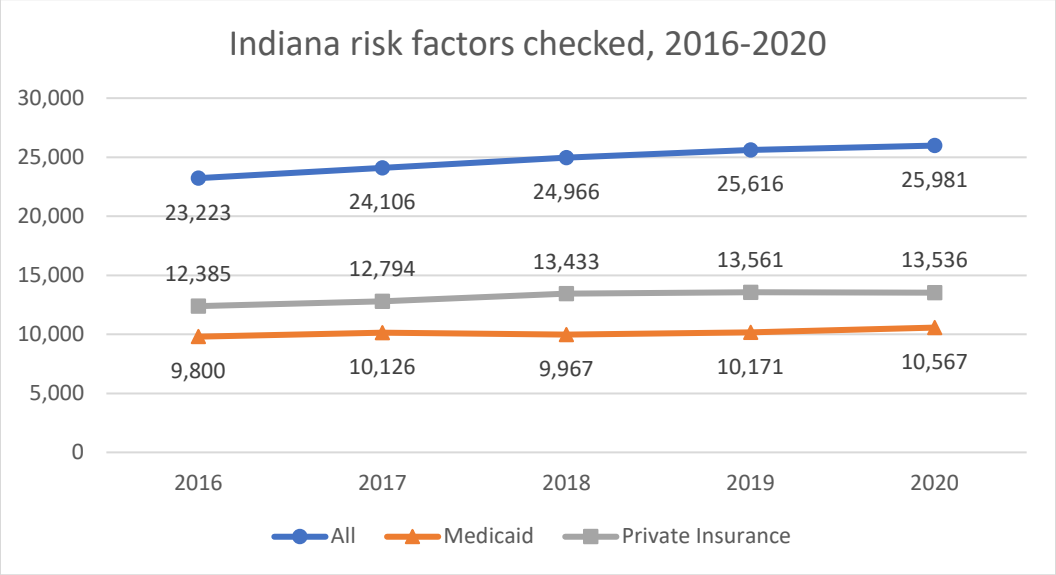
[38] User Guide to the 2020 Natality Public Use File, CDC, pp. 65.
[39] Facility Worksheet for the Live Birth Certificate (2016), CDC, p. 3.
[40] Ibid.
[41] Ibid.
[42] Ibid.
[43] Ibid.
[44] User Guide to the 2020 Natality Public Use File, CDC, pp. 65.

Chart 68: Local births with at least one maternal health risk factor checked



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 69: State births with at least one maternal health risk factor checked



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

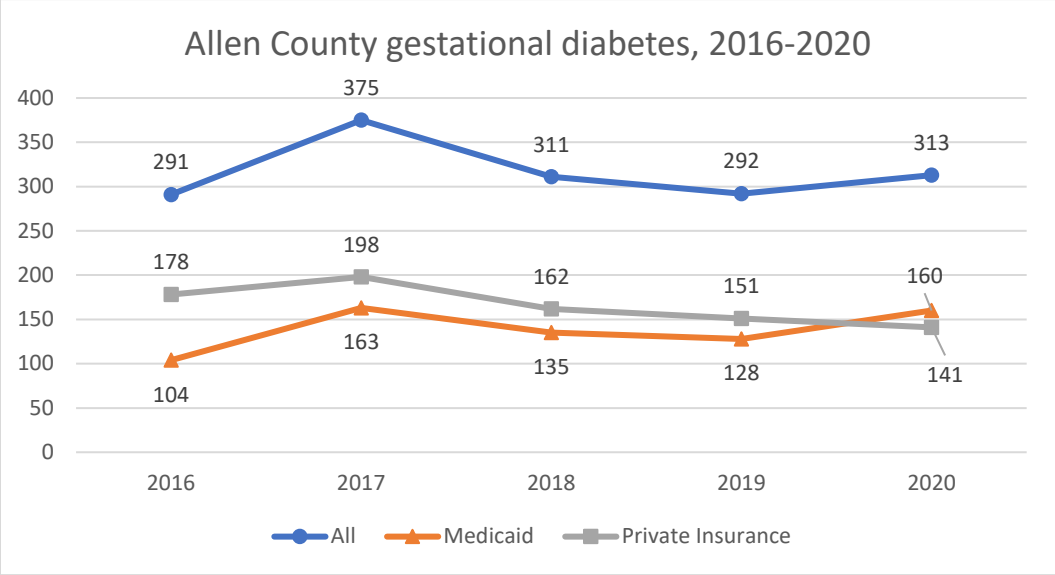
- Allen County's total births with risk factors checked went up slightly then receded, with more private insurance births reflecting maternal risk factors than Medicaid until 2020.
- Despite fewer births over time in the state, the number of births in the three categories studied – all, Medicaid, and private insurance –went up over time, but private insurance outpaced Medicaid for all years studied in Indiana.

Gestational diabetes

The CDC considers diabetes as glucose intolerance requiring treatment.[45] It distinguishes between pre-pregnancy and gestational diabetes by when the woman was diagnosed.[46] Data are collected as "or," not an "and" so that any mother who was listed as having pre-pregnancy diabetes is excluded from being counted in gestational diabetes. Since the number of infants born to mothers with pre-pregnancy diabetes was very small in Allen County, CRI opted to look only at gestational diabetes.

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births for Allen County and Indiana reporting gestational diabetes.

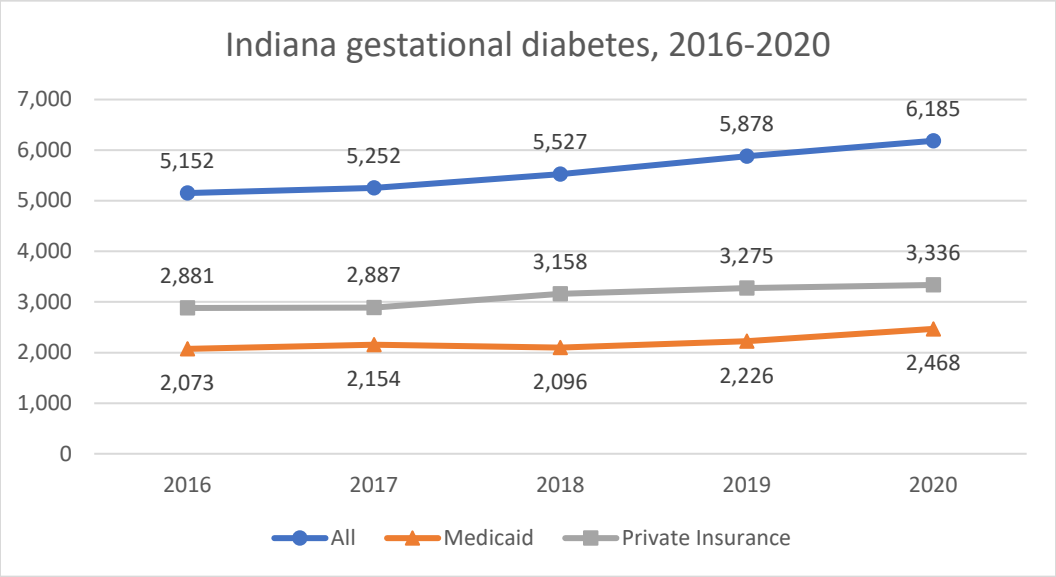
Chart 70: Local births with gestational diabetes



Source: CDC Wonder Natality Data Expanded, 2016-2020

[45] Facility Worksheet for the Live Birth Certificate (2016), CDC, p. 3.
[46] Ibid.

Chart 71: State births with gestational diabetes



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Allen County's births showed an up-and-down trend for the number of infants born to mothers with gestational diabetes, with numbers going up between 2016 and 2018, going down for 2019 and then going up again in 2020.
- Allen County's total of Medicaid births went down during the time period studied but the number of Medicaid births to women with gestational diabetes went up, while the total number of private insurance births went up yet the number of infants born to women with gestational diabetes went down.
- The gestational diabetes trend in Indiana was inverse to total births in the state. While the number of births went down for all, Medicaid, and private insurance, births to women experiencing gestational diabetes went up.

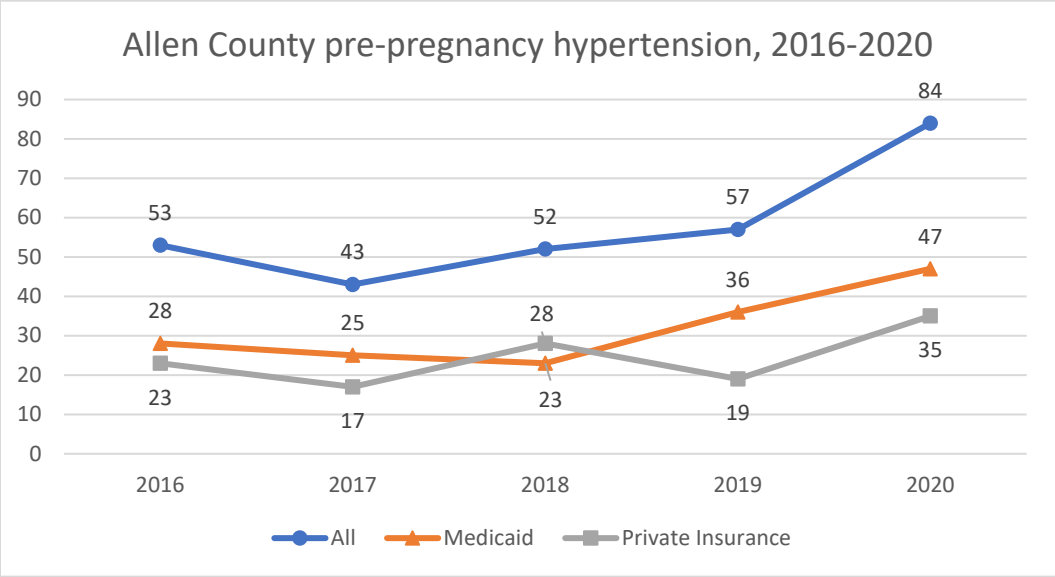
Pre-pregnancy hypertension

Similar to diabetes, the CDC tracks hypertension or high blood pressure based on when it started: pre-pregnancy or gestational onset with one but not both categories checked. Hypertension is defined as elevated blood pressure above normal for age, gender, and physiological condition.[47]

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births and not percentage for Allen County and Indiana for pre-pregnancy hypertension.

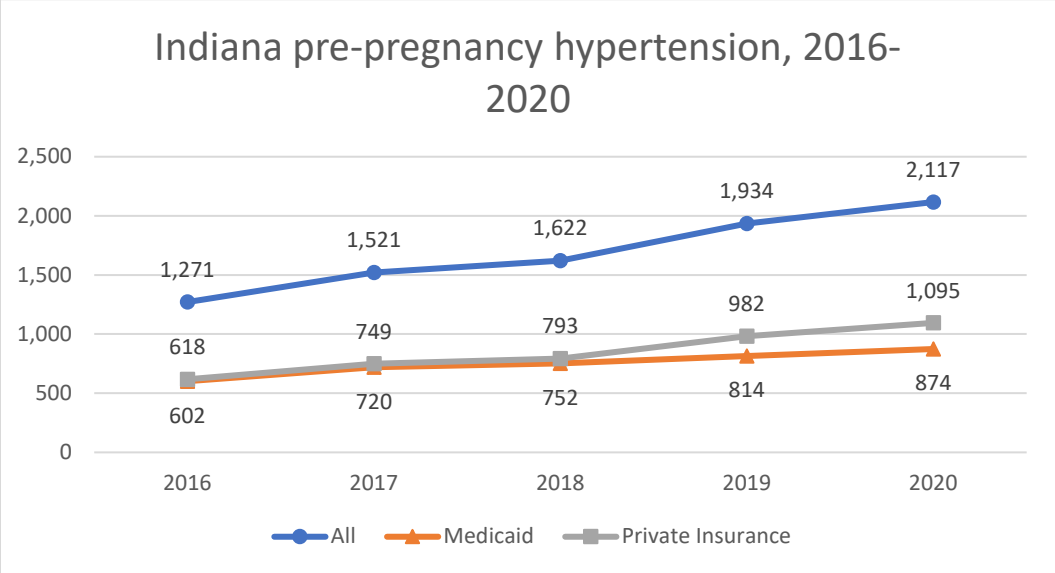
[47] Facility Worksheet for the Live Birth Certificate (2016), CDC, p. 3.

Chart 72: Local births with pre-pregnancy hypertension



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 73: State births with pre-pregnancy hypertension



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Both geographies saw an increase in pre-pregnancy hypertension over time.
    - Indiana had a steady annual increase, while Allen County's dipped between 2016 and 2017 but went up between 2018 and 2020 for all births.
- Allen County, with the exception of 2018, had more Medicaid births with pre-pregnancy hypertension than private insurance.
- Indiana has nearly equivalent numbers for private insurance and Medicaid births with pre-pregnancy hypertension, but the number of private insurance births with this diagnosis outpaced Medicaid births from 2018 to 2020.

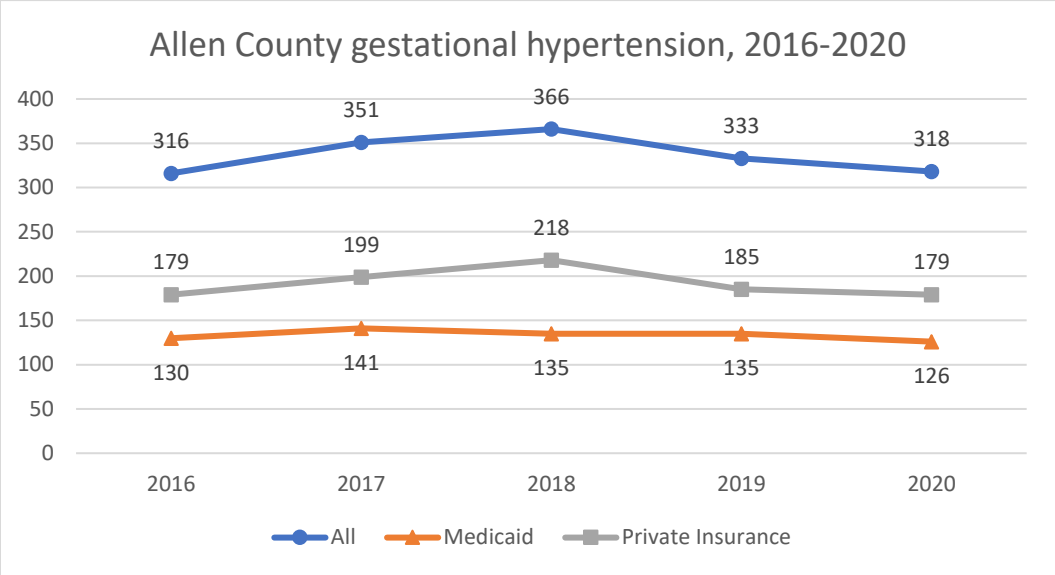
Gestational hypertension

Gestational hypertension includes pregnancy-induced hypertension and pre-eclampsia.[48] More information about what qualifies as hypertension and the distinction between tracking pre-pregnancy and gestational high blood pressure is in the pre-pregnancy hypertension section.

