HHS Public Access

Author manuscript

Matern Child Health J. Author manuscript; available in PMC 2015 January 21.

Published in final edited form as:

Matern Child Health J. 2012 December ; 16(0 2): 222–230. doi:10.1007/s10995-012-1172-y.

Health Status and Health Insurance Coverage of Women with Live-Born Infants: An Opportunity for Preventive Services After Pregnancy

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Abstract

Most women in the US have access to health care and insurance during pregnancy; however women with Medicaid-paid deliveries lose Medicaid eligibility in the early postpartum period. This study examined the association between health insurance coverage at the time of delivery and health conditions that may require preventive or treatment services extending beyond pregnancy into the postpartum period. We used 2008 Pregnancy Risk Assessment Monitoring System data from 27 states (n = 35,980). We calculated the prevalence of maternal health conditions, including emotional and behavioral risks, by health insurance status at the time of delivery. We used multivariable logistic regression to assess the association between health insurance coverage, whether Medicaid or private, and maternal health status. As compared to women with private health insurance, women with Medicaid-paid deliveries had higher odds of reporting smoking during pregnancy (adjusted odds ratio [AOR]: 1.85, 95 % confidence interval [CI]: 1.56–2.18), physical abuse during pregnancy (AOR: 1.73, 95 % CI: 1.24–2.40), having six or more stressors during pregnancy (AOR: 2.48, 95 % CI: 1.93–3.18), and experiencing postpartum depressive symptoms (AOR: 1.24, 95 % CI: 1.04–1.48). There were no significant differences by insurance status at delivery in pre-pregnancy overweight/obesity, pre-pregnancy physical activity, weight gain during pregnancy, alcohol consumption during pregnancy, or postpartum contraceptive use. Compared to women with private insurance, women with Medicaid-paid deliveries were more likely to experience risk factors during pregnancy such as physical abuse, stress, and smoking, and postpartum depressive symptoms for which continued screening, counseling, or treatment in the postpartum period could be beneficial.

Keywords

PRAMS; Postpartum health; Health insurance; Pregnancy

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Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Introduction

Young, minority, and low-income women are likely to lack health insurance [1-3], and to face economic and social challenges that put them at risk for poor emotional or physical health [4-6]. For example, low-income and minority women are more likely to experience mental distress than higher income, non-minority women [7-9], are more likely to experience physical abuse [10-12], and a high number of emotional and economic stresses during pregnancy [13, 14]. Studies have also shown that minority and low-income women are more likely to be overweight or obese, and less likely to engage in regular exercise than non-minority, higher income women [15-17]. Additionally, young women, including non-minority women, are frequent consumers of tobacco products and alcoholic beverages [18-21].

For many reproductive-aged women, pregnancy is a time of increased awareness of experiences and behaviors that put themselves or their babies at risk for poor health [22-24]. Pregnancy provides a window of opportunity to access the health care system, to identify potential health problems, and to receive needed services. Once pregnant, low-income women without health insurance who are lawful residents become eligible for Medicaid, the major public funder of maternity care services in the US [25, 26]. The majority of pregnant women attend some prenatal care visits [27, 28], and women with chronic health conditions or who are at risk for pregnancy complications may have frequent contact with health care professionals during pregnancy [29–32].

For these reasons, there is an opportunity to reach women during pregnancy to provide screening and treatment for conditions such as mental health disorders, abuse, and substance use or dependence, and to provide counseling on nutrition and physical activity. For those on Medicaid during pregnancy, available services vary by state; however, nearly all state Medicaid programs provide psychosocial counseling, treatment for substance abuse, and nutrition counseling during the prenatal care period. Currently, without a Medicaid waiver at the state-level, Medicaid eligibility for pregnant women expires 60 days after delivery [25, 33], at which point coverage for many services, including counseling and treatment services, ends.

This study used population-based data from the Pregnancy Risk Assessment Monitoring System (PRAMS) to describe the characteristics and behaviors of women who recently delivered a live-born infant by health insurance status (Medicaid or private insurance at the time of delivery), and to determine if health insurance status was associated with health conditions that may require follow-up in the postpartum period.

