



THE OHIO DEPARTMENT OF MEDICAID

JOHN R. KASICH, GOVERNOR JOHN B. McCARTHY, DIRECTOR

2014

REPORT ON PREGNANT WOMEN, INFANTS, AND CHILDREN

SUBMITTED MARCH 2015



Department of Medicaid

John R. Kasich, Governor

John B. McCarthy, Director

MEMORANDUM

TO: Governor of Ohio, John R. Kasich
Ohio House Speaker, the Honorable Cliff Rosenberger
Ohio Senate President, the Honorable Keith Faber
Ohio House Minority Leader, the Honorable Fred Strahorn
Ohio Senate Minority Leader, the Honorable Joe Schiavoni
Joint Medicaid Oversight Committee, Susan Ackerman, Executive Director
Legislative Service Commission Director, Mark Flanders

FROM: Director John B. McCarthy

SUBJECT: Pregnant Women, Infants, and Children Report – Calendar Year 2014

DATE: MARCH 13, 2015

The attached report is provided in compliance with Section 5162.13 of the Ohio Revised Code requiring the Ohio Department of Medicaid to report annually on the effectiveness of the Medicaid program in meeting health care needs of low-income pregnant women, infants, and children. Additionally, the 2014 report focuses on infant mortality, pre-term births, and low birth weight infants.

The rates reported for infant mortality, pre-term births and low birth weight infants are calculated for Medicaid and non-Medicaid populations based on both Medicaid data and infant death and birth files from The Ohio Department of Health Bureau of Vital Statistics using the same basic methodology as used in the Ohio Medicaid 2009 Report on Mothers, Infants and Children.

Given that this report focuses on the Medicaid population, The Ohio Department of Medicaid employs methodologies for these calculations appropriate for the Medicaid population and data as described in Section II and Appendix A of this report that differ from those used by the Ohio Department of Health. Therefore, the data on infant mortality, pre-term births, and low birth weight infants published by The Ohio Department of Health may not be directly compared to the data presented in this report.

A handwritten signature in blue ink that reads "John B. McCarthy".

John B. McCarthy
Director
Ohio Department of Medicaid

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Section I: Profile of Ohio Births

1.1 Profile of Ohio Births and Medicaid Demographics

Medicaid plays a significant role in access to health care for pregnant women and children in Ohio. In 2013, Medicaid paid for 52.43% of births in Ohio. The below information is based on the total number of births to Ohio residents on the 2013 birth file from the Ohio Department of Health Bureau of Vital Statistics and Medicaid claims data for the number of Ohio births paid by Medicaid.

Throughout this report, comparisons are made between Medicaid and non-Medicaid beneficiaries based on the linkage of birth files from the Ohio Department of Health Bureau of Vital Statistics to Medicaid birth and delivery claims data. *Please see Appendix A for more information on the linkage process.*

Figure 1: Ohio Births by Payer – 2013

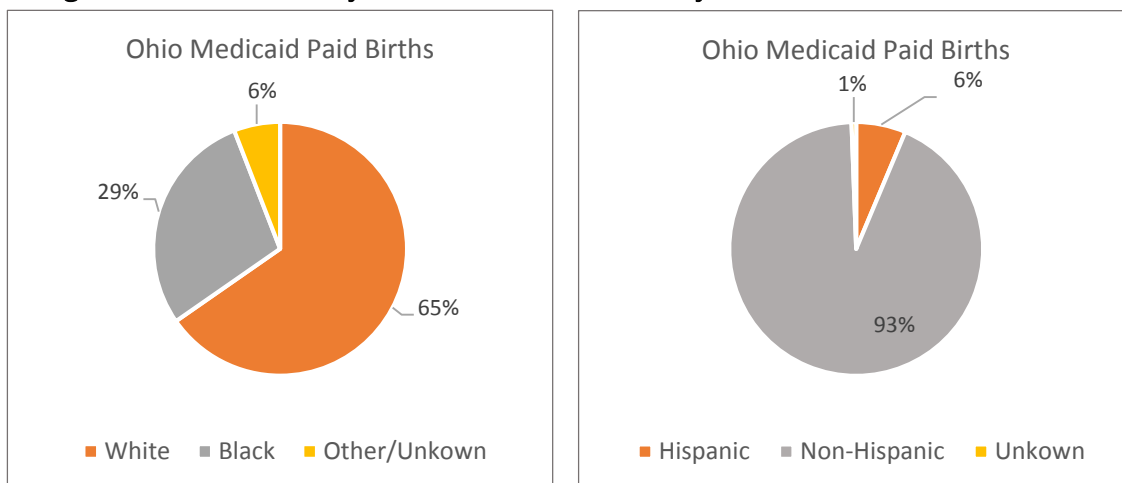
	# of Births (N)	% of Total Births
All	134,430	100%
Medicaid	70,479	52.43%
Non-Medicaid	63,951	47.57%

