Report on Pregnant Women, Infants and Children

Submitted February 14, 2017

The Ohio Department of Medicaid
John R. Kasich, Governor Barbara R. Sears, Director

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Governor John R. Kasich
Ohio House Speaker, the Honorable Cliff Rosenberger
Ohio Senate President, the Honorable Larry Obhof
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

RE: Pregnant Women, Infants, and Children Report – State Fiscal Year 2016

The attached report is provided in compliance with Section 5162.13 of the Ohio Revised Code requiring the Ohio Department of Medicaid (ODM) to report annually on the effectiveness of the Medicaid program meeting the health care needs of low-income pregnant women, infants, and children. In addition, this report focuses on infant mortality, preterm births, and low birth weight infants.

The rates reported for infant mortality, preterm 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 historically used in the Ohio Medicaid 2014 and 2015 Reports on Pregnant Women, Infants and Children.

Given that this report focuses on the Medicaid population, ODM 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, preterm 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.

Sincerely,

Barbara R. Sears
Director

Enclosure

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Table of Contents

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 calendar years 2013, 2014, and 2015, Medicaid has consistently paid for approximately 52% of births in Ohio (see Figure 1). The below information is based on the total number of births to Ohio residents on the 2013, 2014, and 2015 birth files 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. The results for CY 2013 throughout this report have been updated from the previous report based on an improved method for the linkage of birth files with Medicaid data which increased the Medicaid infant to birth certificate linkage rate. *Please see Appendix A for more information on the linkage process.*

Figure 1: Ohio Births by Payer, 2013 - 2015

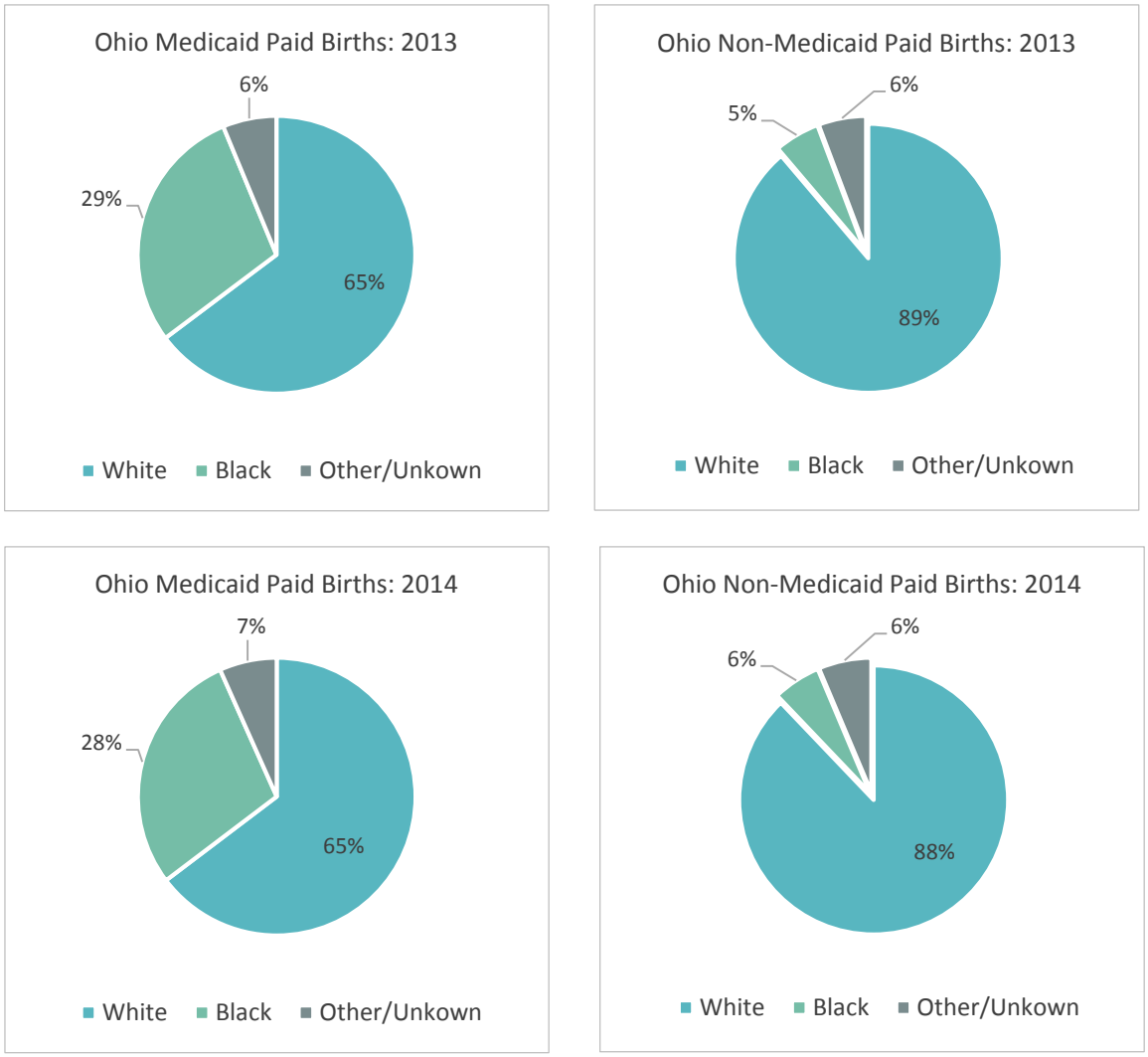
	# of Births (N)			% of Total Births		
	2013	**2014**	**2015**	**2013**	**2014**	**2015**
All	136,137	136,570	136,417	100%	100%	100%
Medicaid	70,885	70,634	70, 816	52.1%	51.7%	51.9%
Non-Medicaid	65,252	65,936	65, 601	47.9%	48.3%	48.1%

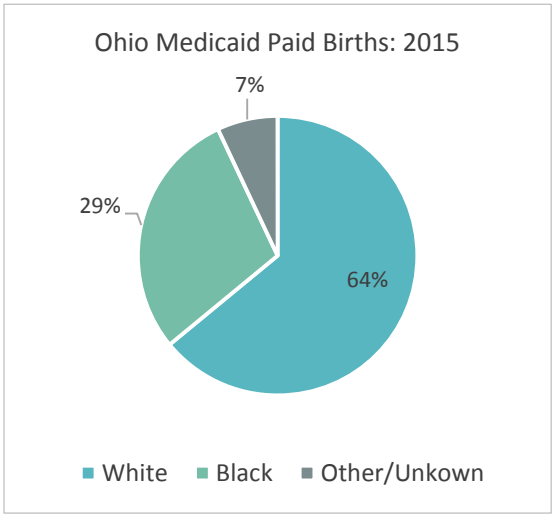
1.2 Demographic Information Related to Ohio Births

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, 2014, and 2015 (see Figures 2 and 3). 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, 2013 - 2015





