Montana Medicaid Births Report
2010-2018

An interactive dashboard of Montana Births data is available at:
https://dphhs.mt.gov/mtmedicaidbirthsdashboard

Montana Department of Public Health and Human Services

Management and Fair Hearings Operations Branch

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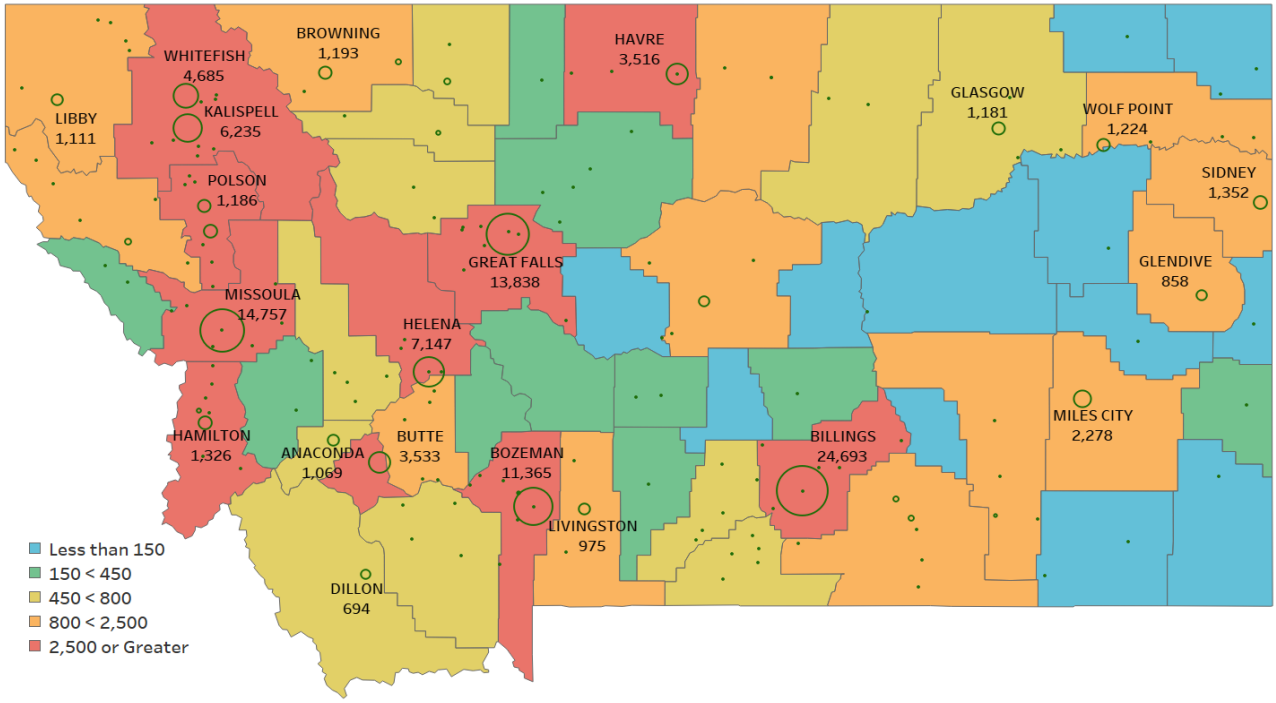
Introduction

Calendar years 2010 – 2018 Montana Vital Statistics birth records were compared against Medicaid enrollment information to create a comprehensive list of Medicaid births and the Medicaid claims data associated with those births. Medicaid pregnancy, deliveries, and postnatal claims were identified using diagnosis, surgical, DRG, and drug codes.

Figure 1: All Montana Births, Calendar Years 2010 – 2018



County coloring is based on Mother's residence reported at time of the birth.
Circle size and city values are based on the total number of births reported in that city.

A few women and children with Medicaid claims indicating pregnancy or delivery were not matched to a Montana vital statistic birth record. Babies usually do not have social security numbers requiring them to be matched by name and the name can change from the claim to the birth record. For example, on the Medicaid claim the child might have the mother's maiden name as their last name, but on birth record have their father's last name. Or in the case of adoption, the child's first and last names change. Another example is a mother enrolled in Montana Medicaid giving birth in Denver, resulting in the birth record state being Colorado, not Montana. The small percentage of non-matches, 0.3% for the study period, has little impact on the study and are not included in this report.

Medicaid Birth Criteria

A Medicaid birth is defined as any child that had a paid Medicaid claim indicating delivery, a paid Medicaid claim in the first month of life, or a child that has been matched to a mother eligible for Medicaid and the mother has a paid Medicaid claim indicating the delivery of the child. Including any child with a paid claim in the first month of life, ensures the inclusion of those children born with severe health conditions whose initial claims may not have had a birth diagnosis, but the diagnosis of a more serious health condition.

Figure 2: Montana Medicaid Births
Percent of Total Births by County, Calendar Years 2010 – 2018

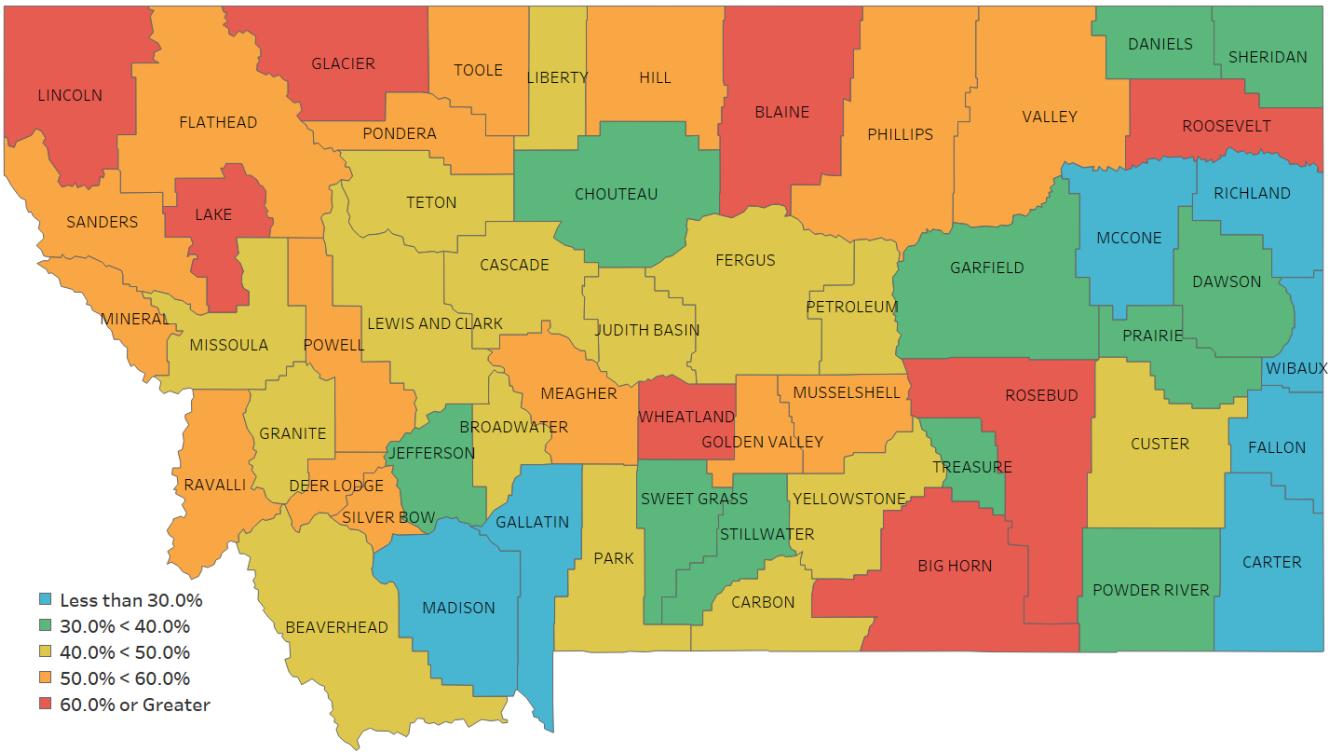


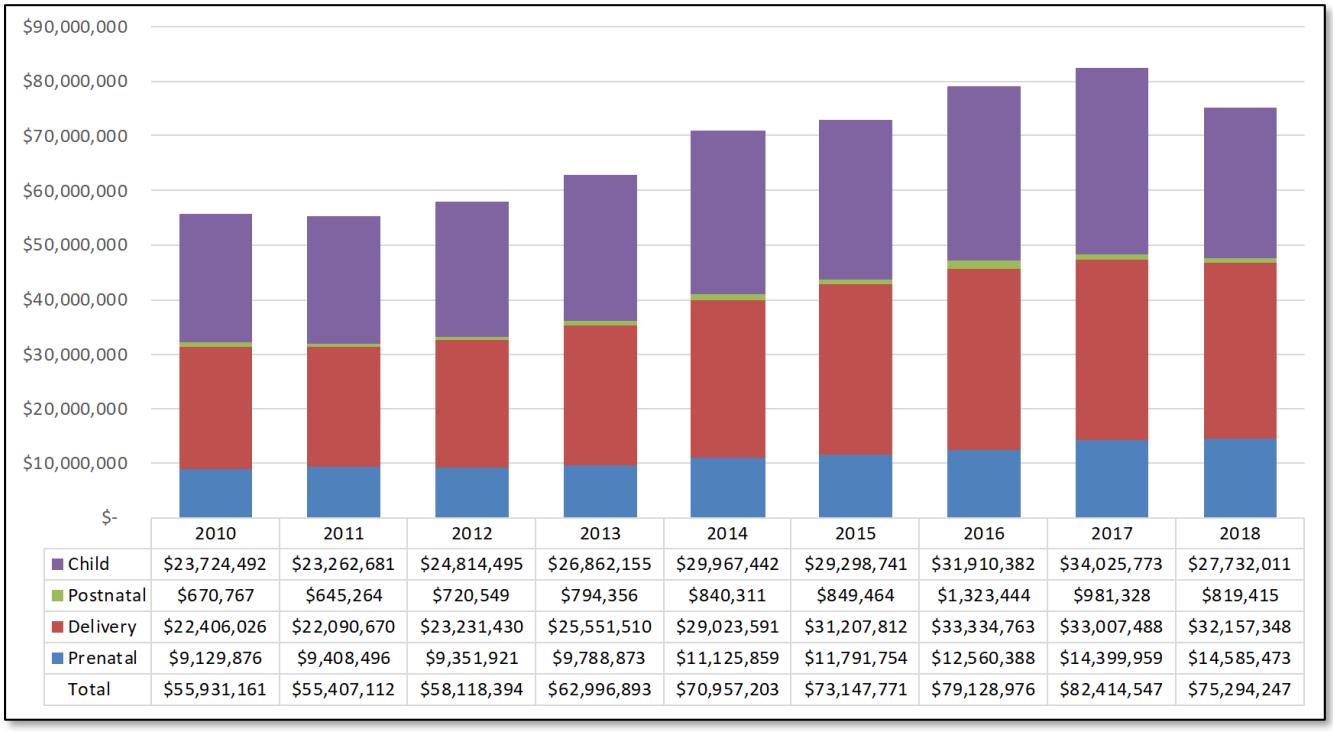
Figure 2 shows the percentage of Medicaid births in a county as compared to all births in that county from calendar years 2010 to 2018. The counties in orange and red have a higher percent of Medicaid births than the Montana average of 47.4%. The county of residence of the birth mother is determined by the mother's address on the birth record.

Table 1: All Montana Births Compared to Medicaid Births

Calendar Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Montana Births	12,227	12,205	12,240	12,532	12,626	12,766	12,487	11,974	11,710
Medicaid Births	5,425	5,336	5,337	5,735	6,061	6,333	6,346	6,122	5,850
Percent Medicaid	44.4%	43.7%	43.6%	45.8%	48.0%	49.6%	50.8%	51.1%	50.0%

Table 1 illustrates the number of births for Montana residents was relatively consistent from year to year with the largest increase of 2.4% seen between 2012 and 2013. The number of Montana births peaked in 2015 with 12,766 births. Births have since declined an average of 2.8% each year ending at 11,710 births for 2018. The number of Medicaid births and their proportion to all births have experienced a similar trend over the same period with Medicaid births increasing until 2016 with a peak of 6,346 births, then the number of Medicaid births decreasing the last two years. In 2018, there were 5,850 Medicaid births, representing 50.0% of the total births in Montana during that year.

Figure 3: Total Medicaid Birth Reimbursements



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Child	$23,724,492	$23,262,681	$24,814,495	$26,862,155	$29,967,442	$29,298,741	$31,910,382	$34,025,773	$27,732,011
Postnatal	$670,767	$645,264	$720,549	$794,356	$840,311	$849,464	$1,323,444	$981,328	$819,415
Delivery	$22,406,026	$22,090,670	$23,231,430	$25,551,510	$29,023,591	$31,207,812	$33,334,763	$33,007,488	$32,157,348
Prenatal	$9,129,876	$9,408,496	$9,351,921	$9,788,873	$11,125,859	$11,791,754	$12,560,388	$14,399,959	$14,585,473
Total	$55,931,161	$55,407,112	$58,118,394	$62,996,893	$70,957,203	$73,147,771	$79,128,976	$82,414,547	$75,294,247

In calendar year (CY) 2018 Montana Medicaid paid health care reimbursement for 50.0% of all births in Montana and Medicaid spent over $75.2 million in reimbursements related to these births. Figure 3 stratifies the Medicaid reimbursement made for the Medicaid births, including for individuals that also had third party insurance liability (TPL) in addition to their Medicaid coverage.

Child - Paid Medicaid claims with a first date of service in the first month of the child's life. This is all claims including hospital stays initiated in the first month of life.

