Commonwealth of Virginia Department of Medical Assistance Services

2020–2021 Prenatal Care and Birth Outcomes Focus Study

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1. Executive Summary

As an optional external quality review (EQR) task under the Centers for Medicare & Medicaid Services (CMS) Medicaid guidelines,[1-1] the Commonwealth of Virginia Department of Medical Assistance Services (DMAS) contracted with Health Services Advisory Group, Inc. (HSAG) to conduct a focus study during contract year 2020–21, providing quantitative information about prenatal care and associated birth outcomes among women with births paid by Title XIX or Title XXI, which include the Medicaid, Family Access to Medical Insurance Security (FAMIS), FAMIS MOMS, Medicaid Expansion, and Low Income Families with Children (LIFC) programs. The Contract Year 2020–21 Birth Outcomes Focus Study addressed the following questions:

- To what extent do women with births paid by Medicaid receive early and adequate prenatal care?
- What clinical outcomes are associated with Medicaid-paid births?

Methodology and Study Indicators

The study used deterministic and probabilistic data linking to match eligible members with birth registry records to identify births paid by Virginia Medicaid during calendar year (CY) 2020. Medicaid member, claims, and encounter data files were used with birth registry data fields to match members from each data linkage process. All probabilistically or deterministically linked birth registry records were included in the eligible focus study population.

The eligible population consisted of all live births during CY 2020 paid by Virginia Medicaid regardless of whether the births occurred in Virginia. Births paid by Virginia Medicaid were assigned to one of four Medicaid program categories based on the mother's program at the time of delivery:

- The FAMIS MOMS program uses Title XXI (Children's Health Insurance Program [CHIP] Demonstration Waiver) funding to serve pregnant women with incomes up to 200 percent[1-2] of the federal poverty level (FPL) and provides benefits similar to Medicaid through the duration of pregnancy and for 60 days postpartum.
- The Medicaid for Pregnant Women program uses Title XIX (Medicaid State Plan) funding to serve pregnant women with incomes up to 143 percent of the FPL.
- The Medicaid Expansion program uses Title XIX funding to serve women 19 years of age and older with incomes up to 138 percent of the FPL.
- The LIFC program uses Title XIX funding to serve low-income adults with children under the age of 18 who are eligible for the Temporary Assistance for Needy Families (TANF) program based on their monthly income at the time of enrollment.

1-1 Department of Health and Human Services, Centers for Medicare & Medicaid Services. Protocol 9: Conducting Focus Studies of Health Care Quality: An Optional EQR-Related Activity. October 2019.

1-2 A standard disregard of 5 percent FPL is applied if the woman's income is slightly above the FPL.

- The "Other Medicaid" programs include births paid by Medicaid that do not fall within the FAMIS MOMS, Medicaid for Pregnant Women, Medicaid Expansion, or LIFC programs. Please note, births to women in Plan First and the Department of Corrections (DOC) are excluded.[1-3]

To examine outcomes among all Virginia Medicaid-paid births, births were grouped into a study population and a comparison group based upon the timing and length of the mother's Medicaid enrollment:

- Study Population: women enrolled in FAMIS MOMS, Medicaid for Pregnant Women, Medicaid Expansion, LIFC, or Other Medicaid programs on the date of delivery, with continuous enrollment in any Medicaid program or combination of programs for 120 or more days (counting the date of delivery).
- Comparison Group: women enrolled in any of the five Medicaid programs (i.e., Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, LIFC, or Other Medicaid) on the date of delivery with continuous enrollment in any Medicaid program or combination of programs for fewer than 120 days (counting the date of delivery).

Births covered by emergency only benefits were also included in the eligible population for this study. However, because women covered by emergency-only benefits were enrolled in Medicaid on the day before or the day of the delivery, these births are evaluated separately.

HSAG calculated the following study indicators to assess the study questions for all singleton, live births paid by Virginia Medicaid during CY 2020:

- *Births with Early and Adequate Prenatal Care*—The percentage of births with an Adequacy of Prenatal Care Utilization (APNCU) Index (i.e., the Kotelchuck Index) score greater than or equal to 80 percent (i.e., women who received at least 80 percent of expected prenatal visits).
  - *Births with Inadequate Prenatal Care*—The percentage of births with inadequate prenatal care is also presented to demonstrate the percentage of births with an APNCU Index score of less than 50 percent (i.e., women who received less than 50 percent of expected prenatal care visits).
  - *Births with No Prenatal Care*—The percentage of births with no prenatal care is also presented.
- *Preterm Births (<37 Weeks Gestation)*—The percentage of births before 37 completed weeks of gestation.
- *Newborns with Low Birth Weight (<2,500 grams)*—The percentage of newborns with birth weights less than 2,500 grams. This includes birth weights in the very low birth weight category (i.e., birth weights at less than 1,500 grams) and the low birth weight category (i.e., birth weights between 1,500 and 2,499 grams).

Within Section 3 of this report, HSAG presents the study indicators stratified by key maternal demographic characteristics (i.e., race/ethnicity and managed care region of maternal residence) and

[1-3] Prior to the 2020–21 Birth Outcomes Focus Study, births to women in the LIFC program, Plan First, and DOC were included in the Other Medicaid program. Therefore, HSAG re-calculated historical (i.e., CY 2018 and CY 2019) Other Medicaid program rates to exclude births to women in LIFC, Plan First, and DOC. While births to women in LIFC are reported separately in this report, births to women Plan First and DOC are excluded from this report.

Medicaid program characteristics (i.e., Medicaid delivery system, managed care program, managed care organizations [MCOs], and Medicaid program). Further, HSAG presents the CY 2020 study indicators stratified by length of continuous enrollment and the trimester women initiated prenatal care. Where applicable, HSAG also presents comparisons to national benchmarks for the study indicators. For national benchmark comparisons, HSAG used the Healthy People 2030 goals, which uses data derived from the Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), and National Vital Statistics System (NVSS), for the *Births with Early and Adequate Prenatal Care* and *Preterm Births (<37 Weeks Gestation)* study indicators.[1-4] HSAG used the Federal Fiscal Year (FFY) 2020 CMS Core Set benchmarks for the *Newborns with Low Birth Weight (<2,500 grams)* study indicator.[1-5] Additional stratifications of the study indicators are presented in Appendix A.

Findings

Table 1-1 presents the overall number of births paid by Virginia Medicaid (i.e., Title XIX or Title XXI) during each measurement period, as well as the number and percentage of multiple gestation and singleton births.

Table 1-1—Overall Births Paid by Virginia Medicaid, CY 2018–CY 2020

Overall Births	CY 2018		CY 2019		CY 2020	
	Number	Percent	Number	Percent	Number	Percent
Overall Births						
Total Births	34,403	100.0%	38,317	100.0%	37,316	100.0%
Multiple Gestation Births	1,248	3.6%	1,350	3.5%	1,255	3.4%
Singleton Births	33,155	96.4%	36,967	96.5%	36,061	96.6%
Medicaid Births*						
Total Births	31,922	100.0%	33,679	100.0%	33,401	100.0%
Multiple Gestation Births	1,176	3.7%	1,235	3.7%	1,171	3.5%
Singleton Births	30,746	96.3%	32,444	96.3%	32,230	96.5%
Emergency Only Births						
Total Births	2,481	100.0%	4,638	100.0%	3,915	100.0%
Multiple Gestation Births	72	2.9%	115	2.5%	84	2.1%
Singleton Births	2,409	97.1%	4,523	97.5%	3,831	97.9%

**Medicaid Births exclude members enrolled in limited benefit programs (e.g., Plan First) and members who are only eligible for emergency only benefits.*

Overall, the number of births identified in the matched vital statistics data slightly declined in CY 2020, which is primarily attributed to the decline in the number of identified emergency-only benefit births in CY 2020.

1-4 U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2030: Pregnancy and childbirth. Available at: https://health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth. Accessed on: Dec 9, 2021.

1-5 Centers for Medicare & Medicaid Services. 2020 child and adult health care quality measures quality. Available at: 2020 child and adult health quality measures. Accessed on: Dec 9, 2021.

Births in each measurement period were stratified into five Medicaid programs (i.e., Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, LIFC, and Other Medicaid) and two Medicaid delivery systems (i.e., Fee-for-Service [FFS] and managed care). Table 1-2 presents the overall number and percentage of singleton births for each of these Medicaid programs and delivery systems.

Table 1-2—Singleton Births by Medicaid Program and Medicaid Delivery System, CY 2018–CY 2020

Overall Births	CY 2018		CY 2019		CY 2020	
	Number	Percent	Number	Percent	Number	Percent
Singleton Births	30,746	100.0%	32,444	100.0%	32,230	100.0%
Medicaid Program						
Medicaid for Pregnant Women	23,607	76.8%	22,978	70.8%	19,772	61.3%
Medicaid Expansion	—	—	2,152	6.6%	4,576	14.2%
FAMIS MOMS	1,771	5.8%	2,193	6.8%	2,091	6.5%
LIFC	2,566	8.3%	2,500	7.7%	2,989	9.3%
Other Medicaid†	2,802	9.1%	2,621	8.1%	2,802	8.7%
Medicaid Delivery System						
FFS	5,888	19.2%	3,827	11.8%	3,025	9.4%
Managed Care	24,858	80.8%	28,617	88.2%	29,205	90.6%

—indicates that Medicaid Expansion was not implemented until January 1, 2019; therefore, there were no births covered by the Medicaid Expansion program during CY 2018.
† Other Medicaid includes births paid by Medicaid, but that do not fall into the Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, and LIFC programs.

While the majority of Medicaid program births across all three measurement periods were to women in the Medicaid for Pregnant Women program, there was a decline in births for this program for CY 2020. This decrease is expected due to the implementation of Medicaid Expansion on January 1, 2019, which provided coverage to women who were previously only eligible for Medicaid if they became pregnant. As a result, the number of births to women in Medicaid Expansion more than doubled between CY 2019 and CY 2020.

Table 1-3 presents the overall study indicator results for each measurement period.

Table 1-3—Overall Study Indicator Findings Among Singleton Births, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Births with Early and Adequate Prenatal Care	76.4%	20,976	71.5%	22,392	72.3%	22,245	71.9%
*Births with Inadequate Prenatal Care**	*NA*	*4,830*	*16.5%*	*5,043*	*16.3%*	*4,651*	*15.0%*

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with No Prenatal Care**	*NA*	*558*	*1.9%*	*688*	*2.2%*	*534*	*1.7%*
Preterm Births (<37 Weeks Gestation)*	9.4%	2,942	9.6%	3,263	10.1%	3,168	9.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,901	9.4%	3,070	9.5%	2,979	9.2%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.

The percentage of CY 2020 *Births with Early and Adequate Prenatal Care* was consistent with prior years and continues to fall below the national benchmark. The rates for the *Newborns with Low Birth Weight (<2,500g)* indicator outperformed the national benchmark for all three measurement periods, demonstrating strength for Virginia Medicaid. While the rates of *Births with Early and Adequate Prenatal Care* is consistent across all years, it should be noted that the coronavirus disease 2019 (COVID-19) may have impacted CY 2020 study indicator results due to the public health efforts put in place during CY 2020 to mitigate the spread of COVID-19 (e.g., social distancing, stay at home orders). Additionally, researchers have found that women who were pregnant during the early stages of the COVID-19 pandemic had increased fears and stress about delivering in a hospital, especially when a support person could not be in the hospital for the delivery or go to prenatal visits with the mother.[1-6,1-7] Further, COVID-19 may have also impacted women's ability to get timely and frequent prenatal care. As a result, caution should be exercised when interpreting CY 2020 study indicator results.

To facilitate DMAS' program evaluation efforts, Table 1-4, on the next page, presents the CY 2020 study indicator results for the five Medicaid Programs (i.e., Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, LIFC, and Other Medicaid) stratified into a study population and comparison group based on the length of continuous enrollment prior to a woman's delivery. The table also identifies for each study indicator whether there was a statistically significant difference between results for the study population (i.e., continuously enrolled for ≥ 120 days prior to delivery) and the comparison group (i.e., continuously enrolled for < 120 days prior to delivery).

1-6 Whipps MDM, Phipps JE, Simmons LA. Perinatal health care access, childbirth concerns, and birthing decision-making among pregnant people in California during COVID-19. *BMC Pregnancy and Childbirth*. 2021; 21(477). Available at: https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-021-03942-y. Accessed on: Dec 9, 2021.

1-7 Meaney S, Letiao S, Olander EK, et al. The impact of COVID-19 on pregnant womens' experiences and perceptions of antenatal maternity care, social support, and stress-reduction strategies. Women and Birth. 2021. Available at: https://doi.org/10.1016/j.wombi.2021.04.013. Accessed on: Dec 9, 2021.

Table 1-4—Overall Medicaid Program Study Indicator Findings Among Singleton Births by Comparison Group and Study Population, CY 2020

Study Indicator	National Benchmark	Comparison Group			Study Population		
		Denom	Number	Percent	Denom	Number	Percent
Medicaid for Pregnant Women							
Births with Early and Adequate Prenatal Care	76.4%	2,663	1,629	61.2%	16,305	12,108	74.3%^
*Births with Inadequate Prenatal Care**	*NA*	2,663	627	23.5%	16,305	2,212	13.6%^
*Births with No Prenatal Care**	*NA*	2,663	87	3.3%	16,305	154	0.9%^
Preterm Births (<37 Weeks Gestation)*	9.4%	2,775	292	10.5%	16,995	1,458	8.6%^
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,775	267	9.6%	16,989	1,432	8.4%^
Medicaid Expansion							
Births with Early and Adequate Prenatal Care	76.4%	250	172	68.8%	4,150	3,077	74.1%
*Births with Inadequate Prenatal Care**	*NA*	250	40	16.0%	4,150	538	13.0%
*Births with No Prenatal Care**	*NA*	250	*S*	*S*	4,150	80	1.9%^
Preterm Births (<37 Weeks Gestation)*	9.4%	262	40	15.3%	4,314	504	11.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	262	28	10.7%	4,313	435	10.1%
FAMIS MOMS							
Births with Early and Adequate Prenatal Care	76.4%	431	315	73.1%	1,606	1,249	77.8%^
*Births with Inadequate Prenatal Care**	*NA*	431	74	17.2%	1,606	187	11.6%^
*Births with No Prenatal Care**	*NA*	431	*S*	*S*	1,606	*S*	*S*

Study Indicator	National Benchmark	Comparison Group			Study Population		
		Denom	Number	Percent	Denom	Number	Percent
Preterm Births (<37 Weeks Gestation)*	9.4%	446	41	9.2%	1,645	122	7.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	446	38	8.5%	1,645	112	6.8%
LIFC							
Births with Early and Adequate Prenatal Care	76.4%	132	79	59.8%	2,725	1,829	67.1%
*Births with Inadequate Prenatal Care**	*NA*	132	24	18.2%	2,725	457	16.8%
*Births with No Prenatal Care**	*NA*	132	15	11.4%	2,725	94	3.4%^
Preterm Births (<37 Weeks Gestation)*	9.4%	150	30	20.0%	2,839	363	12.8%^
Newborns with Low Birth Weight (<2,500g)*	9.7%	150	16	10.7%	2,837	320	11.3%
Other Medicaid†							
Births with Early and Adequate Prenatal Care	76.4%	208	114	54.8%	2,461	1,673	68.0%^
*Births with Inadequate Prenatal Care**	*NA*	208	60	28.8%	2,461	432	17.6%^
*Births with No Prenatal Care**	*NA*	208	*S*	*S*	2,461	75	3.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	217	33	15.2%	2,585	285	11.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	216	32	14.8%	2,584	299	11.6%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
† Other Medicaid includes births paid by Medicaid, but that do not fall into the Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, and LIFC programs.
^indicates a statistically significant difference between the study population rate and the comparison group rate.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Overall, the FAMIS MOMS program demonstrated strength in CY 2020, with the study population surpassing the applicable national benchmark for the three study indicators that could be compared to national benchmarks. Similarly, the study population for the Medicaid for Pregnant Women program outperformed the applicable national benchmarks for the *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* study indicators. The Medicaid Expansion, LIFC, and Other Medicaid study population rates fell below the national benchmark for all three study indicators that could be compared to national benchmarks, with the LIFC study population having the highest rate for the *Preterm Births (<37 Weeks Gestation)* study indicator and one of the highest rates for the *Newborns with Low Birth Weight (<2,500g)* study indicator. Studies indicate that timely prenatal care is associated with fewer preterm births in the United States.[1-8] Given this, the women in the LIFC program may not have received all the necessary prenatal care as evidenced by the lower *Births with Early and Adequate Prenatal Care* study indicator rate, which likely contributed to the high rates of preterm births.

Conclusions and Recommendations

Conclusions

This study considered five quantitative indicators related to prenatal care and associated birth outcomes among births paid by Virginia Medicaid. Between the CY 2018 and CY 2020 measurement periods, study indicators related to prenatal care, preterm birth, and low birthweight showed opportunities for improvement for Virginia Medicaid members. Specifically, overall results for the *Births with Early and Adequate Prenatal Care* and *Preterm Births (<37 Weeks Gestation)* indicators continued to fall below national benchmarks for all three measurement periods. Rates for the *Newborns with Low Birth Weight (<2,500g)* indicator outperformed the national benchmark for all three measurement periods, demonstrating strength for Virginia Medicaid.

During CY 2020, more than 70 percent of women with preterm births or newborns with low birth weight received at least adequate prenatal care, with more than 50 percent of these women receiving "adequate plus" prenatal care.[1-9] However, approximately 23 percent of women who received inadequate prenatal care, no prenatal care, or had missing prenatal care had a preterm birth or newborn with low birth weight, suggesting opportunities for the MCOs to improve access to timely and frequent prenatal care for these women.

The CY 2020 study indicator results also show regional differences in care with women residing in Central and Tidewater receiving higher rates of early and adequate prenatal care compared to women in other regions; however, these women still had some of the highest rates of preterm births and newborns with low birth weight. There has been a steady decline in the percentage of women with early and adequate prenatal care within the Southwest region, suggesting access to prenatal care may be a barrier within this rural region. Within all regions, racial disparities exist with Black, Non-Hispanic

[1-8] Centers for Disease Control and Prevention. Preterm birth. Available at: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm. Accessed on: Dec 9, 2021.

[1-9] "Adequate plus" prenatal care refers to the percentage of births with an APNCU Index (i.e., the Kotelchuck Index) score greater than or equal to 110 percent (i.e., women who received at least 110 percent of expected prenatal visits).

women having the highest rates of preterm births and newborns with low birth weight and Hispanic women of any race having the lowest rates of early and adequate prenatal care.

DMAS' implementation of the Medicaid Expansion program on January 1, 2019, provided an opportunity for DMAS and the MCOs to provide healthcare coverage to women who were not previously eligible for Medicaid. Research has shown that Medicaid Expansion programs have helped women get better health coverage before and after pregnancy, which leads to improved prenatal and postpartum care. Further, Medicaid Expansion programs also decrease the likelihood of women experiencing intermittent healthcare coverage, which is important for improving health outcomes for moms and babies.[1-10] The study indicator results for the Medicaid Expansion program for CY 2020 demonstrated improvement from CY 2019; however, all three study indicators continue to fall below national benchmarks. Therefore, DMAS should continue to monitor this population to assess that outcomes continue to improve over time. Of note, there was a large decline in CY 2020 in the number of women not continuously enrolled prior to delivery from CY 2019. This change is attributable to Medicaid Expansion as well as to the maintenance of effort (MOE) requirement of the Families First Coronavirus Response Act (FFCRA), enacted in March 2020, which required states to maintain enrollment for Medicaid members for the duration of the federal public health emergency (PHE). This ensured continuous Medicaid coverage for most Virginia Medicaid members throughout CY 2020, increasing the likelihood of continuous enrollment before, during, and after pregnancies.[1-11]

The FAMIS MOMS program continued to outperform other Medicaid programs, though it is important to note that women enrolled in FAMIS MOMS have different income eligibility limits compared to other pregnant women (i.e., FAMIS MOMS covers women with incomes up to 205 percent of the FPL). However, it is beyond the scope of the current study to assess the degree to which study indicator results for women in FAMIS MOMS differ from study indicator results among women in other Medicaid programs based on income-based eligibility requirements. Though limited in number, births to women enrolled in FAMIS MOMS, especially those with continuous enrollment greater than 120 days prior to delivery, had the highest rate of *Births with Early and Adequate Prenatal Care*, and the lowest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)*. While these rates remained stable over time, the promising results from this program suggest that it could offer a valuable starting point for assessing beneficiaries' satisfaction with care and underlying social determinants of health (SDoH) that may distinguish these women from other Medicaid beneficiaries.

Study Limitations

Study findings and conclusions may be affected by limitations related to the study design and source data. As such, caveats include, but are not limited to, the following:

[1-10] Searing A, Ross DC. Medicaid Expansion Fills Gaps in Maternal Health Coverage Leading to Healthier Mothers and Babies. Georgetown University Health Policy Institute Center for Children and Families. May 2019. Available at: https://ccf.georgetown.edu/wp-content/uploads/2019/05/Maternal-Health_FINAL-1.pdf. Accessed on: Dec 9, 2021.

[1-11] Commonwealth of Virginia, Division of Legislative Automated Systems. 12VAC30-30-10. Mandatory coverage: categorically needy and other required special groups. Available at: https://law.lis.virginia.gov/admincode/title12/agency30/chapter30/section10/. Accessed on: Dec 9, 2021.