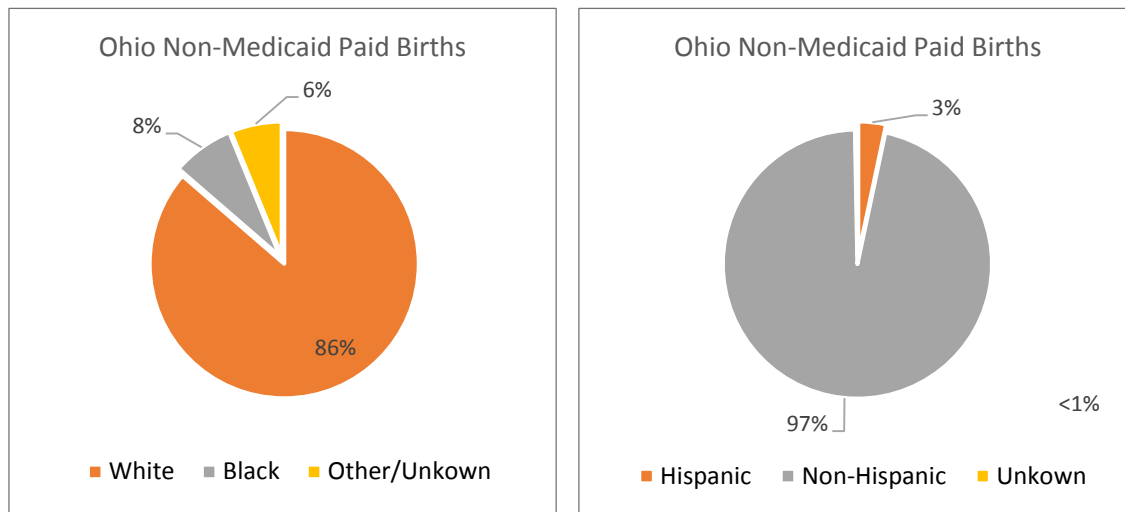
1.2 Demographic Information Related to Ohio Births 2013

There are notable differences in the demographics of mothers who delivered while receiving Medicaid benefits compared to those who did not have Medicaid coverage at the time of delivery in 2013. This report includes comparisons between Medicaid and non-Medicaid populations that are adjusted for demographic factors that are known to be associated with birth outcomes: race, ethnicity, maternal age, and marital status.¹⁻³

1.2.1 Race and Ethnicity

Figure 2: Ohio Births by Maternal Race / Ethnicity - 2013

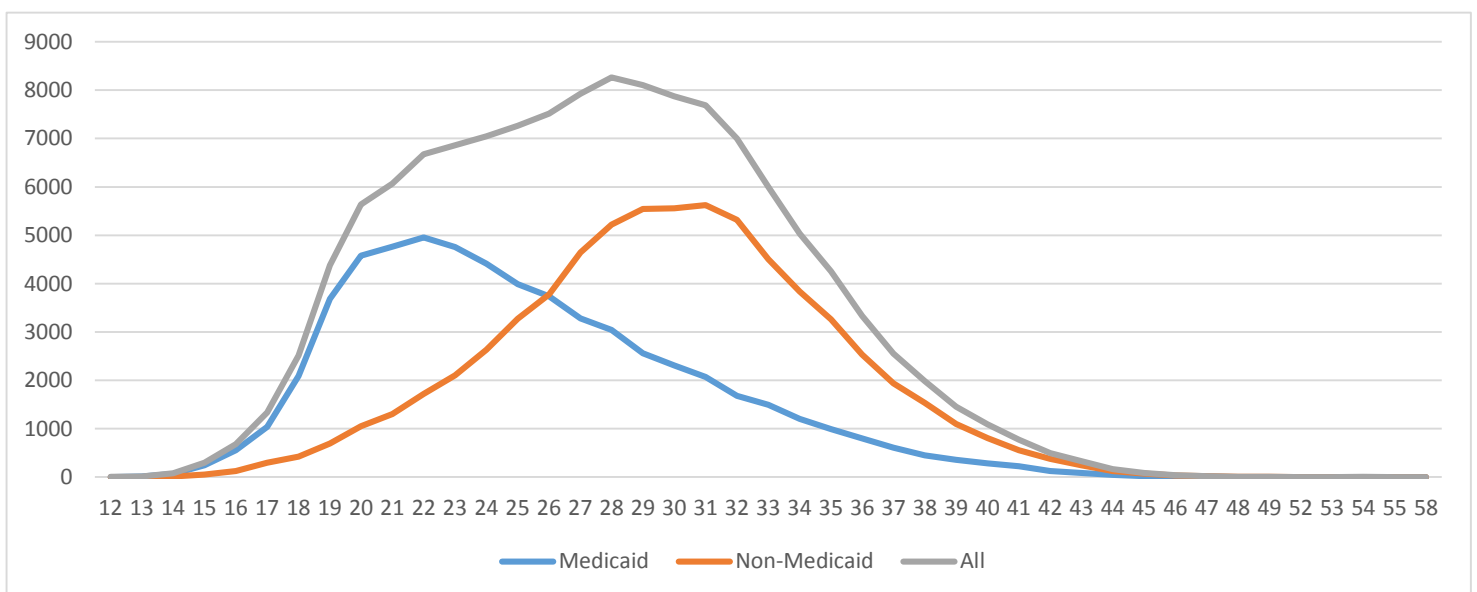




1.2.2 Maternal Age

Figure 3: Ohio Births by Maternal Age and Medicaid Status - 2013

As shown in Figure 3, a wide disparity exists in the maternal age of Medicaid vs. non-Medicaid mothers. In 2013, the median age for mothers with a Medicaid delivery claims was 24 years of age, while the median age for women with non-Medicaid paid deliveries was 30.



1.2.3 Marital Status

In 2013, 27.9% of mothers with Medicaid paid deliveries were married compared to 83.2% of women with non-Medicaid paid deliveries.

Section II: Birth Outcomes and Risk Factors

2.1 Infant Mortality

Information on infant mortality used in this report is from the linked infant death and birth files from the Ohio Department of Health Bureau of Vital Statistics and includes infants who were born in 2011 that died before reaching their first birthday. Release of this data lags behind birth data. Therefore, the most recent data that is available is from 2011.

Using the linked infant death and birth files provided by the Ohio Department of Health Bureau of Vital Statistics, the Ohio Department of Medicaid calculated the 2011 Ohio infant mortality rate using a cohort approach to examine the infant mortality rate for births to Ohio residents in 2011 within their first year of life, comparing Medicaid to non-Medicaid beneficiaries.

This cohort approach was also used in the *Ohio Medicaid 2009 Report on Mothers, Infants and Children* to follow all infants who were born in Ohio with Ohio maternal residence in 2011 and follow them through their first year of life.

