2013 Iowa Medicaid
Birth Certificate Match Report

NEONATAL ABSTINENCE SYNDROME

Factors Associated with Neonatal Abstinence Syndrome, Iowa 2013

FACT SHEET PURPOSE

The purpose of this fact sheet is to describe neonatal abstinence syndrome (NAS) among Iowa infants with Medicaid reimbursed births during 2013. This 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 to 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. In Iowa, pregnant women may be eligible for Medicaid if their household income is below 375 percent of the federal poverty level.

The labor and delivery costs for nearly 39 percent of live birth deliveries in Iowa were reimbursed by Medicaid in calendar year 2013 (38.9%; n = 15,212 of 39,013 births).

NEONATAL ABSTINENCE SYNDROME (NAS)

- NAS occurs when a pregnant woman takes opiate or narcotic drugs, such as heroin, codeine, oxycodone (OxyContin), methadone or buprenorphine. These and other substances pass through the placenta and the baby becomes addicted along with the mother. At birth, the baby is still dependent on the drug. Because the baby is no longer getting the drug after birth, the infant may experience withdrawal symptoms or NAS.
- The prevalence of NAS has increased significantly in the U.S. from 1.20 per 1,000 U.S. hospital births in 2000 to 3.39 per 1,000 U.S. hospital births in 2009[1].
- Infants born with NAS can suffer from increased irritability, hypertonia, tremors, feeding intolerance, emesis, watery stools, seizures and respiratory distress[1].

[1]Patrick, S. W. et al. Neonatal abstinence syndrome and associated health care expenditures: United States, 2000-2009. JAMA J. Am. Med. Assoc. 307, 1934–1940 (2012).

DATA SOURCES

Data for this report were derived from a matched file of the 2013 birth certificate and Medicaid births classified with NAS. Paid claims were used to identify infants with NAS based on the following diagnosis codes:

- 292.0 – Drug withdrawal
- 304.9 – Unspecified drug dependence
- 305 – Nondependent abuse of drugs
- 760.71 – Alcohol affecting fetus or newborn via placenta or breast milk
- 760.72 –Narcotics affecting fetus or newborn via placenta or breast milk
- 760.75 – Cocaine affecting fetus or newborn via placenta or breast milk
- 763.5 – Maternal anesthesia and analgesia affecting fetus or newborn
- 779.5 – Drug withdrawal syndrome in newborns

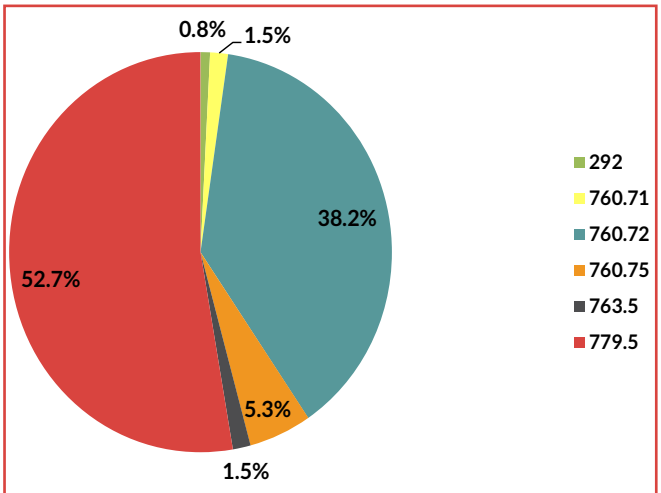
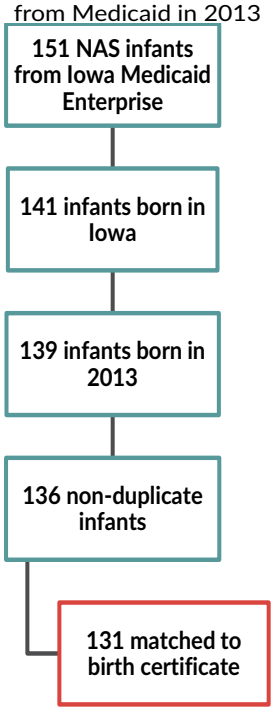