- Study indicator and stratification results may be influenced by the accuracy and timeliness of the birth registry data and administrative Medicaid eligibility, enrollment, and demographic data used for calculations.
  - Additionally, study indicators rely on gestational estimate data from the birth registry. Reliability of these data, especially due to data collection practice variations in individual healthcare facilities, may have a disproportionate influence on regional study indicator results.[1-12]
- Healthy People 2030 goals are presented for comparison to Virginia Medicaid results for the *Births with Early and Adequate Prenatal Care* and *Preterm Births (<37 Weeks Gestation)* study indicators. Use caution when comparing study results to national benchmarks, as the benchmarks were derived from birth records covered by all payor types and may not mirror birth outcomes among women with births paid by Title XIX or Title XXI.
- The probabilistic data linkage process allows for manual data reviews to confirm or negate a potential match. The degree of manual review for each measurement period may result in annual differences in the number of birth certificates matched to enrollment data. Affected birth records tend to include women without Social Security Numbers (SSNs) and with differences in the names listed in the Medicaid and birth registry systems (e.g., names that are hyphenated and/or difficult to spell).
- The Commonwealth of Virginia allows presumptive eligibility for pregnant women to receive outpatient services, including prenatal care. However, DMAS does not cover inpatient care under the assumption that a woman will qualify for Title XIX or Title XXI benefits. The Virginia Department of Social Services (VDSS), the agency responsible for determining Medicaid eligibility in Virginia, allows 10 days to process a Medicaid application from a pregnant woman; 45 days is allowed for processing if the pregnant woman applies for additional services beyond Medicaid (e.g., supplemental nutrition assistance). As such, a pregnant woman new to Medicaid may have up to a 45-day waiting period before being eligible to have inpatient services covered by Title XIX or Title XXI benefits. Women's understanding of Medicaid benefits and the timing of coverage may result in delayed initiation or continuation of prenatal care.
- As many pregnant women new to Medicaid may not be covered by Title XIX or Title XXI benefits until their second or third trimester, use caution when interpreting study findings. Due to the multifactorial nature of birth outcomes and the need for pre-pregnancy interventions, a single delivery system or Medicaid program may not have had adequate time to contact new Medicaid beneficiaries and subsequently impact birth outcomes.
- Due to differing methodologies and data sources, study findings are not comparable to the Healthcare Effectiveness Data and Information Set (HEDIS®) *Timeliness of Prenatal Care* indicator results.[1-13] Specifically, the HEDIS *Timeliness of Prenatal Care* indicator does not follow a calendar year measurement period, requires the woman to be continuously enrolled with the health plan for 43 days prior to delivery through 60 days after delivery, and only requires one prenatal care visit for numerator compliance.
- Medicaid Expansion started on January 1, 2019; therefore, Medicaid Expansion program results should be monitored over time to assess changes as more women eligible for the program start receiving services.

[1-12] Dietz PM, Bombard JM, Hutchings YL, et. al. Validation of obstetric estimate of gestational age on US birth certificates. AM J Obstet Gynecol. Apr 2014; 2010(4): 335.e1-335.e5. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4560346/. Accessed on: Dec 9, 2021.

[1-13] HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).

- COVID-19 may have impacted CY 2020 study indicator results, given the public efforts put in place during CY 2020 to mitigate the spread of COVID-19 (e.g., social distancing, stay at home orders). Additionally, researchers have found that women who were pregnant during the early stages of the COVID-19 pandemic had increased fears and stress about delivering in a hospital, especially when a support person could not be in the hospital for the delivery or go to prenatal visits with the mother.[1-14,1-15] Further, COVID-19 may have also impacted women's ability to get timely and frequent prenatal care. As a result, caution should be exercised when interpreting CY 2020 study indicator results.

Recommendations

HSAG collaborated with DMAS to ensure that this study contributes to existing quality improvement data needs while informing current and future maternal and child health initiatives. As such, HSAG offers the following recommendations, based on the findings detailed in this report:

- Based on the 2016–2020 Virginia Pregnancy Risk Assessment Monitoring System (PRAMS) data, Virginia Medicaid women are more likely to be obese prior to pregnancy (44.1 percent), smoke during pregnancy (8.1 percent), and have a prior preterm birth (9.5 percent), and are less likely to receive prenatal care early (81.3 percent) or take a vitamin (e.g., folic acid, prenatal) every day in the month prior to pregnancy (36.1 percent) when compared to women with private insurance.[1-16]
  - Given that obesity is associated with several pregnancy risk factors (e.g., preeclampsia, gestational diabetes) that can also increase the risk of preterm delivery, opportunities exist for DMAS to ensure women of childbearing age are seeing their primary care provider prior to pregnancy to discuss steps that can be taken (e.g., taking prenatal vitamins, using services [registered dietician, community support groups] that can help women reach a healthy weight before pregnancy).[1-17,1-18]
  - The 2016–2020 Virginia PRAMS data showed that the percentage of Medicaid women who smoked during pregnancy declined by nearly 17 percentage points from the 2009–2013 Virginia PRAMS data. Given that smoking during pregnancy is a risk factor for preterm births and low birthweight infants, DMAS should continue to ensure women of childbearing age and pregnant women are receiving tobacco cessation services.[1-19]

[1-14] Whipps MDM, Phipps JE, Simmons LA. Perinatal health care access, childbirth concerns, and birthing decision-making among pregnant people in California during COVID-19. *BMC Pregnancy and Childbirth*. 2021; 21(477). Available at: https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-021-03942-y. Accessed on: Dec 9, 2021.

[1-15] Meaney S, Letiao S, Olander EK, et al. The impact of COVID-19 on pregnant womens' experiences and perceptions of antenatal maternity care, social support, and stress-reduction strategies. Women and Birth. 2021. Available at: https://doi.org/10.1016/j.wombi.2021.04.013. Accessed on: Dec 9, 2021.

[1-16] Virginia Department of Health. Pregnancy Risk Assessment Monitoring System Data. Available at: https://www.vdh.virginia.gov/prams/data-2020/. Accessed on: Dec 9, 2021.

[1-17] Cnattingius S, Villamor E, Johansson S, et al. Maternal obesity and risk of preterm delivery. JAMA. 2013;309(22). doi:10.1001/jama.2013.6295

[1-18] Mayo Clinic. Pregnancy and obesity: Know the risks. Available at: https://www.mayoclinic.org/healthy-lifestyle/pregnancy-week-by-week/in-depth/pregnancy-and-obesity/art-20044409. Accessed on: Dec 9, 2021.

[1-19] Medicaid.gov. Pregnancy. Available at: https://www.medicaid.gov/medicaid/quality-of-care/quality-improvement-initiatives/tobacco-cessation/pregnancy/index.html. Accessed on: Dec 9, 2021.

- Overall, approximately 72 percent of births in CY 2020 received early and adequate prenatal care and approximately 17 percent of births in CY 2020 received inadequate or no prenatal care. The 2019–20 secret shopper survey that assessed appointment availability for prenatal care providers who accept Medicaid in Virginia found that 59.5 percent of cases were offered a first trimester appointment date and 46.0 percent of cases were offered a second trimester appointment date. The results of both studies suggest that DMAS and MCOs should investigate the factors contributing to women's ability to access timely prenatal care and implement targeted improvement efforts. These efforts should include ensuring all women of childbearing age establish a primary care provider or gynecologist prior to pregnancy and receive necessary preventive care (e.g., taking folic acid) and management of conditions (e.g., diabetes, high blood pressure, obesity) that were previously left untreated or unmanaged. Improving the health of a woman prior to conception will help ensure better outcomes for both the mom and baby.[1-20]
- Unplanned pregnancies are associated with higher rates of preterm births and newborns with low birthweight.[1-21] Therefore, as part of ensuring all women of childbearing have an established gynecologist prior to pregnancy, DMAS and the MCOs should assess if providers are offering family planning services (e.g., contraception) to women. Given that Medicaid members can now receive a 12-month supply of contraceptives,[1-22] DMAS and the MCOs should monitor contraceptive prescription rates for Medicaid women over time. DMAS should consider having the MCOs report the Centers for Medicare & Medicaid Services (CMS) Adult and Child Core Set measures related to contraceptives (i.e., *Contraceptive Care—All Women* and *Contraceptive Care—Postpartum Women*) to understand better how this policy change impacts the use of contraceptives over time.
  - Long-acting reversible contraceptives (LARCs) are an effective contraceptive method that can help reduce unplanned and short-interval pregnancies.[1-23] MCOs should assess if providers are discussing the effectiveness of LARCs as part of the postpartum visit or even prior to the woman leaving the hospital after delivery. MCOs should work to educate their providers, and DMAS should continue to work with hospitals to institute protocols that allow physicians to leverage the Virginia Postpartum LARC toolkit.[1-24]
- For future focus studies, DMAS should consider leveraging additional data fields in the vital statistics data or other data sources (e.g., claims/encounter data) to better understand the factors contributing to poor birth outcomes in Virginia. These data sources could be used to assess risk factors (pre-pregnancy and gestational diabetes and hypertension, and previous preterm births and poor pregnancy outcomes), mother's substance use before and during pregnancy (smoking, alcohol, and drug use), and mother's body mass index (BMI) before pregnancy and at delivery.

[1-20] March of Dimes. Before or Between Pregnancies. Available at: https://www.marchofdimes.org/pregnancy/before-pregnancy.aspx#. Accessed on: Dec 9, 2021.

[1-21] National Institute for Children's Health Quality. As unplanned pregnancy rates drop, births improve. Available at: https://www.nichq.org/insight/unplanned-pregnancy-rates-drop-births-improve. Accessed on: Dec 9, 2021.

[1-22] Virginia Department of Medical Assistance Services. 12-month supply of contraceptives now available to Virginia Medicaid members. Available at: https://www.dmas.virginia.gov/media/3779/press-release-virginia-medicaid-announces-12-month-supply-of-contraceptives.pdf. Accessed on: Dec 9, 2021.

[1-23] The American College of Obstetricians and Gynecologists. Immediate postpartum long-acting reversible contraception. 2017. Available at: https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2016/08/immediate-postpartum-long-acting-reversible-contraception. Accessed on: Dec 9, 2021.

[1-24] Virginia Department of Medical Assistance Services, Virginia Department of Health, and the Virginia chapter of the American College of Obstetricians and Gynecologists. Virginia postpartum LARC toolkit. Available at: https://www.vdh.virginia.gov/content/uploads/sites/28/2016/07/VA_Postpartum_LARC_Toolkit_final.pdf. Accessed on: Dec 9, 2021.

Although data may be incomplete, HSAG could still leverage the available data to help understand and provide additional context to the study indicator results.

DMAS' Input on Prior Focused Study Recommendations

In addition to the recommendations noted above, DMAS provided the following detailed feedback to HSAG regarding quality improvement actions and initiatives.

DMAS is committed to providing access to comprehensive care for pregnant and postpartum women and their babies enrolled in any one of Virginia Medicaid's health coverage programs. In order to address this goal and address maternal disparities as it relates to Governor Northam's 2025 initiative and the 2021 Virginia Maternal Health Strategic Plan,[1-25] DMAS revamped the Healthy Birthday Virginia initiative to Baby Steps VA.

Through Baby Steps VA, DMAS has enhanced maternal health awareness utilizing five core teams (eligibility and enrollment, outreach and information, connections, new and improved services, and program oversight) to educate and address health disparities for Medicaid and FAMIS members. Each of these five focus areas have collaborated jointly to serve our members, health plans and providers. The contracted MCOs have undertaken a variety of initiatives aimed at improving quality outcomes in maternal health, a primary goal of the DMAS Quality Strategy. The support and partnership from the MCOs has helped to strengthen data sharing, reporting of performance measures, and improve health outcomes for members.

Thank you to all of the agencies, stakeholders, managed care organizations, community partners, and members who made this possible. We will continue to aim for "Wellness, One Step at a Time."

Past and Current Activities

In 2020, DMAS drafted the first Baby Steps VA annual report, detailing our accomplishments in improving maternity care. The report is available on the DMAS website at: https://www.dmas.virginia.gov/for-providers/maternal-and-child-health/

- Eligibility and Enrollment: Increasing maternity enrollment and streamlining newborn enrollment
  - In March of 2020, the federal government declared a PHE in response to the COVID-19 pandemic. Since the onset of the PHE in early 2020, DMAS has developed policy flexibilities in response to members' changing needs and challenges and has worked to ensure continued access to care. The FFCRA established a MOE requirement applicable to most Medicaid populations, which meant that most members, including pregnant and postpartum women, maintained continuous eligibility throughout CY 2020 and beyond, regardless of income and other changes that under normal circumstances would have affected eligibility determinations.
  - Partnered with Virginia Department of Social Services (VDSS) to begin discussion on ways to streamline the enrollment process and give pregnant women near real time eligibility determinations so they are connected with doctors and other medical care without delay.

[1-25] Secretary of Health and Human Resources, Office of the Governor of Virginia. Maternal health strategic plan. Available at: https://www.governor.virginia.gov/media/governorvirginiagov/secretary-of-health-and-human-resources/pdf/Virginia's-Maternal-Health-Strategic-Plan.pdf. Accessed on: Nov 19, 2021.

- Investigated with the Virginia Hospital and Healthcare Association (VHHA) ways to quickly enroll newborns before the mother is discharged from the hospital.
- Initiated organizational changes with the DMAS Eligibility and Enrollment Services Division to provide better customer service to moms, their babies and the providers who serve them by consolidating all processes related to newborn enrollment into one place.
- Launched a new coverage program for pregnant women, FAMIS Prenatal Coverage, on July 1, 2021. FAMIS Prenatal is comprehensive coverage for uninsured pregnant individuals who do not qualify for other full-benefit coverage groups because of their immigration status. These Virginians, including those who are undocumented or DACA recipients (Deferred Action for Childhood Arrivals, also known as DREAMers), are now eligible for the FAMIS MOMS benefit package during their pregnancy through 60 days postpartum.
- Working closely with representatives from U.S. Health and Human Services, the State Department, leads at three military bases, and the Crowne Plaza Hotel near Dulles to obtain applications for health care coverage for Afghanistan evacuees beginning in August 2021. An expedited process allows us to enroll pregnant individuals, new mothers, and medically frail individuals in Medicaid so they have access to health coverage. DMAS is scheduling application events to assist with expediting access to full health coverage.
- On November 18, 2021, DMAS received federal approval of Virginia's application to provide 12 months continuous postpartum health coverage for all members. Prior to this change some members, including FAMIS MOMS, lost access to care at 60 days postpartum. This continued postpartum care, to be implemented over the coming year, is an important step in improving health outcomes for both parents and babies.

- <u>Outreach and Information: Engaging with internal and external stakeholders and sharing information with members</u>
  - Contacted pregnant members who receive their benefits through FFS and shared information on Medicaid benefits and other resources essential for their health.
  - Developed efforts to bring awareness to postpartum services currently available for Medicaid pregnant and parenting women during and after the public health emergency (PHE). Information was shared with DMAS' dental benefit administrator, MCOs, American College of Obstetricians and Gynecologists (ACOG) Virginia, and the Medical Society of Virginia.
  - Launched a targeted outreach initiative to educate pregnant women about coverage and benefits through radio spots, and digital and social media platforms. Increased utilization of social media platforms to share photos and videos that will raise awareness about various initiatives and campaigns related to maternal and infant health.
- <u>Connections: Engaging with providers, community stakeholders, hospitals, and state agencies</u>
  - Collaborated with stakeholders on a variety of projects supporting pregnant and parenting people. Collaboration was geared towards furthering maternity program quality outcomes and engagement with a variety of partners such as Virginia Department of Health (VDH), VDSS, Virginia Department of Behavioral Health and Developmental Services (DBHDS), VHHA, and Virginia Neonatal Perinatal Collaborative (VNPC).
  - Met with VDH to discuss outreach measures to increase Women, Infants, and Children (WIC) utilization for members.
  - Presented during the Fifth Annual VNPC Summit: Fostering Community Relationships to Improve Maternal and Infant Health Outcomes on "Baby Steps VA- Where are we now! During

the presentations, speakers shared information on Medicaid 101, Baby Steps VA, Policy Changes, Postpartum services, Doulas, and Dental Coverage.

- Hosted bi-monthly Baby Steps VA meetings with external speakers to learn about programs available, send a weekly informational email, and developed a monthly Baby Steps VA newsletter to keep the agency and external partners abreast of activities.

- <u>New and Improved Services: Collaborating with Virginia projects to enhance services</u>
  - Addressed COVID-19 and the impacts on our Medicaid members. DMAS and the MCOs expanded telehealth options for services, including several flexibilities for medical and behavioral health services utilized by pregnant members during the state of emergency.
  - Finalized the directed payments process for providers during the public health emergency.
  - Implemented General Assembly directive to allow Medicaid members to receive up to 12 months prescription for birth control, increasing access to contraception.
  - Awarded a SUPPORT Act grant to continue to increase substance use disorder (SUD) provider capacity in Virginia. Grant activities focused on the screening and treatment needs of pregnant and postpartum individuals.
  - Established a workgroup to explore Medicaid reimbursement for doula support services by reviewing federal requirements and permissibility, commonwealth regulations, and determining estimated cost to the commonwealth for the next six years. DMAS submitted the report in December 2020.
  - Received federal approval to implement a doula benefit for pregnant women in Virginia Medicaid. Virginia will be the fourth state in the nation to implement community doula services to its Medicaid population. This benefit, to be launched in 2022, will provide a culturally centered focus on our members through shared experiences and comprehensive training. DMAS is collaborating with VDH and the MCOs on the certification and enrollment processes.
  - Established a workgroup to assess home visiting models to determine which to recommend for a Medicaid home-visiting benefit to support members' health, access to care and health equity. Over several months, the workgroup reviewed home visiting strategies and benefits in other state Medicaid programs and corresponding federal and state regulations. In addition, the workgroup reviewed funding mechanisms for existing home visiting programs in Virginia and funding approaches utilized across the nation. The workgroup's report to the General Assembly will be completed in December 2021.

- <u>Program Oversight: Utilizing data and reports to monitor and improve programs</u>
  - Partnered with Virginia Commonwealth University (VCU) to launch both a report (Diagnosis and Treatment of Substance Use Disorders among Pregnant Women Covered by Medicaid) and study (Opioid Treatment For Pregnant Women Has Increased But Racial Inequities Exist) centered around care for pregnant members with substance use disorders.
  - Continuing participation in the National Academy for State Health Policy (NASHP) Maternal and Child Health Policy Innovation Program (MCH PIP) policy academy that will help to identify, develop, and implement policy changes to address maternal mortality for Medicaid eligible pregnant and parenting persons, with the goal to improve access to quality care. The project will focus on two areas of care: Postpartum Communication and Doula Implementation. In both projects DMAS will focus on engaging community systems, improving timeliness of care, and improving access to care.

2. Overview and Methodology

Overview

As an optional activity under the CMS EQR Protocols,[2-1] DMAS contracted with HSAG to conduct a focus study in contract year 2020–21 to provide quantitative information about prenatal care and associated birth outcomes among women with births paid by Title XIX or Title XXI, which include the Medicaid, FAMIS, FAMIS MOMS, Medicaid Expansion, and LIFC programs. The Contract Year 2020–21 Birth Outcomes Focus Study addressed the following questions:

- To what extent do women with births paid by Medicaid receive early and adequate prenatal care?
- What clinical outcomes are associated with Medicaid-paid births?

Methodology

The study included all singleton births paid by Virginia Medicaid during CY 2020. A birth was considered paid by Virginia Medicaid if the member was enrolled in Virginia Medicaid on the date of delivery. From Medicaid member demographic and eligibility data provided by DMAS, HSAG assembled a list of female members between the ages of 10 and 55 years with any Medicaid eligibility during CY 2020 who were eligible for the focus study. This list was submitted to DMAS for linkage to the Virginia Department of Health (VDH) birth registry. Members eligible for the data linkage included Virginia Medicaid members with a live birth paid by Title XIX or Title XXI during the measurement period, regardless of whether the birth occurred in Virginia.[2-2] DMAS used deterministic and probabilistic data linkage methods to match HSAG's list of potential study members to birth registry records.[2-3] DMAS returned a data file to HSAG containing the information from HSAG's original member list and selected birth registry data fields for matched members from both data linkage processes.

All probabilistically or deterministically linked birth registry records were included in the overall eligible population for this focus study. Variations in demographic indicators over time may be attributed to probabilistic data linkage considerations in each measurement period, in addition to changes in the demographics of women with births paid by Virginia Medicaid.[2-4]

2-1 Department of Health and Human Services, Centers for Medicare & Medicaid Services. Protocol 9: Conducting Focus Studies of Health Care Quality: An Optional EQR-Related Activity. October 2019.

2-2 The Virginia birth registry contains records of live births; other pregnancy outcomes are not included in this study.

2-3 The deterministic data linkage sought to match potential study members with birth registry records using only the maternal social security number (SSN). The probabilistic data linkage used the Link Plus software program to probabilistically match study members with birth registry records using the following maternal information: last name, first name, SSN, residential street address, city of residence, and five-digit residential ZIP Code.

2-4 HSAG provided standard instructions for probabilistically linking data during each study period. However, different individuals from DMAS and VDH conducted the probabilistic linkages for the 2018–19, 2019–20, and 2020–21 studies, resulting in a variable percentage of probable birth record linkages that were manually reviewed for each measurement period.

The eligible population was further classified by Medicaid program and service delivery system as follows:

- The FAMIS MOMS program uses Title XXI (CHIP Demonstration Waiver) funding to serve pregnant women with incomes up to 200 percent[2-5] of the FPL and provides benefits similar to Medicaid through the duration of pregnancy and for 60 days postpartum.
- The Medicaid for Pregnant Women program uses Title XIX (Medicaid State Plan) funding to serve pregnant women with incomes up to 143 percent of the FPL.
- The Medicaid Expansion program uses Title XIX funding to serve women 19 years of age and older with incomes up to 138 percent of the FPL.
- The LIFC program uses Title XIX funding to serve low-income adults with children under the age of 18 who are eligible for the TANF program based on their monthly income at the time of enrollment.
- The "Other Medicaid" programs include births paid by Medicaid that do not fall within the FAMIS MOMS, Medicaid for Pregnant Women, Medicaid Expansion, or LIFC programs. Please note, births to women in Plan First and DOC are excluded.

While the term "Medicaid" is used throughout the report, this term refers to all programs included in the Birth Outcomes Focus Study regardless of funding source (i.e., Title XIX or Title XXI).

