



South Dakota Medicaid Innovation Grant Program

A SUMMATIVE EVALUATION OF INNOVATION GRANT ACTIVITIES BETWEEN
JANUARY 2020 AND MAY 2022

Report prepared by associates of Sage Project Consultants, LLC

9-1-2022



Background

In 2019 the South Dakota Legislature in partnership with Governor Noem appropriated \$1 million to the Department of Social Services (DSS) in order to pilot innovative projects focused on enhancing on primary and prenatal care for Medicaid recipients. Primary and prenatal care innovation projects were tasked to test evidence-based primary and prenatal care models that promote better health by addressing medical, behavioral, and psychosocial factors; improving delivery of care; and reducing health care costs.

DSS began accepting applications for innovation grant projects in April 2019 and awarded grants in September 2019. Three organizations were awarded innovation grants, Avera Health, the Center for Family Medicine, and Native Women’s Health Care. Avera Health and Center for Family Medicine completed their program objectives. Native Women’s Health Care and South Dakota Medicaid mutually agreed to end the grant-funded program efforts in August 2021 due to challenges Native Women’s Health Care had implementing the proposed project.

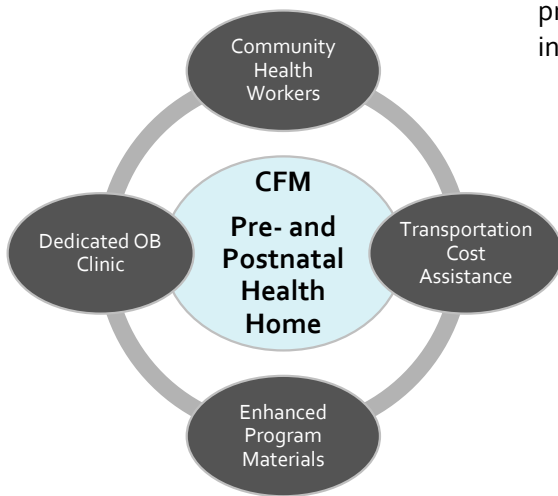
Executive Summary

Summary of Grant Activities & Assessment of Findings

Center for Family Medicine: Providing Enhanced Cost-Effective Prenatal Care to Rural and Underserved Patients of South Dakota

The Center for Family Medicine’s goal was to provide patients with a birth center/pregnancy health home approach to provide full array of prenatal and postnatal care. The project also trained family medicine resident physicians in innovative, evidence-based prenatal care models. A total of 271 mothers were provided a health home approach through their prenatal and postnatal care, including interconception counseling as applicable. Interventions included:

- Implementation of patient care supports including community health workers thereby increasing access to care for participating mothers. Community health workers become an integral part of the clinic’s approach to well-rounded care, focusing on connecting patients with community resources that can provide mothers the support they need. Community health workers helped a number of patients in accessing insurance, housing, food assistance, pregnancy classes, and more. Funding for the community health worker staff is continuing through supports from outside funding.
- Transportation cost assistance via Lyft was provided to approximately 1 out of every 3 intervention group participants to get them to and from services, which is believed to have been one of the key contributors to care retention.



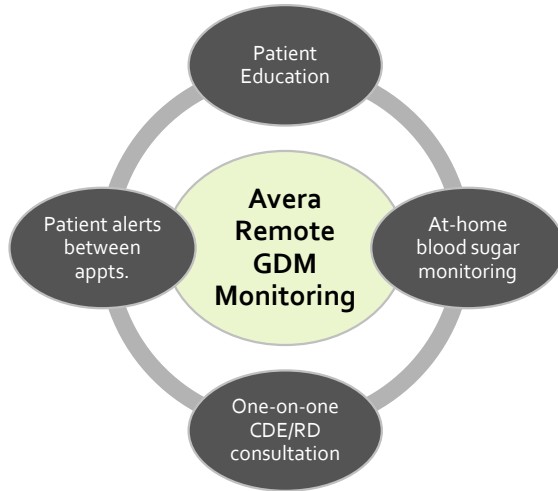
- Services were enhanced by the addition of counseling services for mental health and addiction concerns experienced by pregnant and postpartum mothers, which was well received by both patients and staff.
- Maternal care materials were enhanced by the development of curriculum scripts written and recorded in eight languages, reducing language barriers to care. Residents created low literacy videos explaining the different prenatal visits and concerns to be shared during the appointment. When asked to rate level of satisfaction with the content and format of education, patients ranked the new videos slightly higher than the information prior to the videos.
- Technology (EMR-connected blood pressure cuffs) was leveraged to reduce risks associated with prenatal care, particularly for mothers at high risk for diabetes, thyroid disease, preeclampsia, or preterm delivery.