Figure 1. Frequency of NAS diagnosis codes in Iowa Medicaid infants, 2013

Figure 2. Flow-chart of NAS infants from Medicaid in 2013



There were 136 non-duplicate Medicaid infants with these diagnostic codes born in Iowa in 2013. A total of 131 of these infants successfully matched to the birth certificate. (Figure 2)

We used the following birth certificate variables in this report:

- County of residence
- Maternal race/ethnicity
- Infant birth weight
- Infant gestational age
- Maternal education level
- Maternal age
- Month of prenatal care initiation
- Neonate breastfed at hospital discharge
- Maternal report of cigarette smoking before and during pregnancy
- Mother's participation in the Special Supplemental Nutrition Program for Women, Infants,and Children (WIC)

RESULTS

Average charges to Medicaid for infants with NAS were $53,805.51 with a range from $1,982.31 to $487,277.56.

Medicaid reimbursed births – infants with NAS compared to infants without NAS

- The average birth weight of Medicaid infants with NAS was more than a ½ pound less than Medicaid infants without NAS (Mean: 3023.0 vs. 3301.6 grams).
- Medicaid infants with NAS were born 1 week earlier than Medicaid infants without NAS (Mean: 38.6 vs. 37.6 weeks).
- Mothers of Medicaid infants with NAS were older than mothers of Medicaid infants without NAS (27.4 years vs. 25.6 years).
- Mothers of Medicaid infants with NAS were more likely to not receive prenatal care compared to Medicaid mothers of infants without NAS (4.6% vs. 0.6%).
- On average, mothers of Medicaid infants with NAS initiated prenatal care 3.7 months into their pregnancy compared to women of Medicaid infants without NAS who initiated prenatal care 2.9 months into their pregnancy.
- Medicaid infants with NAS were less likely to be breastfed at discharge from the hospital than Medicaid infants without NAS (45.7% vs. 65.6%).