The CDC tracks eclampsia separately from gestational hypertension. CRI did not include eclampsia data in this report due to the small number of births reporting such. Births with eclampsia may be included in the pre-pregnancy and gestational hypertension statistics.[49]

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births for Allen County and Indiana for gestational hypertension.

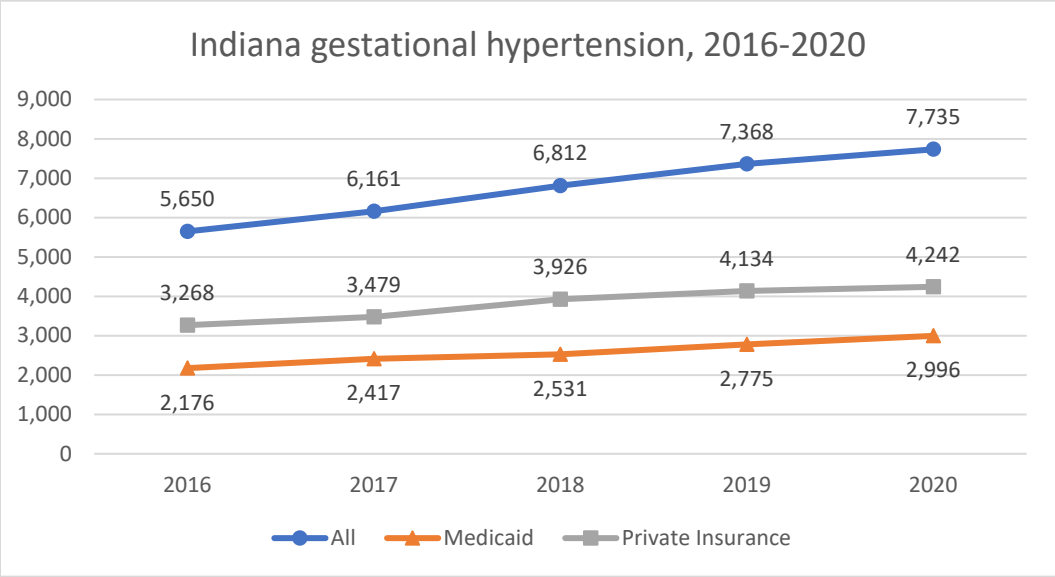
Chart 74: Local births with gestational hypertension



Source: CDC Wonder Natality Data Expanded, 2016-2020

[48] Facility Worksheet for the Live Birth Certificate (2016), CDC, p. 3.
[49] Facility Worksheet for the Live Birth Certificate (2016), CDC, p. 3.

Chart 75: State births with gestational hypertension



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Gestational hypertension reflects similar trends to what was seen in pre-pregnancy hypertension: an up-and-down trend over time for Allen County and an upward trend in Indiana.
- Births with private insurance in Allen County and Indiana outnumbered births with Medicaid for infants born to women with gestational hypertension.

Labor and delivery data

The CDC collects information on six labor and delivery characteristics:[50]

1. Induction of labor
2. Augmentation of labor
3. Steroid use
4. Antibiotics administered to mother during labor
5. Clinical chorioamnionitis or maternal temperature greater than or equal to 38°C
6. Epidural or spinal anesthesia during labor

For this report, CRI evaluated labor induction and anesthesia data.

Induction of labor

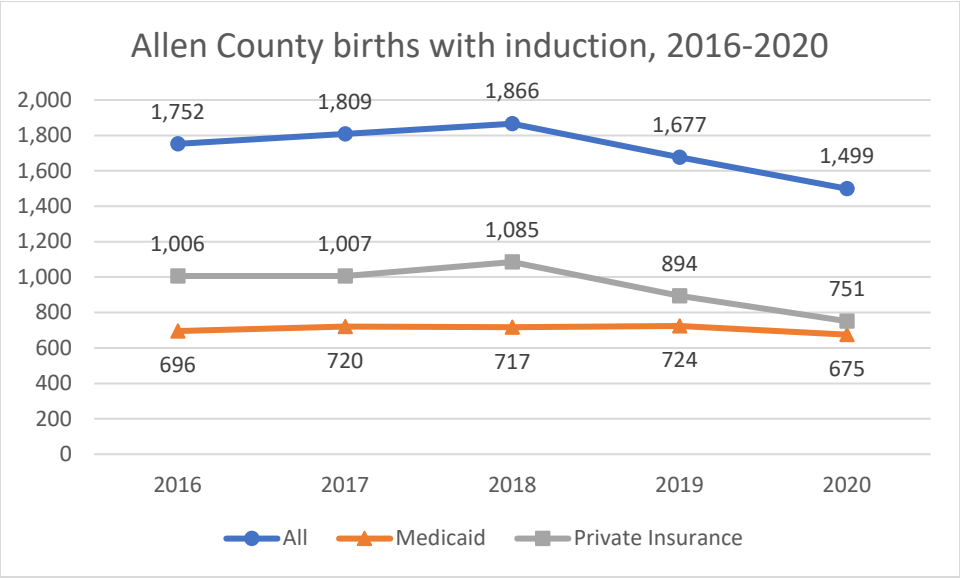
Labor is considered induced if uterine contractions are initiated through medical or surgical means before labor's spontaneous start.[51] This does not include augmentation of labor, which reflects the use of medication or physical manipulation to reduce the time to delivery.[52] Augmentation of labor is counted with induction if induction was used initially.[53]

[50] "User Guide to the 2020 Natality Public Use File," CDC, p. 59
[51] CDC Facility Worksheet for the Live Birth Certificate, January 5, 2017, p. 5.
[52] Ibid.
[53] Ibid.

The CDC did not report total number of births for this measure by payment category so CRI is providing a count of labor induction by all births, Medicaid births, and private insurance births for Allen County and Indiana.

In 2014, Indiana Medicaid stopped paying for early, elective childbirths to reduce infant mortality and the health of the state's newborns because of the importance of the final weeks of gestation in fetal development. Starting July 1 of that year, Indiana Family and Social Services Administration (FSSA) would not "pay a hospital or physician for the delivery of a child prior to 39 weeks gestation that is not medically indicated or occurs naturally."[54] This data reflects the state's 2014 policy shift, which is still in effect now.

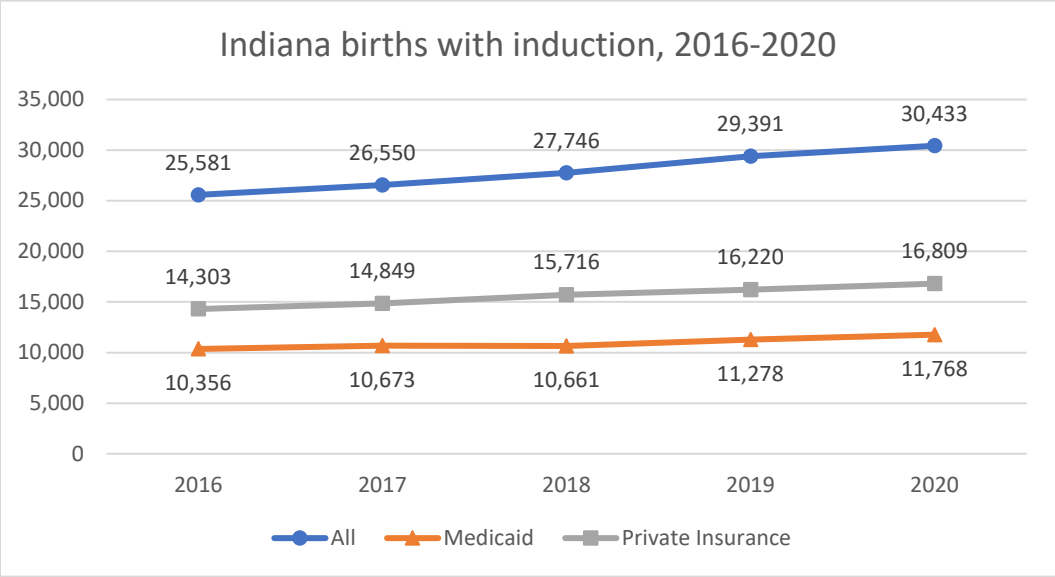
Chart 76: Local births with induction of labor



Source: CDC Wonder Natality Data Expanded, 2016-2020

[54] "Indiana Medicaid to stop paying for early, elective childbirths," FSSA news release, May 5, 2014. Available at https://www.in.gov/fssa/files/FSSA_Medicaid_childbirths_5.5.14.pdf.

Chart 77: State births with induction of labor



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Inductions in Allen County went down slightly overall and private insurance births while they remained generally flat for Medicaid births from 2016 to 2020.
- Indiana's inductions increased by number of births across the three populations while the total number of births statewide decreased, indicating a larger share of inductions across births during the five years studied.
- Medicaid births were less likely than private insurance births to be induced, although that separation started to shrink in Allen County over time while it remained constant with Indiana's births.

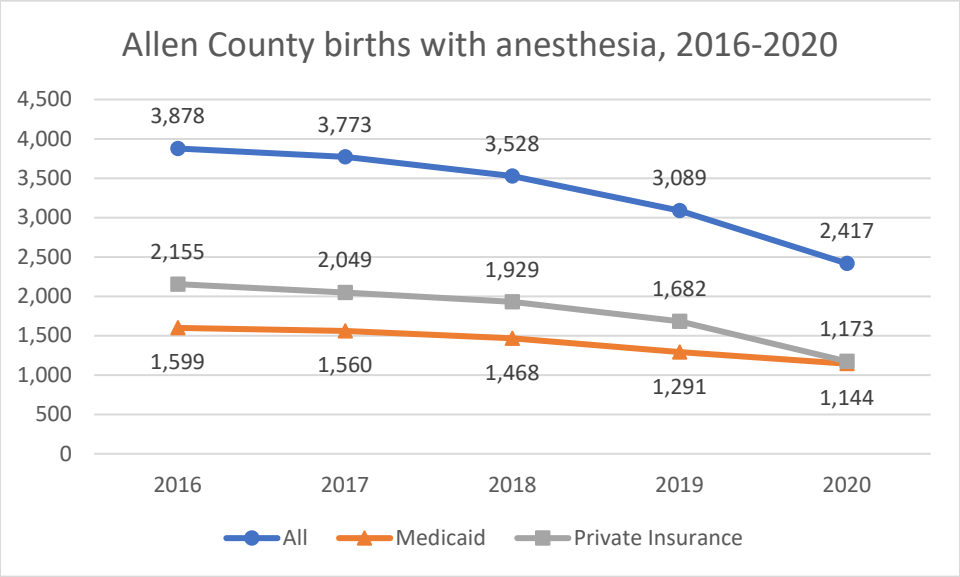
Anesthesia

For CDC data collection, anesthesia during labor and delivery is the use of a regional spinal or epidural anesthetic to control the mother's pain from labor in a limited space with the analgesic effect only on the lower body.[55]

The CDC did not report total number of births for this measure by payment category so CRI is providing an annual count using anesthesia by all births, Medicaid births, and private insurance births for Allen County and Indiana.

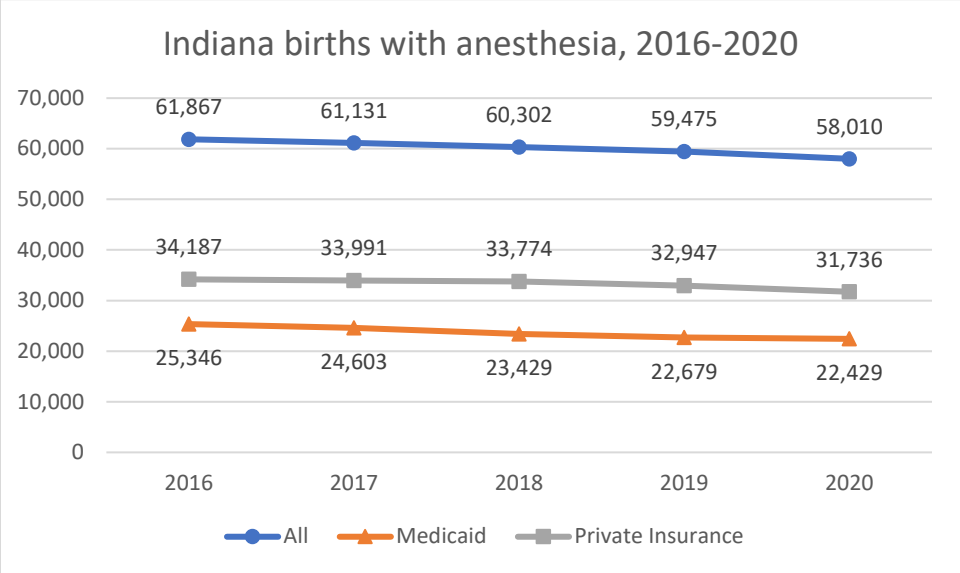
[55] CDC Facility Worksheet for the Live Birth Certificate, January 5, 2017, p. 5.