Outcomes associated with Center for Family Medicine’s intervention include:

- Women in the intervention group were more likely to opt to breastfeed their baby compared to the control group (51% of the intervention group compared to 47% of control group mothers).
- Women in the intervention group were more likely to be using contraception as of their six-week postpartum visit (72% of the intervention group compared to 61% of control group mothers).
- Center for Family Medicine experienced reduce no-show appointments and cancellation due to Lyft transportation. They estimate that this resulted in approximately \$5,000 in savings.
- The following screening rates were higher for the intervention group than the control group:
 - ✓ Screening rates for preeclampsia was 96% compared to 82%.
 - ✓ Screening rates for thyroid disease was 77% compared to 23%.
 - ✓ Early screening for gestational diabetes was 66% compared to 32%.
 - ✓ Preterm birth prevention efforts through enhanced screening were 100% compared to 64%.
- 8% of intervention group participants with complete OB records included in the data set experienced complications necessitating a NICU stay, compared to 10% of control group babies.

Before Baby: Avera Remote Gestational Diabetes Monitoring Project

The Avera Before Baby intervention focused on pregnant women diagnosed with gestational diabetes who were seen at one of four Avera Health locations in South Dakota. These four locations serve 36 counties in South Dakota. A total of 336 pregnant mothers participated in the intervention group. The targeted intervention focused on enhanced patient education and monitoring for future complications associated with gestational diabetes. The intervention included:



- Provision of a glucometer, training for participants in how to use a glucometer, and remote monitoring and data transmission to the patient care team.
- Patients were also provided access to a mobile telehealth application that allowed them to connect face-to-face via video appointment with a certified diabetes educator/registered dietitian (CDE/RD) for counseling in between regular prenatal checkups. The CDE/RD monitored patient blood sugar levels and contacted the patient as soon as levels became out of control.

Outcomes associated with Avera’s intervention include:

- Seventeen percent more mothers initiated prenatal care in the first trimester compared to the control group.
- Other maternal and infant outcomes did not appear to differ significantly between intervention and control groups. Variables monitored included odds of c-section delivery, odds of post-partum hemorrhage, and odds of gestational hypertension, infants being large-for-gestational-age (>4000 grams) and odds of NICU admission upon birth.
- Rates of gestational hypertension for the intervention group were 2 percentage points lower than the control group. In addition, rates of infants being large-for-gestational-age was 3.6 percentage points lower for the intervention group than the control group. However, Avera’s analysis indicated these outcomes were not statistically significant.

Program Implementation

Center for Family Medicine

The intervention’s goal was to provide patients with a birth center/pregnancy health home approach including the full array of prenatal and postnatal care. The project also trained family medicine resident physicians in innovative, evidence-based prenatal care models.

Innovation Tested

CFM’s project centered on application of a health home model and use of technology to deliver patient education results in improved health outcomes. The team identified three unique goals for consideration in their pilot approach:

Goal 1 – Pilot innovative prenatal, preconception, and interconception services for rural and underserved patients of South Dakota through a coordinated, interdisciplinary clinic and training of family medicine residents.

Goal 2 – Provide transportation services to recipients with barriers to accessing care.

Goal 3 – Develop a risk assessment phone app for easy recognition of early need for interventions to minimize risks of preterm birth, preeclampsia, and management of chronic diabetes.

Control Group

In order to compare the effectiveness of the tested interventions on clinical outcomes, a control group was established using data from OB visits dating between January 1, 2018, through January 1, 2020. Following removal of incomplete records (those missing OB outcome data) and duplicate records, a total of 257 patient records were considered as the control group.