Methods

PRAMS is a population-based surveillance system of maternal and perinatal health indicators funded in part by the Centers for Disease Control and Prevention (CDC) and administered by state health departments. A sample of eligible women who recently gave birth to a live infant is drawn from state birth certificates 2–6 months following birth. Data are collected by mailed questionnaire and non-respondents are contacted by telephone. The

data are weighted for sample design, nonresponse, and noncoverage. More detail on the PRAMS methodology has been published previously [34], and is available at: www.cdc.gov/prams. The PRAMS study protocol is approved by the Institutional Review Board of the CDC and each participating site.

We analyzed 2008 data from 27 states (Alaska, Arkansas, Colorado, Delaware, Georgia, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Nebraska, New Jersey, New York [excluding New York City], North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, Tennessee, Utah, Washington, West Virginia, Wisconsin, Wyoming) that achieved an overall weighted response rate of 65 % or greater. There were 39,465 respondents in the dataset, representing 1,792,336 women who gave birth to live infants in the 27 states in 2008 covering 44 % of all US live births for the year. Of these respondents, 3,485 (8.8 %) did not report Medicaid and/or private insurance at delivery or were missing information on insurance status and were excluded from the analysis. The final sample size for the study was 35,980 women.

We obtained information on maternal age, race, ethnicity, education level, marital status, parity, and weight gain during pregnancy from the linked birth certificate files. Information on pre-pregnancy overweight/obesity, pre-pregnancy physical activity, physical abuse during pregnancy, number of stressors during pregnancy, cigarette smoking and alcohol use during pregnancy, WIC participation during pregnancy, health insurance status at delivery, postpartum depressive symptoms, and postpartum contraceptive use came from the PRAMS questionnaire. Of note, only selected states collected data on postpartum depressive symptoms (20 of 27; AK, DE, CO, GA, HI, ME, MD, MA, MN, NE, NC, NY [excluding NYC], OH, OR, RI, TN, UT, WA, WI, WY; n = 26,822) and pre-pregnancy physical activity (5 of 27; MA, MD, ME, NC, WA; n = 7,061). Missing data was less than 6 % for each study indicator.

To assess health insurance coverage at delivery, we used the following question:

How was your delivery paid for? Check all that apply

Medicaid

Personal income (cash, check, or credit card)

Health insurance or HMO (including insurance from your work or your husband's work)

Space for States to list state-specific programs

Other → Please tell us:

A woman was considered to have private insurance if she answered “Yes” to the “Health insurance or HMO” option in the question listed above; she was considered to have Medicaid if she answered “Yes” to the “Medicaid” option. Women who indicated both “Health insurance or HMO” and “Medicaid” were classified in the private insurance category since Medicaid is the payer of last resort [35]. Women who selected any other combination of responses that did not include either “Health insurance or HMO” or “Medicaid” were excluded from the analysis.

We examined many indicators to assess maternal health status. For pre-pregnancy overweight/obesity, we classified women based on their body mass index (BMI; weight in kilograms/height in meters^2) calculated from pre-pregnancy height and weight self-reported on the PRAMS questionnaire. We used BMI cut offs from the 1990 IOM Recommendations for Weight Gain During Pregnancy, which were current at the time of data collection in 2008 (underweight BMI < 19.8; normal weight BMI = 19.8–26.0; overweight BMI > 26–29.0; obese BMI > 29.0) [36]. We defined weight gain during pregnancy as excessive if the birth certificate indicator showed that a woman gained more than 35 pounds (based on the 1990 IOM recommended gestational weight gain for women with a normal pre-pregnancy weight) [38].

Smoking and alcohol use were based on maternal report of any use during the third trimester of pregnancy. Stressors were assessed based on the number of stressful events the respondent selected from a list of 13 possible items, with a cut-point of 6 stressors based on previous PRAMS studies [14, 37]. This list of events included financial stressors (such as not having enough money to pay bills or losing a job) and emotional/partner stressors (such as death of a loved one, or arguing more than usual with husband or partner). The full list of stressors can be found at www.cdc.gov/prams/Questionnaire.