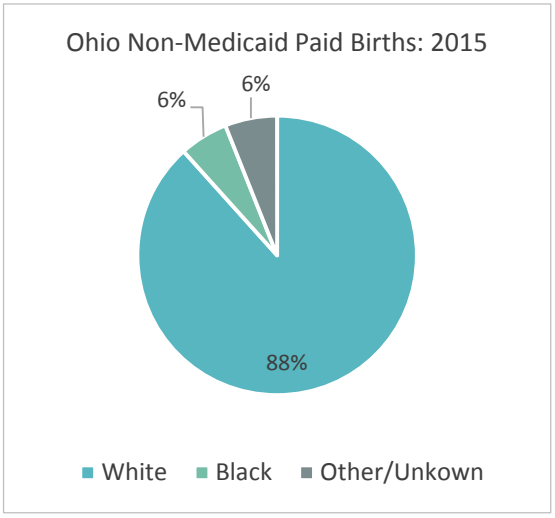
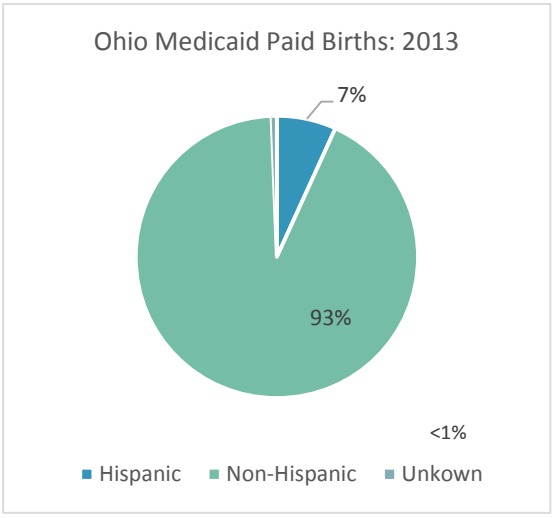
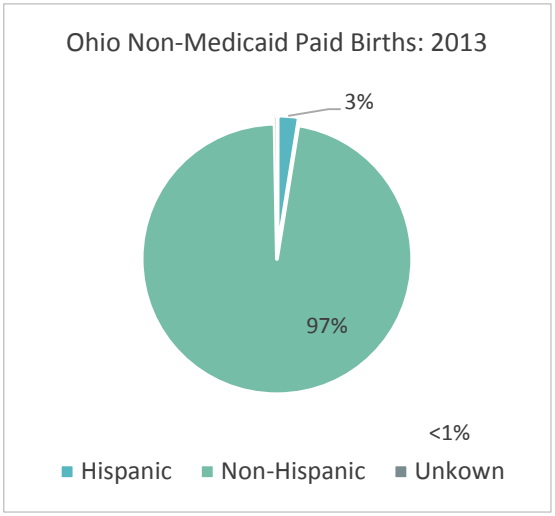
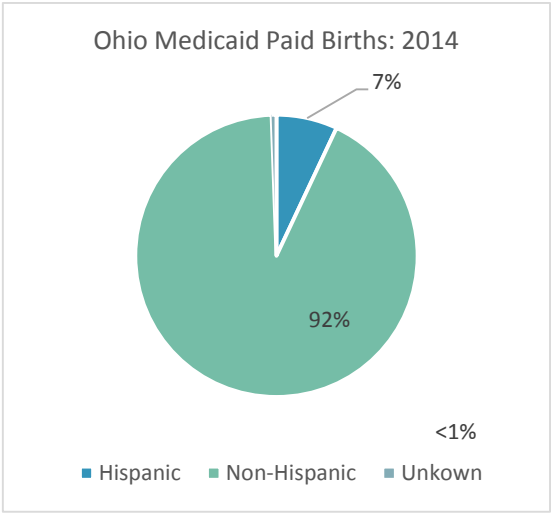
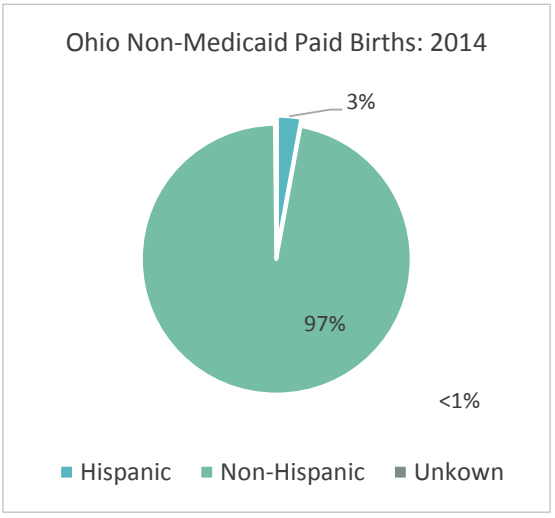


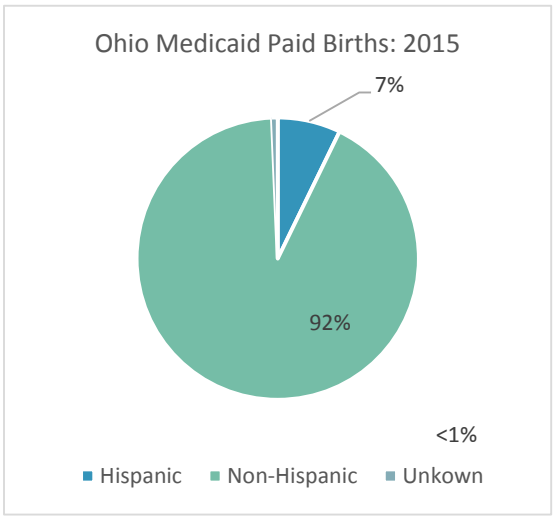
Figure 3: Ohio Births by Maternal Ethnicity – 2013 & 2014