Births to women enrolled in any Medicaid program (i.e., Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, LIFC, and Other Medicaid) at delivery were further categorized into a study population and a comparison group depending on the timing and length of enrollment. The study population included women with continuous enrollment in any Medicaid program or combination of programs for 120 or more days (counting the date of delivery).The comparison group consisted of women with continuous enrollment in any Medicaid program or combination of programs for fewer than 120 days (counting the date of delivery).

Where applicable, HSAG compared the study indicators to national benchmarks. HSAG used the Healthy People 2030 goals,[2-6] which uses data derived from the CDC, NCHS, and NVSS, for the *Births with Early and Adequate Prenatal Care* and *Preterm Births (<37 Weeks Gestation)* study indicators, and used the FFY 2020 CMS Core Set benchmarks for the *Newborns With Low Birth Weight (<2,500 grams)* study indicator.

HSAG also compared the CY 2020 study indicator results to historical results, when applicable. Please note, HSAG recalculated historical study indicator results to exclude births covered by emergency-only benefits, Plan First, and DOC that were previously included in the CY 2018 and CY 2019 results. Additionally, HSAG calculated the LIFC program results separately from the Other Medicaid program results for all three measurement periods. As a result, the CY 2018 and CY 2019 results presented in this report do not match results presented in the 2018–19 and 2019–20 Birth Outcomes Focus Study reports. While births to women in Plan First and DOC are completely excluded from this report, the births covered by emergency-only benefits are reported separately within this report.

2-5 A standard disregard of 5 percent FPL is applied if the woman's income is slightly above the FPL.

2-6 U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2030: Pregnancy and childbirth. Available at: https://health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth. Accessed on: Dec 9, 2021.

Study Indicators

HSAG calculated the following five study indicators for singleton, live births during CY 2020 paid by Virginia Medicaid:

- Percentage of births with early and adequate prenatal care
  - Percentage of births with inadequate prenatal care
  - Percentage of births with no prenatal care
- Percentage of preterm births (i.e., births prior to 37 weeks gestation)
- Percentage of births with low birth weight (i.e., birth weights less than 2,500 grams)

The following subsections define the five indicators used to assess the study questions among singleton, live births paid by Virginia Medicaid during the measurement period, as well as provide brief background information in support of each indicator as a birth outcome.

Early and Adequate Prenatal Care

The percentage of births with an APNCU Index (i.e., the Kotelchuck Index) score in the "Adequate" or "Adequate Plus" categories

The adequacy of prenatal care received during pregnancy has been associated with a lower incidence of poor birth outcomes, such as preterm delivery and low-birth-weight births.[2-7] The APNCU Index (i.e., the Kotelchuck Index) uses birth certificate information to assess prenatal care in relation to two separate and distinct components. The first component measures initiation of care using the month that prenatal care began. The second component measures adequacy of received services measured by the number of prenatal visits. The two components are combined into a single prenatal care utilization composite score. Higher composite scores on the APNCU Index are assigned to women who initiate prenatal care early in pregnancy and complete at least 80 percent of the visits expected based on the time frame adjusted for gestational age at prenatal care initiation and the infant's gestational age at delivery.[2-8] Table 2-1 shows the composite score categories and criteria defining each category.

Table 2-1—APNCU Index Criteria for Adequacy of Prenatal Care Visits

APNCU Index Category	Number of Prenatal Care Visits
Missing Information	Information on the number of prenatal care visits is unavailable
No Prenatal Care	0 percent of expected visits
Inadequate Prenatal Care	Less than 50% of expected visits
Intermediate Prenatal Care	50–79% of expected visits

[2-7] Krueger PM, Scholl TO. Adequacy of prenatal care and pregnancy outcome. *The Journal of the American Osteopathic Association*. 2000; 100(8):485–492.

[2-8] Kotelchuck M. An evaluation of the Kessner Adequacy of Prenatal Care Index and a proposed Adequacy of Prenatal Care Utilization Index. *American Journal of Public Health*. 1994; 84(9):1414–1420.

APNCU Index Category	Number of Prenatal Care Visits
Adequate Prenatal Care	80–109% of expected visits
Adequate Plus Prenatal Care	110% or more of expected visits

In 2003, a revised version of the nationally standard birth certificate was released, capturing prenatal care information, including the month the member initiated prenatal care and the number of visits up to delivery. Virginia implemented the 2003 Revised Standard Certificate of Live Birth in 2012, and national benchmarks for assessing the adequacy of prenatal care were established for those states that initiated consistent reporting of this information.[2-9] Healthy People 2030 published a national baseline in which 76.4 percent of women received early and adequate prenatal care during 2018, with an initial goal of 80.5 percent and a 1 percentage point improvement for each year.[2-10] DMAS opted to compare study indicator findings to the Healthy People 2030 baseline goal of 76.4 percent and will assess the benchmark value on an annual basis. Note that this goal is assessed nationally using NVSS data that do not consistently report birth statistics by payor.

Preterm Births

The percentage of births occurring before 37 completed weeks of gestation

In 2019, preterm delivery affected approximately one in 10 infants born in the United States. Preterm delivery (births prior to 37 weeks of gestation) is a leading cause of infant mortality, and 17 percent of United States infant deaths in 2018 were attributable to causes related to preterm birth and low birth weight (LBW). Additionally, in 2019, preterm birth rates in the United States were 50 percent higher among African American women than White or Hispanic or Latino women. Infants born prematurely are also at higher risk for persistent and life-long health issues, such as developmental disabilities, cerebral palsy, respiratory problems, hearing and vision problems, and feeding issues. Furthermore, preterm births can result in emotional and financial burdens for families.[2-11]

Although this topic has been studied extensively, the underlying causes of preterm births are not completely understood. The causes of preterm birth are multifactorial and include genetic, social, and environmental circumstances, as well as multiple gestations (twins, triplets, etc.), which have increased

[2-9] March of Dimes Perinatal Data Center. Prenatal Care. Available at: https://www.marchofdimes.org/peristats/popup.aspx?width=50%&height=40%&s=calc&reg=&top=&id=23. Accessed on: Dec 9, 2021.

[2-10] Healthy People 2030. Increase the proportion of pregnant women who receive early and adequate prenatal care – MICH-08. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Available at: https://health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth/increase-proportion-pregnant-women-who-receive-early-and-adequate-prenatal-care-mich-08. Accessed on: Dec 9, 2021.

[2-11] Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. Preterm birth. Available at: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm. Accessed on: Dec 9, 2021.

due to the increasing prevalence of assisted reproductive technology.[2-12] Some studies have found that among multiparous women, regardless of demographic factors and excluding multiple gestation births, a previous preterm birth has been found as the most influential risk factor for a woman to have a subsequent preterm birth.[2-13]

Although clinical intervention cannot completely mitigate demographic and genetic factors associated with preterm deliveries, preconception care (i.e., care prior to the start of a pregnancy) and prenatal care may provide clinicians opportunities to monitor and address potential causes of preterm deliveries.[2-14]

Healthy People 2030 published a national baseline in which 10.0 percent of live births were preterm in 2018, with an initial goal of 9.4 percent of live births being preterm.[2-15] DMAS opted to compare study indicator findings to the Healthy People 2030 goal of 9.4 percent and will assess the benchmark value on an annual basis. Note that this goal is assessed nationally using NVSS data that do not consistently report birth statistics by payor.

Low Birth Weight

The percentage of births with low birth weight (i.e., less than 2,500 grams)

Infants born weighing less than 2,500 grams (5 pounds, 8 ounces) are considered LBW infants and, compared to normal weight infants, may be at a higher risk for health problems. Common health complications that LBW infants may experience include underdeveloped lungs and respiratory problems, an inability to maintain body temperature, difficulty feeding and gaining weight, and infection. Additionally, these LBW infants may experience long-term issues, such as delayed motor and social development and learning disabilities. They may have a higher risk of health conditions, such as

[2-12] Dunietz GL, Holzman C, McKane P, et al. Assisted reproductive technology and the risk of preterm birth among primiparas. *Fertility and Sterility*. 2015; 103(4):974-979.e1. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4515958/#:~:text=Conclusion(s),infertility%20included%20the%20earliest%20deliveries. Accessed on: Dec 9, 2021.

[2-13] Stubblefield PG, Coonrod DV, Reddy UM, et al. The clinical content of preconception care: Reproductive history. *American Journal of Obstetrics and Gynecology*. 2008; 10.048(suppl):S373–S383.

[2-14] Dean SV, Mason E, Howson CP, et al. Born too soon: care before and between pregnancy to prevent preterm births: from evidence to action. Reprod Health. 2013; 10 Suppl 1 (Supple 1):S3.

[2-15] U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2030. Increase the proportion of pregnant women who receive early and adequate prenatal care – MICH-08. Available at: https://health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth/increase-proportion-pregnant-women-who-receive-early-and-adequate-prenatal-care-mich-08. Accessed on: Dec 9, 2021.

diabetes and high blood pressure, later in life.[2-16] LBW affects approximately one in 12 babies born in the United States.[2-17]

Infants weighing less than 1,500 grams (3 pounds, 5 ounces) are considered to be very low birth weight (VLBW) infants and have a greater risk for multiple health problems, including cerebral palsy, developmental delay, intellectual disability, visual and hearing impairments, chronic lung disease, neurological problems, and sudden infant death syndrome (SIDS).[2-18] Nearly all infants born with VLBW will need specialized care in a neonatal intensive care unit (NICU) until they are healthy enough to be released. NICU care is associated with a financial burden; although VLBW births account for approximately 1.5 percent of all live births in the United States, these births represent 30 percent of newborn healthcare costs and are among the most expensive of all patients.[2-19]

The CMS Core Set benchmarks for the *Newborns with Low Birth Weight (<2,500 grams)* study indicator is released annually and includes data for all 50 states and Washington, D.C. for a Medicaid/CHIP population.[2-20] DMAS opted to use the FFY 2020 benchmark of 9.7 percent for the *Newborns with Low Birth Weight (<2,500 grams)* study indicator.[2-21]

Study Indicator Results

Study indicator results were limited to singleton births, defined using the Plurality field in the birth registry data. Since multiple gestation births are subject to different clinical guidelines, results for multiple births are limited to introductory findings and the analytic dataset supplied to DMAS.

Results for each study indicator were calculated among demographic categories for the CY 2020 measurement period. HSAG used Chi-square tests to assess statistically significant differences between the CY 2020 study population and comparison group for each indicator within the Medicaid Programs.

[2-16] National Center for Environmental Health, Environmental Health Tracking Branch. Centers for Disease Control and Prevention. Low birthweight and the environment. Available at: https://ephtracking.cdc.gov/showRbLBWGrowthRetardationEnv. Accessed on: Dec 9, 2021.

[2-17] March of Dimes. Low birthweight. Available at: http://www.marchofdimes.org/baby/low-birthweight.aspx. Accessed on: Dec 9, 2021.

[2-18] McCallie KR, Lee HC, Mayer O, et al. Improved outcomes with a standardized feeding protocol for very low birth weight infants. *Journal of Perinatology*. 2011; 31:S61–S67.

[2-19] Johnson TJ, Patel AL, Jegier B, et al. The cost of morbidities in very low birth weight infants. *The Journal of Pediatrics*. 2013; 162(2):243–49.

[2-20] Centers for Medicare & Medicaid Services. 2020 child and adult health care quality measures quality. Available at: 2020 child and adult health quality measures. Accessed on: Dec 9, 2021.

[2-21] Ibid.

3. Findings

Overall Birth Characteristics

Table 3-1 through Table 3-3 present the overall number of births paid by Virginia Medicaid (i.e., Title XIX or Title XXI) for CY 2018, CY 2019, and CY 2020 stratified by key characteristics.

Overall Births Paid by Virginia Medicaid

Table 3-1 presents the overall number of births paid by Virginia Medicaid during each measurement period stratified by Medicaid births and emergency only births, as well as the number and percentage of multiple gestation and singleton births.

Table 3-1—Overall Births Paid by Virginia Medicaid, CY 2018–2020

Overall Births	CY 2018		CY 2019		CY 2020	
	Number	Percent	Number	Percent	Number	Percent
Overall Births						
Total Births	34,403	100.0%	38,317	100.0%	37,316	100.0%
Multiple Gestation Births	1,248	3.6%	1,350	3.5%	1,255	3.4%
Singleton Births	33,155	96.4%	36,967	96.5%	36,061	96.6%
Medicaid Births*						
Total Births	31,922	100.0%	33,679	100.0%	33,401	100.0%
Multiple Gestation Births	1,176	3.7%	1,235	3.7%	1,171	3.5%
Singleton Births	30,746	96.3%	32,444	96.3%	32,230	96.5%
Emergency Only Births						
Total Births	2,481	100.0%	4,638	100.0%	3,915	100.0%
Multiple Gestation Births	72	2.9%	115	2.5%	84	2.1%
Singleton Births	2,409	97.1%	4,523	97.5%	3,831	97.9%

**Medicaid Births exclude members enrolled in limited benefit programs (e.g., Plan First) and members who are only eligible for emergency only benefits.*

Overall, the number of births identified in the matched vital statistics data slightly declined in CY 2020, which is primarily attributed to the decline in the number of identified emergency only benefit births in CY 2020.

Overall Singleton Births Paid by Virginia Medicaid

Table 3-2, on the next page, presents the overall number of singleton births paid by Virginia Medicaid during each measurement period, as well as the number and percentage of births by Medicaid program, Medicaid managed care program, and Medicaid delivery system.

Table 3-2—Singleton Births by Medicaid Program, Medicaid Managed Care Program, and Medicaid Delivery System, CY 2018–CY 2020

Overall Births	CY 2018		CY 2019		CY 2020	
	Number	Percent	Number	Percent	Number	Percent
Singleton Births	30,746	100.0%	32,444	100.0%	32,230	100.0%
Medicaid Program						
Medicaid for Pregnant Women	23,607	76.8%	22,978	70.8%	19,772	61.3%
Medicaid Expansion	—	—	2,152	6.6%	4,576	14.2%
FAMIS MOMS	1,771	5.8%	2,193	6.8%	2,091	6.5%
LIFC	2,566	8.3%	2,500	7.7%	2,989	9.3%
Other Medicaid†	2,802	9.1%	2,621	8.1%	2,802	8.7%
Medicaid Managed Care Program*						
FAMIS (FAMIS MOMS and FAMIS Children)	1,456	4.7%	1,859	5.7%	1,868	5.8%
CCC Plus	846	2.8%	909	2.8%	887	2.8%
Medallion 4.0	22,556	73.4%	25,849	79.7%	26,450	82.1%
Medicaid Delivery System						
FFS	5,888	19.2%	3,827	11.8%	3,025	9.4%
Managed Care	24,858	80.8%	28,617	88.2%	29,205	90.6%

**Because not all births were to women in Medicaid managed care programs, the percentage of births for the FAMIS, CCC Plus, and Medallion 4.0 managed care programs do not sum to 100 percent.*
—indicates that Medicaid Expansion was not implemented until January 1, 2019; therefore, there were no births covered by the Medicaid Expansion program during CY 2018.
†Other Medicaid includes births paid by Medicaid, but that do not fall into the Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, and LIFC programs.

While the majority of Medicaid program births across all three measurement periods were to women in the Medicaid for Pregnant Women program, there was a decline in births for this program for CY 2020. This decrease is expected due to the implementation of Medicaid Expansion on January 1, 2019, which provided coverage to women who were previously only eligible for Medicaid if they became pregnant. As a result, the number of births to women in Medicaid Expansion more than doubled between CY 2019 and CY 2020.

Table 3-3, on the next page, presents the overall number of singleton births paid by Virginia Medicaid during each measurement period stratified by maternal age, race/ethnicity, and regional residence.

Table 3-3—Singleton Births by Maternal Age at Delivery, Maternal Race/Ethnicity, and Managed Care Region of Residence

Overall Births	CY 2018		CY 2019		CY 2020	
	Number	Percent	Number	Percent	Number	Percent
Singleton Births†	30,746	100.0%	32,444	100.0%	32,230	100.0%
Maternal Age at Delivery						
≤15 Years	90	0.3%	81	0.2%	94	0.3%
16–17 Years	479	1.6%	492	1.5%	469	1.5%
18–20 Years	3,622	11.8%	3,702	11.4%	3,460	10.7%
21–24 Years	7,760	25.2%	7,936	24.5%	7,618	23.6%
25–29 Years	9,646	31.4%	10,050	31.0%	9,835	30.5%
30–34 Years	5,887	19.1%	6,550	20.2%	6,801	21.1%
35–39 Years	2,643	8.6%	2,948	9.1%	3,119	9.7%
40–44 Years	580	1.9%	614	1.9%	733	2.3%
≥45 Years	24	0.1%	43	0.1%	41	0.1%
Unknown	15	0.0%	28	0.1%	60	0.2%
Maternal Race/Ethnicity						
White, Non-Hispanic	13,738	44.7%	14,069	43.4%	13,953	43.3%
Black, Non-Hispanic	12,110	39.4%	12,691	39.1%	12,439	38.6%
Asian, Non-Hispanic	1,224	4.0%	1,224	3.8%	1,199	3.7%
Hispanic, Any Race	3,375	11.0%	3,970	12.2%	4,177	13.0%
Other/Unknown	299	1.0%	490	1.5%	462	1.4%
Managed Care Region of Residence						
Central	7,912	25.7%	8,184	25.2%	8,153	25.3%
Charlottesville/Western	4,101	13.3%	4,111	12.7%	4,086	12.7%
Northern & Winchester	6,436	20.9%	7,207	22.2%	7,113	22.1%
Roanoke/Alleghany	2,771	9.0%	3,155	9.7%	3,135	9.7%
Southwest	1,923	6.3%	1,860	5.7%	1,915	5.9%
Tidewater	7,601	24.7%	7,875	24.3%	7,821	24.3%

Note: Due to rounding, the percentages in each column may not sum to 100 percent.
†Unknown managed care regions of residence are included in the Singleton Births totals.

The majority of CY 2020 births paid by Virginia Medicaid were to women 21 to 34 years of age (75.2 percent) who were White, Non-Hispanic (43.3 percent) or Black, Non-Hispanic (38.6 percent). Consistent with prior years, the majority (71.7 percent) of CY 2020 births were to women who resided in the Central, Northern & Winchester, or Tidewater regions.

Study Indicator Results and Trending

Table 3-4 presents the overall study indicator results for each measurement period.

Table 3-4—Overall Study Indicator Findings Among Singleton Births, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Births with Early and Adequate Prenatal Care	76.4%	20,976	71.5%	22,392	72.3%	22,245	71.9%
*Births with Inadequate Prenatal Care**	*NA*	*4,830*	*16.5%*	*5,043*	*16.3%*	*4,651*	*15.0%*
*Births with No Prenatal Care**	*NA*	*558*	*1.9%*	*688*	*2.2%*	*534*	*1.7%*
Preterm Births (<37 Weeks Gestation)*	9.4%	2,942	9.6%	3,263	10.1%	3,168	9.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,901	9.4%	3,070	9.5%	2,979	9.2%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.

The percentage of CY 2020 *Births with Early and Adequate Prenatal Care* was consistent with prior years and continues to fall below the national benchmark. The rates for the *Newborns with Low Birth Weight (<2,500g)* indicator outperformed the national benchmark for all three measurement periods, demonstrating strength for Virginia Medicaid.

Study Indicators Stratified by Select Demographic Characteristics

Table 3-5 and Table 3-6 present the study indicator results stratified by race/ethnicity and geographic managed care region, respectively, for each measurement period.

Table 3-5—Overall Study Indicator Findings Among Singleton Births by Race/Ethnicity, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	9,413	74.0%	9,811	74.7%	9,572	73.7%
*Births with Inadequate Prenatal Care**	*NA*	1,912	15.0%	1,939	14.8%	1,783	13.7%
*Births with No Prenatal Care**	*NA*	213	1.7%	257	2.0%	192	1.5%
Preterm Births (<37 Weeks Gestation)*	9.4%	1,146	8.4%	1,232	8.8%	1,296	9.3%
Newborns with Low Birth Weight (<2,500g)*	9.7%	1,058	7.7%	1,052	7.5%	1,079	7.7%
Black, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	8,234	69.5%	8,791	71.0%	8,821	72.0%
*Births with Inadequate Prenatal Care**	*NA*	2,045	17.3%	2,056	16.6%	1,827	14.9%
*Births with No Prenatal Care**	*NA*	251	2.1%	307	2.5%	240	2.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	1,396	11.5%	1,539	12.1%	1,382	11.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	1,498	12.4%	1,609	12.7%	1,508	12.1%
Hispanic, Any Race							
Births with Early and Adequate Prenatal Care	76.4%	2,278	69.0%	2,639	68.8%	2,752	67.5%
*Births with Inadequate Prenatal Care**	*NA*	604	18.3%	745	19.4%	771	18.9%
*Births with No Prenatal Care**	*NA*	76	2.3%	102	2.7%	83	2.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	271	8.0%	334	8.4%	351	8.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	215	6.4%	259	6.5%	261	6.2%
Other/Unknown							
Births with Early and Adequate Prenatal Care	76.4%	1,051	70.9%	1,151	70.3%	1,100	67.9%
*Births with Inadequate Prenatal Care**	*NA*	269	18.1%	303	18.5%	270	16.7%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with No Prenatal Care**	*NA*	18	1.2%	22	1.3%	19	1.2%
Preterm Births (<37 Weeks Gestation)*	9.4%	129	8.5%	158	9.2%	139	8.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	130	8.5%	150	8.8%	131	7.9%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.

