

2013 Iowa Medicaid
Birth Certificate Match Report

SMOKING IN THE THIRD TRIMESTER OF PREGNANCY

Factors Associated with Smoking in the Third Trimester of Pregnancy





FACT SHEET PURPOSE

The purpose of this fact sheet is to describe smoking behaviors among women with a Medicaid reimbursed birth from 2007-2013. The information may be used to guide decision makers in implementing programs that improve the health outcomes of the women and infants who rely on Medicaid coverage.

BACKGROUND

Medicaid is a state/federal program that provides health insurance for specific groups of low-income individuals, including pregnant women. Iowa Medicaid is administered by the Iowa Department of Human Services through the Iowa Medicaid Enterprise. Currently, pregnant women may be eligible for Medicaid if their household income is below 375 percent of the federal poverty level. In past years that percentage had been 300 percent of the federal poverty level.

Table 1. The percentage of live birth deliveries in Iowa reimbursed by Medicaid for 2007-2013

Year	Number of live birth deliveries reimbursed by Medicaid in Iowa	Total number of live birth deliveries in Iowa	Percentage of live birth deliveries reimbursed by Medicaid in Iowa
2007	15,277	40,835	37.4%
2008	15,297	40,221	38.0%
2009	15,732	39,570	39.8%
2010	15,582	38,514	40.5%
2011	15,357	38,204	40.2%
2012	15,598	38,686	40.3%
2013	15,212	39,013	39.0%

SMOKING DURING PREGNANCY

- Smoking during pregnancy increases the risk for complications such as fetal growth restriction, preterm delivery, and infant death^{1,2}.
- Using 2002 U.S. Linked Birth/Infant Death data, Dietz et al. found that the following health outcomes were attributable to prenatal smoking in the U.S.³:
 - 5.3%-7.7% of preterm deliveries
 - 13.1%-19.0% of term infants with growth restriction
 - 23.2%-33.6% of deaths from sudden infant death syndrome
 - 5.0%-7.3% of preterm-related deaths

¹ Tong, V. T. et al. Trends in smoking before, during, and after pregnancy--Pregnancy Risk Assessment Monitoring System, United States, 40 sites, 2000-2010. *Morb. Mortal. Wkly. Rep. Surveill. Summ.* Wash. DC 2002 62, 1-19 (2013).

² Office of the Surgeon General (US) & Office on Smoking and Health (US). *The Health Consequences of Smoking: A Report of the Surgeon General.* (Centers for Disease Control and Prevention (US), 2004). at <<http://www.ncbi.nlm.nih.gov/books/NBK44695/>>

