

Strong Start for Mothers and Newborns Evaluation:

YEAR 3 ANNUAL REPORT

Volume 2 – Awardee Specific Reports

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Introduction

The Strong Start for Mothers and Newborns Evaluation Annual Report Volume 2 presents awardee-specific findings for each of the 27 Strong Start awards. Findings presented are based on case studies, participant-level process evaluation forms (Intake Form, Third Trimester Survey, Postpartum Survey, and Exit Form), and State Data Linkage Technical Assistance (TA) information.

The case study analysis summarizes findings from site visits and telephone interviews conducted by the evaluation team between March and July 2016 as well as information obtained from other background documents.

Participant-level process evaluation data being collected for each woman enrolled in Strong Start inform an analysis of the sociodemographic characteristics of participants, and provide an additional layer of information regarding participant risk profiles, early outcomes, and satisfaction with the care they have received. Available data from program inception through Quarter 1 2016¹ are presented for each awardee and by enhanced prenatal care approach.

The State Data Linkage Technical Assistance (TA) task of Strong Start is working to obtain birth certificate, Medicaid eligibility, and Medicaid claims/encounter data from selected states with Strong Start awardees to assess Strong Start's impact on birth outcomes and Medicaid costs.

¹ Strong Start program quarters follow the traditional calendar year. That is, Q1 2016 is the period from January 1, 2016 through March 31, 2016.

Access Community Health Network

CASE STUDY

ACCESS Community Health Network (ACCESS) is a large, multi-site Federally Qualified Health Center (FQHC) in Chicago, Illinois. ACCESS has implemented the maternity care home approach at most of its prenatal care sites. Under Strong Start, ACCESS has deployed care coordinators to assist Strong Start enrollees with developing a care plan for their pregnancy and postpartum, provide support and links to resources in the community, and assist with navigating the ACCESS network and their managed care plan.

Highlights from the evaluation's third round of case study data collection include:

- ACCESS did not implement any major changes to its Strong Start program in Year 3, and continues to offer eligible pregnant women care coordination services through an opt-in enrollment approach. Site participation has fluctuated as some sites lost their obstetric providers and others began offering obstetric (OB) services when new practitioners were hired.
- Preterm birth rates among ACCESS's Strong Start participants are quite high at over 15 percent. The awardee anticipated high preterm rates among its first cohort of enrollees since they were referred from a maternal-fetal medicine specialist (MFM) in their FQHC system, but expected rates to decline as they enrolled women served by other practitioners. Before and after comparisons are challenging because ACCESS has far more complete outcome data for their Strong Start population than for the general prenatal population. Many women deliver at hospitals that are not affiliated with ACCESS, but staff are only pursuing missing birth information for women who are Strong Start participants.
- ACCESS care coordinators are credited with overall improvements in participant adherence to recommended care and appropriate health care utilization. The awardee is not tracking Emergency Department (ED) use, but perceives that care coordinators are diverting unnecessary ED use. When patients contact coordinators with a question, they offer guidance on whether to go to the ED or make an appointment. ACCESS is tracking hospital follow-up and have seen improvements on that measure. The awardee hopes to also influence hospital readmissions.
- ACCESS has refined the process of developing a "care plan" with enrollees. This involves training care coordinators on motivational interviewing techniques and patient-centered care plans. In addition, ACCESS is implementing a patient-facing tool in its electronic medical record system (EPIC) called the "longitudinal care plan," which allows patients to track progress toward personal goals.
- Family Planning is a high priority topic that is discussed with patients throughout pregnancy, in some cases starting with the first care coordinator encounter. During the third-trimester, care coordinators encourage women to consider options and select a method. Sometimes women decide they want a tubal ligation but fail to sign the paperwork prior to delivery, or want an intrauterine device (IUD) but cannot get placement immediately postpartum. As of July 2015, Illinois Medicaid provides separate reimbursement for long-acting reversible contraceptive (LARC) insertion immediately postpartum in the inpatient setting. Care coordinators try to facilitate these processes, but admit that women will sometimes return for their six week postpartum appointment already pregnant.

- The Medicaid landscape in Illinois presents ongoing challenges for ACCESS care coordinators and their patients. There are many Medicaid managed care organizations (MCOs) serving the greater Chicago area, but MCO policies and procedures are reportedly a “moving target” (e.g., preauthorization policies for 17P vary by plan and have changed over time). Furthermore, while ACCESS accepts most MCOs, several area hospital systems are directly affiliated with MCOs that do not include the ACCESS provider network. This means that ACCESS sometimes loses patients who decide they want to deliver at a specific hospital that is not in the same network as ACCESS.
- Key informants agree that provider referral is the most efficient and effective method for recruiting women into Strong Start, but provider commitment to the program is uneven. Though there are fewer midwives on staff, they are generally more likely to refer to Strong Start than obstetricians. Care coordinators note that if practitioners are not willing to work collaboratively with them, their potential impact is significantly diminished.
- Focus group participants usually did not feel that their Strong Start care differed from care they had received during previous pregnancies. In some cases they were dissatisfied with their provider, wait times, and scheduling inflexibility, though none of these issues is particular to Strong Start. Participants said they felt connected with their care coordinator and valued her support, but did not feel it necessarily translated into a better overall experience or healthier pregnancy.
- ACCESS is in the process of becoming a dedicated “Care Coordination Entity” (CCE)—in which the FQHC network will continue to offer care coordination services to moderate- and high-risk clients—including, but not limited to, pregnant women. They will receive reimbursement from participating Medicaid MCOs, which will be paid on a per beneficiary basis. The awardee is still determining how their maternity-specific care coordination services will be integrated into this effort. ACCESS has plans to continue using the evaluation’s Intake Form, even for non-Strong Start patients, as they do not have another comprehensive risk assessment built into EPIC.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Access Community Health Network (ACCESS) had Intake Forms for 99.3% percent of participants enrolled through Quarter 1 2016 (2,577 Intake Forms for 2,594 participants). In addition, ACCESS submitted 1,590 Third Trimester Surveys, 1,369 Postpartum Surveys, and 975 Exit Forms. The tables below present data collected on ACCESS’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	264	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	2594	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1511	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	2577	6594	8559	22996	38149

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	99.3	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	1590	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	105.2	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	1369	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	90.6	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	975	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	64.5	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	2577	6594	8559	22996	38149
Less than 18 years of age	%	6.4	2.8	6.8	5.6	5.4
18 through 34 years of age	%	80.8	87.6	83.3	84.0	84.5
35 years and older	%	12.8	9.0	7.8	9.3	8.9
Missing	%	0.0	0.6	2.1	1.1	1.2
Race and Ethnicity	N	2577	6594	8559	22996	38149
Hispanic	%	50.5	24.8	39.1	26.7	29.1
Non-Hispanic white	%	4.9	53.6	12.5	22.9	25.9
Non-Hispanic black	%	41.2	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.9	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.5	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.6	3.6	2.9	1.5	2.1
Missing	%	1.4	0.8	2.4	1.6	1.6
Employed at Intake	N	2577	6594	8559	22996	38149
Yes	%	39.2	41.4	34.3	39.6	38.7
No	%	59.8	57.3	62.0	58.6	59.1
Missing	%	1.1	1.3	3.7	1.8	2.2
Education Level at Intake	N	2577	6594	8559	22996	38149
Less than high school	%	25.7	13.5	23.2	24.2	22.1
High school graduate or GED	%	41.5	52.7	46.7	50.3	49.9
Bachelor’s degree	%	2.6	10.9	3.3	2.8	4.3
Other college degree(s)	%	5.9	12.5	7.2	6.3	7.5
Missing	%	24.3	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	2577	6594	8559	22996	38149
Married, living with spouse	%	20.6	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.7	1.7	2.0	2.0	1.9
Living with a partner	%	31.7	32.7	31.9	30.3	31.1

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
In a relationship but not living together	%	28.5	14.3	23.6	29.3	25.5
Not in a relationship right now	%	15.8	10.2	17.3	18	16.5
Missing	%	1.7	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	2577	6594	8559	22996	38149
Yes	%	7.6	10.0	8.2	12.9	11.3
No	%	87.3	80.6	73.8	80.9	79.3
Missing	%	5.0	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	2577	6594	8559	22996	38149
Yes	%	26.0	17.2	20.0	16.7	17.5
No	%	67.4	76.9	65.6	74.2	72.7
Missing*	%	6.6	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	2577	6594	8559	22996	38149
Yes	%	19.1	21.0	24.3	22.2	22.5
No	%	71.2	68.8	54.0	66.9	64.3
Missing*	%	9.8	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	2577	6594	8559	22996	38149
Yes	%	17.2	20.2	16.1	19.0	18.6
No	%	80.7	77.9	76	76.5	76.7
Missing*	%	2.1	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	683	2768	3214	8802	14784
<18 months	%	16.4	29.1	18.1	20.6	21.5
≥18 months	%	63.8	48.8	52.1	54.4	52.8
Missing	%	19.8	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	683	2768	3214	8802	14784
Yes	%	19.8	9.6	11.2	17.8	14.8
No	%	76.0	89.7	75.9	70.0	75.0
Not Known	%	1.9	0.3	9.4	8.4	7.1
Missing	%	2.3	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	683	2768	3214	8802	14784
Yes	%	15.8	1.8	8.3	13.9	10.4
No	%	72.8	97.1	64.0	69.1	73.3
Not Known	%	8.8	0.4	14.5	12.4	10.6
Missing	%	2.6	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	975	4747	6148	14056	24951

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	0.3	0.2	2.4	1.0	1.2
No	%	99.2	99.6	66.5	89.1	85.5
Not Known	%	0.0	0.0	26.8	6.8	10.4
Missing	%	0.5	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	975	4747	6148	14056	24951
Yes	%	5.5	0.3	3.6	2.0	2.1
No	%	94.1	99.4	78	88.4	87.9
Not Known	%	0.0	0.0	13.7	6.4	7.0
Missing	%	0.4	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	975	4747	6148	14056	24951
Yes	%	5.9	0.6	6.4	7.6	6.0
No	%	93.4	99.2	78.6	83.3	85.2
Not Known	%	0.0	0.0	10.5	6.1	6.0
Missing	%	0.6	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	975	4747	6148	14056	24951
Yes	%	6.4	2.4	5.3	5.7	5.0
No	%	92.7	97.2	75.2	76.0	79.8
Not Known	%	0.0	0.1	14.4	14.4	11.7
Missing	%	0.9	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	975	4747	6148	14056	24951
Yes	%	5.0	1.3	7.0	6.3	5.5
No	%	94.1	98.3	73.3	75.6	79.4
Not Known	%	0.0	0.1	14.5	14.1	11.5
Missing	%	0.9	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	673	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	9.7	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	10.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.2	0.2	5.0	0.1	1.2

Data Element	N, Mean, Median, or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	972	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	5.5	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	5.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	246	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	3.1	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	2.5	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	174	355	619	2185	3159
Yes	%	17.8	2.0	7.6	14.6	11.8
No	%	59.8	87.3	60.6	55.9	60.4
Not known	%	0.0	0.0	15.8	18.0	15.6
Missing	%	22.4	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	682	4686	4678	10794	20158
Number of Babies Born	N	695	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	873	4667	5728	12895	23290
Yes	%	14.0	15.8	24.9	19.0	19.8
No	%	45.5	82.4	39.9	36.5	46.5
Not known	%	8.7	0.6	25.3	31.1	23.6
Missing	%	31.8	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	975	4747	6148	14056	24951
Vaginal delivery	%	48.3	86.6	53.9	51.8	59.0
C-Section	%	22.4	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	29.3	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	84.6	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	143	226	672	1921	2819
VBAC	%	21.0	31.4	22.9	16.5	19.2
Repeat C-Section	%	79.0	68.6	77.1	83.5	80.8
Scheduled C-Section	N	218	597	1375	3533	5505
Yes	%	45.9	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	695	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	107	242	512	1621	2375
	%	15.4	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	568	4432	3604	8382	16418
	%	81.7	94.4	76.4	76.2	80.4
Missing	N	20	21	604	1003	1628
	%	2.9	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	695	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	100	178	468	1484	2130
	%	14.4	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	568	4406	3999	8763	17168
	%	81.7	93.8	84.7	79.6	84.1
Missing	N	27	111	253	759	1123
	%	3.9	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	1369	3407	3983	10659	18049
Yes	%	69.2	85.4	62.8	62.6	66.9
No	%	24.0	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.9	0.4	5.6	1.1	2.0
Missing	%	5.8	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	99.9	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	1369	3407	3983	10659	18049
Yes	%	68.7	69.5	61.6	71.1	68.7
No	%	19.4	19.7	11.6	12.6	13.7
Unsure	%	3.2	2.8	6.2	1.9	3.0
Missing	%	8.7	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Urban submitted applications requesting Medicaid and birth certificate data to the Illinois Department of Healthcare and Family Services (HFS) and the Illinois Department of Public Health (IDPH) in February and March 2015, respectively. Urban received provisional approval from HFS in April 2015—pending approval from IDPH; however, state officials reported that a state statute prevents IDPH from sharing individual-level birth certificate data without the mother’s written consent. Illinois officials had committed to supporting the evaluation via a Letter of Support for the project in 2013 and thus explored

alternative approaches to share its data. Unfortunately, these efforts did not yield a viable alternative and, as of August 2016, it appears that Illinois data will not be useable in the evaluation.

Albert Einstein Healthcare Network

CASE STUDY

The Albert Einstein Healthcare Network (Einstein) is a private, nonprofit health system with three acute-care hospitals and many outpatient centers throughout the greater Philadelphia region. Einstein operates three Strong Start sites that have implemented the Centering Pregnancy (Centering) model of group prenatal care: the Paley Clinic in the Einstein Medical Center Philadelphia (a large teaching hospital), the Genuardi clinic in suburban Montgomery County near another Einstein hospital (newly built in 2012), and the Rising Sun obstetrics (OB) office in northeast Philadelphia that is just beginning Centering and was not the focus of the site visit. Both the Paley and Genuardi sites are high volume maternity care practices, and run separate Centering groups for Strong Start participants and non-Strong Start participants. The sites serve a large proportion of Medicaid beneficiaries; 70 percent of the Einstein Healthcare Network's births (across facilities) are Medicaid-financed. A total of 858 participants had enrolled in Strong Start through the end of the third quarter of 2015. Key informants were enthusiastic about the program, the impact of Strong Start on care, and prospects for sustaining the model.

Highlights from the evaluation's third round of data collection include:

- At the time of the interviews, the awardee was introducing Strong Start Centering at a third site, a large obstetrical practice in Northeast Philadelphia. The site was added to help meet Strong Start enrollment goals and because the awardees believe the Centering model can improve maternal and infant health.
- Key informants reported that Strong Start Centering improves preterm birth and low birthweight rates through education and patient activation. They also suspect that Centering is reducing costs because better informed women are less likely to make unnecessary use of OB department's triage unit and emergency room. Key informants reported that Strong Start Centering is addressing many psychosocial dimensions of pregnant women's lives through connecting women with each other.
- In addition to the Centering sessions' education and support around breastfeeding, other awardee programs also promote breastfeeding among all pregnant women. However, there is much more work to do to overcome cultural barriers and community-wide misconceptions.
- The awardee struggles to increase adoption of birth control. Strong Start educates participants and addresses common misconceptions about birth control, but most women do not return for postpartum visits, and reimbursement poses barriers to long-acting reversible contraception (LARC) placement immediately postpartum.

- In addition to using an opt-out approach, key informants stated that a group intake strategy begun at the time of the Year 2 interviews – whereby a group of women at their initial prenatal visit are brought together to the Centering room -- has increased Strong Start enrollment.
- Staff discourage women from bringing children to Centering sessions, but accommodate them when they do bring children, and focus group participants did not consider childcare or transportation to be barriers to care. The Strong Start coordinator texts appointment reminders to participants, which can be a challenge with women who change their phone numbers often. Inability to secure space has limited the awardee’s ability to expanding Centering broadly, though the OB department is now creating a second Centering room in the Paley clinic.
- Focus group participants reported that Centering allows them to share experiences with other women, helps them have a healthier pregnancy, and better prepares them to be mothers.
- Program staff learned the importance of continually communicating with and educating the clinical staff about Strong Start and the Centering model, and reassuring them that Centering won’t reduce their patient volume.
- Program staff also learned to expect logistical and cultural issues when implementing a Centering program. They addressed scheduling challenges related to a new electronic medical record (EMR) by assigning a medical assistant to “check in” the women at the beginning of Centering sessions to initiate the record of their encounter in the EMR.
- Multiple prenatal care programs benefiting Strong Start participants, such as the Maternity Care Coalition’s doula services, Healthy Start, Nurse-Family Partnership and others, may be confounding factors in analyzing Strong Start’s impact on outcomes.
- With strong support from Einstein’s clinical and administrative leadership, and data analysis anticipated to show positive clinical outcomes and patient satisfaction, the awardee expects to sustain the Centering model through other grants, third-party reimbursement from health plans, or other funding sources.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Albert Einstein Healthcare Network had Intake Forms for 72.7 percent of participants enrolled through Quarter 1 2016 (931 Intake Forms for 1,280 participants). In addition, Albert Einstein Healthcare Network submitted 359 Third Trimester Surveys, 251 Postpartum Surveys, and 573 Exit Forms. The tables below present data collected on Albert Einstein Healthcare Network’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	261	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1280	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	708	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	931	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	72.7	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	359	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	50.7	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	251	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	35.5	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	573	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	80.9	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	931	6594	8559	22996	38149
Less than 18 years of age	%	6.7	2.8	6.8	5.6	5.4
18 through 34 years of age	%	86.5	87.6	83.3	84.0	84.5
35 years and older	%	4.4	9.0	7.8	9.3	8.9
Missing	%	2.5	0.6	2.1	1.1	1.2
Race and Ethnicity	N	931	6594	8559	22996	38149
Hispanic	%	15.8	24.8	39.1	26.7	29.1
Non-Hispanic white	%	8.6	53.6	12.5	22.9	25.9
Non-Hispanic black	%	67.7	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.1	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.8	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	4.7	3.6	2.9	1.5	2.1
Missing	%	1.4	0.8	2.4	1.6	1.6
Employed at Intake	N	931	6594	8559	22996	38149
Yes	%	40.2	41.4	34.3	39.6	38.7
No	%	57.4	57.3	62.0	58.6	59.1
Missing	%	2.5	1.3	3.7	1.8	2.2
Education Level at Intake	N	931	6594	8559	22996	38149
Less than high school	%	19.3	13.5	23.2	24.2	22.1
High school graduate or GED	%	60.8	52.7	46.7	50.3	49.9

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Bachelor's degree	%	2.0	10.9	3.3	2.8	4.3
Other college degree(s)	%	4.8	12.5	7.2	6.3	7.5
Missing	%	13.0	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	931	6594	8559	22996	38149
Married, living with spouse	%	9.2	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.1	1.7	2.0	2.0	1.9
Living with a partner	%	31.0	32.7	31.9	30.3	31.1
In a relationship but not living together	%	31.9	14.3	23.6	29.3	25.5
Not in a relationship right now	%	20.3	10.2	17.3	18	16.5
Missing	%	6.4	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	931	6594	8559	22996	38149
Yes	%	11.7	10.0	8.2	12.9	11.3
No	%	69.8	80.6	73.8	80.9	79.3
Missing	%	18.5	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	931	6594	8559	22996	38149
Yes	%	17.6	17.2	20.0	16.7	17.5
No	%	65.0	76.9	65.6	74.2	72.7
Missing*	%	17.4	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	931	6594	8559	22996	38149
Yes	%	31.1	21.0	24.3	22.2	22.5
No	%	45.2	68.8	54.0	66.9	64.3
Missing*	%	23.6	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	931	6594	8559	22996	38149
Yes	%	15.8	20.2	16.1	19.0	18.6
No	%	79.1	77.9	76	76.5	76.7
Missing*	%	5.1	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	339	2768	3214	8802	14784
<18 months	%	12.0	29.1	18.1	20.6	21.5
≥18 months	%	43.7	48.8	52.1	54.4	52.8
Missing	%	44.2	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	339	2768	3214	8802	14784
Yes	%	22.1	9.6	11.2	17.8	14.8
No	%	73.2	89.7	75.9	70.0	75.0
Not Known	%	2.4	0.3	9.4	8.4	7.1

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	2.4	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	339	2768	3214	8802	14784
Yes	%	15.3	1.8	8.3	13.9	10.4
No	%	78.8	97.1	64.0	69.1	73.3
Not Known	%	3.8	0.4	14.5	12.4	10.6
Missing	%	2.1	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	573	4747	6148	14056	24951
Yes	%	0.5	0.2	2.4	1.0	1.2
No	%	97.6	99.6	66.5	89.1	85.5
Not Known	%	0.5	0.0	26.8	6.8	10.4
Missing	%	1.4	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	573	4747	6148	14056	24951
Yes	%	2.1	0.3	3.6	2.0	2.1
No	%	96.2	99.4	78	88.4	87.9
Not Known	%	0.5	0.0	13.7	6.4	7.0
Missing	%	1.2	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	573	4747	6148	14056	24951
Yes	%	6.1	0.6	6.4	7.6	6.0
No	%	91.8	99.2	78.6	83.3	85.2
Not Known	%	0.7	0.0	10.5	6.1	6.0
Missing	%	1.4	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	573	4747	6148	14056	24951
Yes	%	3.0	2.4	5.3	5.7	5.0
No	%	88.0	97.2	75.2	76.0	79.8
Not Known	%	5.9	0.1	14.4	14.4	11.7
Missing	%	3.1	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	573	4747	6148	14056	24951
Yes	%	10.3	1.3	7.0	6.3	5.5
No	%	78.5	98.3	73.3	75.6	79.4
Not Known	%	7.3	0.1	14.5	14.1	11.5
Missing	%	3.8	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	526	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	4.0	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	3.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	4.5	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	4.5	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	289	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	2.0	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	224	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	1.9	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	93	355	619	2185	3159
Yes	%	22.6	2.0	7.6	14.6	11.8
No	%	50.5	87.3	60.6	55.9	60.4
Not known	%	23.7	0.0	15.8	18.0	15.6
Missing	%	3.2	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	511	4686	4678	10794	20158
Number of Babies Born	N	516	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	507	4667	5728	12895	23290
Yes	%	26.4	15.8	24.9	19.0	19.8
No	%	52.9	82.4	39.9	36.5	46.5
Not known	%	17.0	0.6	25.3	31.1	23.6
Missing	%	3.7	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	573	4747	6148	14056	24951
Vaginal delivery	%	66.1	86.6	53.9	51.8	59.0
C-Section	%	23.9	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	9.9	0.9	23.7	23.0	19.0

Data Element	N, Mean, Median, or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	86.3	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	89	226	672	1921	2819
VBAC	%	27.0	31.4	22.9	16.5	19.2
Repeat C-Section	%	73.0	68.6	77.1	83.5	80.8
Scheduled C-Section	N	137	597	1375	3533	5505
Yes	%	48.2	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	516	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	68	242	512	1621	2375
	%	13.2	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	379	4432	3604	8382	16418
	%	73.4	94.4	76.4	76.2	80.4
Missing	N	69	21	604	1003	1628
	%	13.4	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	516	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	58	178	468	1484	2130
	%	11.2	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	448	4406	3999	8763	17168
	%	86.8	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period.

Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	251	3407	3983	10659	18049
Yes	%	33.5	85.4	62.8	62.6	66.9
No	%	5.2	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.8	0.4	5.6	1.1	2.0
Missing	%	60.6	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	110.2	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	251	3407	3983	10659	18049

Data Element	N or %	EINSTEIN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	30.3	69.5	61.6	71.1	68.7
No	%	7.2	19.7	11.6	12.6	13.7
Unsure	%	0.8	2.8	6.2	1.9	3.0
Missing	%	61.8	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

In April 2016, Urban received a fully executed business associate agreement (BAA) from the Pennsylvania Department of Human Services (DHS). The BAA states that DHS will link Medicaid and birth certificate data, and then transfer the data to Urban. (Urban received approval from the Pennsylvania Department of Health (DOH) in April 2015 to access birth certificate data). Urban expects to receive linked data from DHS in October 2016.

American Association of Birth Centers

CASE STUDY

The American Association of Birth Centers (AABC) is the national trade association for birth centers in the United States, with a mission to support and promote birth centers as a model of maternity care. AABC operates the largest number of Strong Start sites, including all but one of the Strong Start sites implementing the birth center approach. Under Strong Start, AABC sites provide the midwifery model of care supplemented by at least four encounters with a peer counselor during the course of pregnancy and postpartum. At the time of the Year 3 interviews, AABC was operating 38 sites in 18 states across the country and had a revised goal of enrolling around 9400 women total (or around 275 per month) in Strong Start. AABC awardee staff report that Strong Start implementation continues to go well, and that the national team is in the midst of gathering data on program outcomes and taking steps to try and sustain the program.

Highlights from the evaluation's third round of data collection include:

- There have been no major changes to AABC's Strong Start intervention in Year 3. At the site level, some sites have modified their implementation approach because of financial constraints (e.g., reducing Strong Start staff) while others have refined their approach with new elements such as introducing Strong Start early, at the pregnancy confirmation or the birth center orientation visit.
- The overall number of AABC sites has been relatively stable, but some sites have dropped out while others have been added. There are slightly fewer active sites in Year 3 (38) than in Year 2 (41). Of the active sites, a handful were described as "less active" because while still engaged with AABC on Strong Start matters, these sites maintain very low overall enrollment.
- AABC program staff consider two features that are common to the midwifery and birth center models of care—namely the additional time spent with patients and emphasis on education—to be the primary factors in centers' low rates of preterm birth and low birthweight. Given the diverse population enrolled in Strong Start and the risk factors that many Medicaid-enrolled patients present with, they were generally pleased with preterm and low birthweight outcomes for their Strong Start population.
- Some staff felt that the peer counselor services might also be contributing to improvements in preterm and low birthweight rates, since the peer counselor spends extra time with enrollees and provides additional education and referrals. Others were not sure whether peer counselor services have influenced outcomes though all key informants felt that rates were primarily influenced by the midwifery model of care.
- It is standard for every birth center patient to be asked about family planning, and all key informants felt that a large majority of Strong Start participants were receiving family planning counseling during the prenatal period.

- The degree to which the Strong Start peer counselor has been integrated into birth centers varies across AABC sites. At many centers, midwives embrace the peer counselor and feel comfortable referring patients in need of additional support to this member of their team. On the other hand, there are still some sites where midwives do not understand the role of the peer counselor or may be resistant to making referrals to her.
- Focus group participants expressed satisfaction with their care at the birth center. They were positive about their experience with the peer counselor, with many praising the additional support received. However, the extent to which they met with the peer counselor varied immensely, with some having minimal interactions while others reported regular communication and “check-ins” with the peer counselor (e.g., at nearly every prenatal care visit).
- Birth centers face a number of operational challenges that have influenced Strong Start program implementation. These include scope of practice limitations (e.g., hospital privileges, prescriptive authority, or requirements for physician oversight), staff turnover, and financial challenges that stem from low insurance reimbursement.
- AABC sites have generally expressed interest in sustaining the peer counselor component of Strong Start. AABC is currently developing resources that highlight the cost savings potential of the birth center approach. These resources are being designed for the Strong Start sites to use when engaging Medicaid managed care organizations (MCOs) in contracting discussions, and in pursuing additional grant opportunities as a way to sustain the Strong Start program.
- The data collection requirements associated with the Strong Start evaluation and program monitoring continue to be challenging for some birth centers. Most sites indicated that they will not continue the same level of data collection after Strong Start funding ends because of the increased burden it places on staff. Notably, however, AABC does operate a voluntary Perinatal Data Registry (which preceded and is separate from Strong Start) where many sites will continue to submit data though not to the extent that has been required under Strong Start.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, American Association of Birth Centers (AABC) had Intake Forms for 82.8 percent of participants enrolled through Quarter 1 2016 (6,271 Intake Forms for 7,570 participants). In addition, AABC submitted 3,874 Third Trimester Surveys, 3,220 Postpartum Surveys, and 4,512 Exit Forms. The tables below present data collected on AABC’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	698	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	7570	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	3492	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	6271	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	82.8	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	3874	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	110.9	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	3220	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	92.2	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	4512	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	129.2	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	6271	6594	8559	22996	38149
Less than 18 years of age	%	2.7	2.8	6.8	5.6	5.4
18 through 34 years of age	%	87.6	87.6	83.3	84.0	84.5
35 years and older	%	9.1	9.0	7.8	9.3	8.9
Missing	%	0.6	0.6	2.1	1.1	1.2
Race and Ethnicity	N	6271	6594	8559	22996	38149
Hispanic	%	25.7	24.8	39.1	26.7	29.1
Non-Hispanic white	%	56.2	53.6	12.5	22.9	25.9
Non-Hispanic black	%	12.0	15.7	40.7	44.9	38.9
Non-Hispanic Asian	%	1.0	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.7	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	3.6	3.6	2.9	1.5	2.1
Missing	%	0.8	0.8	2.4	1.6	1.6
Employed at Intake	N	6271	6594	8559	22996	38149
Yes	%	41.6	41.4	34.3	39.6	38.7
No	%	57.1	57.3	62.0	58.6	59.1
Missing	%	1.3	1.3	3.7	1.8	2.2
Education Level at Intake	N	6271	6594	8559	22996	38149
Less than high school	%	13.1	13.5	23.2	24.2	22.1
High school graduate or GED	%	52.6	52.7	46.7	50.3	49.9
Bachelor's degree	%	11.1	10.9	3.3	2.8	4.3
Other college degree(s)	%	12.8	12.5	7.2	6.3	7.5

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	10.4	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	6271	6594	8559	22996	38149
Married, living with spouse	%	41.3	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.8	1.7	2.0	2.0	1.9
Living with a partner	%	33.2	32.7	31.9	30.3	31.1
In a relationship but not living together	%	13.2	14.3	23.6	29.3	25.5
Not in a relationship right now	%	9.3	10.2	17.3	18.0	16.5
Missing	%	1.2	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	6271	6594	8559	22996	38149
Yes	%	9.9	10.0	8.2	12.9	11.3
No	%	80.8	80.6	73.8	80.9	79.3
Missing	%	9.3	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	6271	6594	8559	22996	38149
Yes	%	16.2	17.2	20.0	16.7	17.5
No	%	77.9	76.9	65.6	74.2	72.7
Missing*	%	5.8	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	6271	6594	8559	22996	38149
Yes	%	20.4	21.0	24.3	22.2	22.5
No	%	69.6	68.8	54.0	66.9	64.3
Missing*	%	10.1	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	6271	6594	8559	22996	38149
Yes	%	20.0	20.2	16.1	19.0	18.6
No	%	78.2	77.9	76.0	76.5	76.7
Missing*	%	1.9	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	2617	2768	3214	8802	14784
<18 months	%	29.5	29.1	18.1	20.6	21.5
≥18 months	%	48.1	48.8	52.1	54.4	52.8
Missing	%	22.4	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	2617	2768	3214	8802	14784
Yes	%	9.4	9.6	11.2	17.8	14.8
No	%	90.5	89.7	75.9	70.0	75.0
Not Known	%	0.0	0.3	9.4	8.4	7.1
Missing	%	0.0	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	2617	2768	3214	8802	14784
Yes	%	1.6	1.8	8.3	13.9	10.4
No	%	98.3	97.1	64.0	69.1	73.3

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	0.0	0.4	14.5	12.4	10.6
Missing	%	0.2	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	4512	4747	6148	14056	24951
Yes	%	0.2	0.2	2.4	1.0	1.2
No	%	99.8	99.6	66.5	89.1	85.5
Not Known	%	0.0	0.0	26.8	6.8	10.4
Missing	%	0.0	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	4512	4747	6148	14056	24951
Yes	%	0.3	0.3	3.6	2.0	2.1
No	%	99.6	99.4	78	88.4	87.9
Not Known	%	0.0	0.0	13.7	6.4	7.0
Missing	%	0.1	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	4512	4747	6148	14056	24951
Yes	%	0.6	0.6	6.4	7.6	6.0
No	%	99.4	99.2	78.6	83.3	85.2
Not Known	%	0.0	0.0	10.5	6.1	6.0
Missing	%	0.0	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	4512	4747	6148	14056	24951
Yes	%	2.4	2.4	5.3	5.7	5.0
No	%	97.6	97.2	75.2	76.0	79.8
Not Known	%	0.0	0.1	14.4	14.4	11.7
Missing	%	0.0	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	4512	4747	6148	14056	24951
Yes	%	1.2	1.3	7.0	6.3	5.5
No	%	98.8	98.3	73.3	75.6	79.4
Not Known	%	0.0	0.1	14.5	14.1	11.5
Missing	%	0.0	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	4510	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	11.0	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	11.0	11.0	4.0	10.0	9.0

Data Element	N, Mean, Median, or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Average number of group prenatal visits per participant	Mean	0.2	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	4070	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	3.8	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	3.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	1343	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	1.5	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	331	355	619	2185	3159
Yes	%	1.2	2.0	7.6	14.6	11.8
No	%	89.1	87.3	60.6	55.9	60.4
Not known	%	0.0	0.0	15.8	18.0	15.6
Missing	%	9.7	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	4479	4686	4678	10794	20158
Number of Babies Born	N	4488	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	4439	4667	5728	12895	23290
Yes	%	15.9	15.8	24.9	19.0	19.8
No	%	83.6	82.4	39.9	36.5	46.5
Not known	%	0.0	0.6	25.3	31.1	23.6
Missing	%	0.5	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	4512	4747	6148	14056	24951
Vaginal delivery	%	87.5	86.6	53.9	51.8	59.0
C-Section	%	12.3	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	0.2	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	91.5	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	207	226	672	1921	2819
VBAC	%	29.5	31.4	22.9	16.5	19.2
Repeat C-Section	%	70.5	68.6	77.1	83.5	80.8
Scheduled C-Section	N	555	597	1375	3533	5505
Yes	%	13.2	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	4488	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	226	242	512	1621	2375
	%	5.0	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	4247	4432	3604	8382	16418
	%	94.6	94.4	76.4	76.2	80.4
Missing	N	15	21	604	1003	1628
	%	0.3	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	4488	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	165	178	468	1484	2130
	%	3.7	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	4219	4406	3999	8763	17168
	%	94	93.8	84.7	79.6	84.1
Missing	N	104	111	253	759	1123
	%	2.3	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	3220	3407	3983	10659	18049
Yes	%	85.3	85.4	62.8	62.6	66.9
No	%	6.9	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.5	0.4	5.6	1.1	2.0
Missing	%	7.3	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	98.9	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	3220	3407	3983	10659	18049
Yes	%	68.3	69.5	61.6	71.1	68.7
No	%	20.4	19.7	11.6	12.6	13.7
Unsure	%	2.9	2.8	6.2	1.9	3.0
Missing	%	8.4	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Of the 20 states in which we are seeking data, AABC has sites in the following states: Arizona, California, Florida, Illinois, Maryland, Missouri, Pennsylvania, South Carolina, Tennessee and Texas. Please see the following awardee sections for more information regarding our efforts in these states: Maricopa Integrated Health System (AZ), Los Angeles County Department of Healthcare Services (CA), Florida Association of Healthy Start Coalitions (FL), ACCESS Community Health Network (IL), Johns Hopkins University (MD), Signature (MO), Albert Einstein Healthcare Network (PA), Medical University of South

Carolina (SC), University of Tennessee Health Science Center (TN) and Harris Health System (TX). Enrollment in individual sites is too low to make pursuing data in other states a reasonable option.

Amerigroup Corporation

CASE STUDY

Amerigroup Corporation (Amerigroup), a wholly-owned subsidiary of Anthem, Inc., is a national managed care organization that works extensively with state-sponsored health programs (like Medicaid) across the U.S. Amerigroup led the development of the Strong Start proposal in Louisiana, though the Southeast Louisiana Area Health Education Center (SELAHEC) manages the day-to-day operations of the award. Amerigroup, through SELAHEC, is implementing the group prenatal care model, and specifically the CenteringPregnancy model (Centering) in multiple sites throughout Louisiana. While some sites have had great success with Centering, others have struggled—particularly those with residency programs. Enrollment continues to be a challenge at several sites.