DEMOGRAPHIC INFORMATION – CONTROL GROUP (CFM)

Race	46%	Black or African American
	26%	White
	9%	Asian
	7%	American Indian
	2%	Other Races
	13%	Unknown or Refused
Ethnicity	80%	Not Hispanic or Latino
	15%	Hispanic or Latino
	5%	Unknown or Refused
Primary Language	65%	English
	11%	Castilian Spanish
	7%	Kunama
	5%	Swahili
	12%	Other languages (14 unique others identified)
Insurance Status	48%	South Dakota Medicaid
	23%	Private insurance
	18%	Other Insurance

9% Uninsured
2% Unknown

Geographic Area of Focus

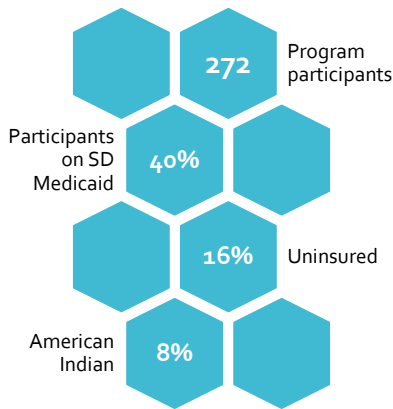
Sioux Falls, Pierre

Intended Outcomes

- Improved screening services for those with increased risk for gestational diabetes and preeclampsia.
- Decreased rates of prenatal hospitalization and c-section, pre-term delivery, NICU stays, and other complications.
- Increased rates of contraception during the inter-conception period, patients breastfeeding, and interpregnancy interval.

Intervention Group

A total of 272 individuals were referred to the Center for Family Medicine OB Clinic and participated in the program. For the purposes of the following analysis, one record was removed due to incomplete data provided, for a total of 271 records analyzed. Compared to the control group, the intervention group had a slightly higher representation of white individuals. Participants in the intervention group were also slightly more uninsured (16% compared to 9% in the control group), and slightly fewer covered by South Dakota Medicaid.



DEMOGRAPHIC INFORMATION – INTERVENTION GROUP (CFM)

Race	38% Black or African American
	33% White
	8% American Indian
	6% Asian
	2% Other Races
	13% Unknown or Refused
Ethnicity	3% Hispanic or Latino
	97% Unknown or Refused
Primary Language	Not recorded.
Insurance Status	40% South Dakota Medicaid
	13% Private insurance
	25% Other Insurance
	16% Uninsured
	6% Unknown

Grant Fund Utilization

A total of \$243,504 (73%) of the original \$333,000 grant was expended throughout the grant period.

Avera Health

The *Before Baby* project assisted pregnant women in South Dakota diagnosed with gestational diabetes by providing remote blood sugar monitoring,

specialized test strips and video visits with a diabetic educator/dietitian. Patients were supported through an AveraNow mobile application.

Innovation Tested

Non-traditional tele-health model testing correlation between use of technology for management of gestational diabetes with birth outcomes. Avera Health aims to work with Indian Health Service (IHS) to serve patients referred to Avera by IHS in targeted areas.

Geographic Area of Focus

Huron (Beadle County), Aberdeen (Brown County), parts of Sioux Falls (Minnehaha and Lincoln Counties) Aurora, Brule, Buffalo, Charles Mix, Davison, Douglas, Gregory, Hanson, Hutchinson, Jerauld, Lyman, Miner, McCook, Sanborn, and minimum of one Indian Health Service site.

Control Group

In order to compare the effectiveness of the tested interventions on clinical outcomes, a control group was established comprised of all pregnant women who delivered at the four partnering facilities and were diagnosed with gestational diabetes. Women in the control group did not participate in the intervention but were seen concurrent to the grant period. Women with other complications were removed (see attached final report from Avera for specific criterion). A total of 603 records were included in the control group.

