



Iowa Medicaid Enterprise – Birth Certificate Match to Paid Claims Report

Access to prenatal care, selected behaviors/conditions, and selected birth outcomes by Medicaid status among Iowa resident births 2012 – 2018

Division of Health Promotion & Chronic Disease Prevention, Bureau of Family Health

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¹ Neonatal intensive care unit

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Introduction and Highlights

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Introduction

Report purpose: The purpose of this report is to highlight access to prenatal care, selected behaviors and birth outcomes of women whose labor and delivery costs were reimbursed by Medicaid, compared to women whose labor and delivery costs were not reimbursed by Medicaid.

Background: Medicaid is a state/federal program that provides health insurance for groups of low-income people, including pregnant women. Iowa Medicaid is administered by the Iowa Department of Human Services through the Iowa Medicaid Enterprise. In Iowa, pregnant women are eligible for Medicaid if their household income is below 375% of the federal poverty level.

Data Sources: Data for this report were derived from a matched file of the birth certificate and Medicaid paid claims for calendar years 2012 through 2018. Medicaid status was based on a paid claim of a delivery for relevant diagnostic related groups, and linked to a birth certificate. Birth certificate data were used to determine maternal demographic characteristics, pre-existing conditions, cigarette smoking during pregnancy, prenatal care initiation and infant birth outcomes.

Report highlights

- The percent of deliveries reimbursed by Medicaid significantly increased between calendar year 2017 and 2018 (40.8% to 43.4%; Table 1).
- Regardless of Medicaid status, the percent of women who initiated prenatal care during their first trimester has changed little between the years of 2012 and 2018 (Table 2)
 - The percent of women with Medicaid reimbursed deliveries who initiated prenatal care during their first trimester is lower compared to women without a Medicaid reimbursed delivery.
- Mothers who reported that they were breastfeeding their infants at hospital discharge continues to increase (Table 5).
- The overall percent of infants born prematurely to Iowa residents significantly increased from 2017 (9.2%) to 2018 (9.9%) (Table 8).
 - The rate of preterm deliveries was significantly higher among Medicaid reimbursed deliveries compared to deliveries not reimbursed by Medicaid.

Tables and Figures

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Table 1. Number of resident births by Medicaid status and State Total, 2012 - 2018, Iowa resident births

Year	Medicaid ²		Non-Medicaid ³	State Total ⁴
	Number	%	Number	Number
2018	16,367	43.4	21,342	37,709
2017	15,683	40.8	22,725	38,408
2016	15,135	38.6	24,088	39,223
2015	15,405	39.1	24,062	39,467
2014	15,229	38.4	24,456	39,685
2013	15,212	38.9	23,801	39,013
2012	15,598	40.3	23,088	38,686

See [Figure 1](#) for the percent of Medicaid reimbursed deliveries by county for calendar year 2018

Table 2. Number and percent of women who initiated prenatal care during their first trimester by Medicaid status and State Total, 2012 - 2018, Iowa resident births⁵

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	11,982	76.8	17,601	88.5	29,583	83.3
2017	11,496	76.4	18,743	88.4	30,236	83.4
2016	10,906	75.3	19,720	87.2	30,626	82.6
2015	11,116	75.8	20,134	88.7	31,250	83.6
2014	11,642	77.0	21,428	88.1	33,070	83.9
2013	11,647	77.1	20,936	88.5	32,583	84.1
2012	11,887	76.7	20,402	89.0	32,289	84.0

Overall, Iowa has exceeded the [Healthy People 2020](#) goal of 77.9% for the percent of pregnant women who receive prenatal care in the first trimester (Table 2). However, Iowa has not yet met this goal for women with a Medicaid reimbursed delivery. Early initiation of prenatal care can reduce maternal and infant mortality and morbidity through early identification and treatment of risk factors for adverse birth outcomes.

Seventy-eight percent (n=1,883; 78.1%) of pregnant women who obtained care coordination services at one of Iowa's Title V Maternal Health Agencies initiated prenatal care in their first trimester. First trimester PNC initiation differed by Medicaid status among the women who obtained care coordination at a Title V; however, the range of the difference was much smaller (77.7% -- 80.8% vs 76.8% -- 88.5%).