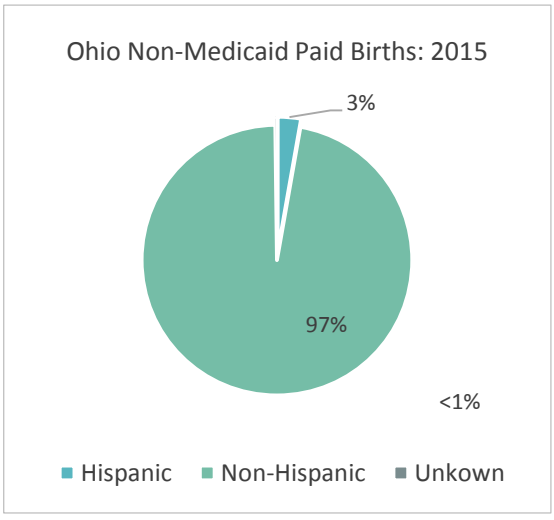








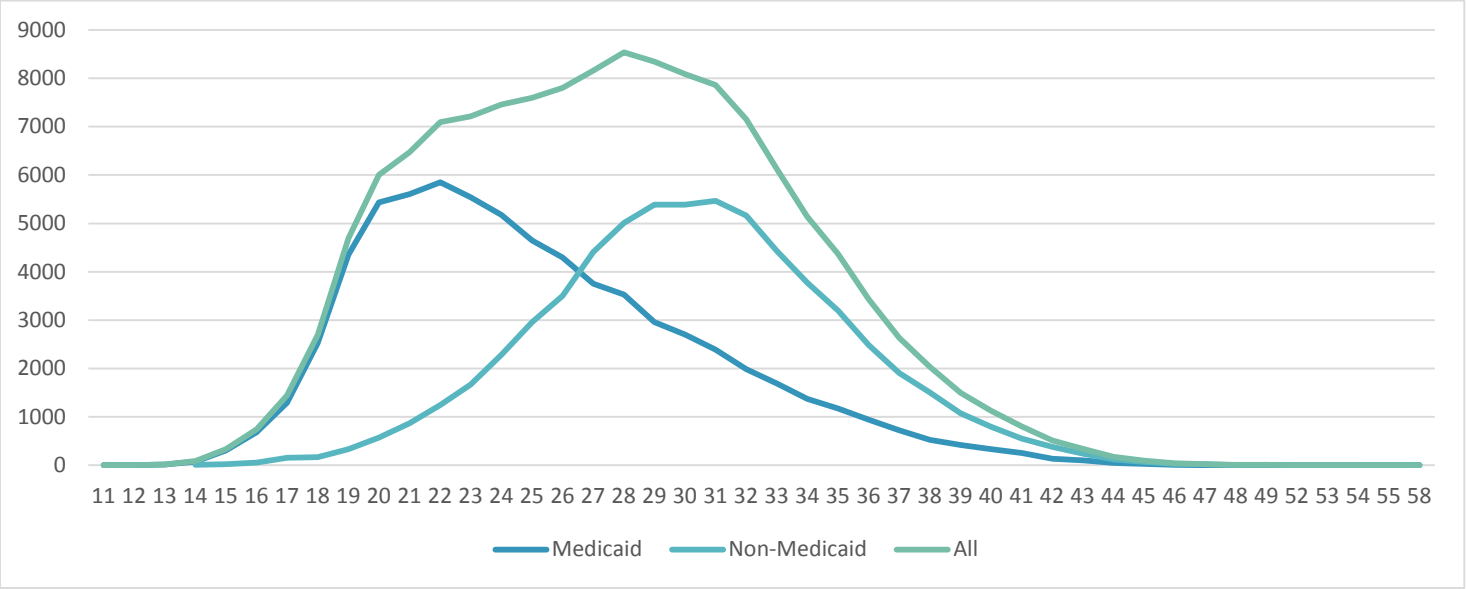




1.2.2 Maternal Age

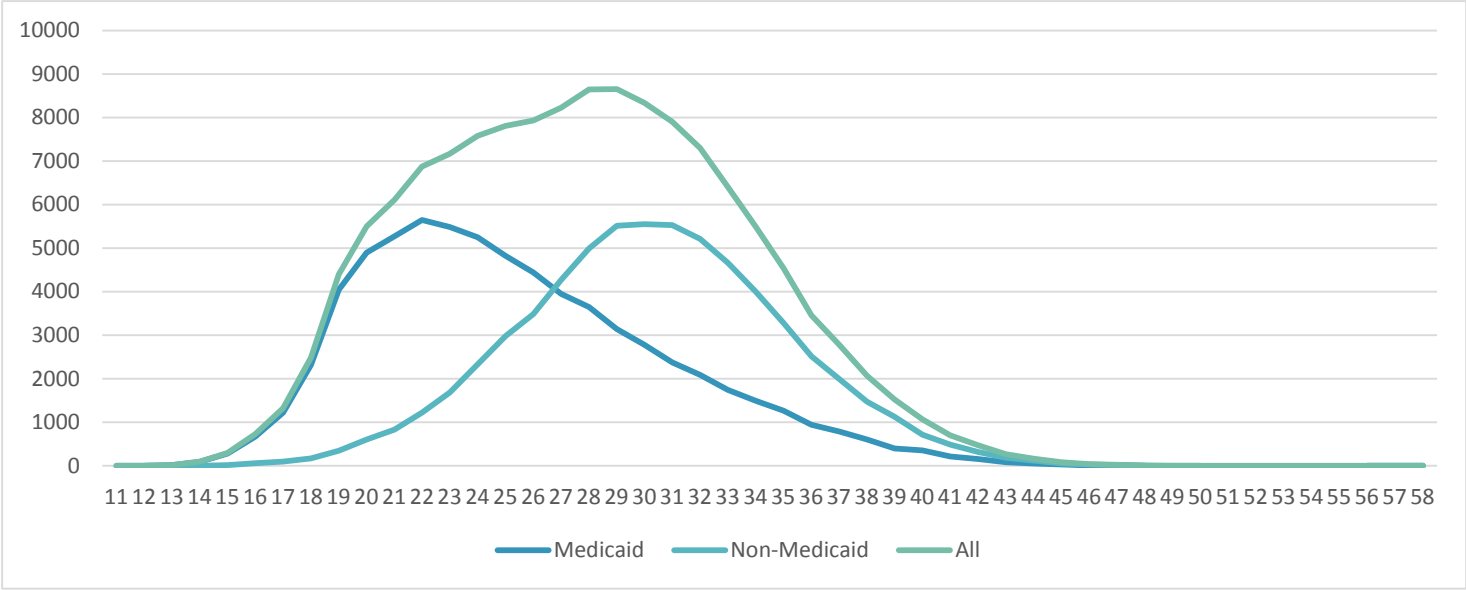
As shown in Figure 4, a wide disparity exists in the maternal age of mothers receiving Medicaid benefits and mothers who were not receiving Medicaid benefits at the time of delivery. In 2013, the median age for mothers with a Medicaid delivery claims was 24 years of age, while the median age for women with non-Medicaid paid deliveries was 30.

Figure 4: Ohio Births by Maternal Age and Medicaid Status - 2013



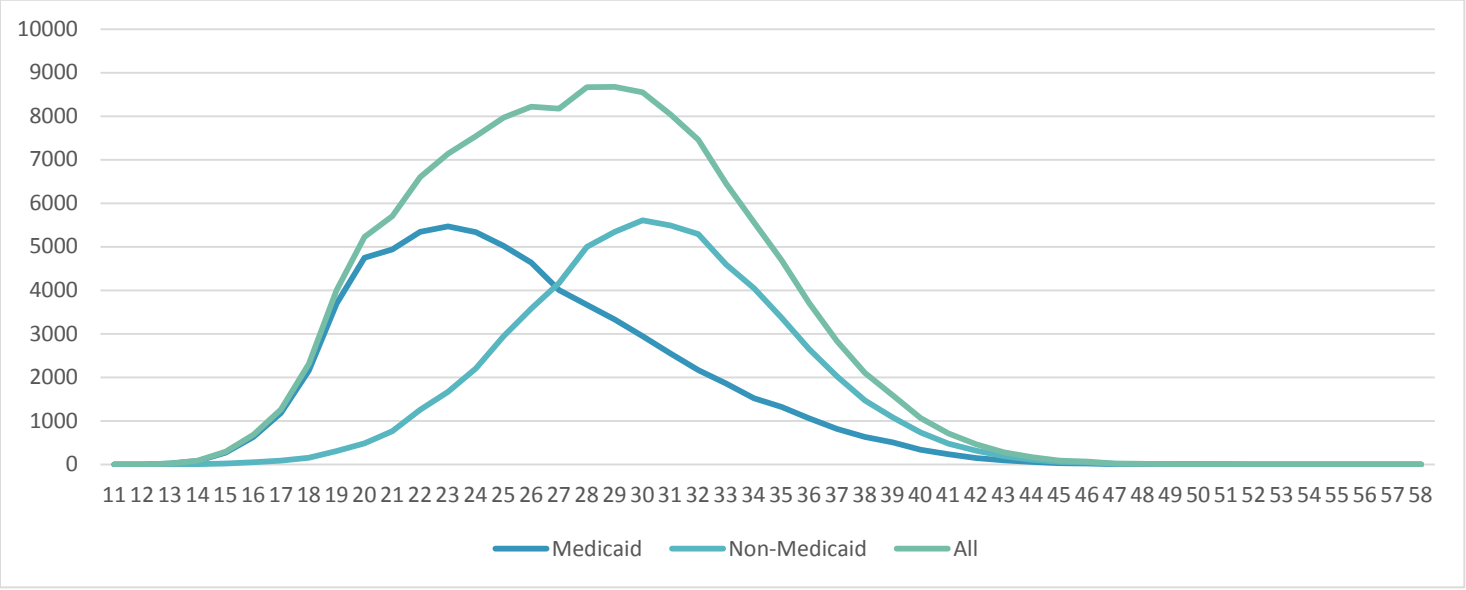
As shown in Figure 5, this wide disparity in the maternal age of mothers receiving Medicaid benefits and mothers who were not receiving Medicaid benefits at the time of delivery holds steady. In 2014, the median age for mothers with a Medicaid delivery claims was 25 years of age, while the median age for women with non-Medicaid paid deliveries was 30.