Highlights from the evaluation's third round of case study data collection include:

- The number of sites involved with the Amerigroup Strong Start award changed again in Year 3, and at the time of Year 3 data collection there were five sites (down from seven in Year 2). Though several Amerigroup sites have struggled to maintain their programs, one in particular is thriving. This site began operating in mid-2015 and is a private group practice located at Women's Hospital in Baton Rouge; physicians at the site were first exposed to Centering at another Strong Start site that has since dropped out of the program. The private practice has since trained all of its seven physicians in the Centering model, and adopted Centering as the standard model of care for all Medicaid eligible women. The site's robust enrollment and full commitment to Centering represents a promising practice among the Centering sites in Louisiana.
- Preterm birth rates over 9.7 percent are substantially lower than the awardees' perception of preterm rates for Medicaid births in Louisiana as a whole. At the point when Amerigroup and SELAHEC were writing their Strong Start proposal the preterm rate for Medicaid births was 15 percent. All key informants acknowledged that there are likely factors other than Centering that are impacting these rates, but are still hopeful that Centering could be a contributing factor.
- Key informants believed that Centering is positively influencing rates of vaginal deliveries. The content covered during group session helps prepare participants for childbirth. In addition, deliberate discussions on vaginal birth after C-section (VBAC) deliveries, avoiding early elective deliveries, and emphasizing the benefits of carrying babies to term are perceived to be contributing to reductions in C-section among Strong Start enrollees.
- Family Planning is a high priority topic that is covered extensively by Amerigroup's sites. At least one group session is dedicated to family planning, during which there is the opportunity to delve deeply and discuss the full range of available methods while dispelling myths and misconceptions. Some sites that have Catholic affiliations are allowed to discuss all methods, as long as natural family planning is also discussed—but barriers to acquiring certain methods at

these sites (e.g., tubal ligation) sometimes results in women choosing to transfer care mid-pregnancy.

- Childcare and transportation pose significant challenges for Strong Start enrollees in Louisiana, particularly in Baton Rouge where the charity hospital system has undergone a major transition to a private-public partnership model that has resulted in the closing of heavily relied upon hospitals. As a result, women have to travel much farther for prenatal care, and the public transportation infrastructure near the new site is nearly non-existent.
- At some Amerigroup locations, bringing children to group is not encouraged, but tolerated. In others, children are expressly forbidden, resulting in serious childcare challenges that very likely affect no-show rates. Some key informants observed that this policy has also put children's well-being at risk at times, as parents in dire situations have left kids in cars or the stairwell when not allowed to bring them into the providers' offices.
- Overall, focus group participants expressed appreciation for their Centering group, acknowledging that they feel better prepared for childbirth.
- Significant challenges persist for medical resident training programs that have tried to implement Centering. Sites affiliated with two such programs have already stopped offering group prenatal care or plan to stop in the coming year. One high-volume prenatal clinic is staffed with a relatively small number of residents, and clinic directors have been hard pressed to commit residents to two-hour group sessions when many more women could be served through traditional means. This problem is exacerbated by high 'no show' rates among women enrolled in Centering (also a problem in the traditional prenatal care clinic). Residents also struggle to meet their residency clinic requirements (related to serving a certain number of patients during their obstetrical rotations) when engaged with Centering, again related to the lack of attendance. At another Amerigroup site, Strong Start has continued to experience very low rates of referrals from obstetrical providers, yet some residents have been integrated into the model successfully.
- A health plan contractor in Louisiana's Medicaid program is offering enhanced reimbursement to providers that provide prenatal care to women enrolled in Centering, but provider sites did not seem to be fully aware of this potential benefit. This does not, therefore, seem to be a driving factor affecting sustainability decisions. Rather, sites that do plan to sustain their groups prenatal care programs express a philosophical commitment to the practice that is not reliant upon funding, and have demonstrated those commitments by fostering provider buy-in.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Amerigroup Corporation had Intake Forms for 90.1 percent of participants enrolled through Quarter 1 2016 (603 Intake Forms for 669 participants). In addition,

Amerigroup Corporation submitted 348 Third Trimester Surveys, 343 Postpartum Surveys, and 426 Exit Forms. The tables below present data collected on Amerigroup Corporation's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	131	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	669	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	378	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	603	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	90.1	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	348	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	92.1	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	343	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	90.7	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	426	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	112.7	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	603	6594	8559	22996	38149
Less than 18 years of age	%	4.0	2.8	6.8	5.6	5.4
18 through 34 years of age	%	89.6	87.6	83.3	84.0	84.5
35 years and older	%	5.8	9.0	7.8	9.3	8.9
Missing	%	0.7	0.6	2.1	1.1	1.2
Race and Ethnicity	N	603	6594	8559	22996	38149
Hispanic	%	6.6	24.8	39.1	26.7	29.1
Non-Hispanic white	%	16.9	53.6	12.5	22.9	25.9
Non-Hispanic black	%	73	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.2	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.2	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	2.0	3.6	2.9	1.5	2.1
Missing	%	0.2	0.8	2.4	1.6	1.6
Employed at Intake	N	603	6594	8559	22996	38149
Yes	%	45.3	41.4	34.3	39.6	38.7

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	53.2	57.3	62.0	58.6	59.1
Missing	%	1.5	1.3	3.7	1.8	2.2
Education Level at Intake	N	603	6594	8559	22996	38149
Less than high school	%	20.7	13.5	23.2	24.2	22.1
High school graduate or GED	%	57	52.7	46.7	50.3	49.9
Bachelor's degree	%	5.1	10.9	3.3	2.8	4.3
Other college degree(s)	%	8.1	12.5	7.2	6.3	7.5
Missing	%	9.0	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	9	6594	8559	22996	38149
Married, living with spouse	%	13.1	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.2	1.7	2.0	2.0	1.9
Living with a partner	%	36.3	32.7	31.9	30.3	31.1
In a relationship but not living together	%	27.7	14.3	23.6	29.3	25.5
Not in a relationship right now	%	17.1	10.2	17.3	18.0	16.5
Missing	%	3.6	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	603	6594	8559	22996	38149
Yes	%	8.3	10.0	8.2	12.9	11.3
No	%	78.1	80.6	73.8	80.9	79.3
Missing	%	13.6	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	603	6594	8559	22996	38149
Yes	%	20.6	17.2	20.0	16.7	17.5
No	%	69.5	76.9	65.6	74.2	72.7
Missing*	%	10.0	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	603	6594	8559	22996	38149
Yes	%	31.3	21.0	24.3	22.2	22.5
No	%	50.4	68.8	54.0	66.9	64.3
Missing*	%	18.2	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	603	6594	8559	22996	38149
Yes	%	16.6	20.2	16.1	19.0	18.6
No	%	80.4	77.9	76	76.5	76.7
Missing*	%	3.0	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	219	2768	3214	8802	14784
<18 months	%	18.7	29.1	18.1	20.6	21.5

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
≥18 months	%	66.2	48.8	52.1	54.4	52.8
Missing	%	15.1	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	219	2768	3214	8802	14784
Yes	%	9.1	9.6	11.2	17.8	14.8
No	%	58.4	89.7	75.9	70.0	75.0
Not Known	%	1.4	0.3	9.4	8.4	7.1
Missing	%	31.1	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	219	2768	3214	8802	14784
Yes	%	7.8	1.8	8.3	13.9	10.4
No	%	57.1	97.1	64.0	69.1	73.3
Not Known	%	2.3	0.4	14.5	12.4	10.6
Missing	%	32.9	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	426	4747	6148	14056	24951
Yes	%	0.5	0.2	2.4	1.0	1.2
No	%	61.3	99.6	66.5	89.1	85.5
Not Known	%	0.0	0.0	26.8	6.8	10.4
Missing	%	38.3	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	426	4747	6148	14056	24951
Yes	%	0.0	0.3	3.6	2.0	2.1
No	%	61.5	99.4	78	88.4	87.9
Not Known	%	0.0	0.0	13.7	6.4	7.0
Missing	%	38.5	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	426	4747	6148	14056	24951
Yes	%	3.3	0.6	6.4	7.6	6.0
No	%	58.2	99.2	78.6	83.3	85.2
Not Known	%	0.0	0.0	10.5	6.1	6.0
Missing	%	38.5	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	426	4747	6148	14056	24951
Yes	%	3.3	2.4	5.3	5.7	5.0
No	%	54.0	97.2	75.2	76.0	79.8
Not Known	%	1.4	0.1	14.4	14.4	11.7
Missing	%	41.3	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	426	4747	6148	14056	24951
Yes	%	4.9	1.3	7.0	6.3	5.5
No	%	51.9	98.3	73.3	75.6	79.4
Not Known	%	1.4	0.1	14.5	14.1	11.5
Missing	%	41.8	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	350	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	3.5	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	3.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	4.8	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	5.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	22	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	1.2	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	-	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	-	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	-	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	46	355	619	2185	3159
Yes	%	8.7	2.0	7.6	14.6	11.8
No	%	54.3	87.3	60.6	55.9	60.4
Not known	%	0.0	0.0	15.8	18.0	15.6
Missing	%	37.0	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	256	4686	4678	10794	20158
Number of Babies Born	N	259	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	399	4667	5728	12895	23290
Yes	%	18.3	15.8	24.9	19.0	19.8
No	%	35.6	82.4	39.9	36.5	46.5
Not known	%	1.8	0.6	25.3	31.1	23.6
Missing	%	44.4	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	426	4747	6148	14056	24951
Vaginal delivery	%	40.6	86.6	53.9	51.8	59.0
C-Section	%	19.0	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.2	0.0	0.0	0.3	0.2
Missing	%	40.1	0.9	23.7	23.0	19.0

Data Element	N, Mean, Median, or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	84.2	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	43	226	672	1921	2819
VBAC	%	20.9	31.4	22.9	16.5	19.2
Repeat C-Section	%	79.1	68.6	77.1	83.5	80.8
Scheduled C-Section	N	82	597	1375	3533	5505
Yes	%	32.9	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	259	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	27	242	512	1621	2375
	%	10.4	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	199	4432	3604	8382	16418
	%	76.8	94.4	76.4	76.2	80.4
Missing	N	33	21	604	1003	1628
	%	12.7	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	259	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	28	178	468	1484	2130
	%	10.8	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	220	4406	3999	8763	17168
	%	84.9	93.8	84.7	79.6	84.1
Missing	N	11	111	253	759	1123
	%	4.2	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	343	3407	3983	10659	18049
Yes	%	39.1	85.4	62.8	62.6	66.9
No	%	17.5	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.0	0.4	5.6	1.1	2.0
Missing	%	43.4	7.1	19.9	13.4	13.6

Data Element	N or %	Amerigroup Corporation (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	89.6	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	343	3407	3983	10659	18049
Yes	%	51.9	69.5	61.6	71.1	68.7
No	%	2.9	19.7	11.6	12.6	13.7
Unsure	%	0.3	2.8	6.2	1.9	3.0
Missing	%	44.9	8.1	20.6	14.3	14.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

The Louisiana Vital Records Agency submitted 2014 and 2015 birth certificate data to Urban in April 2016. The Agency stated that 2016 data will be provided as early as January 2017. The Louisiana Medicaid Agency approved Urban's IRB application in August 2016. Urban is confirming that the Medicaid Agency does not require a data use agreement (DUA) to proceed with data submission. Once that is confirmed, Urban will deliver the Medicaid IDs and Louisiana Medicaid will submit associated claims linked to birth certificates for 2014. Urban has also requested Medicaid eligibility data through 2015 by the end of 2016. The Medicaid Agency will link the Medicaid claims and birth certificate data.

Central Jersey Family Health Consortium

CASE STUDY

Central Jersey Family Health Consortium (CJFHC) is a 501c (3) nonprofit organization established to provide and support a regionalized network of maternal and child health services with emphasis on prevention and community-based activities. The Consortium's mission is to disseminate public health initiatives with a maternal child focus across central New Jersey. With a staff of nearly 100, CJFHC's efforts reach an estimated 30,000 mother-infant pairs in the six-county service area. CJFHC serves in a convener role for its Strong Start project. Over the length of its program, the awardee has recruited eight sites, including hospital-based clinics and federally qualified health centers (FQHCs), to implement group prenatal care under Strong Start. Some of the sites had provided group prenatal care prior to participating in Strong Start, but other sites implemented group prenatal care for the first time when joining Strong Start. CJFHC currently has seven active sites, most of which are using, and have high fidelity to, the CenteringPregnancy (Centering) curriculum. Through the end of Quarter 3 2015, CJFHC reported enrolling 855 women into Strong Start.

Highlights from the evaluation's third round of data collection include:

- Since year 2, CJFHC stayed constant at a total of seven active sites: they added one site (South Jersey Family Medical Center) that was interested in group prenatal care, but lost another (University Medical Center) as a result of administrative issues. One awardee-level project staff member has left, so the project specialist has expanded her duties to support sites.
- Key informants reported that the group prenatal care approach provides a support system for women who may not have adequate support at home or in the community. The educational discussions help the women become more knowledgeable and engaged in their health.
- The Strong Start preterm birth rate is 7.1 percent for participants ever enrolled as of Quarter 3 2015. This is lower than the New Jersey Medicaid average of 10.4 percent and a significant improvement attributed to Strong Start according to key informants, who noted the risk factors present in the population.
- Key informants thought the breastfeeding rate (73 percent of participants ever enrolled as of Quarter 3 2015) could be improved. However, they noted that education about breastfeeding is included in the curriculum and discussed within prenatal groups. In particular, discussions within the group between women who have breastfed previously and those who have not helps to persuade women to attempt to breastfeed.
- The rate of women who reported receiving family planning counseling after birth (58 percent of participants ever enrolled as of Quarter 3 2015) was lower than key informants expected. However, key informants pointed out that this was a postpartum measure, and felt that it was important to discuss family planning during pregnancy and were confident that birth control options and birth spacing were discussed in prenatal group care sessions. All participants are scheduled to meet with a provider individually after delivery and, if the appointment is attended, the opportunity for postpartum birth control counseling exists. Those with extra funding have a Centering "reunion," but the standard of care is individual appointments.

- Transportation was consistently noted as a barrier to care. Some women travel long distances to the site of their care, they may lack vehicles, and public transit may involve significant travel time to the clinic. Key informants have found the most success in encouraging women to carpool to their group sessions.
- Most providers are supportive of the Strong Start program, but their engagement depends on whether they believe that the group prenatal care model is more effective than traditional care. Providers who believe that group prenatal care is more effective tend to be more supportive and engaged in the program.
- Focus group participants expressed satisfaction with Strong Start services, especially the program's educational component. They also felt that the care was more personalized (compared to traditional prenatal care) and that group members provided an added support during their pregnancy.
- CJFHC has faced some challenges related to enrollment because their sites represent a variety of health care organizations. The result is that there are varying levels of commitment to the program, and it has taken CJFHC time to understand the supports and barriers that exist at each site.
- There are no concrete plans to sustain Strong Start at this time. However, CJFHC is working with the state Medicaid agency to explore whether group prenatal care is a type of care that should be reimbursed at a supplemental rate. The state Medicaid agency is eager for CJFHC to share outcomes data with them.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Central Jersey Family Health Consortium (Central Jersey) had Intake Forms for 95.9 percent of participants enrolled through Quarter 1 2016 (1,037 Intake Forms for 1,081 participants). In addition, Central Jersey submitted 584 Third Trimester Surveys, 461 Postpartum Surveys, and 761 Exit Forms. The tables below present data collected on Central Jersey's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	111	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1081	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	691	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1037	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	95.9	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	584	4088	4567	11732	20387

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women delivered	%	84.5	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	461	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	66.7	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	761	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	110.1	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	1037	6594	8559	22996	38149
Less than 18 years of age	%	4.2	2.8	6.8	5.6	5.4
18 through 34 years of age	%	86.5	87.6	83.3	84.0	84.5
35 years and older	%	7.8	9.0	7.8	9.3	8.9
Missing	%	1.4	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1037	6594	8559	22996	38149
Hispanic	%	46.9	24.8	39.1	26.7	29.1
Non-Hispanic white	%	10.2	53.6	12.5	22.9	25.9
Non-Hispanic black	%	36.5	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.5	0.9	1.1	1.5	1.3
Non-Hispanic other	%	1.4	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	1.5	3.6	2.9	1.5	2.1
Missing	%	2.0	0.8	2.4	1.6	1.6
Employed at Intake	N	1037	6594	8559	22996	38149
Yes	%	39.8	41.4	34.3	39.6	38.7
No	%	58.1	57.3	62.0	58.6	59.1
Missing	%	2.0	1.3	3.7	1.8	2.2
Education Level at Intake	N	1037	6594	8559	22996	38149
Less than high school	%	14.6	13.5	23.2	24.2	22.1
High school graduate or GED	%	49.2	52.7	46.7	50.3	49.9
Bachelor’s degree	%	5.3	10.9	3.3	2.8	4.3
Other college degree(s)	%	7.9	12.5	7.2	6.3	7.5
Missing	%	23.0	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1037	6594	8559	22996	38149
Married, living with spouse	%	19.5	39.7	17.6	17.8	21.6
Married, not living with spouse	%	3.4	1.7	2.0	2.0	1.9
Living with a partner	%	26.4	32.7	31.9	30.3	31.1
In a relationship but not living together	%	28.8	14.3	23.6	29.3	25.5
Not in a relationship right now	%	16.5	10.2	17.3	18	16.5
Missing	%	5.4	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1037	6594	8559	22996	38149
Yes	%	3.4	10.0	8.2	12.9	11.3

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	81.2	80.6	73.8	80.9	79.3
Missing	%	15.4	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1037	6594	8559	22996	38149
Yes	%	21.4	17.2	20.0	16.7	17.5
No	%	66.4	76.9	65.6	74.2	72.7
Missing*	%	12.2	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1037	6594	8559	22996	38149
Yes	%	21.8	21.0	24.3	22.2	22.5
No	%	52.5	68.8	54.0	66.9	64.3
Missing*	%	25.8	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1037	6594	8559	22996	38149
Yes	%	15.6	20.2	16.1	19.0	18.6
No	%	79.4	77.9	76.0	76.5	76.7
Missing*	%	5.0	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	276	2768	3214	8802	14784
<18 months	%	16.0	29.1	18.1	20.6	21.5
≥18 months	%	57.2	48.8	52.1	54.4	52.8
Missing	%	26.8	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	276	2768	3214	8802	14784
Yes	%	10.1	9.6	11.2	17.8	14.8
No	%	87.3	89.7	75.9	70.0	75.0
Not Known	%	1.8	0.3	9.4	8.4	7.1
Missing	%	0.7	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	276	2768	3214	8802	14784
Yes	%	6.5	1.8	8.3	13.9	10.4
No	%	88.4	97.1	64.0	69.1	73.3
Not Known	%	4.0	0.4	14.5	12.4	10.6
Missing	%	1.1	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	761	4747	6148	14056	24951
Yes	%	0.1	0.2	2.4	1.0	1.2
No	%	98.6	99.6	66.5	89.1	85.5
Not Known	%	1.1	0.0	26.8	6.8	10.4
Missing	%	0.3	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	761	4747	6148	14056	24951
Yes	%	0.5	0.3	3.6	2.0	2.1
No	%	98.2	99.4	78.0	88.4	87.9

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	1.1	0.0	13.7	6.4	7.0
Missing	%	0.3	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	761	4747	6148	14056	24951
Yes	%	3.3	0.6	6.4	7.6	6.0
No	%	95.3	99.2	78.6	83.3	85.2
Not Known	%	1.2	0.0	10.5	6.1	6.0
Missing	%	0.3	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	761	4747	6148	14056	24951
Yes	%	9.6	2.4	5.3	5.7	5.0
No	%	82.4	97.2	75.2	76.0	79.8
Not Known	%	7.6	0.1	14.4	14.4	11.7
Missing	%	0.4	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	761	4747	6148	14056	24951
Yes	%	10.4	1.3	7.0	6.3	5.5
No	%	81.6	98.3	73.3	75.6	79.4
Not Known	%	7.6	0.1	14.5	14.1	11.5
Missing	%	0.4	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	605	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	5.8	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	5.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	6.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	6.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	417	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	1.5	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	575	1354	1018	4312	6684

Data Element	N, Mean, Median, or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Average number of enhanced services per participant	Mean	2.3	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	2.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	40	355	619	2185	3159
Yes	%	7.5	2.0	7.6	14.6	11.8
No	%	80.0	87.3	60.6	55.9	60.4
Not known	%	10.0	0.0	15.8	18.0	15.6
Missing	%	2.5	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	659	4686	4678	10794	20158
Number of Babies Born	N	662	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	710	4667	5728	12895	23290
Yes	%	29.4	15.8	24.9	19.0	19.8
No	%	48.7	82.4	39.9	36.5	46.5
Not known	%	18.9	0.6	25.3	31.1	23.6
Missing	%	3.0	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	761	4747	6148	14056	24951
Vaginal delivery	%	59.3	86.6	53.9	51.8	59.0
C-Section	%	27.9	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	12.9	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	75.1	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	71	226	672	1921	2819
VBAC	%	9.9	31.4	22.9	16.5	19.2
Repeat C-Section	%	90.1	68.6	77.1	83.5	80.8
Scheduled C-Section	N	212	597	1375	3533	5505
Yes	%	24.1	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	662	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	52	242	512	1621	2375
	%	7.9	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	543	4432	3604	8382	16418
	%	82.0	94.4	76.4	76.2	80.4
Missing	N	67	21	604	1003	1628
	%	10.1	0.4	12.8	9.1	8.0

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Birth Weight	N	662	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	50	178	468	1484	2130
	%	7.6	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	595	4406	3999	8763	17168
	%	89.9	93.8	84.7	79.6	84.1
Missing	N	17	111	253	759	1123
	%	2.6	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	461	3407	3983	10659	18049
Yes	%	73.1	85.4	62.8	62.6	66.9
No	%	9.5	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.9	0.4	5.6	1.1	2.0
Missing	%	16.5	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	100.7	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	461	3407	3983	10659	18049
Yes	%	56.2	69.5	61.6	71.1	68.7
No	%	23.0	19.7	11.6	12.6	13.7
Unsure	%	2.6	2.8	6.2	1.9	3.0
Missing	%	18.2	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

The New Jersey Medicaid Agency executed a data use agreement (DUA) with the Vital Records Agency in March 2016. The Medicaid Agency submitted test files in August 2016 for Urban’s review and are expected to provide the full data set for 2013 and 2014 before the end of 2016. Urban will also request 2015 Medicaid eligibility data and birth certificates by end of 2016. The New Jersey Medicaid Agency will be linking Medicaid claims and data on births.

Florida Association of Healthy Start Coalitions

CASE STUDY

The Florida Association of Healthy Start Coalitions (FAHSC) directs the state's Healthy Start home visiting program as well as the Strong Start Maternity Care Home (MCH) initiative in the Tampa Bay area. FAHSC implemented its MCH approach at seven sites to test the fit of the model in different health care settings. There are four locations that are part of a Medicaid-only obstetrics group practice, one federally qualified health center (FQHC), one hospital-affiliated high risk obstetrical clinic, and one public health department. As noted in the Year 2 memo, an eighth site (another small FQHC) closed because of low Medicaid enrollment in April 2015. Maternal Health Specialists (MHS) provide care management for women enrolled, conduct patient education, assist with doctor-patient communication, and provide referrals and follow-up. Each MHS has either a nursing or social work background receives more than 80 hours of training using a curriculum developed for Strong Start. There were 152 new enrollees during the third quarter of 2015, and 1,028 women total had enrolled in Strong Start through Quarter 3 2015 according to program monitoring data.

Highlights from the evaluation's third round of data collection include:

- Since the Year 2 memo, there have been no changes to sites, interventions or staffing.
- Key informants reported that it is still unknown how Strong Start directly impacts birth outcomes. They stated it is easier to track the impact on women's visit rates, improvements in how they are caring for themselves and overall engagement in their health care. For example, over 71 percent of women come back for their postpartum visits compared with 40 to 60 percent at other area providers, according to informants. Additionally, 99.9 percent of Strong Start participants who planned to breastfeed reported that they were doing so.
- The MHS continues to be a key feature of the program. MHSs meet regularly with participants as a part of their obstetrics (OB) appointments, and often develop trusted relationships that enable close communication. Key informants reported that the MHS emphasis on family planning at every stage of pregnancy has resulted in 60-70 percent of participants having a birth control plan in place before giving birth.
- Another valuable program feature is the awardee's partnership with a mental health case management provider. If an MHS refers a participant to this provider, case managers will meet with each woman wherever she is most comfortable—at home, at McDonalds, etc.--to provide support focused on coping with stress and anxiety.
- Key informants reported that vaginal births as compared to C-section rates were difficult to link to the Strong Start intervention, adding that delivery method is very doctor driven.
- Key informants strongly believed that the Maternity Care Home model played a significant role in reducing health care costs by reducing unnecessary Emergency Department (ED) visits.

Participants feel comfortable calling the MHS to ask questions before going to the ED. MHSs also play a key role in getting participants in for a “sick appointment” if they need to see an OB provider the same day, and following up with women who miss appointments.

- Transportation continues to be one of the most commonly cited barriers to care. Key informants reported that since the managed care organizations have taken over responsibility for providing transportation services for Medicaid enrollees, however, the process for accessing rides has improved. Because phone numbers change often, communication with participants can also be a challenge. However, once MHSs establish rapport with women, they will often call the MHS with their new number.
- MHS integration in the workflow at each site has continued to evolve and improve. Staff and clinicians now have a greater understanding of how the MHSs can support maternity care for their patients and have come to rely on their contributions to patient care. The Strong Start intervention works best in the sites where the OB provider allows the MHS to meet with women while they are in the waiting room and then briefly see them after their visit.
- Focus group participants expressed high levels of satisfaction with their Strong Start experience. Many participants said that the support of the MHS was key to their satisfaction and that the MHS’ positive and kind personalities made it feel okay to ask questions and share concerns.
- Key informants have found that the MHS’ “personal touch,” which includes meeting face-to-face with participants and potential participants, is the best way to engage and educate on prenatal care.
- At the time of the Year 3 site visit, awardee staff were reaching out to the Florida Department of Health (DOH) and Agency for Health Care Administration (AHCA) officials to discuss the possibility of adopting the Strong Start MCH model statewide through the Healthy Start waiver that is funded by the Medicaid program and the Maternal and Child Health block grant.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Florida Association of Healthy Start Coalitions (FAHSC) had Intake Forms for 100.0 percent of participants enrolled through Quarter 1 2016 (1,326 Intake Forms for 1,326 participants). In addition, FAHSC submitted 705 Third Trimester Surveys, 728 Postpartum Surveys, and 851 Exit Forms. The tables below present data collected on FAHSC’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	130	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1326	7904	10211	24023	42138

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Women Delivered through Q1 2016	N	759	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1326	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	100.0	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	705	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	92.9	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	728	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	95.9	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	851	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	112.1	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1326	6594	8559	22996	38149
Less than 18 years of age	%	7.0	2.8	6.8	5.6	5.4
18 through 34 years of age	%	86.3	87.6	83.3	84.0	84.5
35 years and older	%	6.6	9.0	7.8	9.3	8.9
Missing	%	0.0	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1326	6594	8559	22996	38149
Hispanic	%	22.1	24.8	39.1	26.7	29.1
Non-Hispanic white	%	29.8	53.6	12.5	22.9	25.9
Non-Hispanic black	%	42.2	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.7	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.6	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	4.3	3.6	2.9	1.5	2.1
Missing	%	0.3	0.8	2.4	1.6	1.6
Employed at Intake	N	1326	6594	8559	22996	38149
Yes	%	39.8	41.4	34.3	39.6	38.7
No	%	59.6	57.3	62.0	58.6	59.1
Missing	%	0.6	1.3	3.7	1.8	2.2
Education Level at Intake	N	1326	6594	8559	22996	38149
Less than high school	%	31.6	13.5	23.2	24.2	22.1
High school graduate or GED	%	48.6	52.7	46.7	50.3	49.9
Bachelor's degree	%	1.3	10.9	3.3	2.8	4.3
Other college degree(s)	%	9.4	12.5	7.2	6.3	7.5
Missing	%	9.2	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1326	6594	8559	22996	38149

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Married, living with spouse	%	13.0	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.7	1.7	2.0	2.0	1.9
Living with a partner	%	35.5	32.7	31.9	30.3	31.1
In a relationship but not living together	%	29.8	14.3	23.6	29.3	25.5
Not in a relationship right now	%	19.4	10.2	17.3	18.0	16.5
Missing	%	0.5	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1326	6594	8559	22996	38149
Yes	%	17.0	10.0	8.2	12.9	11.3
No	%	81.9	80.6	73.8	80.9	79.3
Missing	%	1.1	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1326	6594	8559	22996	38149
Yes	%	22.0	17.2	20.0	16.7	17.5
No	%	75.7	76.9	65.6	74.2	72.7
Missing*	%	2.3	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1326	6594	8559	22996	38149
Yes	%	30.6	21.0	24.3	22.2	22.5
No	%	65.6	68.8	54.0	66.9	64.3
Missing*	%	3.8	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1326	6594	8559	22996	38149
Yes	%	33.2	20.2	16.1	19.0	18.6
No	%	61.6	77.9	76	76.5	76.7
Missing*	%	5.2	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	535	2768	3214	8802	14784
<18 months	%	32.5	29.1	18.1	20.6	21.5
≥18 months	%	62.2	48.8	52.1	54.4	52.8
Missing	%	5.2	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	535	2768	3214	8802	14784
Yes	%	24.1	9.6	11.2	17.8	14.8
No	%	72.5	89.7	75.9	70.0	75.0
Not Known	%	2.6	0.3	9.4	8.4	7.1
Missing	%	0.7	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	535	2768	3214	8802	14784
Yes	%	16.3	1.8	8.3	13.9	10.4
No	%	71.8	97.1	64.0	69.1	73.3

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	10.5	0.4	14.5	12.4	10.6
Missing	%	1.5	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	851	4747	6148	14056	24951
Yes	%	2.4	0.2	2.4	1.0	1.2
No	%	96.8	99.6	66.5	89.1	85.5
Not Known	%	0.1	0.0	26.8	6.8	10.4
Missing	%	0.7	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	851	4747	6148	14056	24951
Yes	%	0.7	0.3	3.6	2.0	2.1
No	%	98.6	99.4	78	88.4	87.9
Not Known	%	0.1	0.0	13.7	6.4	7.0
Missing	%	0.6	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	851	4747	6148	14056	24951
Yes	%	8.0	0.6	6.4	7.6	6.0
No	%	91.1	99.2	78.6	83.3	85.2
Not Known	%	0.2	0.0	10.5	6.1	6.0
Missing	%	0.7	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	851	4747	6148	14056	24951
Yes	%	11.3	2.4	5.3	5.7	5.0
No	%	81.3	97.2	75.2	76.0	79.8
Not Known	%	6.9	0.1	14.4	14.4	11.7
Missing	%	0.5	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	851	4747	6148	14056	24951
Yes	%	5.4	1.3	7.0	6.3	5.5
No	%	86.6	98.3	73.3	75.6	79.4
Not Known	%	7.5	0.1	14.5	14.1	11.5
Missing	%	0.5	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	607	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	11.5	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	11.0	11.0	4.0	10.0	9.0

Data Element	N, Mean, Median, or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	851	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	7.3	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	6.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	-	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	-	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	-	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	150	355	619	2185	3159
Yes	%	24.0	2.0	7.6	14.6	11.8
No	%	52.7	87.3	60.6	55.9	60.4
Not known	%	10.7	0.0	15.8	18.0	15.6
Missing	%	12.7	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	610	4686	4678	10794	20158
Number of Babies Born	N	631	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	792	4667	5728	12895	23290
Yes	%	8.5	15.8	24.9	19.0	19.8
No	%	6.8	82.4	39.9	36.5	46.5
Not known	%	66.0	0.6	25.3	31.1	23.6
Missing	%	18.7	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	851	4747	6148	14056	24951
Vaginal delivery	%	42.4	86.6	53.9	51.8	59.0
C-Section	%	27.5	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.1	0.0	0.0	0.3	0.2
Missing	%	30.0	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	78.4	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	125	226	672	1921	2819
VBAC	%	10.4	31.4	22.9	16.5	19.2
Repeat C-Section	%	89.6	68.6	77.1	83.5	80.8
Scheduled C-Section	N	235	597	1375	3533	5505
Yes	%	25.1	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated. Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	631	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	105	242	512	1621	2375
	%	16.6	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	510	4432	3604	8382	16418
	%	80.8	94.4	76.4	76.2	80.4
Missing	N	16	21	604	1003	1628
	%	2.5	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	631	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	94	178	468	1484	2130
	%	14.9	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	515	4406	3999	8763	17168
	%	81.6	93.8	84.7	79.6	84.1
Missing	N	22	111	253	759	1123
	%	3.5	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	728	3407	3983	10659	18049
Yes	%	48.9	85.4	62.8	62.6	66.9
No	%	18.1	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.3	0.4	5.6	1.1	2.0
Missing	%	32.7	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	102.7	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	728	3407	3983	10659	18049
Yes	%	52.6	69.5	61.6	71.1	68.7
No	%	11.4	19.7	11.6	12.6	13.7
Unsure	%	1.5	2.8	6.2	1.9	3.0
Missing	%	34.5	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2015

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	328	1533	1416	4000	6949
Yes	%	48.5	86.4	64.7	61.5	67.7
No	%	22.3	7.4	9.5	25.6	18.3
Prefer not to answer	%	0.6	0.7	1.8	0.5	0.8

Data Element	N or %	FLORIDA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	28.7	5.6	24.0	12.3	13.2
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	98.6	100.2	97.4	100.7	99.9
Had Birth Control Counseling After Delivery	N	328	1533	1416	4000	6949
Yes	%	50.6	71.6	60.8	69.7	68.3
No	%	15.2	19.4	12.3	15.2	15.5
Unsure	%	2.7	2.8	2.4	1.8	2.1
Missing	%	31.4	6.2	24.5	13.3	14.0

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Urban received approval from the Florida Medicaid agency to access Medicaid data in May 2016, including an executed data use agreement (DUA). In July 2016, Medicaid submitted 2014 eligibility and claims data to Urban. The Florida Department of Health (Vital Records) executed the data use agreement in August 2016. That same month the agency provided an IRB exemption for the study. The agency contact will start assembling the 2014 and 2015 birth certificate data for submission in fall of 2016. Urban will merge the Medicaid and birth certificate data.

Grady Memorial Hospital Corporation

CASE STUDY

Grady Health System (Grady) has convened four maternity care provider sites to participate in the Strong Start program, all of which had implemented group prenatal care (and specifically the Centering Pregnancy (Centering) model) prior to receiving the Strong Start award. Because the Centering Pregnancy model was already established at each site, Strong Start is funding support and expansion (rather than initiation) of Centering. Specifically, Strong Start funds new staff to support sites' existing group prenatal care programs, including a project coordinator at each site and a project director at Grady. These enhancements provide administrative support for site clinicians and administrative staff, expand the number of providers who are trained in Centering, and increase data analysis and reporting. A community partner, the Center for Black Women's Wellness, recruits eligible women and co-facilitates some Centering groups at Grady. The United Way provides leadership and funds for evaluation and training.

One site is Grady Health System's Nurse Midwifery Service (Grady site) in Atlanta, a joint program of Emory University and Morehouse School of Medicine that has offered group prenatal care for over a decade. Centering is now the nurse midwifery service's sole model of prenatal care. The other three sites are Southside Medical Center (Southside) and Providence Women's Health Care on the outskirts of Atlanta, and Dougherty County Health Department in Albany. As of Quarter 4 2015, the sites had enrolled a total of 945 women in Strong Start (according to Participant Level Process Evaluation (PLPE) data), though key informants report that final enrollment (ending May 2016) nearly met their goal of 1,500.

Highlights from the evaluation's third round of data collection include:

- There were no changes or updates to the Centering Pregnancy or Strong Start approach since the Year 2 interviews. A Centering Healthcare Institute (CHI)-approved curriculum is practiced at all sites.
- Key informants reported that they faced some enrollment difficulties in the past year because of staff turnover and the time required to recruit, hire and train new coordinators. However, enrollment has steadily increased in the final months of the Strong Start award, and key informants noted that they were close to (but short of) their enrollment goal of 1,500 women.
- While Centering programs had been well established across the four sites prior to Strong Start, key informants reported that Strong Start indirectly impacts outcomes because the award has given them the opportunity to actively recruit and thus double their enrollment numbers.
- Key informants reported that by providing education as well as an opportunity for women learn from the experiences of other women, Strong Start and the Centering model of care have the most impact on rates of breastfeeding and family planning.
- Transportation is the sites' "biggest barrier and biggest challenge," and solutions include a district van, gas cards, bus tokens and Medicaid transportation services. Key informants reported that childcare is not a barrier to participation, as women are allowed (though

discouraged) to bring children with them to their Centering sessions. Keeping in touch with participants can be a problem and alleviating communication issues requires building rapport with the participants.