Chart 78: Local births with anesthesia



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 79: State births with anesthesia



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Allen County and Indiana births showed a downward trend for births using anesthesia over time.
    - This cannot be fully attributed to the pandemic in 2020 as it was declining in the years preceding that public health event.
- Allen County's total reduction was 37.7% between 2016 to 2020 compared to a 6.2% reduction statewide.

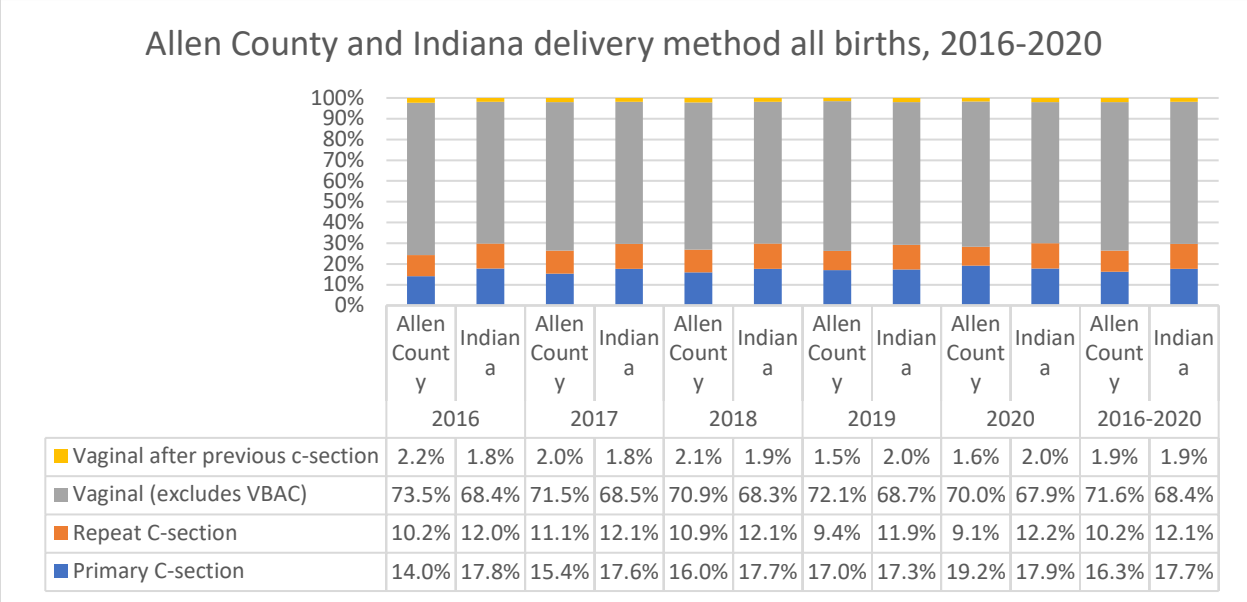
Delivery method

CRI used the expanded delivery method measure, which tracks vaginal and Cesarean deliveries in four categories:

- Primary C-section
- Repeat C-section
- Vaginal (excluding vaginal after previous C-section or VBAC)
- Vaginal after previous C-section

Since this measure could be calculated into percentages because of the reported category births and total births, CRI could create an equitable comparison between local and state numbers using percentages.

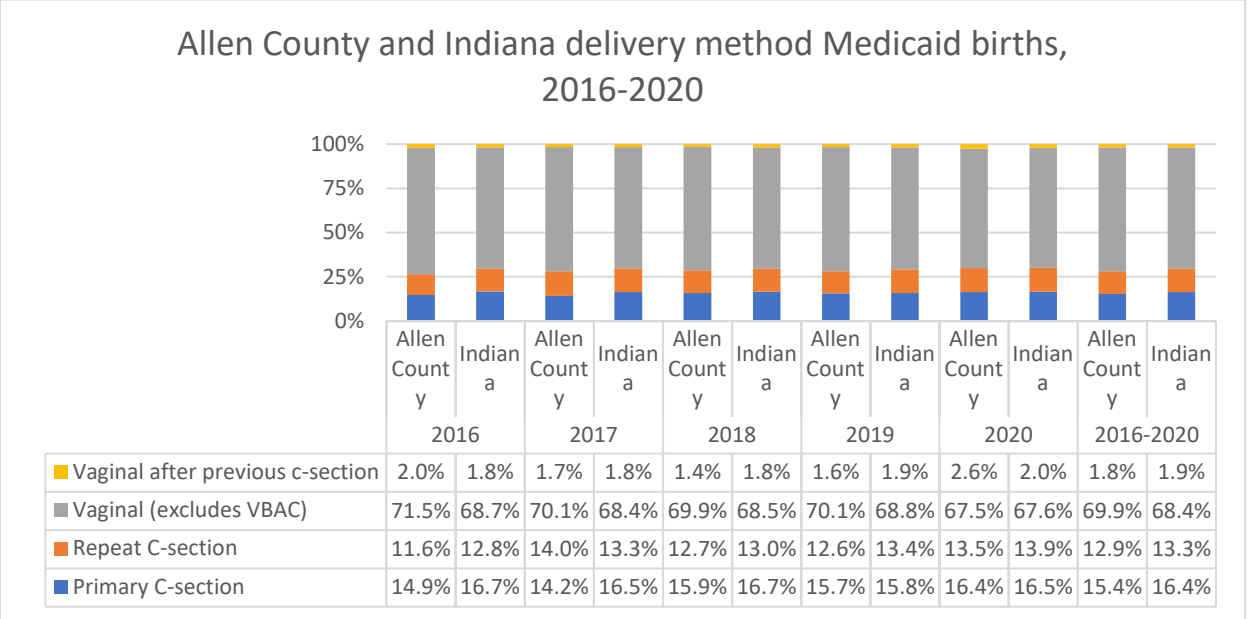
Chart 80: Local, state delivery method, all births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
Vaginal after previous c-section	2.2%	1.8%	2.0%	1.8%	2.1%	1.9%	1.5%	2.0%	1.6%	2.0%	1.9%	1.9%
Vaginal (excludes VBAC)	73.5%	68.4%	71.5%	68.5%	70.9%	68.3%	72.1%	68.7%	70.0%	67.9%	71.6%	68.4%
Repeat C-section	10.2%	12.0%	11.1%	12.1%	10.9%	12.1%	9.4%	11.9%	9.1%	12.2%	10.2%	12.1%
Primary C-section	14.0%	17.8%	15.4%	17.6%	16.0%	17.7%	17.0%	17.3%	19.2%	17.9%	16.3%	17.7%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

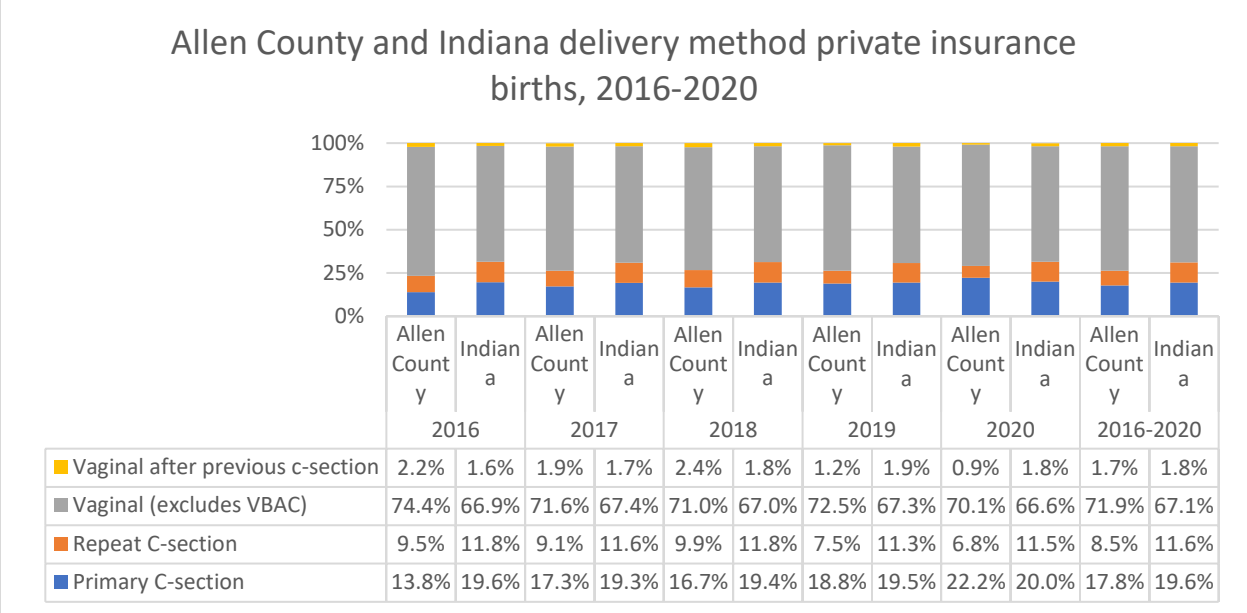
Chart 81: Local, state delivery method, Medicaid births



	2016		2017		2018		2019		2020		2016-2020	
	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana	Allen County	Indiana
Vaginal after previous c-section	2.0%	1.8%	1.7%	1.8%	1.4%	1.8%	1.6%	1.9%	2.6%	2.0%	1.8%	1.9%
Vaginal (excludes VBAC)	71.5%	68.7%	70.1%	68.4%	69.9%	68.5%	70.1%	68.8%	67.5%	67.6%	69.9%	68.4%
Repeat C-section	11.6%	12.8%	14.0%	13.3%	12.7%	13.0%	12.6%	13.4%	13.5%	13.9%	12.9%	13.3%
Primary C-section	14.9%	16.7%	14.2%	16.5%	15.9%	16.7%	15.7%	15.8%	16.4%	16.5%	15.4%	16.4%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Chart 82: Local, state delivery method, private insurance births



	Allen County 2016	Indiana 2016	Allen County 2017	Indiana 2017	Allen County 2018	Indiana 2018	Allen County 2019	Indiana 2019	Allen County 2020	Indiana 2020	Allen County 2016-2020	Indiana 2016-2020
Vaginal after previous c-section	2.2%	1.6%	1.9%	1.7%	2.4%	1.8%	1.2%	1.9%	0.9%	1.8%	1.7%	1.8%
Vaginal (excludes VBAC)	74.4%	66.9%	71.6%	67.4%	71.0%	67.0%	72.5%	67.3%	70.1%	66.6%	71.9%	67.1%
Repeat C-section	9.5%	11.8%	9.1%	11.6%	9.9%	11.8%	7.5%	11.3%	6.8%	11.5%	8.5%	11.6%
Primary C-section	13.8%	19.6%	17.3%	19.3%	16.7%	19.4%	18.8%	19.5%	22.2%	20.0%	17.8%	19.6%

Source: Percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

CRI compared Allen County percentages to comparable state numbers in the following tables, separated by payment. These tables show the difference between Allen County and Indiana. A negative number means Allen County was lower than the state, and a positive number means Allen County was higher than Indiana.

Table 27: Delivery method difference between Allen County and Indiana, all births

Difference: All	2016	2017	2018	2019	2020	2016-2020
Primary C-section	-3.75%	-2.22%	-1.69%	-0.33%	1.29%	-1.33%
Repeat C-section	-1.78%	-1.04%	-1.18%	-2.59%	-3.04%	-1.93%
Vaginal (excludes VBAC)	5.06%	3.00%	2.61%	3.42%	2.13%	3.24%
Vaginal after previous c-section	0.48%	0.21%	0.26%	-0.52%	-0.35%	0.02%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 28: Delivery method difference between Allen County and Indiana, Medicaid births

Difference: Medicaid births	2016	2017	2018	2019	2020	2016-2020
Primary C-section	-1.87%	-2.30%	-0.75%	-0.15%	-0.10%	-1.07%
Repeat C-section	-1.22%	0.67%	-0.26%	-0.82%	-0.34%	-0.39%
Vaginal (excludes VBAC)	2.87%	1.71%	1.38%	1.26%	-0.16%	1.45%
Vaginal after previous c-section	0.25%	-0.11%	-0.39%	-0.33%	0.56%	-0.01%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Table 29: Delivery method difference between Allen County and Indiana, private insurance births

Difference: Private insurance births	2016	2017	2018	2019	2020	2016-2020
Primary C-section	-5.77%	-2.06%	-2.76%	-0.64%	2.22%	-1.71%
Repeat C-section	-2.33%	-2.49%	-1.88%	-3.74%	-4.74%	-3.07%
Vaginal (excludes VBAC)	7.47%	4.24%	3.98%	5.15%	3.50%	4.83%

Vaginal after previous c-section	0.61%	0.26%	0.66%	-0.76%	-0.89%	-0.04%

Source: Differences and percentages calculated by CRI using CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- 73.5% of all local births were delivered vaginally, including VBACs, from 2016 to 2020, compared to 70.3% in Indiana.
    - In comparison, 71.7% of Medicaid births in Allen County were a vaginal delivery compared to 70.3% of Indiana's Medicaid births.
    - For private insurance births, 73.6% of Allen County births were vaginal deliveries compared to 68.9% statewide.
- Women were more likely in Allen County than Indiana to delivery vaginally, excluding VBACs, during the time period studied.
    - That difference declined over time so that by 2020, Medicaid births in Allen County were slightly less likely than the state to be a vaginal delivery.
- Consistent with vaginal delivery data, Allen County women were less likely to have a repeat C-section.