Figure 5: Ohio Births by Maternal Age and Medicaid Status - 2014



The wide disparity in the maternal age of mothers receiving Medicaid benefits and mothers who were not receiving Medicaid benefits at the time of delivery holds steady in 2015, as show in Figure 6. In 2015, the median age for mothers with a Medicaid delivery claims was 25 years of age, while the median age for women with non-Medicaid paid deliveries was 30.

Figure 6: Ohio Births by Maternal Age and Medicaid Status - 2015



1.2.3 Marital Status

In 2013, 26.6% of mothers with Medicaid paid deliveries were married compared to 88.4% of women with non-Medicaid paid deliveries. Similarly, in 2014, 26.7% of mothers with Medicaid paid deliveries were married compared to 88.4% of women with non-Medicaid paid deliveries. These trends held steady in 2015 with 27% of mothers with Medicaid paid deliveries were married compared to 88.5% 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 calendar years 2012 – 2014 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 2014.

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 Ohio's infant mortality rate using a cohort approach for births to Ohio residents in 2012, 2013, and 2014, comparing Medicaid to non-Medicaid beneficiaries. This cohort approach identifies all infants who were born in Ohio with Ohio maternal residence in 2009 and follows them through their first year of life.

Using this cohort approach, the crude infant mortality rate for the Medicaid population was 7.57 deaths per 1,000 live births for births in 2012, 7.72 deaths per 1,000 live births in 2013, and 8.03 deaths per 1,000 live births in 2014 (see Figure 7). As a note of caution, 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 7: Ohio Infant Mortality Rate* (Deaths per 1,000 Live Births) by Medicaid Status, 2012 – 2014

Crude Rate						Risk Adjusted Rate						Adjusted Relative Risk		
Medicaid			Non-Medicaid			Medicaid			Non-Medicaid			Overall		
2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
7.57	7.72	8.03	5.75	5.29	5.35	6.79	6.95	6.87	10.79	12.37	9.61	0.63	0.56	0.72

***Please note the method used to calculate the infant mortality rates in this figure is not comparable to those published by the Ohio Department of Health.**

In 2012, the crude infant mortality rate in Ohio was 7.57 deaths per 1,000 live births for Medicaid-paid births, as compared to the non-Medicaid crude rate of 5.75 deaths per 1,000 live 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 2012?"

Adjusting for demographic differences, the risk of death for infants born on Medicaid was actually lower in 2012 than those not born on Medicaid. The adjusted relative risk of death in the first year of life for the 2012 cohort of births on Medicaid compared to non-Medicaid was 0.63. After accounting for demographic differences, the risk of death in the first year of life among the Medicaid population was .63 times the risk of death in the first year of life among the non-Medicaid population.

As shown in Figure 7, in 2013, the crude infant mortality rate in Ohio was 7.72 deaths per 1,000 live births for Medicaid-paid births, as compared to the non-Medicaid crude rate of 5.29 deaths per 1,000 live births. Consistent with the trend seen in 2012, after adjusting for demographic differences, the risk of death for infants born on Medicaid was again lower in 2013 than those not born on Medicaid. The adjusted relative risk of death in the first year of life for the 2013 cohort of births on Medicaid compared to non-Medicaid was 0.56. After accounting for demographic differences, the risk of death in the first year of life among the Medicaid population was .56 times the risk of death in the first year of life among the non-Medicaid population.

In 2014, the crude infant mortality rate in Ohio was 8.03 deaths per 1,000 live births for Medicaid-paid births, as compared to the non-Medicaid crude rate of 5.35 deaths per 1,000 live births. Similar to the trends seen in 2012 and 2013, after adjusting for demographic differences, the risk of death for infants born on Medicaid was again lower in 2014 than those not born on Medicaid. The adjusted relative risk of death in the first year of life for the 2014 cohort of births on Medicaid compared to non-Medicaid was 0.72. After accounting for demographic differences, the risk of death in the first year of life among the Medicaid population was .72 times the risk of death in the first year of life among 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. As shown in Figure 8, the adjusted relative risks of 1.24 for preterm births and 1.37 for low birth weight births in 2013, 1.24 for preterm births and 1.34 for low birth weight births in 2014, and 1.25 for preterm births and 1.33 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 8: Ohio Preterm and Low Birth Weight Births by Medicaid Status and Race, 2013 – 2015

	Preterm Birth		Low Birth Weight	
	Medicaid	Non-Medicaid	Medicaid	Non-Medicaid
Crude Rate				
2013	14.37%	9.86%	10.18%	6.36%
2014	14.53%	9.73%	10.21%	6.21%
2015	14.40%	9.61%	10.27%	6.18%
Adjusted Rate				
2013	13.81%	11.14%	9.57%	7.00%
2014	13.69%	11.04%	9.64%	7.19%
2015	13.80%	11.04%	9.59%	7.23%
Adjusted Relative Risk	Overall		Overall	
2013	1.24		1.37	
2014	1.24		1.34	
2015	1.25		1.33	

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; or had little or no prenatal care.[1-3]

As shown in Figure 9, in 2013, 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 short birth spacing and absence of prenatal care, but showed notable differences for all other risk factors. All of the data presented about selected risk factors are based on self-reported data on the birth certificates.

Comparably in 2014, 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 demographic factors, Medicaid beneficiaries showed a slightly decreased risk of having short birth spacing as compared with non-Medicaid beneficiaries. A notable difference was seen when adjusting for demographic factors in all other risk factors in 2014. All of the data presented about selected risk factors are based on self-reported data on the birth certificates.

Similar trends are presented in 2015; with the exception of short birth spacing, pregnant women on Medicaid had higher crude rates for all risk factors than non-Medicaid pregnant women. Adjusting for demographic factors, Medicaid beneficiaries showed a slightly decreased risk of having short birth spacing as compared with

non-Medicaid beneficiaries. A notable difference was seen when adjusting for demographic factors in all other risk factors in 2015. All of the data presented about selected risk factors are based on self-reported data on the birth certificates.

Figure 9: Selected Risk Factors for Prematurity and Low Birth Weight, 2013 – 2015

	Crude Rates						Risk Adjusted Rates						Adjusted Relative Risk		
	Medicaid			Non-Medicaid			Medicaid			Non-Medicaid					
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Previous Preterm Birth															
Yes	6.36%	6.80%	6.69%	3.65%	4.00%	4.09%	6.70%	7.38%	7.43%	3.58%	3.90%	4.05%	1.87	1.89	1.83
No	93.64%	93.20%	93.31%	96.35%	96.00%	95.91%	93.30%	92.62%	92.57%	96.42%	96.10%	95.95%			
Low Maternal Weight Gain															
Yes	31.72%	31.30%	32.01%	21.94%	21.55%	22.02%	32.70%	32.42%	32.82%	23.29%	23.22%	23.60%	1.40	1.40	1.39
No	68.28%	68.70%	67.99%	78.06%	78.45%	77.98%	67.30%	67.58%	67.18%	76.71%	76.78%	76.40%			
Smoking During Pregnancy															
Yes	28.16%	27.14%	25.62%	4.62%	4.38%	3.83%	26.87%	25.85%	24.29%	8.10%	7.71%	6.77%	3.32	3.35	3.59
No	71.84%	72.86%	74.38%	95.38%	95.62%	96.17%	73.13%	74.15%	75.71%	91.90%	92.29%	93.23%			
Previous Poor Outcome															
Yes	5.27%	5.13%	5.67%	3.75%	3.79%	4.55%	5.63%	5.52%	6.21%	3.55%	3.56%	4.53%	1.59	1.55	1.37
No	94.73%	94.87%	94.33%	96.25%	96.21%	95.45%	94.37%	94.48%	93.79%	96.45%	96.44%	95.47%			
Birth Spacing (<18 months)															
Yes	5.42%	5.55%	5.60%	6.87%	7.27%	7.44%	6.01%	5.91%	6.12%	6.00%	6.39%	6.50%	1.00	0.92	0.94
No	94.58%	94.45%	94.40%	93.13%	92.73%	92.56%	93.99%	94.09%	93.88%	94.00%	93.61%	93.50%			
No Prenatal Care															
Yes	2.07%	2.82%	2.48%	0.71%	0.95%	2.48%	1.77%	2.46%	2.13%	1.37%	1.59%	1.39%	1.29	1.55	1.53
No	97.93%	97.18%	97.52%	99.29%	99.05%	97.52%	98.23%	97.54%	97.87%	98.63%	98.41%	98.61%			