- Training is provided to “everyone possible” at Grady, and there is buy-in for Centering among the doctors, registered nurses (RNs), midwives and residents. Residents are generally very supportive and assist with recruitment. In some cases residents have co-facilitated Centering sessions, which gives residents a solid understanding and appreciation of the model and its associated outcomes. Key informants note that other sites could also benefit from broader training for office staff, rather than just facilitators and coordinators.
- Despite enrollment successes, key informants reported that recruiting women is an ongoing struggle. Through Strong Start, the sites have been working to streamline processes to get women enrolled in Medicaid and into care, marketing to the local communities to combat the stigma of public health services, and working with community providers and clinic staff to promote the Centering model of care.
- Key informants noted that they expect they will be able to sustain the expansions in capacity achieved during the Strong Start award, even after the conclusion of Strong Start. Two of the sites (Grady site and Southside) will also expand Centering to new locations. The relationship with a community partner (Center for Black Women and Wellness) that teaches women about community resources at a Centering session will not be sustained, but Grady will bring in staff from another program (Healthy Start) to discuss resources with the Centering group.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Grady Health System (Grady) had Intake Forms for 62.5 percent of participants enrolled through Quarter 1 2016 (651 Intake Forms for 1,041 participants). In addition, Grady submitted 402 Third Trimester Surveys, 119 Postpartum Surveys, and 287 Exit Forms. The tables below present data collected on Grady’s participants with aggregated rates by approach for the purpose of comparison. Due to low response rates, these descriptive data for Grady should be interpreted with considerable caution.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	96	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1041	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	539	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	651	6594	8559	22996	38149

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	62.5	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	402	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	74.6	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	119	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	22.1	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	287	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	53.2	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	651	6594	8559	22996	38149
Less than 18 years of age	%	7.8	2.8	6.8	5.6	5.4
18 through 34 years of age	%	85.1	87.6	83.3	84.0	84.5
35 years and older	%	3.1	9.0	7.8	9.3	8.9
Missing	%	4.0	0.6	2.1	1.1	1.2
Race and Ethnicity	N	651	6594	8559	22996	38149
Hispanic	%	4.3	24.8	39.1	26.7	29.1
Non-Hispanic white	%	4.3	53.6	12.5	22.9	25.9
Non-Hispanic black	%	88.8	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.3	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.3	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	2.0	3.6	2.9	1.5	2.1
Missing	%	0.0	0.8	2.4	1.6	1.6
Employed at Intake	N	651	6594	8559	22996	38149
Yes	%	41.2	41.4	34.3	39.6	38.7
No	%	57.3	57.3	62.0	58.6	59.1
Missing	%	1.5	1.3	3.7	1.8	2.2
Education Level at Intake	N	651	6594	8559	22996	38149
Less than high school	%	22.6	13.5	23.2	24.2	22.1
High school graduate or GED	%	58.4	52.7	46.7	50.3	49.9
Bachelor’s degree	%	3.5	10.9	3.3	2.8	4.3
Other college degree(s)	%	6.9	12.5	7.2	6.3	7.5
Missing	%	8.6	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	651	6594	8559	22996	38149
Married, living with spouse	%	10.0	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.2	1.7	2.0	2.0	1.9
Living with a partner	%	29.6	32.7	31.9	30.3	31.1
In a relationship but not living together	%	32.1	14.3	23.6	29.3	25.5

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not in a relationship right now	%	22.9	10.2	17.3	18.0	16.5
Missing	%	3.2	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	651	6594	8559	22996	38149
Yes	%	4.8	10.0	8.2	12.9	11.3
No	%	85.1	80.6	73.8	80.9	79.3
Missing	%	10.1	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	651	6594	8559	22996	38149
Yes	%	19.0	17.2	20.0	16.7	17.5
No	%	70.2	76.9	65.6	74.2	72.7
Missing*	%	10.8	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	651	6594	8559	22996	38149
Yes	%	29.6	21.0	24.3	22.2	22.5
No	%	56.4	68.8	54.0	66.9	64.3
Missing*	%	13.9	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	651	6594	8559	22996	38149
Yes	%	12.9	20.2	16.1	19.0	18.6
No	%	85.1	77.9	76	76.5	76.7
Missing*	%	2.0	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	98	2768	3214	8802	14784
<18 months	%	25.5	29.1	18.1	20.6	21.5
≥18 months	%	54.1	48.8	52.1	54.4	52.8
Missing	%	20.4	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	98	2768	3214	8802	14784
Yes	%	10.2	9.6	11.2	17.8	14.8
No	%	81.6	89.7	75.9	70.0	75.0
Not Known	%	6.1	0.3	9.4	8.4	7.1
Missing	%	2.0	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	98	2768	3214	8802	14784
Yes	%	12.2	1.8	8.3	13.9	10.4
No	%	73.5	97.1	64.0	69.1	73.3
Not Known	%	12.2	0.4	14.5	12.4	10.6
Missing	%	2.0	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	287	4747	6148	14056	24951
Yes	%	33.4	0.2	2.4	1.0	1.2
No	%	54.0	99.6	66.5	89.1	85.5
Not Known	%	12.5	0.0	26.8	6.8	10.4

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	0.0	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	287	4747	6148	14056	24951
Yes	%	35.9	0.3	3.6	2.0	2.1
No	%	51.9	99.4	78	88.4	87.9
Not Known	%	12.2	0.0	13.7	6.4	7.0
Missing	%	0.0	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	287	4747	6148	14056	24951
Yes	%	48.8	0.6	6.4	7.6	6.0
No	%	41.8	99.2	78.6	83.3	85.2
Not Known	%	9.1	0.0	10.5	6.1	6.0
Missing	%	0.3	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	287	4747	6148	14056	24951
Yes	%	2.4	2.4	5.3	5.7	5.0
No	%	89.9	97.2	75.2	76.0	79.8
Not Known	%	6.3	0.1	14.4	14.4	11.7
Missing	%	1.4	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	287	4747	6148	14056	24951
Yes	%	19.5	1.3	7.0	6.3	5.5
No	%	73.5	98.3	73.3	75.6	79.4
Not Known	%	6.3	0.1	14.5	14.1	11.5
Missing	%	0.7	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	284	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	4.4	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	4.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	5.1	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	5.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	68	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	1.4	4.0	2.4	4.8	4.3

Data Element	N, Mean, Median, or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	–	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	–	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	–	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	16	355	619	2185	3159
Yes	%	0.0	2.0	7.6	14.6	11.8
No	%	75.0	87.3	60.6	55.9	60.4
Not known	%	18.8	0.0	15.8	18.0	15.6
Missing	%	6.2	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	254	4686	4678	10794	20158
Number of Babies Born	N	254	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	272	4667	5728	12895	23290
Yes	%	42.3	15.8	24.9	19.0	19.8
No	%	39.3	82.4	39.9	36.5	46.5
Not known	%	15.8	0.6	25.3	31.1	23.6
Missing	%	2.6	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	287	4747	6148	14056	24951
Vaginal delivery	%	63.4	86.6	53.9	51.8	59.0
C-Section	%	24.7	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	11.8	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	81.9	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	23	226	672	1921	2819
VBAC	%	17.4	31.4	22.9	16.5	19.2
Repeat C-Section	%	82.6	68.6	77.1	83.5	80.8
Scheduled C-Section	N	71	597	1375	3533	5505
Yes	%	21.1	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	254	4695	4720	11006	20421

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Preterm Births, <37 weeks EGA	N	19	242	512	1621	2375
	%	7.5	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	198	4432	3604	8382	16418
	%	78.0	94.4	76.4	76.2	80.4
Missing	N	37	21	604	1003	1628
	%	14.6	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	254	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	25	178	468	1484	2130
	%	9.8	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	220	4406	3999	8763	17168
	%	86.6	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated. Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	GRADY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	119	3407	3983	10659	18049
Yes	%	85.7	85.4	62.8	62.6	66.9
No	%	11.8	7.1	11.7	22.9	17.5
Prefer not to answer	%	1.7	0.4	5.6	1.1	2.0
Missing	%	0.8	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	102.2	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	119	3407	3983	10659	18049
Yes	%	89.9	69.5	61.6	71.1	68.7
No	%	6.7	19.7	11.6	12.6	13.7
Unsure	%	1.7	2.8	6.2	1.9	3.0
Missing	%	1.7	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

The Georgia Department of Public Health (Vital Records) provided IRB and data request approval in July 2016. After approval there were some slight modifications needed to the data request, but those modifications were completed and approved. The agency anticipates being able to provide 2014 and 2015 birth certificate data from Strong Start participants, as well as comparison group data in late-2016.. Georgia officials are currently reviewing a data use agreement (DUA) to allow for the submission of Medicaid claims data. The agreement is expected to be executed shortly. Urban will merge the Medicaid and birth certificate data

Harris County Hospital District

CASE STUDY

Harris Health System, a county public health system in Houston, Texas, has had a Centering Pregnancy (Centering) program in place since 2005. Strong Start is considered an enhancement of the awardee's existing Centering program. Strong Start in Harris Health System generally operated with two Community Health Workers (CHWs) and three social workers (SWs) who recruited Medicaid and CHIP-eligible pregnant women into the Centering program at multiple sites and provided counseling, education, and referrals to enrollees during pregnancy and postpartum. They coordinated with the nurse midwives who have primary responsibility for care management. Harris Health System serves a predominantly Latina (80 percent of births) population. It implemented Strong Start at six clinics including Vallbona Health Center (the focus of this memo), and a seventh contracted clinic.² Strong Start enrollment activities have ended; the last group of enrollees gave birth in early August 2016. Total enrollment through the project period was 1,275 participants (short of the revised enrollment goal of 1,593 participants).

Highlights from the evaluation's third round of data collection include:

- There had been some staff turnover in the past year, but no significant changes to the Strong Start approach.
- While it is difficult to tease out the impact of Strong Start because it was seamlessly integrated into the system's existing Centering program, Strong Start played a vital role in both enrolling women into Centering and providing additional supports that could contribute to healthier pregnancies and lower rates of preterm birth and low birthweight. Key informants emphasized the importance of having a Latina CHW explain and promote Centering and its benefits; this connection helped to enroll and keep Latina Strong Start participants in Centering.
- The Strong Start curriculum and connections provided to WIC breastfeeding support reportedly contributed to high rates of breastfeeding rates among Strong Start participants.
- The Centering program provided participants with family planning education. Through Strong Start, the CHW helped enrollees access Harris Health System's financial assistance program to ensure ongoing health care and contraceptive coverage after Medicaid/Children's Health Insurance Program (CHIP) ends. Most focus group participants indicated that they intended to use birth control or were already doing so, although cultural resistance remains a significant barrier, and about 30 percent choose to not use contraception.
- Key informants estimated that the Strong Start program has likely reduced Medicaid costs by \$1 to 2 million through reductions in the number of preterm and low birthweight babies reported

² Harris runs over 15 clinics, has Centering at eight of them, and implemented Strong Start at six of the eight plus one at Baylor Teen Clinic, which contracts with Harris Health System.

to cost Medicaid \$40,000 per capita, savings that offset the nearly \$1 million in costs to establish and maintain the program. As of the site visit, no formal documentation of the savings had been prepared.

- Focus group participants and key informants indicated that transportation at this site was not generally a barrier to care since many women walk, get rides, or take the bus. However, the set Centering schedule can be a barrier for women who can only find rides sporadically. While children are generally not allowed in Centering sessions, most women are able to get childcare from family members without difficulty. Getting in touch with participants can be challenging for the Center’s administrative staff (e.g., appointment reminders), but participants are “connected with” and “good about” communicating directly with their co-facilitators, the CHW, and SW.
- Clinic sites with strong midwifery programs understand Centering and appreciate Strong Start enhancements, but in sites where medical residents are delivering traditional prenatal care, there had been some tension and a feeling that they are competing for patients. The CHW smoothed some of the tension by demonstrating that the patient base supports both models.
- Focus group participants were pleased with the care that they received, and some reported that Centering education influenced their plans to breastfeed.
- Layering Strong Start services on top of Harris Health System’s existing Centering Pregnancy program allowed for stronger outreach and enrollment and more services to engage and support Centering participants. The ability to dedicate CHW and SW staff to pregnant women was a great advantage to the crowded, busy clinics whose staff reportedly were spread thin and unable to focus solely on pregnant patients.
- The dedicated CHW and SW will be discontinued when Strong Start funding ends. Key informants predict that without the enhanced outreach, enrollment in Centering will return to pre-Strong Start levels and fewer women will benefit from the Centering program.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Harris County Hospital District had Intake Forms for 95.3 percent of participants enrolled through Quarter 1 2016 (1,214 Intake Forms for 1,274 participants). In addition, Harris County Hospital District submitted 843 Third Trimester Surveys, 943 Postpartum Surveys, and 1,015 Exit Forms. The tables below present data collected on Harris County Hospital District’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	90	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1274	7904	10211	24023	42138

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Women Delivered through Q1 2016	N	906	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1214	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	95.3	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	843	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	93.0	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	943	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	104.1	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	1015	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	112.0	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1214	6594	8559	22996	38149
Less than 18 years of age	%	8.0	2.8	6.8	5.6	5.4
18 through 34 years of age	%	78.3	87.6	83.3	84.0	84.5
35 years and older	%	13.4	9.0	7.8	9.3	8.9
Missing	%	0.3	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1214	6594	8559	22996	38149
Hispanic	%	83.2	24.8	39.1	26.7	29.1
Non-Hispanic white	%	2.4	53.6	12.5	22.9	25.9
Non-Hispanic black	%	13.3	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.5	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.2	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.1	3.6	2.9	1.5	2.1
Missing	%	0.3	0.8	2.4	1.6	1.6
Employed at Intake	N	1214	6594	8559	22996	38149
Yes	%	22.7	41.4	34.3	39.6	38.7
No	%	76.6	57.3	62.0	58.6	59.1
Missing	%	0.7	1.3	3.7	1.8	2.2
Education Level at Intake	N	1214	6594	8559	22996	38149
Less than high school	%	59.2	13.5	23.2	24.2	22.1
High school graduate or GED	%	29.7	52.7	46.7	50.3	49.9
Bachelor's degree	%	0.6	10.9	3.3	2.8	4.3
Other college degree(s)	%	0.7	12.5	7.2	6.3	7.5
Missing	%	9.7	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1214	6594	8559	22996	38149
Married, living with spouse	%	27.3	39.7	17.6	17.8	21.6

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Married, not living with spouse	%	1.5	1.7	2.0	2.0	1.9
Living with a partner	%	35.7	32.7	31.9	30.3	31.1
In a relationship but not living together	%	17.9	14.3	23.6	29.3	25.5
Not in a relationship right now	%	16.9	10.2	17.3	18.0	16.5
Missing	%	0.7	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1214	6594	8559	22996	38149
Yes	%	0.8	10.0	8.2	12.9	11.3
No	%	93.6	80.6	73.8	80.9	79.3
Missing	%	5.6	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1214	6594	8559	22996	38149
Yes	%	13.3	17.2	20.0	16.7	17.5
No	%	84.4	76.9	65.6	74.2	72.7
Missing*	%	2.3	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1214	6594	8559	22996	38149
Yes	%	12.0	21.0	24.3	22.2	22.5
No	%	84.8	68.8	54.0	66.9	64.3
Missing*	%	3.1	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1214	6594	8559	22996	38149
Yes	%	17.1	20.2	16.1	19.0	18.6
No	%	82.7	77.9	76.0	76.5	76.7
Missing*	%	0.3	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	626	2768	3214	8802	14784
<18 months	%	13.0	29.1	18.1	20.6	21.5
≥18 months	%	59.7	48.8	52.1	54.4	52.8
Missing	%	27.3	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	626	2768	3214	8802	14784
Yes	%	7.8	9.6	11.2	17.8	14.8
No	%	87.2	89.7	75.9	70.0	75.0
Not Known	%	4.2	0.3	9.4	8.4	7.1
Missing	%	0.8	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	626	2768	3214	8802	14784
Yes	%	11.8	1.8	8.3	13.9	10.4
No	%	82.9	97.1	64.0	69.1	73.3
Not Known	%	4.2	0.4	14.5	12.4	10.6
Missing	%	1.1	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1015	4747	6148	14056	24951

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	0.1	0.2	2.4	1.0	1.2
No	%	83.9	99.6	66.5	89.1	85.5
Not Known	%	14.4	0.0	26.8	6.8	10.4
Missing	%	1.6	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1015	4747	6148	14056	24951
Yes	%	0.3	0.3	3.6	2.0	2.1
No	%	83.7	99.4	78	88.4	87.9
Not Known	%	14.4	0.0	13.7	6.4	7.0
Missing	%	1.6	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	1015	4747	6148	14056	24951
Yes	%	0.3	0.6	6.4	7.6	6.0
No	%	83.7	99.2	78.6	83.3	85.2
Not Known	%	14.4	0.0	10.5	6.1	6.0
Missing	%	1.6	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1015	4747	6148	14056	24951
Yes	%	8.9	2.4	5.3	5.7	5.0
No	%	75.4	97.2	75.2	76.0	79.8
Not Known	%	14.6	0.1	14.4	14.4	11.7
Missing	%	1.2	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	1015	4747	6148	14056	24951
Yes	%	7.7	1.3	7.0	6.3	5.5
No	%	77.0	98.3	73.3	75.6	79.4
Not Known	%	14.6	0.1	14.5	14.1	11.5
Missing	%	0.7	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	869	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	6.1	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	6.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	7.4	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	8.0	0.0	5.0	0.0	0.0

Data Element	N, Mean, Median, or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	854	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	2.9	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	3.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	106	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	1.4	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	79	355	619	2185	3159
Yes	%	6.3	2.0	7.6	14.6	11.8
No	%	74.7	87.3	60.6	55.9	60.4
Not known	%	6.3	0.0	15.8	18.0	15.6
Missing	%	12.7	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	871	4686	4678	10794	20158
Number of Babies Born	N	875	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	957	4667	5728	12895	23290
Yes	%	47.5	15.8	24.9	19.0	19.8
No	%	34.3	82.4	39.9	36.5	46.5
Not known	%	2.7	0.6	25.3	31.1	23.6
Missing	%	15.5	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	1015	4747	6148	14056	24951
Vaginal delivery	%	66.1	86.6	53.9	51.8	59.0
C-Section	%	19.7	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	14.2	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.7	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	116	226	672	1921	2819
VBAC	%	34.5	31.4	22.9	16.5	19.2
Repeat C-Section	%	65.5	68.6	77.1	83.5	80.8
Scheduled C-Section	N	200	597	1375	3533	5505
Yes	%	29.0	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	875	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	78	242	512	1621	2375
	%	8.9	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	760	4432	3604	8382	16418
	%	86.9	94.4	76.4	76.2	80.4
Missing	N	37	21	604	1003	1628
	%	4.2	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	875	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	52	178	468	1484	2130
	%	5.9	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	821	4406	3999	8763	17168
	%	93.8	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	HARRIS (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	943	3407	3983	10659	18049
Yes	%	63.2	85.4	62.8	62.6	66.9
No	%	5.2	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.1	0.4	5.6	1.1	2.0
Missing	%	31.5	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	99.1	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	943	3407	3983	10659	18049
Yes	%	61.2	69.5	61.6	71.1	68.7
No	%	6.6	19.7	11.6	12.6	13.7
Unsure	%	0.5	2.8	6.2	1.9	3.0
Missing	%	31.7	8.1	20.6	14.3	14.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

The Texas Vital Records Agency notified Urban that they need to obtain IRB approval prior to executing a data use agreement (DUA) to allow for the sharing of birth certificate data. Urban planned to submit the IRB application in September 2016. The Texas Medicaid Agency notified the Urban in May 2016 that it would need to execute a DUA and Security and Privacy Inquiry forms. Urban is working on a compliance plan to allow for completion of the Security and Privacy Inquiry forms, which should occur in September 2016. The Texas Medicaid Agency will be linking Medicaid claims and birth certificate data.

HealthInsight of Nevada

CASE STUDY

HealthInsight is a private, non-profit Quality Improvement Organization (QIO) working on numerous state, federal, and foundation-funded activities in the States of Nevada, New Mexico, and Utah. HealthInsight Nevada, the Strong Start grantee, is headquartered in Las Vegas. The organization recruited a number of providers to participate in Strong Start in the Las Vegas and Reno areas. Though the sites involved have changed over the course of the cooperative agreement, as of the end of Year 3, there were three sites actively participating: Renown Pregnancy Center (Renown) in Reno; and the University of Nevada School of Medicine (UNSOM) and Women's Health Associates of Southern Nevada (WHASN) in Las Vegas.

The three sites operate independently, with Renown implementing the CenteringPregnancy (Centering) model, and UNSOM and WHASN implementing a locally-developed group prenatal care curriculum. Key informants report that the cost of Centering was a barrier to implementation at these two sites, but the curriculum being used at UNSOM and WHASN was made available to them free of charge by the PhD student who developed it as part of her Doctoral thesis. The curriculum covers similar content to what is offered through Centering, but sessions can be taken in any order, to facilitate flexible scheduling. As a result, participants at these sites are not grouped into “cohorts”, unlike Centering participants. HealthInsight had enrolled a total of nearly 800 Strong Start participants by the end of Quarter 1 2016.

Highlights from the evaluation’s third round of data collection include:

- HealthInsight has made a number of small changes to Strong Start grant administration since the Year 2 case study. In February 2016, the Program Manager left the grantee, and a member of upper-level management stepped into this role. The awardee has also re-initiated onboarding of an additional site, St. Mary’s, which had been placed on hold because of administrative challenges. This new site had not begun offering group prenatal care yet at the time of Year 3 data collection. Lastly, in July 2015, all sites began enrolling women under the age of 18, rather than limiting the intervention to those 18 and over.
- In general, key informants felt optimistic that the Strong Start program was improving birth outcomes by providing support to women otherwise lacking close friends and family nearby as well as providing information about how to have a healthy pregnancy. In particular, the awardee felt Strong Start providers’ emphasis on having a vaginal delivery could be reducing Cesarean-section rates.
- HealthInsight has made good progress toward its enrollment goals in the past year, reportedly in part because of the use of new flyers in clinic waiting rooms. These flyers contain information about group prenatal care and pictures of incentives that can be earned if women complete a certain number of sessions (number of sessions necessary and incentives offered vary by site).
- Though the awardee did not list increasing knowledge of family planning options as one of the program’s main goals, sites reported covering the topic extensively in group sessions. Facilitators from all sites noted that all family planning methods are discussed and women are encouraged to choose the method that best matches their needs and lifestyle.

- Lack of transportation and childcare were perceived as significant barriers to care by nearly all key informants. One staff member estimated that one quarter of women who decline to participate in Strong Start do so because of lack of childcare (since the group prenatal care model discourages women from bringing children to sessions). Though the sites have not found a way to assist with childcare, the awardee offers bus passes to those unable to afford public transportation.
- Focus group participants at all sites were satisfied with the care they received as part of HealthInsight’s Strong Start program. In general, women were most appreciative of the additional support and information provided through the group care approach, but in some cases felt more privacy during individual examinations (which occur in a curtained corner of the group meeting space) would have made them more comfortable.
- The awardee felt the presence of “practice champions” is key to the success of group prenatal care at new sites, but getting providers on board was challenging in some cases. Task overload of physicians and residents and a reluctance to “give up” patients to the group care model were described as the most significant barriers to provider buy-in.
- It is unclear whether the sites offering group prenatal care under HealthInsight’s Strong Start award will continue to do so beyond the grant period. This decision will likely be made at the site level, and key informants agreed sustainability would depend on continued provider buy-in, robust enrollment (at least 10-12 participants per group), and additional funding procurement.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, HealthInsight of Nevada (HealthInsight) had Intake Forms for 68.6 percent of participants enrolled through Quarter 1 2016 (547 Intake Forms for 797 participants). In addition, HealthInsight submitted 312 Third Trimester Surveys, 233 Postpartum Surveys, and 277 Exit Forms. The tables below present data collected on HealthInsight’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	151	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	797	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	307	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	547	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	68.6	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	312	4088	4567	11732	20387

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women delivered	%	101.6	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	233	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	75.9	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	277	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	90.2	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	547	6594	8559	22996	38149
Less than 18 years of age	%	6.2	2.8	6.8	5.6	5.4
18 through 34 years of age	%	87.6	87.6	83.3	84.0	84.5
35 years and older	%	4.8	9.0	7.8	9.3	8.9
Missing	%	1.5	0.6	2.1	1.1	1.2
Race and Ethnicity	N	547	6594	8559	22996	38149
Hispanic	%	42.0	24.8	39.1	26.7	29.1
Non-Hispanic white	%	26.5	53.6	12.5	22.9	25.9
Non-Hispanic black	%	16.8	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.8	0.9	1.1	1.5	1.3
Non-Hispanic other	%	3.8	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	7.3	3.6	2.9	1.5	2.1
Missing	%	1.6	0.8	2.4	1.6	1.6
Employed at Intake	N	547	6594	8559	22996	38149
Yes	%	34.9	41.4	34.3	39.6	38.7
No	%	64.2	57.3	62.0	58.6	59.1
Missing	%	0.9	1.3	3.7	1.8	2.2
Education Level at Intake	N	547	6594	8559	22996	38149
Less than high school	%	30.3	13.5	23.2	24.2	22.1
High school graduate or GED	%	51.9	52.7	46.7	50.3	49.9
Bachelor's degree	%	1.8	10.9	3.3	2.8	4.3
Other college degree(s)	%	5.3	12.5	7.2	6.3	7.5
Missing	%	10.6	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	547	6594	8559	22996	38149
Married, living with spouse	%	15.9	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.6	1.7	2.0	2.0	1.9
Living with a partner	%	43.7	32.7	31.9	30.3	31.1
In a relationship but not living together	%	18.8	14.3	23.6	29.3	25.5
Not in a relationship right now	%	17.0	10.2	17.3	18.0	16.5
Missing	%	2.0	1.3	7.7	2.6	3.5

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Smokes Cigarettes at Intake	N	547	6594	8559	22996	38149
Yes	%	8.4	10.0	8.2	12.9	11.3
No	%	81.9	80.6	73.8	80.9	79.3
Missing	%	9.7	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	547	6594	8559	22996	38149
Yes	%	27.6	17.2	20.0	16.7	17.5
No	%	63.1	76.9	65.6	74.2	72.7
Missing*	%	9.3	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	547	6594	8559	22996	38149
Yes	%	25.4	21.0	24.3	22.2	22.5
No	%	56.3	68.8	54.0	66.9	64.3
Missing*	%	18.3	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	547	6594	8559	22996	38149
Yes	%	23.2	20.2	16.1	19.0	18.6
No	%	74.8	77.9	76.0	76.5	76.7
Missing*	%	2.0	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	130	2768	3214	8802	14784
<18 months	%	28.5	29.1	18.1	20.6	21.5
≥18 months	%	50.0	48.8	52.1	54.4	52.8
Missing	%	21.5	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	130	2768	3214	8802	14784
Yes	%	4.6	9.6	11.2	17.8	14.8
No	%	87.7	89.7	75.9	70.0	75.0
Not Known	%	2.3	0.3	9.4	8.4	7.1
Missing	%	5.4	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	130	2768	3214	8802	14784
Yes	%	3.1	1.8	8.3	13.9	10.4
No	%	85.4	97.1	64.0	69.1	73.3
Not Known	%	3.1	0.4	14.5	12.4	10.6
Missing	%	8.5	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	277	4747	6148	14056	24951
Yes	%	0.7	0.2	2.4	1.0	1.2
No	%	96.0	99.6	66.5	89.1	85.5
Not Known	%	1.8	0.0	26.8	6.8	10.4

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	1.4	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	277	4747	6148	14056	24951
Yes	%	0.4	0.3	3.6	2.0	2.1
No	%	96.0	99.4	78	88.4	87.9
Not Known	%	1.8	0.0	13.7	6.4	7.0
Missing	%	1.8	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	277	4747	6148	14056	24951
Yes	%	3.2	0.6	6.4	7.6	6.0
No	%	92.1	99.2	78.6	83.3	85.2
Not Known	%	3.2	0.0	10.5	6.1	6.0
Missing	%	1.4	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	277	4747	6148	14056	24951
Yes	%	1.1	2.4	5.3	5.7	5.0
No	%	81.9	97.2	75.2	76.0	79.8
Not Known	%	11.9	0.1	14.4	14.4	11.7
Missing	%	5.1	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	277	4747	6148	14056	24951
Yes	%	2.5	1.3	7.0	6.3	5.5
No	%	81.2	98.3	73.3	75.6	79.4
Not Known	%	11.9	0.1	14.5	14.1	11.5
Missing	%	4.3	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	275	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	4.0	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	4.0	11	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	5.2	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	5.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	36	4287	2178	11889	18354

Data Element	N, Mean, Median, or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Average number of enhanced encounters per participant	Mean	1.7	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	-	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	-	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	-	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	17	355	619	2185	3159
Yes	%	5.9	2.0	7.6	14.6	11.8
No	%	70.6	87.3	60.6	55.9	60.4
Not known	%	17.6	0.0	15.8	18.0	15.6
Missing	%	5.9	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	219	4686	4678	10794	20158
Number of Babies Born	N	221	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	256	4667	5728	12895	23290
Yes	%	16.4	15.8	24.9	19.0	19.8
No	%	59.0	82.4	39.9	36.5	46.5
Not known	%	11.7	0.6	25.3	31.1	23.6
Missing	%	12.9	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	277	4747	6148	14056	24951
Vaginal delivery	%	57.8	86.6	53.9	51.8	59.0
C-Section	%	22.0	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	20.2	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.4	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	26	226	672	1921	2819
VBAC	%	26.9	31.4	22.9	16.5	19.2
Repeat C-Section	%	73.1	68.6	77.1	83.5	80.8
Scheduled C-Section	N	61	597	1375	3533	5505
Yes	%	34.4	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	221	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	19	242	512	1621	2375
	%	8.6	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	190	4432	3604	8382	16418
	%	86.0	94.4	76.4	76.2	80.4
Missing	N	12	21	604	1003	1628
	%	5.4	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	221	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	16	178	468	1484	2130
	%	7.2	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	199	4406	3999	8763	17168
	%	90.0	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	NEVADA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	233	3407	3983	10659	18049
Yes	%	88.4	85.4	62.8	62.6	66.9
No	%	5.6	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.9	0.4	5.6	1.1	2.0
Missing	%	5.2	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	105.1	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	233	3407	3983	10659	18049
Yes	%	63.9	69.5	61.6	71.1	68.7
No	%	24.5	19.7	11.6	12.6	13.7
Unsure	%	6.0	2.8	6.2	1.9	3.0
Missing	%	5.6	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated..

TECHNICAL ASSISTANCE

In July 2015, Urban received a fully executed data use agreement (DUA) from the Nevada Division of Welfare and Supportive Services (DWSS). As of August 2016, DWSS is in the process of preparing Medicaid eligibility and claims data for live births in 2014, and plans to transfer the data to Urban by October 2016. In March 2016, Urban received a fully executed data use agreement (DUA) from the Nevada Division of Public and Behavioral Health (DPBH). In July 2016, Urban received 2014 and 2015

birth certificate data from DPBH. After further discussion between the state agencies, it was decided Urban will link Nevada Medicaid and birth certificate data.

Johns Hopkins University

CASE STUDY

The Johns Hopkins awardee uses the Maternity Care Home approach to provide care coordination to pregnant women enrolled in the Priority Partners Medicaid managed care plan (a plan partially owned by Johns Hopkins) who are served in one of five Johns Hopkins prenatal care clinics: Johns Hopkins Outpatient Center (JHOC), Johns Hopkins Bayview Medical Center (Bayview), Johns Hopkins East Baltimore Medical Center (EBMC), Wyman Park, and the Bayview Center for Addiction and Pregnancy (CAP). The first three clinics have always been part of the project. The latter two clinics were added mid-way through the award period to increase enrollment.

Women enrolled in Strong Start are expected to have a minimum of three encounters with program staff: one in the first trimester (or the first time they come for care), one in the third trimester and one final encounter soon after delivery. One of the Participant Level Process Evaluation (PLPE) forms is completed at each of these visits. All three visits may not happen if a woman enters prenatal care late. In these cases, women complete the Intake Form and Third Trimester Survey during the same visit and education provided is condensed. There are two additional program components: 1) Baby Basics—a group health education program that uses a curriculum that is standard across Baltimore County and 2) Quarterly summits that bring Strong Start staff together with others in Baltimore who are doing related work.

Highlights from the evaluation's third round of data collection include:

- The program has generally operated consistently throughout the grant and has had minimal staff turnover, but there has been increased standardization of approaches across staff as the program matured. There have been no major changes in approach since the Year 2 interviews.
- With the addition of two new sites in 2015 and the raising of the gestational age limit for enrollment to 30 weeks, the number of clients enrolled in Strong Start has grown steadily. However, with approximately 1,400 women enrolled as of the end of 2015, it will be considerably short of the original program target of 4,000 participants.
- Program staff members believe they have reduced preterm and low birthweight rates. One preliminary internal analysis conducted by the awardee suggests that those who are “touched” by the program at least three times have lower rates compared to those touched fewer times.
- There is no perceived impact on C-Section or breastfeeding rates; these have not been studied quantitatively by the awardee.
- According to the awardee, family planning counseling is primarily the work of the clinical staff, and the Strong Start staff supplement provider education and answer questions as needed. However, key informants at the sites noted that clinicians sometimes delegate family planning counseling to the Strong Start team. Program staff report encouraging participants to consider long-acting reversible contraceptives (LARCs), including intrauterine devices (IUDs) inserted at delivery. Staff report uptake of these methods is high because women like the convenience of LARCs.