DEMOGRAPHIC INFORMATION – CONTROL GROUP (AVERA)

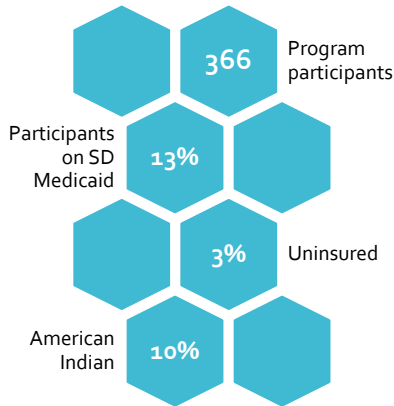
Race	76%	White
	15%	American Indian / Alaskan Native
	5%	Other
	4%	Unknown / Not reported
Ethnicity	93%	Not Hispanic or Latino
	7%	Hispanic or Latino
Insurance Status	32%	South Dakota Medicaid
	64%	Private Insurance
	2%	Self-pay (uninsured)
	2%	Other

Intended Outcomes

- Improve access to OB care and treatment of gestational diabetes.
- Reduce the number of c-sections, birth complications, and infant/mother mortality.
- Increase rates of healthy birth weight babies and the number of babies who are delivered at full term.

Intervention Group

A total of 336 pregnant mothers participated in the intervention tested at Avera Health between January 1, 2017 through April 30, 2022. Services were delivered at Avera Queen of Peace Hospital in Mitchell, Avera Sacred Heart Hospital in Yankton, Avera Saint Luke’s Hospital in Aberdeen, and at Avera Saint Mary’s



Hospital in Pierre. The program analysis included 306 of the 336 pregnant mothers’ records for comparison to the control.

DEMOGRAPHIC INFORMATION – INTERVENTION GROUP (AVERA)

Race	85% White
	10% American Indian / Alaskan Native
	5% Other
Ethnicity	96% Not Hispanic or Latino
	4% Hispanic or Latino
Insurance Status	13% South Dakota Medicaid
	83% Private Insurance
	3% Self-pay (uninsured)
	1% Other

Grant Fund Utilization

A total of \$330,000 (100%) of the original \$330,000 grant was expended throughout the grant period.

Lessons Learned

Center for Family Medicine

As noted by the grantee, the innovation grant project initiated just prior to the start of the pandemic, which ultimately required changes to be made throughout the grant period. Many project timelines were delayed in result. Moving forward, CFM intends to seek and secure outside funding to continue to support several of the key initiatives tested during the Innovation Grant Period. Funding in partnership with the Department of Health was secured to onboard multiple community health workers, who continue to provide valuable services in the identification of social determinants of health for the population served and remove or reduce barriers to care for pregnant and postpartum women specifically. In addition, transportation cost services were viewed as one of the largest contributing factors to reduced no-show and appointment cancellations, with additional funding secured through the South Dakota Community Foundation to continue and expand those efforts.

Avera Health

Similar to the experiences of CFM, Avera Health had significant project delay due to the onset of the COVID-19 pandemic. This not only impacted the delayed start of grant activities, but later contributed to limited staffing on the clinical side and re-assignment of administrative staff to areas of high need in times of COVID-19 resurgence. In addition, following their own internal analysis of the innovation grant project in terms of maternal and baby outcome data, no significant differences between the intervention (program participants) group and the control group were found. Several factors are thought to contribute to this, including questions around equal access of the remote monitoring program and supporting nutritional counseling to all population subgroups. It was also noted that the control group demographics varied from that of the intervention

group, with the intervention group having a higher representation of whites, those with a higher education degree, and those that were married. The control group, in comparison, had a higher ratio of mothers on WIC. As stated by the grantee, “differences between groups could indicate there are language or other barriers, such as insurance coverage, that limits participation.” Avera recognizes that these variables would need to be controlled in future intervention and cost modeling, highlighting “the need for additional data collection and analysis to better understand how participation and representation from some groups impacts intervention effectiveness”.