A woman was considered to have experienced postpartum depressive symptoms if she answered “Always” or “Often” to either of two questions: “*Since your new baby was born*, how often have you felt down, depressed, or hopeless?” and “*Since your new baby was born*, how often have you had little interest or little pleasure in doing things?” We used SUDAAN software for the analysis to account for the complex sampling design and statistical weighting of PRAMS [38]. We calculated percentages and confidence intervals for maternal characteristics by health insurance status. We tested for differences between the characteristics for the insurance groups (Medicaid/private) using Chi-square tests (significance defined as P value < 0.05). We used multi-variable logistic regression to examine the relationship between Medicaid coverage and maternal health status by calculating odds ratios with 95 % confidence intervals, controlling for factors related to health insurance status (maternal age, race, education level, marital status, parity, state of residence, and WIC participation during pregnancy).

Results

Overall, 43 % of women reported having Medicaid cover the cost of their most recent deliveries and 57 % reported private insurance. There was a higher prevalence in the Medicaid group of younger women, minority women, women with less than a high school education, unmarried women, women with 3 or more children, and WIC participants than in the private insurance group (P value < 0.05) (Table 1). Women covered by Medicaid had a higher prevalence of self-reported pre-pregnancy obesity, infrequent pre-pregnancy physical activity, and gaining more than the recommended amount of weight during pregnancy than women in the private insurance group (Table 1). Women with Medicaid at delivery also had a higher prevalence of self-reported smoking, experiencing physical abuse, reporting 6 or more stressors during pregnancy, and experiencing postpartum depressive symptoms than

women with private insurance. There was no difference in the prevalence of postpartum contraceptive use (Table 1).

In the adjusted analysis comparing women from the Medicaid and private insurance groups, women with Medicaid-paid deliveries were at higher odds of reporting smoking during pregnancy (adjusted odds ratio [AOR]: 1.85, 95 % confidence interval [CI]: 1.56–2.18), physical abuse during pregnancy (AOR: 1.73, 95 % CI: 1.24–2.40), six or more stressors during pregnancy (AOR: 2.48, 95 % CI: 1.93–3.18), and experiencing postpartum depressive symptoms (AOR: 1.24, 95 % CI: 1.04–1.48) than women with private health insurance at delivery. There were no differences women who were between Medicaid recipients and those privately insured at delivery in pre-pregnancy overweight/obesity, pre-pregnancy physical activity, weight gain during pregnancy, or alcohol consumption during pregnancy (Table 2).

Discussion

Our findings show that women whose deliveries were paid for by Medicaid had higher odds of reporting smoking, physical abuse, and 6 or more stressors during pregnancy, as well as postpartum depressive symptoms than women whose deliveries were paid for by private insurance. There were high rates of pre-pregnancy overweight/obesity, pre-pregnancy lack of physical activity, and pregnancy weight gain in excess of the recommended amount among women with Medicaid-paid deliveries and women whose deliveries were paid by private insurance. The majority of women in both groups reported using postpartum contraception.

Women of low social economic status (SES) are, by definition, the individuals who will be eligible for Medicaid [25, 39]. For that reason, it is not surprising that our descriptive results corroborate other studies showing that young, minority, less educated, unmarried, multiparous, and low income (WIC participants) women are more likely to report having deliveries paid by Medicaid than by private insurance [1, 5, 6, 26]. Studies have also linked individuals with the same lower SES profile with higher risk of mental illness, including depression, social stresses, unfavorable health behaviors such as smoking, and chronic conditions such as obesity [7, 8, 10, 16, 19, 40, 41]. Our study corroborates these findings related to postpartum depressive symptoms, social stressors, and smoking among low income groups, but not with obesity, which affected women in our study across insurance groups. Our study is unique in linking together sociodemographic characteristics, stressful experiences, and unhealthy behaviors during pregnancy, and examining them in light of health insurance status at delivery in order to identify preventive health care service needs of low-income pregnant women that are likely to persist into the postpartum period.