- Providers appreciate that Strong Start provides important services to patients that clinical providers are not able to deliver themselves because of limited time.
- Women who participated in the evaluation's focus groups expressed appreciation for the help they've received from community health workers and nurse case managers. The primary complaint focus group participants had about care at Hopkins was lack of flexibility to be seen when arriving late because of transportation challenges; some women also felt pressured into breastfeeding after stating their preference not to do so.
- Informants believe that in-person care coordination is beneficial to clients and allows for a level of trust that is not possible with telephonic care coordination.
- Program staff have struggled to generate robust enrollment in Baby Basics classes. A new March of Dimes grant will provide new incentives for participation, including breast pumps.
- It remains unclear whether and how the care coordination component of Strong Start will be sustained after the award period ends. While Strong Start leadership and providers believe this aspect of the program is beneficial to participants and clinicians, it is also expensive, and it is unclear who would pay for the services going forward. The Baby Basics health education classes and quarterly summits (or a similar type of meeting) will likely be sustained.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Johns Hopkins University had Intake Forms for 99.9 percent of participants enrolled through Quarter 1 2016 (1,593 Intake Forms for 1,595 participants). In addition, [Johns Hopkins University submitted 875 Third Trimester Surveys, 994 Postpartum Surveys, and 1,262 Exit Forms. The tables below present data collected on Johns Hopkins University's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	145	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1595	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1242	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1593	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	99.9	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	875	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	70.5	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	994	3407	3983	10659	18049

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women delivered	%	80.0	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	1262	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	101.6	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	1593	6594	8559	22996	38149
Less than 18 years of age	%	7.5	2.8	6.8	5.6	5.4
18 through 34 years of age	%	84.4	87.6	83.3	84.0	84.5
35 years and older	%	8.0	9.0	7.8	9.3	8.9
Missing	%	0.1	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1593	6594	8559	22996	38149
Hispanic	%	8.2	24.8	39.1	26.7	29.1
Non-Hispanic white	%	13.1	53.6	12.5	22.9	25.9
Non-Hispanic black	%	72.2	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	2.1	0.9	1.1	1.5	1.3
Non-Hispanic other	%	1.1	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	3.2	3.6	2.9	1.5	2.1
Missing	%	0.3	0.8	2.4	1.6	1.6
Employed at Intake	N	1593	6594	8559	22996	38149
Yes	%	37.6	41.4	34.3	39.6	38.7
No	%	62.0	57.3	62.0	58.6	59.1
Missing	%	0.4	1.3	3.7	1.8	2.2
Education Level at Intake	N	1593	6594	8559	22996	38149
Less than high school	%	30.0	13.5	23.2	24.2	22.1
High school graduate or GED	%	58.8	52.7	46.7	50.3	49.9
Bachelor’s degree	%	2.4	10.9	3.3	2.8	4.3
Other college degree(s)	%	3.6	12.5	7.2	6.3	7.5
Missing	%	5.2	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1593	6594	8559	22996	38149
Married, living with spouse	%	10.7	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.7	1.7	2.0	2.0	1.9
Living with a partner	%	34.7	32.7	31.9	30.3	31.1
In a relationship but not living together	%	29.4	14.3	23.6	29.3	25.5
Not in a relationship right now	%	22.1	10.2	17.3	18.0	16.5
Missing	%	1.4	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1593	6594	8559	22996	38149
Yes	%	16.1	10.0	8.2	12.9	11.3
No	%	75.6	80.6	73.8	80.9	79.3
Missing	%	8.3	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1593	6594	8559	22996	38149
Yes	%	14.8	17.2	20.0	16.7	17.5

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	83.4	76.9	65.6	74.2	72.7
Missing*	%	1.9	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1593	6594	8559	22996	38149
Yes	%	30.8	21.0	24.3	22.2	22.5
No	%	66.2	68.8	54.0	66.9	64.3
Missing*	%	3.0	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1593	6594	8559	22996	38149
Yes	%	14.7	20.2	16.1	19.0	18.6
No	%	84.9	77.9	76	76.5	76.7
Missing*	%	0.4	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	834	2768	3214	8802	14784
<18 months	%	18.0	29.1	18.1	20.6	21.5
≥18 months	%	60.1	48.8	52.1	54.4	52.8
Missing	%	21.9	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	834	2768	3214	8802	14784
Yes	%	19.9	9.6	11.2	17.8	14.8
No	%	74.6	89.7	75.9	70.0	75.0
Not Known	%	2.6	0.3	9.4	8.4	7.1
Missing	%	2.9	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	834	2768	3214	8802	14784
Yes	%	12.5	1.8	8.3	13.9	10.4
No	%	74.1	97.1	64.0	69.1	73.3
Not Known	%	7.6	0.4	14.5	12.4	10.6
Missing	%	5.9	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1262	4747	6148	14056	24951
Yes	%	0.5	0.2	2.4	1.0	1.2
No	%	94.6	99.6	66.5	89.1	85.5
Not Known	%	1.8	0.0	26.8	6.8	10.4
Missing	%	3.1	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1262	4747	6148	14056	24951
Yes	%	0.9	0.3	3.6	2.0	2.1
No	%	94.3	99.4	78	88.4	87.9
Not Known	%	1.8	0.0	13.7	6.4	7.0
Missing	%	3.0	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	1262	4747	6148	14056	24951
Yes	%	8.7	0.6	6.4	7.6	6.0

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	86.7	99.2	78.6	83.3	85.2
Not Known	%	1.8	0.0	10.5	6.1	6.0
Missing	%	2.8	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1262	4747	6148	14056	24951
Yes	%	6.1	2.4	5.3	5.7	5.0
No	%	83.4	97.2	75.2	76.0	79.8
Not Known	%	4.7	0.1	14.4	14.4	11.7
Missing	%	5.8	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	1262	4747	6148	14056	24951
Yes	%	10.0	1.3	7.0	6.3	5.5
No	%	80.3	98.3	73.3	75.6	79.4
Not Known	%	4.0	0.1	14.5	14.1	11.5
Missing	%	5.7	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	1171	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	9.0	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	9.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	1130	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	6.1	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	5.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	240	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	2.9	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	2.0	1.0	1.0	2.0	2.0

Data Element	N, Mean, Median, or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Progesterone Injections for Women with Previous Preterm Births	N	215	355	619	2185	3159
Yes	%	18.6	2.0	7.6	14.6	11.8
No	%	70.2	87.3	60.6	55.9	60.4
Not known	%	3.3	0.0	15.8	18.0	15.6
Missing	%	7.9	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	1149	4686	4678	10794	20158
Number of Babies Born	N	1162	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	1152	4667	5728	12895	23290
Yes	%	29.0	15.8	24.9	19.0	19.8
No	%	56.8	82.4	39.9	36.5	46.5
Not known	%	5.8	0.6	25.3	31.1	23.6
Missing	%	8.4	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	1262	4747	6148	14056	24951
Vaginal delivery	%	60.1	86.6	53.9	51.8	59.0
C-Section	%	30.4	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	9.5	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	81.0	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	215	226	672	1921	2819
VBAC	%	17.2	31.4	22.9	16.5	19.2
Repeat C-Section	%	82.8	68.6	77.1	83.5	80.8
Scheduled C-Section	N	384	597	1375	3533	5505
Yes	%	28.6	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	1162	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	178	242	512	1621	2375
	%	15.3	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	973	4432	3604	8382	16418
	%	83.7	94.4	76.4	76.2	80.4
Missing	N	-	21	604	1003	1628
	%	-	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	1162	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	173	178	468	1484	2130
	%	14.9	3.8	9.9	13.5	10.4

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Low Birth Weight, ≥ 2500 grams	N	968	4406	3999	8763	17168
	%	83.3	93.8	84.7	79.6	84.1
Missing	N	21	111	253	759	1123
	%	1.8	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated. Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	994	3407	3983	10659	18049
Yes	%	42.3	85.4	62.8	62.6	66.9
No	%	31.1	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.2	0.4	5.6	1.1	2.0
Missing	%	26.5	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	99.0	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	994	3407	3983	10659	18049
Yes	%	69.7	69.5	61.6	71.1	68.7
No	%	3.1	19.7	11.6	12.6	13.7
Unsure	%	0.4	2.8	6.2	1.9	3.0
Missing	%	26.8	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

After submitting our data request application to the Vital Statistics Administration (VSA) in the Maryland Department of Health and Mental Hygiene (DHMH) in April 2015, VSA said that it did not have the resources to participate. However, when re-contacted in November 2015 and presented with a copy of the agency’s original Letter of Support, state officials agreed to participate. Since then, the VSA director has signed off on our IRB application which was submitted to DHMH as part of our process to get approval from the Office of Health Care Financing, which is also located in DHMH, to access Medicaid data. In August 2016, Urban facilitated a conference call with VSA, Office of Health Care Financing, and The Hilltop Institute at University of Maryland, Baltimore County (UMBC), which performs a wide variety of health services research activities for state and local agencies in Maryland including DHMH, to further discuss the data requests and the process to link Medicaid and birth certificate data. The following was clarified during the call: (1) the Hilltop Institute, on behalf of Medicaid, will perform the data linkage and send a linked file to Urban and (2) a memorandum of agreement (MOA) and data use agreement (DUA) will be needed (in addition to IRB approval). Urban expects to receive linked data by the end of 2016.

Los Angeles County Department of Health Services

CASE STUDY

Los Angeles Department of Health Services (LADHS) is a large public health care system that treats over 800,000 patients each year at 19 community-based clinics and four hospitals located throughout Los Angeles County. LADHS has a storied past with a reputation of being mismanaged, but there is evidence to suggest that this perception may be changing. LADHS hospitals and clinics are the primary safety net provider in Los Angeles County, with an annual budget of nearly \$4 billion. The majority of LADHS patients are enrolled in Medi-Cal (the state's Medicaid program), Healthy Families (the state's Children's Health Insurance Program (CHIP)), or are uninsured. Several of the county's facilities offer training opportunities for physicians, including two of the county's Strong Start sites: Harbor-UCLA Medical Center, LAC+USC Medical Center, and UCLA-Olive View.

Several LADHS locations are working toward implementing a patient-centered medical home (PCMH) model of care, including three of the five Strong Start—called “MAMA's Neighborhood” or “MAMA” at LADHS—sites (Martin Luther King, Jr. Outpatient Center (MLK), Hubert Humphrey Comprehensive Medical Center, and, Wilmington Health Center). Moreover, the county is implementing a new electronic medical record system that will eventually allow physicians at all DHS facilities access to any DHS patient's records. The “Online Real-Time Centralized Health Information Database” (ORCHID) was launched in March 2013 and implementation is expected to be complete in March 2016.

Prior to Strong Start, LADHS had not implemented any enhanced services for pregnant patients—specifically they have been late adopters of the Comprehensive Perinatal Services Program (CPSP) offered to many Medi-Cal eligible women.³ LADHS intends to expand the Strong Start prenatal care model to all locations that provide prenatal care.

Highlights from the evaluation's third round of data collection include:

- There have been no major changes in Year 3 of LADHS implementation aside from the expansion of MAMA's Neighborhood to an additional site in the San Fernando Valley, Olive View-UCLA. Some additional staff have been brought on to meet the mental health needs of Strong Start participants, and efforts are underway to expand the health education/resiliency classes to additional sites.
- MAMA's staff are confident that the trusted relationships they build with participants are helping women cope with the many stressors they encounter during pregnancy and in their lives. Care coordinators refer Strong Start participants to a comprehensive list of community resources and have access to mental health providers in the LADHS system who provide on-site counseling and prescriptions as needed.

³ Through CPSP Medi-Cal eligible pregnant women are offered prenatal care, health education, nutrition services, and psychosocial support for up to 60 days postpartum.

- All care coordinators have been certified as family planning health workers,⁴ and they begin discussing family planning at the very first encounter. LADHS performs post-placental intrauterine device (IUD) insertions when requested and have asserted that many women have an implant or IUD in place postpartum.
- Key informants are cautiously optimistic that Strong Start could be having an effect on low birthweight or preterm deliveries, particularly very early preterm deliveries. However, leadership staff recognize that available data are imperfect, as nearly 50 percent of enrollees deliver outside the LADHS system, at more convenient community hospitals. Strong Start staff feel that birth outcomes may be positively influenced by the caring, engaging relationships the care coordinators form with participants as well as referrals to needed resources like food banks and housing agencies.
- Transportation is reportedly a barrier to care for LADHS participants, as well as childcare to a lesser degree, but the magnitude of these challenges is site specific. Women who must travel to a specific site for high-risk pregnancy care sometimes have to travel a great distance to get to their appointments and public transportation options are limited; Medicaid-provided transportation can be unreliable. While some clinics strongly discourage bringing children to appointments, others are more welcoming.
- While most providers recognize the value that MAMA's has added to the care of prenatal patients, the road has not always been smooth, and new sites are still navigating barriers. LADHS clinics that have been implementing MAMA's for some time have established protocols—such as regularly scheduled coordination meetings—that benefit the provider and MAMA's staff.
- Most focus group participants reported satisfaction with the Strong Start program. Many said they felt very comfortable with their care coordinator, and could raise issues they did not feel comfortable discussing with their doctor. At least one participant also appreciated the consistency of regular appointments with the same care coordinator. Women said they would recommend MAMA's Neighborhood to friends and family, and some already have.
- Focus group participants also reported being well-equipped to make decisions about postpartum contraception plans, and cited information provided by care coordinators as instrumental in the process.
- LADHS has demonstrated flexibility while implementing MAMA's Neighborhood and has continually adapted the program to meet client needs. The longer-term trajectory of this awardee's intervention—with the expectation that MAMA's is not ending with the expiration of Strong Start funding—may have been particularly instrumental in enabling the program staff to take that approach.
- MAMA's Neighborhood will be sustained and plans are in place to expand the program to all prenatal care delivery sites within LADHS.

⁴ This certification program requires completion of a two-day intensive course organized by Essential Access Health, administrator of California's federal Title X family planning program. For more information about the certification program and training see: <https://www.essentialaccesstraining.org/ets/store/item/?id=d3e81727-bb3c-11e6-b680-005056a02268>

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Los Angeles Department of Health Services (LADHS) had Intake Forms for 100.0 percent of participants enrolled through Quarter 1 2016 (2,708 Intake Forms for 2,708 participants). In addition, LADHS submitted 788 Third Trimester Surveys, 555 Postpartum Surveys, and 1,268 Exit Forms. The tables below present data collected on LADHS's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	419	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	2708	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	937	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	2708	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	100.0	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	788	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	84.1	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	555	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	59.2	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	1268	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	135.3	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	2708	6594	8559	22996	38149
Less than 18 years of age	%	2.6	2.8	6.8	5.6	5.4
18 through 34 years of age	%	79.2	87.6	83.3	84.0	84.5
35 years and older	%	18.2	9.0	7.8	9.3	8.9
Missing	%	0.0	0.6	2.1	1.1	1.2
Race and Ethnicity	N	2708	6594	8559	22996	38149
Hispanic	%	64.0	24.8	39.1	26.7	29.1
Non-Hispanic white	%	5.6	53.6	12.5	22.9	25.9
Non-Hispanic black	%	18.8	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	5.9	0.9	1.1	1.5	1.3

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Non-Hispanic other	%	0.9	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	1.5	3.6	2.9	1.5	2.1
Missing	%	3.2	0.8	2.4	1.6	1.6
Employed at Intake	N	2708	6594	8559	22996	38149
Yes	%	42.9	41.4	34.3	39.6	38.7
No	%	55.8	57.3	62.0	58.6	59.1
Missing	%	1.3	1.3	3.7	1.8	2.2
Education Level at Intake	N	2708	6594	8559	22996	38149
Less than high school	%	26.1	13.5	23.2	24.2	22.1
High school graduate or GED	%	47.7	52.7	46.7	50.3	49.9
Bachelor's degree	%	5.4	10.9	3.3	2.8	4.3
Other college degree(s)	%	4.9	12.5	7.2	6.3	7.5
Missing	%	15.8	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	2708	6594	8559	22996	38149
Married, living with spouse	%	25.0	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.2	1.7	2.0	2.0	1.9
Living with a partner	%	35.1	32.7	31.9	30.3	31.1
In a relationship but not living together	%	27.5	14.3	23.6	29.3	25.5
Not in a relationship right now	%	9.5	10.2	17.3	18.0	16.5
Missing	%	0.7	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	2708	6594	8559	22996	38149
Yes	%	4.3	10.0	8.2	12.9	11.3
No	%	91.8	80.6	73.8	80.9	79.3
Missing	%	4.0	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	2708	6594	8559	22996	38149
Yes	%	15.0	17.2	20.0	16.7	17.5
No	%	72.4	76.9	65.6	74.2	72.7
Missing*	%	12.6	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	2708	6594	8559	22996	38149
Yes	%	21.0	21.0	24.3	22.2	22.5
No	%	76.8	68.8	54.0	66.9	64.3
Missing*	%	2.1	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	2708	6594	8559	22996	38149
Yes	%	26.8	20.2	16.1	19.0	18.6
No	%	70.7	77.9	76.0	76.5	76.7
Missing*	%	2.5	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	603	2768	3214	8802	14784
<18 months	%	5.8	29.1	18.1	20.6	21.5
≥18 months	%	30.3	48.8	52.1	54.4	52.8
Missing	%	63.8	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	603	2768	3214	8802	14784
Yes	%	11.6	9.6	11.2	17.8	14.8
No	%	79.6	89.7	75.9	70.0	75.0
Not Known	%	5.3	0.3	9.4	8.4	7.1
Missing	%	3.5	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	603	2768	3214	8802	14784
Yes	%	9.3	1.8	8.3	13.9	10.4
No	%	77.6	97.1	64.0	69.1	73.3
Not Known	%	9.6	0.4	14.5	12.4	10.6
Missing	%	3.5	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1268	4747	6148	14056	24951
Yes	%	0.7	0.2	2.4	1.0	1.2
No	%	91.4	99.6	66.5	89.1	85.5
Not Known	%	6.4	0.0	26.8	6.8	10.4
Missing	%	1.5	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1268	4747	6148	14056	24951
Yes	%	2.8	0.3	3.6	2.0	2.1
No	%	89.3	99.4	78.0	88.4	87.9
Not Known	%	6.4	0.0	13.7	6.4	7.0
Missing	%	1.5	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	1268	4747	6148	14056	24951
Yes	%	4.3	0.6	6.4	7.6	6.0
No	%	87.5	99.2	78.6	83.3	85.2
Not Known	%	6.7	0.0	10.5	6.1	6.0
Missing	%	1.5	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1268	4747	6148	14056	24951
Yes	%	8.1	2.4	5.3	5.7	5.0
No	%	68.5	97.2	75.2	76.0	79.8
Not Known	%	22.2	0.1	14.4	14.4	11.7
Missing	%	1.3	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	1268	4747	6148	14056	24951
Yes	%	5.8	1.3	7.0	6.3	5.5
No	%	70.0	98.3	73.3	75.6	79.4

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	22.6	0.1	14.5	14.1	11.5
Missing	%	1.6	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	1268	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	6.3	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	6.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	1248	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	3.3	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	2.5	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	235	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	2.5	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	122	355	619	2185	3159
Yes	%	22.1	2.0	7.6	14.6	11.8
No	%	41.8	87.3	60.6	55.9	60.4
Not known	%	16.4	0.0	15.8	18.0	15.6
Missing	%	19.7	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	741	4686	4678	10794	20158
Number of Babies Born	N	752	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	1166	4667	5728	12895	23290
Yes	%	21.0	15.8	24.9	19.0	19.8
No	%	31.2	82.4	39.9	36.5	46.5
Not known	%	30.0	0.6	25.3	31.1	23.6
Missing	%	17.8	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	1268	4747	6148	14056	24951
Vaginal delivery	%	37.7	86.6	53.9	51.8	59.0

Data Element	N, Mean, Median, or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
C-Section	%	20.7	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	41.6	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	81.5	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	128	226	672	1921	2819
VBAC	%	19.5	31.4	22.9	16.5	19.2
Repeat C-Section	%	80.5	68.6	77.1	83.5	80.8
Scheduled C-Section	N	263	597	1375	3533	5505
Yes	%	38.4	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	752	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	21	242	512	1621	2375
	%	2.8	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	95	4432	3604	8382	16418
	%	12.6	94.4	76.4	76.2	80.4
Missing	N	636	21	604	1003	1628
	%	84.6	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	752	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	81	178	468	1484	2130
	%	10.8	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	641	4406	3999	8763	17168
	%	85.2	93.8	84.7	79.6	84.1
Missing	N	30	111	253	759	1123
	%	4.0	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	555	3407	3983	10659	18049
Yes	%	86.7	85.4	62.8	62.6	66.9
No	%	8.5	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.4	0.4	5.6	1.1	2.0
Missing	%	4.5	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	104.3	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	555	3407	3983	10659	18049

Data Element	N or %	LA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	80.5	69.5	61.6	71.1	68.7
No	%	10.3	19.7	11.6	12.6	13.7
Unsure	%	1.3	2.8	6.2	1.9	3.0
Missing	%	7.9	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

In general, state officials from the three agencies involved in the California data acquisition process are receptive to supporting the Strong Start evaluation. These agencies include the California Committee for the Protection of Human Subjects (CPHS), which acts as the state's Institutional Review Board, the Department of Health Care Services (DHCS) and the Department of Public Health (DPH). Staff from DHCS, which administers California's Medicaid program, told us that they will be responsible for linking the Medicaid and birth certificate data. Applications requesting Medicaid and birth certificate data were submitted to CPHS, DHCS and DPH, in March 2015. In April 2015, the evaluation team received approval from CPHS and shortly after received approval from DHCS and DPH. Currently, the evaluation team is working with DHCS and DPH to finalize the lists of requested variables and hopes to receive 2014 and 2015 data in late 2016.

Maricopa Integrated Health System

CASE STUDY

Maricopa Integrated Health System (MIHS) is the largest public safety net health system in Arizona and operates a Medicaid health insurance plan. MIHS serves predominantly low-income, minority residents in Maricopa County, which includes the city of Phoenix. The health system is piloting the maternity care home model in five of its 11 family health centers. As of Quarter 3 2015, MIHS had enrolled 871 women into its Strong Start program. MIHS has improved enrollment by modifying how they marketed the program to participants, and because of the recruitment and outreach efforts of a Registered Nurse Care Coordinator (RNCC) and Community Health Workers (CHWs).

Highlights from the evaluation's third round of data collection include:

- Changes in the MIHS Strong Start program include staffing and their approach to enrollment. Instead of two Registered Nurse Care Coordinators (RNCC), the program now has one part-time RNCC and has added additional Community Health Workers (CHWs) who assist the RNCC with care coordination by reminding patients of appointments and linking patients to community resources. The program's enrollment approach remained opt-in but was marketed in Year 3 as a benefit for which the patient was eligible as a result of the patient's insurance (Medicaid). The enhanced services provided to Strong Start participants by RNCC and CHWs have not changed, including care coordination, health education and social support, and referrals to supplementary services and resources such as substance abuse treatment, mental health care, pregnancy/birth classes, breastfeeding education, and social services.
- MIHS providers reacted positively to the Quarter 3 2015 rates for preterm births (12.9 percent), low birthweight (5.6 percent), and C-section (12.2 percent). However, key informants had difficulty isolating the effects of Strong Start on these rates.
- MIHS emphasizes breastfeeding; as of Quarter 3 2015, 78.6 percent of Strong Start participants report initiating breastfeeding. There are several potential contributing factors for this rate; for example, MIHS Family Learning Center staff are certified lactation consultants so Strong Start staff can make internal referrals for breastfeeding support. MIHS also works with insurance companies for faster access to breast pumps through the use of standardized prescription for breast pumps, a process that was institutionalized based on its success with Strong Start participants.
- MIHS CHWs emphasize reproductive life planning and patients discuss birth control options during both prenatal and postpartum care visits.
- Women are screened for depression at their first prenatal appointment; as of Quarter 3 2015, 10.9 percent of women exhibited depressive symptoms at intake. The RNCC or CHW reaches out to social services on behalf of women in need of support. Participants who screen positive for depression are contacted by a social worker (if clinics have a social worker), referred to an AHCCCS (Arizona Medicaid) mental health provider, and in some cases are referred to a mental health crisis line as well. These referrals are made during the same prenatal care visit as the screening, and whenever possible, an appointment with the mental health provider is made

before leaving the prenatal care appointment. Referrals are made by the staff member who sees the patient at that visit. Referrals are all made with the participants' consent.

- Communication via phone with patients continues to be a barrier to care as some participants' phone numbers change often. MIHS has found it effective to reach women when they come in for appointments and update their numbers and addresses at each visit.
- Transportation and childcare are also common barriers. MIHS has continued to work on addressing these barriers. Transportation can be easily arranged for AHCCCS (Medicaid) beneficiaries through the CHWs, and children are allowed at MIHS with the supervision of an adult, often a family member that accompanies the participant to appointments.
- Providers find the support of the RNCC and CHWs improve their own efficiency and feel their clinics function better with them.
- Overall, focus group participants reported that the prenatal care received through the Strong Start program was better than the care they had received in previous pregnancies. They felt better informed this time around compared to the previous experiences and said that they had better communication with providers during this pregnancy. In addition, wait times were not as long as they had experienced in past pregnancies.
- MIHS has improved its tracking and outreach to enrollees through electronic medical records (EMRs) and obtained a better understanding of how to overcome communication barriers. Additionally, staff have learned the importance of thorough identification of women's concerns or risk factors to better link her to available resources. Lastly, after losing key staff early on, MIHS has learned the importance of cross-training staff members.
- MIHS has begun discussions with health insurance plans about value-based payment but needs data to support their argument. MIHS has also received a Healthy Start grant and is looking to transition Strong Start patients to that program as possible when Strong Start ends.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Maricopa Integrated Health System (MIHS) had Intake Forms for 81.2 percent of participants enrolled through Quarter 1 2016 (778 Intake Forms for 958 participants). In addition, MIHS submitted 458 Third Trimester Surveys, 303 Postpartum Surveys, and 743 Exit Forms. The tables below present data collected on MIHS's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	7	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	958	7904	10211	24023	42138

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Women Delivered through Q1 2016	N	596	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	778	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	81.2	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	458	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	76.8	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	303	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	50.8	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	743	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	124.7	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	778	6594	8559	22996	38149
Less than 18 years of age	%	11.6	2.8	6.8	5.6	5.4
18 through 34 years of age	%	82.1	87.6	83.3	84.0	84.5
35 years and older	%	6.3	9.0	7.8	9.3	8.9
Missing	%	0.0	0.6	2.1	1.1	1.2
Race and Ethnicity	N	778	6594	8559	22996	38149
Hispanic	%	64.0	24.8	39.1	26.7	29.1
Non-Hispanic white	%	13.1	53.6	12.5	22.9	25.9
Non-Hispanic black	%	19.2	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.4	0.9	1.1	1.5	1.3
Non-Hispanic other	%	1.8	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.9	3.6	2.9	1.5	2.1
Missing	%	0.6	0.8	2.4	1.6	1.6
Employed at Intake	N	778	6594	8559	22996	38149
Yes	%	33.4	41.4	34.3	39.6	38.7
No	%	66.1	57.3	62.0	58.6	59.1
Missing	%	0.5	1.3	3.7	1.8	2.2
Education Level at Intake	N	778	6594	8559	22996	38149
Less than high school	%	34.6	13.5	23.2	24.2	22.1
High school graduate or GED	%	42.7	52.7	46.7	50.3	49.9
Bachelor's degree	%	1.3	10.9	3.3	2.8	4.3
Other college degree(s)	%	4.9	12.5	7.2	6.3	7.5
Missing	%	16.6	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	778	6594	8559	22996	38149

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Married, living with spouse	%	13.1	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.3	1.7	2.0	2.0	1.9
Living with a partner	%	36.8	32.7	31.9	30.3	31.1
In a relationship but not living together	%	30.6	14.3	23.6	29.3	25.5
Not in a relationship right now	%	17.2	10.2	17.3	18.0	16.5
Missing	%	1.0	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	778	6594	8559	22996	38149
Yes	%	9.8	10.0	8.2	12.9	11.3
No	%	89.5	80.6	73.8	80.9	79.3
Missing	%	0.8	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	778	6594	8559	22996	38149
Yes	%	6.4	17.2	20.0	16.7	17.5
No	%	86.9	76.9	65.6	74.2	72.7
Missing*	%	6.7	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	778	6594	8559	22996	38149
Yes	%	11.4	21.0	24.3	22.2	22.5
No	%	82.4	68.8	54.0	66.9	64.3
Missing*	%	6.2	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	778	6594	8559	22996	38149
Yes	%	22.4	20.2	16.1	19.0	18.6
No	%	76.6	77.9	76.0	76.5	76.7
Missing*	%	1.1	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	457	2768	3214	8802	14784
<18 months	%	24.3	29.1	18.1	20.6	21.5
≥18 months	%	48.1	48.8	52.1	54.4	52.8
Missing	%	27.6	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	457	2768	3214	8802	14784
Yes	%	15.5	9.6	11.2	17.8	14.8
No	%	80.1	89.7	75.9	70.0	75.0
Not Known	%	3.3	0.3	9.4	8.4	7.1
Missing	%	1.1	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	457	2768	3214	8802	14784
Yes	%	12.9	1.8	8.3	13.9	10.4
No	%	75.5	97.1	64.0	69.1	73.3

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	9.4	0.4	14.5	12.4	10.6
Missing	%	2.2	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	743	4747	6148	14056	24951
Yes	%	0.4	0.2	2.4	1.0	1.2
No	%	94.5	99.6	66.5	89.1	85.5
Not Known	%	0.5	0.0	26.8	6.8	10.4
Missing	%	4.6	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	743	4747	6148	14056	24951
Yes	%	0.8	0.3	3.6	2.0	2.1
No	%	94.1	99.4	78	88.4	87.9
Not Known	%	0.7	0.0	13.7	6.4	7.0
Missing	%	4.4	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	743	4747	6148	14056	24951
Yes	%	6.1	0.6	6.4	7.6	6.0
No	%	88.8	99.2	78.6	83.3	85.2
Not Known	%	0.5	0.0	10.5	6.1	6.0
Missing	%	4.6	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	743	4747	6148	14056	24951
Yes	%	4.6	2.4	5.3	5.7	5.0
No	%	70.9	97.2	75.2	76.0	79.8
Not Known	%	18.7	0.1	14.4	14.4	11.7
Missing	%	5.8	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	743	4747	6148	14056	24951
Yes	%	8.7	1.3	7.0	6.3	5.5
No	%	60.6	98.3	73.3	75.6	79.4
Not Known	%	24.5	0.1	14.5	14.1	11.5
Missing	%	6.2	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	530	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	9.6	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	10.0	11.0	4.0	10.0	9.0

Data Element	N, Mean, Median, or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	742	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	7.6	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	7.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	-	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	-	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	-	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	89	355	619	2185	3159
Yes	%	6.7	2.0	7.6	14.6	11.8
No	%	68.5	87.3	60.6	55.9	60.4
Not known	%	13.5	0.0	15.8	18.0	15.6
Missing	%	11.2	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	521	4686	4678	10794	20158
Number of Babies Born	N	526	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	713	4667	5728	12895	23290
Yes	%	18.8	15.8	24.9	19.0	19.8
No	%	45.9	82.4	39.9	36.5	46.5
Not known	%	27.1	0.6	25.3	31.1	23.6
Missing	%	8.3	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	743	4747	6148	14056	24951
Vaginal delivery	%	58.3	86.6	53.9	51.8	59.0
C-Section	%	14.1	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	27.6	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	89.9	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	73	226	672	1921	2819
VBAC	%	34.2	31.4	22.9	16.5	19.2
Repeat C-Section	%	65.8	68.6	77.1	83.5	80.8
Scheduled C-Section	N	105	597	1375	3533	5505
Yes	%	28.6	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics

were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	526	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	74	242	512	1621	2375
	%	14.1	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	445	4432	3604	8382	16418
	%	84.6	94.4	76.4	76.2	80.4
Missing	N	-	21	604	1003	1628
	%	-	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	526	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	63	178	468	1484	2130
	%	12.0	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	454	4406	3999	8763	17168
	%	86.3	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated. Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	MARICOPA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	303	3407	3983	10659	18049
Yes	%	78.5	85.4	62.8	62.6	66.9
No	%	20.8	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.0	0.4	5.6	1.1	2.0
Missing	%	0.7	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	92.2	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	303	3407	3983	10659	18049
Yes	%	79.9	69.5	61.6	71.1	68.7
No	%	17.8	19.7	11.6	12.6	13.7
Unsure	%	0.3	2.8	6.2	1.9	3.0
Missing	%	2.0	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Urban received approval from the Arizona Medicaid Agency to access Medicaid data in July 2016, and Vital records also approved the data request for birth records in July. Arizona uses a third party entity, the Center for Health Information and Research (CHiR) at Arizona State University, to collect and link the Medicaid and Vital Records data. Urban received a fully executed data use agreement (DUA) from CHiR

in June 2016. Urban provided CHiR access to the secure FTP site and Medicaid IDs in August 2016 and CHiR is currently assembling the 2014 Medicaid eligibility and claims data linked with birth data for submission. They plan to submit both the 2014 and 2015 data by October 2016.

Medical University of South Carolina

CASE STUDY

The Medical University of South Carolina (MUSC) is a state university with a large academic medical center and a statewide network of more than 750 primary and specialty care providers. MUSC is implementing the Strong Start maternity care home model at five sites across the state, with a particular focus in the Charleston area, and has enrolled 998 women through Quarter 3 2015. Enhanced services include (1) care coordination and psychosocial support administered telephonically by two care navigators who are registered nurses; (2) social risk reduction via referrals to a social worker and follow up (also often telephonic) on a variety of public benefit and community-based services; and (3) promotion of evidence-based prenatal care at obstetrics (OB) practice sites throughout the state.

Highlights from the evaluation's third round of data collection include:

- The basic structure of MUSC's intervention has not changed since the last round of case studies, though based on the significant psychosocial needs demonstrated by Strong Start participants, over the course of implementation the program has evolved to focus more on the social risk reduction element. The addition of a social worker in late 2014 has helped the Strong Start team increase its emphasis on this program element.
- Strong Start has had a positive influence on a range of patient outcomes, not limited to just the primary aims of reduced rates of preterm birth and low birth weight. For instance, breastfeeding rates among Strong Start participants are considerably higher than the historical average for MUSC's prenatal population. Prenatal and postpartum visit attendance has increased because participants are more engaged with the health care system via their care navigator and more able to focus on their medical care because other social needs are being met.
- Strong Start is well positioned to address and alleviate depression among participants. Care navigators involve the social worker when a behavioral health need is identified and the team works together to help manage the patient's care. They have a strong referral connection to a MUSC perinatal psychiatrist (a rarity in prenatal settings) who runs a free walk-in clinic for prenatal patients.
- Transportation is the primary barrier to care for Strong Start participants. Medicaid-sponsored transportation is an option but can be inconvenient and unreliable, and the process for making appointments is not user friendly. Keeping in touch with patients over the prenatal period is another common barrier to care because of unreliable communication methods, though the Strong Start team's adoption of text messaging has been a very effective way to address this problem.
- MUSC's electronic medical record (EMR) system plays a key role in Strong Start, and has contributed to successful program implementation in various ways. Care navigators view patient medical histories and visit attendance rates at the start of the relationship, and can tailor the services and support they provide. Prenatal care providers view the EMR as a collaboration tool that allows them to stay updated on the care navigator's interactions with a patient. The EMR is also used as part of the risk assessment and enrollment process.