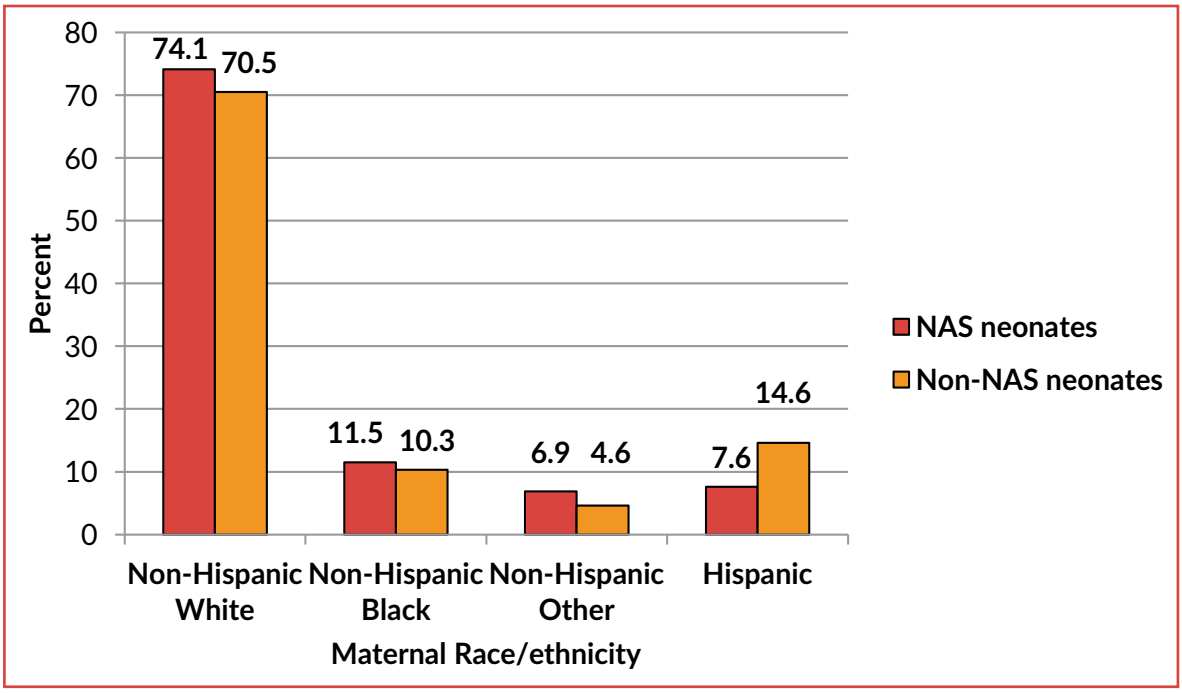


Figure 3. Race/ethnicity of mothers of Medicaid NAS infants vs. non-NAS Medicaid infants

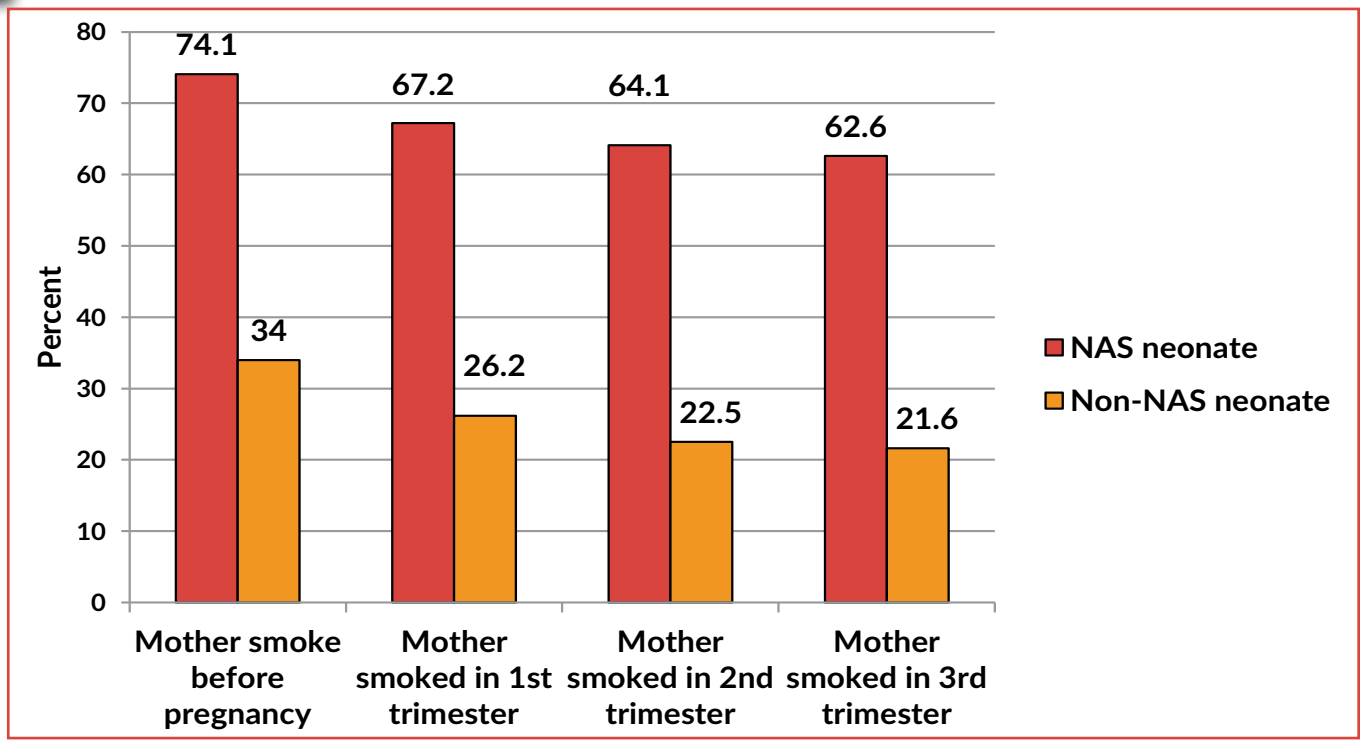


Figure 4. Maternal smoking during pregnancy among NAS infants and non-NAS infants

Adjusted analyses

We used logistic regression to assess the relationship between maternal characteristics and NAS. We examined the association of maternal race/ethnicity, maternal age, maternal education, maternal smoking in the 3rd trimester, month of prenatal care initiation and WIC participation during pregnancy with NAS.