Postnatal - Paid Medicaid claims for women associated with a postnatal diagnosis, surgical procedure code, or DRG code for the first 42 days after the birth of their child.

Delivery-Paid Medicaid claims for women associated with a delivery diagnosis, surgical procedure code, or DRG code within 10 days of the child's birth.

Prenatal - Paid Medicaid claims for women associated with a pregnancy diagnosis, surgical procedure code, drug code, or DRG code during their pregnancy.

Birth reimbursements throughout this report, unless otherwise stated, refers to a mother's prenatal, delivery, and postnatal claims, as well as claims for the child during the first month of its life.

Average Medicaid Birth Reimbursement

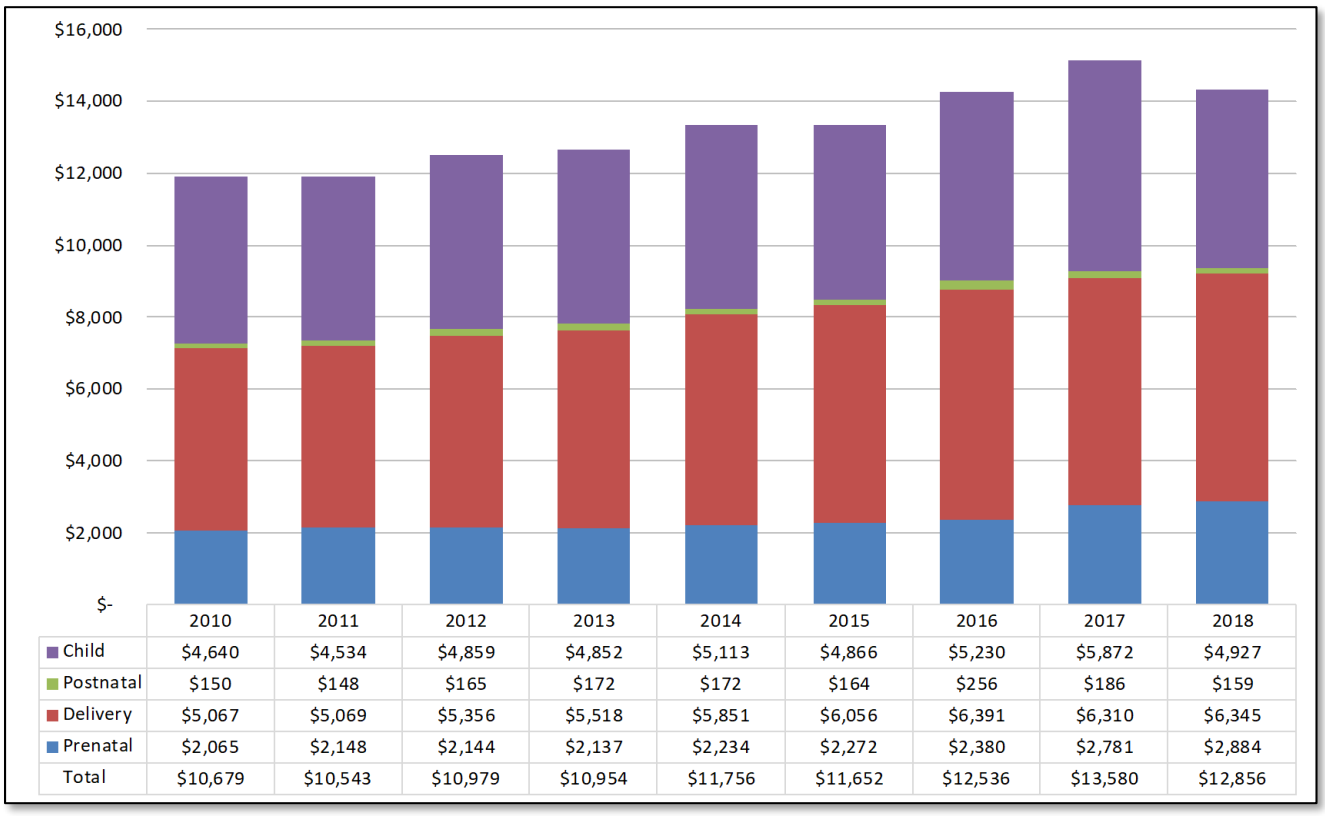
Table 2 breaks out the reimbursement and number of births in each category. The table excludes individuals when they have third party insurance liability (TPL). For example, a mother may have TPL in the prenatal phase but not the postnatal. The mother is excluded from the table for prenatal reimbursement but included in the postnatal. When a person has TPL, their other insurance pays, then Medicaid pays second, resulting in a smaller claim reimbursement amount for Medicaid. All reimbursement amounts throughout this report, unless otherwise stated, are from only those individuals that do not have any TPL for a given category. This is done in order to report what Medicaid pays for a birth without the variance of how much different third-party insurance payments affect the average payment. The mean was chosen as the statistic of interest to compare average reimbursement for births of different demographics, such as race or prenatal care.

Table 2: Reimbursement and Births by Category and Year, TPL Excluded

		Child	Prenatal	Delivery	Postnatal	Total Births
2010	Reimbursment	$ 22,784,726	$ 8,591,964	$ 21,820,232	$ 646,270	$ 53,843,192
	Individuals	4,910	4,160	4,306	4,318	5,042
2011	Reimbursment	$ 22,496,075	$ 8,808,686	$ 21,485,993	$ 633,007	$ 53,423,761
	Individuals	4,962	4,101	4,239	4,266	5,067
2012	Reimbursment	$ 24,646,148	$ 8,868,479	$ 22,783,176	$ 707,400	$ 57,005,203
	Individuals	5,072	4,137	4,254	4,284	5,192
2013	Reimbursment	$ 26,732,227	$ 9,371,130	$ 24,959,423	$ 785,286	$ 61,848,066
	Individuals	5,510	4,386	4,523	4,573	5,646
2014	Reimbursment	$ 29,379,793	$ 10,670,357	$ 28,460,530	$ 828,293	$ 69,338,974
	Individuals	5,746	4,776	4,864	4,813	5,898
2015	Reimbursment	$ 28,969,144	$ 11,250,391	$ 30,528,331	$ 819,107	$ 71,566,973
	Individuals	5,953	4,952	5,041	4,999	6,142
2016	Reimbursment	$ 30,993,217	$ 11,793,281	$ 32,557,133	$ 1,304,208	$ 76,647,839
	Individuals	5,926	4,956	5,094	5,087	6,114
2017	Reimbursment	$ 33,553,624	$ 13,638,664	$ 32,395,901	$ 956,393	$ 80,544,583
	Individuals	5,714	4,904	5,134	5,132	5,931
2018	Reimbursment	$ 27,043,813	$ 14,046,800	$ 31,533,715	$ 784,266	$ 73,408,595
	Individuals	5,489	4,871	4,970	4,931	5,710

Medicaid doesn't always pay for all categories for each Medicaid birth. Not every mother has prenatal, delivery, and postnatal claims. Mothers can move out of state after delivery or acquire other insurance at some time during their pregnancy. The child may be on Medicaid, but the mother is not. To balance for this the Total Unduplicated non-TPL births, not individuals, for the year is reported in the Total Births column in Table 2.

Figure 4: Average Medicaid Birth Reimbursement



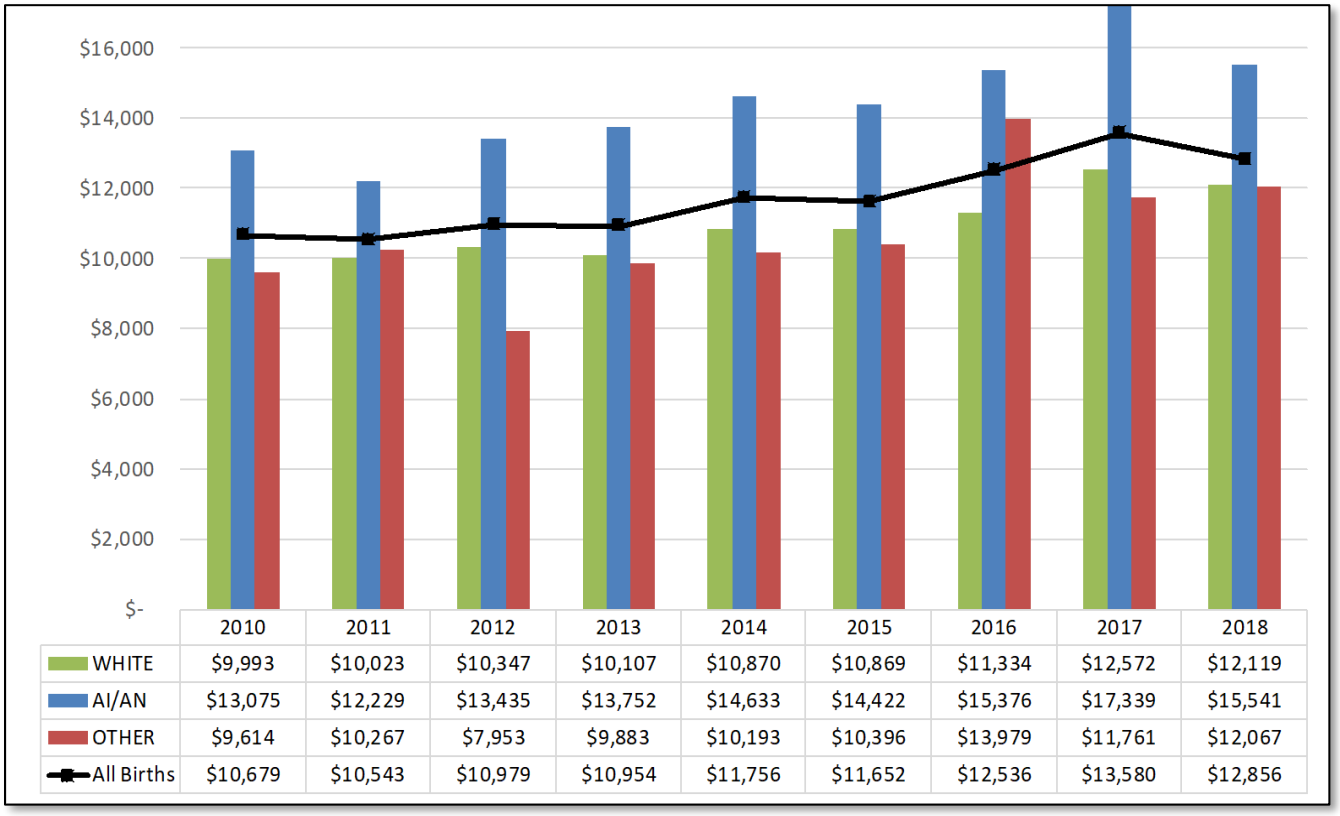
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Child	$4,640	$4,534	$4,859	$4,852	$5,113	$4,866	$5,230	$5,872	$4,927
Postnatal	$150	$148	$165	$172	$172	$164	$256	$186	$159
Delivery	$5,067	$5,069	$5,356	$5,518	$5,851	$6,056	$6,391	$6,310	$6,345
Prenatal	$2,065	$2,148	$2,144	$2,137	$2,234	$2,272	$2,380	$2,781	$2,884
Total	$10,679	$10,543	$10,979	$10,954	$11,756	$11,652	$12,536	$13,580	$12,856

In Figure 4, the average reimbursement is calculated for each reimbursement category: Child, Postnatal, Delivery, and Prenatal. The Total line is not the sum of the average reimbursement for each category. The "Total" line is calculated by summing the four reimbursement categories and dividing by the unduplicated births for the year. For example, In Table 2, for CY 2010 the average Medicaid birth reimbursement "Total" is the total money reimbursed in each category, $53,843,192 divided by the number of unduplicated non-TPL Medicaid births for the year, 5,042 for an average Medicaid Birth reimbursement of $10,679.

Average Medicaid birth reimbursement can shift up or down from year to year but over the course of the study period has increased on average, 2.35% per year. The median birth reimbursement increased from $7,212 in 2010 to $9,481 in 2018 an average increase of 3.48% per year.

The race categories on the vital statistics birth records were condensed into three groups: White, American Indian / Alaska Native (AI/AN), and Other (African American, Hispanic, Asian or Other). Average Medicaid birth reimbursement by race is charted in Figure 5.