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: in 2013, 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 (See Figure 10). [5] 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]

Similarly in 2014, 85.9% of women in Medicaid managed care plans received timely prenatal care; 69.8% received over 81% of the expected prenatal visits (Frequency of Ongoing Prenatal Care); and 61.4% received post-partum visits within 90 days of delivery. [6]Within the first 15 months of life, 59.7% of infants met the requirement for the well-child visit criteria, whereas, 63.1% of children in their third, fourth, fifth, and sixth year of life met the well-child visit criteria.[6]

These trends held steady in 2015 with, 83.9% of women in Medicaid managed care plans received timely prenatal care; 69.1% received over 81% of the expected prenatal visits (Frequency of Ongoing Prenatal Care); and 62.8% received post-partum visits within 90 days of delivery. [7]Within the first 15 months of life, 54.9% of infants met the requirement for the well-child visit criteria, whereas, 65.7% of children in their third, fourth, fifth, and sixth year of life met the well-child visit criteria.[7]

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 in calendar years 2013 and 2014, and between the 50th and 75th percentile for over 81% of the expected prenatal visits (Frequency of Ongoing Prenatal Care) and post-partum visits within 90 days of delivery in 2015.

Figure 10: Statewide Averages for Medicaid MCP Self-Reported Audited HEDIS Rates – CYs 2013 – 2015

HEDIS Measure	Overall Medicaid MCP Reported Rate (%)			Ohio Medicaid MCPs' NCQA's Percentile Range		
	2013	2014	2015	2013	2014	2015
Frequency of Ongoing Prenatal Care	69.9%	69.8%	69.1%	P50-P75	P50-P75	P50-P75
Timeliness of Prenatal Care	86.0%	85.9%	83.9%	P50-P75	P50-P75	P25-P50
Postpartum Care	63.0%	61.4%	62.8%	P25-P50	P25-P50	P50-P75
Well Child Visits (First 15 Months of Life, Six or More Visits)	60.1%	59.7%	54.9%	P25-P50	P25-P50	P25-P50
Well-Child Visits (Third, Fourth, Fifth, and Sixth Year of Life)	69.0%	63.1%	65.7%	P25-P50	P10-P25	P25-P50

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

The average total cost per beneficiary 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) was $8,641 in 2013, $9,112 in 2014, and $10,059 in 2015 (see Figure 11). 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 $612,493,601 for 70,885 births. Of these Medicaid payments, 53% of these dollars ($324,895,506) paid for deliveries compared to 47% of these dollars ($287,598,095) which paid for prenatal care. In 2014, the total paid by Medicaid for prenatal care and deliveries was $643,635,723 for 70,634 births. Of these Medicaid payments, 57% of these dollars ($364,914,896) paid for deliveries compared to 43% of these dollars ($278,720,827) which paid for prenatal care. In 2015, the total paid by Medicaid for prenatal care and deliveries was $712,320,711 for 70,816 births. Of these Medicaid payments, 58% of these dollars ($413,559,850) paid for deliveries compared to 42% of these dollars ($298,760,862) 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, and 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. In 2013, 69,667 infants were eligible and enrolled in Medicaid for at least a portion of their first year of life. In 2014, 70,885 infants were eligible and enrolled in Medicaid for at least a portion of their first year of life, and in 2015 70,634 infants were eligible and enrolled in Medicaid for at least a portion of their first year of life.

The total paid by Medicaid for the first year of life for infants enrolled in 2013 was $739,671,129, while the totals paid by Medicaid for the first year of life for infants enrolled were $842,220,609 and $878,019,086 in 2014 and 2015, respectively. 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.

[†]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.

Figure 11: Total and Average Cost of Deliveries, Prenatal Care, and Infants, 2013 – 2015

	Deliveries	Prenatal Care	Total Prenatal Care and Delivery Care	Infants—First Year of Life
Total Beneficiaries				
2013	70,885	70,885	70,885	69,667
2014	70,634	70,634	70,634	70,885
2015	70,816	70,816	70,816	70,634
Total Cost ($)				
2013	324,895,506	287,598,095	612,493,601	739,671,129
2014	364,914,896	278,720,827	643,635,723	842,220,609
2015	413,599,850	298,760,862	712,320,711	878,019,086
Average Cost/ Beneficiary ($)				
2013	4,583	4,057	8,641	10,617
2014	5,166	3,946	9,112	11,882
2015	4,840	4,219	10,059	12,431
Total Member Months (N)				
2013	N/A	515,592	639,506	874,847
2014	N/A	521,369	659,310	884,729
2015	N/A	541,061	678,752	889,072
Average Cost/Member Month ($)				
2013	N/A	558	958	845
2014	N/A	535	976	952
2015	N/A	552	1,049	988

Section V: References

1. 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.

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7. National Committee for Quality Assurance. HEDIS & Performance Measurement. Retrieved November 30, 2016 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

The matching process for mothers and infants typically consists of four rounds of multiple-iteration probabilistic linkages and employs probabilistic record linkage software, implemented in the statistical software product SAS, called The Link King. ‡

‡ While two rounds are sufficient in most cases, an additional round of matching with relaxed criteria may be needed when data quality issues make it difficult to use certain fields in the matching process due to missing and/or invalid data entries. For example, for infants whose first name is listed as "BABY BOY" or "BABY GIRL" in the available data sources, information about the father can be used as an alternative to attempt to find a match.

The Link King was originally developed at Washington State's Division of Alcohol and Substance Abuse (DASA) and incorporates a probabilistic algorithm developed by MEDSTAT for the Substance Abuse and Mental Health Services Administration (SAMHSA). As with Link Plus, probabilistic record linkage software developed by the Centers for Disease Control and Prevention (CDC), The Link King is a rigorous public domain option for matching individuals in administrative datasets in the absence of a common identifier.

The first round of matching seeks to identify the same infants in 1) a file of infants derived from an analysis of Medicaid claims, encounter, and eligibility files and 2) an annual file of birth certificate data. Likewise, the second round of matching attempts to find the same mothers in 1) a file of mothers created from an analysis of Medicaid claims, encounter, and eligibility files and 2) the same annual file of birth certificate data mentioned above. The third round combines the infants and the mothers matched with birth certificates. The fourth round of matching uses alternate criteria, such as the father's information, to match any infants who have not been matched in the third round.† Scores are assigned to linked pairs of records so that only those links that have received a score above a certain threshold are kept. In all rounds, the matching process uses date of birth, first, middle, and last names, sex, race/ethnicity, and zip code and generates an output file that, where possible, includes an associated Medicaid ID and birth certificate number for Ohio births with the individual. For infants, this would be the infant's Medicaid ID and, for mothers, the mother's Medicaid ID. Both baby and mother would be associated with the same birth certificate number for Ohio births. Because both baby and mother would share the same birth certificate number for Ohio births, this common birth certificate number is then used to try to create a final linked file of infants and mothers that contains the unique identifiers from both data sources.