Consistent with the national birth data,[3-1] study indicator results showed poor outcomes for Black, Non-Hispanic women, with the highest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500 grams)* compared to women of other race/ethnicities. White, Non-Hispanic women had the highest rate of *Early and Adequate Prenatal Care* compared to women of other races/ethnicities but continued to fall below the national benchmark. For Hispanic women of any race, rates for both *Preterm Births (<37 Weeks)* and *Newborns with Low Birth Weight (<2,500g)* outperformed national benchmarks, despite having the lowest rate of *Early and Adequate Prenatal Care.*

Table 3-6—Overall Study Indicator Findings Among Singleton Births by Managed Care Region of Maternal Residence, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Central							
Births with Early and Adequate Prenatal Care	76.4%	5,502	70.3%	5,848	72.8%	5,886	72.9%
*Births with Inadequate Prenatal Care**	*NA*	1,079	13.8%	1,125	14.0%	1,047	13.0%
*Births with No Prenatal Care**	*NA*	126	1.6%	176	2.2%	159	2.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	779	9.9%	866	10.6%	798	9.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	748	9.5%	846	10.3%	820	10.1%
Charlottesville/Western							
Births with Early and Adequate Prenatal Care	76.4%	3,075	76.2%	3,188	78.8%	3,106	77.0%

[3-1] Martin JA, Hamilton BE, Osterman MJK. Births in the United States, 2020. National Center for Health Statistics Data Brief, No. 418. 2021. Available at: https://www.cdc.gov/nchs/data/databriefs/db418.pdf. Accessed on: Dec 9, 2021.

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	638	15.8%	585	14.5%	602	14.9%
*Births with No Prenatal Care**	*NA*	65	1.6%	52	1.3%	40	1.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	361	8.8%	355	8.6%	352	8.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	387	9.4%	358	8.7%	352	8.6%
Northern & Winchester							
Births with Early and Adequate Prenatal Care	76.4%	4,151	66.6%	4,600	66.8%	4,502	65.0%
*Births with Inadequate Prenatal Care**	*NA*	1,312	21.1%	1,482	21.5%	1,342	19.4%
*Births with No Prenatal Care**	*NA*	153	2.5%	197	2.9%	136	2.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	514	8.0%	654	9.1%	607	8.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	490	7.6%	551	7.6%	535	7.5%
Roanoke/Alleghany							
Births with Early and Adequate Prenatal Care	76.4%	1,811	72.2%	2,203	72.9%	2,223	74.0%
*Births with Inadequate Prenatal Care**	*NA*	400	16.0%	420	13.9%	359	12.0%
*Births with No Prenatal Care**	*NA*	31	1.2%	52	1.7%	37	1.2%
Preterm Births (<37 Weeks Gestation)*	9.4%	243	8.8%	268	8.5%	313	10.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	235	8.5%	263	8.3%	292	9.3%
Southwest							
Births with Early and Adequate Prenatal Care	76.4%	924	74.6%	828	70.1%	772	67.8%
*Births with Inadequate Prenatal Care**	*NA*	175	14.1%	197	16.7%	175	15.4%
*Births with No Prenatal Care**	*NA*	12	1.0%	14	1.2%	25	2.2%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Preterm Births (<37 Weeks Gestation)*	9.4%	174	9.1%	168	9.0%	192	10.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	180	9.4%	166	8.9%	174	9.1%
Tidewater							
Births with Early and Adequate Prenatal Care	76.4%	5,512	73.4%	5,693	73.3%	5,750	74.1%
*Births with Inadequate Prenatal Care**	*NA*	1,225	16.3%	1,226	15.8%	1,126	14.5%
*Births with No Prenatal Care**	*NA*	171	2.3%	197	2.5%	137	1.8%
Preterm Births (<37 Weeks Gestation)*	9.4%	871	11.5%	949	12.1%	904	11.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	861	11.3%	883	11.2%	804	10.3%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.

In CY 2020, Charlottesville/Western was the only region to exceed the national benchmarks for all study indicators where benchmarks were available. This may be attributed to the fact that approximately 58 percent of births in Charlottesville/Western were to White, Non-Hispanic women, which as Table 3-5 shows, White, Non-Hispanic women typically have more favorable birth outcomes compared to all other race/ethnicities. Despite having the lowest rates of *Births with Early and Adequate Prenatal Care*, women in the Northern & Winchester region had the lowest rates of *Preterm Births (<37 Weeks)* and *Newborns with Low Birth Weight (<2,500g)*, exceeding the national benchmarks for both indicators for all three measurement periods. Tidewater had the highest rates of *Preterm Births (<37 Weeks)* and *Newborns with Low Birth Weight (<2,500g)* and had the highest percentage of women of Black, Non-Hispanic race (approximately 59 percent). As shown in Table 3-5, women of Black, Non-Hispanic race have the highest rates of *Preterm Births (<37 Weeks)* and *Newborns with Low Birth Weight (<2,500g)* at 11.1 percent and 12.1 percent, respectively.

Study Indicator Findings by Medicaid Characteristics

Table 3-7, on the next page, presents the study indicator results stratified by Medicaid program for each measurement period.

Table 3-7—Overall Study Indicator Findings Among Singleton Births by Medicaid Program, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Medicaid for Pregnant Women							
Births with Early and Adequate Prenatal Care	76.4%	16,249	72.2%	16,028	73.1%	13,737	72.4%
*Births with Inadequate Prenatal Care**	*NA*	3,637	16.2%	3,451	15.7%	2,839	15.0%
*Births with No Prenatal Care**	*NA*	368	1.6%	393	1.8%	241	1.3%
Preterm Births (<37 Weeks Gestation)*	9.4%	2,124	9.0%	2,173	9.5%	1,750	8.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,103	8.9%	2,062	9.0%	1,699	8.6%
Medicaid Expansion							
Births with Early and Adequate Prenatal Care	76.4%	—	—	1,462	70.9%	3,249	73.8%
*Births with Inadequate Prenatal Care**	*NA*	—	—	330	16.0%	578	13.1%
*Births with No Prenatal Care**	*NA*	—	—	74	3.6%	90	2.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	—	—	261	12.1%	544	11.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	—	—	235	10.9%	463	10.1%
FAMIS MOMS							
Births with Early and Adequate Prenatal Care	76.4%	1,311	76.8%	1,626	77.2%	1,564	76.8%
*Births with Inadequate Prenatal Care**	*NA*	228	13.4%	292	13.9%	261	12.8%
*Births with No Prenatal Care**	*NA*	14	0.8%	28	1.3%	11	0.5%
Preterm Births (<37 Weeks Gestation)*	9.4%	136	7.7%	168	7.7%	163	7.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	131	7.4%	158	7.2%	150	7.2%
LIFC							
Births with Early and Adequate Prenatal Care	76.4%	1,637	66.2%	1,576	66.1%	1,908	66.8%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	459	18.6%	487	20.4%	481	16.8%
*Births with No Prenatal Care**	*NA*	95	3.8%	105	4.4%	109	3.8%
Preterm Births (<37 Weeks Gestation)*	9.4%	354	13.8%	347	13.9%	393	13.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	348	13.6%	300	12.0%	336	11.2%
Other Medicaid							
Births with Early and Adequate Prenatal Care	76.4%	1,779	67.0%	1,700	67.7%	1,787	67.0%
*Births with Inadequate Prenatal Care**	*NA*	506	19.0%	483	19.2%	492	18.4%
*Births with No Prenatal Care**	*NA*	81	3.0%	88	3.5%	83	3.1%
Preterm Births (<37 Weeks Gestation)*	9.4%	328	11.7%	314	12.0%	318	11.3%
Newborns with Low Birth Weight (<2,500g)*	9.7%	319	11.4%	315	12.0%	331	11.8%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
—indicates Medicaid Expansion was not implemented until January 1, 2019; therefore, there were no births covered by the Medicaid Expansion program during CY 2018.

Births to women in the FAMIS MOMS program had the highest rates of *Births with Early and Adequate Prenatal Care* and the lowest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g*) for all three measurement periods. Of note, the rates for the FAMIS MOMS program met or exceeded the national benchmarks for all study indicators with applicable benchmarks for all three measurement periods, demonstrating strength for the FAMIS MOMS program. Additionally, the Medicaid for Pregnant Women program outperformed the national benchmarks for the *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g*) indicators for CY 2020. While the Medicaid for Expansion rates did not meet the national benchmarks in CY 2020, improvements were seen from CY 2019 to CY 2020, especially for the *Births with Early and Adequate Prenatal Care* and *Newborns with Low Birth Weight (<2,500g*) study indicators. The LIFC and Other Medicaid program rates demonstrate an opportunity for improvement given women in these two programs have the lowest rates of *Early and Adequate Prenatal Care* and some of the highest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g*).

Table 3-8, on the next page, presents the study indicator results stratified by Medicaid managed care program for each measurement period.

Table 3-8—Overall Study Indicator Findings Among Singleton Births by Medicaid Managed Care Program, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
FAMIS (includes FAMIS MOMS and FAMIS Children)							
Births with Early and Adequate Prenatal Care	76.4%	1,083	77.3%	1,394	77.9%	1,404	77.2%
*Births with Inadequate Prenatal Care**	*NA*	187	13.3%	241	13.5%	226	12.4%
*Births with No Prenatal Care**	*NA*	11	0.8%	24	1.3%	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	107	7.4%	135	7.3%	141	7.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	103	7.1%	125	6.7%	140	7.5%
CCC Plus							
Births with Early and Adequate Prenatal Care	76.4%	550	68.8%	597	69.6%	587	68.7%
*Births with Inadequate Prenatal Care**	*NA*	128	16.0%	151	17.6%	142	16.6%
*Births with No Prenatal Care**	*NA*	24	3.0%	30	3.5%	29	3.4%
Preterm Births (<37 Weeks Gestation)*	9.4%	126	14.9%	138	15.2%	140	15.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	124	14.7%	139	15.3%	138	15.6%
Medallion 4.0							
Births with Early and Adequate Prenatal Care	76.4%	15,487	71.8%	18,044	73.0%	18,373	72.5%
*Births with Inadequate Prenatal Care**	*NA*	3,538	16.4%	3,958	16.0%	3,721	14.7%
*Births with No Prenatal Care**	*NA*	304	1.4%	441	1.8%	378	1.5%
Preterm Births (<37 Weeks Gestation)*	9.4%	2,083	9.2%	2,502	9.7%	2,553	9.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,080	9.2%	2,349	9.1%	2,421	9.2%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Births to women in the FAMIS managed care program (FAMIS MOMS and FAMIS Children) had the highest rates of *Early and Adequate Prenatal Care* and the lowest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g*), with rates exceeding the national benchmarks for the applicable study indicators for all three measurement periods. Of note, the *Newborns with Low Birth Weight (<2,500g*) rate for the Medallion 4.0 managed care program outperformed the national benchmark for all three measurement periods. Given the low rates of *Births with Early and Adequate Prenatal Care* and higher rates of *Births with Inadequate Prenatal Care* and *Births with No Prenatal Care* for CCC Plus women, opportunities exist to ensure CCC Plus women receive timely and necessary prenatal care.

Table 3-9 presents the study indicator results stratified by Medicaid delivery system for each measurement period.

Table 3-9—Overall Study Indicator Findings Among Singleton Births by Medicaid Delivery System, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
FFS							
Births with Early and Adequate Prenatal Care	76.4%	3,856	68.9%	2,357	65.0%	1,881	64.8%
*Births with Inadequate Prenatal Care**	*NA*	977	17.5%	693	19.1%	562	19.4%
*Births with No Prenatal Care**	*NA*	219	3.9%	193	5.3%	117	4.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	626	10.7%	488	12.8%	334	11.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	594	10.1%	457	12.0%	280	9.3%
Managed Care							
Births with Early and Adequate Prenatal Care	76.4%	17,120	72.1%	20,035	73.2%	20,364	72.7%
*Births with Inadequate Prenatal Care**	*NA*	3,853	16.2%	4,350	15.9%	4,089	14.6%
*Births with No Prenatal Care**	*NA*	339	1.4%	495	1.8%	417	1.5%
Preterm Births (<37 Weeks Gestation)*	9.4%	2,316	9.3%	2,775	9.7%	2,834	9.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,307	9.3%	2,613	9.1%	2,699	9.2%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.

Women enrolled in managed care had better outcomes than women in the FFS population in CY 2020. The CY 2020 rate for women in managed care exceeded the national benchmark for the *Newborns with Low Birth Weight (<2,500 grams)* indicator but continued to fall below the national benchmark for the *Births with Early and Adequate Prenatal Care* and *Preterm Births (<37 Weeks Gestation)* indicators. Of note, the CY 2020 rate for women in FFS improved from prior measurement periods to outperform the national benchmark for *Newborns with Low Birth Weight (<2,500 grams).*

Table 3-10 presents the overall study indicator results among singleton births by trimester of prenatal care initiation.

Table 3-10—Overall Study Indicator Findings Among Singleton Births by Trimester of Prenatal Care Initiation, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
First Trimester							
Births with Early and Adequate Prenatal Care	76.4%	18,502	85.8%	19,961	87.0%	20,033	84.8%
*Births with Inadequate Prenatal Care**	*NA*	472	2.2%	535	2.3%	585	2.5%
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	1,981	9.2%	2,192	9.6%	2,256	9.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	1,936	9.0%	2,075	9.0%	2,114	9.0%
Second Trimester							
Births with Early and Adequate Prenatal Care	76.4%	2,474	43.0%	2,431	42.6%	2,212	41.1%
*Births with Inadequate Prenatal Care**	*NA*	2,873	49.9%	2,856	50.0%	2,678	49.8%
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	470	8.2%	512	9.0%	458	8.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	508	8.8%	523	9.2%	472	8.8%
Third Trimester							
Births with Early and Adequate Prenatal Care	76.4%	0	0.0%	0	0.0%	0	0.0%
*Births with Inadequate Prenatal Care**	*NA*	1,485	100.0%	1,652	100.0%	1,388	100.0%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	131	8.6%	150	9.0%	131	9.3%
Newborns with Low Birth Weight (<2,500g)*	9.7%	126	8.3%	134	8.0%	130	9.3%
No Prenatal Care							
Births with Early and Adequate Prenatal Care	76.4%	0	0.0%	0	0.0%	0	0.0%
*Births with Inadequate Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
*Births with No Prenatal Care**	*NA*	558	100.0%	688	100.0%	534	100.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	161	29.8%	195	28.4%	140	26.2%
Newborns with Low Birth Weight (<2,500g)*	9.7%	140	25.2%	157	22.9%	105	19.7%

Women who initiated prenatal care in their first, second, or third trimesters surpassed the national benchmark for the *Newborns with Low Birth Weight (<2,500 grams)* study indicator in CY 2020. However, only women who initiated prenatal care in their second or third trimesters outperformed the national benchmark for the *Preterm Births (<37 Weeks Gestation)* study indicator. Nearly 85 percent of women initiated prenatal care in their first trimester yet had a higher rate of preterm births compared to national benchmarks. Approximately 72 percent of the preterm births to women who initiated prenatal care in the first trimester received adequate plus prenatal care, suggesting that these women may have had high-risk pregnancies where regardless of receiving timely prenatal care they were still more likely to have a preterm birth.

Table 3-11 presents the study indicator results among singleton births by length of continuous enrollment.

Table 3-11—Overall Study Indicator Findings Among Singleton Births by Length of Continuous Enrollment, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
≤30 Days							
Births with Early and Adequate Prenatal Care	76.4%	700	65.1%	812	66.6%	632	65.2%
*Births with Inadequate Prenatal Care**	*NA*	199	18.5%	221	18.1%	173	17.8%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with No Prenatal Care**	*NA*	62	5.8%	55	4.5%	43	4.4%
Preterm Births (<37 Weeks Gestation)*	9.4%	147	13.1%	153	11.9%	103	10.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	128	11.3%	143	11.1%	91	8.9%
31–90 Days							
Births with Early and Adequate Prenatal Care	76.4%	1,079	61.4%	1,216	62.8%	1,002	62.8%
*Births with Inadequate Prenatal Care**	*NA*	412	23.4%	460	23.7%	360	22.6%
*Births with No Prenatal Care**	*NA*	65	3.7%	87	4.5%	50	3.1%
Preterm Births (<37 Weeks Gestation)*	9.4%	197	10.7%	219	10.7%	198	11.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	185	10.0%	204	9.9%	161	9.7%
91–180 Days							
Births with Early and Adequate Prenatal Care	76.4%	2,267	60.3%	2,341	60.4%	2,165	62.5%
*Births with Inadequate Prenatal Care**	*NA*	1,035	27.5%	1,061	27.4%	844	24.4%
*Births with No Prenatal Care**	*NA*	97	2.6%	106	2.7%	66	1.9%
Preterm Births (<37 Weeks Gestation)*	9.4%	439	11.2%	508	12.5%	388	10.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	408	10.4%	481	11.9%	368	10.2%
>180 Days							
Births with Early and Adequate Prenatal Care	76.4%	16,889	74.4%	17,964	75.3%	18,424	74.1%
*Births with Inadequate Prenatal Care**	*NA*	3,173	14.0%	3,289	13.8%	3,256	13.1%
*Births with No Prenatal Care**	*NA*	329	1.4%	434	1.8%	373	1.5%
Preterm Births (<37 Weeks Gestation)*	9.4%	2,152	9.1%	2,371	9.5%	2,474	9.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,174	9.1%	2,230	8.9%	2,355	9.1%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Not Continuously Enrolled Prior to Delivery							
Births with Early and Adequate Prenatal Care	76.4%	41	63.1%	59	64.8%	22	48.9%
*Births with Inadequate Prenatal Care**	*NA*	11	16.9%	12	13.2%	18	40.0%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Women who were continously enrolled for less than 30 days and more than 180 days had *Newborns with Low Birth Weight (<2,500 grams)* rates that outperformed national benchmarks in CY 2020. Despite not meeting the national benchmark in CY 2020 for *Births with Early and Adequate Prenatal Care*, women who were continuously enrolled for more than 180 days had the highest rate compared to women enrolled for less time. This finding is expected given that women enrolled for more than 180 days likely had an opportunity to initiate prenatal care in their first trimester. Of note, the CY 2020 *Births with Early and Adequate Prenatal Care* rate for women not continuously enrolled prior to delivery declined from CY 2019 by nearly 16 percentage points. The decrease in the rate is related to the decline in the number of women not continuously enrolled prior to delivery in CY 2020, which may be attributed to the implementation of Medicaid Expansion in 2019 and the MOE in response to COVID-19 that ensured continuous coverage to pregnant women during CY 2020. Women not continuously enrolled prior to delivery in CY 2020 were predominantly Hispanic women of any race, immigrants, and resided in the Northern & Winchester region.

MCO Study Indicator Results

Table 3-12 presents the overall study indicators stratified by MCO for each measurement period.

Table 3-12—Overall Study Indicator Findings Among Singleton Births by MCO, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Aetna							
Births with Early and Adequate Prenatal Care	76.4%	1,176	75.1%	2,363	72.7%	2,703	73.5%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	201	12.8%	522	16.1%	519	14.1%
*Births with No Prenatal Care**	*NA*	18	1.2%	63	1.9%	46	1.3%
Preterm Births (<37 Weeks Gestation)*	9.4%	164	10.0%	337	9.8%	373	9.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	146	8.9%	343	10.0%	322	8.4%
HealthKeepers							
Births with Early and Adequate Prenatal Care	76.4%	6,176	71.8%	6,174	73.5%	6,357	72.6%
*Births with Inadequate Prenatal Care**	*NA*	1,402	16.3%	1,290	15.4%	1,271	14.5%
*Births with No Prenatal Care**	*NA*	126	1.5%	170	2.0%	121	1.4%
Preterm Births (<37 Weeks Gestation)*	9.4%	806	9.1%	875	10.0%	836	9.3%
Newborns with Low Birth Weight (<2,500g)*	9.7%	787	8.9%	755	8.6%	785	8.7%
Magellan							
Births with Early and Adequate Prenatal Care	76.4%	202	64.3%	1,330	70.4%	1,454	72.4%
*Births with Inadequate Prenatal Care**	*NA*	69	22.0%	344	18.2%	317	15.8%
*Births with No Prenatal Care**	*NA*	*S*	*S*	31	1.6%	43	2.1%
Preterm Births (<37 Weeks Gestation)*	9.4%	23	7.0%	186	9.4%	229	11.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	25	7.6%	189	9.6%	242	11.7%
Optima							
Births with Early and Adequate Prenatal Care	76.4%	4,011	74.0%	4,438	75.6%	4,380	74.4%
*Births with Inadequate Prenatal Care**	*NA*	801	14.8%	855	14.6%	828	14.1%
*Births with No Prenatal Care**	*NA*	89	1.6%	100	1.7%	85	1.4%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Preterm Births (<37 Weeks Gestation)*	9.4%	532	9.6%	609	10.1%	627	10.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	531	9.5%	598	9.9%	595	9.9%
UnitedHealthcare							
Births with Early and Adequate Prenatal Care	76.4%	328	66.9%	1,778	70.2%	1,816	71.3%
*Births with Inadequate Prenatal Care**	*NA*	91	18.6%	447	17.7%	373	14.6%
*Births with No Prenatal Care**	*NA*	*S*	*S*	57	2.3%	40	1.6%
Preterm Births (<37 Weeks Gestation)*	9.4%	49	9.7%	231	8.7%	234	8.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	41	8.1%	234	8.8%	238	8.9%
VA Premier							
Births with Early and Adequate Prenatal Care	76.4%	3,705	73.0%	3,952	72.9%	3,654	71.0%
*Births with Inadequate Prenatal Care**	*NA*	810	16.0%	892	16.5%	781	15.2%
*Births with No Prenatal Care**	*NA*	54	1.1%	74	1.4%	82	1.6%
Preterm Births (<37 Weeks Gestation)*	9.4%	506	9.2%	537	9.3%	535	9.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	531	9.6%	494	8.6%	517	9.3%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

HealthKeepers and UnitedHealthcare were the only two MCOs to exceed the national benchmarks for both the *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams)* indicators in CY 2020. Of note, Aetna and VA Premier also exceeded the national benchmark for the *Newborns with Low Birth Weight (<2,500 grams)* indicator for CY 2020. Magellan had the highest rates of *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams)* in CY 2020, demonstrating opportunities for improvement.

Table 3-13, on the next page, presents the overall study indicators for each MCO stratified by race/ethnicity for CY 2020.