Figure 5: Average Medicaid Birth Reimbursement by Race



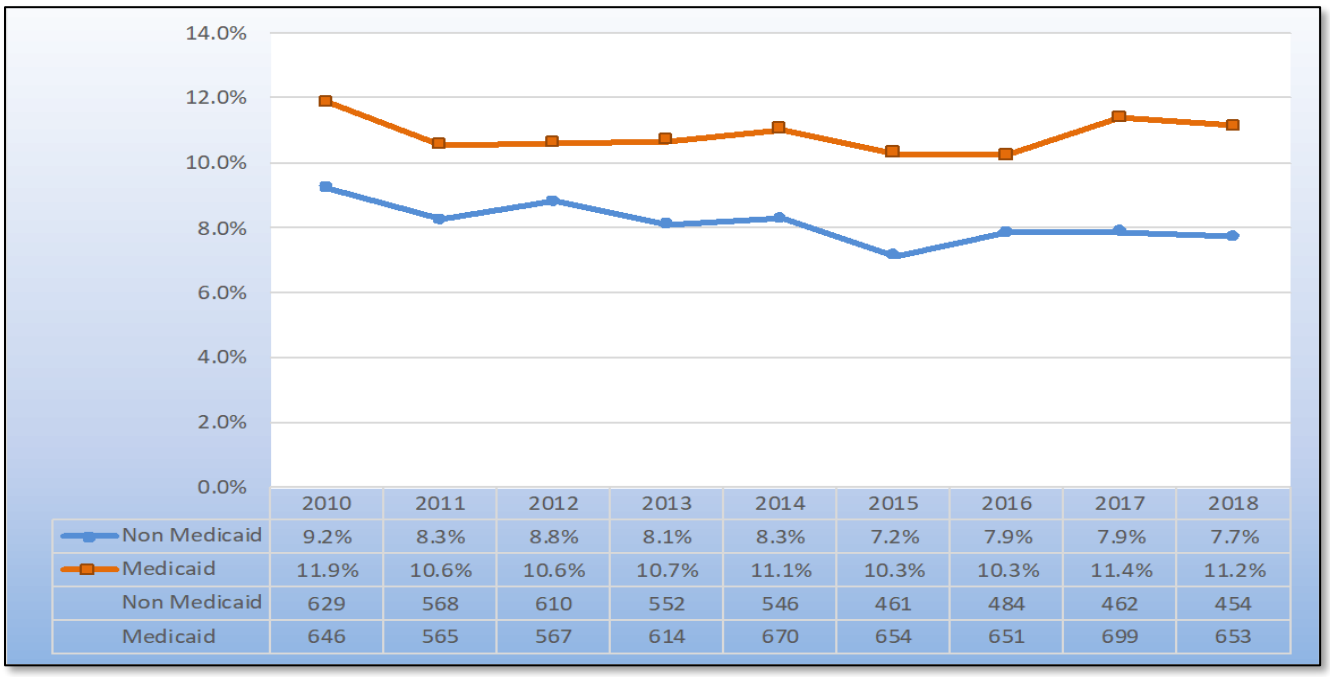
	2010	2011	2012	2013	2014	2015	2016	2017	2018
WHITE	$9,993	$10,023	$10,347	$10,107	$10,870	$10,869	$11,334	$12,572	$12,119
AI/AN	$13,075	$12,229	$13,435	$13,752	$14,633	$14,422	$15,376	$17,339	$15,541
OTHER	$9,614	$10,267	$7,953	$9,883	$10,193	$10,396	$13,979	$11,761	$12,067
All Births	$10,679	$10,543	$10,979	$10,954	$11,756	$11,652	$12,536	$13,580	$12,856

The AI/AN population consistently has higher than average Medicaid birth reimbursement. These higher reimbursement amounts may be attributed to the population's higher than average percentage of low birth weight births as noted in Figure 8. The AI/AN population is small enough that expensive low birth weight births can have an impact on the average birth reimbursement for the population.

Low Birth Weight and Premature Children

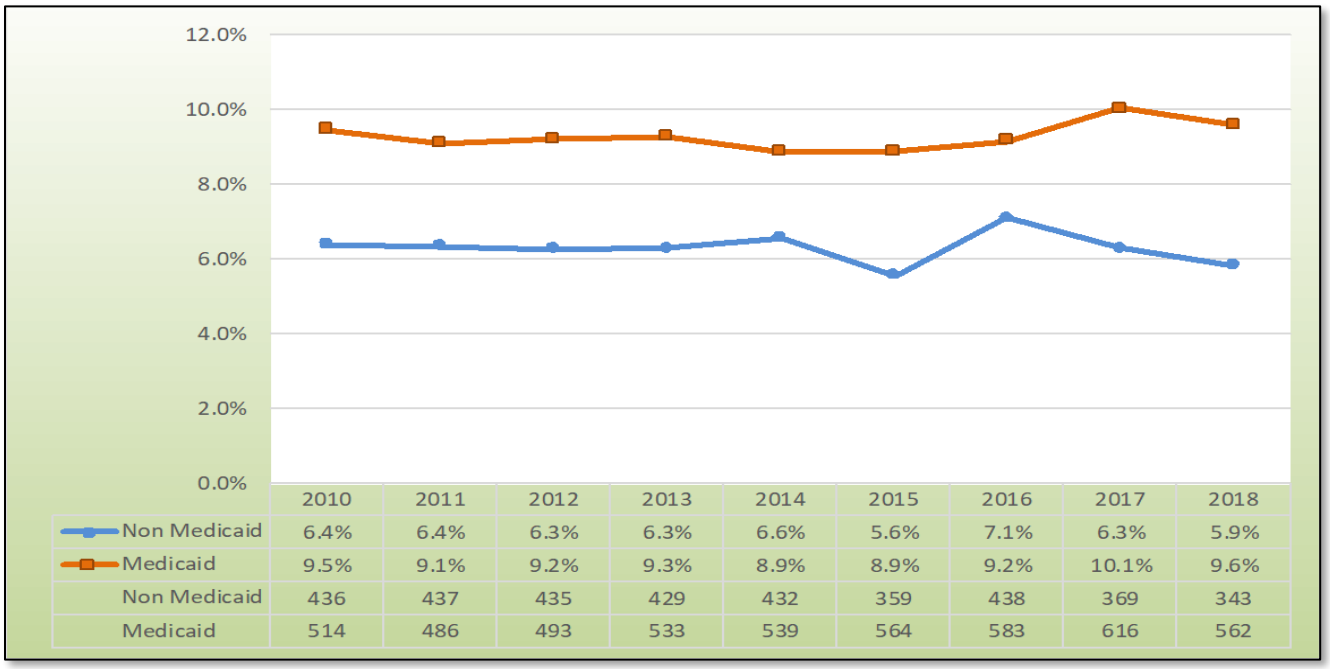
Low birth weight (LBW) and premature children were identified using the child's birth record from Vital Statistics. A child with a vital statistics birth record indicating a birth weight of 2,499 grams or less is considered a low birth weight child in the study. A premature child is defined as a child that has a gestational age of less than 37 weeks. Figures 6 through 9 are based solely on vital statistic birth record information.

Figure 6: Premature Births



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Non Medicaid	9.2%	8.3%	8.8%	8.1%	8.3%	7.2%	7.9%	7.9%	7.7%
Medicaid	11.9%	10.6%	10.6%	10.7%	11.1%	10.3%	10.3%	11.4%	11.2%
Non Medicaid	629	568	610	552	546	461	484	462	454
Medicaid	646	565	567	614	670	654	651	699	653

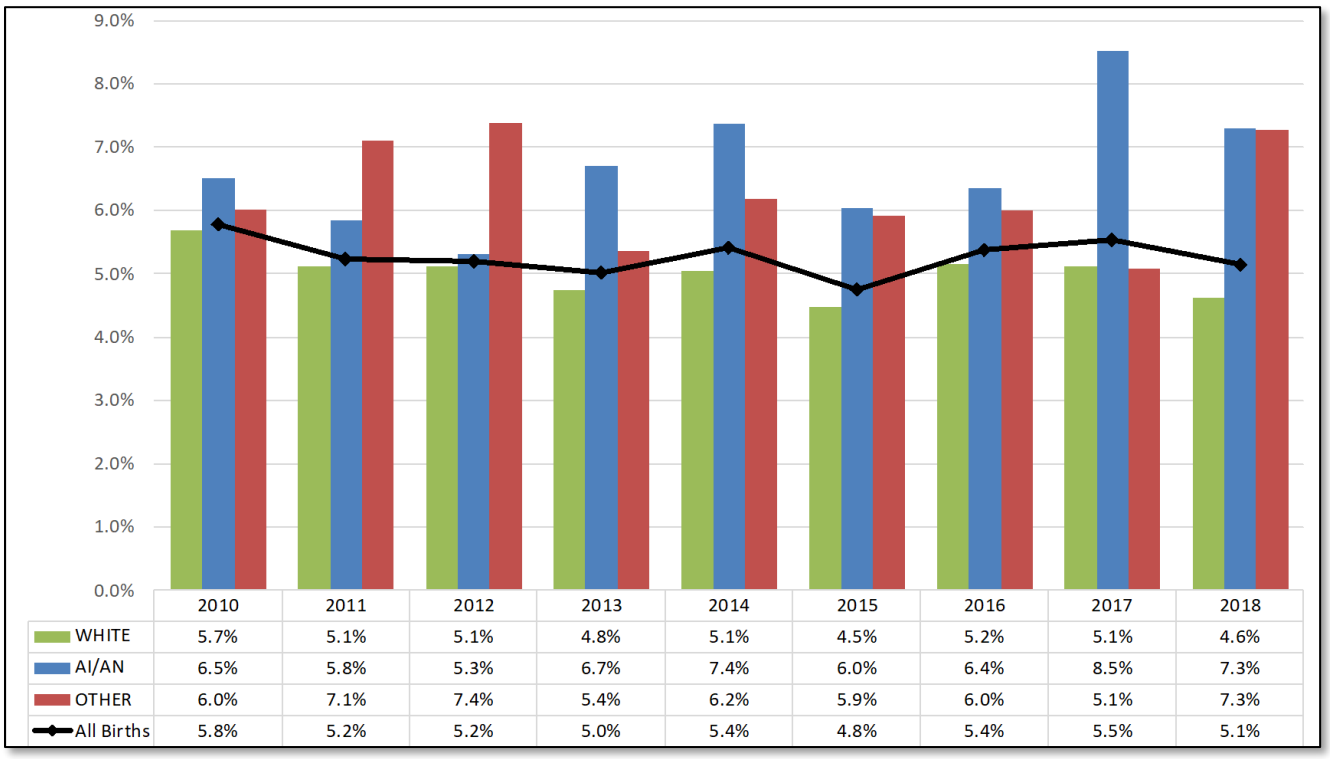
Figure 7: Low Birth Weight



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Non Medicaid	6.4%	6.4%	6.3%	6.3%	6.6%	5.6%	7.1%	6.3%	5.9%
Medicaid	9.5%	9.1%	9.2%	9.3%	8.9%	8.9%	9.2%	10.1%	9.6%
Non Medicaid	436	437	435	429	432	359	438	369	343
Medicaid	514	486	493	533	539	564	583	616	562

Figures 6 and 7, based exclusively on information contained in the birth record, show the percentages of low birth weight (LBW) and premature births have remained consistent over the study period. Medicaid births have a higher percentage of low birth weight and premature births when compared to Non-Medicaid Montana births.

Figure 8: Premature & LBW by Race

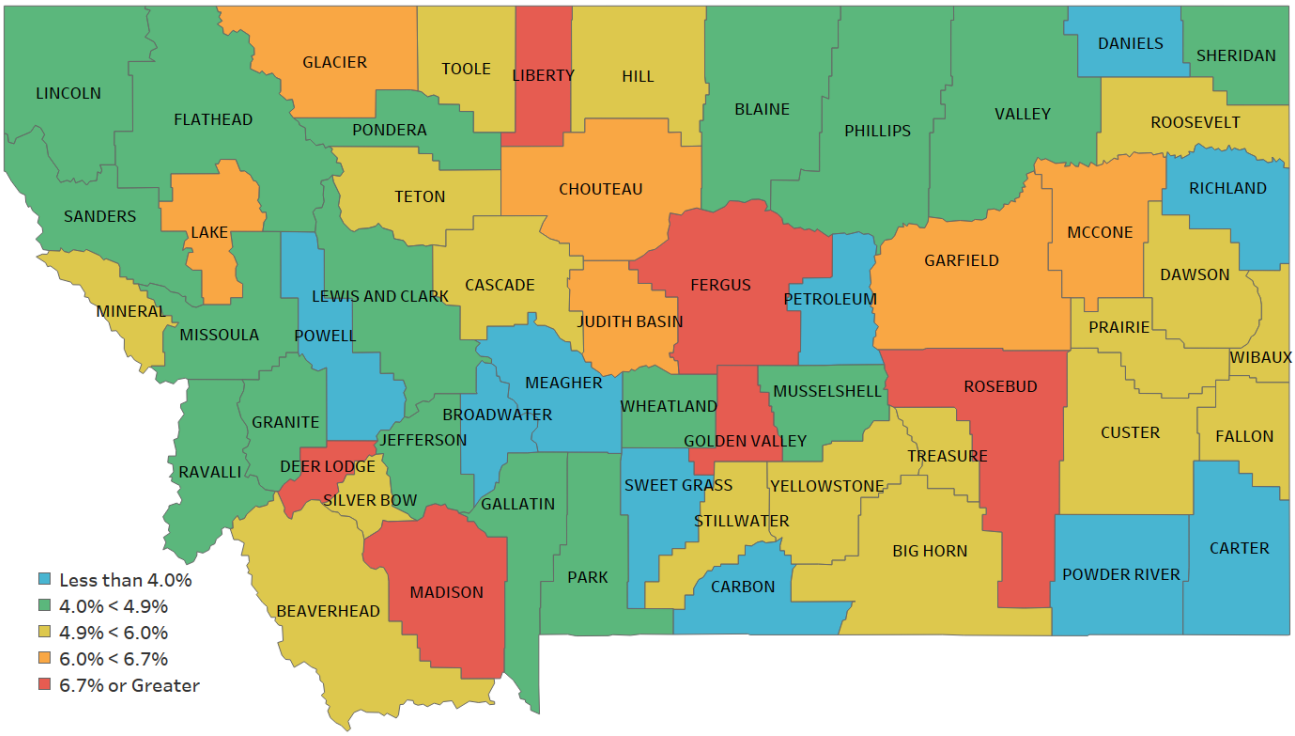


	2010	2011	2012	2013	2014	2015	2016	2017	2018
WHITE	5.7%	5.1%	5.1%	4.8%	5.1%	4.5%	5.2%	5.1%	4.6%
AI/AN	6.5%	5.8%	5.3%	6.7%	7.4%	6.0%	6.4%	8.5%	7.3%
OTHER	6.0%	7.1%	7.4%	5.4%	6.2%	5.9%	6.0%	5.1%	7.3%
All Births	5.8%	5.2%	5.2%	5.0%	5.4%	4.8%	5.4%	5.5%	5.1%

Figure 8 shows that the AI/AN and Other race groups generally have a higher percentage of Premature & LBW births than for all births.