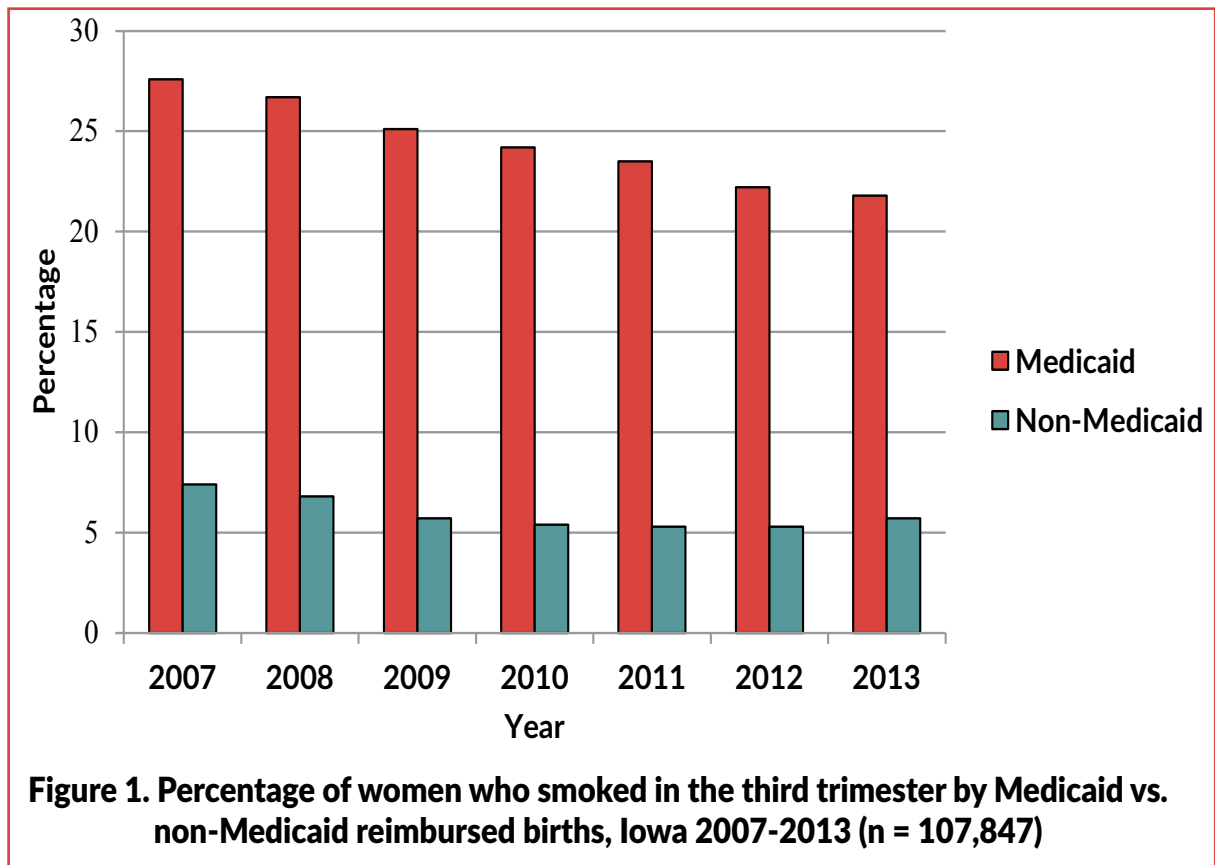
³ Dietz, P. M. et al. Infant morbidity and mortality attributable to prenatal smoking in the U.S. *Am. J. Prev. Med.* 39, 45-52 (2010).

DATA SOURCES

Data for this report were derived from matched birth certificate and Medicaid paid claims for calendar years 2007-2013. Paid claims were used for maternal diagnostic related groups (DRGs) for vaginal and cesarean deliveries. The birth certificate was used for maternal demographic characteristics including age, race, ethnicity, and level of education, as well as maternal smoking variables. Medicaid status was based on a paid claim for any one of the delivery related DRGs.

RESULTS

The percentage of women with a Medicaid reimbursed delivery who smoked during the third trimester of pregnancy continues to decrease; however, it remains, on average, 3 times higher than the percentage in women without a Medicaid reimbursed delivery.



Race/Ethnicity

Non-Hispanic White women with a Medicaid reimbursed birth were most likely to smoke during pregnancy, followed by non-Hispanic Black women.

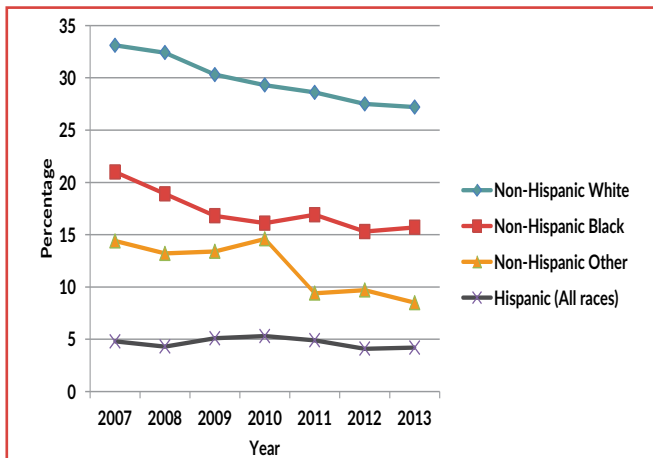


Figure 2. Percentage of women with a Medicaid reimbursed delivery who smoked in the third trimester by race/ethnicity, Iowa 2007-2013 (n = 26,347)