Maternal morbidity

The CDC maternal morbidity data reflects five medical events during labor and delivery:

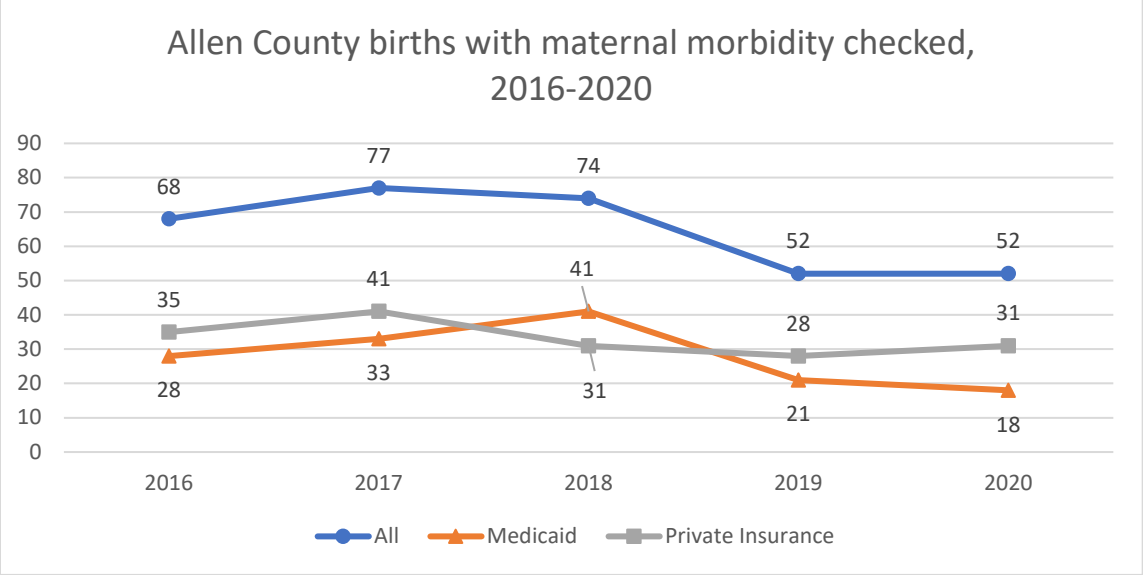
1. Maternal transfusion: Blood transfusion of whole blood or packed red blood cells for labor and delivery[56]
2. Third or fourth degree perineal laceration: A 3° laceration extends through the perineal skin, vaginal mucosa, perineal body and partially or completely through the anal sphincter; 4-degree laceration is all of 3-degree laceration with extension through rectal mucosa[57]
3. Ruptured uterus: Tearing of the uterine wall; full-thickness disruption of uterine wall that also involves the overlaying visceral peritoneum (uterine serosa). Does not include uterine dehiscence where the fetus, placenta, and umbilical cord remain in uterine cavity. Does not include a silent or incomplete rupture or an asymptomatic separation.[58]
4. Unplanned hysterectomy: Surgical removal of the uterus that was not planned prior to the admission, including an anticipated but not definitively planned hysterectomy.[59]
5. Admission to intensive care unit: Mother's planned or unplanned admission to a facility/unit designated as providing intensive care.[60]

If none of these events occur, the record is to be marked as "none of the above." If nothing was marked, the CDC records it as "not stated."[61]

[56] CDC Facility Worksheet for the Live Birth Certificate, January 5, 2017, p. 6.
[57] Ibid.
[58] Ibid.
[59] Ibid.
[60] Ibid.
[61] "User Guide to the 2020 Natality Public Use File," CDC, p. 67

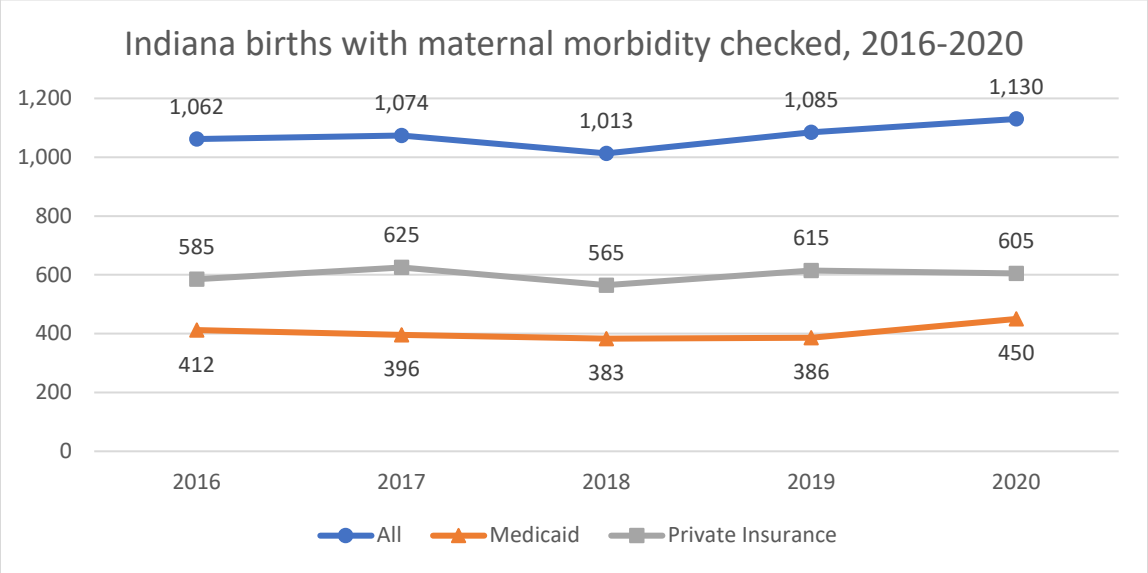
CDC did not report total number of births for this measure so CRI is providing a count by all births, Medicaid births, and private insurance births for Allen County and Indiana for maternal morbidity characteristics.

Chart 83: Allen County births with maternal morbidity checked



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 84: Indiana births with maternal morbidity checked



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Allen County's number of births with maternal morbidity checked declined during the five years studied.
- Indiana's births with a maternal morbidity element went up during the same time period for all three populations studied.

- With the exception of 2018 in Allen County, the number of private insurance births with maternal morbidity checked exceeded Medicaid births with the same measure.

Infant health characteristics

For this project, CRI used the following infant health characteristics from CDC natality extended data:

- Gestational age
- Birthweight
- 5-minute Apgar score
- Breastfed at discharge
- Abnormal conditions of newborn
- Congenital anomalies of newborn

The definitions and explanations of each of the metrics are in the respective section of this report.

The CDC also collects information about plurality – twins, triplets, etc. – in this category, but CRI did not include that information in this project.

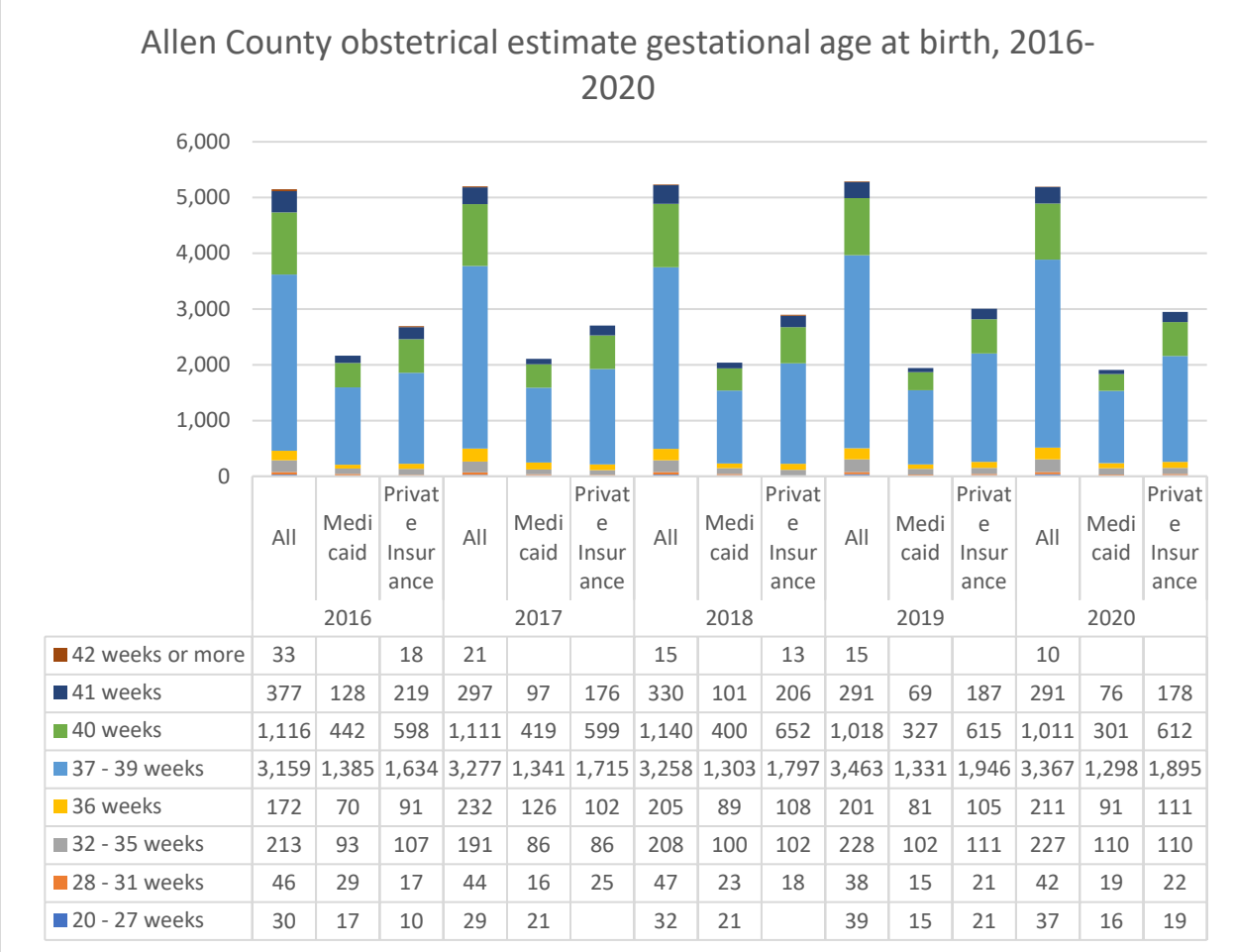
Gestational age

In the extended natality data, the CDC reports the gestational age of infants at time of birth under two different calculations: last menstrual period (LMP) and obstetric estimate (OE).[62] For this project, CRI used OE gestational age as that is the CDC's preferred gestational length metric.[63]

The CDC did not report total number of births for this measure by payment category so CRI is providing an annual count by all births, Medicaid births, and private insurance births for Allen County and Indiana for gestational age at birth.

[62] User Guide to the 2020 Natality Public Use File, CDC, p. 67. LMP gestational data was the preferred metric until 2014, when the National Center for Health Statistics shifted to OE-based data.
[63] See User Guide to the 2020 Natality Public Use File, CDC, p. 67.

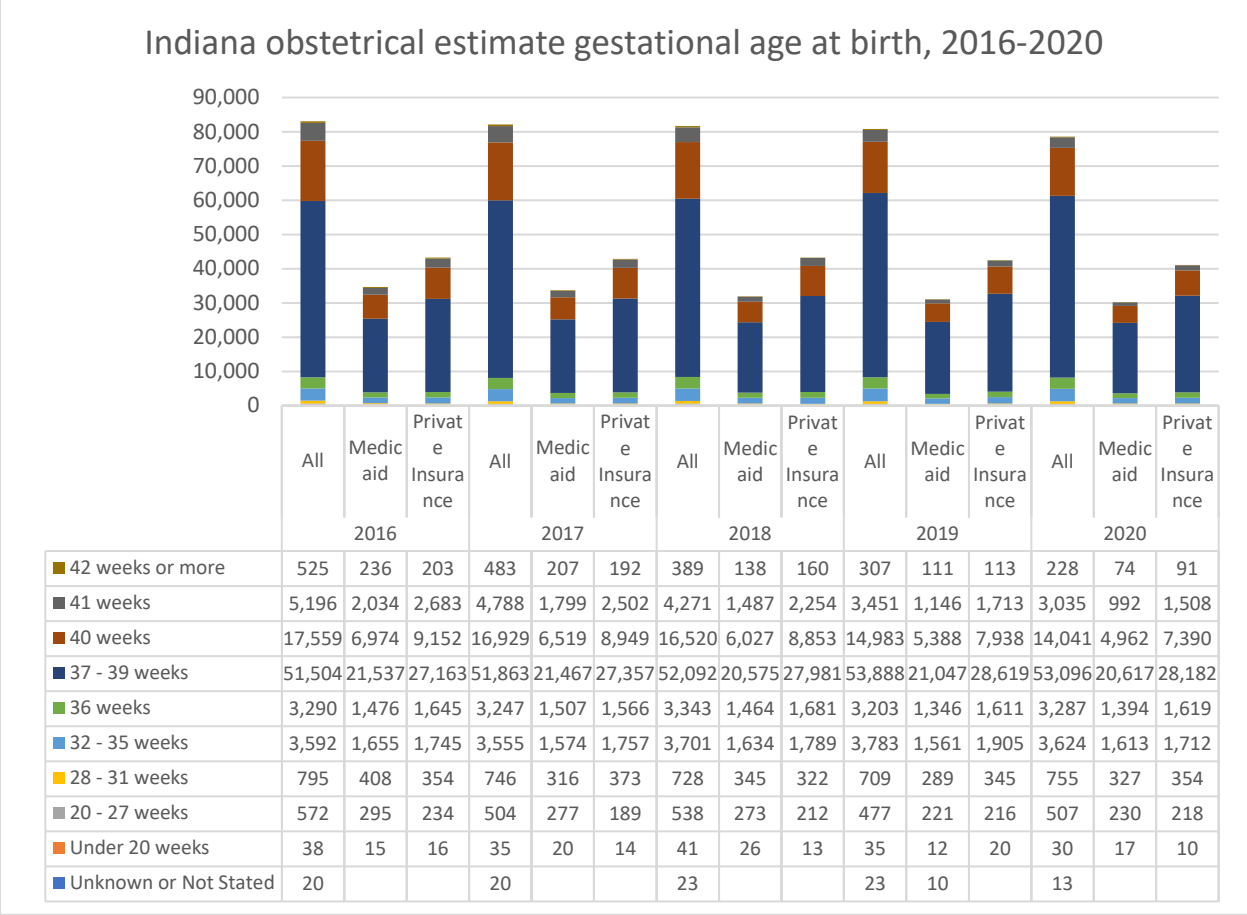
Chart 85: Local gestational age at birth