The following map shows for all Montana resident births the percentage of Premature & LBW births in a county as compared to all births in the county. This metric only includes those children identified as Premature & LBW births on the birth record. The counties in orange and red have a higher than average percent of Premature & LBW births. Keep in mind, for counties with small numbers of total births, each Premature & LBW birth has a greater impact on the percentage for that county. The county of residence is determined by the mother's address from the birth records. There does not appear to be any geographic trend based on county of residence for Premature & LBW births.

Figure 9: Premature & Low Birth Weight as Percent of Total Births by County, Calendar Years 2010 to 2018



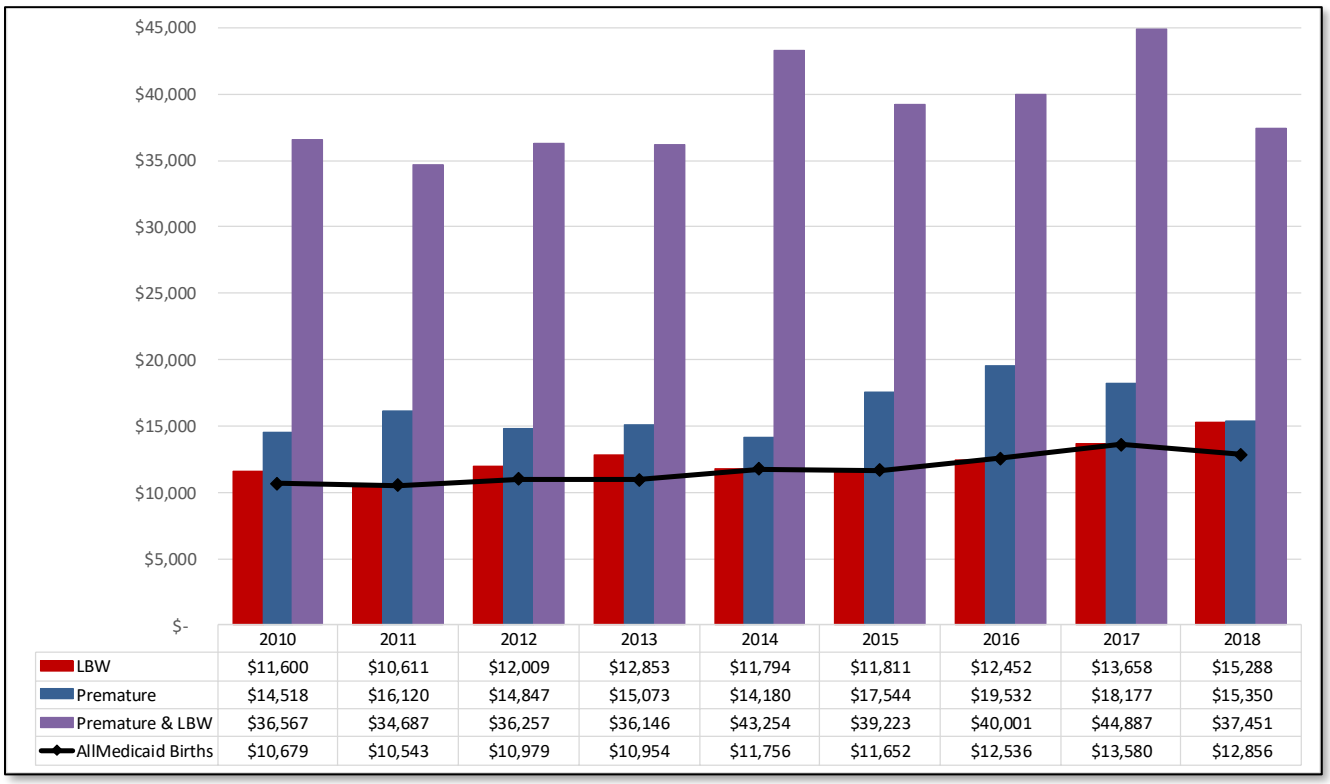
A review of Medicaid claims for children with a claim indicating a birth weight of 2,499 grams or a claim that indicates a gestational age of less than 37 weeks found an additional 1,339 more premature births and 695 more LBW births in the Medicaid group.

When performing the analysis regarding reimbursement these additional children discovered through claim diagnosis codes were included as LBW or premature births.

There is a lot of overlap between premature births and low birth weight births (i.e. early delivery makes it more likely the child is low birth weight and vice versa). Using both the births identified by Medicaid claims data and from the birth record, almost 70% of low birth weight babies are also born premature and roughly 54% of premature babies are also low birth weight.

Figure 10 compares the average birth reimbursement for all Medicaid births to average reimbursement for premature only births, low birth weight only births, and births that are Premature & LBW.

Figure 10: Premature or LBW Birth Average Reimbursement



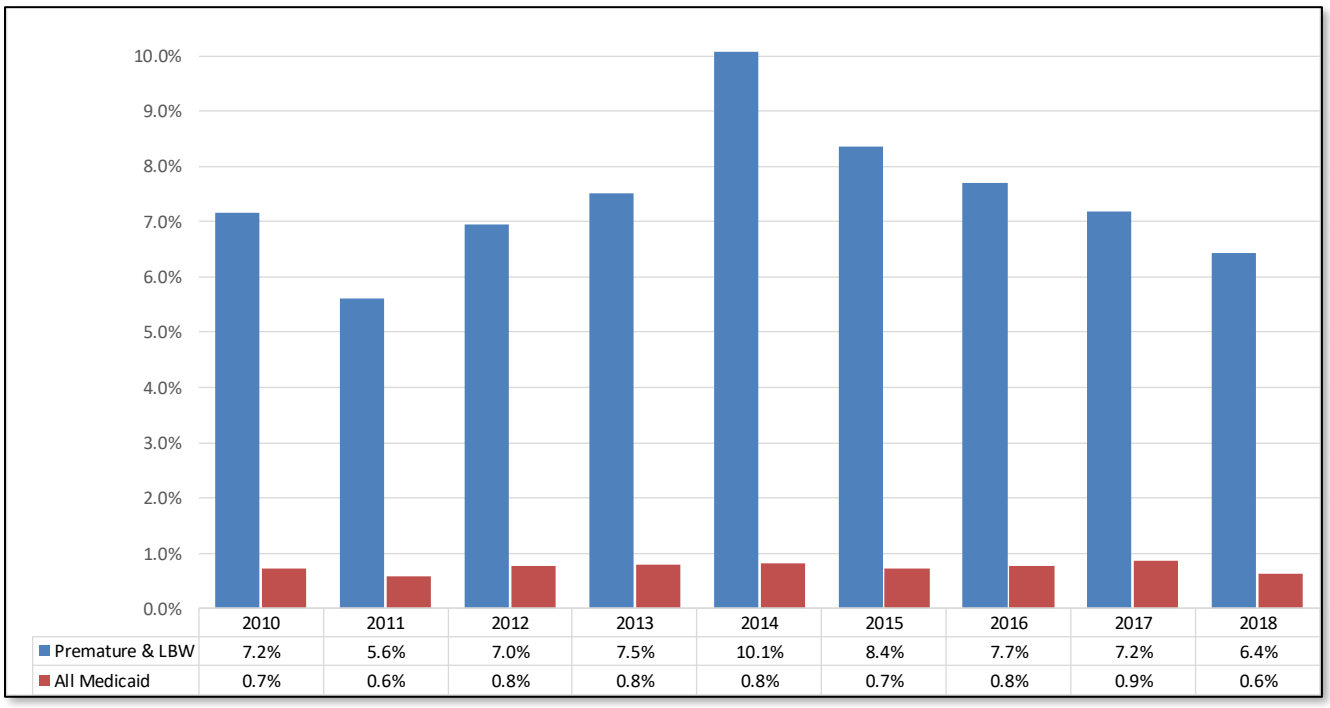
	2010	2011	2012	2013	2014	2015	2016	2017	2018
LBW	$11,600	$10,611	$12,009	$12,853	$11,794	$11,811	$12,452	$13,658	$15,288
Premature	$14,518	$16,120	$14,847	$15,073	$14,180	$17,544	$19,532	$18,177	$15,350
Premature & LBW	$36,567	$34,687	$36,257	$36,146	$43,254	$39,223	$40,001	$44,887	$37,451
AllMedicaid Births	$10,679	$10,543	$10,979	$10,954	$11,756	$11,652	$12,536	$13,580	$12,856

Medicaid reimbursement for children that are Premature & LBW are on average more than three times that of an average Medicaid birth. Children which are only low birth weight or only premature are slightly more expensive than the average Medicaid birth.

Premature or LBW births accounted for approximately 36% of the Medicaid reimbursed amount, but only about 17% of the Medicaid births

The next portion of this report focuses on Medicaid births that are both Premature & LBW, as they appear to be the more critical population based on total birth reimbursement.

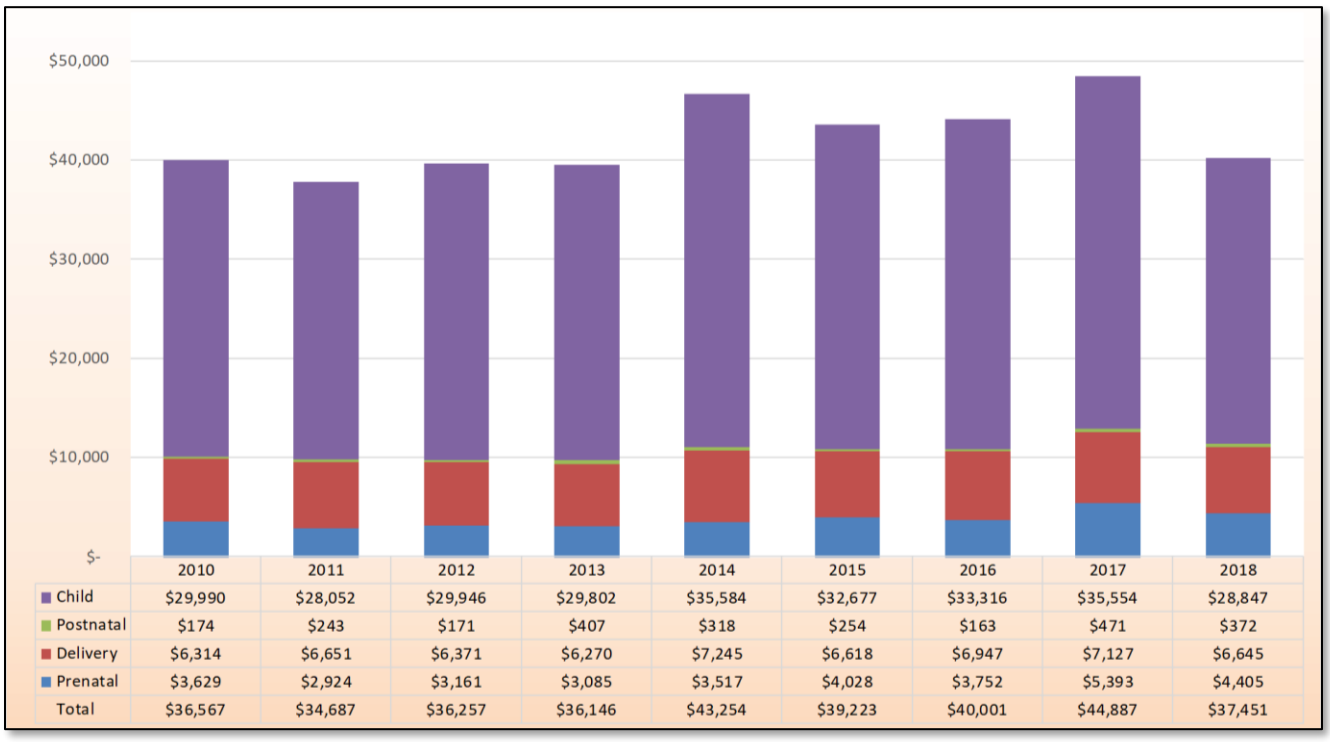
Figure 11: Medicaid Births with Child Reimbursement over $100,000



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Premature & LBW	7.2%	5.6%	7.0%	7.5%	10.1%	8.4%	7.7%	7.2%	6.4%
All Medicaid	0.7%	0.6%	0.8%	0.8%	0.8%	0.7%	0.8%	0.9%	0.6%

Figure 11 graphs the percentage of births for Premature & LBW and all Medicaid births with over $100,000 in paid Medicaid claims with a first date of service during the first month of the child's life. This figure includes children indicated as Premature & LBW births by a diagnosis in claims data. Premature & LBW children consistently have a greater chance of exceeding $100,000 in their first month of life when compared against regular Medicaid. Figure 11 breaks out the total birth reimbursement for Medicaid Premature & LBW children that do not have TPL.

Figure 12: Average Premature & LBW Reimbursement



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Child	$29,990	$28,052	$29,946	$29,802	$35,584	$32,677	$33,316	$35,554	$28,847
Postnatal	$174	$243	$171	$407	$318	$254	$163	$471	$372
Delivery	$6,314	$6,651	$6,371	$6,270	$7,245	$6,618	$6,947	$7,127	$6,645
Prenatal	$3,629	$2,924	$3,161	$3,085	$3,517	$4,028	$3,752	$5,393	$4,405
Total	$36,567	$34,687	$36,257	$36,146	$43,254	$39,223	$40,001	$44,887	$37,451

Child -The average of paid Medicaid claims with a first date of service in the first month of the child's life. This is all claims including hospital stays initiated in the first month of life.