Our findings suggest that many women on Medicaid at the time of delivery may need access to screening, treatment, preventive health services, and counseling for conditions such as smoking cessation, physical abuse, stress management, and postpartum depressive symptoms in the postpartum period. Issues may be identified or even treated while the woman is pregnant and qualifies for health insurance. However, these health concerns may not resolve completely upon delivery, and may be exacerbated by the stress and physical

demands associated with caring for a newborn. Although most of these indicators were reported to occur during pregnancy, it is reasonable to target women who were high risk during pregnancy for identified health issues in the months following delivery. For example, even among smokers who quit during pregnancy, postpartum smoking relapse rates are high [19]. Women who experience physical abuse during pregnancy are more likely to experience it postpartum, and abuse during pregnancy has been linked with postpartum depression [42, 43]. And although pre-pregnancy overweight/obesity was not specific to women with Medicaid-paid deliveries in our study, 40.6 % of women in the Medicaid group entered pregnancy overweight or obese, and 71.3 % of women in the Medicaid group had pregnancy weight gain in excess of the recommended amount. While these factors are not reported for the postpartum period, they are still relevant in suggesting that continued access to nutrition counseling and weight management services could benefit many women in the postpartum period,

With the current structure of Medicaid, women who are Medicaid recipients during pregnancy lose their Medicaid eligibility 60 days postpartum [25]. Lack of health insurance, in general, has been associated with lack of seeking treatment and inadequate care for acute and chronic conditions [3, 44–46]. For a vulnerable group such as post-partum women, lack of insurance and access to care for themselves may also impact the access to care for their infants [40, 47, 48].

The extension of Medicaid coverage for postpartum women from 60 days after the delivery through 2 years postpartum would provide continuation of needed services for at-risk women. Salganicoff et al. [49] have advocated for the expansion of Medicaid coverage for reproductive aged women in the preconception period. They note that by addressing issues early and helping women achieve optimal health before pregnancy, some adverse outcomes could be averted, ultimately leading to cost savings and healthier women, healthier subsequent pregnancies, and healthier infants in the long term [49]. A similar argument can be made for the extension of Medicaid coverage further into the postpartum period. Continuing treatment or providing ongoing screening for follow-up on social, behavioral, or physical health conditions that were identified, but not resolved, during pregnancy could also optimize the health of postpartum women. The benefit would extend to infants and families, as healthier women are better able to attend to the health of their newborns, and are better positioned to experience good outcomes in the event of a subsequent pregnancy. The abrupt discontinuation of Medicaid coverage during the early postpartum period (which for many women may be the interconception period between pregnancies) [25] does not allow for continued management and treatment of many conditions identified during pregnancy.

Over the years, Medicaid has undergone different expansions. In the 1980s, Congress required the extension of eligibility for maternity care (including postpartum care) for pregnant women with incomes below 133 % of the federal poverty level [50]. Many states, including 23 of the 27 states used in our study (all states except AK, UT, WV, WY), further expanded eligibility up to 185 % or more of the federal poverty level [51]. An additional option for states to further extend coverage for selected services to low income women is by applying to the Centers for Medicare and Medicaid Services (CMS) for a waiver to conduct demonstration projects [50]. By 2011, 22 states (11 of the 27 states in our study–AR, GA,

IL, MI, MN, NS, NY, NC, OR, WA, WI) received approved Medicaid Family Planning Waivers that allow them to provide services to women who meet certain income requirements, but may not be on Medicaid [52]. An additional 4 states from our study (DE, MD, RI, WY) have limited expansions for women who have left Medicaid (after a funded delivery or for other reasons) [52]. Family planning expansions have proven cost-effective in helping low income women avoid unintended pregnancies and their importance should not be diminished. In fact, our study found no significant difference between women with Medicaid-paid deliveries and private insurance in postpartum contraceptive use. However, the majority of programs are only able to address client needs that focus on family planning [52, 53]. Some sites have made use of Title X family planning funding to expand services, however this is not a consistent approach [50]. For most women, access to care through family planning waivers falls short of providing the comprehensive medical coverage needed to follow-up on health conditions that may have been identified during pregnancy [50].

While it is unclear how health insurance coverage for low-income women may change in the coming years in each state, extension of Medicaid for postpartum women may be an effective approach to facilitate uninterrupted access to services for low-income women. In the absence of Medicaid extension, follow-up screening and treatment of previously identified at-risk women during the early postpartum period before Medicaid coverage ends is an alternative to maximize use of available resources. Access to and utilization of screening and treatment services during the 60-day post-partum window could be facilitated by the implementation of practical tools for providers, such as standard screening and referral protocols and ongoing staff training. One opportunity would be at the postpartum visit for women who attend, although further outreach would be needed for those who do not make it to this visit. Developing a coordinated approach to screening was suggested by the Centers for Disease Control and Prevention (CDC) in recommendations for the improvement of preconception and inter-conception care in the United States, and by O'Campo et al. in reference to intimate partner violence services [54, 55].