² Medicaid status was determined by a linkage between Medicaid paid claims and the certificate of live birth

³ Non-Medicaid status includes private insurance, self-pay, and other governmental payment sources

⁴ State total refers to the combined total of Medicaid reimbursed births plus those births reimbursed by another source.

⁵ CY 2015-2018 revised to exclude resident births that occurred outside of Iowa – PNC is not reported for Iowa resident who gave birth outside of Iowa.

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Table 3. Number and percent of women who were reported to have gestational diabetes, by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	1,340	8.2	1,644	7.7	2,984	7.9
2017	1,361	8.7	1,696	7.5	3,057	8.0
2016	1,166	7.7	1,688	7.0	2,854	7.3
2015	1,141	7.4	1,567	6.5	2,708	6.9
2014	1,138	7.5	1,614	6.6	2,752	6.9
2013	1,091	7.2	1,525	6.4	2,616	6.7
2012	1,036	6.6	1,435	6.2	2,471	6.4

Table 4. Number and percent of women who reported 3rd trimester smoking by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	2,637	16.1	764	3.6	3,401	9.0
2017	2,681	17.1	1,030	4.5	3,711	9.7
2016	2,734	18.1	1,140	4.7	3,874	9.9
2015	2,979	19.4	1,266	5.3	4,245	10.8
2014	3,187	21.0	1,358	5.6	4,545	11.5
2013	3,318	21.8	1,356	5.7	4,674	12.0
2012	3,450	22.2	1,216	5.3	4,666	12.1

See [Figure 2](#) for the percent of women with Medicaid reimbursed deliveries who reported that they smoked during by county for calendar year 2018.

Between 2012 and 2018, the percent of women who reported that they smoked cigarettes during their third trimester has decreased by 27.5% among women with Medicaid reimbursed deliveries and by 32.1% among women without Medicaid reimbursed deliveries (Table 4).

In order to achieve the Healthy People 2020 goal for abstinence from cigarette smoking among pregnant women of 98.6%, health care providers and other stakeholders need to continue to provide interventions and information to reduce smoking rates among pregnant women.

Bureau of Family Health (BFH) staff will collaborate with the Division of Tobacco Use Prevention and Control to identify evidence based interventions to support smoking cessation among women during pregnancy. In addition, the BFH has selected smoking during pregnancy as one of its priority performance measures based on the Title V MCH Block Grant Needs Assessment. This means that Title V community-based maternal health agencies will also coordinate efforts to reduce smoking among low-income pregnant women.

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Table 5. Number and percent of women breastfeeding their infants at hospital discharge by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	11,981	73.4	19,048	89.4	31,029	82.4
2017	11,349	72.6	19,946	88.0	31,295	81.7
2016	10,930	72.4	21,145	87.9	32,075	81.8
2015	10,818	71.1	20,770	87.3	31,588	80.0
2014	9,923	65.2	20,228	82.7	30,151	76.0
2013	9,580	63.0	19,569	82.2	29,149	74.7
2012	9,497	60.9	18,741	81.2	28,238	73.0

The overall percent of women who reported that they were breastfeeding their infants at hospital discharge exceeds the Healthy People 2020 goal of 81.9%. However, women with Medicaid reimbursed births have not yet reached this goal. On the other hand, the percent of women with Medicaid reimbursed births who reported that they were breastfeeding their infants at hospital discharge increased by 20.5% from 2012-2018.

Table 6. Number and percent of LBW⁶ infants by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	1,217	7.4	1,357	6.4	2,574	6.8
2017	1,129	7.2	1,374	6.1	2,503	6.5
2016	1,213	8.0	1,407	5.9	2,620	6.7
2015	1,245	8.1	1,397	5.8	2,642	6.7
2014	1,090	7.2	1,557	6.4	2,647	6.7
2013	1,044	6.9	1,492	6.3	2,536	6.5
2012	1,098	7.0	1,461	6.3	2,559	6.6

Table 7. Number and percent of VLBW⁷ infants by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	195	1.2	208	0.9	403	1.1
2017	189	1.2	214	0.9	403	1.1
2016	187	1.2	254	1.1	441	1.1
2015	219	1.4	246	1.0	465	1.2
2014	199	1.3	233	1.0	432	1.1
2013	174	1.1	256	1.1	430	1.1
2012	180	1.2	256	1.1	436	1.1

⁶ Infant LBW = infant birth weight of <=2500 grams. LBW calculation includes VLBW infants.