	2016			2017			2018			2019			2020		
	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance
42 weeks or more	33		18	21			15		13	15			10		
41 weeks	377	128	219	297	97	176	330	101	206	291	69	187	291	76	178
40 weeks	1,116	442	598	1,111	419	599	1,140	400	652	1,018	327	615	1,011	301	612
37 - 39 weeks	3,159	1,385	1,634	3,277	1,341	1,715	3,258	1,303	1,797	3,463	1,331	1,946	3,367	1,298	1,895
36 weeks	172	70	91	232	126	102	205	89	108	201	81	105	211	91	111
32 - 35 weeks	213	93	107	191	86	86	208	100	102	228	102	111	227	110	110
28 - 31 weeks	46	29	17	44	16	25	47	23	18	38	15	21	42	19	22
20 - 27 weeks	30	17	10	29	21		32	21		39	15	21	37	16	19

Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 86: State gestational age at birth



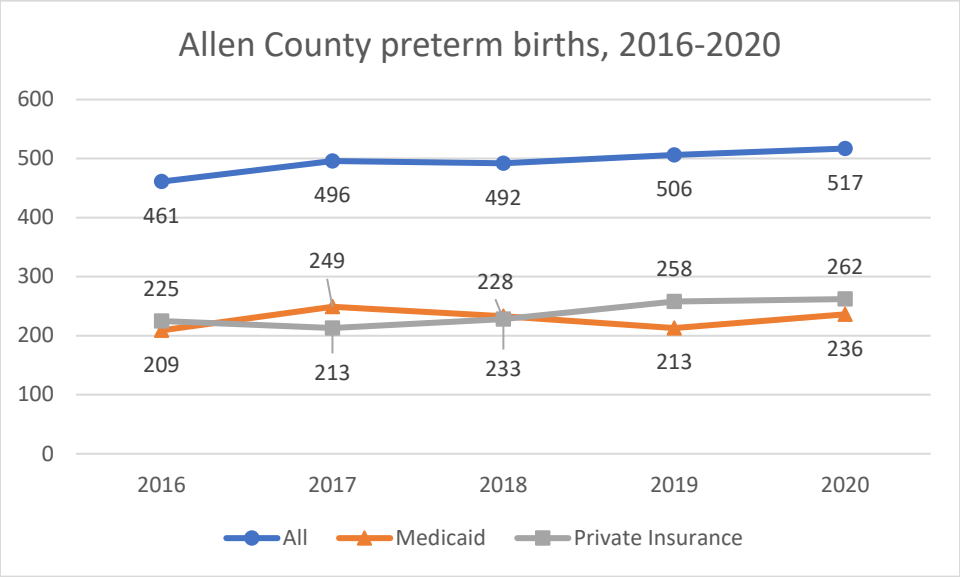
	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance
	2016			2017			2018			2019			2020		
42 weeks or more	525	236	203	483	207	192	389	138	160	307	111	113	228	74	91
41 weeks	5,196	2,034	2,683	4,788	1,799	2,502	4,271	1,487	2,254	3,451	1,146	1,713	3,035	992	1,508
40 weeks	17,559	6,974	9,152	16,929	6,519	8,949	16,520	6,027	8,853	14,983	5,388	7,938	14,041	4,962	7,390
37 - 39 weeks	51,504	21,537	27,163	51,863	21,467	27,357	52,092	20,575	27,981	53,888	21,047	28,619	53,096	20,617	28,182
36 weeks	3,290	1,476	1,645	3,247	1,507	1,566	3,343	1,464	1,681	3,203	1,346	1,611	3,287	1,394	1,619
32 - 35 weeks	3,592	1,655	1,745	3,555	1,574	1,757	3,701	1,634	1,789	3,783	1,561	1,905	3,624	1,613	1,712
28 - 31 weeks	795	408	354	746	316	373	728	345	322	709	289	345	755	327	354
20 - 27 weeks	572	295	234	504	277	189	538	273	212	477	221	216	507	230	218
Under 20 weeks	38	15	16	35	20	14	41	26	13	35	12	20	30	17	10
Unknown or Not Stated	20			20			23			23	10		13		

Source: CDC Wonder Natality Data Expanded, 2016-2020

CRI calculated the number of preterm births using the reported numbers[64] for births with an OE gestational age before 37 weeks. Allen County did not have reported numbers gestational age of less than 20 weeks for the years studied. Statewide, the under-20 weeks gestational age births ranged from 10 births for private insurance in 2020 to 41 for all births for 2018.

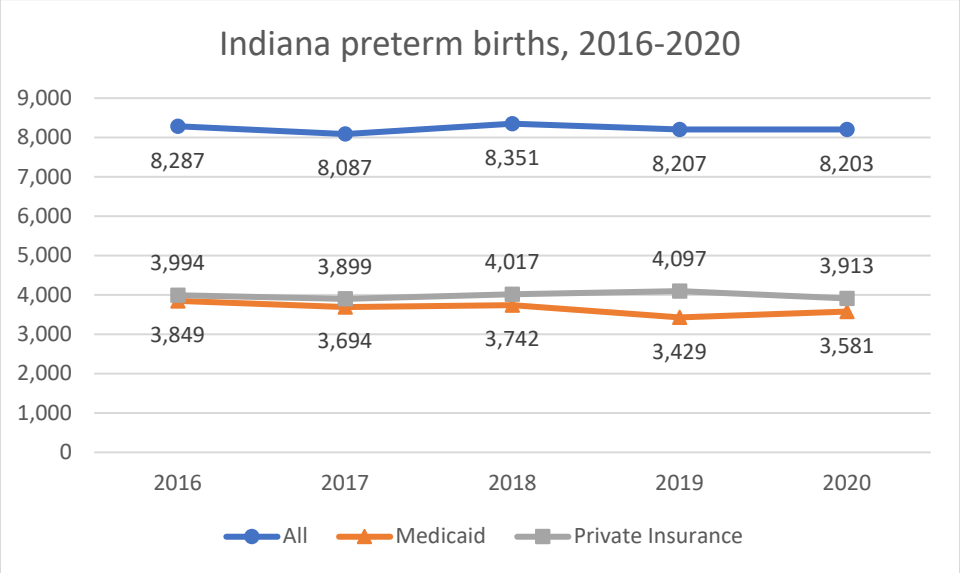
[64] CDC suppresses numbers with counts of less than 10.

Chart 87: Reported local preterm births



Source: Calculated by CRI with reported numbers from CDC Wonder Natality Data Expanded, 2016-2020

Chart 88: State preterm births



Source: Calculated by CRI with reported numbers from CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Most births in Allen County and Indiana, regardless of payment source, occurred between weeks 37 and 39.
- Allen County had fewer than 10 births each year before the 20-week mark, regardless of payment source.
- Using the reported births, Allen County's number of preterm births – infants born before 37 weeks – went up during the time period studied for all payment sources plus Medicaid and private insurance.

- Indiana's number of preterm births for all births and private insurance births stayed essentially even while Medicaid preterm births went down slightly during the time period studied while overall births went down.

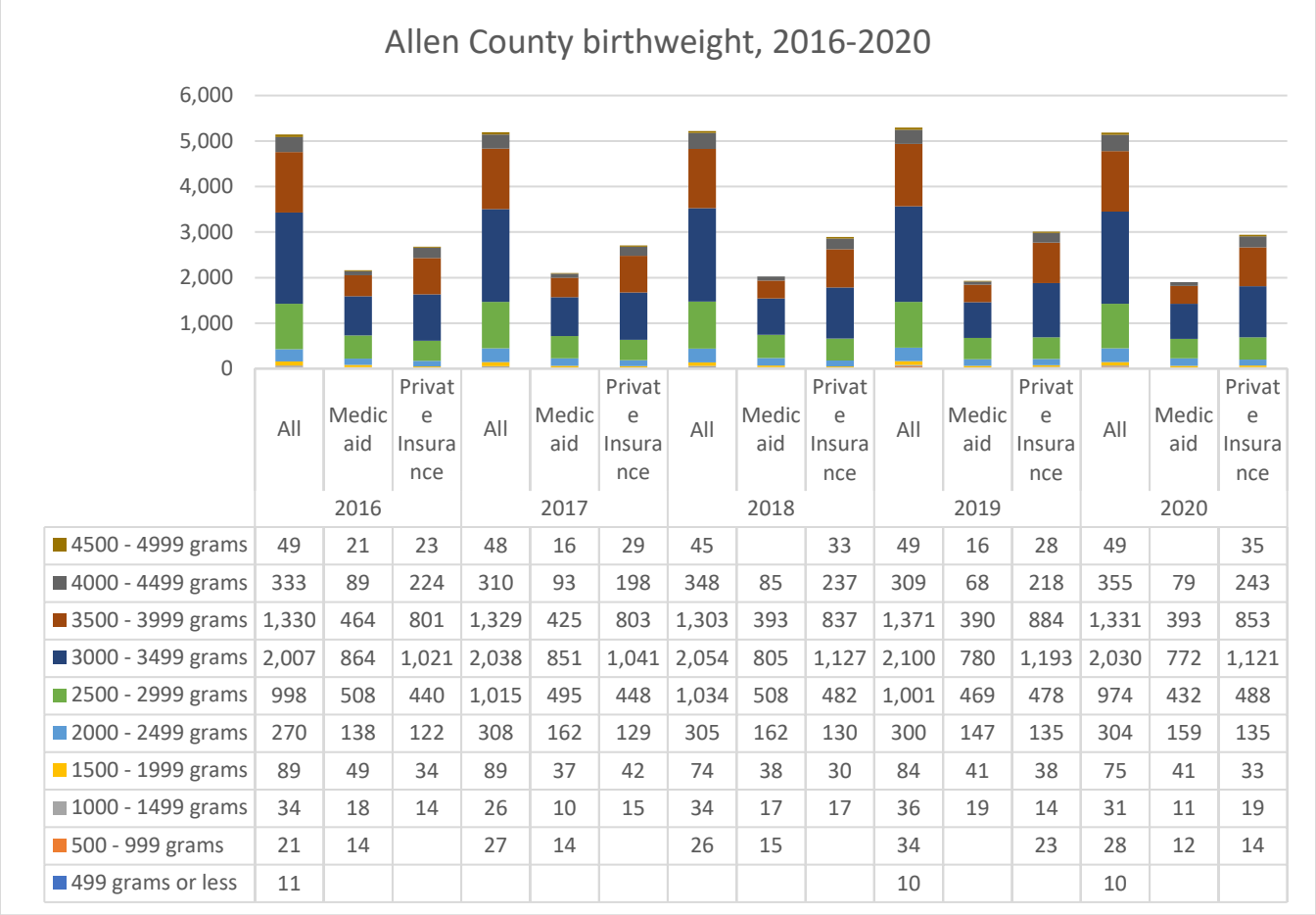
Infant birthweight

The CDC reports birthweight in grams. The following list provides a conversion from metric to pounds and ounces.

- Less than 500 grams = 1 lb 1 oz or less
- 500–999 grams = 1 lb 2 oz–2 lb 3 oz
- 1,000–1,499 grams = 2 lb 4 oz–3 lb 4 oz
- 1,500–1,999 grams = 3 lb 5 oz–4 lb 6 oz
- 2,000–2,499 grams = 4 lb 7 oz–5 lb 8 oz
- 2,500–2,999 grams = 5 lb 9 oz–6 lb 9 oz
- 3,000–3,499 grams = 6 lb 10 oz–7 lb 11 oz
- 3,500–3,999 grams = 7 lb 12 oz–8 lb 13 oz
- 4,000–4,499 grams = 8 lb l4 oz–9 lb l4 oz
- 4,500–4,999 grams = 9 lb 15 oz–11 lb 0 oz
- 5,000 grams or more = 11 lb 1 oz or more

The CDC did not report total number of births for this measure by payment category so CRI is providing an annual count by all births, Medicaid births, and private insurance births for Allen County and Indiana for weight categories.

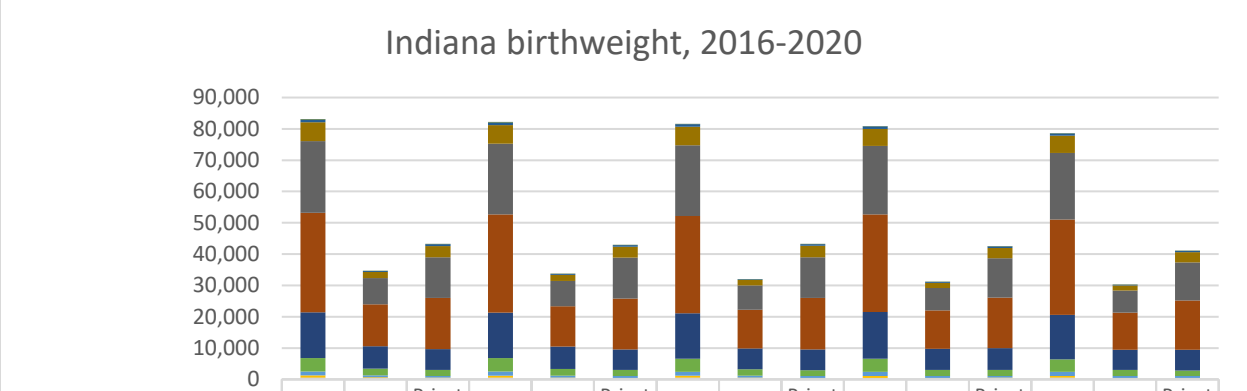
Chart 89: Local birthweights



	2016			2017			2018			2019			2020		
	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance
4500 - 4999 grams	49	21	23	48	16	29	45		33	49	16	28	49		35
4000 - 4499 grams	333	89	224	310	93	198	348	85	237	309	68	218	355	79	243
3500 - 3999 grams	1,330	464	801	1,329	425	803	1,303	393	837	1,371	390	884	1,331	393	853
3000 - 3499 grams	2,007	864	1,021	2,038	851	1,041	2,054	805	1,127	2,100	780	1,193	2,030	772	1,121
2500 - 2999 grams	998	508	440	1,015	495	448	1,034	508	482	1,001	469	478	974	432	488
2000 - 2499 grams	270	138	122	308	162	129	305	162	130	300	147	135	304	159	135
1500 - 1999 grams	89	49	34	89	37	42	74	38	30	84	41	38	75	41	33
1000 - 1499 grams	34	18	14	26	10	15	34	17	17	36	19	14	31	11	19
500 - 999 grams	21	14		27	14		26	15		34		23	28	12	14
499 grams or less	11									10			10		

Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 90: State birthweights



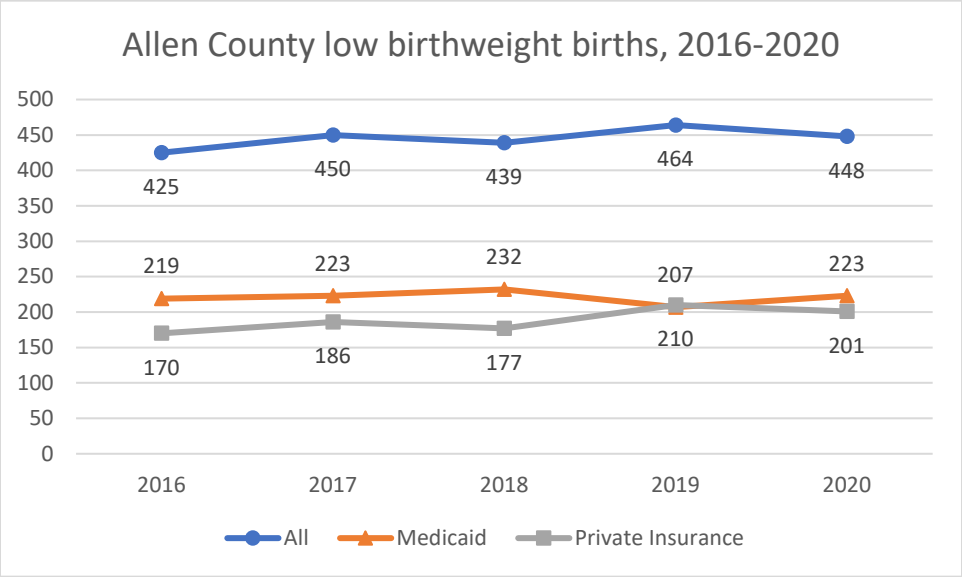
	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance
	2016			2017			2018			2019			2020		
5000 - 8165 grams	113	32	68	111	44	53	104	31	57	94	34	45	102	25	61
4500 - 4999 grams	888	299	516	887	309	518	835	252	502	788	247	454	736	222	424
4000 - 4499 grams	5,980	1,960	3,580	5,883	1,922	3,478	5,965	1,722	3,706	5,459	1,650	3,252	5,488	1,626	3,280
3500 - 3999 grams	22,901	8,336	13,025	22,635	8,071	12,995	22,572	7,720	13,014	21,837	7,194	12,603	21,272	7,048	12,169
3000 - 3499 grams	31,767	13,428	16,316	31,312	12,882	16,297	31,102	12,328	16,391	31,196	12,257	16,185	30,394	11,857	15,716
2500 - 2999 grams	14,599	7,171	6,643	14,499	7,095	6,546	14,445	6,716	6,715	14,842	6,708	6,932	14,205	6,436	6,581
2000 - 2499 grams	4,286	2,105	1,950	4,313	2,177	1,887	4,179	2,030	1,831	4,235	1,988	1,895	4,037	1,959	1,763
1500 - 1999 grams	1,297	675	552	1,329	613	609	1,282	611	574	1,294	590	584	1,260	574	581
1000 - 1499 grams	636	325	284	602	277	281	545	254	246	594	235	294	594	255	276
500 - 999 grams	447	231	187	407	202	170	420	220	161	379	171	172	390	166	181
499 grams or less	136	63	60	143	85	51	146	67	62	105	47	51	109	54	43
Unknown or Not Stated	41	13	21	49	16	18	51	22	10	36	10	15	29		10

Source: CDC Wonder Natality Data Expanded, 2016-2020

CRI calculated the number of births with low and very low birthweights using the reported birthweight numbers.[65] The CDC uses the ICD-9 and ICD-10 low and very low birthweight thresholds of than 2,500 grams and less than 1,500 grams respectively.[66] Allen County was missing reported data for births of less than 1,000 grams in multiple years for multiple payment sources. Indiana had births reported in all weight cohorts and payment categories for the time period studied. Accordingly, the Allen County charts for low and very low birthweight may be an undercount due to unreported data. The Indiana charts are complete for low and very low birthweight because all categories had reported births.

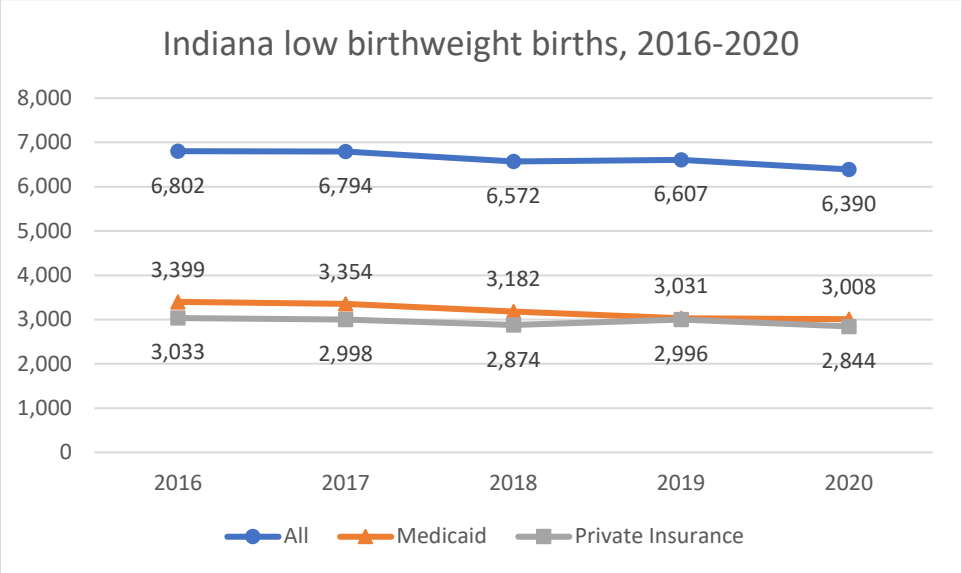
[65] CDC suppresses numbers with counts of less than 10.
[66] User Guide to the 2020 Natality Public Use File, CDC, p. 68.

Chart 91: Reported local low birthweights



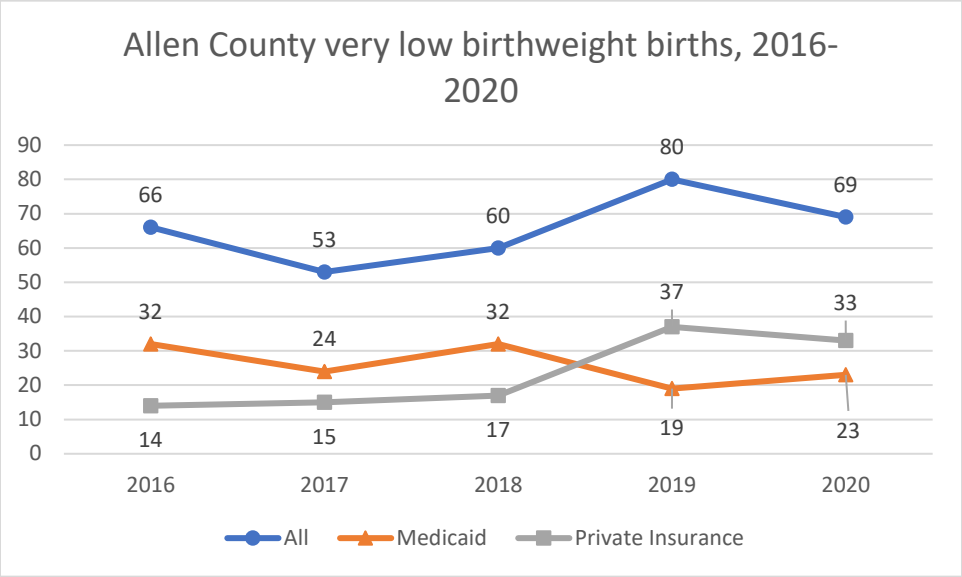
Source: Calculated by CRI with reported numbers from CDC Wonder Natality Data Expanded, 2016-2020

Chart 92: State low birthweights



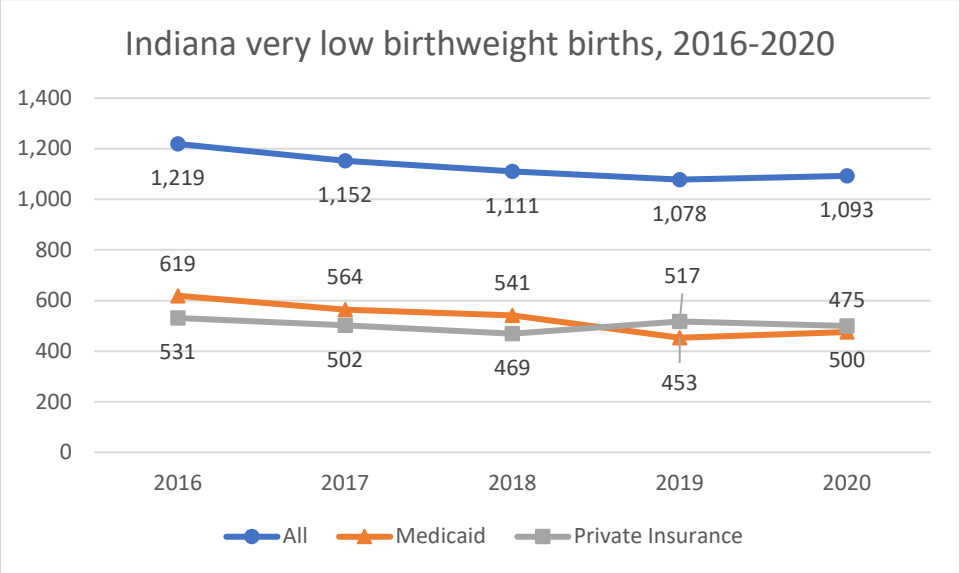
Source: Calculated by CRI with reported numbers from CDC Wonder Natality Data Expanded, 2016-2020

Chart 93: Reported local very low birthweights



Source: Calculated by CRI with reported numbers from CDC Wonder Natality Data Expanded, 2016-2020

Chart 94: State very low birthweights



Source: Calculated by CRI with reported numbers from CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Birthweights between 3,000 and 3,500 grams (6 lb 10 oz–7 lb 11 oz) were the most common for all payment sources).
- Indiana's low and very low birthweight births went down during the time period studied, consistent with the decline in total births.
- Allen County's number of reported low birthweight births went up slightly but the data is incomplete so any conclusions about the findings should be balanced against the potential for missing data.

- Allen County's number of reported very low birthweight births showed an up-and-down trend in the five years studied. Again, since this is incomplete data, this variation should be interpreted with caution.

Apgar score

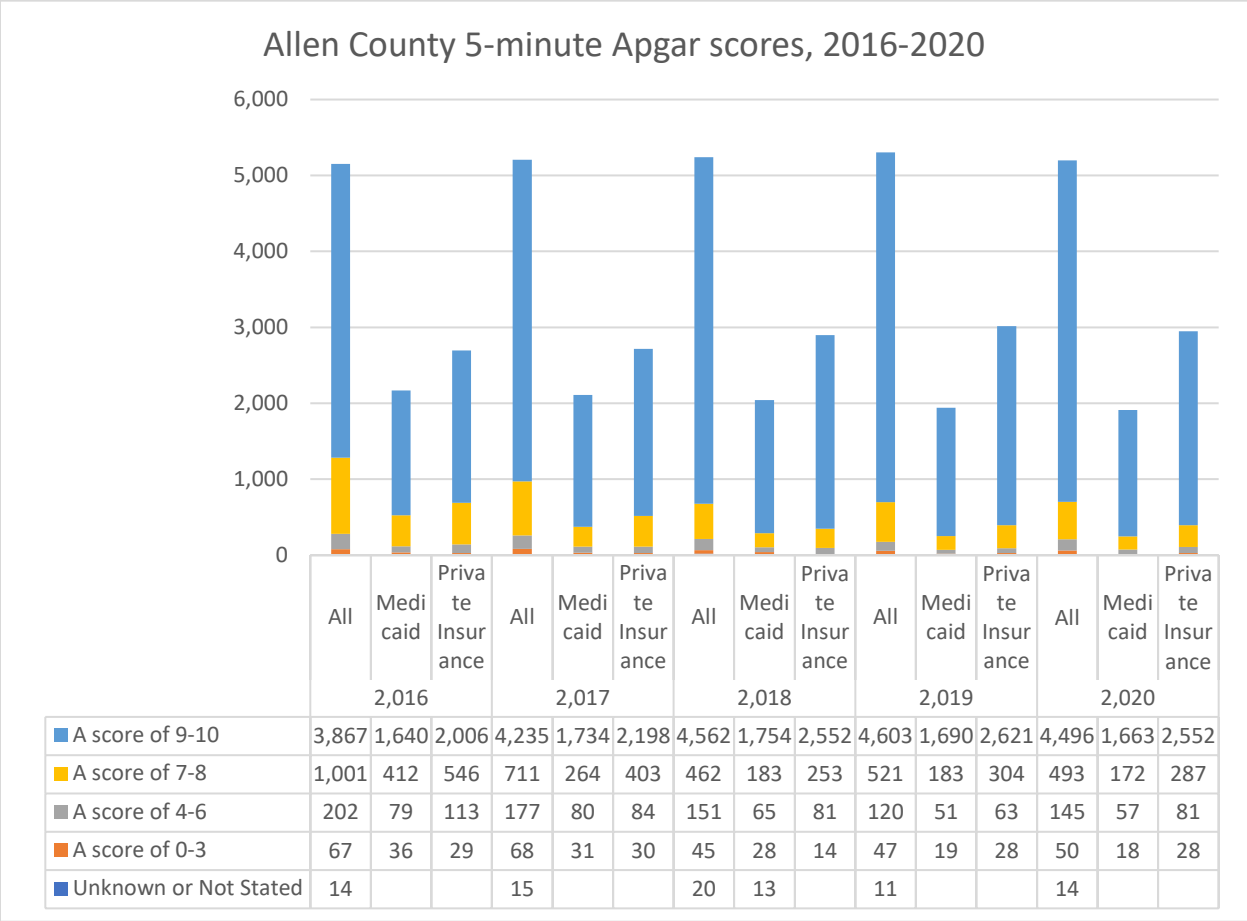
Named after the obstetrician who created the measure,[67] the Apgar score is a predictor of the infant's health in the first year of life.[68] Scoring each of the five factors[69] from 0 to 2 with the factor-specific scores totaled for the Apgar score, the CDC collects the Apgar score five minutes after birth (5-minute score). If the 5-minute score is less than 6, the factors are tested again at the 10-minute mark to create the 10-minute score.[70] The 10-minute Apgar score is only reported by the CDC for infants who had a 5-minute score of 5 or less.