Smoking during 3rd Trimester

Women who smoked in the third trimester were more likely to be (Table 1):

- Non-Hispanic White (89.2% vs. 68.0%)
- Between the ages of 20-29 years (70.2% vs. 64.9%)
- Less educated (32.8% had greater than or equal to a high school education compared to 44.1% of those who did not smoke in the 3rd trimester)
- Initiate prenatal care later
- More likely to participate in WIC during pregnancy (77.2% vs. 74.5%) compared to women who did not smoke in the third trimester of pregnancy.

Table 1. Characteristics of Medicaid recipients who smoked in the third trimester of pregnancy compared to Medicaid recipients who did not smoke in the third trimester of pregnancy, Iowa (2007-2013)

Characteristic	Smoked in 3rd trimester n (%)	Did not smoke in 3rd trimester n (%)	P-value
Maternal race/ethnicity			<.0001
Non-Hispanic White	23,497 (89.2%)	55,400 (68.0%)	
Non-Hispanic Black	1,717 (6.5%)	8,325 (10.2%)	
Non-Hispanic other	418 (1.6%)	3,224 (4.0%)	
Hispanic (All races)	710 (2.7%)	14,507 (17.8%)	
Maternal age			<.0001
≤ 19 years	3,432 (13.0%)	13,267 (16.3%)	
20-29 years	18,507 (70.2%)	52,864 (64.9%)	
≥ 30 years	4,408 (16.7%)	15,368 (18.9%)	
Maternal education (≥ 12 years)	8,622 (32.8%)	35,856 (44.1%)	<.0001
Month of prenatal care initiation, mean (SD)	3.0 (1.5)	3.0 (1.4)	0.01
WIC participation during pregnancy	20,279 (77.2%)	60,210 (74.5%)	<.0001

Pregnant Women who Quit Smoking By Third Trimester

The percentage of women with a Medicaid reimbursed delivery who quit smoking by the third trimester of pregnancy has remained steady.