Table 3-13—Overall Study Indicator Findings Among Singleton Births by MCO and Race/Ethnicity, CY 2020

Study Indicator	National Benchmark	Aetna	Health Keepers	Magellan	Optima	United	VA Premier
White, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	75.4%	75.1%	74.0%	74.3%	72.8%	72.6%
*Births with Inadequate Prenatal Care**	*NA*	12.7%	12.7%	14.3%	14.2%	12.9%	14.3%
*Births with No Prenatal Care**	*NA*	1.0%	1.2%	1.6%	1.4%	*S*	1.6%
Preterm Births (<37 Weeks Gestation)*	9.4%	9.8%	8.2%	10.4%	8.8%	9.0%	9.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	7.4%	7.2%	10.5%	6.3%	7.6%	8.7%
Black, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	73.1%	72.1%	72.0%	74.8%	70.5%	71.2%
*Births with Inadequate Prenatal Care**	*NA*	14.4%	14.9%	15.3%	13.2%	16.8%	15.1%
*Births with No Prenatal Care**	*NA*	1.2%	1.6%	3.0%	1.6%	2.5%	1.8%
Preterm Births (<37 Weeks Gestation)*	9.4%	10.0%	11.0%	12.3%	11.9%	10.6%	10.2%
Newborns with Low Birth Weight (<2,500g)*	9.7%	10.5%	11.5%	15.2%	13.3%	12.5%	11.5%
Hispanic, Any Race							
Births with Early and Adequate Prenatal Care	76.4%	68.2%	69.7%	67.1%	74.3%	68.2%	66.1%
*Births with Inadequate Prenatal Care**	*NA*	18.8%	17.3%	22.7%	16.9%	16.1%	19.2%
*Births with No Prenatal Care**	*NA*	*S*	1.5%	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	9.0%	8.5%	10.4%	9.2%	4.6%	6.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	6.2%	6.0%	7.1%	7.3%	4.8%	4.8%
Other/Unknown							
Births with Early and Adequate Prenatal Care	76.4%	69.4%	68.1%	70.9%	68.6%	72.5%	64.8%

Study Indicator	National Benchmark	Aetna	Health Keepers	Magellan	Optima	United	VA Premier
*Births with Inadequate Prenatal Care**	*NA*	15.0%	16.2%	20.3%	18.9%	11.6%	16.8%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	0.0%	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	9.0%	6.3%	*S*	11.3%	7.2%	11.2%
Newborns with Low Birth Weight (<2,500g)*	9.7%	6.2%	6.3%	*S*	10.6%	9.2%	8.5%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

None of the MCOs exceeded the national benchmark for the *Births with Early and Adequate Prenatal Care* indicator during CY 2020 for any race/ethnicity, demonstrating opportunities for improvement for all MCOs. Additionally, across all MCOs, Hispanic women of any race and women of Other/Unknown race had the lowest rates of *Births with Early and Adequate Prenatal Care*. All MCOs, except Magellan, had *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams)* rates for Hispanic women of any race that outperformed the national benchmarks in CY 2020. None of the MCOs exceeded the national benchmarks for any study indicators with applicable benchmarks for Black, Non-Hispanic women. Of note, Magellan had some of the highest rates of *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams)* for all known races/ethnicities (White, Non-Hispanic; Black, Non-Hispanic, Hispanic, Any Race), suggesting opportunities for Magellan to improve care for all women.

Table 3-14 presents the overall study indicators for each MCO stratified by geographic managed care region for CY 2020.

Table 3-14—Overall Study Indicator Findings Among Singleton Births by MCO and Geographic Managed Care Region, CY 2020

Study Indicator	National Benchmark	Aetna	Health Keepers	Magellan	Optima	United	VA Premier
Central							
Births with Early and Adequate Prenatal Care	76.4%	75.2%	75.6%	70.4%	73.1%	75.4%	68.6%
*Births with Inadequate Prenatal Care**	*NA*	12.1%	11.0%	13.7%	13.7%	12.4%	15.0%
*Births with No Prenatal Care**	*NA*	1.2%	1.5%	3.4%	1.6%	*S*	2.2%
Preterm Births (<37 Weeks Gestation)*	9.4%	9.8%	9.4%	11.4%	9.2%	8.9%	9.2%

Study Indicator	National Benchmark	Aetna	Health Keepers	Magellan	Optima	United	VA Premier
Newborns with Low Birth Weight (<2,500g)*	9.7%	9.0%	9.8%	12.1%	9.6%	9.7%	10.9%
Charlottesville/Western							
Births with Early and Adequate Prenatal Care	76.4%	80.8%	75.6%	78.8%	77.5%	73.2%	78.2%
*Births with Inadequate Prenatal Care**	*NA*	13.6%	15.5%	16.3%	14.3%	15.3%	13.9%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	1.0%	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	9.8%	7.1%	10.9%	9.3%	9.6%	8.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	8.1%	7.2%	12.1%	9.7%	7.6%	8.3%
Northern & Winchester							
Births with Early and Adequate Prenatal Care	76.4%	66.4%	66.5%	68.1%	66.7%	67.5%	61.8%
*Births with Inadequate Prenatal Care**	*NA*	19.2%	18.4%	18.8%	19.0%	17.6%	21.5%
*Births with No Prenatal Care**	*NA*	2.1%	1.5%	*S*	*S*	1.4%	1.3%
Preterm Births (<37 Weeks Gestation)*	9.4%	8.9%	8.2%	10.5%	10.6%	6.5%	8.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	6.5%	7.6%	9.1%	9.1%	6.3%	7.2%
Roanoke/Alleghany							
Births with Early and Adequate Prenatal Care	76.4%	73.6%	77.3%	74.2%	73.4%	72.4%	73.9%
*Births with Inadequate Prenatal Care**	*NA*	12.5%	9.8%	13.1%	14.5%	10.4%	11.4%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	1.4%
Preterm Births (<37 Weeks Gestation)*	9.4%	8.4%	9.5%	10.3%	9.0%	6.8%	10.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	7.6%	8.0%	13.7%	8.5%	8.9%	10.0%
Southwest							
Births with Early and Adequate Prenatal Care	76.4%	68.5%	72.0%	64.0%	70.9%	63.0%	67.9%

Study Indicator	National Benchmark	Aetna	Health Keepers	Magellan	Optima	United	VA Premier
*Births with Inadequate Prenatal Care**	NA	14.5%	9.9%	19.3%	15.7%	20.2%	15.3%
*Births with No Prenatal Care**	NA	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	11.3%	9.0%	8.3%	7.5%	13.6%	9.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	10.4%	8.7%	9.0%	5.2%	13.6%	8.8%
Tidewater							
Births with Early and Adequate Prenatal Care	76.4%	73.4%	75.0%	74.9%	75.1%	75.2%	75.0%
*Births with Inadequate Prenatal Care**	NA	14.6%	14.5%	17.2%	13.2%	12.5%	13.4%
*Births with No Prenatal Care**	NA	*S*	1.2%	2.3%	1.7%	3.2%	2.1%
Preterm Births (<37 Weeks Gestation)*	9.4%	10.6%	11.0%	12.3%	11.9%	13.3%	11.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	9.0%	9.5%	12.1%	10.8%	13.0%	10.2%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

In CY 2020, four of the six MCOs in the Charlottesville/Western region exceeded the national benchmark for the *Births with Early and Adequate Prenatal Care* indicator. Despite women in the Charlottesville/Western region having the highest rates of *Births with Early and Adequate Prenatal Care*, only three of six MCOs and four of six MCOs exceeded the national benchmarks for the *Preterm Births (<37 Weeks Gestation)* and the *Newborns with Low Birth Weight (<2,500 grams)* study indicators, respectively. None of the MCOs in the Central, Northern & Winchester, Southwest, or Tidewater regions exceeded the national benchmark for the *Births with Early and Adequate Prenatal Care* indicator. All MCOs in the Northern & Winchester region exceeded the national benchmark for the *Newborns with Low Birth Weight (<2,500 grams)* indicator, while none of the MCOs in the Tidewater region exceeded the national benchmark for the *Preterm Births (<37 Weeks Gestation)* indicator.

Table 3-15, on the next page, presents the CY 2020 cross-measure analysis results that shows the distribution of prenatal care by the *Preterm Births (<37 Weeks Gestation)* and the *Newborns with Low Birth Weight (<2,500 grams)* study indicators for each MCO.

Table 3-15—Distribution of Adequacy of Prenatal Care by Birth Outcomes (Preterm Births and Low Birth Weight) and MCO, CY 2020

MCO	Study Indicator	Missing Information	No PNC	Inadequate PNC	Intermediate PNC	Adequate PNC	Adequate Plus PNC
Aetna	Preterm Births (<37 Weeks Gestation)*	16.4%	32.6%	8.1%	6.3%	3.1%	18.5%
	Newborns with Low Birth Weight (<2,500g)*	13.2%	23.9%	8.5%	5.1%	4.1%	13.9%
HealthKeepers	Preterm Births (<37 Weeks Gestation)*	15.6%	19.8%	8.1%	5.9%	3.3%	18.0%
	Newborns with Low Birth Weight (<2,500g)*	13.7%	15.7%	8.2%	6.4%	4.4%	14.7%
Magellan	Preterm Births (<37 Weeks Gestation)*	18.2%	*S*	9.1%	6.7%	4.5%	19.7%
	Newborns with Low Birth Weight (<2,500g)*	*S*	*S*	11.4%	8.7%	7.0%	17.4%
Optima	Preterm Births (<37 Weeks Gestation)*	12.1%	28.2%	9.3%	7.0%	3.8%	18.0%
	Newborns with Low Birth Weight (<2,500g)*	8.1%	22.4%	8.3%	5.5%	5.4%	16.1%
UnitedHealthcare	Preterm Births (<37 Weeks Gestation)*	19.1%	*S*	7.8%	*S*	2.3%	18.9%
	Newborns with Low Birth Weight (<2,500g)*	17.6%	*S*	7.8%	3.4%	4.1%	16.9%
VA Premier	Preterm Births (<37 Weeks Gestation)*	13.9%	29.3%	6.4%	7.8%	4.4%	15.7%
	Newborns with Low Birth Weight (<2,500g)*	12.0%	20.7%	9.0%	9.1%	4.9%	13.3%

PNC=prenatal care
**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

As shown in Table 3-12 above, HealthKeepers and UnitedHealthcare were the only two MCOs to exceed the national benchmarks for both the *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams)* indicators for CY 2020. Of note, Aetna and VA Premier also exceeded the national benchmark for the *Newborns with Low Birth Weight (<2,500 grams)* indicators for CY 2020. Despite that none of the MCOs exceeded the national benchmark for *Early and Adequate Prenatal Care,* Table 3-15 shows that ensuring women receive adequate prenatal care reduces the rates of *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams),* with all MCOs having rates below national benchmarks when adequate prenatal care is received. Of note, Aetna and UnitedHealthcare had the lowest rates of *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams)* when women received adequate prenatal care. Conversely, Magellan had the highest rate of *Newborns with Low Birth Weight (<2,500 grams)* when women received adequate prenatal care, and both Magellan and VA Premier had the highest rates of *Preterm Births (<37 Weeks Gestation*) when women received adequate prenatal care.

All MCOs had similar rates of *Preterm Births (<37 Weeks Gestation*) and *Newborns with Low Birth Weight (<2,500 grams)* for women with adequate plus prenatal care. This finding suggests that women

who were at high risk for preterm birth or having a baby with low birth weight were receiving more than 110 percent of expected prenatal visits; however, these women still had poor birth outcomes. Aetna, Optima, and VA Premier had some of the highest rates of *Preterm Births (<37 Weeks Gestation*) to women who had no prenatal care.

Comparative Analysis

To facilitate DMAS' program evaluation efforts, Table 3-16 presents the CY 2020 study indicator results for the five Medicaid Programs (i.e., Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, LIFC, and Other Medicaid) stratified into a study population and comparison group based on the length of continuous enrollment prior to a woman's delivery. The table also indicates whether each indicator's results were statistically significantly different between the study population (i.e., continuously enrolled for ≥ 120 days prior to delivery) and the comparison group (i.e., continuously enrolled for < 120 days prior to delivery).

Table 3-16—Overall Study Indicator Findings Among Singleton Births by Comparison Group and Study Population, CY 2020

Study Indicator	National Benchmark	Comparison Group			Study Population		
		Denom	Number	Percent	Denom	Number	Percent
Medicaid for Pregnant Women							
Births with Early and Adequate Prenatal Care	76.4%	2,663	1,629	61.2%	16,305	12,108	74.3%^
*Births with Inadequate Prenatal Care**	*NA*	2,663	627	23.5%	16,305	2,212	13.6%^
*Births with No Prenatal Care**	*NA*	2,663	87	3.3%	16,305	154	0.9%^
Preterm Births (<37 Weeks Gestation)*	9.4%	2,775	292	10.5%	16,995	1,458	8.6%^
Newborns with Low Birth Weight (<2,500g)*	9.7%	2,775	267	9.6%	16,989	1,432	8.4%^
Medicaid Expansion							
Births with Early and Adequate Prenatal Care	76.4%	250	172	68.8%	4,150	3,077	74.1%
*Births with Inadequate Prenatal Care**	*NA*	250	40	16.0%	4,150	538	13.0%
*Births with No Prenatal Care**	*NA*	*250*	*S*	*S*	4,150	80	1.9%^

Study Indicator	National Benchmark	Comparison Group			Study Population		
		Denom	Number	Percent	Denom	Number	Percent
Preterm Births (<37 Weeks Gestation)*	9.4%	262	40	15.3%	4,314	504	11.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	262	28	10.7%	4,313	435	10.1%
FAMIS MOMS							
Births with Early and Adequate Prenatal Care	76.4%	431	315	73.1%	1,606	1,249	77.8%^
*Births with Inadequate Prenatal Care**	*NA*	431	74	17.2%	1,606	187	11.6%^
*Births with No Prenatal Care**	*NA*	431	*S*	*S*	1,606	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	446	41	9.2%	1,645	122	7.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	446	38	8.5%	1,645	112	6.8%
LIFC							
Births with Early and Adequate Prenatal Care	76.4%	132	79	59.8%	2,725	1,829	67.1%
*Births with Inadequate Prenatal Care**	*NA*	132	24	18.2%	2,725	457	16.8%
*Births with No Prenatal Care**	*NA*	132	15	11.4%	2,725	94	3.4%^
Preterm Births (<37 Weeks Gestation)*	9.4%	150	30	20.0%	2,839	363	12.8%^
Newborns with Low Birth Weight (<2,500g)*	9.7%	150	16	10.7%	2,837	320	11.3%
Other Medicaid†							
Births with Early and Adequate Prenatal Care	76.4%	208	114	54.8%	2,461	1,673	68.0%^

Study Indicator	National Benchmark	Comparison Group			Study Population		
		Denom	Number	Percent	Denom	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	208	60	28.8%	2,461	432	17.6%^
*Births with No Prenatal Care**	*NA*	208	*S*	*S*	2,461	75	3.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	217	33	15.2%	2,585	285	11.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	216	32	14.8%	2,584	299	11.6%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
†Other Medicaid includes births paid by Medicaid, but that do not fall into the Medicaid for Pregnant Women, Medicaid Expansion, FAMIS MOMS, and LIFC programs.
^indicates the study population rate is statistically different from the comparison group rate.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Overall, the FAMIS MOMS program demonstrated strength in CY 2020 with the study population exceeding the applicable national benchmark for the three study indicators that could be compared to national benchmarks. Similarly, the study population for the Medicaid for Pregnant Women program exceeded the applicable national benchmarks for the *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* study indicators. The Medicaid Expansion, LIFC, and Other Medicaid study population rates fell below the national benchmark for all three study indicators that could be compared to national benchmarks, with the LIFC study population having the highest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)*. Women in the LIFC program may not have received all the necessary prenatal care as evidenced by the lower *Births with Early and Adequate Prenatal Care* study indicator rates, which likely contributed to the high rates of preterm births given that studies have shown that timely prenatal care is associated with fewer preterm births in the United States.[3-2]

Additional Population-Specific Stratifications

FAMIS MOMS

Table 3-17, on the next page, provides the FAMIS MOMS singleton births characteristics, stratified by Medicaid delivery system, maternal age at delivery, maternal race/ethnicity, and managed care region of residence.

[3-2] Centers for Disease Control and Prevention. Preterm birth. Available at: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm. Accessed on: Dec 9, 2021.

Table 3-17—FAMIS MOMS Singleton Births Characteristics

Overall Births	CY 2018		CY 2019		CY 2020	
	Number	Percent	Number	Percent	Number	Percent
Singleton Births†	1,771	100.0%	2,193	100.0%	2,091	100.0%
Medicaid Delivery System						
FFS	353	19.9%	375	17.1%	264	12.6%
Managed Care	1,418	80.1%	1,818	82.9%	1,827	87.4%
Maternal Age at Delivery						
≤15 Years	0	0.0%	*S*	*S*	*S*	*S*
16–17 Years	12	0.7%	12	0.5%	*S*	*S*
18–20 Years	90	5.1%	106	4.8%	99	4.7%
21–24 Years	375	21.2%	460	21.0%	383	18.3%
25–29 Years	648	36.6%	740	33.7%	747	35.7%
30–34 Years	389	22.0%	556	25.4%	521	24.9%
35–39 Years	208	11.7%	246	11.2%	267	12.8%
40–44 Years	47	2.7%	66	3.0%	55	2.6%
≥45 Years	*S*	*S*	*S*	*S*	*S*	*S*
Unknown	*S*	*S*	0	0.0%	*S*	*S*
Maternal Race/Ethnicity						
White, Non-Hispanic	552	31.2%	687	31.3%	621	29.7%
Black, Non-Hispanic	128	7.2%	166	7.6%	172	8.2%
Asian, Non-Hispanic	271	15.3%	343	15.6%	344	16.5%
Hispanic, Any Race	27	1.5%	48	2.2%	40	1.9%
Other/Unknown	552	31.2%	687	31.3%	621	29.7%
Managed Care Region of Residence						
Central	409	23.1%	527	24.0%	475	22.7%
Charlottesville/Western	206	11.6%	238	10.9%	206	9.9%
Northern & Winchester	600	33.9%	736	33.6%	740	35.4%
Roanoke/Alleghany	113	6.4%	175	8.0%	161	7.7%
Southwest	73	4.1%	88	4.0%	63	3.0%
Tidewater	370	20.9%	427	19.5%	446	21.3%

†Unknown managed care regions of residence are included in the Singleton Births totals.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Table 3-18, on the next page, presents the FAMIS MOMS study indicator results stratified by Medicaid delivery system for each measurement period.

Table 3-18—Overall Study Indicator Findings Among FAMIS MOMS Singleton Births by Medicaid Delivery System, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
FFS							
Births with Early and Adequate Prenatal Care	76.4%	251	73.4%	260	73.0%	183	71.5%
*Births with Inadequate Prenatal Care**	*NA*	48	14.0%	60	16.9%	42	16.4%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	32	9.1%	39	10.4%	24	9.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	32	9.1%	41	10.9%	17	6.4%
Managed Care							
Births with Early and Adequate Prenatal Care	76.4%	1,060	77.7%	1,366	78.1%	1,381	77.5%
*Births with Inadequate Prenatal Care**	*NA*	180	13.2%	232	13.3%	219	12.3%
*Births with No Prenatal Care**	*NA*	*S*	*S*	22	1.3%	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	104	7.3%	129	7.1%	139	7.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	99	7.0%	117	6.4%	133	7.3%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Study indicator rates for women in managed care and FFS FAMIS MOMS exceeded the national benchmarks for the *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* indicators for CY 2020, demonstrating strength. Despite this, the CY 2020 *Births with Early and Adequate Prenatal Care* indicator rate for women in FFS FAMIS MOMS fell below the national benchmark and has declined since CY 2018. This may be attributed to the shorter period of enrollment for FFS women (i.e., these women are likely enrolled shortly before delivery). It is expected that women in managed care FAMIS MOMS have higher rates of *Births with Early and Adequate Prenatal Care* as MCOs are expected to conduct outreach to pregnant women enrolled in managed care regarding the importance of prenatal visits.

Table 3-19, on the next page, presents the FAMIS MOMS study indicator results stratified by race/ethnicity for each measurement period.

Table 3-19—Study Indicator Findings Among FAMIS MOMS Singleton Births by Race/Ethnicity, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	606	81.0%	727	80.9%	693	79.0%
*Births with Inadequate Prenatal Care**	*NA*	73	9.8%	104	11.6%	107	12.2%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	42	5.3%	58	6.1%	61	6.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	43	5.4%	42	4.4%	55	6.0%
Black, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	410	76.4%	520	77.7%	481	78.7%
*Births with Inadequate Prenatal Care**	*NA*	76	14.2%	95	14.2%	67	11.0%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	68	12.3%	65	9.5%	60	9.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	59	10.7%	73	10.6%	64	10.3%
Hispanic, Any Race							
Births with Early and Adequate Prenatal Care	76.4%	195	72.5%	229	68.6%	236	69.2%
*Births with Inadequate Prenatal Care**	*NA*	46	17.1%	62	18.6%	66	19.4%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	15	5.5%	29	8.5%	26	7.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	12	4.4%	25	7.3%	17	4.9%
Other/Unknown							
Births with Early and Adequate Prenatal Care	76.4%	100	65.8%	150	73.9%	154	74.0%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	33	21.7%	31	15.3%	21	10.1%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	—	—
Preterm Births (<37 Weeks Gestation)*	9.4%	11	7.1%	16	7.5%	16	7.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	17	11.0%	18	8.4%	14	6.6%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Although the CY 2020 *Births with Early and Adequate Prenatal Care* rate for Black, Non-Hispanic women enrolled in FAMIS MOMS exceeded the national benchmark, Black, Non-Hispanic women had the highest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* compared to other race/ethnicities. In CY 2020, White, Non-Hispanic women had the highest rates of *Births with Early and Adequate Prenatal Care* and lowest rates of *Preterm Births (<37 Weeks Gestation),* exceeding the national benchmarks for both study indicators. Despite Hispanic women of any race having the lowest rate of *Births with Early and Adequate Prenatal Care*, they had the lowest rate of *Newborns with Low Birth Weight (<2,500g)*, and their rates for *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* outperformed national benchmarks.

Table 3-20 presents the FAMIS MOMS study indicator results stratified by geographic managed care region for each measurement period.