- Focus group participants are highly satisfied with Strong Start and feel that their Strong Start nurse or social worker has been an important part of their care. Participants reported that the program has made a difference in their pregnancy by connecting them to resources and providing emotional support.
- It is unlikely that MUSC will sustain Strong Start in any form. Program staff have not identified any potential funders for the program, and reported that the Medicaid agency, Medicaid managed care organizations (MCOs), and MUSC itself are unlikely candidates for sustaining the intervention. Most of the Strong Start team members will be retained, though in different positions and departments.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Medical University of South Carolina (MUSC) had Intake Forms for 68.3 percent of participants enrolled through Quarter 1 2016 (822 Intake Forms for 1,084 participants). In addition, MUSC submitted 544 Third Trimester Surveys, 748 Postpartum Surveys, and 808 Exit Forms. The tables below present data collected on MUSC's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	0	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1203	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1084	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	822	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	68.3	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	544	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	50.2	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	748	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	69.0	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	808	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	74.5	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	822	6594	8559	22996	38149
Less than 18 years of age	%	1.8	2.8	6.8	5.6	5.4
18 through 34 years of age	%	88.1	87.6	83.3	84.0	84.5
35 years and older	%	9.6	9.0	7.8	9.3	8.9
Missing	%	0.5	0.6	2.1	1.1	1.2
Race and Ethnicity	N	822	6594	8559	22996	38149
Hispanic	%	3.9	24.8	39.1	26.7	29.1
Non-Hispanic white	%	24.6	53.6	12.5	22.9	25.9
Non-Hispanic black	%	69.7	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.0	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.2	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	1.1	3.6	2.9	1.5	2.1
Missing	%	0.5	0.8	2.4	1.6	1.6
Employed at Intake	N	822	6594	8559	22996	38149
Yes	%	42.3	41.4	34.3	39.6	38.7
No	%	57.7	57.3	62.0	58.6	59.1
Missing	%	0.0	1.3	3.7	1.8	2.2
Education Level at Intake	N	822	6594	8559	22996	38149
Less than high school	%	23.4	13.5	23.2	24.2	22.1
High school graduate or GED	%	59.5	52.7	46.7	50.3	49.9
Bachelor's degree	%	3.8	10.9	3.3	2.8	4.3
Other college degree(s)	%	9.2	12.5	7.2	6.3	7.5
Missing	%	4.1	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	822	6594	8559	22996	38149
Married, living with spouse	%	14.8	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.1	1.7	2.0	2.0	1.9
Living with a partner	%	25.9	32.7	31.9	30.3	31.1
In a relationship but not living together	%	41.1	14.3	23.6	29.3	25.5
Not in a relationship right now	%	15.8	10.2	17.3	18	16.5
Missing	%	0.2	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	822	6594	8559	22996	38149
Yes	%	12.7	10.0	8.2	12.9	11.3
No	%	87.2	80.6	73.8	80.9	79.3
Missing	%	0.1	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	822	6594	8559	22996	38149
Yes	%	15.6	17.2	20.0	16.7	17.5
No	%	82.8	76.9	65.6	74.2	72.7
Missing*	%	1.6	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	822	6594	8559	22996	38149
Yes	%	12.0	21.0	24.3	22.2	22.5
No	%	86.1	68.8	54.0	66.9	64.3
Missing*	%	1.9	10.2	21.7	11.0	13.2

Data Element	N or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Have Experienced Intimate Partner Violence in a Relationship***	N	822	6594	8559	22996	38149
Yes	%	10.2	20.2	16.1	19.0	18.6
No	%	89.2	77.9	76	76.5	76.7
Missing*	%	0.6	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	555	2768	3214	8802	14784
<18 months	%	19.2	29.1	18.1	20.6	21.5
≥18 months	%	55.0	48.8	52.1	54.4	52.8
Missing	%	25.8	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	555	2768	3214	8802	14784
Yes	%	35.0	9.6	11.2	17.8	14.8
No	%	64.5	89.7	75.9	70.0	75.0
Not Known	%	0.5	0.3	9.4	8.4	7.1
Missing	%	0.0	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	555	2768	3214	8802	14784
Yes	%	30.1	1.8	8.3	13.9	10.4
No	%	55.9	97.1	64.0	69.1	73.3
Not Known	%	12.4	0.4	14.5	12.4	10.6
Missing	%	1.6	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	808	4747	6148	14056	24951
Yes	%	1.2	0.2	2.4	1.0	1.2
No	%	94.9	99.6	66.5	89.1	85.5
Not Known	%	3.0	0.0	26.8	6.8	10.4
Missing	%	0.9	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	808	4747	6148	14056	24951
Yes	%	5.1	0.3	3.6	2.0	2.1
No	%	91.1	99.4	78	88.4	87.9
Not Known	%	3.0	0.0	13.7	6.4	7.0
Missing	%	0.9	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	808	4747	6148	14056	24951
Yes	%	17.2	0.6	6.4	7.6	6.0
No	%	78.6	99.2	78.6	83.3	85.2
Not Known	%	3.7	0.0	10.5	6.1	6.0
Missing	%	0.5	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	808	4747	6148	14056	24951
Yes	%	7.5	2.4	5.3	5.7	5.0
No	%	77.2	97.2	75.2	76.0	79.8
Not Known	%	15.0	0.1	14.4	14.4	11.7
Missing	%	0.2	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	808	4747	6148	14056	24951
Yes	%	6.3	1.3	7.0	6.3	5.5
No	%	77.8	98.3	73.3	75.6	79.4
Not Known	%	15.6	0.1	14.5	14.1	11.5
Missing	%	0.2	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	724	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	9.9	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	11.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.4	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	807	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	11.2	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	7.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	166	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	1.4	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	214	355	619	2185	3159
Yes	%	41.1	2.0	7.6	14.6	11.8
No	%	53.3	87.3	60.6	55.9	60.4
Not known	%	4.7	0.0	15.8	18.0	15.6
Missing	%	0.9	10.7	16.0	11.4	12.2

Data Element	N, Mean, Median, or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	718	4686	4678	10794	20158
Number of Babies Born	N	744	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	706	4667	5728	12895	23290
Yes	%	32.0	15.8	24.9	19.0	19.8
No	%	55.4	82.4	39.9	36.5	46.5
Not known	%	11.0	0.6	25.3	31.1	23.6
Missing	%	1.6	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	808	4747	6148	14056	24951
Vaginal delivery	%	58.7	86.6	53.9	51.8	59.0
C-Section	%	31.9	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.1	0.0	0.0	0.3	0.2
Missing	%	9.3	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.8	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	171	226	672	1921	2819
VBAC	%	18.7	31.4	22.9	16.5	19.2
Repeat C-Section	%	81.3	68.6	77.1	83.5	80.8
Scheduled C-Section	N	259	597	1375	3533	5505
Yes	%	39.4	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	744	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	169	242	512	1621	2375
	%	22.7	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	568	4432	3604	8382	16418
	%	76.3	94.4	76.4	76.2	80.4
Missing	N	-	21	604	1003	1628
	%	-	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	744	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	157	178	468	1484	2130
	%	21.1	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	579	4406	3999	8763	17168
	%	77.8	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	748	3407	3983	10659	18049
Yes	%	61.4	85.4	62.8	62.6	66.9
No	%	20.9	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.0	0.4	5.6	1.1	2.0
Missing	%	17.8	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	94.1	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	748	3407	3983	10659	18049
Yes	%	81.6	69.5	61.6	71.1	68.7
No	%	1.2	19.7	11.6	12.6	13.7
Unsure	%	0.3	2.8	6.2	1.9	3.0
Missing	%	17.0	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Following review and approval of the requested Medicaid variables from the South Carolina Revenue and Fiscal Affairs Office (RFA) in July of 2015, Urban sought approval from the Department of Health and Environmental Control to have birth certificate data linked and released to Urban. In August of 2015, DHEC approved the request and Urban received a fully executed data use agreement (DUA). In April of 2016, Urban received linked birth certificate and Medicaid data for 2014. In July of 2016 Urban sent an amendment to RFA and DHEC requesting more variables necessary to the propensity scoring of the originally received data, and the addition of additional research assistants. Once the amendment is approved, 2015 data is expected within 3 months.

Meridian Health Plan

CASE STUDY

Meridian Health Plan established a maternity care home model serving Medicaid-enrolled women in five counties including Jackson County, Michigan, the site visited in Year 1. As a health plan, Meridian is able to identify plan members early in their pregnancy for participation in Strong Start. A telephone care coordinator calls each pregnant woman to conduct a risk screening and provides telephonic care coordination and education throughout pregnancy and postpartum unless a woman opts out. A Community Health Outreach Worker (CHOW) conducts home visits with high risk women who cannot be reached by phone or who access the Emergency Room (ER) for prenatal care, linking them to a prenatal care provider and needed medical and social services.⁵ As of the Year 3 interviews, the project had officially ended and program staff had moved on to other roles; total enrollment was 1,810 – exceeding their goal of 1,800.

Highlights from the evaluation's third round of data collection include:

- The dissolution of a partnership (which occurred early in Year 3 of the grant) with a large local health system (Allegiance Health) resulted in the awardee cancelling plans to use Strong Start funds to hire a nurse educator in Allegiance's ER. The nurse educator's role was intended to provide education and refer women to a prenatal care provider if they did not yet have one. Instead, Meridian provided written education materials directly to provider offices to ensure that providers were giving consistent messaging and education across the Strong Start program. The CHOW was out on maternity leave during a portion of the year and key informants attributed a slight increase in the site's preterm birth rate to her absence and the fact that they only had a part time replacement.
- Also in 2015, Meridian started a new depression screening at intake (conducted in addition to the Strong Start evaluation's Intake form). Telephonic care coordinators refer pregnant women who score high on the screening to the CHOW who then connects them with a behavioral health provider in the Meridian network.
- Informants reported that several components of the program have had a notable impact on outcomes. For example, key informants felt that ensuring early access to prenatal care contributed to lower rates of preterm birth and low birthweight babies. Education provided by the telephone care coordinators and the Community Health Outreach Worker (CHOW) improved rates of breastfeeding, vaginal delivery, and family planning, and reduced health care costs when women better understood how to connect to OB care in lieu of seeking ER care. Early identification and treatment combatted the high rate of depression among Strong Start participants.
- Broader state efforts to promote breastfeeding and reduce C-section deliveries also likely influenced the rates for these key outcomes.

⁵ Meridian utilized two telephonic care coordinators and one CHOW.

- Enrollment was robust, exceeding enrollment goals for the project period. Strong enrollment can be attributed to the opt-out program design and to Meridian’s data-rich position as a health plan that enabled the awardee to identify women for Strong Start through multiple avenues including claims review, member services referral, and referrals from providers.
- Key informants felt their biggest struggle was in improving the rates of family planning, and Strong Start efforts (education provided by telephone care coordinators and the CHOW) were muted by providers who promoted their preferred method at the postpartum visit. For instance, some providers in the Meridian network prefer to prescribe birth control pills over long-acting reversible contraception (LARC), and so women who intended to choose a LARC are less likely to obtain it from those providers.
- Transportation remains a barrier to care, though Meridian reimbursement for travel costs to appointments has helped to address this issue. Childcare is less of a barrier.
- By obtaining Allegiance’s ER files, Bronson Health Systems’ delivery records, and notifications of potentially eligible patients from one obstetrics (OB) provider, Meridian was able to identify and get many women into prenatal care and Strong Start earlier. This sharing of information, as well as reaching out to providers and establishing a face-to-face contact, enabled Strong Start care coordinators to more effectively engage providers.
- Key informants learned that a well-qualified CHOW who was both a member of and integrated into the community she was serving played a huge role in the program’s ability to effectively engage hard-to-reach women and improve outcomes. They also learned that an enrollment strategy based on multiple data sources to identify pregnant members and an opt-out approach were critical for identifying women early and connecting them to prenatal care, thus improving the chance of positive outcomes.
- Telephonic care coordination will be sustained post-grant as part of the health plan’s larger care coordination efforts. The CHOW now has a more generalized role covering Medicaid and Medicare patients, not specific to maternity care. While keeping this position and expanding it to cover other types of patients is indicative of Meridian’s recognition of the value that a CHOW provides, the current lack of focus on maternity care creates uncertainty about whether Strong Start interventions will really be sustained and how well the needs of pregnant women will be addressed going forward.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Meridian Health Plan (Meridian) had Intake Forms for 97.3 percent of participants enrolled through Quarter 1 2016 (1,760 Intake Forms for 1,809 participants). In addition, Meridian submitted 1,169 Third Trimester Surveys, 1,184 Postpartum Surveys, and 440 Exit Forms. The tables below present data collected on Meridian’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	0	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1809	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1572	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1760	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	97.3	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	1169	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	74.4	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	1184	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	75.3	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	440	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	28.0	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	1760	6594	8559	22996	38149
Less than 18 years of age	%	2.6	2.8	6.8	5.6	5.4
18 through 34 years of age	%	92.4	87.6	83.3	84.0	84.5
35 years and older	%	4.5	9.0	7.8	9.3	8.9
Missing	%	0.5	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1760	6594	8559	22996	38149
Hispanic	%	3.3	24.8	39.1	26.7	29.1
Non-Hispanic white	%	83.4	53.6	12.5	22.9	25.9
Non-Hispanic black	%	11.2	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.6	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.2	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.7	3.6	2.9	1.5	2.1
Missing	%	0.6	0.8	2.4	1.6	1.6
Employed at Intake	N	1760	6594	8559	22996	38149
Yes	%	38.0	41.4	34.3	39.6	38.7
No	%	61.5	57.3	62.0	58.6	59.1
Missing	%	0.6	1.3	3.7	1.8	2.2
Education Level at Intake	N	1760	6594	8559	22996	38149
Less than high school	%	22.8	13.5	23.2	24.2	22.1
High school graduate or GED	%	62.6	52.7	46.7	50.3	49.9

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Bachelor's degree	%	3.1	10.9	3.3	2.8	4.3
Other college degree(s)	%	6.9	12.5	7.2	6.3	7.5
Missing	%	4.5	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1760	6594	8559	22996	38149
Married, living with spouse	%	24.9	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.2	1.7	2.0	2.0	1.9
Living with a partner	%	30.1	32.7	31.9	30.3	31.1
In a relationship but not living together	%	27.4	14.3	23.6	29.3	25.5
Not in a relationship right now	%	15.9	10.2	17.3	18.0	16.5
Missing	%	0.5	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1760	6594	8559	22996	38149
Yes	%	23.5	10.0	8.2	12.9	11.3
No	%	75.4	80.6	73.8	80.9	79.3
Missing	%	1.1	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1760	6594	8559	22996	38149
Yes	%	3.5	17.2	20.0	16.7	17.5
No	%	93.1	76.9	65.6	74.2	72.7
Missing*	%	3.4	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1760	6594	8559	22996	38149
Yes	%	7.7	21.0	24.3	22.2	22.5
No	%	86.6	68.8	54.0	66.9	64.3
Missing*	%	5.8	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1760	6594	8559	22996	38149
Yes	%	14.7	20.2	16.1	19.0	18.6
No	%	84.3	77.9	76.0	76.5	76.7
Missing*	%	1.1	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	265	2768	3214	8802	14784
<18 months	%	26.0	29.1	18.1	20.6	21.5
≥18 months	%	60.8	48.8	52.1	54.4	52.8
Missing	%	13.2	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	265	2768	3214	8802	14784
Yes	%	8.7	9.6	11.2	17.8	14.8
No	%	83.0	89.7	75.9	70.0	75.0
Not Known	%	4.5	0.3	9.4	8.4	7.1

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	3.8	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	265	2768	3214	8802	14784
Yes	%	7.2	1.8	8.3	13.9	10.4
No	%	87.5	97.1	64.0	69.1	73.3
Not Known	%	0.4	0.4	14.5	12.4	10.6
Missing	%	4.9	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	440	4747	6148	14056	24951
Yes	%	0.7	0.2	2.4	1.0	1.2
No	%	95.5	99.6	66.5	89.1	85.5
Not Known	%	2.7	0.0	26.8	6.8	10.4
Missing	%	1.1	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	440	4747	6148	14056	24951
Yes	%	2.3	0.3	3.6	2.0	2.1
No	%	94.1	99.4	78	88.4	87.9
Not Known	%	2.5	0.0	13.7	6.4	7.0
Missing	%	1.1	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	440	4747	6148	14056	24951
Yes	%	5.2	0.6	6.4	7.6	6.0
No	%	91.6	99.2	78.6	83.3	85.2
Not Known	%	2.0	0.0	10.5	6.1	6.0
Missing	%	1.1	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	440	4747	6148	14056	24951
Yes	%	5.0	2.4	5.3	5.7	5.0
No	%	84.1	97.2	75.2	76.0	79.8
Not Known	%	8.4	0.1	14.4	14.4	11.7
Missing	%	2.5	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	440	4747	6148	14056	24951
Yes	%	2.5	1.3	7.0	6.3	5.5
No	%	85.7	98.3	73.3	75.6	79.4
Not Known	%	9.1	0.1	14.5	14.1	11.5
Missing	%	2.7	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	414	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	10.2	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	11.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.1	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	331	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	4.3	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	4.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	109	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	10.0	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	10.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	35	355	619	2185	3159
Yes	%	2.9	2.0	7.6	14.6	11.8
No	%	57.1	87.3	60.6	55.9	60.4
Not known	%	34.3	0.0	15.8	18.0	15.6
Missing	%	5.7	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	367	4686	4678	10794	20158
Number of Babies Born	N	369	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	402	4667	5728	12895	23290
Yes	%	19.7	15.8	24.9	19.0	19.8
No	%	38.3	82.4	39.9	36.5	46.5
Not known	%	37.6	0.6	25.3	31.1	23.6
Missing	%	4.5	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	440	4747	6148	14056	24951
Vaginal delivery	%	52.0	86.6	53.9	51.8	59.0
C-Section	%	35.0	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	13.0	0.9	23.7	23.0	19.0

Data Element	N, Mean, Median, or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	76.4	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	28	226	672	1921	2819
VBAC	%	14.3	31.4	22.9	16.5	19.2
Repeat C-Section	%	85.7	68.6	77.1	83.5	80.8
Scheduled C-Section	N	154	597	1375	3533	5505
Yes	%	13.6	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	369	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	36	242	512	1621	2375
	%	9.8	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	319	4432	3604	8382	16418
	%	86.4	94.4	76.4	76.2	80.4
Missing	N	14	21	604	1003	1628
	%	3.8	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	369	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	26	178	468	1484	2130
	%	7.0	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	277	4406	3999	8763	17168
	%	75.1	93.8	84.7	79.6	84.1
Missing	N	66	111	253	759	1123
	%	17.9	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	1184	3407	3983	10659	18049
Yes	%	73.4	85.4	62.8	62.6	66.9
No	%	25.8	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.0	0.4	5.6	1.1	2.0
Missing	%	0.8	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	100.3	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	1184	3407	3983	10659	18049

Data Element	N or %	MERIDIAN (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	70.5	69.5	61.6	71.1	68.7
No	%	27.5	19.7	11.6	12.6	13.7
Unsure	%	1.1	2.8	6.2	1.9	3.0
Missing	%	0.8	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

After submitting our initial request, including a data use and non-disclosure agreement, in June 2015 to access Medicaid and birth certificate data from the Michigan Department of Health and Human Services (MDHHS), we were asked to submit an IRB application. Urban submitted the IRB application in April 2016, and received approval in August 2016. As of September 2016, MDHHS and Urban are in the process of signing the data use and non-disclosure agreement. MDHHS will link the Medicaid and birth certificate data, and transfer a linked file to Urban. Urban expects to receive Medicaid and birth certificate data by December 2016.

Mississippi Primary Health Care Association

CASE STUDY

The Mississippi Primary Health Care Association (MPHCA) administers the Strong Start award in Mississippi, which was implemented across eight community health centers (CHCs). One site (Pearl) ended enrollment at the end of the second year of implementation. The remaining seven sites concluded their enrollment by September 2015, and all enrollees were expected to have delivered their babies and completed their follow-up care by July 2016. The key features of Strong Start enhancements were care coordination and patient tracking, home visits, dental care, nutritional support, social work services, behavioral health services, and child care. Sites offered varying combinations of enhancements, but all provided home visits, care coordination, and dental services. Strong Start award-supported staff and nurses provided most of the Strong Start enhancements, including clinical encounters at every visit and education. However, the care coordinators provided the tracking and follow-up with patients. Key informants reported that the program met its revised enrollment goals (2,620 according to the Recipient Improvement Plan developed in Year 2), and 75 to 100 enrollees remained in Strong Start at the time of the Year 3 interviews.

Highlights from the evaluation's third round of data collection include:

- Key informants reported that preterm delivery and low birthweight outcomes improved compared to pre-Strong Start experience. Better outcomes were attributed to women entering care earlier as a result of Strong Start community outreach and greater effort by clinic staff to identify and recruit pregnant women in a timely manner.
- Contraception was emphasized both in the third trimester and the postpartum visit clinic-wide and received equal emphasis among Strong Start and non-Strong Start enrolled patients. Key informants reported that birth spacing improved and that they saw fewer “boomerang babies” or repeat births with short inter-pregnancy intervals.
- In spite of a general trend of women entering care earlier, one site (Pearl) reported that 30 percent of their maternity patients enrolled in Strong Start in their third trimesters.
- Transportation and child care remained barriers to care, except at one site (Laurel) where child care is provided. Key informants believe Medicaid-funded transportation services have improved somewhat but remain a frustrating obstacle to access. Communication barriers persist as a result of frequent address and cell phone changes; texting and cell phone contact remain the most reliable way to reach out to enrollees. Mail is also used.
- Both sites included in the Year 3 case study provided continuity of care, but provider attrition has made this more difficult. Key informants reported that providers were extremely supportive of the program and worked closely with it to make referrals and follow-up with patients.

- Key informants reported that Strong Start approaches to education and multiple contacts per visit with a patient “spilled-over” to influence the care provided by non-Strong staff to patients not enrolled in Strong Start, an effect that may confound the outcomes analysis unless the comparison groups come from practices without any Strong Start presence.
- Key informants believe that more mechanisms for supporting prenatal care access should be deployed, including provision of cell phones so that women can maintain the same contact information, transportation services provided by the clinic itself, and child care at every site to improve retention and compliance. Lack of funding has been a barrier to implementing these recommendations.
- Key informants also believe that most of the elements of Strong Start can be sustained through other programs, notably a case management program called the Perinatal High-Risk Management/Infant Services System (PHRM/ISS, a case management program for high-risk pregnant women and infants) although they expect to lose staffing positions with the end of Strong Start.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Mississippi Primary Health Care Association (MPHCA) had Intake Forms for 85.9 percent of participants enrolled through Quarter 1 2016 (2,258 Intake Forms for 2,628 participants). In addition, MPHCA submitted 1,108 Third Trimester Surveys, 1,042 Postpartum Surveys, and 2,178 Exit Forms. The tables below present data collected on MPHCA’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	0	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	2628	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1557	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	2258	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	85.9	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	1108	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	71.2	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	1042	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	66.9	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	2178	4747	6148	14056	24951

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women delivered	%	139.9	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	2258	6594	8559	22996	38149
Less than 18 years of age	%	8.6	2.8	6.8	5.6	5.4
18 through 34 years of age	%	86.1	87.6	83.3	84.0	84.5
35 years and older	%	5.3	9.0	7.8	9.3	8.9
Missing	%	0.0	0.6	2.1	1.1	1.2
Race and Ethnicity	N	2258	6594	8559	22996	38149
Hispanic	%	1.2	24.8	39.1	26.7	29.1
Non-Hispanic white	%	8.8	53.6	12.5	22.9	25.9
Non-Hispanic black	%	87.7	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.1	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.2	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.6	3.6	2.9	1.5	2.1
Missing	%	1.5	0.8	2.4	1.6	1.6
Employed at Intake	N	2258	6594	8559	22996	38149
Yes	%	35.0	41.4	34.3	39.6	38.7
No	%	63.2	57.3	62.0	58.6	59.1
Missing	%	1.8	1.3	3.7	1.8	2.2
Education Level at Intake	N	2258	6594	8559	22996	38149
Less than high school	%	16.9	13.5	23.2	24.2	22.1
High school graduate or GED	%	53.2	52.7	46.7	50.3	49.9
Bachelor’s degree	%	1.3	10.9	3.3	2.8	4.3
Other college degree(s)	%	6.8	12.5	7.2	6.3	7.5
Missing	%	21.8	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	2258	6594	8559	22996	38149
Married, living with spouse	%	8.1	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.2	1.7	2.0	2.0	1.9
Living with a partner	%	18.6	32.7	31.9	30.3	31.1
In a relationship but not living together	%	41.7	14.3	23.6	29.3	25.5
Not in a relationship right now	%	24.4	10.2	17.3	18.0	16.5
Missing	%	5.2	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	2258	6594	8559	22996	38149
Yes	%	14.7	10.0	8.2	12.9	11.3
No	%	65.0	80.6	73.8	80.9	79.3
Missing	%	20.3	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	2258	6594	8559	22996	38149
Yes	%	14.7	17.2	20.0	16.7	17.5
No	%	78.6	76.9	65.6	74.2	72.7

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing*	%	6.8	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	2258	6594	8559	22996	38149
Yes	%	28.7	21.0	24.3	22.2	22.5
No	%	58.9	68.8	54.0	66.9	64.3
Missing*	%	12.4	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	2258	6594	8559	22996	38149
Yes	%	15.1	20.2	16.1	19.0	18.6
No	%	83.3	77.9	76.0	76.5	76.7
Missing*	%	1.7	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	1317	2768	3214	8802	14784
<18 months	%	21.7	29.1	18.1	20.6	21.5
≥18 months	%	43.7	48.8	52.1	54.4	52.8
Missing	%	34.5	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	1317	2768	3214	8802	14784
Yes	%	12.8	9.6	11.2	17.8	14.8
No	%	43.5	89.7	75.9	70.0	75.0
Not Known	%	35.2	0.3	9.4	8.4	7.1
Missing	%	8.6	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	1317	2768	3214	8802	14784
Yes	%	12.4	1.8	8.3	13.9	10.4
No	%	43.3	97.1	64.0	69.1	73.3
Not Known	%	35.6	0.4	14.5	12.4	10.6
Missing	%	8.7	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	2178	4747	6148	14056	24951
Yes	%	1.1	0.2	2.4	1.0	1.2
No	%	65.3	99.6	66.5	89.1	85.5
Not Known	%	28.0	0.0	26.8	6.8	10.4
Missing	%	5.6	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	2178	4747	6148	14056	24951
Yes	%	0.6	0.3	3.6	2.0	2.1
No	%	65.5	99.4	78	88.4	87.9
Not Known	%	27.9	0.0	13.7	6.4	7.0
Missing	%	6.0	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	2178	4747	6148	14056	24951

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	9.7	0.6	6.4	7.6	6.0
No	%	58.8	99.2	78.6	83.3	85.2
Not Known	%	25.9	0.0	10.5	6.1	6.0
Missing	%	5.6	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	2178	4747	6148	14056	24951
Yes	%	3.3	2.4	5.3	5.7	5.0
No	%	62.5	97.2	75.2	76.0	79.8
Not Known	%	30.3	0.1	14.4	14.4	11.7
Missing	%	3.8	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	2178	4747	6148	14056	24951
Yes	%	10.5	1.3	7.0	6.3	5.5
No	%	59.0	98.3	73.3	75.6	79.4
Not Known	%	26.5	0.1	14.5	14.1	11.5
Missing	%	4.0	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	1851	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	9.2	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	10.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	1189	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	2.8	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	2.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	1181	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	7.8	1.5	2.2	4.4	3.5

Data Element	N, Mean, Median, or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Median number of enhanced encounters per participant	Median	2.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	333	355	619	2185	3159
Yes	%	0.3	2.0	7.6	14.6	11.8
No	%	33.9	87.3	60.6	55.9	60.4
Not known	%	55.0	0.0	15.8	18.0	15.6
Missing	%	10.8	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	1652	4686	4678	10794	20158
Number of Babies Born	N	1686	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	2018	4667	5728	12895	23290
Yes	%	5.8	15.8	24.9	19.0	19.8
No	%	21.9	82.4	39.9	36.5	46.5
Not known	%	59.8	0.6	25.3	31.1	23.6
Missing	%	12.5	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	2178	4747	6148	14056	24951
Vaginal delivery	%	47.4	86.6	53.9	51.8	59.0
C-Section	%	26.9	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	25.7	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	89.7	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	244	226	672	1921	2819
VBAC	%	6.1	31.4	22.9	16.5	19.2
Repeat C-Section	%	93.9	68.6	77.1	83.5	80.8
Scheduled C-Section	N	586	597	1375	3533	5505
Yes	%	27.3	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	1686	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	306	242	512	1621	2375
	%	18.1	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	1233	4432	3604	8382	16418
	%	73.1	94.4	76.4	76.2	80.4
Missing	N	147	21	604	1003	1628
	%	8.7	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	1686	4695	4720	11006	20421

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Low Birth Weight, <2500 grams	N	239	178	468	1484	2130
	%	14.2	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	1256	4406	3999	8763	17168
	%	74.5	93.8	84.7	79.6	84.1
Missing	N	191	111	253	759	1123
	%	11.3	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	MISSISSIPPI (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	1042	3407	3983	10659	18049
Yes	%	46.3	85.4	62.8	62.6	66.9
No	%	37.6	7.1	11.7	22.9	17.5
Prefer not to answer	%	1.6	0.4	5.6	1.1	2.0
Missing	%	14.5	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	102.4	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	1042	3407	3983	10659	18049
Yes	%	70.8	69.5	61.6	71.1	68.7
No	%	12.8	19.7	11.6	12.6	13.7
Unsure	%	2.2	2.8	6.2	1.9	3.0
Missing	%	14.2	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Urban received a fully executed Business Associate Agreement (BAA) in January 2016 from the Mississippi Department of Health (MSDH) to access birth certificate data. In August 2015, the Mississippi Division of Medicaid (DOM) expressed support for participating in the evaluation; however, in November 2015, our contact notified us that they no longer had the resources to participate because of numerous competing priorities. After several months and numerous failed attempts to communicate with our contact, including sending the Letter of Support for Strong Start from the Director of the Division of Medicaid, we decided to leverage an existing relationship between a colleague at HMA—who was a former Medicaid Director himself—and the Mississippi Medicaid Director. Our HMA colleague was immediately successful in reaching the state official in May 2016, and set up and facilitated a conference call between him and the evaluation team. He was also successful at persuading the director to share the agency’s data with the evaluation team, and learned that Medicaid has an existing agreement with MSDH to share its data. Unfortunately, however, the team is still waiting for a formal approval letter and data sharing agreement. Once we receive approval from DOM, MSDH will link Medicaid and birth certificate data, and transfer a linked data file.

Oklahoma Health Care Authority

CASE STUDY

Oklahoma Health Care Authority (OKHCA) is Oklahoma's State Medicaid Agency located in Oklahoma City. OKHCA administers both "SoonerCare" (Oklahoma's Medicaid program), which extends full-scope coverage to pregnant women with incomes up to 138 percent of the Federal Poverty Level (FPL), as well as "Soon-to-be-Sooners", a program that provides limited-scope coverage to pregnant women with incomes up to 185 percent of FPL who are not eligible for SoonerCare. This group includes women who do not meet Medicaid's citizenship requirements (e.g. undocumented residents) as well as women with income levels exceeding SoonerCare requirements. Soon-to-be-Sooners is funded under the Children's Health Insurance Program (CHIP)'s "unborn child" option.

Initially OKHCA operated three Strong Start sites that each adopted the group prenatal care model, using a modified version of Centering Healthcare Institute's CenteringPregnancy (Centering) approach. Since the beginning of the project, however, one site has dropped out and two new sites have joined, for a total of four participating sites at the time of Year 3 data collection. Three sites of the four sites have shifted to offering a maternity care model instead of group prenatal care. The fourth is still implementing group prenatal care.

Highlights from the third round of case study data collection include:

- Two federally qualified health centers (FQHCs) - Variety Care Center (VCC) and the Mary Mahoney Memorial Medical Center (Mary Mahoney) - have started operations as new Strong Start sites. Originally, both sites intended to implement the group prenatal care model, but both elected to try the maternity care model instead, since other sites were having more success with this model.
- One of the original sites, the Oklahoma City Indian Clinic (OKCIC), transitioned from the group prenatal care approach to the maternity care home model in December 2015. They faced significant challenges implementing the group prenatal care model, in part because of transportation barriers preventing participants from attending regularly.
- The three sites implementing the maternity care home model are using a similar approach: a face-to-face enrollment session by a care coordinator (primarily RNs), followed by at least three contacts over the course of the pregnancy (either in-person or by phone), and one post-partum contact. Three sites are also offering optional classes for enrollees. Care coordinators also provide referrals for social services like the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Low Income Home Energy Assistance Program (LIHEAP), and the Supplemental Nutrition Assistance Program (SNAP).
- Beginning in Year 3, OKHCA added a telephonic care coordination component to their Strong Start intervention. Under this program, the Tulsa Department of Health identifies and contacts pregnant Medicaid-beneficiaries and enrolls interested individuals. Then, one of two OKHCA staff reaches out by phone to provide care coordination services. They report that the content of phone conversations and assistance provided are dictated by participant needs, but include:

locating nearby WIC offices, breastfeeding education, and referrals for behavioral health services. Enrollment in the telephonic care coordination program is currently capped at 200, reflecting staffing constraints at OKHCA (only two individuals are providing the telephonic care coordination services).

- Since shifting to an opt-out enrollment strategy, all sites have experienced increased enrollment rates, and key informants believe they will be close to meeting revised enrollment goals by the end of the program.
- Key informants thought Strong Start has the potential to improve clinical outcomes and reduce costs to the Medicaid program, but were not yet sure what impact the maternity care home model might be having. Informants agreed that although it was well liked, the group care approach that was previously being implemented never had enough patient engagement or support from prenatal care providers to make a significant impact. One site was still implementing group care, but had faced significant enrollment challenges because of a flood at the clinic that displaced the group care space.
- Informants report that providers are generally supportive of Strong Start, but do not have a significant role in daily operations. With a few exceptions (e.g., a provider champion who teaches optional classes), providers do not engage with the Strong Start model directly, which is instead managed and implemented by care coordinators.
- Key informants were not optimistic that state-based funding would become available to support long-term sustainability of Strong Start, and reported they were investigating other grant opportunities. Site staff reported they would like to sustain the program, but had not identified funding sources at the time of our visit.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Oklahoma Health Care Authority (OKHCA) had Intake Forms for 98.4 percent of participants enrolled through Quarter 1 2016 (617 Intake Forms for 627 participants). In addition, OKHCA submitted 110 Third Trimester Surveys, 113 Postpartum Surveys, and 176 Exit Forms. The tables below present data collected on OKHCA's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	297	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	627	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	219	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	617	6594	8559	22996	38149

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	98.4	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	110	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	50.2	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	113	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	51.6	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	176	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	80.4	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	617	6594	8559	22996	38149
Less than 18 years of age	%	7.1	2.8	6.8	5.6	5.4
18 through 34 years of age	%	82.7	87.6	83.3	84.0	84.5
35 years and older	%	9.9	9.0	7.8	9.3	8.9
Missing	%	0.3	0.6	2.1	1.1	1.2
Race and Ethnicity	N	617	6594	8559	22996	38149
Hispanic	%	44.9	24.8	39.1	26.7	29.1
Non-Hispanic white	%	15.4	53.6	12.5	22.9	25.9
Non-Hispanic black	%	6.6	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.6	0.9	1.1	1.5	1.3
Non-Hispanic other	%	20.9	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	10.7	3.6	2.9	1.5	2.1
Missing	%	0.8	0.8	2.4	1.6	1.6
Employed at Intake	N	617	6594	8559	22996	38149
Yes	%	40.5	41.4	34.3	39.6	38.7
No	%	58.5	57.3	62.0	58.6	59.1
Missing	%	1.0	1.3	3.7	1.8	2.2
Education Level at Intake	N	617	6594	8559	22996	38149
Less than high school	%	30.1	13.5	23.2	24.2	22.1
High school graduate or GED	%	40.0	52.7	46.7	50.3	49.9
Bachelor's degree	%	3.1	10.9	3.3	2.8	4.3
Other college degree(s)	%	7.6	12.5	7.2	6.3	7.5
Missing	%	19.1	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	617	6594	8559	22996	38149
Married, living with spouse	%	34.5	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.4	1.7	2.0	2.0	1.9
Living with a partner	%	33.1	32.7	31.9	30.3	31.1

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
In a relationship but not living together	%	14.4	14.3	23.6	29.3	25.5
Not in a relationship right now	%	13.6	10.2	17.3	18	16.5
Missing	%	1.9	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	617	6594	8559	22996	38149
Yes	%	9.9	10.0	8.2	12.9	11.3
No	%	84.0	80.6	73.8	80.9	79.3
Missing	%	6.2	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	617	6594	8559	22996	38149
Yes	%	20.1	17.2	20.0	16.7	17.5
No	%	74.2	76.9	65.6	74.2	72.7
Missing*	%	5.7	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	617	6594	8559	22996	38149
Yes	%	16.5	21.0	24.3	22.2	22.5
No	%	69.2	68.8	54.0	66.9	64.3
Missing*	%	14.2	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	617	6594	8559	22996	38149
Yes	%	18.2	20.2	16.1	19.0	18.6
No	%	80.9	77.9	76	76.5	76.7
Missing*	%	0.9	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	88	2768	3214	8802	14784
<18 months	%	33.0	29.1	18.1	20.6	21.5
≥18 months	%	45.5	48.8	52.1	54.4	52.8
Missing	%	21.6	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	88	2768	3214	8802	14784
Yes	%	13.6	9.6	11.2	17.8	14.8
No	%	61.4	89.7	75.9	70.0	75.0
Not Known	%	18.2	0.3	9.4	8.4	7.1
Missing	%	6.8	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	88	2768	3214	8802	14784
Yes	%	1.1	1.8	8.3	13.9	10.4
No	%	44.3	97.1	64.0	69.1	73.3
Not Known	%	42.0	0.4	14.5	12.4	10.6
Missing	%	12.5	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	176	4747	6148	14056	24951

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	0.6	0.2	2.4	1.0	1.2
No	%	73.3	99.6	66.5	89.1	85.5
Not Known	%	15.3	0.0	26.8	6.8	10.4
Missing	%	10.8	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	176	4747	6148	14056	24951
Yes	%	0.6	0.3	3.6	2.0	2.1
No	%	73.3	99.4	78	88.4	87.9
Not Known	%	15.9	0.0	13.7	6.4	7.0
Missing	%	10.2	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	176	4747	6148	14056	24951
Yes	%	0.6	0.6	6.4	7.6	6.0
No	%	73.9	99.2	78.6	83.3	85.2
Not Known	%	14.8	0.0	10.5	6.1	6.0
Missing	%	10.8	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	176	4747	6148	14056	24951
Yes	%	3.4	2.4	5.3	5.7	5.0
No	%	63.1	97.2	75.2	76.0	79.8
Not Known	%	21.6	0.1	14.4	14.4	11.7
Missing	%	11.9	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	176	4747	6148	14056	24951
Yes	%	1.1	1.3	7.0	6.3	5.5
No	%	65.9	98.3	73.3	75.6	79.4
Not Known	%	21.0	0.1	14.5	14.1	11.5
Missing	%	11.9	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	159	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	2.3	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	0.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	3.0	0.2	5.0	0.1	1.2

Data Element	N, Mean, Median, or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Median number of group prenatal visits per participant	Median	1.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	33	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	5.2	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	6	3	2	3	3
Total Number of Exit Forms with Valid Enhanced Services Information	N	-	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	-	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	-	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	17	355	619	2185	3159
Yes	%	0.0	2.0	7.6	14.6	11.8
No	%	70.6	87.3	60.6	55.9	60.4
Not known	%	5.9	0.0	15.8	18.0	15.6
Missing	%	23.5	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	134	4686	4678	10794	20158
Number of Babies Born	N	134	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	168	4667	5728	12895	23290
Yes	%	16.1	15.8	24.9	19.0	19.8
No	%	50.6	82.4	39.9	36.5	46.5
Not known	%	14.3	0.6	25.3	31.1	23.6
Missing	%	19.0	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	176	4747	6148	14056	24951
Vaginal delivery	%	58.0	86.6	53.9	51.8	59.0
C-Section	%	19.3	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	22.7	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	84.3	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	-	226	672	1921	2819
VBAC	%	-	31.4	22.9	16.5	19.2
Repeat C-Section	%	-	68.6	77.1	83.5	80.8
Scheduled C-Section	N	34	597	1375	3533	5505
Yes	%	23.5	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	134	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	-	242	512	1621	2375
	%	-	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	119	4432	3604	8382	16418
	%	88.8	94.4	76.4	76.2	80.4
Missing	N	-	21	604	1003	1628
	%	-	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	134	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	-	178	468	1484	2130
	%	-	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	119	4406	3999	8763	17168
	%	88.8	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	OKLAHOMA (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	113	3407	3983	10659	18049
Yes	%	61.9	85.4	62.8	62.6	66.9
No	%	11.5	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.0	0.4	5.6	1.1	2.0
Missing	%	26.5	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	96.9	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	113	3407	3983	10659	18049
Yes	%	57.5	69.5	61.6	71.1	68.7
No	%	13.3	19.7	11.6	12.6	13.7
Unsure	%	2.7	2.8	6.2	1.9	3.0
Missing	%	26.5	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

The evaluation team is not seeking data in Oklahoma because total Strong Start enrollment in the state is too low to warrant the large investment of time and resources required to obtain data

Providence Health Foundation of Providence Hospital

CASE STUDY

The Center for Perinatal Advocacy of the Providence Health Foundation at Providence Hospital (Providence), is operating five Strong start sites in Washington D.C. Providence is the only awardee implementing all three models of enhanced prenatal care supported by Strong Start. The participating sites include three maternity care homes (Unity Healthcare, Mary's Center for Maternal and Child Care, and Howard University Hospital), a birth center (Community of Hope Family Health and Birth Center) and a group prenatal care site (Providence Hospital).