The Ohio Department of Medicaid's calculated infant mortality rate for 2011 was 7.56 deaths per 1,000 live births for Ohio residents. This cohort approach is different than the traditional measure of infant mortality and should not be compared directly to other infant mortality rates, including those published by the Ohio Department of Health.

Figure 4: Ohio Infant Mortality by Medicaid Status - 2011

Crude Rate		Risk Adjusted Rate		Adjusted Relative Risk
Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	
7.85	7.36	7.79	9.36	0.83

In 2011, the infant mortality rate in Ohio was 7.85 deaths per 1,000 live births for Medicaid-paid births, as compared to 7.36 deaths per 1,000 live births for non-Medicaid paid births. Throughout this report, both crude rates and adjusted rates are presented for the Medicaid and non-Medicaid populations. Adjusted rates are calculated numbers to allow comparisons of two different populations or times. In this case, the adjusted rate answers the question, "what would the infant mortality rate be if the women giving birth in the groups under study (Medicaid, non-Medicaid) had the same demographic characteristics as the overall population of women giving birth in Ohio in 2011?"

Adjusting for demographic differences, the risk of death for infants born on Medicaid was actually lower in 2011 than those not born on Medicaid. The adjusted relative risk of death in the first year of life for the 2011 cohort of births on Medicaid compared to non-Medicaid was 0.83. After

accounting for demographic differences, the risk of death in the first year of life in the Medicaid population was .83 times less than in the non-Medicaid population.

2.2 Premature Birth and Low Birth Weight

Prematurity (birth prior to 37 weeks gestation) and low birth weight (a birth weight under 2,500 grams) are significant risk factors for infant mortality.⁴

For Medicaid paid births in 2013, adjusting for race, Hispanic ethnicity, maternal age, and marital status explains much of the disparity between the preterm and low birth weight rates of the Medicaid and non-Medicaid populations. The adjusted relative risk of 1.08 for preterm births and 1.13 for low birth weight births shows little difference between the populations when controlling for demographic differences.

Prematurity is an issue that is not limited to the Medicaid population, but is a broader public health issue for Ohio.

Figure 5: Ohio Preterm and Low Birth Weight Births by Medicaid Status and Race - 2013

	Crude Rate		Risk Adjusted Rate		Adjusted Relative Risk
	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	
Preterm Birth	13.79%	10.6%	13.16%	12.14%	1.08
Low Birth Weight	9.77%	6.94%	9.12%	8.05%	1.13

2.2.1 Risk Factors for Preterm Birth and Low Birth Weight

There is a greater risk for a preterm and/or low birth weight delivery if the mother: had a previous preterm birth; had low maternal weight gain; smoked during pregnancy; had a previous poor birth outcome; delivered within 18 months of a prior delivery; and had little or no prenatal care.¹⁻³

With the exception of short birth spacing (less than 18 months between births), pregnant women on Medicaid had higher crude rates for all risk factors than non-Medicaid pregnant women. Adjusting for demographics showed little difference between Medicaid and non-Medicaid beneficiaries for previous pre-term birth and previous poor outcome risk factors, but showed notable differences for the other risk factors. All of the data presented about selected risk factors are based on self-reported data on the birth certificates.

Figure 6: Selected Risk Factors for Prematurity and Low Birth Weight - 2013

	Crude Rates		Risk Adjusted Rates		Adjusted Relative Risk
	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid	
Previous Preterm Birth					
Yes	6.37	3.89	6.65	4.08	1.62
No	93.63	96.11	93.34	95.92	
Low Maternal Weight Gain					
Yes	31.62	22.78	32.63	24.27	1.34
No	63.38	77.22	67.37	75.73	
Smoking During Pregnancy					
Yes	18.93	3.90	18.79	6.39	2.94
No	81.07	96.1	81.21	93.61	
Previous Poor Outcome					
Yes	5.28	3.91	5.65	3.97	1.42
No	94.72	96.09	94.35	96.03	
Birth Spacing (<18 months)					
Yes	5.89	7.31	6.60	6.56	1.01
No	94.11	92.69	93.40	93.44	
No Prenatal Care					
Yes	1.85	0.88	1.55	1.45	1.07
No	98.15	99.12	98.45	98.55	

Section III: Prenatal, Postnatal, and Well-Child Visits

3.1 Statewide Averages for Medicaid Managed Care Plan Self-Reported Audited HEDIS Results

The Healthcare Effectiveness Data and Information Set (HEDIS) results were used to examine frequency and timeliness of prenatal care, as well as postpartum care and well-child visits. HEDIS is a healthcare quality measurement tool through the National Committee for Quality Assurance (NCQA) that is utilized by more than 90 percent of America's health plans. HEDIS measures performance on important dimensions of care and service based on 81 measures across 5 domains of care.

Due to the fact that HEDIS data is so widely collected and so specifically defined, it is possible to compare performance of health care plans and services across the board based on HEDIS measures.

Using HEDIS methodology: 86% of women in Medicaid managed care plans received timely prenatal care; 69.9% received over 81% of the expected prenatal visits (*Frequency of Ongoing Prenatal Care*); and 63% received post-partum visits within 90 days of delivery.

Within the first 15 months of life, 60.1% of infants met the requirement for the well-child visit criteria, whereas, 69.0% of children in their third, fourth, fifth, and sixth year of life met the well-child visit criteria.⁵

The ranking represents how Ohio's Medicaid managed care plans' HEDIS results compare with national Medicaid benchmarks collected by NCQA. For example, Ohio's Medicaid managed care plans were between the 50th and 75th percentile for the *Timeliness of Prenatal Care HEDIS* measure in comparison with other Medicaid managed care plans reporting results to NCQA.