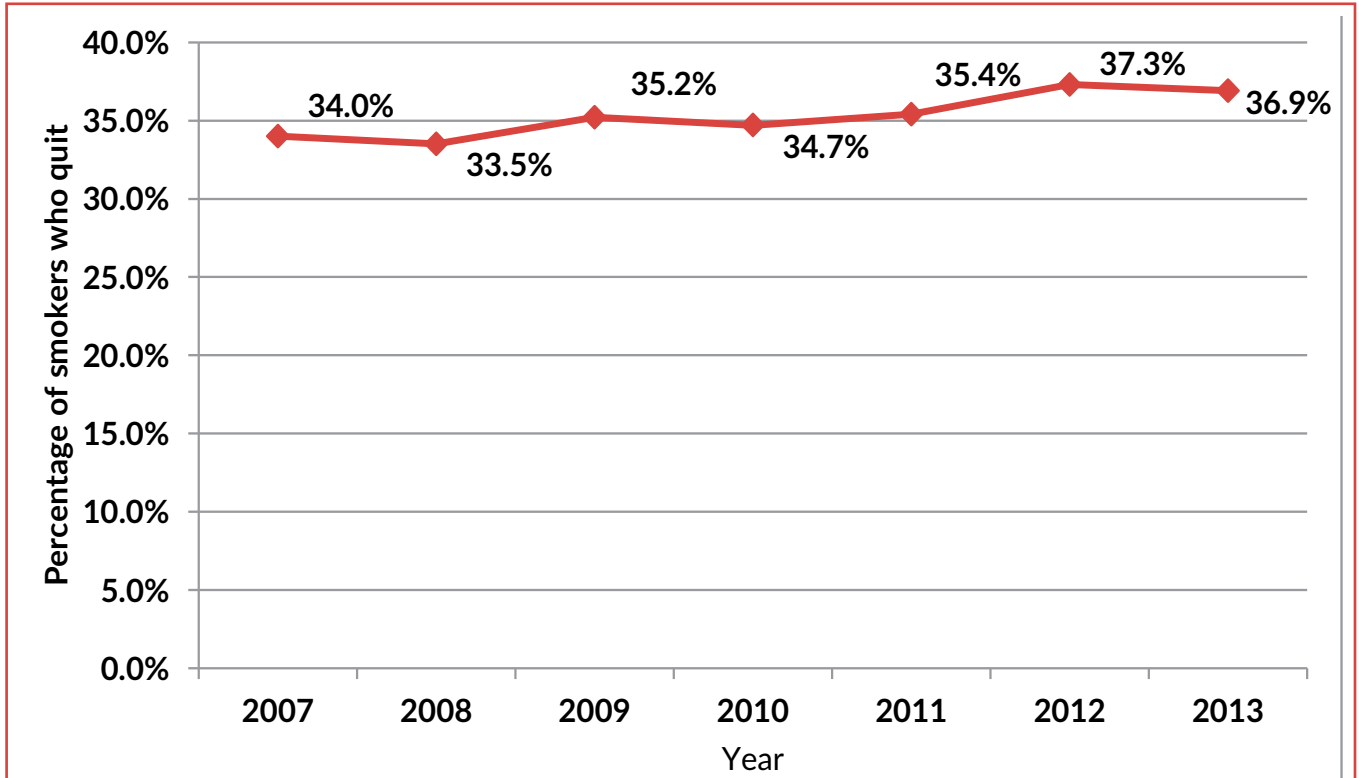


Figure 3. Percentage of Medicaid recipients who smoked before or during their pregnancy and quit smoking by the third trimester of pregnancy by year, Iowa 2007-2013 (n = 40,488)



ADJUSTED ANALYSES

We used logistic regression to assess the relationship between maternal characteristics and maternal smoking in the third trimester of pregnancy. Maternal race/ethnicity, maternal age, maternal education, month of prenatal care initiation, and WIC participation during pregnancy were assessed for association with maternal smoking in the third trimester of pregnancy.

Table 2. Logistic regression model of maternal characteristics associated with maternal smoking in the third trimester of pregnancy among Medicaid recipients, Iowa (2007-2013)

Maternal characteristic	Univariate Odds Ratio (95% CI)	P-value	Adjusted Odds Ratio ^a (95% CI)	P-value
Maternal race/ethnicity				
Non-Hispanic White	8.66 (8.02, 9.36)		11.74 (10.84, 12.70)	<.0001
Non-Hispanic Black	4.21 (3.85, 4.62)	<.0001	4.91 (4.47, 5.40)	<.0001
Non-Hispanic other	2.65 (2.33, 3.01)	<.0001	2.93 (2.58, 3.34)	<.0001
Hispanic (All races)	Reference		Reference	
Maternal age				
≤ 19 years	Reference		Reference	
20-29 years	1.35 (1.30, 1.41)	<.0001	1.72 (1.65, 1.80)	<.0001
≥ 30 years	1.11 (1.05, 1.17)	<.0001	1.73 (1.63, 1.82)	<.0001
Maternal education (≥ 12 years)	0.62 (0.60, 0.64)	<.0001	0.45 (0.43, 0.46)	<.0001
Month of prenatal care initiation	1.01 (1.00, 1.02)	0.005	1.06 (1.05, 1.07)	<.0001
WIC participation during pregnancy	1.16 (1.12, 1.20)	<.0001	1.27 (1.22, 1.31)	<.0001

^aAdjusted for maternal race/ethnicity, maternal age, maternal education, month of prenatal care initiation, and WIC participation during pregnancy.