Highlights from the third round of data collection include:

- At the time of the Year 3 site visit (June 2016), program staff reported that they had enrolled about 2,900 women and needed to enroll roughly 800 more to reach Providence's ultimate enrollment target of 3,705. Some sites thought it could be challenging to achieve these enrollment targets in the short time left, as the program expects all enrolled patients to deliver their babies by November 2016.
- There were no major changes to program structure or services at the Providence sites. Smaller changes occurred at various sites. At the Mary's Center an additional supervisor was hired to oversee work done by the Family Support Workers (FSWs) and to streamline data collection efforts, and at the Community of Hope Birth Center a new perinatal navigator was hired in January 2016. The birth center, which had to cease deliveries in November 2014 because of a shortage of qualified nurse midwives, expects to resume deliveries at the site in August 2016 having once again acquired sufficient certified nurse midwives to support delivery services. Doulas were a popular addition funded by Strong start at the birth center, but many left the program because of inadequate reimbursement.
- Key informants reported a number of positive physical and psychosocial health outcomes associated with Strong Start. Across sites, informants were satisfied with rates of preterm birth (9 percent) and low birthweight (10 percent) and felt that given the population they are serving, these rates represent an improvement. Though some were unsure of whether to attribute improvements directly to Strong Start, most agreed that the program's emphasis on education, support for breastfeeding, and overall access to care are likely contributing to better maternal and newborn outcomes.
- Key informants also suggested that breastfeeding rates are up and that participants' access to family planning methods has improved across all sites. Partner hospitals' active participation in

the Baby-Friendly initiative was also pointed to as an important factor that has positively impacted breastfeeding outcomes in the DC area.

- The use of 17P is inconsistent across the sites, which some program staff felt might be related to lack of provider awareness.
- Lack of reliable and efficient transportation for participants is a common barrier across sites but lack of childcare was not a problem at any site, as all allow participants to bring children to health care appointments or group sessions.
- Overall, provider buy-in to and support of Strong Start was described as quite good and providers and care coordinators have productive relationships. An ongoing challenge involves getting busy providers, who usually meet patients first, to refer potentially eligible patients to the coordinators for enrollment in Strong Start.
- Focus group participants, in general, found Strong Start very helpful and had positive feedback about their care coordinators and providers. They reported few barriers to care, and were particularly appreciative of the follow-up phone calls they received at home from care managers and the attention given to their individual needs. An overwhelming majority of participants acknowledged the benefits of timely referrals to social service supports and community resources, especially related to housing and supplies for newborns.
- Program staff believe only two of the five sites may be able to sustain the initiatives they launched under Strong Start once the award period ends. At Providence, group prenatal care will continue (as it has since 2007, prior to Strong Start) and staff to support the model are included in the hospital's budget. At the Community of Hope Birth Center, managers plan to also continue to support the services of the perinatal navigator through grant funding they expect to receive from the D.C. Department of Health. Though Providence's maternity care home models provided the highest enrollment to the program, both Unity Healthcare and Howard University Hospital expect to stop providing care coordination services at the end of the grant period; neither of these sites had care coordination (or similar) staff in place prior to implementing Strong Start. Mary's Center is also uncertain of whether and how it will incorporate elements of the maternity care home model in its regular delivery of care, but expected to keep its FSWs (who existed prior to the award) in place.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Providence Health Foundation at Providence Hospital (Providence) had Intake Forms for 103.3 percent of participants enrolled through Quarter 1 2016 (2,713 Intake Forms for 2,626 participants). In addition, Providence submitted 1,726 Third Trimester Surveys, 1,439 Postpartum Surveys, and 1,813 Exit Forms. The tables below present data collected on Providence's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	285	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	2626	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1074	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	2713	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	103.3	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	1726	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	160.7	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	1439	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	134.0	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	1813	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	168.8	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	2713	6594	8559	22996	38149
Less than 18 years of age	%	5.5	2.8	6.8	5.6	5.4
18 through 34 years of age	%	84.0	87.6	83.3	84.0	84.5
35 years and older	%	9.7	9.0	7.8	9.3	8.9
Missing	%	0.9	0.6	2.1	1.1	1.2
Race and Ethnicity	N	2713	6594	8559	22996	38149
Hispanic	%	27.3	24.8	39.1	26.7	29.1
Non-Hispanic white	%	1.3	53.6	12.5	22.9	25.9
Non-Hispanic black	%	65.8	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.8	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.7	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	1.7	3.6	2.9	1.5	2.1
Missing	%	2.3	0.8	2.4	1.6	1.6
Employed at Intake	N	2713	6594	8559	22996	38149
Yes	%	41.3	41.4	34.3	39.6	38.7
No	%	57.4	57.3	62.0	58.6	59.1
Missing	%	1.3	1.3	3.7	1.8	2.2
Education Level at Intake	N	2713	6594	8559	22996	38149
Less than high school	%	25.0	13.5	23.2	24.2	22.1
High school graduate or GED	%	49.4	52.7	46.7	50.3	49.9

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Bachelor's degree	%	3.9	10.9	3.3	2.8	4.3
Other college degree(s)	%	5.2	12.5	7.2	6.3	7.5
Missing	%	16.5	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	2713	6594	8559	22996	38149
Married, living with spouse	%	14.4	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.2	1.7	2.0	2.0	1.9
Living with a partner	%	27.8	32.7	31.9	30.3	31.1
In a relationship but not living together	%	31.4	14.3	23.6	29.3	25.5
Not in a relationship right now	%	21.6	10.2	17.3	18	16.5
Missing	%	2.7	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	2713	6594	8559	22996	38149
Yes	%	6.9	10.0	8.2	12.9	11.3
No	%	84.7	80.6	73.8	80.9	79.3
Missing	%	8.5	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	2713	6594	8559	22996	38149
Yes	%	25.6	17.2	20.0	16.7	17.5
No	%	66.6	76.9	65.6	74.2	72.7
Missing*	%	7.8	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	2713	6594	8559	22996	38149
Yes	%	26.0	21.0	24.3	22.2	22.5
No	%	57.9	68.8	54.0	66.9	64.3
Missing*	%	16.0	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	2713	6594	8559	22996	38149
Yes	%	17.7	20.2	16.1	19.0	18.6
No	%	79.7	77.9	76	76.5	76.7
Missing*	%	2.6	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	1181	2768	3214	8802	14784
<18 months	%	17.3	29.1	18.1	20.6	21.5
≥18 months	%	65.6	48.8	52.1	54.4	52.8
Missing	%	17.1	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	1181	2768	3214	8802	14784
Yes	%	9.4	9.6	11.2	17.8	14.8
No	%	76.7	89.7	75.9	70.0	75.0
Not Known	%	5.5	0.3	9.4	8.4	7.1

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	8.4	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	1181	2768	3214	8802	14784
Yes	%	7.9	1.8	8.3	13.9	10.4
No	%	75.6	97.1	64.0	69.1	73.3
Not Known	%	8.0	0.4	14.5	12.4	10.6
Missing	%	8.6	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1813	4747	6148	14056	24951
Yes	%	0.4	0.2	2.4	1.0	1.2
No	%	93.1	99.6	66.5	89.1	85.5
Not Known	%	3.3	0.0	26.8	6.8	10.4
Missing	%	3.1	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1813	4747	6148	14056	24951
Yes	%	1.3	0.3	3.6	2.0	2.1
No	%	92.3	99.4	78	88.4	87.9
Not Known	%	3.3	0.0	13.7	6.4	7.0
Missing	%	3.1	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	1813	4747	6148	14056	24951
Yes	%	3.8	0.6	6.4	7.6	6.0
No	%	90.1	99.2	78.6	83.3	85.2
Not Known	%	3.1	0.0	10.5	6.1	6.0
Missing	%	3.0	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1813	4747	6148	14056	24951
Yes	%	3.7	2.4	5.3	5.7	5.0
No	%	84.7	97.2	75.2	76.0	79.8
Not Known	%	7.7	0.1	14.4	14.4	11.7
Missing	%	3.9	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	1813	4747	6148	14056	24951
Yes	%	3.0	1.3	7.0	6.3	5.5
No	%	85.3	98.3	73.3	75.6	79.4
Not Known	%	7.9	0.1	14.5	14.1	11.5
Missing	%	3.9	0.3	5.1	4.0	3.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	1665	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	7.9	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	8.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.4	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	1596	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	4.7	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	3.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	386	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	3.9	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	2.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	173	355	619	2185	3159
Yes	%	5.2	2.0	7.6	14.6	11.8
No	%	41.6	87.3	60.6	55.9	60.4
Not known	%	30.6	0.0	15.8	18.0	15.6
Missing	%	22.5	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	1410	4686	4678	10794	20158
Number of Babies Born	N	1428	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	1718	4667	5728	12895	23290
Yes	%	8.3	15.8	24.9	19.0	19.8
No	%	27.5	82.4	39.9	36.5	46.5
Not known	%	50.9	0.6	25.3	31.1	23.6
Missing	%	13.4	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	1813	4747	6148	14056	24951
Vaginal delivery	%	54.5	86.6	53.9	51.8	59.0
C-Section	%	21.5	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	1.7	0.0	0.0	0.3	0.2
Missing	%	22.4	0.9	23.7	23.0	19.0

Data Element	N, Mean, Median, or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	84.4	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	212	226	672	1921	2819
VBAC	%	24.1	31.4	22.9	16.5	19.2
Repeat C-Section	%	75.9	68.6	77.1	83.5	80.8
Scheduled C-Section	N	419	597	1375	3533	5505
Yes	%	22.7	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	1428	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	136	242	512	1621	2375
	%	9.5	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	1267	4432	3604	8382	16418
	%	88.7	94.4	76.4	76.2	80.4
Missing	N	25	21	604	1003	1628
	%	1.8	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	1428	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	141	178	468	1484	2130
	%	9.9	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	1248	4406	3999	8763	17168
	%	87.4	93.8	84.7	79.6	84.1
Missing	N	39	111	253	759	1123
	%	2.7	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	1439	3407	3983	10659	18049
Yes	%	74.6	85.4	62.8	62.6	66.9
No	%	13.6	7.1	11.7	22.9	17.5
Prefer not to answer	%	4.9	0.4	5.6	1.1	2.0
Missing	%	6.9	7.1	19.9	13.4	13.6

Data Element	N or %	PROVIDENCE (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	102.1	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	1439	3407	3983	10659	18049
Yes	%	71.0	69.5	61.6	71.1	68.7
No	%	15.4	19.7	11.6	12.6	13.7
Unsure	%	5.5	2.8	6.2	1.9	3.0
Missing	%	8.1	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

In April 2015, the evaluation team spoke with the Department of Health Care Finance (DHCF) to discuss their willingness to and process for releasing Medicaid data to Urban for the impact analysis of the Strong Start evaluation. State officials were receptive to the project and said that they would develop a Memorandum of Understanding (MOU) between Urban and the Department of Health Care Finance. However, despite regular emails and phone calls, DHCF has yet to share an MOU with Urban; although they say that they are working on it. DHCF has also offered to merge the Medicaid and birth certificate data, and send a linked file to Urban. Urban received a fully executed data use agreement in October 2015 from the Department of Health (DOH) to access birth certificate data. In June 2016, DOH provided birth certificate data on live births in 2014 to Urban.

Signature Medical Group

CASE STUDY

Signature Medical Group (Signature) is a large, physician-owned, multi-specialty group that serves the St. Louis and Kansas City areas and parts of southwestern Missouri. Much of Signature's patient population is urban and suburban; however there are practices in rural parts of the region. Signature is implementing the maternity care home model at nine of its OB/GYN practices. As of Quarter 3 2015, 1,488 patients were enrolled in Signature's Strong Start program. Overall, key informants reported that the Strong Start program is going very well, with notable improvements in office functioning and health outcomes. Focus group participants reported that the Strong Start program makes a big difference in their lives, helping them to overcome barriers to care, engage in needed counseling, and link up with community partners and resources.

Highlights from the evaluation's third round of data collection include:

- The major change in Signature's Strong Start program since Year 2 of the evaluation is that enrollment in the program has more than doubled. This is primarily because of Signature adding a new site in Kansas City and adding a Prenatal Care Coordinator (PCC) in Kansas City. The PCC provides face-to-face support services versus the telephone-only support participants received prior. While after Quarter 4 2014, 665 patients were enrolled in the program, through Quarter 3 2015, enrollment had increased to 1,488 women, with 47 percent of participants in St. Louis, 35 percent in Kansas City, and 18 percent in Bolivar.
- Key informants talked about how Strong Start had improved not only maternal and child health outcomes, but also psychosocial outcomes. They were excited about the ability of PCCs to round out medical care provided by physicians with supportive psychosocial care. In particular, they said that women feel more supported and less stressed than before Strong Start. Women are more likely to share symptoms of depression and anxiety with their prenatal care coordinators than they are with obstetrical providers, which results in more frequent connections with resources and treatment methods that are tailored to the women's preferences and needs.
- Key informants stated that Signature's Strong Start preterm birth rate has declined dramatically since implementation of the Strong Start program. Before Strong Start, Signature's preterm birth rate was 10.4 percent. Now it is 8.2 percent for participants ever enrolled as of Quarter 3 2015 and 7.6 percent for singletons (vs. multiples). In comparison, the preterm birth rate in the city of St. Louis is 12.5 percent, and the statewide preterm birth rate is 9.8 percent.
- Key informants believe that most, if not all, Strong Start participants receive family planning counseling after birth. They said that the rate of participants who receive family planning counseling after birth (83 percent of participants ever enrolled as of Quarter 3 2015, according

to the evaluation's Participant Level Process Evaluation (PLPE) data) was lower than what they expected. To support this belief, one PCC said she believes that about 80 percent of postpartum women are using contraception, which would indicate to her that more than 83 percent of Strong Start participants receive family planning counseling. The awardee later clarified that their staff counsels participants throughout their pregnancy about family planning, and that key informants likely were thinking about both prenatal and postnatal counseling.

- Substantially more Strong Start patients (80 percent of participants ever enrolled as of Quarter 3 2015) receive the recommended number of 12 or more prenatal visits (based on the Healthcare Effectiveness Data and Information Set (HEDIS) recommendations), as compared to the national average of 60 percent. Strong Start patients also have a higher rate of completing a postpartum care visit than the national average (84 percent in Strong Start versus 64 percent nationally).
- Some barriers to prenatal care reported in previous years persist. Transportation challenges—such as having an unreliable vehicle, relying on family members or others for rides, or needing to take unsafe or overly time-consuming public transit—can prohibit women from attending their prenatal care appointments. PCCs help women gain transportation by referring them to the Medicaid-provided bus service, informing them that they can be reimbursed for mileage, and helping them troubleshoot larger life issues such as unemployment that may impact their transportation struggles.
- Prenatal Care Coordinators (PCCs) are fully integrated into providers' offices. PCCs and providers have frequent communication via office electronic medical records (EMRs) and in person about fulfilling needs of patients. Providers stated they appreciate the support and psychosocial care PCCs offer Strong Start patients. The ability of Strong Start staff to provide more holistic care than medical care alone was a recurring theme throughout the site visit.
- Focus group participants were uniformly enthusiastic about and appreciative of the Strong Start program. They used words like “family” to describe the PCCs and spoke highly of the level of support they received. Some participants mentioned they would not have known to breastfeed or find their babies a pediatrician in a timely manner without the PCCs.
- Awardee staff are engaged in a multi-tiered approach to sustain the program, including working with their state Medicaid office and a managed care organization (MCO), applying for other grant funding, approaching physicians in their practices to help fund the salaries of PCCs, and disseminating outcomes data and information about the Strong Start program at professional conferences and in the media.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Signature Medical Group (Signature) had Intake Forms for 93.8 percent of participants enrolled through Quarter 1 2016 (1,696 Intake Forms for 1,809 participants). In addition, Signature submitted 724 Third Trimester Surveys, 612 Postpartum Surveys, and 1,249 Exit Forms. The tables below present data collected on Signature's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	0	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1809	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1017	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1696	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	93.8	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	724	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	71.2	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	612	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	60.2	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	1249	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	122.8	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1696	6594	8559	22996	38149
Less than 18 years of age	%	4.2	2.8	6.8	5.6	5.4
18 through 34 years of age	%	89.2	87.6	83.3	84.0	84.5
35 years and older	%	6.2	9.0	7.8	9.3	8.9
Missing	%	0.4	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1696	6594	8559	22996	38149
Hispanic	%	3.1	24.8	39.1	26.7	29.1
Non-Hispanic white	%	75.7	53.6	12.5	22.9	25.9
Non-Hispanic black	%	15.2	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.0	0.9	1.1	1.5	1.3

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Non-Hispanic other	%	0.5	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	1.7	3.6	2.9	1.5	2.1
Missing	%	2.8	0.8	2.4	1.6	1.6
Employed at Intake	N	1696	6594	8559	22996	38149
Yes	%	45.9	41.4	34.3	39.6	38.7
No	%	44.0	57.3	62.0	58.6	59.1
Missing	%	10.1	1.3	3.7	1.8	2.2
Education Level at Intake	N	1696	6594	8559	22996	38149
Less than high school	%	9.8	13.5	23.2	24.2	22.1
High school graduate or GED	%	51.1	52.7	46.7	50.3	49.9
Bachelor's degree	%	4.4	10.9	3.3	2.8	4.3
Other college degree(s)	%	9.2	12.5	7.2	6.3	7.5
Missing	%	25.5	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1696	6594	8559	22996	38149
Married, living with spouse	%	23.2	39.7	17.6	17.8	21.6
Married, not living with spouse	%	0.9	1.7	2.0	2.0	1.9
Living with a partner	%	32.1	32.7	31.9	30.3	31.1
In a relationship but not living together	%	19.3	14.3	23.6	29.3	25.5
Not in a relationship right now	%	13.4	10.2	17.3	18	16.5
Missing	%	11.1	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1696	6594	8559	22996	38149
Yes	%	18.1	10.0	8.2	12.9	11.3
No	%	71.8	80.6	73.8	80.9	79.3
Missing	%	10.1	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1696	6594	8559	22996	38149
Yes	%	8.1	17.2	20.0	16.7	17.5
No	%	62.6	76.9	65.6	74.2	72.7
Missing*	%	29.3	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1696	6594	8559	22996	38149
Yes	%	17.7	21.0	24.3	22.2	22.5
No	%	55.0	68.8	54.0	66.9	64.3
Missing*	%	27.3	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1696	6594	8559	22996	38149
Yes	%	17.0	20.2	16.1	19.0	18.6
No	%	57.1	77.9	76.0	76.5	76.7
Missing*	%	25.8	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	784	2768	3214	8802	14784
<18 months	%	24.1	29.1	18.1	20.6	21.5
≥18 months	%	42.7	48.8	52.1	54.4	52.8
Missing	%	33.2	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	784	2768	3214	8802	14784
Yes	%	12.8	9.6	11.2	17.8	14.8
No	%	81.9	89.7	75.9	70.0	75.0
Not Known	%	0.1	0.3	9.4	8.4	7.1
Missing	%	5.2	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	784	2768	3214	8802	14784
Yes	%	8.0	1.8	8.3	13.9	10.4
No	%	83.2	97.1	64.0	69.1	73.3
Not Known	%	2.0	0.4	14.5	12.4	10.6
Missing	%	6.8	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1249	4747	6148	14056	24951
Yes	%	1.0	0.2	2.4	1.0	1.2
No	%	90.2	99.6	66.5	89.1	85.5
Not Known	%	0.6	0.0	26.8	6.8	10.4
Missing	%	8.2	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1249	4747	6148	14056	24951
Yes	%	0.6	0.3	3.6	2.0	2.1
No	%	89.0	99.4	78	88.4	87.9
Not Known	%	0.6	0.0	13.7	6.4	7.0
Missing	%	9.8	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	1249	4747	6148	14056	24951
Yes	%	2.7	0.6	6.4	7.6	6.0
No	%	88.4	99.2	78.6	83.3	85.2
Not Known	%	0.7	0.0	10.5	6.1	6.0
Missing	%	8.2	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1249	4747	6148	14056	24951
Yes	%	4.2	2.4	5.3	5.7	5.0
No	%	75.2	97.2	75.2	76.0	79.8
Not Known	%	1.4	0.1	14.4	14.4	11.7
Missing	%	19.3	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	1249	4747	6148	14056	24951
Yes	%	4.3	1.3	7.0	6.3	5.5

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	76.1	98.3	73.3	75.6	79.4
Not Known	%	1.4	0.1	14.5	14.1	11.5
Missing	%	18.3	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	1145	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	9.9	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	11.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	1010	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	4.2	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	4.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	533	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	5.1	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	4.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	131	355	619	2185	3159
Yes	%	13.7	2.0	7.6	14.6	11.8
No	%	61.1	87.3	60.6	55.9	60.4
Not known	%	3.1	0.0	15.8	18.0	15.6
Missing	%	22.1	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	1040	4686	4678	10794	20158
Number of Babies Born	N	1056	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	1102	4667	5728	12895	23290
Yes	%	35.8	15.8	24.9	19.0	19.8
No	%	39.4	82.4	39.9	36.5	46.5
Not known	%	2.7	0.6	25.3	31.1	23.6
Missing	%	22.1	1.2	10.0	13.3	10.1

Data Element	N, Mean, Median, or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Delivery Method from Exit Data	N	1249	4747	6148	14056	24951
Vaginal delivery	%	58.2	86.6	53.9	51.8	59.0
C-Section	%	24.3	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.2	0.0	0.0	0.3	0.2
Missing	%	17.3	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	86.0	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	182	226	672	1921	2819
VBAC	%	8.8	31.4	22.9	16.5	19.2
Repeat C-Section	%	91.2	68.6	77.1	83.5	80.8
Scheduled C-Section	N	306	597	1375	3533	5505
Yes	%	47.4	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	1056	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	104	242	512	1621	2375
	%	9.8	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	904	4432	3604	8382	16418
	%	85.6	94.4	76.4	76.2	80.4
Missing	N	48	21	604	1003	1628
	%	4.5	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	1056	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	82	178	468	1484	2130
	%	7.8	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	887	4406	3999	8763	17168
	%	84.0	93.8	84.7	79.6	84.1
Missing	N	87	111	253	759	1123
	%	8.2	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	612	3407	3983	10659	18049
Yes	%	73.0	85.4	62.8	62.6	66.9
No	%	21.1	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.3	0.4	5.6	1.1	2.0

Data Element	N or %	SIGNATURE (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	5.6	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	92.2	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	612	3407	3983	10659	18049
Yes	%	87.7	69.5	61.6	71.1	68.7
No	%	6.4	19.7	11.6	12.6	13.7
Unsure	%	0.5	2.8	6.2	1.9	3.0
Missing	%	5.4	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

While completing our applications to access data from the Department of Social Services (DSS – which houses Medicaid) and the Missouri Department of Health and Senior Services (DHSS - which houses Vital Records) in September 2015, state officials let us know that they did not have the resources to participate. We said that we understood their constraints and asked if we could touch base again in early 2016 in hopes that their situations had improved; fortunately it did. After contacting both agencies in January 2016, reminding them of the available stipend, and sharing copies of the Letters of Support that their agency directors submitted as part of the Strong Start awardee’s original application to CMS, both agencies were persuaded to participate in the evaluation. We completed and submitted our application to Medicaid in April 2016, and received approval in June 2016. We completed and submitted an IRB application to DHSS in March 2016, and are still waiting for approval. Upon approval from DHSS, DHSS will link the Medicaid and birth certificate data and transfer a linked file Urban.

St. John Providence Health System

CASE STUDY

The St. John Providence Health System (St. John), comprised of five hospitals and 125 medical facilities, is one of the largest health systems in the Detroit Metropolitan area. After unsuccessful attempts to implement the CenteringPregnancy (Centering) model, St. John offers “group prenatal care support sessions” that supplement rather than substitute for individual prenatal visits with physicians. These groups are conducted at two sites: the “West Side” location (a primary care and obstetric clinic in Southfield, west of Detroit); and the “East Side” location (the 772-bed St. John Providence Hospital and Medical Center and attached professional buildings on the east edge of Detroit). During Year 3 the awardee also implemented a Maternity Care Home model, whereby a social worker provides information and emotional support to participants in person at the East Side obstetrics (OB) clinic, or by phone or an occasional home visit.

These changes have led to a slight increase in total enrollment to about 170 according to a key informant,⁶ still far below both their original and revised targets (which were around 1500 and 600 women, respectively). At the time of the interviews, approximately 80 women were enrolled in St. John’s Strong Start program, about 20 to 24 of whom were participating in group sessions. The awardee has struggled with numerous administrative challenges and lack of physician support, which have contributed to low enrollment and a much more limited reach (and likely impact) of St. John’s Strong Start program than originally envisioned. However, the Strong Start staff remain motivated and hopeful that their flexibility and creative approach will better meet the needs of their pregnant patients.

Highlights from the evaluation’s third round of data collection include:

- A number of changes occurred during Year 3. The awardee’s newly launched Centering program at the Hurley Medical Center in Flint, MI ended after Hurley restructured its midwifery program. In late 2015 the awardee added the Maternity Care Home model, which key informants describe as a better fit for women who have significant resource and psychosocial support needs but who are unable or unwilling to attend group sessions. In November 2015 changes were made to the St. John institutional review board (IRB) process that alleviated many of the challenges Strong Start previously faced in conducting outreach, home visits, and other activities.
- Though their conclusions are based on a small sample, key informants believe that Strong Start has had a positive influence on preterm birth and low birthweight rates, breastfeeding, vaginal deliveries, and Medicaid costs. A preliminary, internal analysis conducted by the awardee indicated a lower preterm birth rate among Strong Start participants compared with historical data.

⁶ PLPE data indicates 120 enrollees ever enrolled in the program through Q3 2015.

- As a Catholic health system, St. John does not provide birth control counseling other than information about natural methods and birth spacing. However, participants in the group support sessions reportedly learn from each other about birth control methods.
- Transportation is a persistent barrier to care. Even participants with transportation benefits through their Medicaid health plan are unaware of or unsure how to access the benefit. Communication is also an ongoing challenge as many women have unstable living situations and inconsistent phone access. Strong Start staff must be persistent in approaching participants when they come to prenatal appointments at the clinic and through phone follow up. A Strong Start staff person provides childcare during group sessions, which alleviates childcare-related barriers.
- Providers continue to have limited involvement with Strong Start, and key informants emphasized that physicians need to be educated about the challenges facing low-income patients served at St. John. Strong Start staff have had to be persistent in promoting group prenatal care support sessions and advocating for addressing the psychosocial needs of pregnant women.
- Despite lack of support from physicians and ongoing struggles to operationalize Strong Start, , program staff are very interested in sustaining a model of group prenatal care and are pursuing other funding including Medicaid health plans and March of Dimes.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, St. John Community Health Investment Corporation had Intake Forms for 66.8 percent of participants enrolled through Quarter 1 2016 (133 Intake Forms for 199 participants). In addition, St. John Community Health Investment Corporation submitted 77 Third Trimester Surveys, 86 Postpartum Surveys, and 77 Exit Forms. The tables below present data collected on St. John Community Health Investment Corporation's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	35	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	199	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	83	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	133	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	66.8	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	77	4088	4567	11732	20387

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received through Q1 2016 as a percentage of the number of women delivered	%	92.8	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	86	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	103.6	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	77	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	92.8	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	133	6594	8559	22996	38149
Less than 18 years of age	%	2.3	2.8	6.8	5.6	5.4
18 through 34 years of age	%	85.0	87.6	83.3	84.0	84.5
35 years and older	%	11.3	9.0	7.8	9.3	8.9
Missing	%	1.5	0.6	2.1	1.1	1.2
Race and Ethnicity	N	133	6594	8559	22996	38149
Hispanic	%	1.5	24.8	39.1	26.7	29.1
Non-Hispanic white	%	6.0	53.6	12.5	22.9	25.9
Non-Hispanic black	%	90.2	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.0	0.9	1.1	1.5	1.3
Non-Hispanic other	%	1.5	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.8	3.6	2.9	1.5	2.1
Missing	%	0.0	0.8	2.4	1.6	1.6
Employed at Intake	N	133	6594	8559	22996	38149
Yes	%	28.6	41.4	34.3	39.6	38.7
No	%	71.4	57.3	62.0	58.6	59.1
Missing	%	0.0	1.3	3.7	1.8	2.2
Education Level at Intake	N	133	6594	8559	22996	38149
Less than high school	%	24.8	13.5	23.2	24.2	22.1
High school graduate or GED	%	59.4	52.7	46.7	50.3	49.9
Bachelor’s degree	%	0.8	10.9	3.3	2.8	4.3
Other college degree(s)	%	4.5	12.5	7.2	6.3	7.5
Missing	%	10.5	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	133	6594	8559	22996	38149
Married, living with spouse	%	6.8	39.7	17.6	17.8	21.6
Married, not living with spouse	%	3.8	1.7	2.0	2.0	1.9
Living with a partner	%	24.1	32.7	31.9	30.3	31.1
In a relationship but not living together	%	24.1	14.3	23.6	29.3	25.5
Not in a relationship right now	%	41.4	10.2	17.3	18.0	16.5
Missing	%	0.0	1.3	7.7	2.6	3.5

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Smokes Cigarettes at Intake	N	133	6594	8559	22996	38149
Yes	%	9.0	10.0	8.2	12.9	11.3
No	%	86.5	80.6	73.8	80.9	79.3
Missing	%	4.5	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	133	6594	8559	22996	38149
Yes	%	27.8	17.2	20.0	16.7	17.5
No	%	66.2	76.9	65.6	74.2	72.7
Missing*	%	6.0	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	133	6594	8559	22996	38149
Yes	%	43.6	21.0	24.3	22.2	22.5
No	%	51.9	68.8	54.0	66.9	64.3
Missing*	%	4.5	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	133	6594	8559	22996	38149
Yes	%	30.1	20.2	16.1	19.0	18.6
No	%	68.4	77.9	76	76.5	76.7
Missing*	%	1.5	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	62	2768	3214	8802	14784
<18 months	%	14.5	29.1	18.1	20.6	21.5
≥18 months	%	45.2	48.8	52.1	54.4	52.8
Missing	%	40.3	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	62	2768	3214	8802	14784
Yes	%	12.9	9.6	11.2	17.8	14.8
No	%	59.7	89.7	75.9	70.0	75.0
Not Known	%	27.4	0.3	9.4	8.4	7.1
Missing	%	0.0	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	62	2768	3214	8802	14784
Yes	%	4.8	1.8	8.3	13.9	10.4
No	%	17.7	97.1	64.0	69.1	73.3
Not Known	%	74.2	0.4	14.5	12.4	10.6
Missing	%	3.2	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	77	4747	6148	14056	24951
Yes	%	2.6	0.2	2.4	1.0	1.2
No	%	72.7	99.6	66.5	89.1	85.5
Not Known	%	23.4	0.0	26.8	6.8	10.4

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	1.3	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	77	4747	6148	14056	24951
Yes	%	2.6	0.3	3.6	2.0	2.1
No	%	74.0	99.4	78	88.4	87.9
Not Known	%	22.1	0.0	13.7	6.4	7.0
Missing	%	1.3	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	77	4747	6148	14056	24951
Yes	%	14.3	0.6	6.4	7.6	6.0
No	%	63.6	99.2	78.6	83.3	85.2
Not Known	%	22.1	0.0	10.5	6.1	6.0
Missing	%	0.0	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	77	4747	6148	14056	24951
Yes	%	6.5	2.4	5.3	5.7	5.0
No	%	49.4	97.2	75.2	76.0	79.8
Not Known	%	44.2	0.1	14.4	14.4	11.7
Missing	%	0.0	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	77	4747	6148	14056	24951
Yes	%	13.0	1.3	7.0	6.3	5.5
No	%	66.2	98.3	73.3	75.6	79.4
Not Known	%	20.8	0.1	14.5	14.1	11.5
Missing	%	0.0	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	51	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	0.0	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	0.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	46	4287	2178	11889	18354

Data Element	N, Mean, Median, or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Average number of enhanced encounters per participant	Mean	1.3	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	49	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	8.3	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	7.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	17	355	619	2185	3159
Yes	%	11.8	2.0	7.6	14.6	11.8
No	%	52.9	87.3	60.6	55.9	60.4
Not known	%	35.3	0.0	15.8	18.0	15.6
Missing	%	0.0	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	64	4686	4678	10794	20158
Number of Babies Born	N	66	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	70	4667	5728	12895	23290
Yes	%	27.1	15.8	24.9	19.0	19.8
No	%	45.7	82.4	39.9	36.5	46.5
Not known	%	24.3	0.6	25.3	31.1	23.6
Missing	%	2.9	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	77	4747	6148	14056	24951
Vaginal delivery	%	61.0	86.6	53.9	51.8	59.0
C-Section	%	18.2	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	20.8	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.7	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	-	226	672	1921	2819
VBAC	%	-	31.4	22.9	16.5	19.2
Repeat C-Section	%	-	68.6	77.1	83.5	80.8
Scheduled C-Section	N	14	597	1375	3533	5505
Yes	%	50.0	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	66	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	-	242	512	1621	2375
	%	-	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	39	4432	3604	8382	16418
	%	59.1	94.4	76.4	76.2	80.4
Missing	N	17	21	604	1003	1628
	%	25.8	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	66	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	-	178	468	1484	2130
	%	-	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	54	4406	3999	8763	17168
	%	81.8	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	ST. JOHN (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	86	3407	3983	10659	18049
Yes	%	32.6	85.4	62.8	62.6	66.9
No	%	8.1	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.0	0.4	5.6	1.1	2.0
Missing	%	59.3	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	104.5	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	86	3407	3983	10659	18049
Yes	%	32.6	69.5	61.6	71.1	68.7
No	%	5.8	19.7	11.6	12.6	13.7
Unsure	%	1.2	2.8	6.2	1.9	3.0
Missing	%	60.5	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Our initial request, including a data use and non-disclosure agreement, was submitted in June 2015. This request was for both Medicaid and birth certificate data from the Michigan Department of Health and Human Services (MDHHS). After this initial request, we were also asked to submit an IRB application. Urban submitted the IRB application in April 2016, and received approval in August 2016. As of September 2016, MDHHS and Urban are in the process of signing the data use and non-disclosure

agreement. MDHHS will link the Medicaid and birth certificate data, and transfer a linked file to Urban. Urban expects to receive Medicaid and birth certificate data by December 2016.