Figure 7: Statewide Averages for Medicaid MCP Self-Reported Audited HEDIS Rates – CY 2013

HEDIS Measure	Overall Medicaid MCP Reported Rate (%)	Ohio Medicaid MCPs' NCQA's Percentile Range
Frequency of Ongoing Prenatal Care	69.9%	P50-P75
Timeliness of Prenatal Care	86.0%	P50-P75
Postpartum Care	63.0%	P25-P50
Well Child Visits (First 15 Months of Life, Six or More Visits)	60.1%	P25-P50
Well-Child Visits (Third, Fourth, Fifth, and Sixth Year of Life)	69.0%	P25-P50

Section IV: Medicaid Prenatal Care, Delivery, and Infant Costs

The average total cost during pregnancy of a woman enrolled in Medicaid (costs for all covered services for nine months prior to the delivery month to one month after the delivery month) in 2013 was \$8,458. Prenatal and delivery costs[†] paid by Medicaid include direct fee-for-service payments to service providers, and capitation and birth premium payments to managed care providers for women enrolled in managed care.

In 2013, the total paid by Medicaid for prenatal care and deliveries was \$596,126,541 for 70,479 births. Of these Medicaid payments, 53% (\$316,029,806) paid for deliveries compared to 47% (\$280,096,735) which paid for prenatal care. Only costs and member months for those months in which a woman had Medicaid eligibility were included; a woman may have been a Medicaid beneficiary for only a portion of her pregnancy, in some instances only as of her delivery date.

Costs paid by Medicaid during an infant's first year of life include direct fee-for-service payments to service providers, and capitation payments to managed care providers for infants enrolled in

managed care. For the 70,479 births paid for by Medicaid in 2013, 69,667 infants were eligible and enrolled in Medicaid.

The total paid by Medicaid for the first year of life for these infants was \$739,671,129. Only costs and member months for those months of the infant's first year of life in which the infant had Medicaid eligibility were included; an infant may have been a Medicaid beneficiary for only a portion of their first year of life. There were no industry standard data sources available with current costs of national Medicaid prenatal care, deliveries, and/or infant care for comparison with Ohio data.

Figure 8: Total and Average Cost of Deliveries, Prenatal Care, and Infants - 2013

	Total Beneficiaries (N)	Total Cost (\$)	Average Cost/ Beneficiary (\$)	Total Member Months (N)	Average Cost/ Member Month (\$)
Deliveries	70,479	316,029,806	4,484	NA	NA
Prenatal Care	70,479	280,096,735	3,974	508,232	430
Total Prenatal and Delivery Care	70,479	596,126,541	8,458	652,046	941
Infants – First Year of Life	69,667	739,671,129	10,617	874,847	845

†Delivery costs include FFS delivery costs, delivery capitation payments and estimated delivery payments for certain managed care members as determined by the applicable capitation rate cell payment.

Section V: References

- Centers for Disease Control and Prevention (2014). Factors Associated with Preterm Birth. Retrieved December 18, 2014 from <http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PDF/PretermBirth-Infographic.pdf>
- March of Dimes (2014). Low Birth Weight. Retrieved December 18, 2014 from <http://www.marchofdimes.org/baby/low-birthweight.aspx#>
- Institute of Medicine, Committee on Understanding Premature Birth and Assuring Healthy Outcomes (2007). Preterm Birth Causes, Consequences, and Prevention. Retrieved December 18, 2014 from <http://www.ncbi.nlm.nih.gov/books/NBK11362/pdf/TOC.pdf>

4. Centers for Disease Control and Prevention. Infant Mortality. Retrieved December 18, 2014 from <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm>
5. National Committee for Quality Assurance. HEDIS & Performance Measurement. Retrieved December 18, 2014 from <http://www.ncqa.org/HEDISQualityMeasurement.aspx>

Appendix A: Data Sources and Methodologies for Calculations

Data Sources

Medicaid information was obtained from Medicaid claims, premium payment records, and eligibility records from Ohio Medicaid's Medicaid Information Technology System (MITS) Business Intelligence and Analytical Research (BIAR) system and Medicaid's QDSS (Quality Decision Support System). In addition, the Ohio Department of Health Bureau of Vital Statistics provided birth certificate data and linked birth certificate and death certificate data. Infant death certificates are linked to birth certificates by the Ohio Department of Health, Bureau of Vital Statistics. Details of that linkage can be obtained by contacting the bureau. Where information is reported for Medicaid beneficiaries and non-Medicaid populations, it was taken from The Ohio Department of Health Bureau of Vital Statistics birth certificate data.

Linkage of Ohio Birth Certificates to Medicaid Data

Birth certificates provided by the Ohio Department of Health, Bureau of Vital Statistics were linked for 2011 and 2013 to Ohio Medicaid claims for birth admissions through probabilistic record linkage with Statistical Analysis Software (SAS) software. The linkage process uses similar logic as is applied using LinkPlus software available from the Centers for Disease Control (CDC) (<http://www.cdc.gov/cancer/npcr/tools/registryplus/lp.htm>).

However, the SAS program allows for a more streamlined and automated approach to linkage than just using the LinkPlus software. Multiple linkages are conducted on numerous demographic variables, with manual review. The matches are judged based on the similarity of their related fields with only the highest quality match per birth certificate retained. For 2011, birth certificates were identified and linked with 82% of the Medicaid birth claims. For 2013, birth certificates were identified and linked with 87% of the Medicaid birth claims.

Reporting and Interpretation of Crude and Adjusted Rates

For each of the birth outcomes of interest (prematurity, low birth weight, and infant mortality) and each of the risk factors of interest (previous preterm birth, low maternal weight gain, smoking

during pregnancy, previous poor outcomes, short birth spacing, and no prenatal care) a crude and adjusted rate were calculated for both the Medicaid population and the non-Medicaid population. Crude rates are the number of events in a population divided by the number of people who were eligible for the event in the population. For example, the crude prematurity rate within the Medicaid population is the number of premature births in the Medicaid population divided by the total number of births in the Medicaid population for a specific year.