Quality Improvements

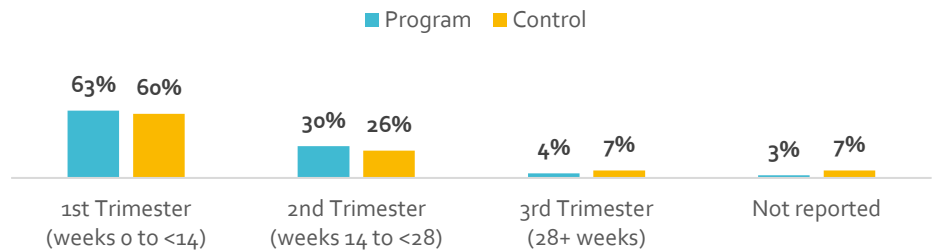
Center for Family Medicine

In addition to the desired clinical outcomes projected by the CFM team, several ancillary strategies were implemented to improve overall quality of care and access to care for patients served.

Prevention

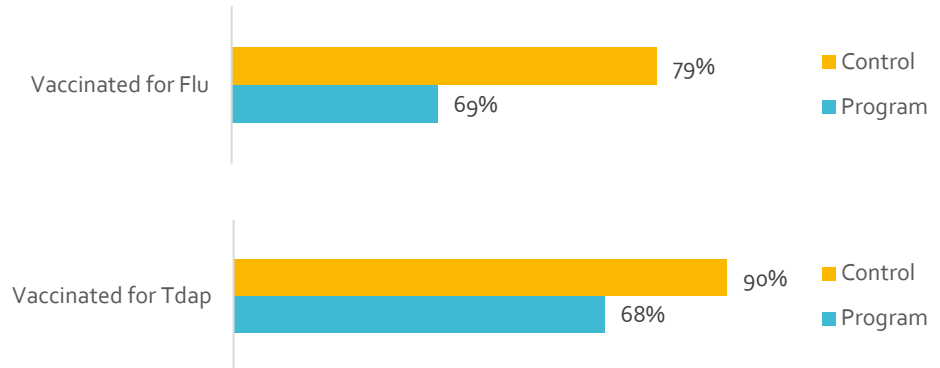
In addition to the implementation of early screening for several complications to both mom and baby, described further below in Screening Outcomes, Center for Family Medicine also monitored gestational age at first visit as a measure of increased access to care. While the intervention goals did not directly aim to impact gestational age at first visit, it is a positive finding none the less.

Nearly 2 out of every 3 mothers in the intervention group had their first prenatal appointment before 14 weeks of pregnancy, slightly higher than that experienced by the control group.



Secondly, Center for Family Medicine monitored vaccination rates (flu and Tdap).

Despite first visit gestational age being earlier and increased patient education efforts, both vaccination rates were lower among intervention group participants when compared to the control population.



Reasons for differences in vaccination rates are unknown. The control group data is from prior to the COVID-19 pandemic and the intervention group data is from during the pandemic.

Access to Care – Transportation Services

Center for Family Medicine provided transportation cost assistance to intervention group participants in an effort to decrease no-show or appointment cancellation rates. To calculate return on investment, clinic leadership estimated, using information from Health Management Technology (2017), that every missed visit cost the clinic \$200. A total of 52 participants utilized Lyft for services at Center for Family Medicine, including getting to and from the hospital for delivery and to or from the hospital for OB specialist visits. When comparing the results between prenatal and postnatal populations served by the clinic, and with or without transportation supports, it was determined that 27 appointments were attended by patients that might have been missed had Lyft not been implemented.

	With transportation supports	Without transportation supports
Prenatal	8 of 115 (7%) – No Show 10 of 115 (8.7%) – No Show + Cancellation	297 of 2,357 (12.6%) – No Show 627 of 2,357 (26.6%) – No Show + Cancellation
Postnatal (6 weeks postpartum visit)	1 of 22 (4.5%) – No Show 2 of 22 (9.1%) – No Show + Cancellation	73 of 245 (29.8%) – No Show 97 of 245 (39.6%) – No Show + Cancellation

Cost savings and benefit was calculated by using the estimated expense of a missed appointment (\$200) less the average cost of a Lyft ride (\$18.55), times the total appointments (27) that would have otherwise been missed had Lyft not been implemented.