⁷ Infant VLBW = infant birth weight of <=1500 grams.

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Table 8. Number and percent of infants born prematurely⁸ infants by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	1,676	10.2	2,052	9.6	3,728	9.9
2017	1,493	9.5	2,027	8.9	3,520	9.2
2016	1,535	10.2	2,089	8.7	3,624	9.2
2015	1,524	9.9	2,037	8.5	3,561	9.0
2014	1,424	9.4	2,273	9.3	3,697	9.3
2013	1,373	9.0	2,149	9.0	3,522	9.0
2012	1,517	9.7	2,205	9.6	3,722	9.6

The overall percent of infants born prematurely to Iowa residents significantly increased from 2017 (9.2%) to 2018 (9.9%) (Table 8). [Healthy People 2020](#) has proposed a goal prematurity rate of 9.4% by 2020.

The increase in Iowa's prematurity rate led Iowa to receive a grade of "C" in the [2019 March of Dimes Premature Births Report Card](#). In 2018, Iowa received a grade of "B" based on the 2018 March of Dimes Premature Report Card. The March of Dimes prematurity goal is to reach a rate of 8.1% by 2020.

Table 9. Number and percent of infants born prematurely by Medicaid status and race/ethnicity⁹, calendar year 2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
Non-Hispanic Whites	1,073	10.2	1,719	9.2	2,792	9.6
Non-Hispanic Blacks	252	10.8	80	14.4	332	11.5
Non-Hispanic of other races	79	10.0	81	10.2	160	10.1
Hispanic all races	260	10.0	136	13.3	396	10.9

The percent of infants born prematurely varies by Medicaid status and by race and ethnicity. See Table 9 for the percent of infants born prematurely by Medicaid status, race and ethnicity during calendar year 2018. Due to missing data for race and ethnicity, the overall percent of infants born prematurely to Iowa residents in Table 9 differs from that reported in Table 8.

It is noteworthy that the percent of infants born prematurely among Medicaid reimbursed deliveries does not significantly differ by race and ethnicity.

⁸ Pre-term birth = infants born at < 37 weeks gestation based on OB estimate of gestational age reported on the birth certificate. Prior to 2012 mother's LMP was used to calculate gestational age.

⁹ n=402 records missing race and ethnicity (1.1%)

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Table 10. Number and percent of **repeat** pre-term births by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	245	22.7	189	16.7	434	19.6
2017	203	21.4	179	15.9	382	18.4
2016	222	21.9	196	16.9	418	19.2
2015	202	21.7	192	17.1	394	19.2
2014	257	18.0	222	23.4	479	20.2
2013	222	25.3	225	17.2	447	20.5
2012	209	21.2	197	14.5	406	17.2

To gain an understanding of whether women were being offered 17P to prevent preterm birth, and what barriers they may face if they were advised to get 17P, we added a series of questions to the Iowa Prenatal Care Survey (AKA - Barriers). Prior to their hospital discharge, all women who deliver an infant in Iowa are invited to complete the Barriers questionnaire. In 2018, over 20,000 women completed a Barriers survey for a 53% response rate of among occurrent births.

Women were asked the following question: “During your most recent pregnancy, did your health care provider recommend that you receive progesterone to keep your baby from being born too early? The medication is given in a series of weekly shots called 17P (17 alphahydroxyprogesterone) or Makena or it can be administered in vaginal suppositories.”

Over 1,000 women (n=1,045; 5.2%) reported that their provider recommended that they obtain a progesterone treatment. Most were advised to obtain progesterone shots (n=715, 3.6%). Women were then asked if they encountered barriers to receiving the progesterone treatment. They could select all barriers that applied.