Texas Tech University Health Sciences Center

CASE STUDY

Texas Tech University Health Sciences Center (TTUHSC) is composed of health professions graduate schools and health care facilities affiliated with Texas Tech University in Lubbock, Texas. Initially, TTUHSC implemented only the Maternity Care Home (MCH) model using two community health workers (CHWs) in its large Pavilion obstetrics (OB) clinic and a smaller neighborhood clinic, Grand Expectations. The CHWs generally supplement interactions with participants during clinic visits with a home visit and telephone calls and texts that improve retention (total encounters vary based on need). During Year 2, TTUHSC also implemented group prenatal care (GPC) with a CenteringPregnancy (Centering) model at its Larry Combest Community Health & Wellness Center (Combest center), which offers midwifery and women's health nurse practitioner care. The Combest center offers Centering to all patients (including those not eligible for Strong Start) though the majority of Centering clients are Medicaid-eligible and enrolled in Strong Start. Strong Start enrollees receive the same Centering services and care as do non-Strong Start patients. At the time of the Year 3 interviews, there were 224 active Strong Start participants, the vast majority (216) in the MCH model. Since implementation, there have been 755 total participants.⁷

Highlights from the evaluation's third round of data collection include:

- Strong Start staff turnover and challenges (for the Combest Center) in marketing prenatal services to the community continued to hinder enrollment in Year 3. A second CHW is expected to improve enrollment in MCH.
- The Combest Center received its Centering Healthcare Institute certification in December 2015. Its Centering program differs from the CHI model only in combining women of different gestational ages into groups because of the small number of participants so far.
- According to key informants, the MCH component is reducing rates of preterm births and low birth weight, increasing breastfeeding, and helping women have less stressful pregnancies. Strong Start preterm, low birthweight, and breastfeeding rates compare favorably to average rates in the region. Informants attribute these positive outcomes to CHW education, materials (e.g., a program guide to reduce smoking), assistance with food vouchers and boxes, referrals to housing and other resources, and emotional support.

⁷ Based on awardee communication, March 15, 2016.

- Key informants also report that the newer and smaller GPC program is just beginning to show lower rates of preterm birth and low birth weight. They attribute these outcomes to an emphasis on nutrition and food assistance, and enhanced confidence and sense of family and well-being.
- Strong Start participants are more likely to plan to use birth control than those receiving traditional care, according to key informants. For MCH participants, the CHWs discuss family planning during a home visit, and emphasizing the benefits of long-acting reversible contraception (LARC). However, lack of full support from the OB chairman for intrauterine device (IUD) insertion at delivery makes this a challenge. Family planning among Centering participants is stronger than in traditional care because the women spend more time on the topic and are able to discuss it rather than simply being “told” about options.
- Triage and emergency room visits are reportedly reduced through the education provided by Strong Start and (for GPC participants) access to the nurse midwives and discussions about normal and abnormal pregnancy-related symptoms.
- Barriers to prenatal care cited by the awardee include lack of transportation, lack of after-hours care for working women, patients’ not prioritizing appointments, and difficulty reaching women whose phone numbers and addresses change frequently.
- Nurse referrals to the MCH program have increased, and providers at the Combest Center fully support the Centering model. However, some hospital physicians and residents lack an understanding of Centering and midwifery care in general and fear that Centering (or midwifery care more broadly) will “steal” their patients; Combest Center staff must continually educate the physicians and residents about the Centering approach.
- Key informants learned that good prenatal care cannot be mechanized. It is most important to educate vulnerable pregnant women about available resources and the consequences of personal health choices, and to strengthen their confidence to make healthy decisions.
- Because of a lack of Medicaid reimbursement for CHW-provided services and lack of financial support from the OB department to continue the program, the MCH model will not be sustained after the Strong Start cooperative agreement ends. There is some consideration, however, of using CHWs as part of the traditional (non-Centering) care at the Combest Center. Centering will continue at the Combest Center as the preferred prenatal care model, which key informants hope will expand.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Texas Tech University Health Sciences Center (Texas Tech) had Intake Forms for 93.1 percent of participants enrolled through Quarter 1 2016 (765 Intake Forms for 822 participants). In addition, Texas Tech submitted 412 Third Trimester Surveys, 259 Postpartum Surveys, and 281 Exit Forms. The tables below present data collected on Texas Tech's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	129	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	822	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	455	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	765	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	93.1	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	412	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	90.5	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	259	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	56.9	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	281	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	61.8	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	765	6594	8559	22996	38149
Less than 18 years of age	%	4.8	2.8	6.8	5.6	5.4
18 through 34 years of age	%	71.4	87.6	83.3	84.0	84.5
35 years and older	%	6.0	9.0	7.8	9.3	8.9
Missing	%	17.8	0.6	2.1	1.1	1.2
Race and Ethnicity	N	765	6594	8559	22996	38149
Hispanic	%	56.7	24.8	39.1	26.7	29.1
Non-Hispanic white	%	22.9	53.6	12.5	22.9	25.9
Non-Hispanic black	%	14.4	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.2	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.5	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.8	3.6	2.9	1.5	2.1

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	3.5	0.8	2.4	1.6	1.6
Employed at Intake	N	765	6594	8559	22996	38149
Yes	%	39.7	41.4	34.3	39.6	38.7
No	%	56.9	57.3	62.0	58.6	59.1
Missing	%	3.4	1.3	3.7	1.8	2.2
Education Level at Intake	N	765	6594	8559	22996	38149
Less than high school	%	19.0	13.5	23.2	24.2	22.1
High school graduate or GED	%	41.4	52.7	46.7	50.3	49.9
Bachelor's degree	%	1.6	10.9	3.3	2.8	4.3
Other college degree(s)	%	7.7	12.5	7.2	6.3	7.5
Missing	%	30.3	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	765	6594	8559	22996	38149
Married, living with spouse	%	19.7	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.0	1.7	2.0	2.0	1.9
Living with a partner	%	34.2	32.7	31.9	30.3	31.1
In a relationship but not living together	%	19.9	14.3	23.6	29.3	25.5
Not in a relationship right now	%	22.7	10.2	17.3	18.0	16.5
Missing	%	2.4	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	765	6594	8559	22996	38149
Yes	%	11.8	10.0	8.2	12.9	11.3
No	%	81.2	80.6	73.8	80.9	79.3
Missing	%	7.1	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	765	6594	8559	22996	38149
Yes	%	20.8	17.2	20.0	16.7	17.5
No	%	62.5	76.9	65.6	74.2	72.7
Missing*	%	16.8	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	765	6594	8559	22996	38149
Yes	%	19.5	21.0	24.3	22.2	22.5
No	%	54.2	68.8	54.0	66.9	64.3
Missing*	%	26.2	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	765	6594	8559	22996	38149
Yes	%	18.4	20.2	16.1	19.0	18.6
No	%	69.4	77.9	76.0	76.5	76.7
Missing*	%	12.2	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	193	2768	3214	8802	14784
<18 months	%	25.0	29.1	18.1	20.6	21.5
≥18 months	%	47.7	48.8	52.1	54.4	52.8

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	27.5	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	193	2768	3214	8802	14784
Yes	%	22.8	9.6	11.2	17.8	14.8
No	%	66.8	89.7	75.9	70.0	75.0
Not Known	%	6.7	0.3	9.4	8.4	7.1
Missing	%	3.6	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	193	2768	3214	8802	14784
Yes	%	11.4	1.8	8.3	13.9	10.4
No	%	76.7	97.1	64.0	69.1	73.3
Not Known	%	7.3	0.4	14.5	12.4	10.6
Missing	%	4.7	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	281	4747	6148	14056	24951
Yes	%	2.5	0.2	2.4	1.0	1.2
No	%	87.9	99.6	66.5	89.1	85.5
Not Known	%	3.9	0.0	26.8	6.8	10.4
Missing	%	5.7	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	281	4747	6148	14056	24951
Yes	%	5.7	0.3	3.6	2.0	2.1
No	%	84.3	99.4	78	88.4	87.9
Not Known	%	3.9	0.0	13.7	6.4	7.0
Missing	%	6.0	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	281	4747	6148	14056	24951
Yes	%	7.1	0.6	6.4	7.6	6.0
No	%	82.9	99.2	78.6	83.3	85.2
Not Known	%	3.9	0.0	10.5	6.1	6.0
Missing	%	6.0	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	281	4747	6148	14056	24951
Yes	%	12.1	2.4	5.3	5.7	5.0
No	%	77.9	97.2	75.2	76.0	79.8
Not Known	%	3.6	0.1	14.4	14.4	11.7
Missing	%	6.4	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	281	4747	6148	14056	24951
Yes	%	9.3	1.3	7.0	6.3	5.5
No	%	80.4	98.3	73.3	75.6	79.4
Not Known	%	3.9	0.1	14.5	14.1	11.5
Missing	%	6.4	0.3	5.1	4.0	3.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	273	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	8.8	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	10.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.7	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	207	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	2.0	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	2.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	110	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	1.5	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	73	355	619	2185	3159
Yes	%	0.0	2.0	7.6	14.6	11.8
No	%	97.3	87.3	60.6	55.9	60.4
Not known	%	1.4	0.0	15.8	18.0	15.6
Missing	%	1.4	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	247	4686	4678	10794	20158
Number of Babies Born	N	251	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	269	4667	5728	12895	23290
Yes	%	21.9	15.8	24.9	19.0	19.8
No	%	77.0	82.4	39.9	36.5	46.5
Not known	%	0.7	0.6	25.3	31.1	23.6
Missing	%	0.4	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	281	4747	6148	14056	24951
Vaginal delivery	%	65.8	86.6	53.9	51.8	59.0
C-Section	%	20.6	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	13.5	0.9	23.7	23.0	19.0

Data Element	N, Mean, Median, or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	92.9	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	56	226	672	1921	2819
VBAC	%	25.0	31.4	22.9	16.5	19.2
Repeat C-Section	%	75.0	68.6	77.1	83.5	80.8
Scheduled C-Section	N	58	597	1375	3533	5505
Yes	%	20.7	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	251	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	32	242	512	1621	2375
	%	12.7	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	190	4432	3604	8382	16418
	%	75.7	94.4	76.4	76.2	80.4
Missing	N	29	21	604	1003	1628
	%	11.6	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	251	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	-	178	468	1484	2130
	%	-	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	-	4406	3999	8763	17168
	%	-	93.8	84.7	79.6	84.1
Missing	N	251	111	253	759	1123
	%	100.0	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	259	3407	3983	10659	18049
Yes	%	72.2	85.4	62.8	62.6	66.9
No	%	26.6	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.4	0.4	5.6	1.1	2.0
Missing	%	0.8	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	96.8	99.6	98.4	99.6	99.4

Data Element	N or %	TTU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	259	3407	3983	10659	18049
Yes	%	76.1	69.5	61.6	71.1	68.7
No	%	22.0	19.7	11.6	12.6	13.7
Unsure	%	0.4	2.8	6.2	1.9	3.0
Missing	%	1.5	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

The Texas Vital Records Agency notified Urban that they need to obtain IRB approval prior to executing a data use agreement (DUA) to allow for the sharing of birth certificate data. Urban planned to submit the IRB application in September 2016 . The Texas Medicaid Agency notified the Urban in May 2016 that it would need to execute a DUA and Security and Privacy Inquiry forms. Urban is

working on a compliance plan to allow for completion of the Security and Privacy Inquiry forms, which should occur in September 2016. The Texas Medicaid Agency will be linking Medicaid claims and birth certificate data.

United Neighborhood Health Services

CASE STUDY

United Neighborhood Health Services (UNHS) is a Federally Qualified Health Center (FQHC) operating 11 clinics in Davidson County, Tennessee and the surrounding area. Eight of the UNHS clinics provide prenatal care. At the time of evaluation Year 3 data collection, UNHS was implementing the Strong Start maternity care home model at seven of its clinics in Davidson County, primarily in Nashville. Strong Start enrollees receive a minimum of three prenatal encounters with a health coach (coordinated with patients' prenatal care visits) and a postpartum encounter conducted either in the clinic or at the patient's home.

Highlights from the evaluation's third round of case study data collection include:

- There have been no major changes to UNHS' Strong Start program. Program staff have made some additional efforts to establish prenatal classes in partnership with area hospitals, though this is not a significant focus of their Strong Start intervention and has had limited success. The FQHC also hired a retiring OB/GYN provider (not using Strong Start funds) who will help them analyze data and plan around outcomes, with a goal of improving provider engagement around outcome-based initiatives like Strong Start.
- Program staff felt their Strong Start preterm and low birthweight rates as of Quarter 3 2015—13 percent and 9 percent, respectively—were still too high and were not sure about Strong Start's ability to influence these rates. They observed the many factors that are “working against” improvements in these outcomes such as late entry into prenatal care, lack of community support, and medical risks that the Strong Start intervention is not addressing.
- UNHS key informants felt more confident that their maternity care home model is positively influencing rates of breastfeeding, as the clinics employ a family nurse practitioner that is certified as a lactation consultant and provides care to many Strong Start enrollees and also receives referrals from the health coaches. Informants thought that Strong Start could also be improving rates of family planning counseling but noted that most family planning care comes from prenatal care providers, not health coaches. Program staff were very enthusiastic about UNHS' collaboration with a program called Step Ahead that will provide free long-acting reversible contraceptive (LARC) services to all who need them.
- Over the Strong Start implementation period, UNHS has developed a stronger relationship with the hospital where many patients deliver (since UNHS prenatal care providers do not attend deliveries) which allows more continuity of care for patients and providers and improves overall quality of care.
- Other program strengths include the materials that UNHS created expressly for Strong Start (booklets for each trimester and postpartum, which were provided to the case study team) and

the personalities and dedication of the health coaches, who key informants described as a “good fit” for the population. Though not a part of Strong Start, the FQHC’s focus on integrating behavioral and physical health was also mentioned as a promising practice that would benefit the Strong Start population.

- Though the awardee expressed interest in sustaining some elements of its Strong Start maternity care home, UNHS has not engaged Medicaid or managed care organization (MCO) officials on this matter. At the time of Year 3 data collection, the state’s Medicaid program was making plans to incentivize patient-centered medical care more broadly as an alternative payment method), and key informants suggested that UNHS would be well-positioned to participate. Under this forthcoming initiative, however, UNHS’ care coordination would be done at a broader level, would not focus specifically on prenatal population. As such, the prenatal health coaches hired and trained for Strong Start will not be retained in their current positions.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, United Neighborhood Health Services (United) had Intake Forms for 96.4 percent of participants enrolled through Quarter 1 2016 (1,088 Intake Forms for 1,129 participants). In addition, United submitted 505 Third Trimester Surveys, 376 Postpartum Surveys, and 734 Exit Forms. The tables below present data collected on United’s participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	127	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1129	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	598	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1088	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	96.4	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	505	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	84.4	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	376	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	62.9	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	734	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	122.7	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	1088	6594	8559	22996	38149
Less than 18 years of age	%	5.3	2.8	6.8	5.6	5.4
18 through 34 years of age	%	82.6	87.6	83.3	84.0	84.5
35 years and older	%	11.7	9.0	7.8	9.3	8.9
Missing	%	0.4	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1088	6594	8559	22996	38149
Hispanic	%	51.1	24.8	39.1	26.7	29.1
Non-Hispanic white	%	10.9	53.6	12.5	22.9	25.9
Non-Hispanic black	%	33.7	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.7	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.6	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.1	3.6	2.9	1.5	2.1
Missing	%	1.7	0.8	2.4	1.6	1.6
Employed at Intake	N	1088	6594	8559	22996	38149
Yes	%	37.8	41.4	34.3	39.6	38.7
No	%	61.5	57.3	62.0	58.6	59.1
Missing	%	0.7	1.3	3.7	1.8	2.2
Education Level at Intake	N	1088	6594	8559	22996	38149
Less than high school	%	28.2	13.5	23.2	24.2	22.1
High school graduate or GED	%	36.1	52.7	46.7	50.3	49.9
Bachelor’s degree	%	2.8	10.9	3.3	2.8	4.3
Other college degree(s)	%	4.1	12.5	7.2	6.3	7.5
Missing	%	28.7	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1088	6594	8559	22996	38149
Married, living with spouse	%	28.6	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.4	1.7	2.0	2.0	1.9
Living with a partner	%	33.9	32.7	31.9	30.3	31.1
In a relationship but not living together	%	21.2	14.3	23.6	29.3	25.5
Not in a relationship right now	%	13.7	10.2	17.3	18	16.5
Missing	%	1.2	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1088	6594	8559	22996	38149
Yes	%	10.4	10.0	8.2	12.9	11.3
No	%	87.1	80.6	73.8	80.9	79.3
Missing	%	2.5	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1088	6594	8559	22996	38149
Yes	%	10.3	17.2	20.0	16.7	17.5
No	%	82.1	76.9	65.6	74.2	72.7
Missing*	%	7.6	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1088	6594	8559	22996	38149
Yes	%	12.4	21.0	24.3	22.2	22.5
No	%	79.1	68.8	54.0	66.9	64.3
Missing*	%	8.4	10.2	21.7	11.0	13.2

Data Element	N or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Have Experienced Intimate Partner Violence in a Relationship***	N	1088	6594	8559	22996	38149
Yes	%	14.6	20.2	16.1	19.0	18.6
No	%	81.0	77.9	76.0	76.5	76.7
Missing*	%	4.4	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	502	2768	3214	8802	14784
<18 months	%	19.8	29.1	18.1	20.6	21.5
≥18 months	%	67.7	48.8	52.1	54.4	52.8
Missing	%	12.5	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	502	2768	3214	8802	14784
Yes	%	11.6	9.6	11.2	17.8	14.8
No	%	75.3	89.7	75.9	70.0	75.0
Not Known	%	11.8	0.3	9.4	8.4	7.1
Missing	%	1.4	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	502	2768	3214	8802	14784
Yes	%	11.0	1.8	8.3	13.9	10.4
No	%	73.5	97.1	64.0	69.1	73.3
Not Known	%	14.5	0.4	14.5	12.4	10.6
Missing	%	1.0	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	734	4747	6148	14056	24951
Yes	%	0.3	0.2	2.4	1.0	1.2
No	%	96.5	99.6	66.5	89.1	85.5
Not Known	%	2.7	0.0	26.8	6.8	10.4
Missing	%	0.5	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	734	4747	6148	14056	24951
Yes	%	2.3	0.3	3.6	2.0	2.1
No	%	94.4	99.4	78	88.4	87.9
Not Known	%	2.7	0.0	13.7	6.4	7.0
Missing	%	0.5	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	734	4747	6148	14056	24951
Yes	%	5.6	0.6	6.4	7.6	6.0
No	%	91.6	99.2	78.6	83.3	85.2
Not Known	%	2.3	0.0	10.5	6.1	6.0
Missing	%	0.5	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	734	4747	6148	14056	24951
Yes	%	4.5	2.4	5.3	5.7	5.0
No	%	68.4	97.2	75.2	76.0	79.8
Not Known	%	27.0	0.1	14.4	14.4	11.7
Missing	%	0.1	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	734	4747	6148	14056	24951
Yes	%	3.8	1.3	7.0	6.3	5.5
No	%	68.8	98.3	73.3	75.6	79.4
Not Known	%	27.4	0.1	14.5	14.1	11.5
Missing	%	0.0	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	552	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	6.5	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	6.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	680	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	4.4	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	4.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	91	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	3.6	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	2.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	90	355	619	2185	3159
Yes	%	1.1	2.0	7.6	14.6	11.8
No	%	47.8	87.3	60.6	55.9	60.4
Not known	%	40.0	0.0	15.8	18.0	15.6
Missing	%	11.1	10.7	16.0	11.4	12.2

Data Element	N, Mean, Median, or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	533	4686	4678	10794	20158
Number of Babies Born	N	543	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	683	4667	5728	12895	23290
Yes	%	14.9	15.8	24.9	19.0	19.8
No	%	32.7	82.4	39.9	36.5	46.5
Not known	%	43.0	0.6	25.3	31.1	23.6
Missing	%	9.4	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	734	4747	6148	14056	24951
Vaginal delivery	%	50.7	86.6	53.9	51.8	59.0
C-Section	%	21.9	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	27.4	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	83.3	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	103	226	672	1921	2819
VBAC	%	14.6	31.4	22.9	16.5	19.2
Repeat C-Section	%	85.4	68.6	77.1	83.5	80.8
Scheduled C-Section	N	161	597	1375	3533	5505
Yes	%	31.1	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	543	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	74	242	512	1621	2375
	%	13.6	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	457	4432	3604	8382	16418
	%	84.2	94.4	76.4	76.2	80.4
Missing	N	12	21	604	1003	1628
	%	2.2	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	543	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	51	178	468	1484	2130
	%	9.4	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	477	4406	3999	8763	17168
	%	87.8	93.8	84.7	79.6	84.1
Missing	N	15	111	253	759	1123
	%	2.8	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	UNITED (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	376	3407	3983	10659	18049
Yes	%	76.3	85.4	62.8	62.6	66.9
No	%	17.3	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.3	0.4	5.6	1.1	2.0
Missing	%	6.1	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	101.2	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	376	3407	3983	10659	18049
Yes	%	76.1	69.5	61.6	71.1	68.7
No	%	13.0	19.7	11.6	12.6	13.7
Unsure	%	3.2	2.8	6.2	1.9	3.0
Missing	%	7.7	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

In April 2015, the evaluation team spoke with the Division of Policy, Planning, and Assessment within the Tennessee Department of Health (TDH) to learn about the state’s willingness to and process for releasing state Medicaid and birth certificate data to Urban for the impact analysis of the Strong Start evaluation. State officials were receptive to supporting the evaluation, and the Office of Vital Records said that it would be able to link Medicaid and birth certificate data on our behalf. The evaluation team submitted a data request form to the Office of Vital Records in June 2015 and submitted an IRB application to the TDH in January 2016. After the standard 12-week review process, the IRB office requested minor revisions to the application in May 2016, which were submitted in August 2016. Upon IRB approval, the Office of Vital Records will merge the Medicaid and birth certificate data, and transfer a linked file to Urban.

University of Alabama at Birmingham

CASE STUDY

The University of Alabama, Birmingham (UAB) is an academic health system in Birmingham, Alabama operating a maternity home model within its Department of Obstetrics and Gynecology. It operates at three sites that include the hospital and two satellite clinics in Birmingham, Eastern Health Center and Western Health Center. The Strong Start enhanced services offered by UAB consist almost exclusively of universal screening for behavioral health problems (primarily depression and substance abuse) and nutritional needs with subsequent referral to appropriate counseling. A Strong Start participant identified as having a Body Mass Index (BMI) either 30 or higher or below 19 is referred to a registered dietician at UAB for counseling. Participants identified as suffering from depression are referred to either of two mental health providers outside the UAB system.⁸ Strong Start services also include offering educational videos (which can be accessed from anywhere via a mobile application) and written summaries that cover a range of topics related to pregnancy, birth, and contraception, but these are not widely utilized. Care coordination, social worker consultation, contraceptive services, and other direct services occur through other programs (Steps Ahead (also known as MOMCare) and Healthy Start) that operate in tandem with Strong Start.⁹ Alabama Medicaid and its managed care vendors require providers to implement Steps Ahead as part of their maternity care regimen, and all Strong Start participants are also enrolled in Steps Ahead. As of Quarter 3 2015, total enrollment in Strong Start was 1,049. Enrollment in Strong Start ended in February 2016, with the last birth expected in July.

Highlights from the evaluation's third round of data collection include:

- There have been no organizational changes in the program since the Year 2 site consolidation from 4 to 3 sites. The awardee has retained all Strong Start staff since program inception. There was some temporary disruption in the availability of nutritional services when the dietician went on maternity leave.
- Many Strong Start participants are patients of the hospital's high-risk clinic and present with significant medical risk factors in addition to risk factors associated with low socio-economic status. Relatively low literacy levels further complicate care.
- Strong Start staff use the Strong Start Intake Form as a screening tool primarily to identify depression, reporting that it is much more effective in identifying mental health issues than the risk assessment tool generally used by social workers at UAB. As a result, after implementation

⁸ Because these providers are not affiliated with UAB, key informants report that they are unable to track the care provided or follow up on the referrals. Referral processes for substance abuse were not described as key informants focused much more on depression.

⁹ Steps Ahead, also known as MOMCare, and Healthy Start are Alabama's long-standing enhanced prenatal care programs.

of Strong Start, more women have been identified as needing mental health and nutritional counseling and have been referred for services.

- Use of offered educational videos continues to be poor; few Strong Start enrollees have watched videos made available to them through a link that requires log-in information. While it was not available to Strong Start enrollees, a recently launched mobile app is expected to make these videos and other educational material more accessible to Medicaid enrollees generally.
- Key informant opinions on the impact of Strong Start diverged. Most key informants believe that Strong Start's enhancements have had little impact on birth outcomes because the nature of the interventions is too limited to offset underlying conditions exacerbated by lack of sustained health coverage. One key informant, however, believes that Strong Start services reduce stress that can trigger bad outcomes and that Strong Start's referral mechanisms have improved outcomes.
- Informants view rates of preterm births (22.7 percent, according to Participant Level Process Evaluation (PLPE) data through Quarter 3 2015) and low birth weight (23.3 percent) as intractably high because of the underlying poor health status of participants.
- Family planning counseling is not provided through Strong Start, although the educational brochures and videos made available by the awardee and through its new app provide some information on contraception.
- Key informants reported striving to make sure that Strong Start intake processes and nutritional counseling sessions do not impede provider work flow by working these services around clinic schedules and being willing to interrupt intake to accommodate providers. They agreed that little attention is paid to the social worker notes in the electronic medical record (EMR) but state that oral communication keeps providers informed.
- Communication issues, particularly participant address and phone number changes, compromise the awardee's ability to maintain consistent contact with participants or follow-up on referrals and missed appointments. To address this challenge, program staff make an effort to get reliable emergency contact information and also try to reach participants at the beginning of the month before minutes expire. Transportation and child care do not appear to present substantial barriers to care.
- With the exception of universal screening using the Strong Start Intake Form and BMI screening, Steps Ahead substantially duplicates the services provided by Strong Start. Most focus group participants were unable to distinguish Strong Start enhancements from Steps Ahead, though they reported the nutritional and mental health counseling referrals (which can come from either program) to be helpful. This overlap will present significant challenges to the impact analysis' ability to distinguish Strong Start's effects from those of Steps Ahead since it is not

clear which program actually made the referrals or whether women enrolled in Strong Start received more care as a result of referrals from both programs.

- It is unclear whether elements of the Strong Start screening process will be sustained after funding ends, despite support from key informants for broader use of the Intake Form for screening. The educational videos developed as part of Strong Start will be available through the mobile app that was not available to Strong Start participants before the program ended. Key informants indicated that expanded nutritional counseling with the registered dietician would continue after Strong Start funding ends.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, University of Alabama at Birmingham (UAB) had Intake Forms for 101.6 percent of participants enrolled through Quarter 1 2016 (1,310 Intake Forms for 1,289 participants). In addition, UAB submitted 649 Third Trimester Surveys, 715 Postpartum Surveys, and 836 Exit Forms. The tables below present data collected on UAB's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	44	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1289	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	1018	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1310	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	101.6	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	649	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	63.8	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	715	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	70.2	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	836	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	82.1	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1310	6594	8559	22996	38149
Less than 18 years of age	%	6.4	2.8	6.8	5.6	5.4
18 through 34 years of age	%	86.5	87.6	83.3	84.0	84.5
35 years and older	%	6.9	9.0	7.8	9.3	8.9
Missing	%	0.2	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1310	6594	8559	22996	38149
Hispanic	%	2.3	24.8	39.1	26.7	29.1
Non-Hispanic white	%	19.2	53.6	12.5	22.9	25.9
Non-Hispanic black	%	77.9	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.0	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.1	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.2	3.6	2.9	1.5	2.1
Missing	%	0.2	0.8	2.4	1.6	1.6
Employed at Intake	N	1310	6594	8559	22996	38149
Yes	%	38.3	41.4	34.3	39.6	38.7
No	%	61.4	57.3	62.0	58.6	59.1
Missing	%	0.3	1.3	3.7	1.8	2.2
Education Level at Intake	N	1310	6594	8559	22996	38149
Less than high school	%	23.7	13.5	23.2	24.2	22.1
High school graduate or GED	%	62.7	52.7	46.7	50.3	49.9
Bachelor's degree	%	1.6	10.9	3.3	2.8	4.3
Other college degree(s)	%	5.9	12.5	7.2	6.3	7.5
Missing	%	6.1	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1310	6594	8559	22996	38149
Married, living with spouse	%	10.5	39.7	17.6	17.8	21.6
Married, not living with spouse	%	2.3	1.7	2.0	2.0	1.9
Living with a partner	%	24.4	32.7	31.9	30.3	31.1
In a relationship but not living together	%	38.1	14.3	23.6	29.3	25.5
Not in a relationship right now	%	23.9	10.2	17.3	18.0	16.5
Missing	%	0.8	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1310	6594	8559	22996	38149
Yes	%	19.3	10.0	8.2	12.9	11.3
No	%	80.2	80.6	73.8	80.9	79.3
Missing	%	0.5	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1310	6594	8559	22996	38149
Yes	%	26.3	17.2	20.0	16.7	17.5
No	%	70.3	76.9	65.6	74.2	72.7
Missing*	%	3.4	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1310	6594	8559	22996	38149
Yes	%	39.2	21.0	24.3	22.2	22.5
No	%	45.6	68.8	54.0	66.9	64.3
Missing*	%	15.2	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1310	6594	8559	22996	38149

Data Element	N or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	27.6	20.2	16.1	19.0	18.6
No	%	71.9	77.9	76	76.5	76.7
Missing*	%	0.4	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	509	2768	3214	8802	14784
<18 months	%	24.5	29.1	18.1	20.6	21.5
≥18 months	%	64.0	48.8	52.1	54.4	52.8
Missing	%	11.6	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	509	2768	3214	8802	14784
Yes	%	27.9	9.6	11.2	17.8	14.8
No	%	70.5	89.7	75.9	70.0	75.0
Not Known	%	0.0	0.3	9.4	8.4	7.1
Missing	%	1.6	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	509	2768	3214	8802	14784
Yes	%	24.4	1.8	8.3	13.9	10.4
No	%	72.5	97.1	64.0	69.1	73.3
Not Known	%	1.6	0.4	14.5	12.4	10.6
Missing	%	1.6	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	836	4747	6148	14056	24951
Yes	%	2.5	0.2	2.4	1.0	1.2
No	%	96.3	99.6	66.5	89.1	85.5
Not Known	%	0.0	0.0	26.8	6.8	10.4
Missing	%	1.2	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	836	4747	6148	14056	24951
Yes	%	3.0	0.3	3.6	2.0	2.1
No	%	95.7	99.4	78	88.4	87.9
Not Known	%	0.0	0.0	13.7	6.4	7.0
Missing	%	1.3	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	836	4747	6148	14056	24951
Yes	%	11.7	0.6	6.4	7.6	6.0
No	%	87.1	99.2	78.6	83.3	85.2
Not Known	%	0.0	0.0	10.5	6.1	6.0
Missing	%	1.2	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	836	4747	6148	14056	24951
Yes	%	6.0	2.4	5.3	5.7	5.0
No	%	91.5	97.2	75.2	76.0	79.8
Not Known	%	2.2	0.1	14.4	14.4	11.7
Missing	%	0.4	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	836	4747	6148	14056	24951
Yes	%	4.5	1.3	7.0	6.3	5.5
No	%	92.1	98.3	73.3	75.6	79.4
Not Known	%	2.9	0.1	14.5	14.1	11.5
Missing	%	0.5	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	795	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	11.2	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	12.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	825	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	1.7	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	439	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	2.1	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	2.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	207	355	619	2185	3159
Yes	%	21.7	2.0	7.6	14.6	11.8
No	%	74.9	87.3	60.6	55.9	60.4
Not known	%	0.5	0.0	15.8	18.0	15.6
Missing	%	2.9	10.7	16.0	11.4	12.2

Data Element	N, Mean, Median, or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	765	4686	4678	10794	20158
Number of Babies Born	N	789	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	756	4667	5728	12895	23290
Yes	%	34.8	15.8	24.9	19.0	19.8
No	%	59.1	82.4	39.9	36.5	46.5
Not known	%	1.3	0.6	25.3	31.1	23.6
Missing	%	4.8	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	836	4747	6148	14056	24951
Vaginal delivery	%	68.3	86.6	53.9	51.8	59.0
C-Section	%	26.3	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.5	0.0	0.0	0.3	0.2
Missing	%	4.9	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.7	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	142	226	672	1921	2819
VBAC	%	26.8	31.4	22.9	16.5	19.2
Repeat C-Section	%	73.2	68.6	77.1	83.5	80.8
Scheduled C-Section	N	224	597	1375	3533	5505
Yes	%	35.3	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	789	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	179	242	512	1621	2375
	%	22.7	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	606	4432	3604	8382	16418
	%	76.8	94.4	76.4	76.2	80.4
Missing	N	-	21	604	1003	1628
	%	-	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	789	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	186	178	468	1484	2130
	%	23.6	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	597	4406	3999	8763	17168
	%	75.7	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	715	3407	3983	10659	18049
Yes	%	56.8	85.4	62.8	62.6	66.9
No	%	21.5	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.0	0.4	5.6	1.1	2.0
Missing	%	21.7	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	99.3	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	715	3407	3983	10659	18049
Yes	%	74.4	69.5	61.6	71.1	68.7
No	%	3.5	19.7	11.6	12.6	13.7
Unsure	%	0.4	2.8	6.2	1.9	3.0
Missing	%	21.7	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Following approval to access Medicaid data from the Alabama Medicaid Agency in June 2015, Urban sought approval from the Alabama Department of Public Health (ADPH) to access birth certificate data. Urban received a fully executed data use agreement (DUA) from ADPH in July 2016, and in August 2016, Urban received 2014 and 2015 birth certificate data from ADPH. The Medicaid agency provided sample data to Urban in August 2016 including aggregated expenditure data. Urban expects to receive Medicaid eligibility and claims data for live births in 2014 by October 2016. Urban will link the Medicaid and birth certificate data.

University of Kentucky Research Foundation

CASE STUDY

The University of Kentucky Research Foundation (UKRF) is affiliated with the academic medical center at the University of Kentucky (UK), and is responsible for managing all external grants and contracts at the university. UKRF is implementing group prenatal care, and more specifically the CenteringPregnancy (Centering) approach, at five sites across the state, including two at UK-affiliated prenatal clinics in the Lexington area (Polk Dalton and Good Samaritan) and three at health departments of rural counties (Wayne, Russell, and McCreary counties) in the southeastern part of the state.

Highlights from the evaluation's third round of case study data collection include:

- The most significant programmatic change to UKRF's Strong Start effort has been the launch (as planned) of the PATHWAY group for opioid-addicted women. Though there are still five active sites implementing UKRF's Strong Start program, there have been some changes to those sites, with one site dropping out and another being added.
- Key informants felt that Strong Start has had a positive impact on a range of patient outcomes, with key indicator rates often being as good as or better than the state or national averages in the Medicaid population. Given that most UKRF Strong Start participants have high-risk pregnancies, informants found preterm and low birthweight outcomes to be promising, especially among pregnant women with substance-abuse disorders.
- Group prenatal care offers a reportedly superior approach for providing family planning education and counseling, when compared to traditional care. There is a dedicated session on family planning and facilitators revisit the topic (including birth spacing) during other sessions.
- Key informants observed some barriers to postpartum family planning care. For instance, the Medicaid global delivery fee does not include family planning counseling or supplies and thus discourages delivery providers from offering this type of care.
- Key informants were surprised that Participant Level Process Evaluation (PLPE) rates of 17P administration were so low (13 percent through Quarter 3 2015) and voiced doubts over the accuracy of this measure. Awardee leadership described UK providers as very astute in their recommendations and noted that Medicaid covers 17P and runs a program (not part of Strong Start) called the "preterm prevention tool," which can trigger 17P administration. Some providers described delays in getting preauthorization for and delivery of the injections (which together could take several weeks) that could result in missing the window for 17P initiation.