Avera Health

Improvements made centered on the utilization of remote blood sugar monitoring coupled with access to the Certified Diabetes Educator / Registered Dietitian (CDE/RD) for dietary and nutritional counseling in between regular prenatal checkups with the patients’ obstetrician or family practice provider. The CDE/RD monitored the patient’s blood sugar levels and contacted the patient as soon as levels began to become out of control, eliminating the possibility of a problem going unnoticed between prenatal visits with her obstetrician or primary care provider. This also allowed the patient to receive dietary information from a certified diabetes educator rather than from the obstetrician or provider, who is not trained or certified to provide such information.

Clinical Outcomes

Center for Family Medicine

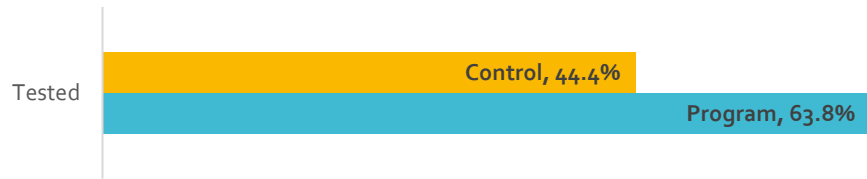
In alignment with the three goal areas identified, the team intended to accomplish three key areas of improvement, measured by several supporting indicators for each.

Intended Outcome	Indicators
Improved screening services for those with increased risk for gestational diabetes and preeclampsia.	<ul style="list-style-type: none"> • Women receiving early screening of gestational diabetes (%) • Women receiving early screening for thyroid disease in patients with risk factors (%)
Decreased rates of prenatal hospitalization and c-section, pre-term delivery, NICU stays, and other complications.	<ul style="list-style-type: none"> • Average weeks gestation at delivery • C-section delivery (%) • Preterm delivery (%) • NICU stay (%) • Vaginal birth after c-section (%) • NICU stay (%)
Increased rates of contraception during the inter-conception period, patients breastfeeding, and interpregnancy interval.	<ul style="list-style-type: none"> • Women educated on contraception options available • Women breastfeeding at 6 weeks postpartum (%)

Screening Outcomes

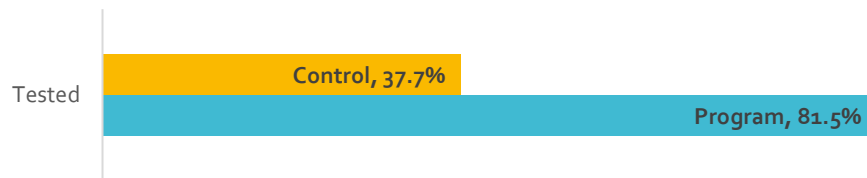
Data was provided that demonstrated the degree to which these women were screened as part of their OB care. Gestational diabetes screening data collected reflected the oral glucose challenge test, with 173 of 271 participants having a recorded test result from that screening assessment. The remaining participants were not tested for various reasons, noted as “not applicable” in the data. In comparison, 114 of the 257 control program records listed a screening test result (positive or negative). Data was not provided to fully understand if the individuals in either control or program were at “high risk” for a particular complication, such as gestational diabetes.

Screening rate for gestational diabetes among intervention group participants was 44% higher than that of the control group.



Early screening for thyroid disease showed similar results as for gestational diabetes among the intervention group, with 156 of 271 women having a documented early screen on record (TSH test result).

The screening rate for thyroid function as an indicator of potential disease or complication in pregnancy among the intervention group was 116% higher than that of the control group.

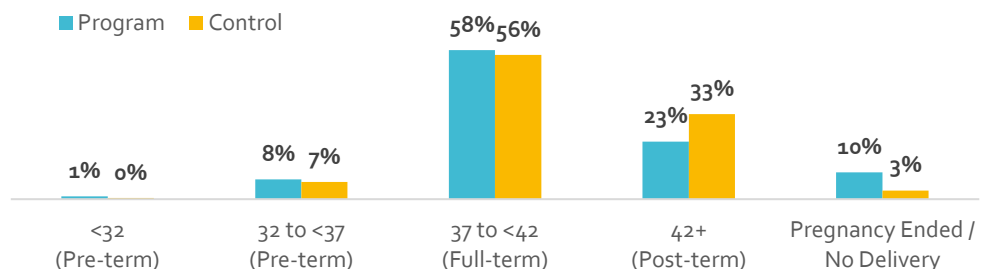


Delivery & Birth Outcomes

Several indicators were examined in understanding the impact of interventions of clinical outcomes for both mom and baby.