Fifty-seven percent of respondents (n=597) reported that they had no major barriers to receive the medication. Women reported that the most common barriers to obtain the medication were lack of insurance coverage (n=140, 13.4%), followed by fear of shots or fear of medication side effects, (n=46; 4.4%), could not afford medication or co-pay (n=40; 3.8%), and Medicaid did not cover the medication (n=39; 3.7%). Less than 2% of women reported that barriers such as lack of transportation, lack of childcare, inability to get time off from work, or that physician’s office could not obtain medication were barriers to obtain the medication.

Recent studies have published [conflicting empirical evidence](#) regarding the effectiveness of 17P to prevent preterm delivery. However, in an October 2019 statement, the [American College of Obstetricians and Gynecologists](#) (ACOG) reviewed the findings and recommended that practitioners continue to use the current ACOG guidelines for 17P.

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Table 11. Number and percent of infants admitted to the NICU¹⁰ by Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	1,687	10.3	1,990	9.3	3,677	9.8
2017	1,529	9.8	1,995	8.8	3,524	9.2
2016	1,426	9.4	1,948	8.1	3,374	8.6
2015	1,519	9.9	2,058	8.6	3,577	9.1
2014	1,403	9.2	2,223	9.1	3,626	9.1
2013	1,359	8.9	2,331	9.8	3,690	9.5
2012	1,577	10.1	2,126	9.2	3,703	9.6

Table 12. Number and rate of women per 10,000 delivery hospitalizations who were diagnosed with severe maternal morbidity (SMM)¹¹, by Medicaid status, 2016-2017¹² & 2017-2018, Iowa

Year	Medicaid		Non-Medicaid		State level	
	Number	Rate	Number	Rate	Number	Rate
SMM 21 conditions						
2016-2017	345	132.0	402	90.1	747	105.6
2017-2018	344	133.6	415	96.1	759	110.0
SMM 20 conditions – excludes transfusions						
2016-2017	169	64.6	203	45.5	372	52.6
2017-2018	146	56.7	201	46.5	347	50.3

The [Centers for Disease Control and Prevention \(CDC\)](#) identifies [severe maternal morbidity](#) based on hospital discharge data and selected International Classification of Diseases (ICD) diagnosis and procedure codes. The original list of 25 conditions was published in 2012, and was based on ICD 9 codes. In 2015, as the United States transitioned to ICD 10 codes, the CDC reviewed and updated the indicators to reflect the ICD 10 codes. The revised SMM definition includes 21 conditions. Due to the shift from ICD-9 to ICD-10 codes in 2015, it is not recommended to compare current SMM rates to the SMM rates previously reported.

The data to calculate severe maternal morbidity were derived from Iowa's hospital discharge data. Iowa hospital discharge data are collected by the Iowa Hospital Association on behalf of IDPH in accordance with Iowa Code section 135.166. The Iowa Department of Public Health may use these data to conduct public health surveillance and evaluate public health surveillance programs.

¹⁰ Neonatal intensive care unit

¹¹ Based on the work of: Callaghan WM, Creanga AA, Kuklina EV. Severe maternal morbidity among delivery and postpartum hospitalizations in the United States. *Obstetrics & Gynecology*. VOL. 120, NO. 5, NOV 2012. Data source – Iowa hospital discharge data.

¹² Due to small numbers and to create more stable rates, 2 years of data were combined to calculate the SMM rates.

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Table 13. Number and percent of women who were **underweight**¹³, based on pre-pregnancy BMI¹⁴ Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	543	3.3	440	2.1	983	2.6
2017	516	3.3	550	2.4	1,066	2.8
2016	543	3.6	595	2.5	1,138	2.9
2015	584	3.8	629	2.6	1,213	3.1
2014	603	4.0	686	2.8	1,289	3.3
2013	600	4.0	640	2.7	1,240	3.2
2012	650	4.2	673	2.9	1,323	3.4