This study is subject to several limitations. PRAMS data were not available from all states, so the findings from this study are not generalizable beyond the 27 states from which the data were collected. In addition, PRAMS data are self-reported by respondents. Several of the indicators in this study relate to sensitive topics such as physical abuse and substance use during pregnancy, and may be subject to underreporting [56]. We used the 1990 cut-points to calculate overweight and obesity, so programs and providers would need to assess women according to the updated 2009 guidance in providing weight management services. Nevertheless, the findings from this study will add valuable information to the literature by identifying screening, preventive, and treatment service needs of women with Medicaid-paid deliveries.

Conclusion

Women with Medicaid paid deliveries have a need for services related to smoking cessation, physical abuse, social stressors, and mental health in the postpartum period. Changes in Medicaid policy, or other approaches to provide extended, uninterrupted health care

coverage into the postpartum period so that screening, counseling and treatment can be provided to women who may have been identified as at-risk during pregnancy have the potential to improve the health of low income women and children. PRAMS state-based surveillance can be used to provide evidence of the gaps in service or unmet needs of women around the time of pregnancy and after delivery. This information can be used to support programs and policies in efforts to improve the health of women and infants.

Acknowledgments

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Table 1

Maternal demographic characteristics and health status by health insurance at delivery, 27 PRAMS states, 2008

Characteristic	n±	Medicaid		Private	
		%	CI*	%	CI
Total	35,980	42.6	41.8, 43.4	57.4	56.6, 58.2
Maternal demographics					
Age† (years)					
<20	3,570	17.7	16.7, 18.7	3.4	3.0, 3.8
20–24	8,550	36.0	34.8, 37.3	12.5	11.8, 13.2
25–35	18,149	39.7	38.4, 41.0	63.8	62.8, 64.8
35+	5,710	6.6	6.0, 7.3	20.4	19.6, 21.2
Race†					
White	19,145	44.5	43.3, 45.7	76.4	75.5, 77.2
Black	6,109	23.7	22.6, 24.8	8.6	8.0, 9.2
Hispanic	5,269	25.6	24.6, 26.7	7.1	6.6, 7.6
American Indian/Alaska Native	1,302	1.6	1.4, 1.8	0.46	0.4, 0.6
Other	3,980	4.7	4.2, 5.2	7.5	7.0, 8.0
Education†					
<HS	6,101	33.4	32.2, 34.7	4.2	3.8, 4.7
HS	10,150	39.2	37.9, 40.4	18.3	17.4, 19.1
>HS	19,302	27.4	26.3, 28.6	77.5	76.6, 78.4
Married†					
No	14,293	67.0	65.8, 68.2	15.3	14.5, 16.1
Yes	21,674	33.0	31.8, 34.2	84.7	83.9, 85.5
Parity†					
0	15,157	40.2	38.9, 41.5	42.4	41.4, 43.5
1–2	16,763	46.8	45.5, 48.1	50.5	49.4, 51.5
3+	3,881	13.1	12.2, 14.0	7.1	6.6, 7.7
WIC participant†					
No	18,876	20.1	19.1, 21.2	83.3	82.5, 84.1