Comparing the crude rate for the Medicaid population to the crude rate for the non-Medicaid population may be misleading due to the large disparities that are observed between the Medicaid and non-Medicaid populations on age, race, ethnicity, and marital status. In order to make more accurate comparisons between the two populations and statistically control for demographic factors, adjusted rates were calculated using direct standardization. The adjusted rate for each population more effectively illustrates the convergence of the rates that occurs when demographic disparities are eliminated. The adjusted rate answers the question, “what would the rate be if the women giving birth is the groups under study (Medicaid, non-Medicaid) had the same demographic characteristics as the overall population of women giving birth in Ohio?”

The directly standardized rates were calculated by dividing the population of each study group into 48 subgroups or stratum. Each of the strata represent a unique combination of the demographic characteristics that are being adjusted (age, race, ethnicity, and marital status). Standardized rates in this report are based on four age brackets, three race categories (black, white, other), Hispanic ethnicity, and marital status as reported on the vital statistics birth files. The 2013 vital statistics birth file was used for the preterm birth, low birth weight and risk factor analyses. The 2011 vital statistics birth file linked with the death file was used for the infant mortality calculations.

Once each study population (Medicaid and non-Medicaid) was divided into the stratum, 48 stratum-specific rates were calculated and each rate was multiplied by the number of people within that corresponding stratum in the standard population. The number this yields is the number of people that would have experienced the event in each study population if each of the study populations had the same age, race, ethnicity, and marital status distribution as the entire population of women who gave birth (the standard population) in 2013 (for the preterm, low birth weight, and risk factor analysis) and 2011 (for the infant mortality analysis). The number of expected events for each stratum was then summed and divided by the total number of people in the standard population to yield a directly standardized rate for each study population. A ratio of each of the directly standardized rates can be taken to obtain an adjusted relative risk.

Reporting and Interpretation of Adjusted Relative Risk

In this report, adjusted relative risk can be interpreted as the adjusted risk of occurrence in the Medicaid population divided by the adjusted risk of occurrence in the non-Medicaid population. An adjusted relative risk close to one indicates that there is not much difference in the risk of occurrence of the event between the two populations. An adjusted relative risk greater than one

indicates that the risk of the occurrence of the event is higher in the Medicaid population than the non-Medicaid population. An adjusted relative risk less than one indicates that the risk of the occurrence of the event is lower in the Medicaid population than the non-Medicaid population.

Calculation of Costs during Pregnancy and the Cost of Deliveries

Costs were included for all Medicaid deliveries in 2013. Costs during pregnancy, for the purposes of this report, include all costs for the nine (9) months prior to the month of delivery, the month of delivery and the month following the month of delivery.

The costs of deliveries for women enrolled in managed care include: 1) birth premium payments; and 2) estimated birth premium payments for women with managed care encounter claims for a delivery service(s) but no delivery premium payment (incurred but not paid deliveries). Estimated birth premium payments were determined using the mother's county of residence, the last date of service on the delivery encounter claim, and the applicable managed care delivery Rate Cell code & premium amount (delivery encounter claims included those with a \$0 payment and no indication of third party payment, and those with a net claim payment > \$0).

Delivery payments for mothers with fee-for-service claims, include net payments for inpatient hospital claims with an Ohio DRG Ohio code for a delivery, as applicable for the date of service/delivery. For those mothers with fee-for-service claims indicating delivery, but no inpatient claim with an applicable DRG, the cost of delivery was estimated using the statewide fee-for-service average net payment for inpatient claims with an Ohio DRG code for a delivery. There were deliveries identified for both managed care and fee-for-service for which the Ohio Medicaid cost was \$0: 1) managed care deliveries for which third party payment was rendered and the net payment (by the managed care plan) was \$0; and 2) fee-for-service claims with an Ohio DRG delivery code in a paid status where the net payment was \$0.

Calculation of Costs of Infants in Medicaid

Infant costs include all managed care premium payments for dates of service in the month of birth through the month of the infant's first birthday if the infant was enrolled in a managed care plan. In addition, infant costs include fee-for-service claims with dates of service in the month of birth up through the first 365 days of life. Infants may have both fee-for-service claims and managed care premium payments included in the analysis.

Appendix A:
Pre-term Birth Weight by County

Due to Federal regulations related to personal health information, counties with numbers of 5 or less (small cell size) are greyed out.