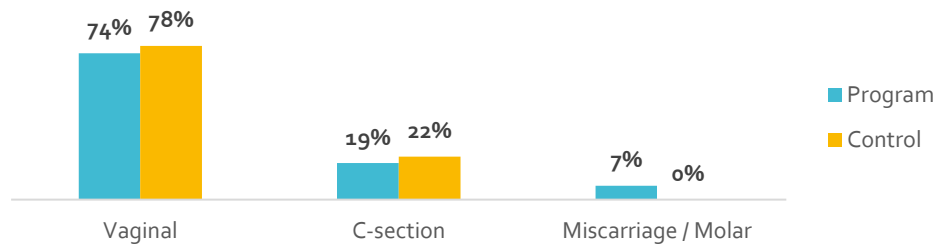
When considering average weeks gestation at delivery, there were a significant number of participants without reported outcome data in this regard (89 of 271, or 33%). When the results are examined after removing records with no reported outcome data, participants delivered their babies at similar gestational age when compared to the control group.

Average weeks gestation at delivery among the intervention group with reported outcome data (n=182) was similar to that experienced by the control group (n=238), with slight reduction in post-term deliveries among the intervention group participants.



In reference to the above figure, evaluation of **pre-term delivery**, defined as delivery of baby <37 weeks gestational age, indicates minimal difference between intervention and control groups. Given there were only 16 individuals in each of the program and control groups that delivered before 37 weeks gestational age, a larger sample study would be needed to further analyze any measurable difference in outcome. Similar issues arise when looking at incidence of **vaginal birth after c-section (VBAC)**. Conclusions cannot be drawn in terms of clinical outcome improvement without further study; 4 of 271 total program participants were documented as VBAC, compared to 13 of 251 in the control group.

Delivery outcomes between program participants and the control group were not notably different, with slightly fewer c-section births among the intervention group participants.



When examining complications for baby after birth, nearly half (44%) of participant records did not indicate a documented “yes” or “no” in terms of baby complications. Of the remaining records, 23 of 151 were noted as having some sort of complication experienced by baby. In comparison to the control, where 27 of 216 records were documented with some level of baby complication, it is difficult to determine if the interventions attributed to participants were effective in reducing complications among those babies.

Specific to **Neonatal Intensive Care Unit (NICU)** stays, only 8% of intervention group participants with complete OB records included in the data set (n=149) experienced complications necessitating a NICU stay, compared to 10% of control group babies (n=220).

Patient Education & Interpregnancy Support

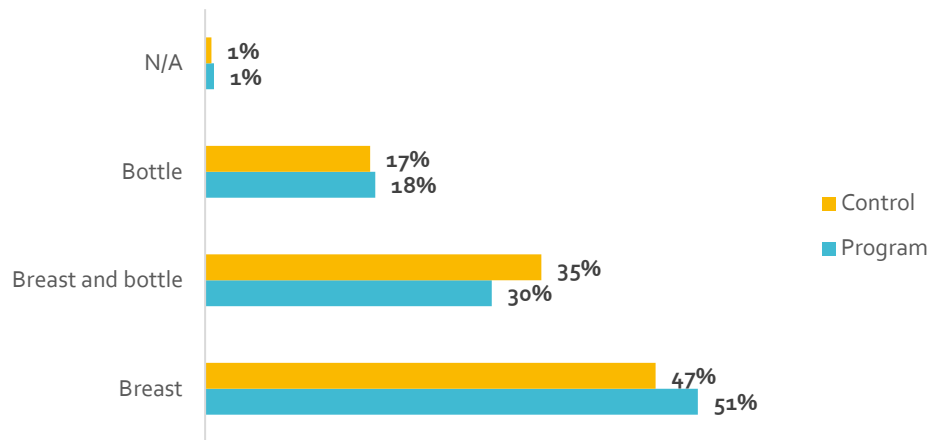
Several indicators were examined among the intervention group in the areas of patient education and interpregnancy care, including but not limited to depression screening, breastfeeding supports, and contraception education and awareness. The intervention aimed to increase rates of contraception during the inter-conception period, increase rates of patients breastfeeding, and increase the overall interpregnancy interval among program participants.