Table 14. Number and percent of women who were **overweight**, based on pre-pregnancy BMI Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	4,236	25.9	5,767	27.1	10,003	26.6
2017	4,075	26.1	5,960	26.3	10,035	26.2
2016	3,757	24.9	6,232	26.0	9,989	25.6
2015	3,893	25.4	6,201	25.9	10,094	25.7
2014	3,581	25.9	6,640	25.9	10,221	25.9
2013	3,898	25.7	6,154	26.0	10,052	25.9
2012	3,975	25.6	5,850	25.5	9,825	25.5

Table 15. Number and percent of women who were **obese**, based on pre-pregnancy BMI Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	4,397	26.9	4,525	21.3	8,922	23.7
2017	4,009	25.6	4,700	20.4	8,709	22.7
2016	3,899	25.9	4,925	20.5	8,824	22.6
2015	3,799	24.8	4,534	19.0	8,333	21.2
2014	3,674	24.3	4,608	18.2	8,282	21.0
2013	3,729	24.6	4,394	18.6	8,123	20.9
2012	3,676	23.7	4,133	18.0	7,809	20.3

¹³ Underweight <18.5 BMI; overweight 25.0-29.9 BMI; obese 30.0-39.9 BMI; extreme obesity 40.0 or greater. See [Weight Gain During Pregnancy](#) and [Defining Adult Overweight and Obesity](#)

¹⁴ BMI = Body mass index

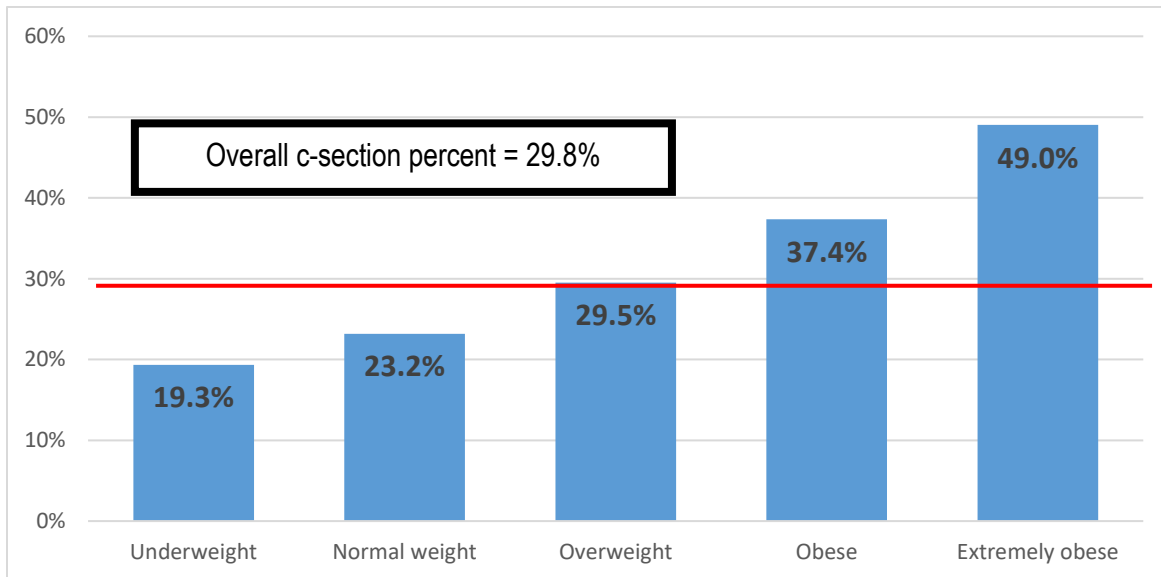
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Table 16. Number and percent of women who were **extremely obese**, based on pre-pregnancy BMI Medicaid status and State Total, 2012-2018, Iowa resident births

Year	Medicaid		Non-Medicaid		State Total	
	Number	%	Number	%	Number	%
2018	1,382	8.5	1,060	5.0	2,442	6.5
2017	1,246	8.0	1,161	5.1	2,407	6.3
2016	1,198	8.0	1,140	4.8	2,338	6.0
2015	1,128	7.4	1,071	4.5	2,199	5.6
2014	1,080	7.1	1,045	4.3	2,125	5.4
2013	1,023	6.8	909	3.8	1,932	5.0
2012	1,002	6.5	901	3.9	1,903	4.9