For 2012, 90.8% of Medicaid birth claims were linked to a birth certificate. The linked percentage for 2013 and 2014 is 89.4% and 90.1%, respectively.

In 2015, the linked percentage is best represented as a range, from 85.6% to 91.8%. The range is a result of the transition from the 9th revision (ICD-9) to the 10th revision (ICD-10) of the International Statistical Classification of Diseases and Related Health Problems and more specifically, the inclusion or exclusion of ICD-10 code O99.89 in the matching process.

The United States Department of Health and Human Services identified October 1, 2015 as the date to begin compliance with the ICD-10 code sets. Following this date, O99.83 became the updated version of code 646.93 from ICD-9. While defined in ICD-9 as "unspecified complication of pregnancy, antepartum condition or complication," the ICD-10 code description also includes childbirth and the puerperium, or the six weeks after childbirth. Implementation of ICD-10 code O99.89 in the matching process beginning October 1, 2015 may result not only in deliveries, but also in flagging women as pregnant who already gave birth.

When including code O99.83 in the 2015 matching process, the linked percentage is 85.6%. There appears to be an increase in the deliveries, but not in the number of linked birth claims to birth certificates. Using more restrictive criteria to define deliveries, and excluding code O99.83 when there are not birth certificate matches, results in a linked percentage of 91.8%. This is comparable to the rates from recent years.

In addition, analysis of the 2015 Medicaid claims data demonstrates that not all providers began implementation of the ICD-10 code sets on October 1, 2015, which may have impacted the 2015 linked percentage. For example, some providers continued to use ICD-9 code sets following the transition date for the classification of pregnancies and deliveries. In addition, some providers used ICD-10 codes prior to the Oct. 1, 2015 start date.

Both errors may eventually result in resubmission of claims. Therefore, the matching rate from the latter half of 2015 and in the subsequent year may be adversely affected by the ICD coding changeover.

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 in 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 represents 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, 2014, and 2015 vital statistics birth files were used for the preterm birth, low birth weight and risk factor analyses. The 2012, 2013, and 2014 vital statistics birth files linked with the respective year's death file were 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, 2014, or 2015 (for the preterm, low birth weight, and risk factor analysis) and 2012, 2013, or 2014 (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 calendar years 2013, 2014, 2015. 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. Delivery and prenatal care costs were estimated for infants with Medicaid IDs identified on the Ohio Department of Health Bureau of Vital Statistics birth file where the mother's Medicaid ID could not be determined.

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. For CY 2014, costs were estimated for approximately 10% of newborns for whom a Medicaid recipient ID could not be determined, but who were identified on the Ohio Department of Health Bureau of Vital Statistics birth file and linked to a mother with Medicaid birth and delivery claims data.

Low Birth Weight by County 2015

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	Medicaid Adjusted Rate/Non-Medicaid Adjusted Rate
Adams	19	159	11.95%	6.79%		89	2.25%	1.17%	5.31761	5.8038
Allen	97	813	11.93%	13.70%	30	452	6.64%	6.35%	1.79762	2.15586
Ashland	32	289	11.07%	9.13%	13	314	4.14%	3.81%	2.67447	2.39572
Ashtabula	68	701	9.70%	11.01%	14	394	3.55%	3.00%	2.72998	3.66322
Athens	22	275	8.00%	10.31%	12	197	6.09%	4.37%	1.31333	2.36097
Auglaize	12	227	5.29%	4.02%	17	335	5.07%	4.27%	1.04172	0.94209
Belmont	14	111	12.61%	7.51%		78	1.28%	0.90%	9.83784	8.32035
Brown	31	284	10.92%	7.58%	8	176	4.55%	2.33%	2.40141	3.25594
Butler	208	2299	9.05%	8.64%	119	2275	5.23%	7.15%	1.72965	1.20863
Carroll	15	136	11.03%	6.06%	9	150	6.00%	3.31%	1.83824	1.82963
Champaign	20	224	8.93%	6.27%		189	2.65%	2.00%	3.375	3.13114
Clark	110	1082	10.17%	9.62%	25	537	4.66%	5.69%	2.18373	1.68918
Clermont	85	944	9.00%	7.97%	59	1349	4.37%	4.64%	2.05877	1.7175
Clinton	37	306	12.09%	8.63%	14	210	6.67%	7.64%	1.81373	1.12912
Columbiana	68	659	10.32%	12.03%	21	369	5.69%	4.65%	1.81314	2.589
Coshocton	29	280	10.36%	10.68%	7	191	3.66%	2.37%	2.82602	4.50733
Crawford	24	331	7.25%	5.18%	7	160	4.38%	4.04%	1.65732	1.28322
Cuyahoga	1085	8295	13.08%	9.87%	444	6442	6.89%	6.71%	1.8978	1.47077
Darke	15	249	6.02%	4.44%	8	289	2.77%	3.04%	2.1762	1.46119
Defiance	12	221	5.43%	4.72%	10	160	6.25%	6.66%	0.86878	0.70875
Delaware	38	387	9.82%	10.99%	96	1830	5.25%	6.78%	1.87177	1.62104
Erie	51	463	11.02%	9.87%	14	321	4.36%	2.71%	2.52561	3.63846
Fairfield	75	802	9.35%	9.71%	71	943	7.53%	6.24%	1.24205	1.55734
Fayette	24	243	9.88%	11.17%	7	122	5.74%	5.17%	1.72134	2.16084
Franklin	1011	9803	10.31%	9.37%	638	9117	7.00%	7.43%	1.47375	1.26092
Fulton	16	231	6.93%	5.63%	12	253	4.74%	3.38%	1.46032	1.6682
Gallia	10	165	6.06%	6.63%		101	4.95%	2.65%	1.22424	2.49943
Geauga	27	210	12.86%	13.22%	29	679	4.27%	4.74%	3.01034	2.78945
Greene	61	722	8.45%	8.81%	81	1157	7.00%	7.92%	1.20682	1.11261
Guernsey	36	289	12.46%	14.96%	6	174	3.45%	2.31%	3.61246	6.47602