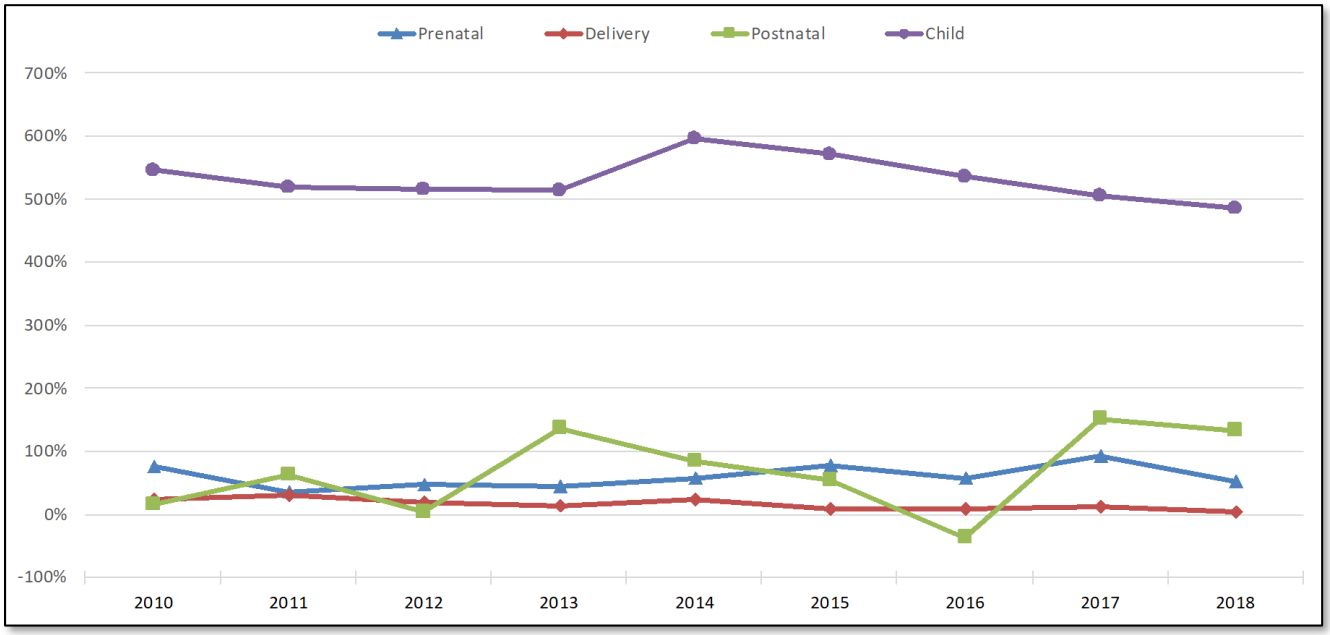
Postnatal - The average of paid Medicaid claims for women associated with a postnatal diagnosis, surgical procedure code, or DRG code for the first 42 days after the birth of their child.

Delivery - The average of paid Medicaid claims for women associated with a delivery diagnosis, surgical procedure code, or DRG code within 10 days of the child's birth.

Prenatal - The average of paid Medicaid claims for women associated with a pregnancy diagnosis, surgical procedure code, drug code, or DRG code during their pregnancy.

The major difference in reimbursement between the Premature & LBW and an average birth paid by Medicaid is the Child category. Figure 12 shows that the Child paid amounts for Premature & LBW births are around 6.3 times that of the reimbursement for an average birth. For example, in 2015 the Child category for Premature & LBW births was 572% more than the average birth Child reimbursement. Comparatively, the mother's total reimbursement for a Premature & LBW birth increased around 28%.

Figure 13: Premature & LBW Reimbursement Increase

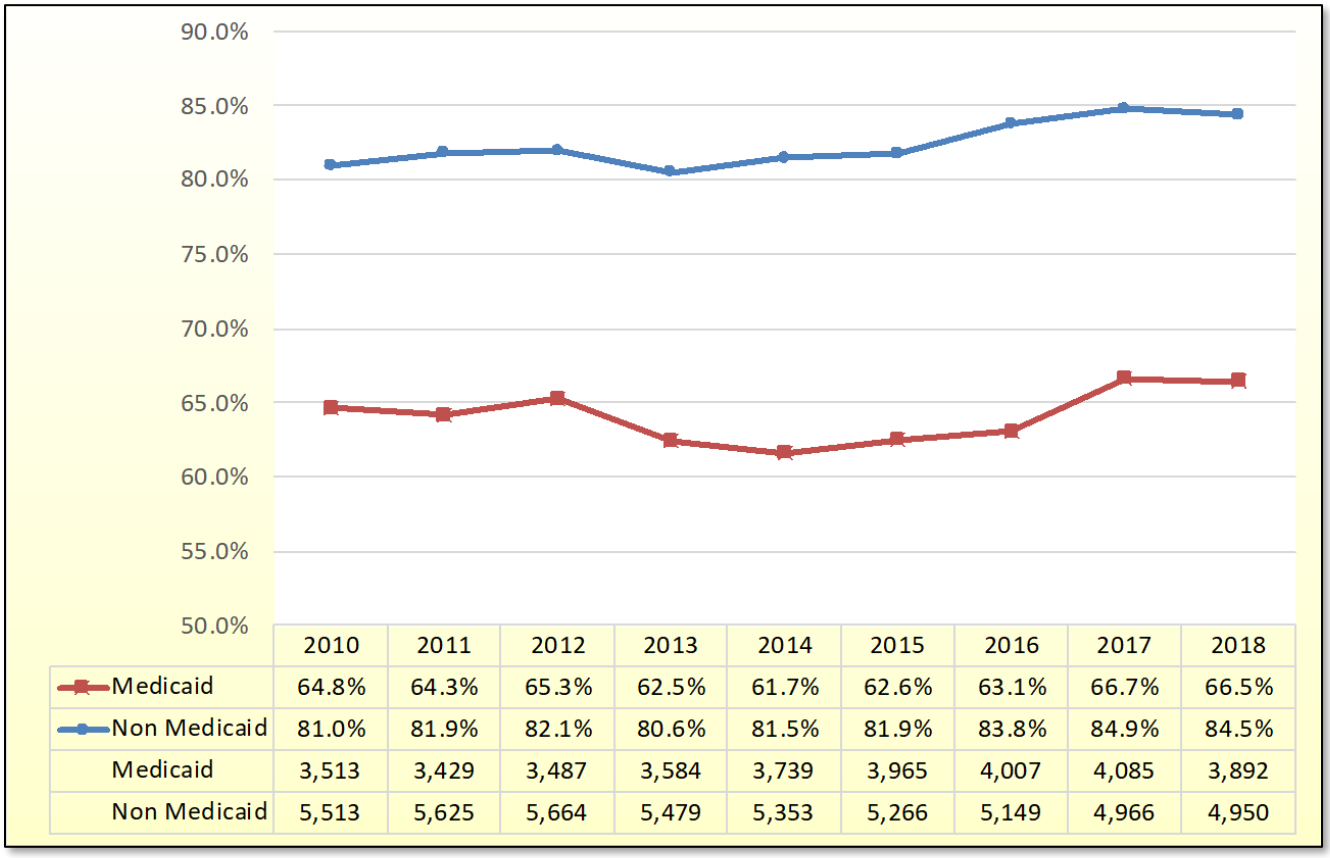


As previously noted, the Child category is the total of all Medicaid claims that have a first date of service in the first month of the child's life. Since hospital admissions are paid for the entire stay, if a child is hospitalized starting in their first month of life, that entire claim amount is included in their Child category. The increase in the Child category for Premature & LBW children indicates these children have longer initial hospital stays.

Adequate Prenatal Care and First Trimester Prenatal Care

Adequacy of prenatal care calculations are based on the Adequacy of Prenatal Care Utilization Index (APNCU), which measures the utilization of prenatal care on two dimensions. The first dimension, adequacy of initiation of prenatal care, measures the timing of initiation using the date prenatal care began as reported on the birth record. The second dimension, adequacy of received services, is measured by taking the ratio of the actual number of visits reported in the vital statistics data to the expected number of visits. The expected number of visits is based on the American College of Obstetrics and Gynecology prenatal care visitation standards for uncomplicated pregnancies, and is adjusted for the gestational age at initiation of care, and for the gestational age at delivery. To be classified as having received adequate prenatal care, the mother must have begun prenatal care within the first trimester *and* received 80% or more of the recommended number of prenatal office visits. Figure 14 graphs the percent of Non-Medicaid births that begin prenatal care in the first trimester compared to Medicaid births.

Figure 14: Prenatal Care Started in First Trimester

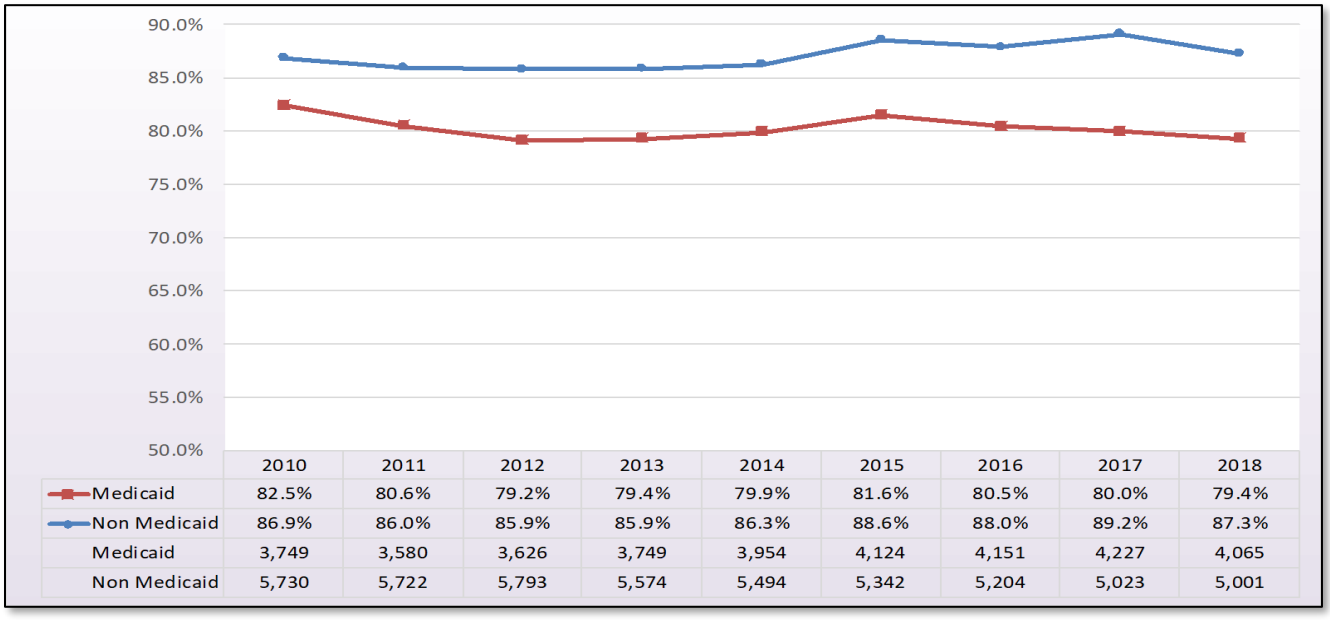


	2010	2011	2012	2013	2014	2015	2016	2017	2018
Medicaid	64.8%	64.3%	65.3%	62.5%	61.7%	62.6%	63.1%	66.7%	66.5%
Non Medicaid	81.0%	81.9%	82.1%	80.6%	81.5%	81.9%	83.8%	84.9%	84.5%
Medicaid	3,513	3,429	3,487	3,584	3,739	3,965	4,007	4,085	3,892
Non Medicaid	5,513	5,625	5,664	5,479	5,353	5,266	5,149	4,966	4,950

One explanation for the difference between Medicaid and Non-Medicaid pregnancies in Figure 14 is that some Medicaid mothers did not have health insurance prior to becoming pregnant. Becoming pregnant gave the mother access to Medicaid, but not without delay. However, this only partly explains the difference since 67.6% of Medicaid mothers with continuous enrollment started prenatal care in the first trimester compared to 62.5% for mothers with non-continuous enrollment.

If we focus solely on the mothers who began prenatal care in their first trimester, as Figure 15 does, we find the behavior of Medicaid and Non-Medicaid mothers to be much more similar. An average of 80.3% of Medicaid mothers who began prenatal care in the first trimester received 80% of their recommended prenatal checkups compared to an average of 87.1% of Non-Medicaid mothers.