Figure 3. Percent cesarean deliveries by a woman's pre-pregnancy BMI compared to the percent of cesarean deliveries overall, calendar year 2018, Iowa resident births



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Table 17. Number and percent of deliveries by c-section overall, primary c-section, c-section **without** a trial of labor, and c-sections among low risk women¹⁵ among Medicaid reimbursed deliveries, 2012-2018, Iowa resident births

Year	C-sections overall		Primary c-sections		C-sections without a TOL ¹⁶		C-sections among low risk women	
	Number	%	Number	%	Number	%	Number	%
2018	4,934	30.2	2,560	15.6	3,238	19.8	1,039	23.9
2017	4,652	29.7	2,485	15.9	2,725	17.4	1,013	24.3
2016	4,601	30.4	2,557	19.9	2,775	18.3	1,005	23.8
2015	4,640	30.1	2,565	16.7	2,911	18.9	1,033	23.4
2014	4,542	29.8	2,347	15.4	3,038	20.0	1,033	23.7
2013	4,651	30.6	2,458	16.2	3,070	20.2	1,150	24.4
2012	4,812	30.9	2,726	17.5	3,107	19.9	1,299	26.2

Tables 17-19

- Regardless of reimbursement status, about 1 in 3 women who gave birth in Iowa from 2012-2018 did so by a cesarean delivery. According to the American College of Obstetricians and Gynecologists, cesarean deliveries are clearly indicated for certain clinical conditions (placenta previa, uterine rupture). However, in the absence of these conditions, a cesarean delivery may pose a higher risk for maternal or newborn morbidity than vaginal delivery.
- One strategy to reduce c-sections overall, is to reduce the percent of primary cesarean deliveries. The American College of Obstetricians and Gynecologists with the Society for Maternal-Fetal Medicine have developed a consensus statement called the [Safe Prevention of the Primary Cesarean Delivery](#).
- Strategies that support women to attain and maintain a healthy pre-pregnancy weight may also reduce the percent of cesarean deliveries in Iowa.
- The Healthy People 2020 goal is to reduce the percent of c-section deliveries among low risk women from a baseline of 26.5% to 23.9% by 2020. Iowa continues to make progress toward this goal regardless of a woman's Medicaid status.

¹⁵ Women at low risk for a c-section are defined as nulliparous women, who gave birth to a singleton infant, in vertex presentation at a gestational age of greater than or equal to 37 weeks

¹⁶ TOL = Trial of labor – includes all C-sections (primary and repeat)

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Table 18. Number and percent of deliveries by c-section overall, primary c-section, c-section **without** a trial of labor, and c-sections among low risk women **among non-Medicaid reimbursed deliveries**, 2012-2018, Iowa resident births

Year	C-sections overall		Primary c-sections		C-section without a TOL		C-sections among low risk women	
	Number	%	Number	%	Number	%	Number	%
2018	6,308	29.6	3,719	17.4	4,203	19.7	1,463	23.0
2017	6,775	29.8	3,963	17.4	4,118	18.1	1,650	23.9
2016	7,174	29.8	4,279	17.8	4,412	18.3	1,848	24.0
2015	7,126	29.6	4,157	17.3	4,599	19.1	1,940	24.2
2014	7,364	30.1	4,246	17.4	4,899	20.0	2,041	23.3
2013	7,364	30.9	4,351	18.3	4,983	20.9	1,949	24.4
2012	7,113	30.8	4,197	18.2	4,920	21.3	1,843	25.5