For this project, CRI looked at the 5-minute score because it captured data for all births while the 10-minute score was only for infants who were in distress five minutes after birth, thus creating a small subset of data since most newborns have a score of 6 or more.

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count for Apgar score by all births, Medicaid births, and private insurance births for Allen County and Indiana.

[67] https://cfmedicine.nlm.nih.gov/physicians/biography_12.html
[68] User Guide to the 2020 Natality Public Use File, CDC, p. 69.
[69] The five factors in the Apgar score are heart rate, respiratory effort, muscle tone, reflex irritability, and color.
[70] User Guide to the 2020 Natality Public Use File, CDC, p. 69.

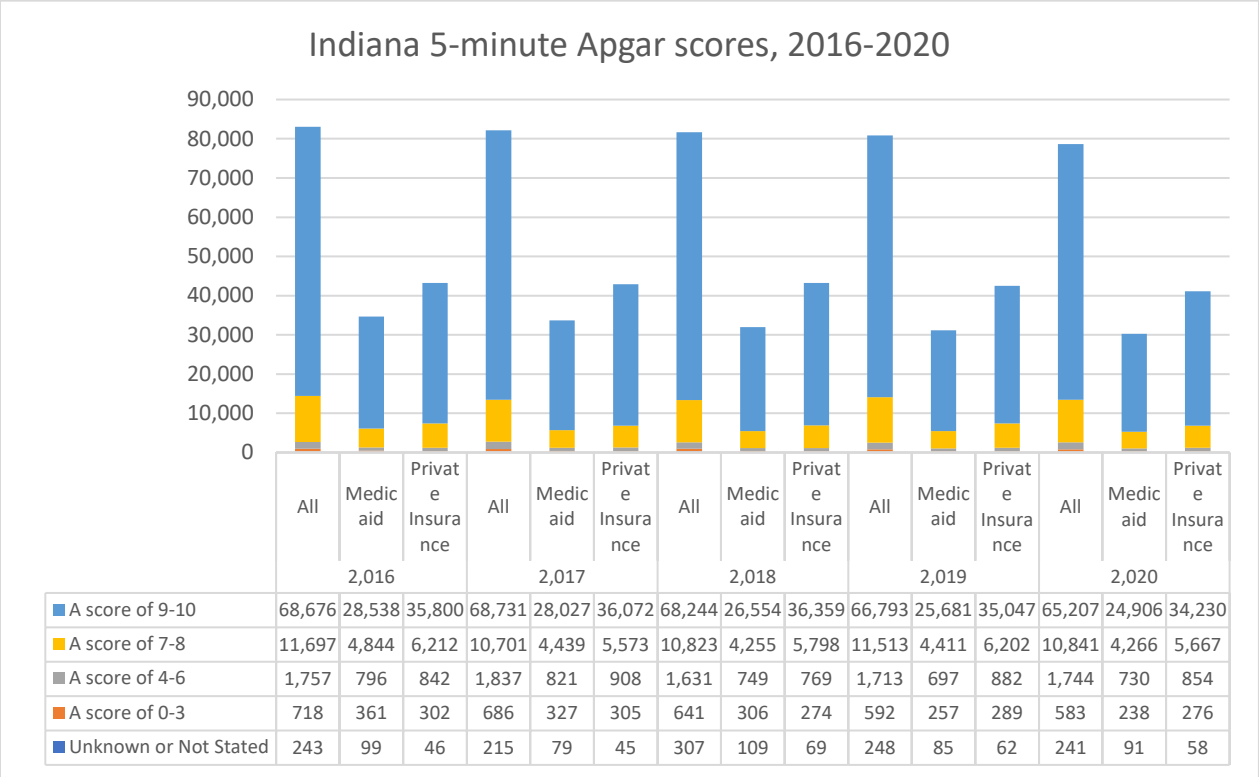
Chart 95: Local 5-minute Apgar scores



	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance
	2,016			2,017			2,018			2,019			2,020		
A score of 9-10	3,867	1,640	2,006	4,235	1,734	2,198	4,562	1,754	2,552	4,603	1,690	2,621	4,496	1,663	2,552
A score of 7-8	1,001	412	546	711	264	403	462	183	253	521	183	304	493	172	287
A score of 4-6	202	79	113	177	80	84	151	65	81	120	51	63	145	57	81
A score of 0-3	67	36	29	68	31	30	45	28	14	47	19	28	50	18	28
Unknown or Not Stated	14			15			20	13		11			14		

Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 96: State 5-minute Apgar scores



	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance	All	Medicaid	Private Insurance
	2,016			2,017			2,018			2,019			2,020		
A score of 9-10	68,676	28,538	35,800	68,731	28,027	36,072	68,244	26,554	36,359	66,793	25,681	35,047	65,207	24,906	34,230
A score of 7-8	11,697	4,844	6,212	10,701	4,439	5,573	10,823	4,255	5,798	11,513	4,411	6,202	10,841	4,266	5,667
A score of 4-6	1,757	796	842	1,837	821	908	1,631	749	769	1,713	697	882	1,744	730	854
A score of 0-3	718	361	302	686	327	305	641	306	274	592	257	289	583	238	276
Unknown or Not Stated	243	99	46	215	79	45	307	109	69	248	85	62	241	91	58

Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

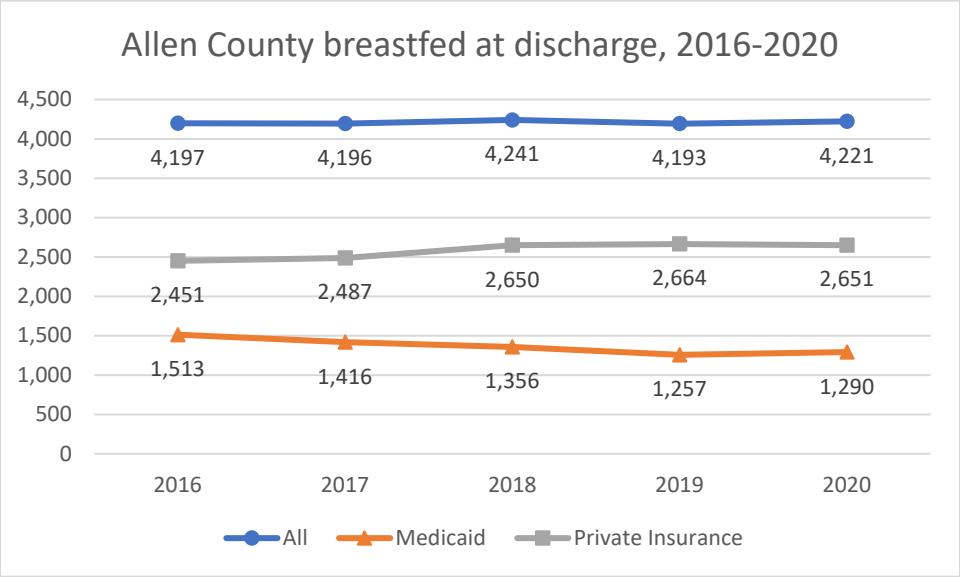
- Most births, regardless of payment source or location, had a 5-minute Apgar score of 9 or 10.
- The greater number of births with scores of 0 to 3 crossed over from Medicaid to private insurance between 2016 to 2020 for both Allen County and Indiana.
- Numerically speaking, private insurance births in both geographies were more likely to have a score between 4 and 6 than Medicaid births, which is consistent with private insurance paying for more births than Medicaid in Allen County and Indiana.

Breastfed at discharge

Infants are considered to be breastfed at discharge if they received breastmilk or colostrum between birth and hospital discharge. This includes any attempt to establish breastmilk production in this time period or if the infant received formula in addition to being breastfed. It does not include intent to breastfeed.

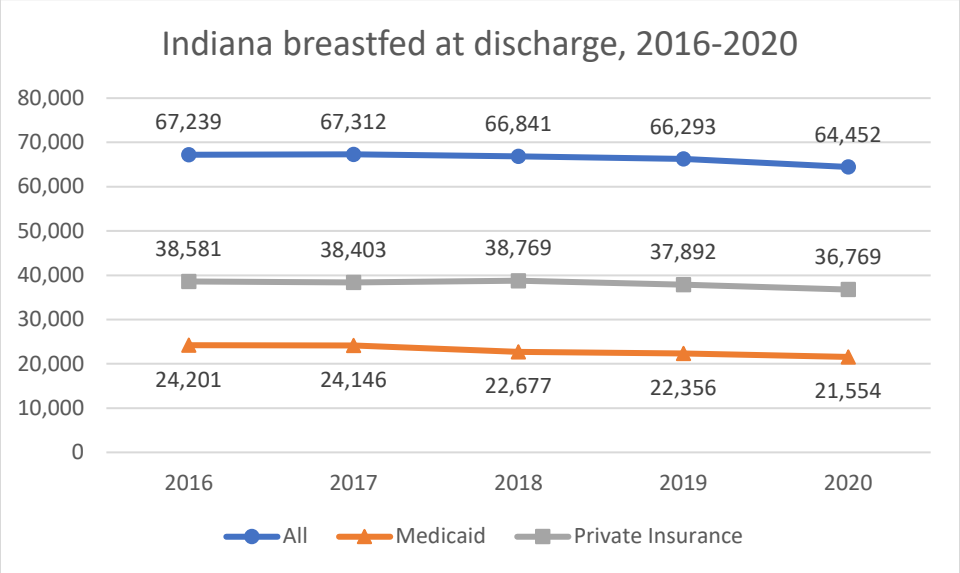
The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count for being breastfed at discharge by all births, Medicaid births, and private insurance births for Allen County and Indiana.

Chart 97: Local infants breastfed at discharge



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 98: State infants breastfed at discharge



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Most infants received breastmilk before being discharged from the hospital.
- No counts are presented about whether the infant receives exclusively breastmilk or if it is supplemented with formula.
- The number of infants breastfed while in the hospital is consistent with overall birth trends during the time period studied: flat in Allen County for all births, a slight increase for Allen County's private insurance births, a slight decrease for Allen County's Medicaid births, and a decline in Indiana against all three payment sources.

Abnormal conditions of newborns

The CDC collects data on six events considered "abnormal conditions" of newborns. They are:[71]

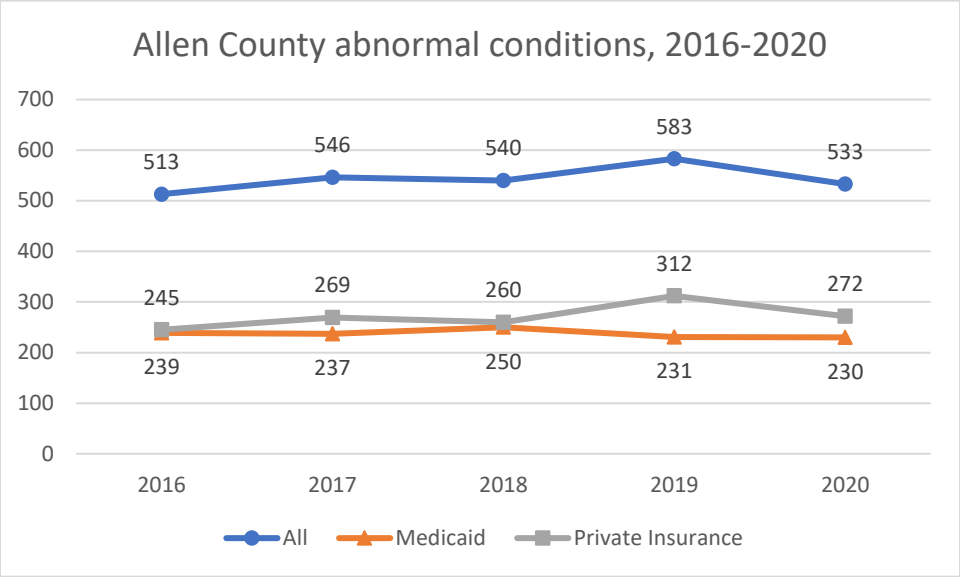
- Assisted ventilation required immediately following delivery: Infant given manual breaths for any duration with bag and mask or bag and endotracheal tube within the first several minutes from birth. Excludes free-flow (blow-by) oxygen only, laryngoscopy for aspiration of meconium, nasal cannula, and bulb suction.
- Assisted ventilation required for more than six hours: Infant given mechanical ventilation (breathing assistance) by any method for more than six hours. Includes conventional, high frequency and/or continuous positive pressure (CPAP). Excludes free flow oxygen only, laryngoscopy for aspiration of meconium and nasal cannula.)
- NICU admission: Admission into a facility or unit staffed and equipped to provide continuous mechanical ventilatory support for a newborn.
- Newborn given surfactant replacement therapy: Endotracheal instillation of a surface-active suspension with artificial or extracted natural surfactant to treat of surfactant deficiency due to preterm birth or pulmonary injury resulting in respiratory distress.
- Antibiotics received by the newborn for suspected neonatal sepsis: Any antibacterial drug including penicillin, ampicillin, gentamicin, and cefotoxime, etc. given intravenously or intramuscularly. Does not include antibiotics without suspected neonatal sepsis.
- Seizure or serious neurologic dysfunction: Seizure is any involuntary repetitive, convulsive movement or behavior while serious neurologic dysfunction is severe alteration of alertness. Excludes lethargy or hypotonia in the absence of other neurologic findings. Exclude symptoms associated with central nervous system congenital anomalies.