Table 3-20—Study Indicator Findings Among FAMIS MOMS Singleton Births by Managed Care Region of Maternal Residence, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Central							
Births with Early and Adequate Prenatal Care	76.4%	327	80.5%	421	81.0%	379	80.3%
*Births with Inadequate Prenatal Care**	*NA*	29	7.1%	55	10.6%	49	10.4%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	38	9.3%	41	7.8%	35	7.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	32	7.8%	39	7.4%	34	7.2%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Charlottesville/Western							
Births with Early and Adequate Prenatal Care	76.4%	174	85.7%	193	82.1%	170	82.5%
*Births with Inadequate Prenatal Care**	*NA*	15	7.4%	31	13.2%	23	11.2%
*Births with No Prenatal Care**	*NA*	0	0.0%	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	17	7.1%	16	7.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	18	7.6%	12	5.8%
Northern & Winchester							
Births with Early and Adequate Prenatal Care	76.4%	398	67.9%	486	69.1%	502	69.2%
*Births with Inadequate Prenatal Care**	*NA*	129	22.0%	134	19.1%	122	16.8%
*Births with No Prenatal Care**	*NA*	*S*	*S*	15	2.1%	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	37	6.2%	62	8.4%	46	6.2%
Newborns with Low Birth Weight (<2,500g)*	9.7%	38	6.3%	55	7.5%	42	5.7%
Roanoke/Alleghany							
Births with Early and Adequate Prenatal Care	76.4%	83	80.6%	131	78.4%	127	80.4%
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	18	10.8%	15	9.5%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
Southwest							
Births with Early and Adequate Prenatal Care	76.4%	34	81.0%	48	90.6%	25	75.8%
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
Tidewater							
Births with Early and Adequate Prenatal Care	76.4%	295	80.6%	345	81.2%	361	81.5%
*Births with Inadequate Prenatal Care**	*NA*	40	10.9%	53	12.5%	50	11.3%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	42	11.4%	35	8.2%	48	10.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	42	11.4%	37	8.7%	44	9.9%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that data were suppressed due to numerator or denominator (i.e., fewer than 11). In instances where only one stratification was suppressed, the value for the second smallest population was also suppressed, even if the value was 11 or more.

In CY 2020, the rates for FAMIS MOMS women residing in the Northern & Winchester and Southwest regions did not meet the national benchmark for *Births with Early and Adequate Prenatal Care*. Despite Northern & Winchester having the lowest rate of *Births with Early and Adequate Prenatal Care*, the rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* were among the lowest compared to all other regions. Conversely, women residing in the Tidewater region had one of the highest rates of *Births with Adequate and Prenatal Care* compared to all other regions; however, women in this region also had some of the highest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)*.

Table 3-21, on the next page, presents the FAMIS MOMS study indicator results stratified by length of continuous enrollment for each measurement period.

Table 3-21—Study Indicator Findings Among FAMIS MOMS Singleton Births by Length of Continuous Enrollment, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
≤30 Days							
Births with Early and Adequate Prenatal Care	76.4%	76	64.40%	141	73.8%	99	73.9%
*Births with Inadequate Prenatal Care**	*NA*	22	18.60%	27	14.1%	19	14.2%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	14	11.60%	20	10.0%	14	10.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	13	10.70%	19	9.5%	14	10.1%
31–90 Days							
Births with Early and Adequate Prenatal Care	76.4%	95	64.6%	151	72.6%	124	75.2%
*Births with Inadequate Prenatal Care**	*NA*	31	21.1%	40	19.2%	24	14.5%
*Births with No Prenatal Care**	*NA*	0	0.0%	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	16	10.6%	16	7.3%	14	8.2%
Newborns with Low Birth Weight (<2,500g)*	9.7%	16	10.6%	17	7.8%	11	6.5%
91–180 Days							
Births with Early and Adequate Prenatal Care	76.4%	232	69.9%	295	69.2%	320	73.2%
*Births with Inadequate Prenatal Care**	*NA*	68	20.5%	94	22.1%	73	16.7%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	32	9.2%	46	10.4%	40	8.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	33	9.5%	44	9.9%	46	10.2%
>180 Days							
Births with Early and Adequate Prenatal Care	76.4%	906	81.9%	1,032	81.1%	1,018	78.7%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	106	9.6%	131	10.3%	142	11.0%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	74	6.4%	86	6.5%	94	7.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	69	6.0%	77	5.8%	79	6.0%
Not Continuously Enrolled Prior to Delivery							
Births with Early and Adequate Prenatal Care	76.4%	*S*	*S*	*S*	*S*	*S*	*S*
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that data were suppressed due to numerator or denominator (i.e., fewer than 11).

Women continuously enrolled in FAMIS MOMS for more than 180 days during CY 2020 had the highest rates of *Births with Early and Adequate Prenatal Care* and some of the lowest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g).* Of note, women continuously enrolled in FAMIS MOMS between 91 and 180 days had lower rates of *Births with Early and Adequate Prenatal Care* and higher rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* compared to women continuously enrolled between 31 to 90 days, suggesting that women enrolled for a shorter period of time were enrolled after or near the end of their first trimester.

Table 3-22, on the next page, presents the FAMIS MOMS study indicator results stratified by trimester of prenatal care initiation for each measurement period.

Table 3-22—Study Indicator Findings Among FAMIS MOMS Singleton Births by Trimester of Prenatal Care Initiation, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
First Trimester							
Births with Early and Adequate Prenatal Care	76.4%	1,133	88.4%	1,452	90.1%	1,400	88.3%
*Births with Inadequate Prenatal Care**	*NA*	17	1.3%	22	1.4%	24	1.5%
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	88	6.9%	119	7.4%	122	7.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	79	6.2%	104	6.5%	102	6.4%
Second Trimester							
Births with Early and Adequate Prenatal Care	76.4%	178	53.1%	174	46.0%	164	43.4%
*Births with Inadequate Prenatal Care**	*NA*	136	40.6%	183	48.4%	175	46.3%
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	26	7.8%	28	7.4%	25	6.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	30	9.0%	32	8.5%	28	7.4%
Third Trimester							
Births with Early and Adequate Prenatal Care	76.4%	0	0.0%	0	0.0%	0	0.0%
*Births with Inadequate Prenatal Care**	*NA*	75	100.0%	87	100.0%	62	100.0%
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
No Prenatal Care							
Births with Early and Adequate Prenatal Care	76.4%	0	0.0%	0	0.0%	0	0.0%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	0	0.0%	0	0.0%	0	0.0%
*Births with No Prenatal Care**	*NA*	14	100.0%	28	100.0%	11	100.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11). In instances where only one stratification was suppressed, the value for the second smallest population was also suppressed, even if the value was 11 or more.

In CY 2020, the majority of women enrolled in FAMIS MOMS (approximately 76 percent) initiated prenatal care in the first trimester and exceeded the national benchmarks for all three study indicators with an applicable benchmark. Of note, women in enrolled in FAMIS MOMS during the second trimester still had rates for *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)* that exceeded national benchmarks.

Emergency Only Benefits

Table 3-23 presents the study indicator results for women who received emergency-only benefits for each measurement period.

Table 3-23—Overall Study Indicator Findings Among Emergency-Only Singleton Births, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Births with Early and Adequate Prenatal Care	76.4%	1,477	62.6%	2,644	59.4%	2,042	53.8%
*Births with Inadequate Prenatal Care**	*NA*	484	20.5%	1,124	25.3%	1,112	29.3%
*Births with No Prenatal Care**	*NA*	88	3.7%	183	4.1%	143	3.8%
Preterm Births (<37 Weeks Gestation)*	9.4%	176	7.3%	355	7.8%	287	7.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	136	5.6%	242	5.4%	211	5.5%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.

Given that women who receive emergency-only benefits are only enrolled the day prior to or the day of delivery, it is expected that these women have low rates of *Births with Early and Adequate Prenatal Care*. Despite the low rates of early and adequate prenatal care, the rates of *Preterm Births (<37 Weeks Gestion)* and *Newborns with Low Birth Weight (<2,500g)* exceeded the national benchmarks across all three measurement periods.

Table 3-24 presents the emergency-only study indicator results stratified by race/ethnicity.

Table 3-24—Study Indicator Findings Among Emergency-Only Singleton Births by Race/Ethnicity, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	37	68.5%	56	62.9%	37	51.4%
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	17	19.1%	21	29.2%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
Black, Non-Hispanic							
Births with Early and Adequate Prenatal Care	76.4%	20	50.0%	24	42.9%	19	52.8%
*Births with Inadequate Prenatal Care**	*NA*	15	37.5%	17	30.4%	11	30.6%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	0	0.0%	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	0	0.0%	*S*	*S*
Hispanic, Any Race							
Births with Early and Adequate Prenatal Care	76.4%	1,388	62.6%	2,509	59.8%	1,941	53.9%
*Births with Inadequate Prenatal Care**	*NA*	453	20.4%	1,055	25.1%	1,054	29.3%
*Births with No Prenatal Care**	*NA*	80	3.6%	171	4.1%	136	3.8%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Preterm Births (<37 Weeks Gestation)*	9.4%	172	7.6%	337	7.9%	272	7.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	132	5.8%	230	5.4%	200	5.5%
Other/Unknown							
Births with Early and Adequate Prenatal Care	76.4%	32	64.0%	55	51.9%	45	51.7%
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	35	33.0%	26	29.9%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

The majority of emergency-only births (approximately 95 percent) across all three measurement periods were to Hispanic women of any race. These women had the highest rate of *Births with Early and Adequate Prenatal Care* in CY 2020 compared to emergency-only births for other races/ethnicities, but this indicator still fell below the national benchmark.

Table 3-25 presents the emergency-only study indicator results stratified by managed care region of residence for each measurement period.

Table 3-25—Study Indicator Findings Among Emergency-Only Singleton Births by Managed Care Region of Maternal Residence, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Central							
Births with Early and Adequate Prenatal Care	76.4%	197	51.3%	454	58.3%	319	48.3%
*Births with Inadequate Prenatal Care**	*NA*	34	8.9%	143	18.4%	189	28.6%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	22	3.3%
Preterm Births (<37 Weeks Gestation)*	9.4%	20	5.2%	47	6.0%	61	9.2%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Newborns with Low Birth Weight (<2,500g)*	9.7%	22	5.7%	29	3.7%	51	7.7%
Charlottesville/Western							
Births with Early and Adequate Prenatal Care	76.4%	86	60.6%	171	67.1%	146	65.5%
*Births with Inadequate Prenatal Care**	*NA*	40	28.2%	71	27.8%	55	24.7%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	14	9.5%	*S*	*S*	16	7.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	13	5.1%	11	4.9%
Northern & Winchester							
Births with Early and Adequate Prenatal Care	76.4%	1,054	66.4%	1,736	60.2%	1,376	55.4%
*Births with Inadequate Prenatal Care**	*NA*	353	22.2%	782	27.1%	743	29.9%
*Births with No Prenatal Care**	*NA*	71	4.5%	145	5.0%	99	4.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	117	7.2%	255	8.7%	173	6.9%
Newborns with Low Birth Weight (<2,500g)*	9.7%	93	5.7%	174	5.9%	123	4.9%
Roanoke/Alleghany							
Births with Early and Adequate Prenatal Care	76.4%	50	61.7%	101	70.1%	82	60.3%
*Births with Inadequate Prenatal Care**	*NA*	16	19.8%	*S*	*S*	21	15.4%
*Births with No Prenatal Care**	*NA*	0	0.0%	*S*	*S*	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	15	10.3%	11	8.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
Southwest							
Births with Early and Adequate Prenatal Care	76.4%	*S*	*S*	12	57.1%	11	50.0%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
Tidewater							
Births with Early and Adequate Prenatal Care	76.4%	84	53.8%	169	46.7%	108	40.0%
*Births with Inadequate Prenatal Care**	*NA*	39	25.0%	97	26.8%	94	34.8%
*Births with No Prenatal Care**	*NA*	*S*	*S*	23	6.4%	17	6.3%
Preterm Births (<37 Weeks Gestation)*	9.4%	20	12.7%	23	6.2%	25	9.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	14	3.8%	15	5.5%

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator. In instances where only one stratification was suppressed, the value for the second smallest population was also suppressed, even if the value was 11 or more.

The majority of emergency-only women (approximately 65 percent) resided in Northern & Winchester during CY 2020, and women residing in this region had the lowest rate of *Newborns with Low Birth Weight (<2,500g)* and lowest rates of *Preterm Births (<37 Weeks Gestation).* Of note, a large proportion of women in this region are Hispanic of any race, which aligns with the findings presented in Table 3-23 that shows Hispanic women of any race had the lowest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g).* Emergency-only women residing in the Central and Tidewater regions had the highest rates of *Preterm Births (<37 Weeks Gestation)* compared to other regions, demonstrating an opportunity for improvement.

4. Conclusions and Recommendations

Conclusions

This study considered five quantitative indicators related to prenatal care and associated birth outcomes among births paid by Virginia Medicaid. Between the CY 2018 and CY 2020 measurement periods, study indicators related to prenatal care, preterm birth, and low birthweight showed opportunities for improvement for Virginia Medicaid members. Specifically, overall results for the *Births with Early and Adequate Prenatal Care* and *Preterm Births (<37 Weeks Gestation)* indicators continued to fall below national benchmarks for all three measurement periods. Rates for the *Newborns with Low Birth Weight (<2,500g)* indicator outperformed the national benchmark for all three measurement periods, demonstrating strength for Virginia Medicaid.

During CY 2020, more than 70 percent of women with preterm births or newborns with low birth weight received at least adequate prenatal care, with more than 50 percent of these women receiving adequate plus prenatal care.[4-1] However, approximately 23 percent of women who received inadequate prenatal care, no prenatal care, or had missing prenatal care had a preterm birth or newborn with low birth weight, suggesting opportunities for the MCOs to improve access to timely and frequent prenatal care for these women.

The CY 2020 study indicator results also show regional differences in care with women residing in Central and Tidewater receiving higher rates of early and adequate prenatal care compared to women in other regions; however, these women still had some of the highest rates of preterm births and newborns with low birth weight. There has been a steady decline in the percentage of women with early and adequate prenatal care within the Southwest region, suggesting access to prenatal care may be a barrier within this rural region. Within all regions, racial disparities exist with Black, Non-Hispanic women having the highest rates of preterm births and newborns with low birth weight and Hispanic women of any race having the lowest rates of early and adequate prenatal care.

DMAS' implementation of the Medicaid Expansion program on January 1, 2019, provided an opportunity for DMAS and the MCOs to provide healthcare coverage to women who were not previously eligible for Medicaid. Research has shown that Medicaid Expansion programs have helped women get better health coverage before and after pregnancy, which leads to improved prenatal and postpartum care. Further, Medicaid Expansion programs also decrease the likelihood of women experiencing intermittent healthcare coverage, which is important for improving health outcomes for moms and babies.[4-2] The study indicator results for the Medicaid Expansion program for CY 2020 demonstrated improvement from CY 2019; however, all three study indicators continue to fall below national benchmarks. Therefore, DMAS should continue to monitor this population to assess that outcomes continue to improve over time. Of note, there was a large decline in CY 2020 in the number

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4-1 "Adequate plus" prenatal care refers to the percentage of births with an APNCU Index (i.e., the Kotelchuck Index) score greater than or equal to 110 percent (i.e., women who received at least 110 percent of expected prenatal visits).

4-2 Searing A, Ross DC. Medicaid Expansion Fills Gaps in Maternal Health Coverage Leading to Healthier Mothers and Babies. Georgetown University Health Policy Institute Center for Children and Families. May 2019. Available at: https://ccf.georgetown.edu/wp-content/uploads/2019/05/Maternal-Health_FINAL-1.pdf. Accessed on: Nov 18, 2021.

of women not continuously enrolled prior to delivery from CY 2019. This change is attributable to Medicaid Expansion as well as to the MOE requirements associated with the FFCRA, enacted in March 2020, which required states to maintain enrollment for Medicaid members for the duration of the federal PHE. This ensured continuous Medicaid coverage for most Virginia Medicaid members throughout CY 2020, increasing the likelihood of continuous enrollment before, during, and after pregnancies.[4-3]

The FAMIS MOMS program continued to outperform other Medicaid programs, though it is important to note that women enrolled in FAMIS MOMS have different income eligibility limits compared to other pregnant women (i.e., FAMIS MOMS covers women with incomes up to 205 percent of the FPL). However, it is beyond the scope of the current study to assess the degree to which study indicator results for women in FAMIS MOMS differ from study indicator results among women in other Medicaid programs based on income-based eligibility requirements. Though limited in number, births to women enrolled in FAMIS MOMS, especially those with continuous enrollment greater than 120 days prior to delivery, had the highest rate of *Births with Early and Adequate Prenatal Care*, and the lowest rates of *Preterm Births (<37 Weeks Gestation)* and *Newborns with Low Birth Weight (<2,500g)*. While these rates remained stable over time, the promising results from this program suggest that it could offer a valuable starting point for assessing beneficiaries' satisfaction with care and underlying SDoH that may distinguish these women from other Medicaid beneficiaries.

Study Limitations

Study findings and conclusions may be affected by limitations related to the study design and source data. As such, caveats include, but are not limited to, the following:

- Study indicator and stratification results may be influenced by the accuracy and timeliness of the birth registry data and administrative Medicaid eligibility, enrollment, and demographic data used for calculations.
  - Additionally, study indicators rely on gestational estimate data from the birth registry. Reliability of these data, especially due to data collection practice variations in individual healthcare facilities, may have a disproportionate influence on regional study indicator results.[4-4]
- Healthy People 2030 goals are presented for comparison to Virginia Medicaid results for the *Births with Early and Adequate Prenatal Care* and *Preterm Births (<37 Weeks Gestation)* study indicators. Use caution when comparing study results to national benchmarks, as the benchmarks were derived from birth records covered by all payor types and may not mirror birth outcomes among women with births paid by Title XIX or Title XXI.
- The probabilistic data linkage process allows for manual data reviews to confirm or negate a potential match. The degree of manual review for each measurement period may result in annual differences in the number of birth certificates matched to enrollment data. Affected birth records tend to include women without Social Security Numbers (SSNs) and with differences in the names

[4-3] Commonwealth of Virginia, Division of Legislative Automated Systems. 12VAC30-30-10. Mandatory coverage: categorically needy and other required special groups. Available at: https://law.lis.virginia.gov/admincode/title12/agency30/chapter30/section10/. Accessed on: Nov 19, 2021.

[4-4] Dietz PM, Bombard JM, Hutchings YL, et. al. Validation of obstetric estimate of gestational age on US birth certificates. AM J Obstet Gynecol. Apr 2014; 2010(4): 335.e1-335.e5. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4560346/. Accessed on: Dec 9, 2021.

listed in the Medicaid and birth registry systems (e.g., names that are hyphenated and/or difficult to spell).

- The Commonwealth of Virginia allows presumptive eligibility for pregnant women to receive outpatient services, including prenatal care. However, DMAS does not cover inpatient care under the assumption that a woman will qualify for Title XIX or Title XXI benefits. The Virginia Department of Social Services (VDSS), the agency responsible for determining Medicaid eligibility in Virginia, allows 10 days to process a Medicaid application from a pregnant woman; 45 days is allowed for processing if the pregnant woman applies for additional services beyond Medicaid (e.g., supplemental nutrition assistance). As such, a pregnant woman new to Medicaid may have up to a 45-day waiting period before being eligible to have inpatient services covered by Title XIX or Title XXI benefits. Women's understanding of Medicaid benefits and the timing of coverage may result in delayed initiation or continuation of prenatal care.
- As many pregnant women new to Medicaid may not be covered by Title XIX or Title XXI benefits until their second or third trimester, use caution when interpreting study findings. Due to the multifactorial nature of birth outcomes and the need for pre-pregnancy interventions, a single delivery system or Medicaid program may not have had adequate time to contact new Medicaid beneficiaries and subsequently impact birth outcomes.
- Due to differing methodologies and data sources, study findings are not comparable to the Healthcare Effectiveness Data and Information Set (HEDIS®) *Timeliness of Prenatal Care* indicator results.[4-5] Specifically, the HEDIS *Timeliness of Prenatal Care* indicator does not follow a calendar year measurement period, requires the woman to be continuously enrolled with the health plan for 43 days prior to delivery through 60 days after delivery, and only requires one prenatal care visit for numerator compliance.
- Medicaid Expansion started on January 1, 2019; therefore, Medicaid Expansion program results should be monitored over time to assess changes as more women eligible for the program start receiving services.
- COVID-19 may have impacted CY 2020 study indicator results, given the public efforts put in place during CY 2020 to mitigate the spread of COVID-19 (e.g., social distancing, stay at home orders). Additionally, researchers have found that women who were pregnant during the early stages of the COVID-19 pandemic had increased fears and stress about delivering in a hospital, especially when a support person could not be in the hospital for the delivery or go to prenatal visits with the mother.[4-6,4-7] Further, COVID-19 may have also impacted women's ability to get timely and frequent prenatal care. As a result, caution should be exercised when interpreting CY 2020 study indicator results.

4-5 HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).

4-6 Whipps MDM, Phipps JE, Simmons LA. Perinatal health care access, childbirth concerns, and birthing decision-making among pregnant people in California during COVID-19. *BMC Pregnancy and Childbirth*. 2021; 21(477). Available at: https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-021-03942-y. Accessed on: Dec 9, 2021.

4-7 Meaney S, Letiao S, Olander EK, et al. The impact of COVID-19 on pregnant womens' experiences and perceptions of antenatal maternity care, social support, and stress-reduction strategies. Women and Birth. 2021. Available at: https://doi.org/10.1016/j.wombi.2021.04.013. Accessed on: Dec 9, 2021.