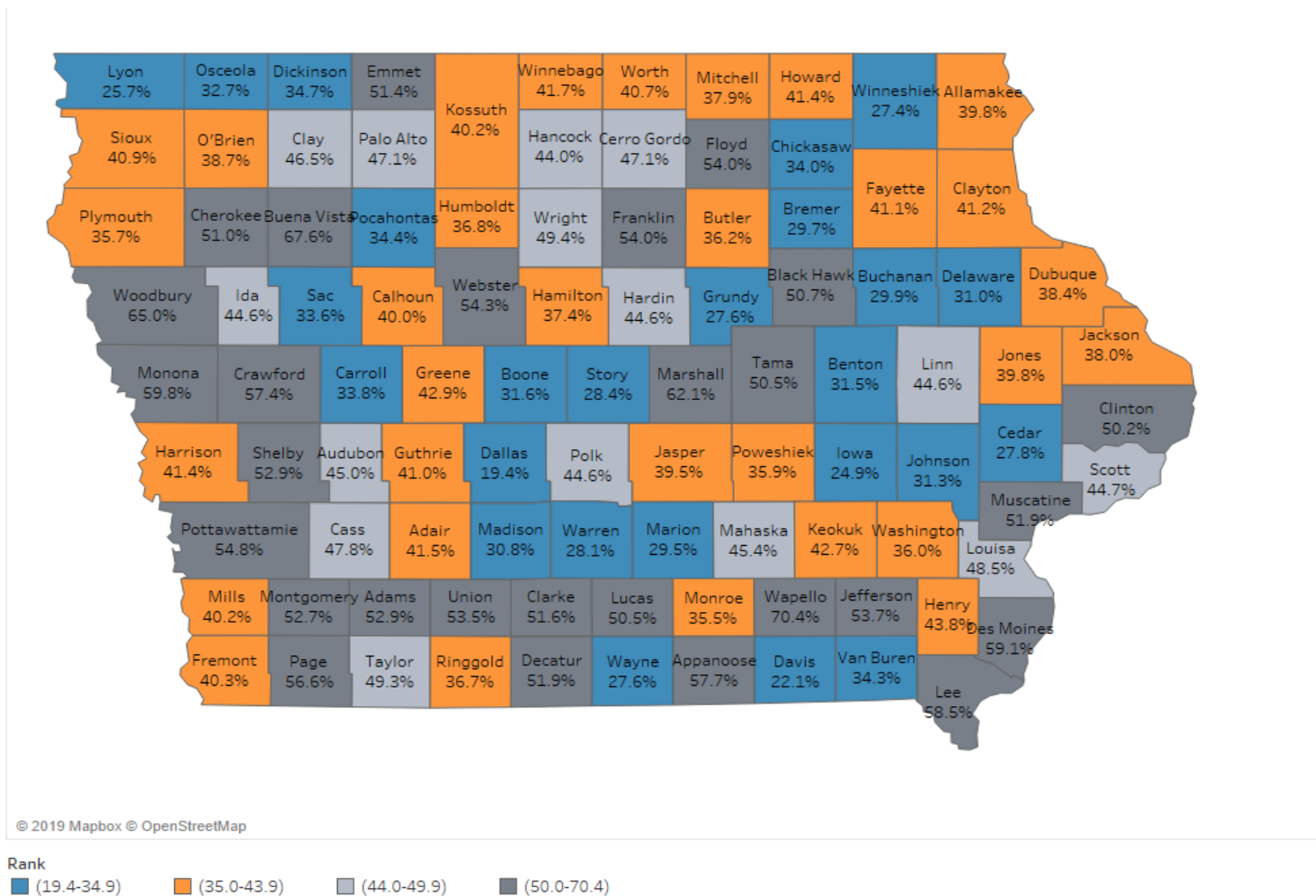
Table 19. Number and percent of deliveries by c-section overall, primary c-section, c-section **without** a trial of labor, and c-sections among low risk women at the **State Total**, 2012-2018, Iowa resident births

Year	C-sections overall		Primary c-sections		C-section without a TOL		C-sections among low risk women	
	Number	%	Number	%	Number	%	Number	%
2018	11,242	29.8	6,279	16.7	7,441	19.7	2,502	23.3
2017	11,427	29.8	6,448	16.8	6,843	17.8	2,663	24.0
2016	11,775	30.0	6,836	17.4	7,187	18.3	2,853	23.9
2015	11,766	29.8	6,722	17.0	7,510	19.0	2,824	23.9
2014	11,906	30.0	6,593	16.6	7,937	20.0	3,142	25.2
2013	12,015	30.8	6,809	14.5	8,053	20.6	3,096	24.4
2012	11,930	30.8	6,923	17.9	8,027	20.8	2,951	23.6