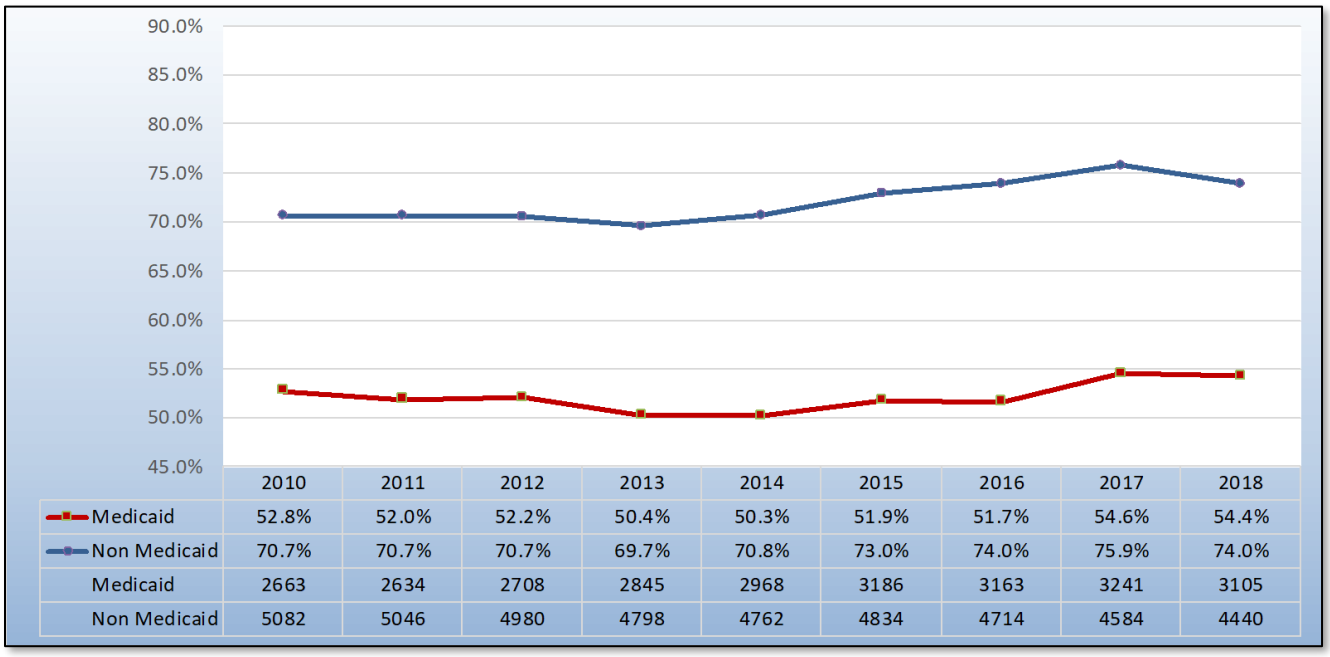
Figure 15: Percent of Prenatal Visits Completed When Care Started in 1st Trimester



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Medicaid	82.5%	80.6%	79.2%	79.4%	79.9%	81.6%	80.5%	80.0%	79.4%
Non Medicaid	86.9%	86.0%	85.9%	85.9%	86.3%	88.6%	88.0%	89.2%	87.3%
Medicaid	3,749	3,580	3,626	3,749	3,954	4,124	4,151	4,227	4,065
Non Medicaid	5,730	5,722	5,793	5,574	5,494	5,342	5,204	5,023	5,001

Figure 16 shows the outcome of combining both dimensions for Adequate Prenatal Care. Medicaid pregnancies consistently have a lower percentage of adequate prenatal care than Non-Medicaid.

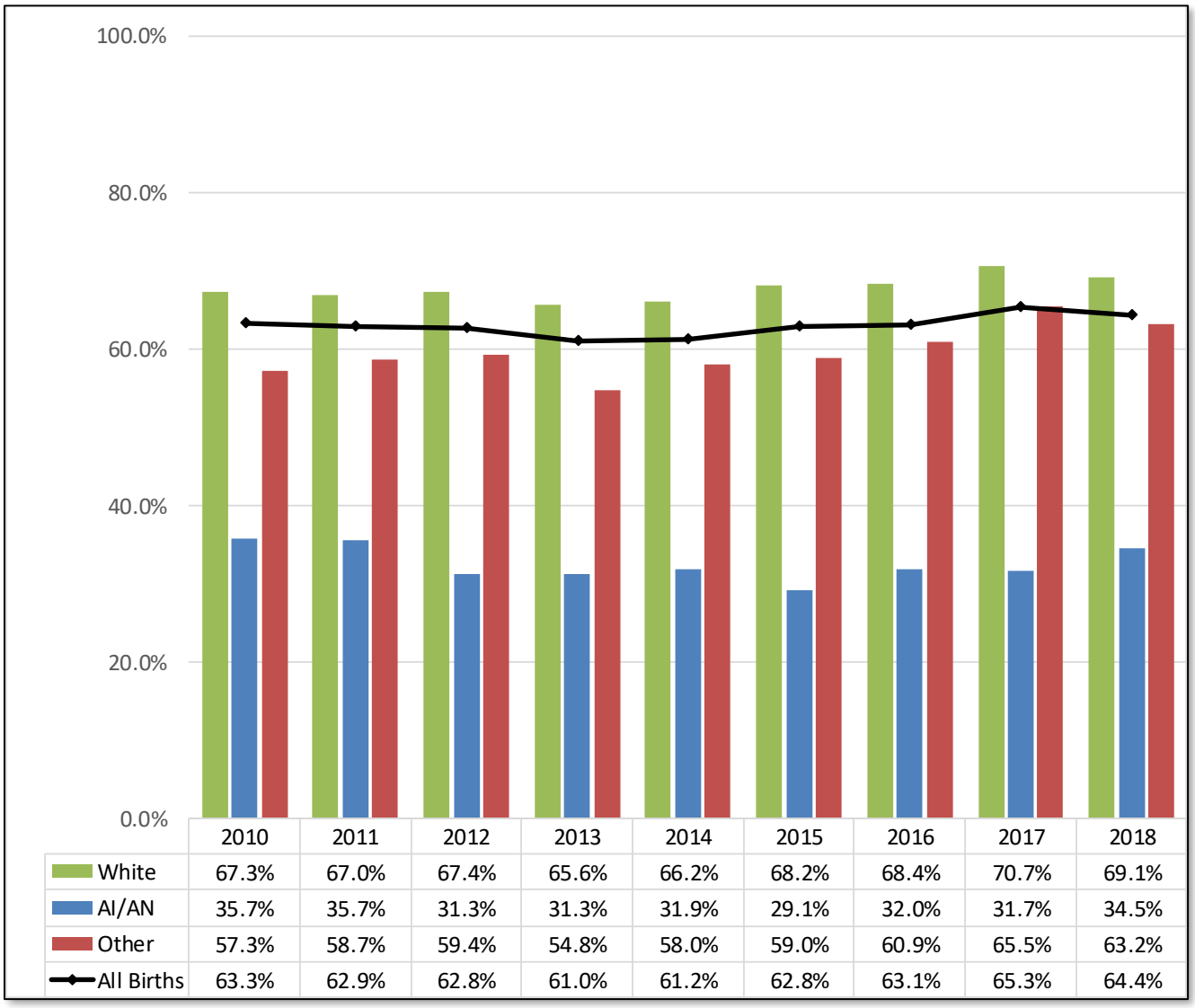
Figure 16: Received Adequate Prenatal Care



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Medicaid	52.8%	52.0%	52.2%	50.4%	50.3%	51.9%	51.7%	54.6%	54.4%
Non Medicaid	70.7%	70.7%	70.7%	69.7%	70.8%	73.0%	74.0%	75.9%	74.0%
Medicaid	2663	2634	2708	2845	2968	3186	3163	3241	3105
Non Medicaid	5082	5046	4980	4798	4762	4834	4714	4584	4440

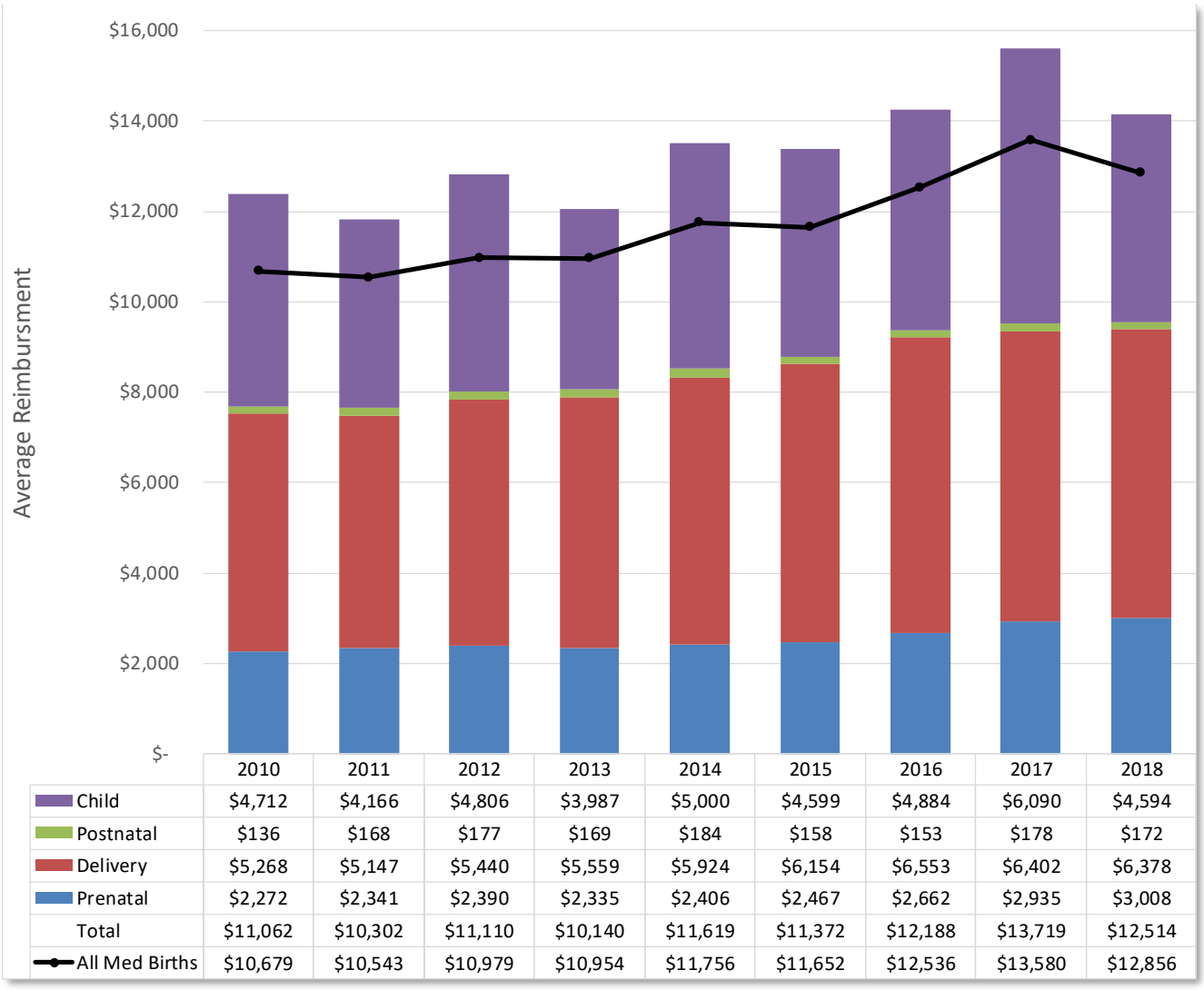
In addition to looking at Medicaid versus non-Medicaid groups for adequate prenatal care it was also graphed by mother's race group. Figure 17 shows that AI/AN and Other have lower rates of adequate prenatal care than the White race category.

Figure 17: Adequate Prenatal Care by Race



	2010	2011	2012	2013	2014	2015	2016	2017	2018
White	67.3%	67.0%	67.4%	65.6%	66.2%	68.2%	68.4%	70.7%	69.1%
AI/AN	35.7%	35.7%	31.3%	31.3%	31.9%	29.1%	32.0%	31.7%	34.5%
Other	57.3%	58.7%	59.4%	54.8%	58.0%	59.0%	60.9%	65.5%	63.2%
All Births	63.3%	62.9%	62.8%	61.0%	61.2%	62.8%	63.1%	65.3%	64.4%

Figure 18: Non TPL Medicaid Births Receiving Adequate Prenatal Care

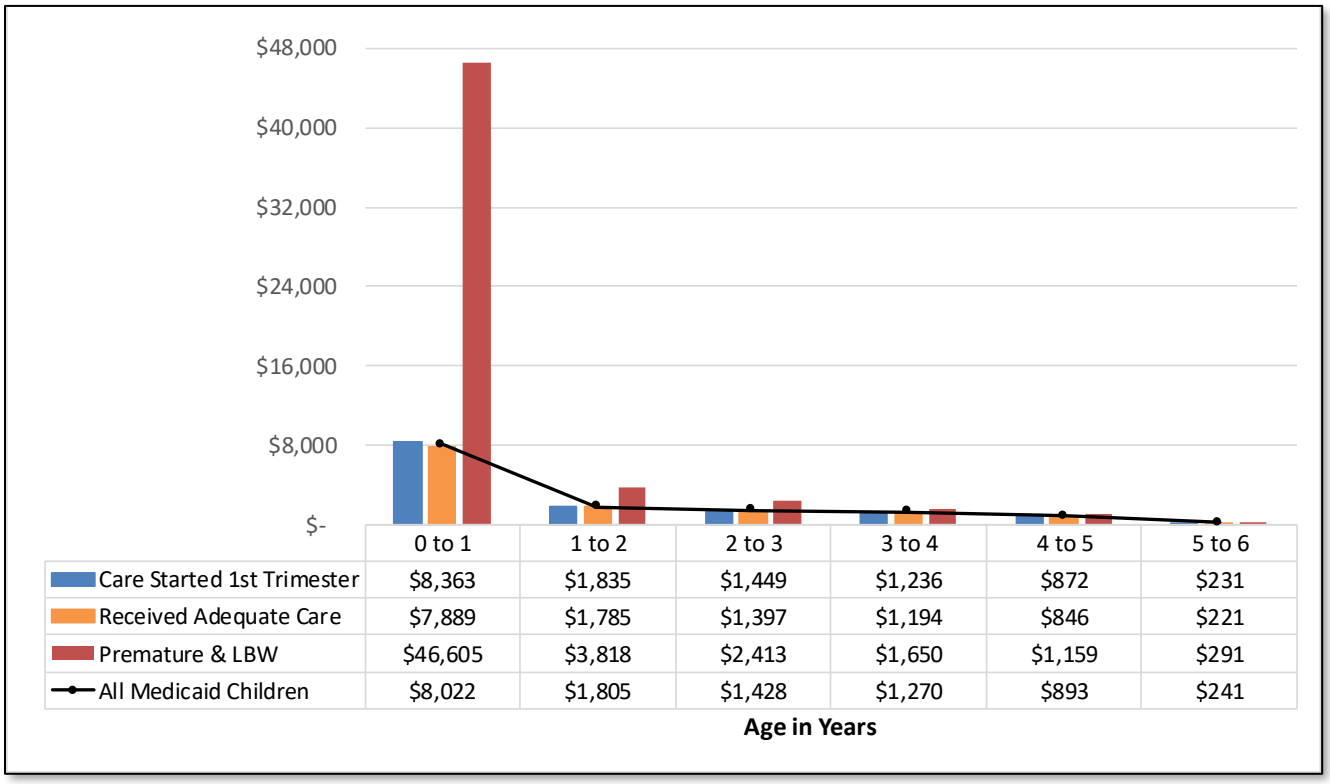


	2010	2011	2012	2013	2014	2015	2016	2017	2018
Child	$4,712	$4,166	$4,806	$3,987	$5,000	$4,599	$4,884	$6,090	$4,594
Postnatal	$136	$168	$177	$169	$184	$158	$153	$178	$172
Delivery	$5,268	$5,147	$5,440	$5,559	$5,924	$6,154	$6,553	$6,402	$6,378
Prenatal	$2,272	$2,341	$2,390	$2,335	$2,406	$2,467	$2,662	$2,935	$3,008
Total	$11,062	$10,302	$11,110	$10,140	$11,619	$11,372	$12,188	$13,719	$12,514
All Med Births	$10,679	$10,543	$10,979	$10,954	$11,756	$11,652	$12,536	$13,580	$12,856