Recommendations

HSAG collaborated with DMAS to ensure that this study contributes to existing quality improvement data needs while informing current and future maternal and child health initiatives. As such, HSAG offers the following recommendations, based on the findings detailed in this report:

- Based on the 2016–2020 Virginia PRAMS data, Virginia Medicaid women are more likely to be obese prior to pregnancy (44.1 percent), smoke during pregnancy (8.1 percent), and have a prior preterm birth (9.5 percent), and are less likely to receive prenatal care early (81.3 percent) or take a vitamin (e.g., folic acid, prenatal) every day in the month prior to pregnancy (36.1 percent) when compared to women with private insurance.[4-8]
  - Given that obesity is associated with several pregnancy risk factors (e.g., preeclampsia, gestational diabetes) that can also increase the risk of preterm delivery, opportunities exists for DMAS to ensure women of childbearing age are seeing their primary care provider prior to pregnancy to discuss steps that can be taken (e.g., taking prenatal vitamins, using services [registered dietician, community support groups] that can help women reach a healthy weight before pregnancy).[4-9,4-10]
  - The 2016–2020 Virginia PRAMS data showed that the percentage of Medicaid women who smoked during pregnancy declined by nearly 17 percentage points from the 2009–2013 Virginia PRAMS data. Given that smoking during pregnancy is a risk factor for preterm births and low birthweight infants, DMAS should continue to ensure women of childbearing age and pregnant women are receiving tobacco cessation services.[4-11]
- Overall, approximately 72 percent of births in CY 2020 received early and adequate prenatal care and approximately 17 percent of births in CY 2020 received inadequate or no prenatal care. The 2019–20 secret shopper survey that assessed appointment availability for prenatal care providers who accept Medicaid in Virginia found that 59.5 percent of cases were offered a first trimester appointment date and 46.0 percent of cases were offered a second trimester appointment date. The results of both studies suggest that DMAS and MCOs should investigate the factors contributing to women's ability to access timely prenatal care and implement targeted improvement efforts. These efforts should include ensuring all women of childbearing age establish a primary care provider or gynecologist prior to pregnancy and receive necessary preventive care (e.g., taking folic acid) and management of conditions (e.g., diabetes, high blood pressure, obesity) that were previously left untreated or unmanaged. Improving the health of a woman prior to conception will help ensure better outcomes for both the mom and baby.[4-12]

4-8 Virginia Department of Health. Pregnancy Risk Assessment Monitoring System Data. Available at: https://www.vdh.virginia.gov/prams/data-2020/. Accessed on: Dec 9, 2021.

4-9 Cnattingius S, Villamor E, Johansson S, et al. Maternal obesity and risk of preterm delivery. JAMA. 2013;309(22). doi:10.1001/jama.2013.6295

4-10 Mayo Clinic. Pregnancy and obesity: Know the risks. Available at: https://www.mayoclinic.org/healthy-lifestyle/pregnancy-week-by-week/in-depth/pregnancy-and-obesity/art-20044409. Accessed on: Dec 9, 2021.

4-11 Medicaid.gov. Pregnancy. Available at: https://www.medicaid.gov/medicaid/quality-of-care/quality-improvement-initiatives/tobacco-cessation/pregnancy/index.html. Accessed on: Dec 9, 2021.

4-12 March of Dimes. Before or Between Pregnancies. Available at: https://www.marchofdimes.org/pregnancy/before-pregnancy.aspx#. Accessed on: Dec 9, 2021.

- Unplanned pregnancies are associated with higher rates of preterm births and newborns with low birthweight.[4-13] Therefore, as part of ensuring all women of childbearing have an established gynecologist prior to pregnancy, DMAS and the MCOs should assess if providers are offering family planning services (e.g., contraception) to women. Given that Medicaid members can now receive a 12-month supply of contraceptives,[4-14] DMAS and the MCOs should monitor contraceptive prescription rates for Medicaid women over time. DMAS should consider having the MCOs report the CMS Adult and Child Core Set measures related to contraceptives (i.e., *Contraceptive Care—All Women* and *Contraceptive Care—Postpartum Women*) to understand better how this policy change impacts the use of contraceptives over time
  - LARCs are an effective contraceptive method that can help reduce unplanned and short-interval pregnancies.[4-15] MCOs should assess if providers are discussing the effectiveness of LARCs as part of the postpartum visit or even prior to the woman leaving the hospital after delivery. MCOs should work to educate their providers, and DMAS should continue to work with hospitals to institute protocols that allow physicians to leverage the Virginia Postpartum LARC toolkit.[4-16]
- For future focus studies, DMAS should consider leveraging additional data fields in the vital statistics data or other data sources (e.g., claims/encounter data) to better understand the factors contributing to poor birth outcomes in Virginia. These data sources could be used to assess risk factors (pre-pregnancy and gestational diabetes and hypertension, and previous preterm births and poor pregnancy outcomes), mother's substance use before and during pregnancy (smoking, alcohol, and drug use), and mother's BMI before pregnancy and at delivery. Although data may be incomplete, HSAG could still leverage the available data to help understand and provide additional context to the study indicator results.

DMAS' Input on Prior Focused Study Recommendations

In addition to the recommendations noted above, DMAS provided the following detailed feedback to HSAG regarding quality improvement actions and initiatives.

DMAS is committed to providing access to comprehensive care for pregnant and postpartum women and their babies enrolled in any one of Virginia Medicaid's health coverage programs. In order to address this goal and address maternal disparities as it relates to Governor Northam's 2025 initiative

4-13 National Institute for Children's Health Quality. As unplanned pregnancy rates drop, births improve. Available at: https://www.nichq.org/insight/unplanned-pregnancy-rates-drop-births-improve. Accessed on: Dec 9, 2021.

4-14 Virginia Department of Medical Assistance Services. 12-month supply of contraceptive now available to Virginia Medicaid members. Available at: https://www.dmas.virginia.gov/media/3779/press-release-virginia-medicaid-announces-12-month-supply-of-contraceptives.pdf. Accessed on: Dec 9, 2021.

4-15 The American College of Obstetricians and Gynecologists. Immediate postpartum long-acting reversible contraception. 2017. Available at: https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2016/08/immediate-postpartum-long-acting-reversible-contraception. Accessed on: Dec 9, 2021.

4-16 Virginia Department of Medical Assistance Services, Virginia Department of Health, and the Virginia chapter of the American College of Obstetricians and Gynecologists. Virginia postpartum LARC toolkit. Available at: https://www.vdh.virginia.gov/content/uploads/sites/28/2016/07/VA_Postpartum_LARC_Toolkit_final.pdf. Accessed on: Dec 9, 2021.

and the 2021 Virginia Maternal Health Strategic Plan,[4-17] DMAS revamped the Healthy Birthday Virginia initiative to Baby Steps VA.

Through Baby Steps VA, DMAS has enhanced maternal health awareness utilizing five core teams (eligibility and enrollment, outreach and information, connections, new and improved services, and program oversight) to educate and address health disparities for Medicaid and FAMIS members. Each of these five focus areas have collaborated jointly to serve our members, health plans and providers. The contracted MCOs have undertaken a variety of initiatives aimed at improving quality outcomes in maternal health, a primary goal of the DMAS Quality Strategy. The support and partnership from the MCOs has helped to strengthen data sharing, reporting of performance measures, and improve health outcomes for members.

Thank you to all of the agencies, stakeholders, managed care organizations, community partners and members who made this possible. We will continue to aim for "Wellness, One Steps at a Time."

Past and Current Activities

In 2020, DMAS drafted the first Baby Steps VA annual report, detailing our accomplishments in improving maternity care. The report is available on the DMAS website at: https://www.dmas.virginia.gov/for-providers/maternal-and-child-health/

- Eligibility and Enrollment: Increasing maternity enrollment and streamlining newborn enrollment
  - In March of 2020, the federal government declared a PHE in response to the COVID-19 pandemic. Since the onset of the PHE in early 2020, DMAS has developed policy flexibilities in response to members' changing needs and challenges and has worked to ensure continued access to care. The FFCRA established a MOE requirement applicable to most Medicaid populations, which meant that most members, including pregnant and postpartum women, maintained continuous eligibility throughout CY 2020 and beyond, regardless of income and other changes that under normal circumstances would have affected eligibility determinations.
  - Partnered with VDSS to begin discussion on ways to streamline the enrollment process and give pregnant women near real time eligibility determinations so they are connected with doctors and other medical care without delay.
  - Investigated with the VHHA ways to quickly enroll newborns before the mother is discharged from the hospital.
  - Initiated organizational changes with the DMAS Eligibility and Enrollment Services Division to provide better customer service to moms, their babies and the providers who serve them by consolidating all processes related to newborn enrollment into one place.
  - Launched a new coverage program for pregnant women, FAMIS Prenatal Coverage, on July 1, 2021. FAMIS Prenatal is comprehensive coverage for uninsured pregnant individuals who do not qualify for other full-benefit coverage groups because of their immigration status. These Virginians, including those who are undocumented or DACA recipients (DREAMers), are now

[4-17] Secretary of Health and Human Resources, Office of the Governor of Virginia. Maternal health strategic plan. Available at: https://www.governor.virginia.gov/media/governorvirginiagov/secretary-of-health-and-human-resources/pdf/Virginia's-Maternal-Health-Strategic-Plan.pdf. Accessed on: Dec 9, 2021.

eligible for the FAMIS MOMS benefit package during their pregnancy through 60 days postpartum.

- Working closely with representatives from U.S. Health and Human Services, the State Department, leads at three military bases, and the Crowne Plaza Hotel near Dulles to obtain applications for health care coverage for Afghanistan evacuees. An expedited process allows us to enroll pregnant individuals, new mothers, and medically frail individuals in Medicaid so they have access to health coverage. DMAS is scheduling application events to assist with expediting access to full health coverage.
- On November 18, 2021, DMAS received federal approval of Virginia's application to provide 12 months continuous postpartum health coverage for all members. Prior to this change, some members, including FAMIS MOMS, lost access to care at 60 days postpartum. This continued postpartum care, to be implemented over the coming year, is an important step in improving health outcomes for both parents and babies.

- Outreach and Information: Engaging with internal and external stakeholders and sharing information with members
  - Contacted pregnant members who receive their benefits through FFS and shared information on Medicaid benefits and other resources essential for their health.
  - Developed efforts to bring awareness to postpartum services, currently available for Medicaid pregnant and parenting women during and after the PHE. Information was shared with DMAS' dental benefit administrator, MCOs, ACOG Virginia, and the Medical Society of Virginia.
  - Launched a targeted outreach initiative to educate pregnant women about coverage and benefits through radio spots, and digital and social media platforms. Increased utilization of social media platforms to share photos and videos that will raise awareness about various initiatives and campaigns related to maternal and infant health.
- Connections: Engaging with providers, community stakeholders, hospitals, and state agencies
  - Collaborated with stakeholders on a variety of projects supporting pregnant and parenting people. Collaboration was geared towards furthering maternity program quality outcomes and engagement with a variety of partners such as VDH, VDSS, DBHDS, VHHA, and VNPC.
  - Met with VDH to discuss outreach measures to increase WIC utilization for members.
  - Presented during the Fifth Annual VNPC Summit: Fostering Community Relationships to Improve Maternal and Infant Health Outcomes on "Baby Steps VA- Where are we now! During the presentations, speakers shared information on Medicaid 101, Baby Steps VA, Policy Changes, Postpartum services, Doulas, and Dental Coverage.
  - Hosted bi-monthly Baby Steps VA meetings with external speakers to learn about programs available, send a weekly informational email, and developed a monthly Baby Steps VA newsletter to keep the agency and external partners abreast of activities.
- New and Improved Services: Collaborating with Virginia projects to enhance services
  - Addressed COVID-19 and the impacts on our Medicaid members. DMAS and the MCOs expanded telehealth options for services, including several flexibilities for medical and behavioral health services utilized by pregnant members during the state of emergency.
  - Finalized the directed payments process for providers during the public health emergency.
  - Implemented General Assembly directive to allow Medicaid members to receive up to 12 months prescription for birth control, increasing access to contraception.

- Awarded a SUPPORT Act grant to continue to increase SUD provider capacity in Virginia. Grant activities that focused on the screening and treatment needs of pregnant and postpartum individuals.
- Established a workgroup to explore Medicaid reimbursement for doula support services by reviewing federal requirements and permissibility, commonwealth regulations, and determining estimated cost to the commonwealth for the next six years. DMAS submitted the report in December 2020.
- Received federal approval to implement a doula benefit for pregnant women in Virginia Medicaid. Virginia will be the fourth state in the nation to implement community doula services to its Medicaid population. This benefit, to be launched in 2022, will provide a culturally centered focus on our members through shared experiences and comprehensive training. DMAS is collaborating with VDH and the MCOs on the certification and enrollment processes.
- Established a workgroup to assess home visiting models to determine which to recommend for a Medicaid home-visiting benefit to support member's health, access to care and health equity. Over several months, the workgroup reviewed home visiting strategies and benefits in other state Medicaid programs and corresponding federal and state regulations. In addition, the workgroup reviewed funding mechanisms for existing home visiting programs in Virginia and funding approaches utilized across the nation. The workgroup's report to the General Assembly will be completed in December 2021.

- <u>Program Oversight: Utilizing data and reports to monitor and improve programs</u>
  - Partnered with VCU to launch both a report (Diagnosis and Treatment of Substance Use Disorders among Pregnant Women Covered by Medicaid) and study (Opioid Treatment For Pregnant Women Has Increased But Racial Inequities Exist) centered around care for pregnant members with substance use disorders.
  - Continuing participation in the NASHP MCH PIP policy academy that will help to identify, develop, and implement policy changes to address maternal mortality for Medicaid eligible pregnant and parenting persons, with the goal to improve access to quality care. The project will focus on two areas of care Postpartum Communication and Doula Implementation. In both projects DMAS will focus on engaging community systems, improving timeliness of care, and improving access to care.

Appendix A: Additional Stratifications for Study Indicators

Table A-1 presents the study indicator findings among FAMIS MOMS singleton births by maternal age at the time of delivery for CY 2018 through CY 2020.

Table A-1—Study Indicator Findings Among FAMIS MOMS Singleton Births by Maternal Age at Delivery, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
≤15 Years							
Births with Early and Adequate Prenatal Care	76.4%	—	—	*S*	*S*	—	—
*Births with Inadequate Prenatal Care**	*NA*	—	—	*S*	*S*	—	—
*Births with No Prenatal Care**	*NA*	—	—	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	—	—	*S*	*S*	—	—
Newborns with Low Birth Weight (<2,500g)*	9.7%	—	—	*S*	*S*	*S*	*S*
16–17 Years							
Births with Early and Adequate Prenatal Care	76.4%	*S*	*S*	*S*	*S*	*S*	*S*
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
*Births with No Prenatal Care**	*NA*	0	0.0%	0	0.0%	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	0	0.0%	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	0	0.0%	*S*	*S*	*S*	*S*

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
18–20 Years							
Births with Early and Adequate Prenatal Care	76.4%	60	74.1%	78	78.0%	71	75.5%
*Births with Inadequate Prenatal Care**	*NA*	12	14.8%	17	17.0%	12	12.8%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	13	12.3%	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	13	14.4%	*S*	*S*	*S*	*S*
21–24 Years							
Births with Early and Adequate Prenatal Care	76.4%	285	79.4%	353	79.9%	292	78.3%
*Births with Inadequate Prenatal Care**	*NA*	40	11.1%	53	12.0%	48	12.9%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	26	6.9%	27	5.9%	29	7.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	23	6.1%	30	6.5%	33	8.6%
25–29 Years							
Births with Early and Adequate Prenatal Care	76.4%	474	76.1%	558	77.6%	563	76.7%
*Births with Inadequate Prenatal Care**	*NA*	92	14.8%	88	12.2%	92	12.5%
*Births with No Prenatal Care**	*NA*	*S*	*S*	15	2.1%	*S*	*S*

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
Preterm Births (<37 Weeks Gestation)*	9.4%	51	7.9%	48	6.5%	55	7.4%
Newborns with Low Birth Weight (<2,500g)*	9.7%	46	7.1%	51	6.9%	57	7.6%
30–34 Years							
Births with Early and Adequate Prenatal Care	76.4%	303	79.1%	389	73.8%	381	75.4%
*Births with Inadequate Prenatal Care**	*NA*	42	11.0%	84	15.9%	64	12.7%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	25	6.4%	39	7.0%	32	6.1%
Newborns with Low Birth Weight (<2,500g)*	9.7%	32	8.2%	33	5.9%	29	5.6%
35–39 Years							
Births with Early and Adequate Prenatal Care	76.4%	146	72.6%	189	79.7%	200	77.8%
*Births with Inadequate Prenatal Care**	*NA*	32	15.9%	34	14.3%	34	13.2%
*Births with No Prenatal Care**	*NA*	*S*	*S*	0	0.0%	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	19	9.1%	29	11.8%	30	11.2%
Newborns with Low Birth Weight (<2,500g)*	9.7%	15	7.2%	25	10.2%	18	6.7%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
40–44 Years							
Births with Early and Adequate Prenatal Care	76.4%	35	77.8%	48	78.7%	47	85.5%
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	0	0.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
≥45 Years							
Births with Early and Adequate Prenatal Care	76.4%	*S*	*S*	*S*	*S*	*S*	*S*
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Table A-2 the study indicator findings among Emergency-Only singleton births by maternal age at the time of delivery for CY 2018 through CY 2020.

Table A-2—Study Indicator Findings Among Emergency-Only Singleton Births by Maternal Age at Delivery, CY 2018–CY 2020

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
≤15 Years							
Births with Early and Adequate Prenatal Care	76.4%	*S*	*S*	13	68.4%	*S*	*S*
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
*Births with No Prenatal Care**	*NA*	*S*	*S*	0	0.0%	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
16–17 Years							
Births with Early and Adequate Prenatal Care	76.4%	13	36.1%	32	45.7%	29	41.4%
*Births with Inadequate Prenatal Care**	*NA*	11	30.6%	32	45.7%	31	44.3%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*
18–20 Years							
Births with Early and Adequate Prenatal Care	76.4%	102	51.8%	199	48.9%	166	48.3%
*Births with Inadequate Prenatal Care**	*NA*	56	28.4%	120	29.5%	114	33.1%
*Births with No Prenatal Care**	*NA*	13	6.6%	34	8.4%	15	4.4%
Preterm Births (<37 Weeks Gestation)*	9.4%	13	6.3%	24	5.9%	23	6.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	11	5.4%	26	6.3%	19	5.4%
21–24 Years							
Births with Early and Adequate Prenatal Care	76.4%	223	59.0%	378	49.9%	298	47.7%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	92	24.3%	247	32.6%	201	32.2%
*Births with No Prenatal Care**	*NA*	12	3.2%	36	4.7%	31	5.0%
Preterm Births (<37 Weeks Gestation)*	9.4%	21	5.4%	45	5.8%	35	5.6%
Newborns with Low Birth Weight (<2,500g)*	9.7%	20	5.2%	43	5.5%	33	5.3%
25–29 Years							
Births with Early and Adequate Prenatal Care	76.4%	364	63.0%	646	58.3%	527	54.8%
*Births with Inadequate Prenatal Care**	*NA*	110	19.0%	258	23.3%	280	29.1%
*Births with No Prenatal Care**	*NA*	20	3.5%	53	4.8%	35	3.6%
Preterm Births (<37 Weeks Gestation)*	9.4%	41	7.0%	76	6.7%	65	6.7%
Newborns with Low Birth Weight (<2,500g)*	9.7%	33	5.6%	46	4.1%	45	4.6%
30–34 Years							
Births with Early and Adequate Prenatal Care	76.4%	413	63.4%	727	64.0%	526	55.4%
*Births with Inadequate Prenatal Care**	*NA*	125	19.2%	260	22.9%	268	28.2%
*Births with No Prenatal Care**	*NA*	28	4.3%	30	2.6%	29	3.1%
Preterm Births (<37 Weeks Gestation)*	9.4%	44	6.7%	100	8.7%	75	7.8%
Newborns with Low Birth Weight (<2,500g)*	9.7%	31	4.7%	56	4.9%	47	4.9%
35–39 Years							
Births with Early and Adequate Prenatal Care	76.4%	283	69.4%	511	69.8%	369	58.7%
*Births with Inadequate Prenatal Care**	*NA*	69	16.9%	145	19.8%	163	25.9%
*Births with No Prenatal Care**	*NA*	*S*	*S*	20	2.7%	21	3.3%
Preterm Births (<37 Weeks Gestation)*	9.4%	34	8.2%	65	8.7%	51	8.0%
Newborns with Low Birth Weight (<2,500g)*	9.7%	25	6.0%	43	5.8%	48	7.5%
40–44 Years							
Births with Early and Adequate Prenatal Care	76.4%	69	70.4%	132	63.8%	118	61.8%

Study Indicator	National Benchmark	CY 2018		CY 2019		CY 2020	
		Number	Percent	Number	Percent	Number	Percent
*Births with Inadequate Prenatal Care**	*NA*	17	17.3%	52	25.1%	48	25.1%
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	15	15.0%	34	16.1%	30	15.5%
Newborns with Low Birth Weight (<2,500g)*	9.7%	11	11.0%	21	10.0%	15	7.7%
≥45 Years							
Births with Early and Adequate Prenatal Care	76.4%	*S*	*S*	*S*	*S*	*S*	*S*
*Births with Inadequate Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
*Births with No Prenatal Care**	*NA*	*S*	*S*	*S*	*S*	*S*	*S*
Preterm Births (<37 Weeks Gestation)*	9.4%	*S*	*S*	*S*	*S*	*S*	*S*
Newborns with Low Birth Weight (<2,500g)*	9.7%	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
NA indicates there is not an applicable national benchmark for this indicator.
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Table A-3 presents the CY 2020 study indicator results stratified by MCO and managed care program

Table A-3—Study Indicators Stratified by MCO and Managed Care Program, CY 2020

MCO	Managed Care Program	Births with Early and Adequate Prenatal Care		Births with Inadequate Prenatal Care*		Births with No Prenatal Care*		Preterm Births (<37 Weeks Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Aetna	CCC Plus	90	70.9%	13	10.2%	*S*	*S*	21	16.0%	18	13.7%
	Medallion 4.0	2,420	73.2%	477	14.4%	39	1.2%	333	9.7%	288	8.4%
	FAMIS	193	79.1%	29	11.9%	*S*	*S*	19	7.6%	16	6.4%
	Total	2,703	73.5%	519	14.1%	46	1.3%	373	9.7%	322	8.4%