Access to prenatal care, selected behaviors/conditions, and selected birth outcomes by Medicaid status
Iowa resident births 2012 – 2018

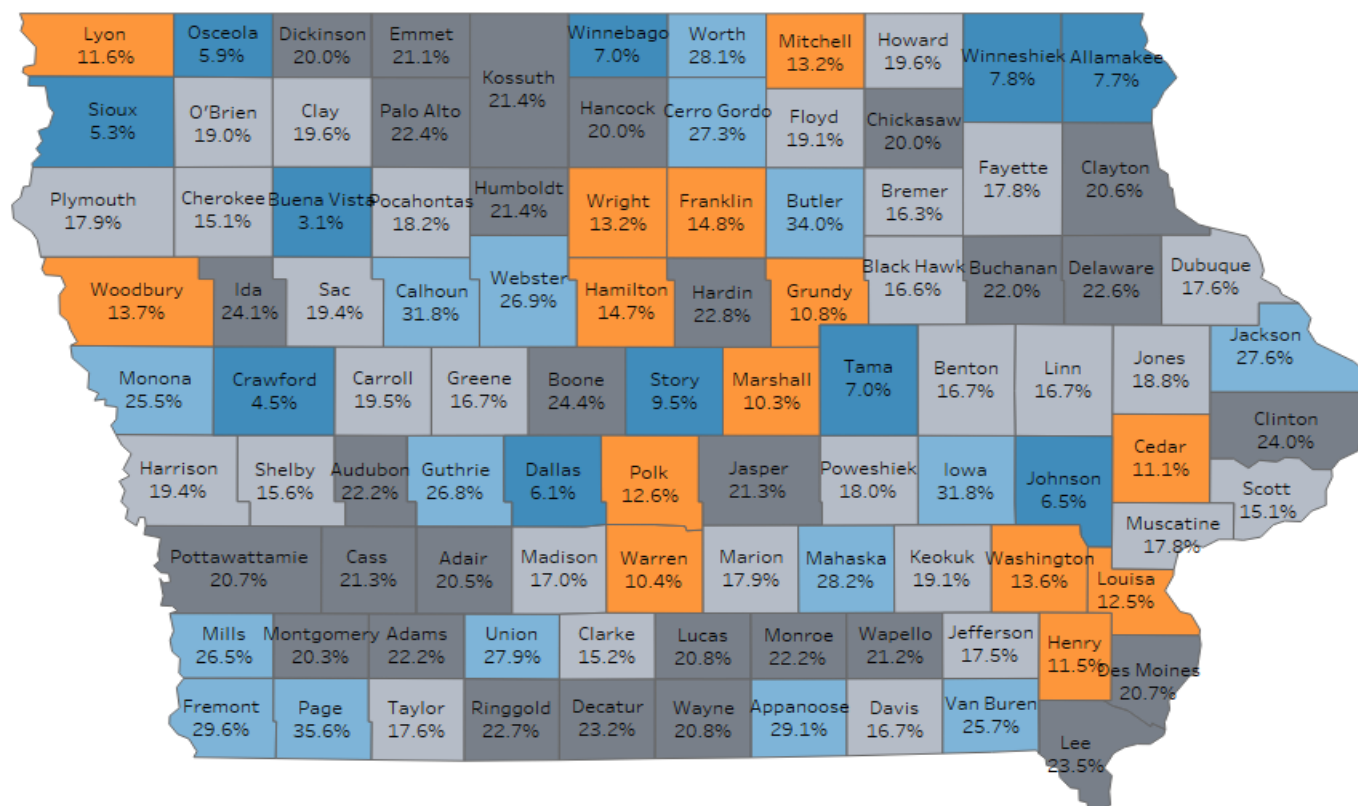
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Figure 1. Medicaid reimbursed deliveries by county, Iowa resident births, 2018



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Figure 2. The percent of women who reported third trimester smoking by county, Iowa resident births, 2018



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Smokers rank
 ■ (3.1-9.9) ■ (10.0-14.9) ■ (15.0-19.9) ■ (20.0-24.9) ■ (25.0-36.0)