Low Birth Weight by County 2015

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	Medicaid Adjusted Rate/Non-Medicaid Adjusted Rate
Hamilton	633	5615	11.27%	8.74%	329	5133	6.41%	7.75%	1.75885	1.12851
Hancock	43	366	11.75%	10.41%	39	542	7.20%	5.81%	1.63276	1.79132
Hardin	22	179	12.29%	9.01%	10	167	5.99%	3.22%	2.05251	2.79858
Harrison	[redacted]	61	4.92%	4.15%	[redacted]	46	0.00%	0.00%	0	0
Henry	6	132	4.55%	3.68%	[redacted]	172	2.33%	1.16%	1.95455	3.17155
Highland	28	362	7.73%	4.33%	13	197	6.60%	8.87%	1.17212	0.48825
Hocking	15	206	7.28%	7.44%	[redacted]	118	3.39%	2.03%	2.14806	3.66288
Holmes	19	138	13.77%	12.21%	26	601	4.33%	6.58%	3.18255	1.85539
Huron	22	417	5.28%	7.12%	17	339	5.01%	4.50%	1.05205	1.58337
Jackson	24	262	9.16%	9.95%	9	161	5.59%	3.92%	1.63868	2.53774
Jefferson	21	275	7.64%	6.45%	6	120	5.00%	2.69%	1.52727	2.40194
Knox	25	355	7.04%	7.92%	29	391	7.42%	4.92%	0.94949	1.6093
Lake	76	932	8.15%	8.72%	95	1401	6.78%	7.63%	1.20258	1.1426
Lawrence	[redacted]	[redacted]	11.11%	4.38%	[redacted]	[redacted]	0.00%	0.00%	0	0
Licking	97	956	10.15%	10.83%	58	918	6.32%	6.34%	1.60594	1.70814
Logan	33	311	10.61%	14.39%	17	268	6.34%	8.09%	1.67278	1.77781
Lorain	177	1860	9.52%	10.44%	78	1531	5.09%	6.04%	1.86785	1.73051
Lucas	389	3479	11.18%	8.58%	132	2038	6.48%	8.20%	1.72634	1.04666
Madison	20	186	10.75%	9.06%	16	218	7.34%	4.15%	1.46505	2.18255
Mahoning	159	1446	11.00%	10.06%	57	897	6.35%	8.61%	1.7304	1.16771
Marion	51	529	9.64%	9.78%	15	203	7.39%	7.05%	1.30473	1.38607
Medina	55	483	11.39%	11.05%	81	1238	6.54%	9.94%	1.74041	1.11226
Meigs	11	139	7.91%	9.01%	6	57	10.53%	4.93%	0.7518	1.82787
Mercer	11	166	6.63%	4.98%	22	409	5.38%	5.33%	1.23193	0.93349
Miami	42	534	7.87%	6.55%	30	644	4.66%	3.51%	1.68839	1.86627
Monroe	[redacted]	44	11.36%	7.19%	[redacted]	42	7.14%	11.99%	1.59091	0.59917
Montgomery	413	3775	10.94%	9.96%	214	2840	7.54%	7.49%	1.4519	1.32881
Morgan	7	95	7.37%	6.04%	[redacted]	58	5.17%	2.78%	1.42456	2.17607
Morrow	22	208	10.58%	12.16%	14	188	7.45%	4.63%	1.42033	2.62429
Muskingum	54	644	8.39%	8.93%	19	381	4.99%	13.77%	1.68143	0.64869

Low Birth Weight by County 2015

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	Medicaid Adjusted Rate/Non-Medicaid Adjusted Rate
Noble	[redacted]	63	7.94%	4.59%	[redacted]	69	5.80%	2.90%	1.36905	1.58647
Ottawa	10	165	6.06%	4.47%	13	188	6.91%	3.81%	0.87646	1.17249
Paulding	8	103	7.77%	5.65%	[redacted]	68	4.41%	1.49%	1.76052	3.79002
Perry	25	279	8.96%	6.03%	13	162	8.02%	4.33%	1.11663	1.3937
Pickaway	23	326	7.06%	5.57%	20	299	6.69%	4.72%	1.05475	1.18019
Pike	26	254	10.24%	17.94%	7	99	7.07%	5.26%	1.44769	3.4098
Portage	51	605	8.43%	9.34%	62	790	7.85%	5.53%	1.07411	1.69013
Preble	20	215	9.30%	8.42%	12	176	6.82%	3.65%	1.36434	2.30573
Putnam	15	122	12.30%	7.08%	13	293	4.44%	4.14%	2.77112	1.71058
Richland	76	883	8.61%	8.73%	31	563	5.51%	5.26%	1.56315	1.66041
Ross	58	545	10.64%	9.66%	12	295	4.07%	4.79%	2.61621	2.01744
Sandusky	31	407	7.62%	7.34%	17	284	5.99%	13.88%	1.27244	0.52892
Scioto	53	572	9.27%	8.52%	16	254	6.30%	5.38%	1.47094	1.58397
Seneca	36	344	10.47%	9.50%	19	250	7.60%	5.91%	1.37699	1.60759
Shelby	15	279	5.38%	4.38%	7	330	2.12%	2.74%	2.53456	1.59614
Stark	195	2252	8.66%	8.41%	130	1937	6.71%	7.83%	1.29019	1.07406
Summit	364	3045	11.95%	9.97%	209	2984	7.00%	7.31%	1.70674	1.3641
Trumbull	123	1330	9.25%	10.48%	40	676	5.92%	6.78%	1.56293	1.54588
Tuscarawas	48	574	8.36%	7.86%	30	606	4.95%	4.05%	1.6892	1.93984
Union	18	197	9.14%	6.77%	20	456	4.39%	2.30%	2.08325	2.93912
Van Wert	7	146	4.79%	4.88%	8	111	7.21%	4.41%	0.66524	1.10559
Vinton	11	116	9.48%	6.35%	[redacted]	42	2.38%	1.48%	3.98276	4.27921
Warren	60	660	9.09%	10.63%	107	1679	6.37%	4.88%	1.42651	2.18031
Washington	24	280	8.57%	6.79%	19	207	9.18%	7.07%	0.93383	0.96021
Wayne	38	550	6.91%	6.13%	45	1040	4.33%	4.91%	1.59677	1.24921
Williams	8	213	3.76%	4.47%	6	170	3.53%	2.09%	1.06416	2.13773
Wood	49	520	9.42%	9.62%	42	849	4.95%	5.74%	1.90481	1.67614
Wyandot	[redacted]	114	3.51%	2.31%	6	131	4.58%	3.73%	0.76608	0.61937

Preterm Births by County 2015

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	Medicaid Adjusted Rate/Non-Medicaid Adjusted Rate
Adams	18	156	11.54%	7.97%	6	89	6.74%	7.56%	1.71154	1.05448
Allen	155	811	19.11%	22.00%	46	453	10.15%	12.36%	1.88214	1.77953
Ashland	39	289	13.49%	15.71%	21	314	6.69%	5.09%	2.0178	3.0839
Ashtabula	87	701	12.41%	14.67%	35	394	8.88%	6.38%	1.39711	2.30082
Athens	32	275	11.64%	13.36%	16	198	8.08%	5.60%	1.44	2.38664
Auglaize	29	227	12.78%	9.35%	22	336	6.55%	7.56%	1.95114	1.23688
Belmont	23	111	20.72%	12.96%	[redacted]	78	5.13%	6.88%	4.04054	1.88354
Brown	38	284	13.38%	12.93%	8	176	4.55%	2.42%	2.94366	5.3497
Butler	300	2300	13.04%	12.76%	211	2285	9.23%	11.29%	1.41253	1.13007
Carroll	19	136	13.97%	9.63%	12	150	8.00%	4.46%	1.74632	2.15781
Champaign	20	225	8.89%	6.10%	18	191	9.42%	7.31%	0.94321	0.83453
Clark	155	1085	14.29%	15.13%	60	538	11.15%	11.19%	1.28095	1.35244
Clermont	117	944	12.39%	11.55%	106	1350	7.85%	7.04%	1.57849	1.6411
Clinton	48	306	15.69%	17.39%	20	210	9.52%	6.86%	1.64706	2.53624
Columbiana	99	661	14.98%	15.37%	40	370	10.81%	9.41%	1.3854	1.63318
Coshocton	30	280	10.71%	11.88%	11	191	5.76%	6.19%	1.86039	1.91996
Crawford	37	332	11.14%	7.20%	13	160	8.13%	7.62%	1.37164	0.9449
Cuyahoga	1406	8333	16.87%	13.04%	678	6459	10.50%	10.94%	1.60738	1.19157
Darke	33	249	13.25%	8.98%	18	290	6.21%	8.76%	2.13521	1.02567
Defiance	18	221	8.14%	6.25%	19	160	11.88%	10.42%	0.68588	0.60038
Delaware	58	387	14.99%	13.81%	145	1836	7.90%	5.51%	1.89767	2.50499
Erie	65	462	14.07%	15.73%	26	321	8.10%	6.41%	1.73701	2.45457
Fairfield	101	803	12.58%	13.57%	107	945	11.32%	10.74%	1.11085	1.26342
Fayette	37	243	15.23%	12.45%	13	122	10.66%	8.01%	1.42893	1.55341
Franklin	1464	9835	14.89%	14.18%	933	9154	10.19%	10.83%	1.46048	1.30976
Fulton	23	231	9.96%	7.23%	17	253	6.72%	4.31%	1.48179	1.67926
Gallia	14	165	8.48%	8.04%	7	102	6.86%	5.38%	1.23636	1.49286
Geauga	27	210	12.86%	12.24%	53	681	7.78%	7.04%	1.65202	1.73953
Greene	88	724	12.15%	11.41%	130	1159	11.22%	12.28%	1.08364	0.92883
Guernsey	55	289	19.03%	19.92%	17	174	9.77%	5.89%	1.94789	3.38376