County	Medicaid				Non-Medicaid				Relative Risk	
	County Name	Preterm Births	Total Births	Crude Rate	Adjusted Rate	Preterm Births	Total Births	Crude Rate	Adjusted Rate	Medicaid Crude Rate/Non-Medicaid Crude Rate
Adams	21	135	15.56%	13.73%	18	87	20.69%	25.61%	0.75	0.54
Allen	104	670	15.52%	13.35%	65	527	12.33%	14.16%	1.26	0.94
Ashland	36	234	15.38%	18.32%	22	386	5.70%	6.54%	2.7	2.8
Ashtabula	75	571	13.13%	14.03%	40	433	9.24%	9.15%	1.42	1.53
Athens	39	262	14.89%	13.98%	30	229	13.10%	15.93%	1.14	0.88
Auglaize	27	219	12.33%	11.24%	33	298	11.07%	11.12%	1.11	1.01
Belmont	21	116	18.10%	17.71%	11	119	9.24%	8.84%	1.96	2
Brown	27	226	11.95%	12.73%	25	201	12.44%	10.75%	0.96	1.18
Butler	240	1874	12.81%	12.71%	264	2439	10.82%	12.63%	1.18	1.01
Carroll	15	114	13.16%	12.23%	12	145	8.28%	8.91%	1.59	1.37
Champaign	17	177	9.60%	8.42%	17	197	8.63%	11.40%	1.11	0.74
Clark	92	866	10.62%	10.42%	61	581	10.50%	11.31%	1.01	0.92
Clermont	106	850	12.47%	13.15%	137	1305	10.50%	10.53%	1.19	1.25
Clinton	31	251	12.35%	12.01%	22	220	10.00%	12.12%	1.24	0.99
Columbiana	66	542	12.18%	11.42%	42	426	9.86%	9.12%	1.24	1.25
Coshocton	28	205	13.66%	13.66%	19	231	8.23%	8.34%	1.66	1.64
Crawford	35	257	13.62%	13.05%	22	182	12.09%	10.82%	1.13	1.21
Cuyahoga	1099	6999	15.70%	14.60%	838	7262	11.54%	13.74%	1.36	1.06
Darke	28	245	11.43%	13.65%	30	323	9.29%	7.94%	1.23	1.72
Defiance	24	215	11.16%	11.15%	10	147	6.80%	8.24%	1.64	1.35
Delaware	35	305	11.48%	7.06%	193	1830	10.55%	11.47%	1.09	0.62
Erie	55	422	13.03%	12.33%	30	364	8.24%	10.65%	1.58	1.16
Fairfield	83	698	11.89%	11.76%	112	941	11.90%	11.55%	1	1.02
Fayette	36	193	18.65%	18.19%	15	133	11.28%	15.73%	1.65	1.16
Franklin	1165	7792	14.95%	13.56%	1167	9981	11.69%	13.23%	1.28	1.02
Fulton	21	201	10.45%	9.66%	34	278	12.23%	11.28%	0.85	0.86
Gallia	20	179	11.17%	12.61%	9	128	7.03%	10.11%	1.59	1.25
Geauga	18	179	10.06%	12.77%	67	714	9.38%	9.89%	1.07	1.29
Greene	81	624	12.98%	12.01%	110	1098	10.02%	12.70%	1.3	0.95
Guernsey	32	232	13.79%	15.81%	24	187	12.83%	9.72%	1.07	1.63
Hamilton	745	4782	15.58%	14.86%	611	5446	11.22%	13.48%	1.39	1.1
Hancock	34	352	9.66%	9.28%	50	575	8.70%	8.11%	1.11	1.14
Hardin	35	188	18.62%	15.88%	19	194	9.79%	12.72%	1.9	1.25
Harrison	6	61	9.84%	12.19%	6	48	10.42%	11.57%	0.94	1.05

Appendix A:
Pre-term Birth Weight by County

Henry	11	131	8.40%	7.39%	16	179	8.94%	10.52%	0.94	0.7
Highland	40	314	12.74%	11.91%	21	189	11.11%	12.19%	1.15	0.98
Hocking	17	175	9.71%	8.07%	14	133	10.53%	8.22%	0.92	0.98
Holmes	7	110	6.36%	5.04%	49	650	7.54%	7.44%	0.84	0.68
Huron	41	357	11.48%	11.88%	36	354	10.17%	12.18%	1.13	0.98
Jackson	25	251	9.96%	11.68%	30	180	16.67%	15.76%	0.6	0.74
Jefferson	25	263	9.51%	8.54%	6	146	4.11%	7.05%	2.31	1.21
Knox	42	275	15.27%	12.79%	28	397	7.05%	8.21%	2.17	1.56
Lake	105	824	12.74%	13.53%	145	1431	10.13%	11.46%	1.26	1.18
Lawrence		10	10.00%	9.09%		12	33.33%	34.09%	0.3	0.27
Licking	114	828	13.77%	13.34%	96	1012	9.49%	11.41%	1.45	1.17
Logan	34	267	12.73%	13.14%	29	275	10.55%	10.50%	1.21	1.25
Lorain	189	1490	12.68%	12.87%	157	1699	9.24%	8.98%	1.37	1.43
Lucas	402	3200	12.56%	12.47%	224	2225	10.07%	12.36%	1.25	1.01
Madison	21	144	14.58%	15.93%	18	262	6.87%	7.68%	2.12	2.07
Mahoning	182	1226	14.85%	13.09%	119	916	12.99%	16.82%	1.14	0.78
Marion	63	468	13.46%	12.69%	33	264	12.50%	14.01%	1.08	0.91
Medina	58	404	14.36%	12.61%	121	1217	9.94%	10.60%	1.44	1.19
Meigs	14	146	9.59%	10.57%		58	1.72%	1.14%	5.56	9.24
Mercer	30	153	19.61%	14.88%	44	399	11.03%	10.75%	1.78	1.38
Miami	60	446	13.45%	13.04%	71	682	10.41%	10.77%	1.29	1.21
Monroe	8	47	17.02%	19.22%		37	8.11%	14.69%	2.1	1.31
Montgomery	518	3362	15.41%	14.13%	386	3164	12.20%	14.20%	1.26	1
Morgan	12	70	17.14%	16.01%		40	5.00%	2.75%	3.43	5.83
Morrow	19	155	12.26%	14.36%	16	199	8.04%	8.78%	1.52	1.64
Muskingum	66	570	11.58%	11.79%	42	394	10.66%	14.09%	1.09	0.84
Noble		54	9.26%	8.46%		84	7.14%	5.78%	1.3	1.46
Ottawa	17	144	11.81%	8.94%	15	162	9.26%	7.17%	1.28	1.25
Paulding	7	95	7.37%	8.41%	12	71	16.90%	13.09%	0.44	0.64
Perry	35	289	12.11%	11.83%	21	159	13.21%	10.99%	0.92	1.08
Pickaway	33	253	13.04%	14.25%	33	321	10.28%	13.20%	1.27	1.08
Pike	40	224	17.86%	17.27%	9	113	7.96%	7.37%	2.24	2.34
Portage	64	549	11.66%	11.57%	87	874	9.95%	9.90%	1.17	1.17
Preble	13	179	7.26%	5.27%	18	224	8.04%	6.97%	0.9	0.76
Putnam	18	102	17.65%	23.93%	31	350	8.86%	8.17%	1.99	2.93
Richland	95	750	12.67%	13.84%	65	640	10.16%	10.74%	1.25	1.29
Ross	70	482	14.52%	13.35%	37	305	12.13%	13.66%	1.2	0.98
Sandusky	44	332	13.25%	14.37%	25	275	9.09%	7.21%	1.46	1.99
Scioto	68	522	13.03%	13.12%	38	305	12.46%	13.00%	1.05	1.01
Seneca	37	301	12.29%	12.69%	24	267	8.99%	7.43%	1.37	1.71
Shelby	25	214	11.68%	9.97%	36	359	10.03%	11.50%	1.16	0.87
Stark	287	2022	14.19%	13.98%	184	1941	9.48%	10.65%	1.5	1.31