If we compare reimbursement categories for births with adequate prenatal care to the average birth, we find that generally mothers receiving adequate prenatal care have less reimbursement than the average Medicaid birth in child and delivery categories. However, they do have more reimbursement in prenatal care as would be expected. Total reimbursement for adequate prenatal care births is 1.4% less across the nine years of the study.

Medicaid Child Reimbursement Over Time

Figure 19: Child Average Medicaid Reimbursement by Age in Years

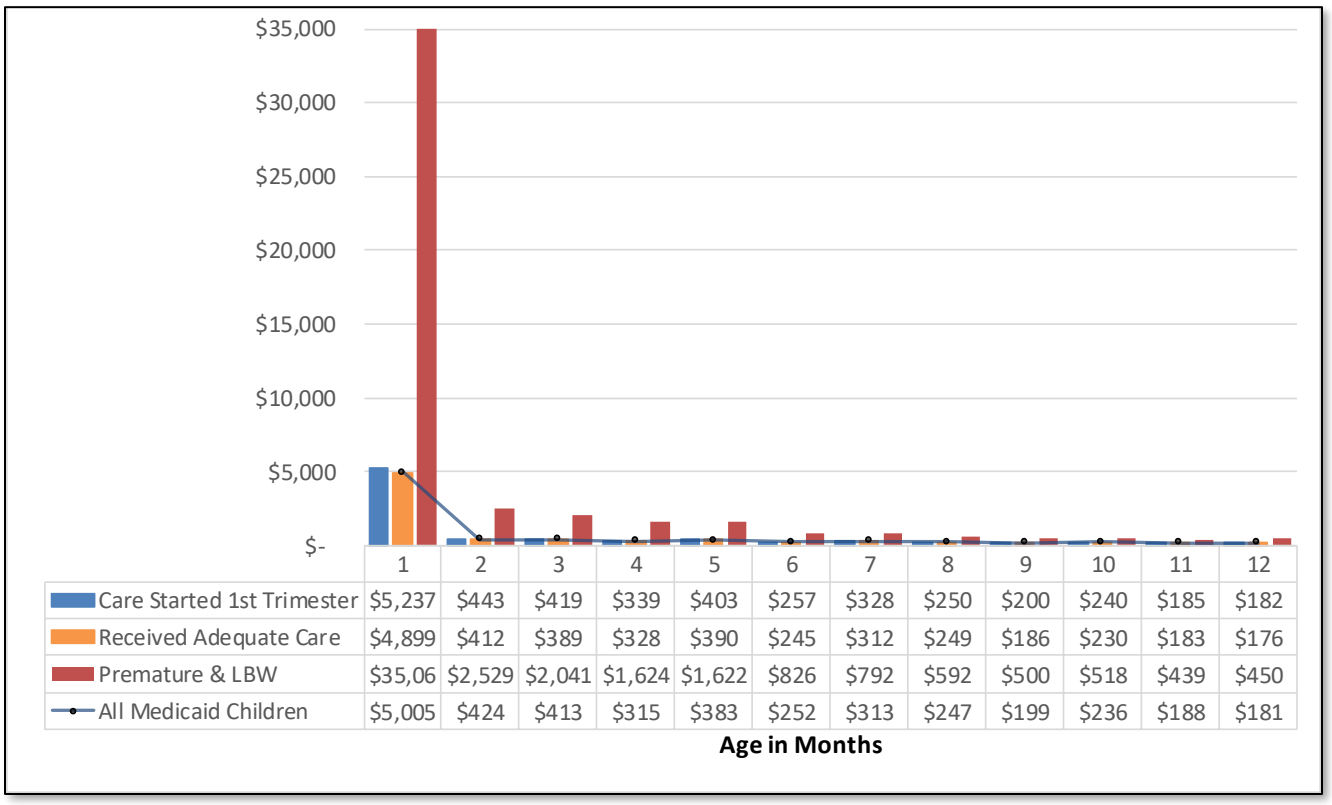


	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6
Care Started 1st Trimester	$8,363	$1,835	$1,449	$1,236	$872	$231
Received Adequate Care	$7,889	$1,785	$1,397	$1,194	$846	$221
Premature & LBW	$46,605	$3,818	$2,413	$1,650	$1,159	$291
All Medicaid Children	$8,022	$1,805	$1,428	$1,270	$893	$241

The study also looked at reimbursement for Medicaid children over time. The child had to have at least one paid claim in the first month of life to be included. Then, in order to be included in any subsequent period, the child had to be enrolled in Medicaid and they were excluded from any period where they were eligible for third party insurance.

Since claims can often cross over time periods, claims are grouped according to the first date of service on the claim. Each analysis period shows the total of paid Medicaid claims that had a first day of service in that age period. Figure 19 shows the average total Medicaid paid claims for each year of the child's life for several birth populations. As the chart dramatically illustrates, the most expensive year on average for any Medicaid child is during the first year of life. Figure 20 breaks out the reimbursement amounts during the first year of life by month.

Figure 20: Average Medicaid Reimbursement for First Year of Life



	1	2	3	4	5	6	7	8	9	10	11	12
Care Started 1st Trimester	$5,237	$443	$419	$339	$403	$257	$328	$250	$200	$240	$185	$182
Received Adequate Care	$4,899	$412	$389	$328	$390	$245	$312	$249	$186	$230	$183	$176
Premature & LBW	$35,06	$2,529	$2,041	$1,624	$1,622	$826	$792	$592	$500	$518	$439	$450
All Medicaid Children	$5,005	$424	$413	$315	$383	$252	$313	$247	$199	$236	$188	$181

Figure 20 shows that reimbursement incurred for the first month of life are the significant factor in determining total reimbursement for the first year of life. Keep in mind that prenatal, delivery, and postnatal reimbursements are not included, only reimbursements from claims for the child. This reinforces that the most critical and expensive time for a child is in the first month of life when the child has their initial hospital stay at birth.

Most Expensive Births

In this section of the report, the analysis focuses on the 100 most expensive Medicaid births from calendar years 2010 – 2018. The total birth reimbursement which includes prenatal, delivery, postnatal, and all claims with a first date of service in the child's first month of life were totaled for all Medicaid births during the study period. The one hundred most expensive births were then compared to all Medicaid births and all births in Montana.

Table 3: Comparison of 100 Most Expensive Medicaid Births

	Most Expensive		All Medicaid Births		All Births	
	Number	% of Births	Number	% of Births	Number	% of Births
Infant Deaths	15	15.0%	365	0.7%	605	0.5%
Premature & LBW	62	62.0%	3,064	6.0%	5,843	5.3%
Mother Smoked during Pregnancy	34	34.0%	14,393	28.4%	17,645	15.9%
Mother Drank during Pregnancy	5	5.0%	900	1.8%	1,383	1.2%
Prenatal Care Started First Trimester	60	60.0%	32,264	63.6%	81,666	73.7%
Received Adequate Prenatal Care	50	50.0%	26,513	52.3%	69,753	63.0%
Multiple Births	13	13.0%	1,428	2.8%	3,638	3.3%
*Average Child	$313,064		$5,004			
*Average Delivery	$11,907		$5,811			
*Average Prenatal	$8,204		$2,353			
*Average Postnatal	$7,867		$176			
*Average Total Birth	$334,002		$11,778			
Total Births in Group	100		50,742		110,767	

* Does not include those births with Third Party Liability Insurance (TPL).

Table 3 further supports that Medicaid births on average are higher risk births. Medicaid births have a higher percentage of Premature & LBW, highlighted in blue in Table 3. Medicaid mothers are more likely to smoke cigarettes during their pregnancy, highlighted in gray. The above factors indicate that Medicaid serves a higher risk population than that of the general population.

When you compare the one hundred most expensive Medicaid births to the average Medicaid birth, you see a dramatic increase in infant deaths and Premature & LBW. These factors reinforce that Premature & LBW births increase expenses to Medicaid significantly, see orange highlighting in Table 3. The most expensive births also had a higher percentage of multiple births.

Medicaid mothers are on average slightly younger than the general population, see Table 4. The same can be said of mothers from the Top100 most expensive births. This is most noticeable for the percentage of births for mothers less than twenty years of age, see Table 5. 12.3% of all Medicaid births and 13% of the top 100 most expensive Medicaid births were births to teenage mothers 19 and under, compared to 6.7% of the overall population. This suggests that many expensive births result from teen pregnancies.

Table 4: Mother's Average Age by CY

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Medicaid	25.0	25.4	25.6	25.8	24.9	26.5	26.7	26.9	27.2
Top100	25.9	25.0	26.4	28.7	26.7	27.2	26.5	28.2	28.9
All Births	27.7	27.8	28.0	28.0	27.7	28.5	28.7	28.9	29.0

Table 5: Mother's Age Distribution

	≤ 15	16 to 17	18 to 19	20 to 24	25 to 34	35 to 44	45 ≤
Medicaid	0.5%	2.7%	9.2%	34.9%	44.9%	7.8%	0.1%
Top 100	2.0%	2.0%	9.0%	25.0%	51.0%	11.0%	0.0%
All Births	0.3%	1.4%	5.0%	23.8%	56.6%	12.7%	0.1%

Medicaid Childbirth Reimbursement

When comparing reimbursement across Medicaid, much of the difference in average reimbursement is driven by the Premature & LBW population. Table 6 shows the total Medicaid reimbursed for all Medicaid children for the first year of life. In order to be included in this table the children must have met the criteria for Medicaid birth as outlined on page 4 of this report. The table shows that close to 19% of the children born Premature & LBW have Medicaid reimbursement totaling over $50,000, while total Medicaid births have 2.1% of the children born with reimbursement in excess of $50,000. Even though there is not a large number of Medicaid births for mothers 15 years and younger, the table does show that there is an increase in the number of children with high reimbursement amounts. The number of children with reimbursement over $75,000 is 3.25% for mothers 15 years old and younger and 1.36% for all Medicaid mothers.

Table 6: Medicaid Births Stratified by Reimbursement

Medicaid Costs	All Medicaid Cases		Premature LBW		Mother Received Adequate Prenatal Care		Mother's age 15 or less	
	Number	% of Group	Number	% of Group	Number	% of Group	Number	% of Group
> $ 50,000	1,121	2.13%	716	18.82%	530	1.91%	10	4.07%
> $ 75,000	716	1.36%	473	12.43%	345	1.24%	8	3.25%
> $ 100,000	550	1.05%	368	9.67%	271	0.98%	5	2.03%
> $ 150,000	345	0.66%	224	5.89%	174	0.63%	3	1.22%
> $ 200,000	205	0.39%	122	3.21%	102	0.37%	3	1.22%
> $ 300,000	100	0.19%	54	1.42%	50	0.18%	1	0.41%
> $ 400,000	62	0.12%	35	0.92%	35	0.13%	1	0.41%
Total in Group	52,545		3,804		27,751		246	

Note that each reimbursement category in Table 6 is inclusive of the previous groupings, for example, the 368 Premature & LBW cases with Medicaid reimbursement amounts in excess of $100,000 are included in the 473 cases in excess of $75,000.

Infant Deaths

Children that die within one year of their birth are labeled as infant deaths in the study. This data was derived using a variable in the vital statistics record indicating the child died in their first year of life. In addition, if a child's Medicaid eligibility record showed a date of death within the first year of their life they are included as an infant death.