Characteristic	n±	Medicaid		Private	
		%	CI*	%	CI
Yes	16,811	79.9	78.8, 80.9	16.7	15.9, 17.5
Weight and physical activity					
Pre-pregnancy weight†					
Underweight (BMI£ < 19.8)	4,311	13.2	12.3, 14.1	10.8	10.2, 11.5
Normal (BMI = 19.8–26.0)	16,785	46.2	44.8, 47.6	54.0	52.9, 55.0
Overweight (BMI > 26.0–29.0)	4,468	13.9	12.9, 14.9	13.2	12.4, 13.9
Obese (BMI > 29.0)	8,396	26.7	25.5, 28.0	22.1	21.2, 23.0
Pre-pregnancy physical activity**†					
<1 day/week	2,525	41.1	38.6, 43.6	32.4	30.4, 34.4
1–4 days/week	3,242	43.8	41.3, 46.4	53.4	51.2, 55.6
5 + days/week	1,069	15.1	13.4, 17.0	14.3	12.8, 15.8
Pregnancy weight gain†					
≤ 35 lbs	9,053	28.7	27.5, 29.9	30.3	29.3, 31.3
> 35 lbs	25,219	71.3	70.1, 72.5	69.7	68.7, 70.7
Substance use					
Smoking during pregnancy†					
No	30,556	80.3	79.3, 81.3	93.7	93.1, 94.2
Yes	5,000	19.7	18.7, 20.7	6.3	5.8, 6.9
Alcohol use during pregnancy†					
No	33,126	95.1	94.5, 95.6	91.0	90.4, 91.6
Yes	2,320	4.9	4.4, 5.5	9.0	8.4, 9.6
Mental & emotional health					
Abuse during pregnancy†					
No	34,266	94.3	93.7, 95.0	98.8	98.5, 99.0
Yes	1,290	5.7	5.1, 6.3	1.2	1.0, 1.5
Stressors during pregnancy†					
1–2	14,402	45.0	43.5, 46.4	71.3	70.1, 72.5
3–5	8,473	41.3	39.9, 42.8	25.3	24.1, 26.5

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Characteristic	n±	Medicaid		Private	
		%	CI*	%	CI
6–13	2,478	13.7	12.8, 14.7	3.4	3.0, 3.9
Postpartum depressive symptoms¥†					
No	20,956	80.5	79.0, 81.8	90.9	90.1, 91.5
Yes	3,601	19.5	18.2, 21.0	9.2	8.4, 9.9
Postpartum contraception					
Postpartum contraception use					
No	5,674	14.9	14.0, 15.9	15.2	14.5, 16.0
Yes	29,924	85.1	84.1, 86.0	84.8	84.0, 85.5

AK, AR, CO, DE, GA, HI, IL, NE, MD, MA, MI, MN, MS, NE, NJ, NY (excluding NYC), NC, OH, OK, OR, RI, TN, UT, WA, WV, WI, WY

± Unweighted sample size

* 95 % Confidence interval

† *P* value < 0.05

£ Body mass index

** Data from 5 states (MA, MD, ME, NC, WA)

¥ Data from 20 states (AK, DE, CO, GA, HI, ME, MD, MA, MN, NE, NC, NY [excluding NYC], OH, OR, RI, TN, UT, WA, WI, WY)

Table 2

Association between health insurance and maternal health status among women with Medicaid and private insurance, 27 PRAMS states, 2008

Maternal characteristic	Medicaid vs Private insurance			
	Crude odds ratio	95 % CI[&]	Adjusted odds ratio[†]	95 % CI
Weight and physical activity				
Pre-pregnancy BMI				
Underweight/Normal	Ref	–	Ref	–
Overweight/Obese	1.26	1.17, 1.35	0.93	0.83, 1.03
Pre-pregnancy physical activity[*]				
<1 day/week	1.46	1.27, 1.68	0.94	0.76, 1.16
1 + days/week	Ref	–	Ref	–
Pregnancy weight gain				
≤35 lbs	Ref	–	Ref	–
>35 lbs	0.92	0.86, 1.00	0.99	0.90, 1.10
Substance use				
Smoking during pregnancy				
No	Ref	–	Ref	–
Yes	3.62	3.25, 4.04	1.85	1.56, 2.18
Alcohol use during pregnancy				
No	Ref	–	Ref	–
Yes	0.53	0.46, 0.66	0.86	0.71, 1.05
Mental & emotional health				
Abuse during pregnancy				
No	Ref	–	Ref	–
Yes	4.87	3.89, 6.11	1.73	1.24, 2.40
Stressors during pregnancy				
1–5	Ref	–	Ref	–
6–18	5.71	4.84, 6.74	2.48	1.93, 3.18
Postpartum depressive symptoms[**]				
No	Ref	–	Ref	–
Yes	2.41	2.12, 2.73	1.24	1.04, 1.48

[&]Confidence interval

[†]Adjusted for maternal age, race, education level, marital status, parity, state of residence, and WIC participation during pregnancy

[*]Data from 5 states (MA, MD, ME, NC, WA)

[**]Data from 20 states (AK, DE, CO, GA, HI, ME, MD, MA, MN, NE, NC, NY [excluding NYC], OH, OR, RI, TN, UT, WA, WI, WY)