Appendix A:
Pre-term Birth Weight by County

Summit	318	2503	12.70%	11.79%	325	3182	10.21%	11.50%	1.24	1.02
Trumbull	143	1114	12.84%	12.87%	75	842	8.91%	9.59%	1.44	1.34
Tuscarawas	69	490	14.08%	14.16%	59	570	10.35%	10.20%	1.36	1.39
Union	12	154	7.79%	8.28%	47	428	10.98%	9.66%	0.71	0.86
Van Wert	12	149	8.05%	6.54%	15	127	11.81%	11.54%	0.68	0.57
Vinton	16	92	17.39%	16.86%		43	9.30%	7.31%	1.87	2.3
Warren	73	539	13.54%	10.73%	189	1745	10.83%	11.02%	1.25	0.97
Washington	33	264	12.50%	12.06%	17	213	7.98%	8.05%	1.57	1.5
Wayne	61	503	12.13%	8.81%	78	1043	7.48%	7.72%	1.62	1.14
Williams	25	214	11.68%	10.85%	10	158	6.33%	7.91%	1.85	1.37
Wood	44	455	9.67%	10.03%	73	888	8.22%	8.15%	1.18	1.23
Wyandot	15	111	13.51%	12.23%	12	147	8.16%	6.47%	1.66	1.89

Appendix B:
Low Birth Weight by County

Due to Federal regulations related to personal health information, counties with numbers of 5 or less (small cell size) are greyed out.

County	Medicaid				Non-Medicaid				Relative Risk	
	County Name	LBW Births	Total Births	Crude Rate	Adjusted Rate	LBW Births	Total Births	Crude Rate	Adjusted Rate	Medicaid Crude Rate/Non-Medicaid Crude Rate
Adams	11	136	8.09%	8.02%	9	87	10.34%	7.01%	0.78	1.15
Allen	59	670	8.81%	7.73%	29	526	5.51%	3.98%	1.6	1.94
Ashland	25	234	10.68%	10.26%	16	386	4.15%	6.26%	2.58	1.64
Ashtabula	60	570	10.53%	11.00%	23	433	5.31%	6.70%	1.98	1.64
Athens	31	262	11.83%	10.76%	16	227	7.05%	7.08%	1.68	1.52
Auglaize	21	218	9.63%	8.74%	22	298	7.38%	6.50%	1.3	1.35
Belmont	9	116	7.76%	5.56%	7	119	5.88%	4.47%	1.32	1.24
Brown	17	226	7.52%	8.93%	16	200	8.00%	7.37%	0.94	1.21
Butler	172	1869	9.20%	8.39%	186	2429	7.66%	8.33%	1.2	1.01
Carroll	13	117	11.11%	8.42%	7	145	4.83%	6.69%	2.3	1.26
Champaign	17	177	9.60%	8.45%	7	197	3.55%	3.20%	2.7	2.64
Clark	75	864	8.68%	8.28%	34	580	5.86%	7.55%	1.48	1.1
Clermont	57	847	6.73%	6.19%	98	1305	7.51%	8.38%	0.9	0.74
Clinton	17	252	6.75%	6.17%	14	220	6.36%	7.39%	1.06	0.83
Columbiana	39	544	7.17%	7.21%	25	427	5.85%	6.04%	1.22	1.19
Coshocton	17	206	8.25%	8.04%	18	231	7.79%	9.36%	1.06	0.86
Crawford	28	259	10.81%	9.76%	12	182	6.59%	5.01%	1.64	1.95
Cuyahoga	867	6992	12.40%	10.91%	587	7227	8.12%	9.92%	1.53	1.1
Darke	14	244	5.74%	6.68%	23	324	7.10%	6.42%	0.81	1.04
Defiance	17	216	7.87%	8.19%	8	146	5.48%	6.10%	1.44	1.34
Delaware	18	305	5.90%	3.80%	124	1829	6.78%	7.44%	0.87	0.51
Erie	40	424	9.43%	8.49%	17	361	4.71%	6.30%	2	1.35
Fairfield	57	697	8.18%	7.93%	66	940	7.02%	6.46%	1.16	1.23
Fayette	27	192	14.06%	15.26%	13	133	9.77%	16.90%	1.44	0.9
Franklin	792	7783	10.18%	9.39%	785	9943	7.90%	9.00%	1.29	1.04
Fulton	16	200	8.00%	7.04%	25	275	9.09%	7.01%	0.88	1
Gallia	21	179	11.73%	11.47%	127	127	1.57%	0.95%	7.45	12.03
Geauga	16	179	8.94%	5.57%	52	714	7.28%	8.76%	1.23	0.64
Greene	59	623	9.47%	7.75%	59	1096	5.38%	6.51%	1.76	1.19
Guernsey	23	233	9.87%	11.97%	10	186	5.38%	4.50%	1.84	2.66
Hamilton	512	4779	10.71%	10.55%	392	5428	7.22%	8.40%	1.48	1.26
Hancock	21	352	5.97%	5.33%	36	575	6.26%	5.56%	0.95	0.96
Hardin	22	189	11.64%	11.97%	15	193	7.77%	7.59%	1.5	1.58
Harrison		61	6.56%	8.13%	48	48	0.00%	0.00%	N/A	N/A
Henry	6	131	4.58%	5.51%	10	180	5.56%	7.89%	0.82	0.7
Highland	32	314	10.19%	9.84%	9	189	4.76%	6.52%	2.14	1.51
Hocking	16	175	9.14%	7.24%	6	133	4.51%	3.17%	2.03	2.29