The CDC counts any infants that received one or more of the six listed conditions in the "abnormal conditions" measure.

The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births for Allen County and Indiana reporting abnormal conditions of newborns.

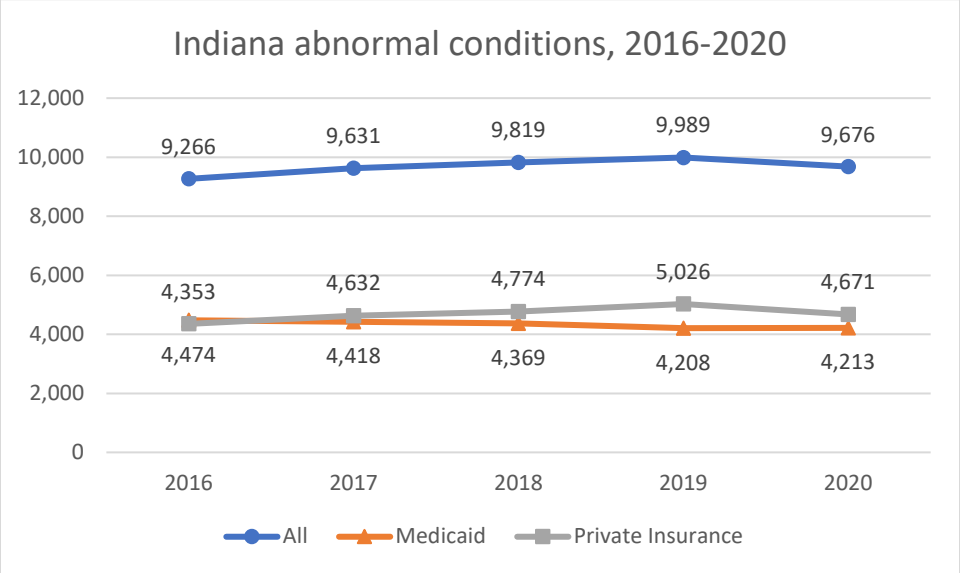
[71] Facility Worksheet for the Live Birth Certificate, CDC, pp. 7-8.

Chart 99: Local abnormal conditions of newborns



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 100: State abnormal conditions of newborns



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

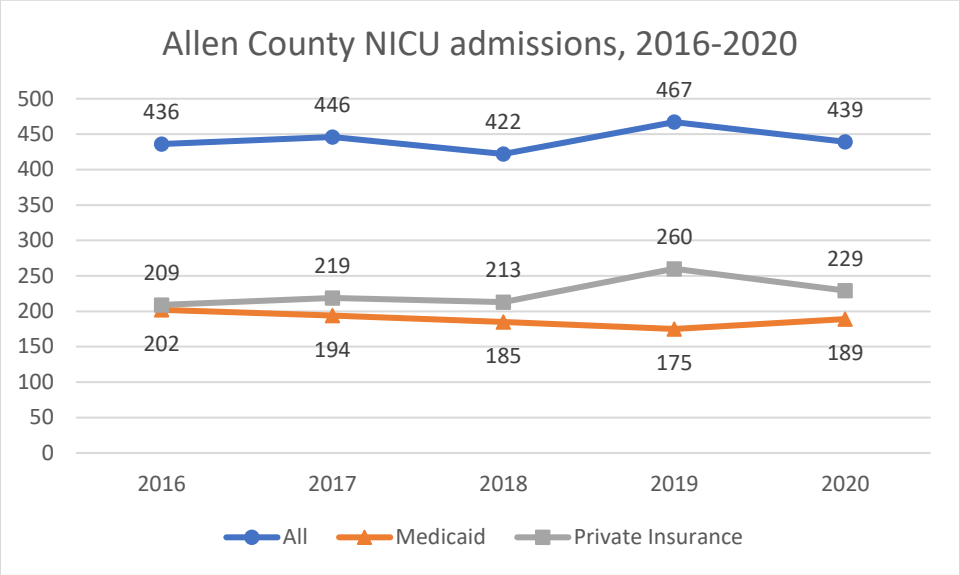
- The totals for Allen County and Indiana increased between 2016 and 2020 with the highest numbers reported for both geographies in 2019.
- The five-year trend for both geographies was more private insurance births having abnormal conditions compared to Medicaid births.

NICU admission

For this project, CRI opted to look at neonatal intensive care unit (NICU) admissions in addition the overall abnormal conditions since this is a particular measure of value in understanding infant health and wellbeing at time of birth.

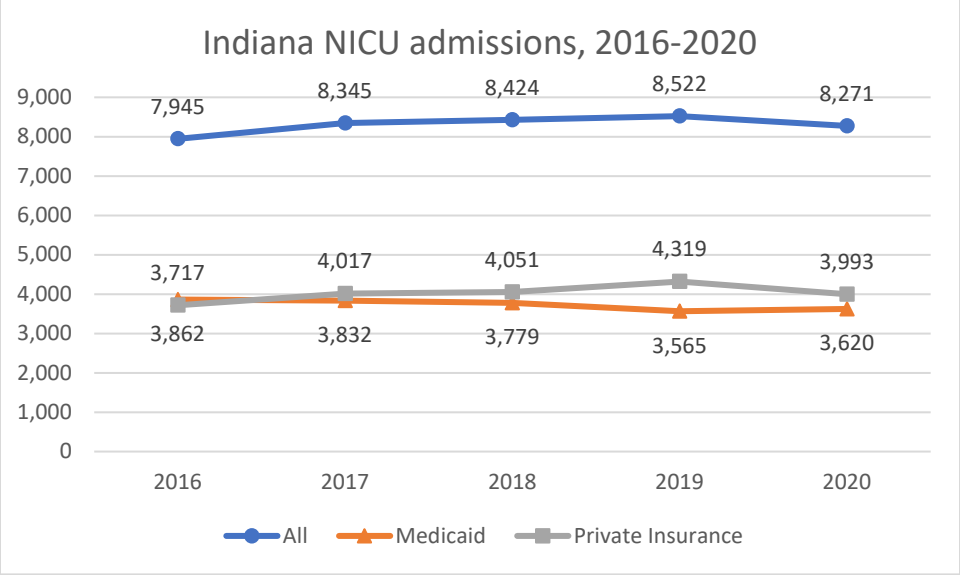
The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births for Allen County and Indiana reporting NICU admission.

Chart 101: Local NICU admission



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 102: State NICU admission



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Local NICU admissions remained relatively even while Indiana's admissions increased over time.
- NICU admissions in Allen County for Medicaid births were below private insurance admissions for all years studied. Indiana showed a similar trend with the exception of 2016 where Medicaid slightly outpaced private insurance births.

Congenital anomalies

The CDC collects data on the following congenital anomalies at the time of birth, which may have been diagnosed prenatally or after delivery:[72]

- Anencephaly: Partial or complete absence of brain and skull. Also called anencephalus, acrania, or absent brain; also includes craniorachischisis, which is anencephaly with a contiguous spine defect.
- Meningomyelocele/spina bifida: Spina bifida is herniation of the meninges and/or spinal cord tissue through a bony defect of spine closure; meningomyelocele is herniation of meninges and spinal cord tissue. Meningocele (herniation of meninges without spinal cord tissue) is included in this category. Both open and closed (covered with skin) lesions should be included. Does not include spina bifida occulta, a midline bony spinal defect without protrusion of the spinal cord, or meninges.
- Cyanotic congenital heart disease: Congenital heart defects that cause cyanosis.
- Congenital diaphragmatic hernia: Defect in the formation of the diaphragm allowing herniation of abdominal organs into the thoracic cavity.
- Omphalocele: Defect in anterior abdominal wall where umbilical ring is widened, allowing herniation of abdominal organs into the umbilical cord. The herniating organs are covered by a nearly transparent membranous sac (different from gastroschisis), although this sac may rupture. Also called exomphalos. Does not include umbilical hernia completely covered by skin.
- Gastroschisis: Abnormality of anterior abdominal wall, lateral to the umbilicus, resulting in herniation of the abdominal contents directly into the amniotic cavity. Differentiated from omphalocele by the location of the defect and absence of a protective membrane.
- Limb reduction defect: Complete or partial absence of a portion of an extremity associated with failure to develop. Excludes congenital amputation and dwarfing syndromes.
- Cleft lip with or without cleft palate: Incomplete closure of the lip. May be unilateral, bilateral or median.
- Cleft palate alone: Incomplete fusion of the palatal shelves. May be limited to the soft palate or may extend into the hard palate. Cleft palate in the presence of cleft lip is included in the cleft lip category.
- Down Syndrome: Trisomy 21 (chromosomal abnormality caused by the presence of all or part of a third copy of chromosome 21).
- Suspected chromosomal disorder: Includes any constellation of congenital malformations resulting from or compatible with known syndromes caused by detectable defects in chromosome structure.

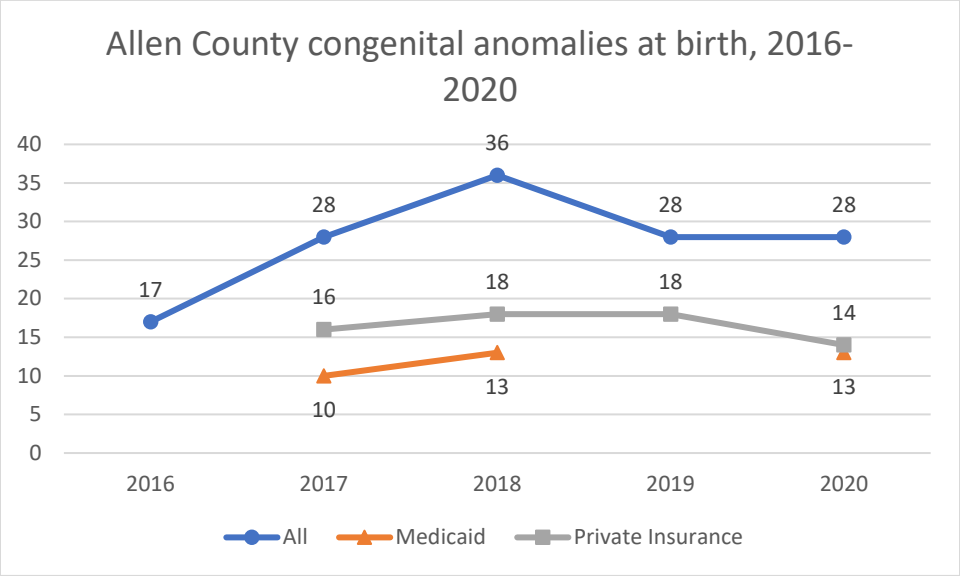
[72] Facility Worksheet for the Live Birth Certificate, CDC, pp. 7-8.

- Hypospadias: Incomplete closure of the male urethra resulting in the urethral meatus opening on ventral surface of the penis. Includes first degree - on the glans ventral to the tip, second degree - in the coronal sulcus, and third degree - on the penile shaft.

Since CDC Wonder only posts public data for occurrences of 10 or more births in the respective geography, CRI opted to use the "congenital anomalies checked" category that reflects if any of these relatively rare 12 disorders were published in the CDC data. The data in this report captures if any of these anomalies are reported, but it does not list which ones.

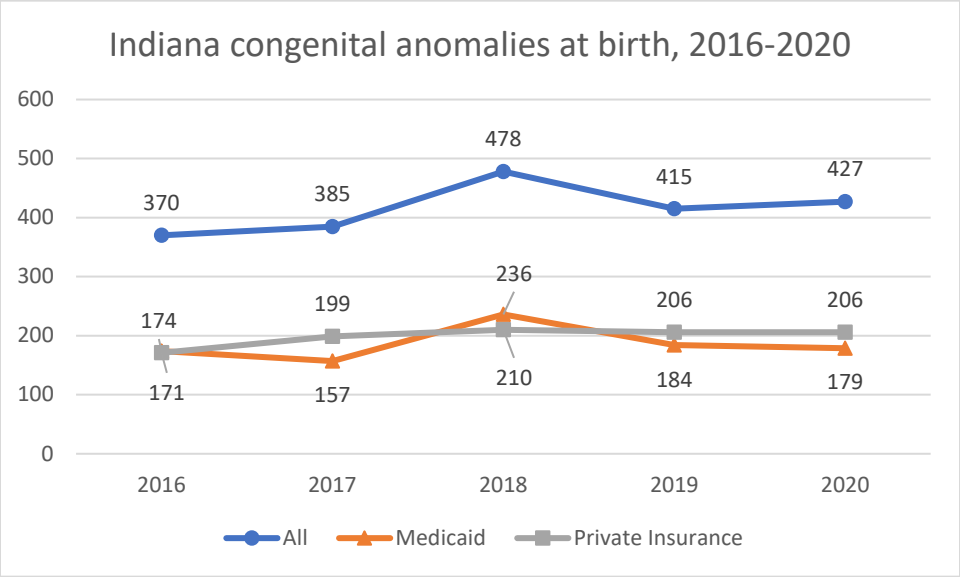
The CDC did not report total number of births for this measure by payment category so CRI is providing a timeseries count by all births, Medicaid births, and private insurance births reporting congenital anomalies for Allen County and Indiana. There was no reported data for Allen County's Medicaid births in 2016 and 2019, and none for private insurance in 2016, which was probably because fewer than 10 births in those payment categories were reported for those years.

Chart 103: Local congenital anomalies at birth



Source: CDC Wonder Natality Data Expanded, 2016-2020

Chart 104: State congenital anomalies at birth



Source: CDC Wonder Natality Data Expanded, 2016-2020

Analysis and trends

- Both Allen County and Indiana saw congenital anomalies increase for 2018, which was more than a 100% increase for Allen County compared to 2016. Locally the numbers leveled off for 2019 and 2020.
- With the exception of 2018 in Indiana, private insurance births had more reported anomalies than Medicaid births both locally and statewide.