- Mothers of Medicaid infants with NAS were 6.2 times more likely to smoke in the 3rd trimester of pregnancy than mothers of Medicaid infants without NAS.
- An infant's risk for NAS increased by 34% for each additional month that a mother delayed prenatal care initiation.

Table 1. Logistic regression model of maternal characteristics with an outcome of NAS (n = 15,247)

Characteristic	Univariate Odds Ratio (95% CI)	*P*-value	Adjusted Odds Ratio (95% CI)	*P*-value
Maternal race/ethnicity				
Non-Hispanic white	2.01 (1.05, 3.86)	0.04	1.36 (0.64, 2.92)	0.43
Non-Hispanic black	2.13 (0.95, 4.75)	0.06	1.68 (0.69, 4.08)	0.25
Non-Hispanic other	2.89 (1.17, 7.15)	0.02	2.18 (0.78, 6.08)	0.14
Hispanic (All races)	**Reference**		**Reference**	
Maternal age				
≤ 19 years	**Reference**		**Reference**	
20-29 years	1.36 (0.70, 2.61)	0.36	1.10 (0.54, 2.23)	0.79
≥ 30 years	2.05 (1.01, 4.16)	0.05	1.69 (0.79, 3.63)	0.18
Maternal education (≥ 12 years)	0.96 (0.68, 1.35)	0.79	1.19 (0.81, 1.73)	0.38
Maternal smoking in the 3rd trimester	6.09 (4.26, 8.69)	<.0001	6.21 (4.19, 9.19)	<.0001
Month of prenatal care initiation	1.34 (1.22, 1.47)	<.0001	1.32 (1.20, 1.45)	<.0001

CONCLUSIONS

Maternal race/ethnicity and age were no longer significantly associated with newborn NAS after simultaneously controlling for key risk factors. Month of prenatal care initiation and 3rd trimester cigarette smoking remained key factors in the adjusted model. Strategies to support pregnant Medicaid enrollees to initiate prenatal care early in their pregnancies create an opportunity to identify infants at risk for NAS.

RECOMMENDATIONS

- Encourage women of reproductive age to use QUITLINE[2] Iowa 1-800-QUIT NOW (1-800-784 8669) and encourage providers to enroll women in ongoing smoking cessation counseling to receive covered smoking cessation medications.
- Encourage primary care providers to screen women of reproductive age for contraceptive use, pregnancy intention, smoking, illicit drug use, and prescription drug use.
- Encourage primary care providers to discuss a reproductive life plan[3] with women of reproductive age, including current cigarette, prescription, and illegal drug use.
- To improve NAS recognition and initiation of appropriate treatment services, create a structured screening protocol to screen newborns for perinatal exposure to prescription and illicit drugs[4].

[2] http://dhs.iowa.gov/ime/providers/csrp/SmokingCessation.

[3] http://www.cdc.gov/preconception/reproductiveplan.html

[4] Oral, R. & Strang, T. Neonatal illicit drug screening practices in Iowa: the impact of utilization of a structured screening protocol. J. Perinatol. Off. J. Calif. Perinat. Assoc. 26, 660–666 (2006).

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

The Iowa Department of Public Health acknowledges the Maternal and Child Health Epidemiology Program, Field Support Branch, Division of Reproductive Health, National Center for Chronic Disease Prevention and Public Health Promotion, Centers for Disease Control and Prevention and Council for State and Territorial Epidemiologists Fellowship Program for analytic support and preparation of this fact sheet.

ADDITIONAL INFORMATION

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

Iowa Department of Public Health
Bureau of Family Health
321 E. 12th Street
Des Moines, IA 50309
Toll-free at 1-800-383-3826.