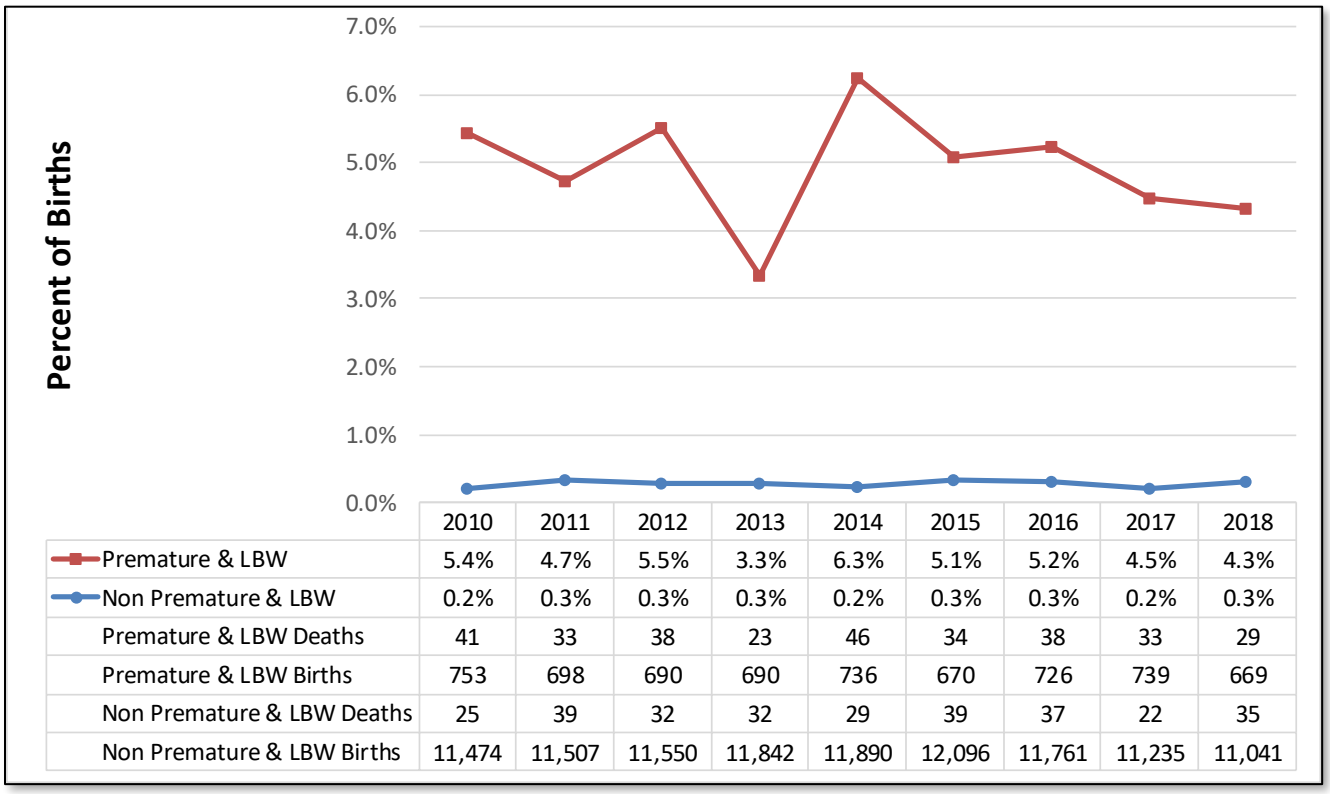
Table 7: Montana Infant Deaths

CY	2010	2011	2012	2013	2014	2015	2016	2017	2018
All Births	12,227	12,205	12,240	12,532	12,626	12,766	12,487	11,974	11,710
Total Infant Deaths	66	72	70	55	75	73	75	55	64
Deaths per All Births	0.54%	0.59%	0.57%	0.44%	0.59%	0.57%	0.60%	0.46%	0.55%

Premature & LBW births account for roughly 64% of Non-Medicaid infant deaths, yet only 45% of Medicaid infant deaths.

In Figure 21 the percent of Premature & LBW that result in infant deaths was charted compared to the percent of infant deaths from Non Premature & LBW children.

Figure 21: Infant Deaths



	2010	2011	2012	2013	2014	2015	2016	2017	2018
Premature & LBW	5.4%	4.7%	5.5%	3.3%	6.3%	5.1%	5.2%	4.5%	4.3%
Non Premature & LBW	0.2%	0.3%	0.3%	0.3%	0.2%	0.3%	0.3%	0.2%	0.3%
Premature & LBW Deaths	41	33	38	23	46	34	38	33	29
Premature & LBW Births	753	698	690	690	736	670	726	739	669
Non Premature & LBW Deaths	25	39	32	32	29	39	37	22	35
Non Premature & LBW Births	11,474	11,507	11,550	11,842	11,890	12,096	11,761	11,235	11,041

The subset of births that are Premature & LBW each year is small and the number of infant deaths each year, even smaller, therefore all results should be viewed as general trends and not absolute statistical inferences.

Distance to Care

The distance between a mother's residential address and where she gave birth was calculated using the mothers address and the city of birth. Medicaid and Non-Medicaid mothers live roughly the same distance from their city of birth, 21.0 miles vs. 20.9 miles, respectively. However, mothers of Premature & LBW children live considerably more, 44.15 miles. For high risk pregnancy or delivery, the mother may need to go to a hospital that is certified for a higher level of neonatal care, located in larger cities. Over the course of the study period the average distance to care has increased slightly as shown in Figure 22.

Figure 22: Distance to Care

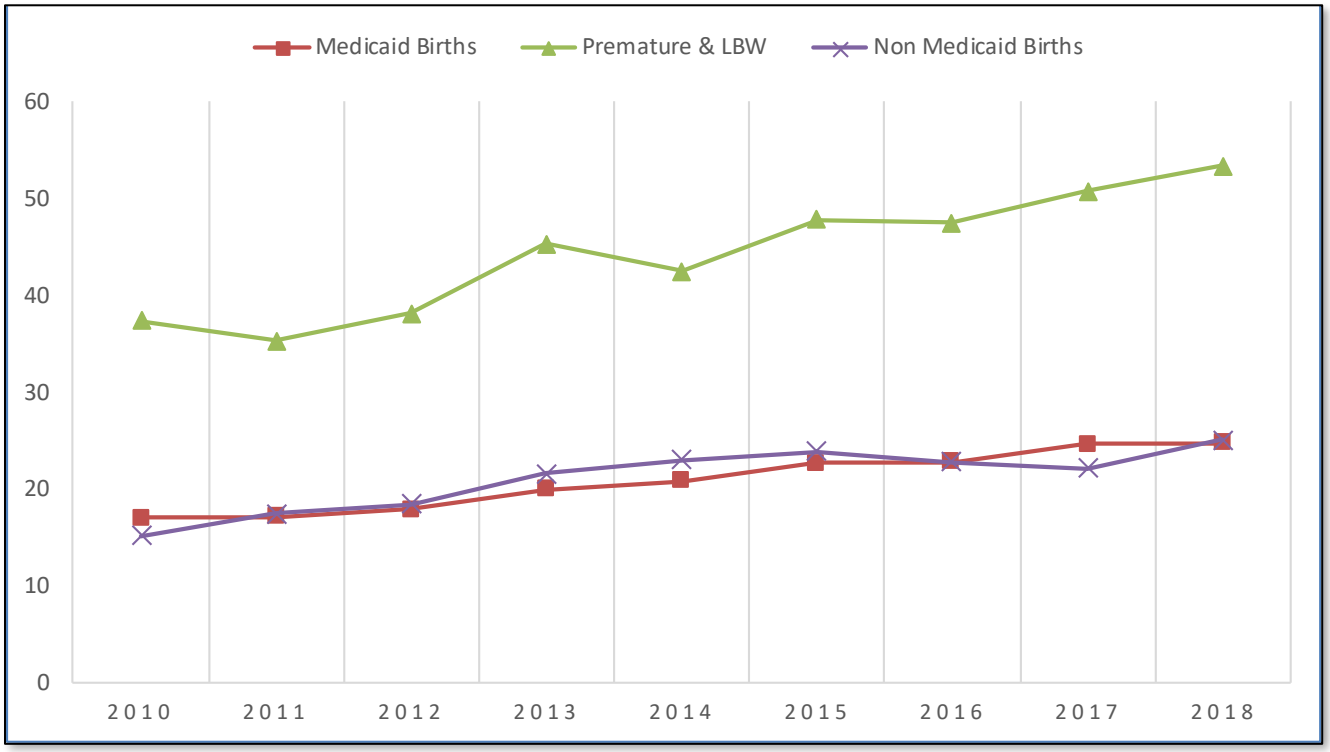
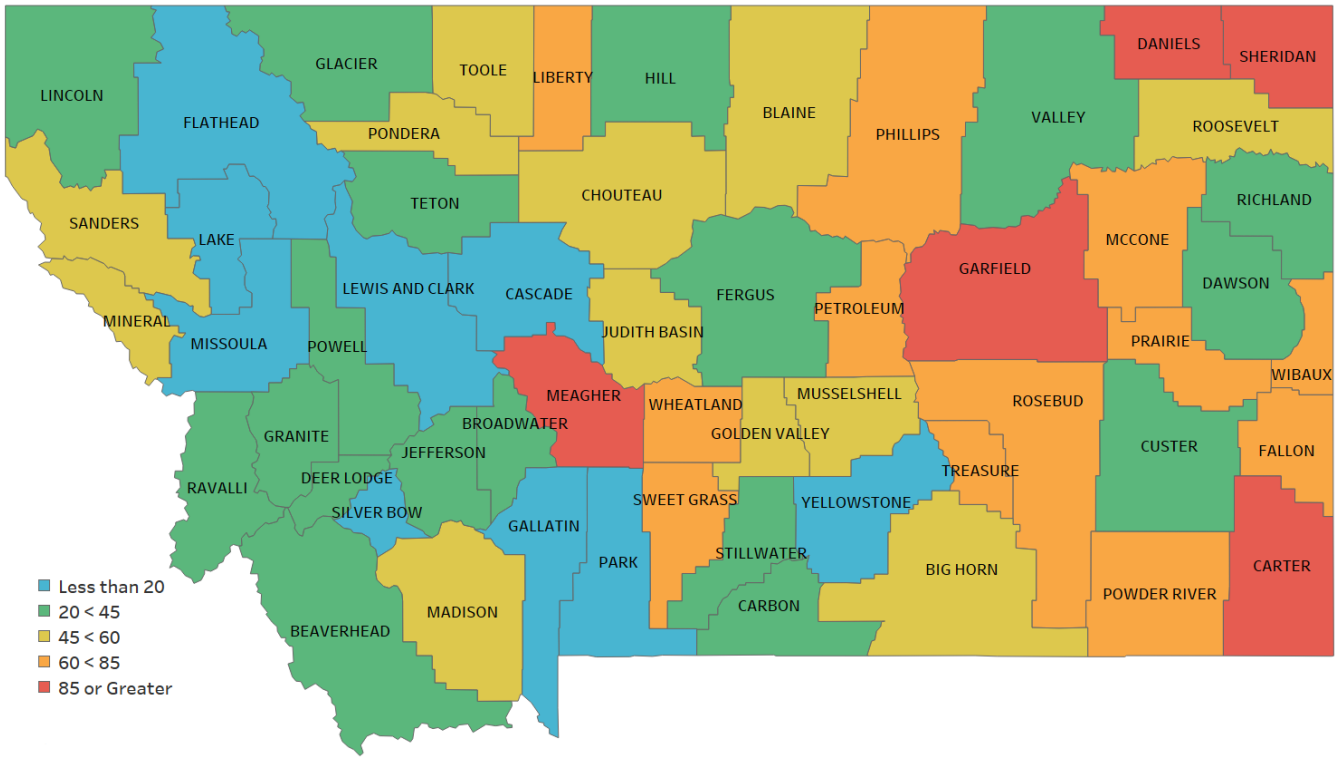


Figure 23 summarizes the distance by county. As expected, counties with larger cities, and thus more inpatient facilities such as Lewis & Clark and Yellowstone, have some of the smallest distances, while more rural counties such as Carter and Sheridan have some of the highest.

Figure 23: Average Distance by Mother's Residential County
CY 2010 - 2018



Summary

The number of births in Montana slowly increased from 12,227 in calendar year 2010 to 12,766 in 2015, an increase of 4.4% over the period and an average annual increase of 0.9%. Between 2015 and 2018 Montana births decreased by about 8% over the period with an annual average decrease of 2.8%. Medicaid births have mostly followed the same trend increasing through 2016 then decreasing in the last 2 years of the study period, but at a slightly higher rate than the overall birth increase.

Medicaid spent $75,294,247 on pregnancies and births in calendar year 2018 for births that occurred in Montana compared to $55,931,161 in 2010, an average annual increase of 3.8%.

Medicaid has a higher percentage of Premature & LBW births than the general population and reimbursement for these births is over three times that of an average Medicaid birth. Most of the difference in reimbursement is in the Child category, the reimbursement in the first month of the child's life. The AI/AN population has a higher than average percentage of births that are Premature & LBW. The average Medicaid paid amount for Premature & LBW birth has increased on average each year of the study by 0.3%.

Medicaid pregnancies and the AI/AN population consistently have a lower percentage of adequate prenatal care than Non-Medicaid pregnancies. Medicaid children whose mothers received adequate prenatal care on average had less paid reimbursement from birth to six years of age than the average

Medicaid child. Premature and LBW children continued to have more paid reimbursement than the average Medicaid birth through the first six years of life.

When you compare the one hundred most expensive Medicaid births to the average Medicaid birth, there is a dramatic increase in infant deaths and Premature & LBW births for this expensive population. (Not sure of the purpose of this statistic). Medicaid mothers are on average slightly younger than the general population. There is an increase in the number of children with over $50,000 of paid Medicaid claim for those mothers aged fifteen or less.
19% of the children born Premature & LBW have Medicaid reimbursement totaling over $50,000,

Mothers living in Montana have seen a slight increase over the study period in the distance between their residential address and the city of birth, from 15.9 miles in 2010 to 24.8 in 2018. Medicaid and Non-Medicaid mothers live roughly the same distance from their city of birth. Garfield County had the longest distance to care of 125 miles compare to Missoula County with 6.7 miles.