Appendix B:
Low Birth Weight by County

Holmes		109	3.67%	3.48%	27	652	4.14%	3.90%	0.89	0.89
Huron	25	357	7.00%	7.14%	22	355	6.20%	6.83%	1.13	1.04
Jackson	16	251	6.37%	8.23%	20	180	11.11%	10.98%	0.57	0.75
Jefferson	26	263	9.89%	8.77%	6	146	4.11%	5.62%	2.41	1.56
Knox	37	276	13.41%	13.62%	18	396	4.55%	5.03%	2.95	2.71
Lake	63	824	7.65%	9.63%	104	1430	7.27%	7.00%	1.05	1.38
Lawrence		10	0.00%	0.00%		12	8.33%	7.95%	0	0
Licking	75	829	9.05%	9.31%	56	1009	5.55%	6.03%	1.63	1.54
Logan	23	267	8.61%	10.78%	20	273	7.33%	6.56%	1.18	1.64
Lorain	122	1491	8.18%	6.41%	86	1694	5.08%	5.74%	1.61	1.12
Lucas	329	3200	10.28%	9.91%	170	2217	7.67%	9.53%	1.34	1.04
Madison	11	144	7.64%	9.17%	12	263	4.56%	4.76%	1.67	1.93
Mahoning	141	1227	11.49%	10.22%	81	914	8.86%	13.37%	1.3	0.76
Marion	51	468	10.90%	10.96%	19	263	7.22%	7.12%	1.51	1.54
Medina	37	404	9.16%	7.72%	76	1216	6.25%	6.39%	1.47	1.21
Meigs	13	146	8.90%	10.00%		58	3.45%	2.17%	2.58	4.61
Mercer	14	153	9.15%	8.65%	20	399	5.01%	5.56%	1.83	1.56
Miami	45	446	10.09%	8.01%	41	679	6.04%	6.15%	1.67	1.3
Monroe		47	10.64%	15.11%		37	2.70%	6.43%	3.94	2.35
Montgomery	349	3354	10.41%	9.50%	239	3152	7.58%	9.29%	1.37	1.02
Morgan	7	70	10.00%	8.85%		40	5.00%	2.75%	2	3.22
Morrow	13	155	8.39%	9.40%	8	200	4.00%	4.86%	2.1	1.94
Muskingum	50	570	8.77%	9.52%	28	391	7.16%	9.42%	1.22	1.01
Noble	8	55	14.55%	10.88%		84	2.38%	1.87%	6.11	5.83
Ottawa	11	144	7.64%	5.46%		162	2.47%	1.63%	3.09	3.34
Paulding		95	4.21%	5.62%		71	4.23%	3.20%	1	1.76
Perry	27	290	9.31%	8.84%	13	158	8.23%	7.84%	1.13	1.13
Pickaway	24	251	9.56%	8.11%	30	321	9.35%	9.69%	1.02	0.84
Pike	20	223	8.97%	9.54%		112	3.57%	2.26%	2.51	4.23
Portage	43	554	7.76%	6.50%	68	872	7.80%	7.69%	1	0.85
Preble	10	179	5.59%	4.39%	10	224	4.46%	3.86%	1.25	1.14
Putnam	9	101	8.91%	12.16%	17	350	4.86%	4.77%	1.83	2.55
Richland	66	752	8.78%	9.91%	36	639	5.63%	6.59%	1.56	1.5
Ross	59	481	12.27%	11.28%	22	303	7.26%	5.79%	1.69	1.95
Sandusky	27	331	8.16%	8.53%	16	275	5.82%	8.90%	1.4	0.96
Scioto	32	522	6.13%	5.83%	19	305	6.23%	7.41%	0.98	0.79
Seneca	15	299	5.02%	5.91%	18	266	6.77%	5.07%	0.74	1.17
Shelby	20	213	9.39%	8.05%	25	357	7.00%	9.17%	1.34	0.88
Stark	218	2071	10.53%	9.70%	133	1995	6.67%	7.94%	1.58	1.22
Summit	249	2506	9.94%	8.86%	226	3181	7.10%	8.96%	1.4	0.99
Trumbull	95	1113	8.54%	8.30%	57	841	6.78%	6.73%	1.26	1.23
Tuscarawas	50	496	10.08%	9.26%	34	576	5.90%	6.52%	1.71	1.42
Union		155	2.58%	2.71%	25	428	5.84%	5.32%	0.44	0.51
Van Wert	6	149	4.03%	3.24%	8	127	6.30%	7.69%	0.64	0.42
Vinton	8	92	8.70%	7.94%		42	9.52%	7.24%	0.91	1.1
Warren	47	538	8.74%	6.27%	115	1741	6.61%	6.36%	1.32	0.98
Washington	22	264	8.33%	8.94%	11	214	5.14%	7.04%	1.62	1.27

Appendix B:
Low Birth Weight by County

Wayne	37	502	7.37%	4.92%	50	1044	4.79%	5.34%	1.54	0.92
Williams	15	214	7.01%	7.01%	7	157	4.46%	3.91%	1.57	1.79
Wood	29	454	6.39%	6.64%	48	887	5.41%	4.96%	1.18	1.34
Wyandot	10	111	9.01%	9.71%	7	147	4.76%	3.97%	1.89	2.45