19% more women in the intervention group were reported to have been counseled on and utilizing contraception as of their six-week postpartum visit compared to the control group. Women in the intervention group opted to use

long-acting reversible contraceptive (LARC) at a lower percent than the control group.



Out of 271 intervention group participants, only 107 (39%) had documented record of breastfeeding consultation. Of those, more intervention group participants opted to breastfeed their babies compared to the control group (51% of intervention group mothers, 47% of control group mothers).



27% of the intervention group participants (n=182) reported interpregnancy intervals of more than 60 months and only 9.9% reported interpregnancy intervals of less than 12 months. Data on interpregnancy interval was not available for the control group. As such no comparison information is included in this report.

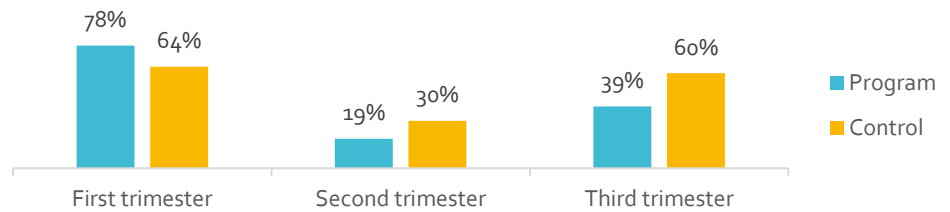
Avera Health

Intended Outcome	Indicators
Improve access to OB care and treatment of gestational diabetes	<ul style="list-style-type: none"> Initiation of prenatal care (timing) Weight gain during pregnancy
Reduce the number of c-sections, birth complications, and infant/mother mortality	<ul style="list-style-type: none"> Method of delivery Rate of post-partum hemorrhage Rate of gestational hypertension Rate of NICU admission

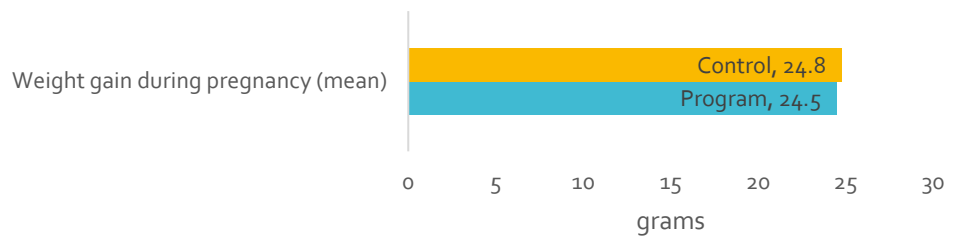
Intended Outcome	Indicators
Increase rates of healthy birth weight babies and the number of babies who are delivered at full term	<ul style="list-style-type: none"> Gestational age at birth % of babies large for gestational age

Improved Access to OB Care & Treatment of GDM

17% more mothers initiated prenatal care in the first trimester compared to the control group.



Average weight gain of the mother was not significantly different in comparison to the control group.



Delivery and Birth Outcomes

As reported by the grantee, maternal characteristics among the intervention group did not significantly differ from the control group. These factors included age, ethnicity, previous c-section, pre-pregnancy hypertension, smoking during pregnancy, prenatal care provided, method of delivery, pre-pregnancy BMI, BMI at delivery, and weight gain during pregnancy. Of note, the intervention group had a greater proportion of whites, higher education, marriage, and early initiation of prenatal care compared to the control group. In review of its study results, the grantee questioned whether the intervention was equally accessible or presented to all population groups and suggested more data would be needed to better understand these dynamics.

Differences in delivery outcomes from control group to intervention group mothers were not significantly different.



The rate of post-partum hemorrhage not significantly different between intervention and control groups.



Healthy Baby Outcomes

As reported by the grantee, Infant sex, birth weight and large-for-gestational-age status (>4,000 g) did not differ between intervention and control groups.