Women who smoked in the third trimester of pregnancy were (Table 2):

- 11.7 times more likely to be non-Hispanic White than Hispanic
- 4.9 times more likely to be non-Hispanic Black than Hispanic
- 2.9 times more likely to be non-Hispanic other than Hispanic
- 1.7 times more likely to be 20-29 years of age than mothers ≤ 19 years of age
- 1.7 times more likely to be ≥ 30 years of age than mothers ≤ 19 years of age

Having greater than a high school education was associated with a 55 percent decreased risk of maternal smoking in the third trimester of pregnancy among Medicaid recipients. Each additional month delay in the initiation of prenatal care was associated with a 6 percent increased risk of maternal smoking in the third trimester of pregnancy among Medicaid recipients. Participation in WIC during pregnancy was associated with a 27 percent increased risk of smoking in the third trimester of pregnancy among Medicaid participants.

Table 3. Logistic regression model of infant outcomes associated with maternal smoking in the third trimester of pregnancy among Medicaid recipients , Iowa (2007-2013)

Infant outcome ^a	Univariate Odds Ratio (95% CI)	P-value	Adjusted Odds Ratio ^b (95% CI)	P-value
Low birth weight	1.51 (1.44, 1.59)	<.0001	1.54 (1.46, 1.63)	<.0001
Preterm birth	1.06 (1.01, 1.10)	0.01	1.11 (1.06, 1.16)	<.0001

^aSeparate models were run for low birth weight and preterm birth.

^bAdjusted for maternal race/ethnicity, maternal age, maternal education, month of prenatal care initiation, and WIC participation during pregnancy.

- Low birth weight infants were 54 % more likely to have been exposed to maternal smoking in the third trimester of pregnancy compared to normal weight infants.
- Preterm infants were 11% more likely to have been exposed to maternal smoking in the third trimester of pregnancy compared to term infants.



Based on this analysis, interventions that reach non-Hispanic White women in their 20's are critical to reducing the proportion of women who smoke during pregnancy. Early entry into prenatal care provides an opportunity to reach women and to support their efforts to quit smoking during pregnancy. It is also important to consider the role of WIC in women's efforts to quit smoking during pregnancy.

Infants exposed to maternal smoking in the third trimester of pregnancy are more likely to be born at a low birth weight or preterm.

RECOMMENDATIONS

- Encourage primary care providers to discuss tobacco cessation among women of reproductive age. “An easy and effective way to help your patients with tobacco use cessation” can be found at the [here](#)⁴.
- Encourage providers to refer women to [QUITLINE](#)⁵ Iowa 1-800-QUIT NOW (1-800-784 8669).
- Remind health care providers that smoking cessation counseling can be billed to Medicaid separately from the global billing fee. See [INFORMATIONAL LETTER NO. 1354](#)⁶
- Collaborate with Title V Maternal Health agencies to assist women in accessing prenatal care and smoking cessation services.
- Collaborate with WIC to support women in their efforts to quit smoking during pregnancy.
- Encourage the use of motivational interviewing techniques, a client centered counseling style, to elicit behavior change.

⁴http://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/sustainability/wiaq_an_easy_and_effective_w.pdf

⁵<https://www.quitnow.net/iowa/>

⁶<http://dhs.iowa.gov/sites/default/files/1354%20Tobacco%20Cessation%20Coverage%20Available%20to%20Medicaid%20Members.pdf>



WHAT IS THE IOWA MEDICAID – BIRTH CERTIFICATE MATCH PROJECT?

The Iowa Medicaid - Birth Certificate Match Project is supported by an inter-departmental agreement between the Iowa Department of Human Services and the Iowa Department of Public Health/Bureaus of Family Health and Health Statistics. The purpose of the project is to describe the characteristics of pregnant Medicaid recipients, their behaviors during pregnancy and at hospital discharge, their receipt of pregnancy related services, and their birth outcomes. This information can be used to improve programs and policies to benefit Medicaid recipients.

ACKNOWLEDGEMENTS

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ADDITIONAL INFORMATION

For additional information or to obtain copies of this fact sheet, write or call:

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