MCO	Managed Care Program	Births with Early and Adequate Prenatal Care		Births with Inadequate Prenatal Care*		Births with No Prenatal Care*		Preterm Births (<37 Weeks Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
HealthKeepers	CCC Plus	140	71.4%	33	16.8%	*S*	*S*	28	13.8%	30	14.8%
	Medallion 4.0	5,694	72.4%	1,143	14.5%	110	1.4%	761	9.4%	702	8.7%
	FAMIS	523	75.4%	95	13.7%	*S*	*S*	47	6.6%	53	7.5%
	Total	6,357	72.6%	1,271	14.5%	121	1.4%	836	9.3%	785	8.7%
Magellan	CCC Plus	63	70.8%	*S*	*S*	*S*	*S*	17	18.9%	16	17.8%
	Medallion 4.0	1,283	71.6%	294	16.4%	40	2.2%	196	10.6%	214	11.5%
	FAMIS	108	84.4%	*S*	*S*	*S*	*S*	16	12.3%	12	9.2%
	Total	1,454	72.4%	317	15.8%	43	2.1%	229	11.0%	242	11.7%
Optima	CCC Plus	123	62.1%	42	21.2%	*S*	*S*	36	17.9%	32	15.9%
	Medallion 4.0	4,011	74.4%	759	14.1%	77	1.4%	569	10.3%	542	9.8%
	FAMIS	246	81.5%	27	8.9%	*S*	*S*	22	7.2%	21	6.9%
	Total	4,380	74.4%	828	14.1%	85	1.4%	627	10.4%	595	9.9%
UnitedHealthcare	CCC Plus	60	60.6%	19	19.2%	*S*	*S*	*S*	*S*	14	13.6%
	Medallion 4.0	1,618	71.7%	328	14.5%	34	1.5%	213	9.0%	213	9.0%
	FAMIS	138	71.9%	26	13.5%	*S*	*S*	*S*	*S*	11	5.5%
	Total	1,816	71.3%	373	14.6%	40	1.6%	234	8.7%	238	8.9%

MCO	Managed Care Program	Births with Early and Adequate Prenatal Care		Births with Inadequate Prenatal Care*		Births with No Prenatal Care*		Preterm Births (<37 Weeks Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
VA Premier	CCC Plus	111	76.0%	21	14.4%	*S*	*S*	31	19.5%	28	17.6%
	Medallion 4.0	3,347	70.6%	720	15.2%	78	1.6%	481	9.4%	462	9.0%
	FAMIS	196	75.7%	40	15.4%	*S*	*S*	23	8.4%	27	9.9%
	Total	3,654	71.0%	781	15.2%	82	1.6%	535	9.6%	517	9.3%
Total	**CCC Plus**	**587**	**68.7%**	**142**	**16.6%**	***S***	***S***	**140**	**15.8%**	**138**	**15.6%**
	Medallion 4.0	**18,373**	**72.5%**	**3,721**	**14.7%**	**378**	**1.5%**	**2,553**	**9.7%**	**2,421**	**9.2%**
	FAMIS	**1,404**	**77.2%**	**226**	**12.4%**	***S***	***S***	**141**	**7.5%**	**140**	**7.5%**
	Total	**20,364**	**72.7%**	**4,089**	**14.6%**	**417**	**1.5%**	**2,834**	**9.7%**	**2,699**	**9.2%**

Note: due to rounding, the percentages in each column may not sum to 100 percent.
**a lower rate indicates better performance for this indicator.*
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11). In instances where only one stratification was suppressed, the value for the second smallest population was also suppressed, even if the value was 11 or more.

Table A-4 through Table A-9 present the CY 2020 indictor results stratified by MCO and race/ethnicity for each managed care region of maternal residence.

Table A-4—Central Region Study Indicators Stratified by MCO and Race/Ethnicity, CY 2020

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic										
Aetna	354	77.1%	52	11.3%	*S*	*S*	40	8.6%	27	5.8%
HealthKeepers	699	77.4%	91	10.1%	*S*	*S*	77	8.5%	68	7.5%
Magellan	154	71.6%	22	10.2%	*S*	*S*	26	12.0%	17	7.9%
Optima	385	75.2%	58	11.3%	*S*	*S*	48	9.3%	30	5.8%
UnitedHealthcare	156	76.1%	24	11.7%	*S*	*S*	21	10.1%	14	6.8%
VA Premier	276	69.5%	57	14.4%	*S*	*S*	36	8.9%	40	9.9%
Black, Non-Hispanic										
Aetna	484	73.7%	86	13.1%	*S*	*S*	73	11.1%	80	12.2%
HealthKeepers	949	74.2%	152	11.9%	26	2.0%	132	10.2%	157	12.1%
Magellan	221	70.4%	48	15.3%	13	4.1%	37	11.7%	53	16.8%
Optima	498	72.3%	99	14.4%	11	1.6%	68	9.7%	90	12.9%
UnitedHealthcare	185	72.3%	41	16.0%	*S*	*S*	26	10.1%	34	13.2%
VA Premier	433	67.6%	95	14.8%	19	3.0%	63	9.7%	84	13.0%
Hispanic, Any Race										
Aetna	95	77.2%	14	11.4%	0	0.0%	11	8.8%	*S*	*S*
HealthKeepers	166	75.8%	22	10.0%	*S*	*S*	18	8.2%	13	5.9%
Magellan	31	66.0%	9	19.1%	0	0.0%	*S*	*S*	*S*	*S*
Optima	71	69.6%	19	18.6%	*S*	*S*	*S*	*S*	*S*	*S*
UnitedHealthcare	50	80.6%	3	4.8%	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	95	70.4%	24	17.8%	*S*	*S*	11	8.0%	*S*	*S*
Other/Unknown										
Aetna	27	73.0%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HealthKeepers	52	76.5%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
Magellan	11	68.8%	*S*	*S*	*S*	*S*	*S*	*S*	0	0.0%
Optima	23	69.7%	*S*	*S*	0	0.0%	0	0.0%	*S*	*S*
UnitedHealthcare	28	84.8%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
VA Premier	26	70.3%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11). In instances where only one stratification was suppressed, the value for the second smallest population was also suppressed, even if the value was 11 or more.

Table A-5—Charlottesville/Western Region Study Indicators Stratified by MCO and Race/Ethnicity, CY 2020

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic										
Aetna	210	81.7%	33	12.8%	*S*	*S*	23	8.9%	18	6.9%
HealthKeepers	313	75.2%	62	14.9%	*S*	*S*	31	7.4%	18	4.3%
Magellan	132	80.0%	25	15.2%	*S*	*S*	13	7.8%	19	11.4%
Optima	450	75.4%	98	16.4%	*S*	*S*	48	7.9%	40	6.6%
UnitedHealthcare	112	75.2%	18	12.1%	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	470	77.6%	89	14.7%	*S*	*S*	56	9.2%	49	8.0%
Black, Non-Hispanic										
Aetna	113	81.9%	18	13.0%	*S*	*S*	14	10.1%	15	10.8%
HealthKeepers	149	78.0%	27	14.1%	*S*	*S*	15	7.7%	27	13.8%
Magellan	47	82.5%	*S*	*S*	*S*	*S*	*S*	*S*	10	17.5%
Optima	332	79.0%	47	11.2%	*S*	*S*	44	10.3%	60	14.1%

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
UnitedHealthcare	49	67.1%	17	23.3%	*S*	*S*	12	16.0%	11	14.9%
VA Premier	274	80.4%	39	11.4%	*S*	*S*	25	7.3%	34	9.9%
Hispanic, Any Race										
Aetna	12	63.2%	*S*	*S*	0	0.0%	*S*	*S*	0	0.0%
HealthKeepers	34	70.8%	12	25.0%	0	0.0%	*S*	*S*	*S*	*S*
Magellan	11	64.7%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
Optima	71	86.6%	11	13.4%	0	0.0%	11	12.9%	*S*	*S*
UnitedHealthcare	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	49	77.8%	12	19.0%	0	0.0%	*S*	*S*	*S*	*S*
Other/Unknown										
Aetna	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
HealthKeepers	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Magellan	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	12	70.6%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
UnitedHealthcare	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	*S*	*S*	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Table A-6—Northern & Winchester Region Study Indicators Stratified by MCO and Race/Ethnicity, CY 2020

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic										
Aetna	146	70.9%	28	13.6%	*S*	*S*	23	10.8%	13	6.1%
HealthKeepers	537	68.8%	130	16.6%	11	1.4%	64	8.0%	70	8.7%
Magellan	78	70.9%	18	16.4%	*S*	*S*	14	12.5%	14	12.5%
Optima	105	63.3%	33	19.9%	*S*	*S*	16	9.6%	14	8.4%
UnitedHealthcare	200	71.2%	37	13.2%	*S*	*S*	25	8.7%	21	7.3%
VA Premier	237	65.7%	64	17.7%	*S*	*S*	31	8.4%	26	7.0%
Black, Non-Hispanic										
Aetna	98	66.2%	29	19.6%	*S*	*S*	11	7.1%	12	7.8%
HealthKeepers	447	64.6%	135	19.5%	*S*	*S*	67	9.3%	61	8.5%
Magellan	38	67.9%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	71	73.2%	14	14.4%	*S*	*S*	12	12.1%	11	11.1%
UnitedHealthcare	153	64.3%	53	22.3%	*S*	*S*	14	5.7%	13	5.3%
VA Premier	157	61.6%	66	25.9%	*S*	*S*	25	9.7%	21	8.2%
Hispanic, Any Race										
Aetna	105	61.0%	46	26.7%	*S*	*S*	16	9.1%	12	6.9%
HealthKeepers	580	66.7%	167	19.2%	18	2.1%	76	8.6%	56	6.3%
Magellan	55	62.5%	22	25.0%	*S*	*S*	*S*	*S*	*S*	*S*
Optima	57	63.3%	20	22.2%	*S*	*S*	*S*	*S*	*S*	*S*
UnitedHealthcare	184	65.2%	55	19.5%	*S*	*S*	16	5.5%	13	4.4%
VA Premier	103	55.1%	47	25.1%	*S*	*S*	*S*	*S*	*S*	*S*
Other/Unknown										
Aetna	56	66.7%	14	16.7%	*S*	*S*	*S*	*S*	*S*	*S*

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HealthKeepers	272	65.1%	75	17.9%	*S*	*S*	26	6.0%	28	6.5%
Magellan	25	73.5%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	19	76.0%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
UnitedHealthcare	89	70.1%	18	14.2%	0	0.0%	*S*	*S*	13	10.0%
VA Premier	96	61.1%	29	18.5%	0	0.0%	14	8.9%	14	8.9%

**a lower rate indicates better performance for this indicator.*
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Table A-7—Roanoke/Alleghany Region Study Indicators Stratified by MCO and Race/Ethnicity, CY 2020

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic										
Aetna	272	74.7%	47	12.9%	*S*	*S*	30	8.1%	27	7.3%
HealthKeepers	225	78.1%	30	10.4%	*S*	*S*	23	7.7%	18	6.0%
Magellan	151	77.8%	23	11.9%	*S*	*S*	22	11.0%	25	12.5%
Optima	211	73.5%	41	14.3%	*S*	*S*	25	8.5%	21	7.2%
UnitedHealthcare	177	72.5%	26	10.7%	*S*	*S*	14	5.5%	14	5.5%
VA Premier	445	74.4%	72	12.0%	*S*	*S*	68	10.4%	63	9.6%
Black, Non-Hispanic										
Aetna	67	74.4%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
HealthKeepers	54	72.0%	*S*	*S*	0	0.0%	14	17.9%	12	15.4%
Magellan	57	69.5%	*S*	*S*	*S*	*S*	*S*	*S*	13	15.3%
Optima	53	71.6%	11	14.9%	0	0.0%	*S*	*S*	12	15.6%
UnitedHealthcare	69	73.4%	*S*	*S*	*S*	*S*	*S*	*S*	18	18.4%

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
VA Premier	120	73.2%	17	10.4%	*S*	*S*	19	11.3%	22	13.1%
Hispanic, Any Race										
Aetna	12	60.0%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
HealthKeepers	*S*	*S*	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
Magellan	*S*	*S*	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
Optima	13	86.7%	*S*	*S*	0	0.0%	0	0.0%	0	0.0%
UnitedHealthcare	13	68.4%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
VA Premier	22	68.8%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Other/Unknown										
Aetna	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
HealthKeepers	11	100.0%	0	0.0%	0	0.0%	0	0.0%	*S*	*S*
Magellan	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
UnitedHealthcare	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	*S*	*S*	*S*	*S*	0	0.0%	*S*	*S*	0	0.0%

**a lower rate indicates better performance for this indicator.*
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Table A-8—Southwest Region Study Indicators Stratified by MCO and Race/Ethnicity, CY 2020

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic										
Aetna	129	68.6%	27	14.4%	*S*	*S*	35	11.9%	32	10.8%
HealthKeepers	125	73.1%	17	9.9%	*S*	*S*	26	9.2%	25	8.8%

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Magellan	69	62.7%	22	20.0%	*S*	*S*	11	7.4%	13	8.7%
Optima	92	71.9%	20	15.6%	*S*	*S*	16	7.8%	11	5.4%
UnitedHealthcare	69	61.6%	24	21.4%	*S*	*S*	27	14.6%	26	14.1%
VA Premier	213	68.5%	47	15.1%	*S*	*S*	59	9.8%	54	9.0%
Black, Non-Hispanic										
Aetna	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
HealthKeepers	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Magellan	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
UnitedHealthcare	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	0	0.0%
Hispanic, Any Race										
Aetna	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
HealthKeepers	*S*	*S*	*S*	*S*	*S*	*S*	0	0.0%	0	0.0%
Magellan	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
UnitedHealthcare	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Other/Unknown										
Aetna	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
HealthKeepers	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Magellan	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
UnitedHealthcare	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
VA Premier	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11).

Table A-9—Tidewater Region Study Indicators Stratified by MCO and Race/Ethnicity, CY 2020

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White, Non-Hispanic										
Aetna	152	76.0%	25	12.5%	*S*	*S*	25	12.4%	17	8.4%
HealthKeepers	544	78.3%	82	11.8%	*S*	*S*	60	8.5%	46	6.6%
Magellan	126	75.9%	27	16.3%	*S*	*S*	19	11.4%	18	10.8%
Optima	540	75.9%	91	12.8%	12	1.7%	67	9.4%	42	5.9%
UnitedHealthcare	80	80.0%	12	12.0%	*S*	*S*	11	11.0%	*S*	*S*
VA Premier	155	76.7%	24	11.9%	*S*	*S*	24	11.8%	15	7.4%
Black, Non-Hispanic										
Aetna	291	71.5%	66	16.2%	*S*	*S*	40	9.8%	38	9.3%
HealthKeepers	989	73.3%	214	15.9%	22	1.6%	172	12.7%	161	11.9%
Magellan	184	73.0%	45	17.9%	*S*	*S*	35	13.8%	35	13.8%
Optima	1,193	75.0%	209	13.1%	29	1.8%	212	13.2%	213	13.3%
UnitedHealthcare	152	75.6%	26	12.9%	*S*	*S*	32	15.8%	34	16.7%
VA Premier	373	73.9%	71	14.1%	12	2.4%	65	12.8%	61	12.1%
Hispanic, Any Race										
Aetna	37	75.5%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
HealthKeepers	134	76.1%	27	15.3%	0	0.0%	18	10.2%	*S*	*S*

	Early and Adequate Prenatal Care		Inadequate Prenatal Care*		No Prenatal Care*		Preterm Births (<37 Weeks of Gestation)*		Newborns with Low Birth Weight (<2,500g)*	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Magellan	33	82.5%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Optima	126	75.9%	25	15.1%	*S*	*S*	16	9.6%	11	6.6%
UnitedHealthcare	16	61.5%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
VA Premier	58	75.3%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
Other/Unknown										
Aetna	22	78.6%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
HealthKeepers	53	72.6%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*
Magellan	15	75.0%	*S*	*S*	0	0.0%	*S*	*S*	*S*	*S*
Optima	53	67.1%	12	15.2%	*S*	*S*	11	13.9%	*S*	*S*
UnitedHealthcare	*S*	*S*	*S*	*S*	0	0.0%	*S*	*S*	0	0.0%
VA Premier	22	81.5%	*S*	*S*	*S*	*S*	*S*	*S*	*S*	*S*

**a lower rate indicates better performance for this indicator.*
S indicates that the data were suppressed due to a small numerator or denominator (i.e., fewer than 11)

Table A-10 presents the distribution or prenatal care received for women who had or did not have a preterm birth or newborn with low birth weight for each MCO.

Table A-10—Distribution of Prenatal Care by MCO and Whether a Birth Outcome Occurred, CY 2020

MCO	Birth Outcome		Births with Early and Adequate Plus Prenatal Care		Births with Adequate Prenatal Care		Births with Intermediate Prenatal Care		Births with Inadequate Prenatal Care		Births With No Prenatal Care		Births With Missing Prenatal Care Information	
			Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Aetna	*Preterm Births (<37 Weeks Gestation)**	No	963	27.86%	1,475	42.68%	383	11.08%	477	13.80%	31	0.90%	127	3.67%
		Yes	217	58.33%	47	12.63%	26	6.99%	42	11.29%	15	4.03%	25	6.72%
	*Newborns with Low Birth Weight (<2,500g)**	No	1,016	28.98%	1,460	41.64%	388	11.07%	475	13.55%	35	1.00%	132	3.76%
		Yes	164	50.93%	62	19.25%	21	6.52%	44	13.66%	11	3.42%	20	6.21%
HealthKeepers	*Preterm Births (<37 Weeks Gestation)**	No	2,228	27.22%	3,521	43.02%	950	11.61%	1,167	14.26%	97	1.19%	221	2.70%
		Yes	488	58.44%	119	14.25%	60	7.19%	103	12.34%	24	2.87%	41	4.91%
	*Newborns with Low Birth Weight (<2,500g)**	No	2,316	28.13%	3,479	42.25%	945	11.48%	1,166	14.16%	102	1.24%	226	2.74%
		Yes	400	50.96%	161	20.51%	65	8.28%	104	13.25%	19	2.42%	36	4.59%

MCO	Birth Outcome		Births with Early and Adequate Plus Prenatal Care		Births with Adequate Prenatal Care		Births with Intermediate Prenatal Care		Births with Inadequate Prenatal Care		Births With No Prenatal Care		Births With Missing Prenatal Care Information	
			Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Magellan	*Preterm Births (<37 Weeks Gestation)**	No	526	28.49%	763	41.33%	182	9.86%	288	15.60%	33	1.79%	54	2.93%
		Yes	129	56.33%	36	15.72%	13	5.68%	29	12.66%	*S*	*S*	12	5.24%
	*Newborns with Low Birth Weight (<2,500g)**	No	541	29.51%	743	40.53%	178	9.71%	281	15.33%	34	1.85%	56	3.06%
		Yes	114	47.11%	56	23.14%	17	7.02%	36	14.88%	*S*	*S*	*S*	*S*
Optima	*Preterm Births (<37 Weeks Gestation)**	No	1,737	32.10%	2,176	40.21%	556	10.28%	750	13.86%	61	1.13%	131	2.42%
		Yes	381	60.77%	85	13.56%	42	6.70%	77	12.28%	24	3.83%	18	2.87%
	*Newborns with Low Birth Weight (<2,500g)**	No	1,777	32.65%	2,140	39.32%	565	10.38%	758	13.93%	66	1.21%	137	2.52%
		Yes	341	57.31%	121	20.34%	33	5.55%	69	11.60%	19	3.19%	12	2.02%

MCO	Birth Outcome		Births with Early and Adequate Plus Prenatal Care		Births with Adequate Prenatal Care		Births with Intermediate Prenatal Care		Births with Inadequate Prenatal Care		Births With No Prenatal Care		Births With Missing Prenatal Care Information	
			Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
UnitedHealthcare	*Preterm Births (<37 Weeks Gestation)**	No	595	24.34%	1,057	43.23%	312	12.76%	344	14.07%	31	1.27%	106	4.34%
		Yes	138	59.23%	25	10.73%	*S*	*S*	29	12.45%	*S*	*S*	25	10.73%
	*Newborns with Low Birth Weight (<2,500g)**	No	609	24.96%	1,038	42.54%	308	12.62%	344	14.10%	33	1.35%	108	4.43%
		Yes	124	52.10%	44	18.49%	11	4.62%	29	12.18%	*S*	*S*	23	9.66%
VA Premier	*Preterm Births (<37 Weeks Gestation)**	No	1,443	28.73%	1,857	36.97%	576	11.47%	731	14.55%	58	1.15%	358	7.13%
		Yes	268	50.09%	86	16.07%	49	9.16%	50	9.35%	24	4.49%	58	10.84%
	*Newborns with Low Birth Weight (<2,500g)**	No	1,484	29.44%	1,847	36.64%	568	11.27%	711	14.10%	65	1.29%	366	7.26%
		Yes	227	43.91%	96	18.57%	57	11.03%	70	13.54%	17	3.29%	50	9.67%

MCO	Birth Outcome		Births with Early and Adequate Plus Prenatal Care		Births with Adequate Prenatal Care		Births with Intermediate Prenatal Care		Births with Inadequate Prenatal Care		Births With No Prenatal Care		Births With Missing Prenatal Care Information	
			Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
FFS	*Preterm Births (<37 Weeks Gestation)**	No	591	21.99%	1,081	40.22%	322	11.98%	511	19.01%	83	3.09%	100	3.72%
		Yes	155	46.55%	52	15.62%	19	5.71%	51	15.32%	34	10.21%	22	6.61%
	*Newborns with Low Birth Weight (<2,500g)**	No	630	22.98%	1,079	39.37%	323	11.78%	514	18.75%	94	3.43%	101	3.68%
		Yes	116	41.43%	54	19.29%	18	6.43%	48	17.14%	23	8.21%	21	7.50%

**a lower rate indicates better performance for this indicator.*

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