Preterm Births by County 2015

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	Medicaid Adjusted Rate/Non-Medicaid Adjusted Rate
Hamilton	882	5640	15.64%	13.38%	475	5146	9.23%	11.81%	1.6942	1.13285
Hancock	58	367	15.80%	11.80%	52	544	9.56%	11.25%	1.65332	1.04962
Hardin	25	179	13.97%	13.82%	19	167	11.38%	9.72%	1.22758	1.4217
Harrison	6	61	9.84%	3.96%	[redacted]	46	4.35%	1.88%	2.2623	2.10193
Henry	15	132	11.36%	10.63%	16	172	9.30%	7.49%	1.22159	1.41916
Highland	24	361	6.65%	3.34%	31	196	15.82%	15.53%	0.42034	0.21497
Hocking	21	207	10.14%	13.09%	13	118	11.02%	8.04%	0.92085	1.62692
Holmes	25	138	18.12%	14.90%	50	602	8.31%	11.54%	2.18116	1.29124
Huron	45	418	10.77%	9.41%	30	339	8.85%	7.72%	1.21651	1.21843
Jackson	30	263	11.41%	6.83%	17	163	10.43%	9.68%	1.09372	0.70501
Jefferson	23	275	8.36%	6.51%	9	121	7.44%	7.68%	1.12444	0.84677
Knox	52	355	14.65%	12.38%	36	393	9.16%	7.30%	1.59906	1.69575
Lake	111	932	11.91%	12.13%	136	1403	9.69%	8.79%	1.22864	1.3797
Lawrence	[redacted]		5.56%	2.69%	[redacted]		8.33%	4.82%	0.66667	0.55783
Licking	136	960	14.17%	13.79%	93	921	10.10%	12.81%	1.40296	1.07634
Logan	47	311	15.11%	18.44%	16	268	5.97%	8.64%	2.53135	2.13493
Lorain	255	1860	13.71%	14.46%	125	1532	8.16%	8.41%	1.68026	1.71844
Lucas	520	3481	14.94%	11.82%	196	2039	9.61%	10.48%	1.55403	1.12832
Madison	21	186	11.29%	11.51%	12	219	5.48%	3.06%	2.06048	3.75908
Mahoning	216	1450	14.90%	14.54%	87	900	9.67%	9.03%	1.54102	1.6103
Marion	78	529	14.74%	15.86%	22	203	10.84%	8.83%	1.36054	1.79712
Medina	64	483	13.25%	13.07%	130	1237	10.51%	10.10%	1.26084	1.2939
Meigs	12	139	8.63%	5.91%	6	57	10.53%	5.27%	0.82014	1.1214
Mercer	10	166	6.02%	6.12%	45	412	10.92%	11.79%	0.55154	0.51886
Miami	57	536	10.63%	11.33%	51	645	7.91%	5.97%	1.34493	1.89611
Monroe	7	44	15.91%	8.75%	6	42	14.29%	16.53%	1.11364	0.52907
Montgomery	612	3786	16.16%	14.89%	339	2844	11.92%	12.66%	1.35613	1.17664
Morgan	13	95	13.68%	9.64%	7	58	12.07%	6.43%	1.13383	1.49951
Morrow	29	207	14.01%	13.75%	14	188	7.45%	8.52%	1.8813	1.61452
Muskingum	83	644	12.89%	12.83%	41	381	10.76%	18.25%	1.19766	0.70288

Preterm Births by County 2015

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	Medicaid Adjusted Rate/Non-Medicaid Adjusted Rate
Noble	9	63	14.29%	12.08%	8	70	11.43%	11.09%	1.25	1.08884
Ottawa	12	165	7.27%	8.13%	13	188	6.91%	5.09%	1.05175	1.59788
Paulding	10	103	9.71%	6.25%	[redacted]	68	5.88%	6.22%	1.65049	1.00455
Perry	34	281	12.10%	10.59%	17	162	10.49%	5.33%	1.15302	1.98486
Pickaway	43	327	13.15%	11.99%	36	300	12.00%	9.81%	1.09582	1.22212
Pike	41	254	16.14%	12.45%	8	98	8.16%	11.15%	1.97736	1.117
Portage	73	607	12.03%	12.25%	90	790	11.39%	7.95%	1.05565	1.54094
Preble	28	215	13.02%	10.57%	17	177	9.60%	6.51%	1.35595	1.62491
Putnam	15	123	12.20%	6.91%	33	293	11.26%	11.24%	1.08278	0.61465
Richland	115	883	13.02%	12.94%	49	565	8.67%	8.88%	1.50172	1.45711
Ross	72	543	13.26%	13.83%	31	297	10.44%	8.99%	1.27036	1.53795
Sandusky	52	408	12.75%	11.46%	28	284	9.86%	8.52%	1.29272	1.34541
Scioto	77	572	13.46%	15.90%	26	252	10.32%	8.44%	1.30473	1.88413
Seneca	45	344	13.08%	12.74%	30	250	12.00%	9.79%	1.09012	1.30095
Shelby	34	279	12.19%	11.88%	22	331	6.65%	7.06%	1.8335	1.68228
Stark	314	2253	13.94%	14.69%	206	1937	10.64%	10.85%	1.31048	1.35315
Summit	508	3050	16.66%	15.58%	298	2984	9.99%	10.87%	1.66781	1.43404
Trumbull	161	1334	12.07%	13.81%	59	677	8.71%	9.64%	1.38486	1.43305
Tuscarawas	81	574	14.11%	13.89%	49	606	8.09%	6.91%	1.74522	2.00982
Union	22	197	11.17%	14.12%	43	458	9.39%	7.41%	1.18947	1.90506
Van Wert	18	146	12.33%	10.41%	11	112	9.82%	7.54%	1.25529	1.38052
Vinton	14	115	12.17%	8.22%	[redacted]	42	2.38%	1.48%	5.11304	5.53492
Warren	81	660	12.27%	13.65%	146	1681	8.69%	7.44%	1.41304	1.83356
Washington	30	280	10.71%	7.82%	28	206	13.59%	11.25%	0.78827	0.69528
Wayne	69	550	12.55%	13.54%	67	1042	6.43%	6.04%	1.9511	2.24382
Williams	23	213	10.80%	11.18%	10	171	5.85%	6.12%	1.84648	1.82533
Wood	65	521	12.48%	11.23%	69	850	8.12%	13.42%	1.5369	0.83638
Wyandot	14	113	12.39%	7.08%	6	131	4.58%	3.02%	2.70501	2.34389