- Enrollment continues to be a challenge for UKRF, as it has been throughout the implementation period. Most participants (around 70 percent) enroll in the first trimester; only about 3 percent enroll beyond 24 weeks gestation. The latter are typically PATHWAY participants.
- Transportation and childcare were described as barriers to care by UKRF sites, but to varying degrees. Solutions to transportation barriers include assistance with setting up rides with the Medicaid vendor, use of taxi vouchers, and being flexible with patients who show up late. Generally UKRF discourages women from bringing children to sessions, but sites will allow it if they have no other options and would otherwise miss the session.
- Strong Start participants can be hard to reach via telephone calls and mail, but most communication problems vanished when the Lexington-based sites began using text messaging. One facilitator asks group participants to sign an attendance book at each session, which has a space to write in new addresses or telephone numbers, which helps keep track of women who move or change numbers frequently.
- Focus group participants expressed high levels of satisfaction with Strong Start services, particularly with the support they received under the group prenatal care model. Many participants compared Centering favorably to their previous prenatal care experiences.
- Many key informants highlighted the successes of two types of groups in particular—groups for the Hispanic population and PATHWAY. Other program strengths include recruitment methods (at the Polk Dalton site), Centering Healthcare Institute (CHI) training, and community partnerships.
- A major barrier has been OB/GYNs' lack of involvement in recruiting patients for Strong Start. Though some physicians are supportive of and helpful to the program, key informants suggested that at least half are not because they are resistant to systems-level change. Other ongoing challenges include lagging enrollment and (at some sites) securing an appropriate group space.
- Some sites are expected to sustain Centering after the Strong Start award ends, while others are not. The Polk Dalton site will continue offering groups for the Hispanic population and the PATHWAY groups, though funding for some PATHWAY positions has yet to be identified. Two of the three rural county Centering programs also plan to continue offering the model after the award period. UKRF is interested in working with the state's four Medicaid managed care organizations (MCOs) on sustainability planning, but meetings with the health plans had not occurred at the time of the Year 3 site visit.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, the University of Kentucky Research Foundation (UKRF) had Intake Forms for 102.4 percent of participants enrolled through Quarter 1 2016 (682 Intake Forms for 666 participants). In addition, UKRF submitted 354 Third Trimester Surveys, 246 Postpartum Surveys, and

492 Exit Forms. The tables below present data collected on UKRF's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	31	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	666	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	193	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	682	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	102.4	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	354	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	183.4	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	246	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	127.5	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	492	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	254.9	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	682	6594	8559	22996	38149
Less than 18 years of age	%	4.7	2.8	6.8	5.6	5.4
18 through 34 years of age	%	83.0	87.6	83.3	84.0	84.5
35 years and older	%	6.7	9.0	7.8	9.3	8.9
Missing	%	5.6	0.6	2.1	1.1	1.2
Race and Ethnicity	N	682	6594	8559	22996	38149
Hispanic	%	32.6	24.8	39.1	26.7	29.1
Non-Hispanic white	%	47.4	53.6	12.5	22.9	25.9
Non-Hispanic black	%	12.3	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.7	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.0	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	3.5	3.6	2.9	1.5	2.1
Missing	%	3.5	0.8	2.4	1.6	1.6
Employed at Intake	N	682	6594	8559	22996	38149
Yes	%	32.0	41.4	34.3	39.6	38.7
No	%	65.1	57.3	62.0	58.6	59.1
Missing	%	2.9	1.3	3.7	1.8	2.2
Education Level at Intake	N	682	6594	8559	22996	38149
Less than high school	%	0.0	13.5	23.2	24.2	22.1

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
High school graduate or GED	%	48.1	52.7	46.7	50.3	49.9
Bachelor's degree	%	2.9	10.9	3.3	2.8	4.3
Other college degree(s)	%	6.3	12.5	7.2	6.3	7.5
Missing	%	42.7	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	682	6594	8559	22996	38149
Married, living with spouse	%	27.0	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.8	1.7	2.0	2.0	1.9
Living with a partner	%	37.1	32.7	31.9	30.3	31.1
In a relationship but not living together	%	18.3	14.3	23.6	29.3	25.5
Not in a relationship right now	%	12.5	10.2	17.3	18.0	16.5
Missing	%	3.4	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	682	6594	8559	22996	38149
Yes	%	31.4	10.0	8.2	12.9	11.3
No	%	68.6	80.6	73.8	80.9	79.3
Missing	%	0.0	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	682	6594	8559	22996	38149
Yes	%	27.7	17.2	20.0	16.7	17.5
No	%	62.2	76.9	65.6	74.2	72.7
Missing*	%	10.1	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	682	6594	8559	22996	38149
Yes	%	31.4	21.0	24.3	22.2	22.5
No	%	54.0	68.8	54.0	66.9	64.3
Missing*	%	14.7	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	682	6594	8559	22996	38149
Yes	%	23.2	20.2	16.1	19.0	18.6
No	%	70.4	77.9	76.0	76.5	76.7
Missing*	%	6.5	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	299	2768	3214	8802	14784
<18 months	%	22.8	29.1	18.1	20.6	21.5
≥18 months	%	50.2	48.8	52.1	54.4	52.8
Missing	%	27.1	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	299	2768	3214	8802	14784
Yes	%	7.0	9.6	11.2	17.8	14.8
No	%	93.0	89.7	75.9	70.0	75.0
Not Known	%	0.0	0.3	9.4	8.4	7.1
Missing	%	0.0	0.4	3.5	3.8	3.1

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Previous Birth(s) Less than 2,500 grams	N	299	2768	3214	8802	14784
Yes	%	2.0	1.8	8.3	13.9	10.4
No	%	0.0	97.1	64.0	69.1	73.3
Not Known	%	0.0	0.4	14.5	12.4	10.6
Missing	%	98.0	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	492	4747	6148	14056	24951
Yes	%	0.0	0.2	2.4	1.0	1.2
No	%	0.0	99.6	66.5	89.1	85.5
Not Known	%	100.0	0.0	26.8	6.8	10.4
Missing	%	0.0	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	492	4747	6148	14056	24951
Yes	%	1.6	0.3	3.6	2.0	2.1
No	%	94.1	99.4	78	88.4	87.9
Not Known	%	0.0	0.0	13.7	6.4	7.0
Missing	%	4.3	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	492	4747	6148	14056	24951
Yes	%	0.8	0.6	6.4	7.6	6.0
No	%	99.2	99.2	78.6	83.3	85.2
Not Known	%	0.0	0.0	10.5	6.1	6.0
Missing	%	0.0	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	492	4747	6148	14056	24951
Yes	%	4.9	2.4	5.3	5.7	5.0
No	%	90.9	97.2	75.2	76.0	79.8
Not Known	%	0.0	0.1	14.4	14.4	11.7
Missing	%	4.3	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	492	4747	6148	14056	24951
Yes	%	2.4	1.3	7.0	6.3	5.5
No	%	93.3	98.3	73.3	75.6	79.4
Not Known	%	0.0	0.1	14.5	14.1	11.5
Missing	%	4.3	0.3	5.1	4.0	3.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	362	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	0.0	10.9	4.3	9.0	8.3

Data Element	N, Mean, Median, or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Median number of individual prenatal visits per participant	Median	0.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.6	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	-	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	-	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	-	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	-	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	-	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	-	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	52	355	619	2185	3159
Yes	%	9.6	2.0	7.6	14.6	11.8
No	%	9.6	87.3	60.6	55.9	60.4
Not known	%	0.0	0.0	15.8	18.0	15.6
Missing	%	80.8	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	328	4686	4678	10794	20158
Number of Babies Born	N	329	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	492	4667	5728	12895	23290
Yes	%	0.0	15.8	24.9	19.0	19.8
No	%	0.0	82.4	39.9	36.5	46.5
Not known	%	100.0	0.6	25.3	31.1	23.6
Missing	%	0.0	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	492	4747	6148	14056	24951
Vaginal delivery	%	45.7	86.6	53.9	51.8	59.0
C-Section	%	12.0	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	42.3	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	78.7	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	-	226	672	1921	2819
VBAC	%	-	31.4	22.9	16.5	19.2
Repeat C-Section	%	-	68.6	77.1	83.5	80.8
Scheduled C-Section	N	59	597	1375	3533	5505

Data Element	N, Mean, Median, or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	0.0	13.4	30.4	32.2	29.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated. Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	329	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	29	242	512	1621	2375
	%	8.8	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	295	4432	3604	8382	16418
	%	89.7	94.4	76.4	76.2	80.4
Missing	N	-	21	604	1003	1628
	%	-	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	329	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	29	178	468	1484	2130
	%	8.8	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	289	4406	3999	8763	17168
	%	87.8	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated. Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	UKY (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	246	3407	3983	10659	18049
Yes	%	77.6	85.4	62.8	62.6	66.9
No	%	0.0	7.1	11.7	22.9	17.5
Prefer not to answer	%	22.4	0.4	5.6	1.1	2.0
Missing	%	0.0	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	97.3	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	246	3407	3983	10659	18049
Yes	%	86.6	69.5	61.6	71.1	68.7
No	%	0.0	19.7	11.6	12.6	13.7
Unsure	%	13.4	2.8	6.2	1.9	3.0
Missing	%	0.0	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Following several phone calls with the Department for Medicaid Services (DMAS) within the Kentucky Cabinet for Health and Family Services (CHFS), DMAS requested examples of data use agreements. DMAS also shared that they have an existing agreement with the Office of Vital Statistics, CHFS, to access its birth certificate data. Upon receiving permission from several state agencies, Urban shared several examples of signed data use agreements for the impact analysis of the Strong Start Evaluation in February. After several months of drafting a DUA, DMAS sent a draft DUA to Urban in August 2016. As of September 2016, Urban is completing the DUA and expects to return it to DMAS by the end of the month. Urban also submitted a data request form to access Medicaid data in May 2016. In December 2015, Urban was informed that it needs to submit an IRB application to CHFS to access birth certificate data. Urban submitted the application in March 2016, and received approval that same month; however, a revised application was submitted in May 2016 to include additional variables; we received approval that month. Urban expects to receive a fully executed DUA from DMAS by October 2016. DMAS will then link the Medicaid and birth certificate data and transfer a linked data file to Urban by the end of 2016.

University of Puerto Rico

CASE STUDY

The University of Puerto Rico Medical Sciences Campus in San Juan has implemented group prenatal care (and specifically the CenteringPregnancy model) under Strong Start. It is one of eleven UPR campuses and includes the Schools of Medicine, Pharmacy, Dentistry, Nursing, Public Health, and Health-Related Professions. UPR is a publicly-operated health system with two prenatal care sites, though currently only the University Hospital site in San Juan is participating in Strong Start. This site is the sole public clinic in Puerto Rico caring for patients with high-risk pregnancies, and prenatal patients are referred there from all parts of the island. More than 80 percent of these patients have Medicaid coverage; only a small proportion are privately insured or uninsured, with many undocumented immigrants (primarily from other Caribbean Islands, especially the Dominican Republic) among the latter. Around 1,000 births occur at University Hospital each year, but the volume of births has declined in recent years for both UPR and the island as a whole. Centro Medico's prenatal clinic sees approximately 40 to 60 patients per day, which is generally at or above capacity (described as 48 patients daily).

- UPR currently has 32 prenatal care groups organized by participants' gestational age at entry into care with 10-12 moms in each group. As reported in prior years, UPR adopted CenteringPregnancy as its standard model for prenatal care, and all women are enrolled in group regardless of their gestational age. Though group prenatal care is the standard of care at UPR now, the site still maintains a traditional prenatal care clinic where patients see OB/GYNs for individual appointments (in addition to their group sessions) during the final weeks of pregnancy. Since Y2, UPR has implemented a number of diagnosis-specific groups, including one for mothers with HIV, one for mothers with diabetes, and most recently, two for mothers with or at a high risk of contracting Zika. UPR also plans to implement a new group for rheumatics. UPR is also now doing a more rigorous job of grouping mothers based on gestational age per the Centering guidelines.
- The hospital is currently experiencing two significant challenges. Over the past few years, Puerto Rico has been experiencing a significant fiscal crisis, resulting in cuts to the health department and hospital. Moreover, the Zika epidemic has created a demand for additional resources and shifted health department priorities.
- Key informants were satisfied with UPR's preterm birth rate of 20 percent, especially when compared to the hospital's previous rate of 35 percent when it operated traditional prenatal care clinics. They believe that education provided as a part of group prenatal care gives patients the ability to recognize signs and symptoms of preterm birth and empowers women to have more healthy pregnancies. Though 17P is not administered at the hospital, UPR refers patients to an organization that administers 17P in the patients' homes.
- Strong Start has also influenced rates of breastfeeding, with key informants again crediting the additional information built into the group prenatal care model and collaborative nature of the groups for improving outcomes. UPR's partnership with WIC has also been integral to improving breastfeeding rates, along with the hospital implementing more measures to encourage breastfeeding (e.g., rooming-in).

- About half of patients at UPR deliver via C-section. Key informants felt that Strong Start has influenced delivery approach somewhat, while also acknowledging that C-section rates will always be high relative to the general population because UPR receives all of Puerto Rico's high risk referrals. Strong Start was also credited as improving clinicians' and women's openness to VBAC.
- One full session of each group curriculum is dedicated to family planning education and discussion. Consistent with Centering, UPR invites partners to join for the family planning session, and allows participants to direct the conversation. UPR does not encourage one method over another. At the end of the session, UPR invites women to share their *two* preferred family planning methods in case their top choice is not available. Participants frequently rank intrauterine devices (IUDs) and other long-acting reversible contraceptives (LARCs) among their top two choices.
- Despite high demand, there are still barriers to LARCs. The Zika epidemic has provided clinics with additional resources for LARCs and helped to change the policies around placement, but barriers to access still remain.
- Child care is the most persistent challenge to women's attendance at group prenatal care sessions. Children under the age of 12 years old cannot enter a hospital, so parents cannot bring their younger children with them to sessions. UPR attempts to mitigate this challenge by scheduling groups during the morning hours (7:30 AM to 12:30 PM) when children are in school or Head Start.
- Provider relations are still a challenge only insofar as hospital nurses continue to be somewhat reluctant partners in group prenatal care. But key informants did report improved relations with hospital nurses, who are separate from the Strong Start nurses and see patients every other week in a traditional care setting after 36 weeks when they have their weekly appointments. The Centering program still enjoys unequivocal support from hospital administrators who have longed championed the shift to group prenatal care.
- UPR has not been able to expand Strong Start into its second, community hospital site yet, but is exploring implementation in the federally funded Section 330 community health centers.
- UPR plans to sustain group prenatal care for all patients beyond the grant. Key informants report that there is "no turning back" and that patients will not go back to traditional care. Strong Start nurses are currently being funded through emergency funds released as a result of the Zika outbreak, but there are no other grants in place for sustaining efforts. Still, and in spite of the fiscal crisis, key informants are confident that the hospital will be able to hire Strong Start nurses "specifically and exclusively for running group prenatal care."

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, the University of Puerto Rico (UPR) had Intake Forms for 97.8 percent of participants enrolled through Quarter 1 2016 (908 Intake Forms for 928 participants). In addition, UPR submitted 552 Third Trimester Surveys, 371 Postpartum Surveys, and 609 Exit Forms. The tables below present data collected on UPR's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	51	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	928	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	689	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	908	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	97.8	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	552	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	80.1	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	371	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	53.8	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	609	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	88.4	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	908	6594	8559	22996	38149
Less than 18 years of age	%	7.4	2.8	6.8	5.6	5.4
18 through 34 years of age	%	78.4	87.6	83.3	84.0	84.5
35 years and older	%	14.2	9.0	7.8	9.3	8.9
Missing	%	0.0	0.6	2.1	1.1	1.2
Race and Ethnicity	N	908	6594	8559	22996	38149
Hispanic	%	96.0	24.8	39.1	26.7	29.1
Non-Hispanic white	%	1.8	53.6	12.5	22.9	25.9
Non-Hispanic black	%	0.3	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.0	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.0	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.0	3.6	2.9	1.5	2.1
Missing	%	1.9	0.8	2.4	1.6	1.6
Employed at Intake	N	908	6594	8559	22996	38149
Yes	%	27.1	41.4	34.3	39.6	38.7
No	%	71.4	57.3	62.0	58.6	59.1
Missing	%	1.5	1.3	3.7	1.8	2.2
Education Level at Intake	N	908	6594	8559	22996	38149
Less than high school	%	7.8	13.5	23.2	24.2	22.1
High school graduate or GED	%	35.7	52.7	46.7	50.3	49.9

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Bachelor's degree	%	5.7	10.9	3.3	2.8	4.3
Other college degree(s)	%	20.6	12.5	7.2	6.3	7.5
Missing	%	30.2	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	908	6594	8559	22996	38149
Married, living with spouse	%	19.1	39.7	17.6	17.8	21.6
Married, not living with spouse	%	1.4	1.7	2.0	2.0	1.9
Living with a partner	%	44.4	32.7	31.9	30.3	31.1
In a relationship but not living together	%	17.3	14.3	23.6	29.3	25.5
Not in a relationship right now	%	14.0	10.2	17.3	18	16.5
Missing	%	3.9	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	908	6594	8559	22996	38149
Yes	%	2.8	10.0	8.2	12.9	11.3
No	%	85.6	80.6	73.8	80.9	79.3
Missing	%	11.7	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	908	6594	8559	22996	38149
Yes	%	23.1	17.2	20.0	16.7	17.5
No	%	66.4	76.9	65.6	74.2	72.7
Missing*	%	10.5	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	908	6594	8559	22996	38149
Yes	%	25.6	21.0	24.3	22.2	22.5
No	%	46.5	68.8	54.0	66.9	64.3
Missing*	%	27.9	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	908	6594	8559	22996	38149
Yes	%	14.5	20.2	16.1	19.0	18.6
No	%	82.9	77.9	76	76.5	76.7
Missing*	%	2.6	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	391	2768	3214	8802	14784
<18 months	%	23.7	29.1	18.1	20.6	21.5
≥18 months	%	54.2	48.8	52.1	54.4	52.8
Missing	%	22.0	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	391	2768	3214	8802	14784
Yes	%	7.2	9.6	11.2	17.8	14.8
No	%	49.6	89.7	75.9	70.0	75.0
Not Known	%	43.2	0.3	9.4	8.4	7.1

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	0.0	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	391	2768	3214	8802	14784
Yes	%	2.0	1.8	8.3	13.9	10.4
No	%	54.0	97.1	64.0	69.1	73.3
Not Known	%	44.0	0.4	14.5	12.4	10.6
Missing	%	0.0	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	609	4747	6148	14056	24951
Yes	%	4.9	0.2	2.4	1.0	1.2
No	%	93.4	99.6	66.5	89.1	85.5
Not Known	%	1.1	0.0	26.8	6.8	10.4
Missing	%	0.5	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	609	4747	6148	14056	24951
Yes	%	10.7	0.3	3.6	2.0	2.1
No	%	87.7	99.4	78	88.4	87.9
Not Known	%	1.1	0.0	13.7	6.4	7.0
Missing	%	0.5	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	609	4747	6148	14056	24951
Yes	%	14.9	0.6	6.4	7.6	6.0
No	%	83.9	99.2	78.6	83.3	85.2
Not Known	%	0.8	0.0	10.5	6.1	6.0
Missing	%	0.3	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	609	4747	6148	14056	24951
Yes	%	9.0	2.4	5.3	5.7	5.0
No	%	90.1	97.2	75.2	76.0	79.8
Not Known	%	0.3	0.1	14.4	14.4	11.7
Missing	%	0.5	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	609	4747	6148	14056	24951
Yes	%	6.9	1.3	7.0	6.3	5.5
No	%	92.3	98.3	73.3	75.6	79.4
Not Known	%	0.3	0.1	14.5	14.1	11.5
Missing	%	0.5	0.3	5.1	4.0	3.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	608	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	3.5	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	3.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	7.2	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	7.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	30	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	1.0	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	36	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	1.1	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	125	355	619	2185	3159
Yes	%	3.2	2.0	7.6	14.6	11.8
No	%	84.0	87.3	60.6	55.9	60.4
Not known	%	4.8	0.0	15.8	18.0	15.6
Missing	%	8.0	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	549	4686	4678	10794	20158
Number of Babies Born	N	566	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	467	4667	5728	12895	23290
Yes	%	32.5	15.8	24.9	19.0	19.8
No	%	53.1	82.4	39.9	36.5	46.5
Not known	%	5.4	0.6	25.3	31.1	23.6
Missing	%	9.0	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	609	4747	6148	14056	24951
Vaginal delivery	%	48.6	86.6	53.9	51.8	59.0
C-Section	%	44.3	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	7.1	0.9	23.7	23.0	19.0

Data Element	N, Mean, Median, or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	72.9	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	173	226	672	1921	2819
VBAC	%	16.8	31.4	22.9	16.5	19.2
Repeat C-Section	%	83.2	68.6	77.1	83.5	80.8
Scheduled C-Section	N	270	597	1375	3533	5505
Yes	%	52.2	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	566	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	117	242	512	1621	2375
	%	20.7	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	375	4432	3604	8382	16418
	%	66.3	94.4	76.4	76.2	80.4
Missing	N	74	21	604	1003	1628
	%	13.1	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	566	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	117	178	468	1484	2130
	%	20.7	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	440	4406	3999	8763	17168
	%	77.7	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period.

Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	371	3407	3983	10659	18049
Yes	%	72.5	85.4	62.8	62.6	66.9
No	%	23.5	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.5	0.4	5.6	1.1	2.0
Missing	%	3.5	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	90.5	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	371	3407	3983	10659	18049

Data Element	N or %	PUERTO RICO (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	54.4	69.5	61.6	71.1	68.7
No	%	39.6	19.7	11.6	12.6	13.7
Unsure	%	1.3	2.8	6.2	1.9	3.0
Missing	%	4.6	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Although Puerto Rico has not been an intended target for the impacts analysis, the evaluation team did inquire about the possibility of working with the Puerto Rico Vital Record agency to acquire birth certificate data. The agency has not replied, and it does not appear that we will succeed in obtaining data from Puerto Rico.

University of South Alabama

CASE STUDY

The Department of Obstetrics and Gynecology at the University of South Alabama (USA) administers a Strong Start award in Mobile County, Alabama, with four Maternity Care Home (MCH) sites. Two of the sites are staffed by USA Department of OB/GYN resident and attending physicians. The other two sites are Federally Qualified Health Centers – the Mobile County Health Department and Mostellar Medical Center located 50 miles south of Mobile. Strong Start’s MCH model consists of a nutritionist, clinical coordinator, and social worker who each meet once with participants when they begin prenatal care to discuss healthy diet options and provide referrals to social supports. The Strong Start staff also conduct a follow up phone call with participants between the second and third trimester to answer additional questions and ensure they have accessed needed resources. The model complements an existing enhanced prenatal care initiative: the Mobile County Medicaid Maternity Program, also called MOM Care. Total enrollment at the time of the interviews was between 200 and 300; overall enrollment since the program began is 1,580, according to informants.

Highlights from the evaluation’s third round of data collection include:

- USA is no longer implementing group prenatal care at any of its sites as of October 2015 and is only implementing MCH at its four sites. One of the sites discontinued its CenteringPregnancy (Centering) sessions because of limited participation, attrition, and financial concerns. Another site began Centering in Year 3 but then discontinued it for similar reasons. The Strong Start program is winding down and will cease enrollment of new participants as of May 31, 2016.
- Key informants felt that the Strong Start preterm birth rate was still high but improving (22.7 percent for participants ever enrolled as of Quarter 3 2015), noting that preterm birth rates among the hospital’s broader patient population are much higher. Strong Start services such as nutritional support for women who are overweight and underweight are likely influencing both preterm and low birthweight rates (17.7 percent for participants ever enrolled as of Quarter 3 2015) in a positive way, but these outcomes are still close to state averages.
- Key informants felt that the Strong Start breastfeeding rate following delivery (48 percent for participants ever enrolled as of Quarter 3 2015) has improved. However, they do not feel that the improvement can be directly attributed to Strong Start because the USA health system has been focused on improving breastfeeding rates and is currently working to achieve Baby Friendly Hospital designation.
- Key informants reported that depression screenings using both the Edinburgh Postnatal Depression Scale (EPDS) and the Strong Start intake form for Medicaid and Medicaid-eligible women has been successful, and providers plan to continue screening after Strong Start ends.

- Neither family planning nor delivery method is directly addressed in the awardee's MCH model. Group prenatal care provided some information on both topics but (as mentioned) is no longer part of USA's program.
- Strong Start coordinates with MOM Care, the Mobile County Medicaid Maternity Program, to make referrals between programs. Key informants viewed Strong Start as a supplement to the longstanding MOM Care program.
- Strong Start participants face common barriers to care. A leading problem relates to communications, since clients often experience inconsistent phone access; when this occurs, Strong Start staff check the electronic medical record (EMR) for alternate numbers and try to connect at clinic appointments. The majority of participants enroll before 13 weeks, leading key informants to believe that transportation is a barrier for seeking follow up care, but not to initiating care.
- OB/GYN attending and resident providers are supportive of Strong Start, referring eligible patients to the program and also making referrals to needed resources. Strong Start staff coordinate with providers by noting Strong Start participation and the details of their conversations in the patients' chart in the EMR.
- Key informants indicated that face-to-face interaction has been the most effective way of recruiting, enrolling, and communicating with participants. A particularly successful enrollment strategy has been for physicians to connect patients directly with the nutritionist on site after an exam.
- According to key informants, there is a desire to sustain some components of the MCH model, such as use of screening tools and retention of the nutritionist and social worker roles. However, USA must identify ongoing funding if it hopes to sustain ancillary services provided by the nutritionist and social worker.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, the University of South Alabama (USA) had Intake Forms for 99.2 percent of participants enrolled through Quarter 1 2016 (1,564 Intake Forms for 1,577 participants). In addition, USA submitted 729 Third Trimester Surveys, 568 Postpartum Surveys, and 1,010 Exit Forms. The tables below present data collected on USA's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	94	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1577	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	877	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1564	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	99.2	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	729	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	83.1	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	568	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	64.8	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	1010	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	115.2	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	1564	6594	8559	22996	38149
Less than 18 years of age	%	7.8	2.8	6.8	5.6	5.4
18 through 34 years of age	%	79.6	87.6	83.3	84.0	84.5
35 years and older	%	5.2	9.0	7.8	9.3	8.9
Missing	%	7.4	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1564	6594	8559	22996	38149
Hispanic	%	1.7	24.8	39.1	26.7	29.1
Non-Hispanic white	%	34.1	53.6	12.5	22.9	25.9
Non-Hispanic black	%	60.0	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	1.1	0.9	1.1	1.5	1.3
Non-Hispanic other	%	1.0	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	1.5	3.6	2.9	1.5	2.1
Missing	%	0.6	0.8	2.4	1.6	1.6
Employed at Intake	N	1564	6594	8559	22996	38149
Yes	%	39.2	41.4	34.3	39.6	38.7
No	%	58.6	57.3	62.0	58.6	59.1
Missing	%	2.2	1.3	3.7	1.8	2.2
Education Level at Intake	N	1564	6594	8559	22996	38149
Less than high school	%	25.8	13.5	23.2	24.2	22.1

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
High school graduate or GED	%	54.7	52.7	46.7	50.3	49.9
Bachelor's degree	%	1.6	10.9	3.3	2.8	4.3
Other college degree(s)	%	7.6	12.5	7.2	6.3	7.5
Missing	%	10.3	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1564	6594	8559	22996	38149
Married, living with spouse	%	12.2	39.7	17.6	17.8	21.6
Married, not living with spouse	%	3.5	1.7	2.0	2.0	1.9
Living with a partner	%	26.1	32.7	31.9	30.3	31.1
In a relationship but not living together	%	30.2	14.3	23.6	29.3	25.5
Not in a relationship right now	%	23.7	10.2	17.3	18	16.5
Missing	%	4.3	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1564	6594	8559	22996	38149
Yes	%	20.1	10.0	8.2	12.9	11.3
No	%	72.1	80.6	73.8	80.9	79.3
Missing	%	7.9	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1564	6594	8559	22996	38149
Yes	%	16.0	17.2	20.0	16.7	17.5
No	%	68.9	76.9	65.6	74.2	72.7
Missing*	%	15.1	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1564	6594	8559	22996	38149
Yes	%	28.3	21.0	24.3	22.2	22.5
No	%	57.5	68.8	54.0	66.9	64.3
Missing*	%	14.1	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1564	6594	8559	22996	38149
Yes	%	15.9	20.2	16.1	19.0	18.6
No	%	82.2	77.9	76.0	76.5	76.7
Missing*	%	1.9	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	583	2768	3214	8802	14784
<18 months	%	25.9	29.1	18.1	20.6	21.5
≥18 months	%	55.6	48.8	52.1	54.4	52.8
Missing	%	18.5	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	583	2768	3214	8802	14784
Yes	%	31.2	9.6	11.2	17.8	14.8

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	66.9	89.7	75.9	70.0	75.0
Not Known	%	1.4	0.3	9.4	8.4	7.1
Missing	%	0.5	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	583	2768	3214	8802	14784
Yes	%	21.6	1.8	8.3	13.9	10.4
No	%	69.1	97.1	64.0	69.1	73.3
Not Known	%	8.1	0.4	14.5	12.4	10.6
Missing	%	1.2	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1010	4747	6148	14056	24951
Yes	%	1.4	0.2	2.4	1.0	1.2
No	%	95.6	99.6	66.5	89.1	85.5
Not Known	%	1.8	0.0	26.8	6.8	10.4
Missing	%	1.2	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1010	4747	6148	14056	24951
Yes	%	1.5	0.3	3.6	2.0	2.1
No	%	95.5	99.4	78	88.4	87.9
Not Known	%	1.8	0.0	13.7	6.4	7.0
Missing	%	1.2	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	1010	4747	6148	14056	24951
Yes	%	10.2	0.6	6.4	7.6	6.0
No	%	86.7	99.2	78.6	83.3	85.2
Not Known	%	1.8	0.0	10.5	6.1	6.0
Missing	%	1.3	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1010	4747	6148	14056	24951
Yes	%	4.4	2.4	5.3	5.7	5.0
No	%	72.0	97.2	75.2	76.0	79.8
Not Known	%	23.2	0.1	14.4	14.4	11.7
Missing	%	0.5	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	1010	4747	6148	14056	24951
Yes	%	4.8	1.3	7.0	6.3	5.5
No	%	71.6	98.3	73.3	75.6	79.4
Not Known	%	23.2	0.1	14.5	14.1	11.5
Missing	%	0.5	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	698	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	9.1	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	9.5	11	4	10	9
Average number of group prenatal visits per participant	Mean	0.9	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	715	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	2.0	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	548	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	1.1	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	1.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	216	355	619	2185	3159
Yes	%	8.8	2.0	7.6	14.6	11.8
No	%	66.7	87.3	60.6	55.9	60.4
Not known	%	11.6	0.0	15.8	18.0	15.6
Missing	%	13.0	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	728	4686	4678	10794	20158
Number of Babies Born	N	743	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	918	4667	5728	12895	23290
Yes	%	24.3	15.8	24.9	19.0	19.8
No	%	44.4	82.4	39.9	36.5	46.5
Not known	%	15.3	0.6	25.3	31.1	23.6
Missing	%	16.0	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	1010	4747	6148	14056	24951
Vaginal delivery	%	47.9	86.6	53.9	51.8	59.0
C-Section	%	24.9	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	27.2	0.9	23.7	23.0	19.0

Data Element	N, Mean, Median, or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	87.9	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	145	226	672	1921	2819
VBAC	%	9.0	31.4	22.9	16.5	19.2
Repeat C-Section	%	91.0	68.6	77.1	83.5	80.8
Scheduled C-Section	N	251	597	1375	3533	5505
Yes	%	36.7	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	743	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	134	242	512	1621	2375
	%	18.0	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	570	4432	3604	8382	16418
	%	76.7	94.4	76.4	76.2	80.4
Missing	N	39	21	604	1003	1628
	%	5.2	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	743	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	116	178	468	1484	2130
	%	15.6	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	626	4406	3999	8763	17168
	%	84.3	93.8	84.7	79.6	84.1
Missing	N	-	111	253	759	1123
	%	-	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	568	3407	3983	10659	18049
Yes	%	42.3	85.4	62.8	62.6	66.9
No	%	25.5	7.1	11.7	22.9	17.5
Prefer not to answer	%	0.5	0.4	5.6	1.1	2.0
Missing	%	31.7	7.1	19.9	13.4	13.6

Data Element	N or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	101.9	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	568	3407	3983	10659	18049
Yes	%	64.8	69.5	61.6	71.1	68.7
No	%	3.0	19.7	11.6	12.6	13.7
Unsure	%	0.4	2.8	6.2	1.9	3.0
Missing	%	31.9	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

Following approval to access Medicaid data from the Alabama Medicaid Agency in June 2015, Urban sought approval from the Alabama Department of Public Health (ADPH) to access birth certificate data. Urban received a fully executed data use agreement (DUA) from ADPH in July 2016, and in August 2016, Urban received 2014 and 2015 birth certificate data from ADPH. The Medicaid agency provided sample data to Urban in August 2016 including aggregated expenditure data. Urban expects to receive Medicaid eligibility and claims data for live births in 2014 by October 2016. Urban will link the Medicaid and birth certificate data.

University of Tennessee Health Sciences Center

CASE STUDY

The University of Tennessee Health Science Center (UTHSC) operates two Strong Start group prenatal care sites in Memphis, Tennessee. Hollywood Primary Care (formerly Hollywood Health Loop) is an outpatient clinic in North Memphis. The Regional One Health Outpatient Center (formerly called Med Outpatient) is co-located with the Regional One Medical Center and serves as the high-risk referral clinic for pregnant women in the area. Strong Start enables the continuation and expansion of group prenatal care at both sites, which have operated groups following a modified version of the Centering Healthcare Institute's (CHI) CenteringPregnancy (Centering) model since 2005. Strong Start was used to fund the positions of a program manager, group facilitators and a high-risk patient coordinator with a focus on improving data collection and program management. Strong Start's "value addition" to the awardee's preexisting group prenatal care approach has been case management services where facilitators link participants to psychosocial services and community resources.

Highlights from the evaluation's third round of data collection include:

- There have not been any major changes to program structure or services at either site. Both continue to follow a modified CenteringPregnancy curriculum of 8 sessions and each group has 8-12 participants with a reported no-show rate of around 45-50 percent at both sites. Midwives and Centering facilitators manage the sessions, and participants have access to OB/GYNs or maternal-fetal medicine specialists (MFMs) within the UTHSC system if needed.
- At the time of the case study interviews, program staff reported they were on track to meet their revised enrollment goals and planned to close enrollment by the end of June 2016.
- Across the sites, key informants felt that the Participant Level Process Evaluation (PLPE) data presented by the case study team was accurate. Data through Quarter 3 2015 indicated a preterm birth rate of 13 percent, a low birthweight rate of 7 percent, a breastfeeding initiation rate of 60 percent, a vaginal delivery rate of 46 percent (with a significant amount of missing data), and a postpartum family planning counseling rate of 90 percent. Though key informants agreed that there was room for improvement with all of these rates, they believed that the rates were better than those observed among patients receiving traditional prenatal care.
- Strong Start participants usually select a method of family planning at or before the time of delivery and obtain their chosen method at their 6-week postpartum appointment. Access to long-acting reversible contraceptives (LARCs) is improved because the sites are

participating in the Step Ahead initiative, a program that provides prenatal and postpartum patients with access to family planning counseling and supplies. A barrier in administering LARCs is that the devices can only be placed at the 6-week postpartum appointment, per Medicaid managed care organization (MCO) guidelines.

- 17P is administered to eligible participants once they are referred to the high-risk clinic at Regional One Center.
- Lack of reliable transportation is a major barrier for participants enrolled in Strong Start. Factors that discourage participants from using the MCO-contracted (Medicaid) transportation include inability to bring children who do not have an appointment and lengthy waiting times. Lack of childcare was not a problem at either site, as staff let participants bring children for the sessions.
- Overall, provider buy-in to and support of Strong Start has improved as the program progressed, but many informants suggested that providers could be engaged further.
- UTHSC offered group prenatal care prior to Strong Start and the program staff is hopeful that the sites will continue to offer the enhanced model of care to their clients after Strong Start funding ends, with funding from Regional One.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, the University of Tennessee Health Science Center (UTHSC) had Intake Forms for 53.7 percent of participants enrolled through Quarter 1 2016 (347 Intake Forms for 646 participants). In addition, UTHSC submitted 202 Third Trimester Surveys, 90 Postpartum Surveys, and 281 Exit Forms. The tables below present data collected on UTHSC's participants with aggregated rates by approach for the purpose of comparison. Given the low response rates for UTHSC, these descriptive results should be interpreted with considerable caution.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	45	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	646	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	264	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	347	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	53.7	83.4	83.8	95.7	90.5

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q1 2016	N	202	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	76.5	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	90	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	34.1	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	281	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	106.4	128.5	106.7	101.0	106.7

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother’s Age at Intake	N	347	6594	8559	22996	38149
Less than 18 years of age	%	13.8	2.8	6.8	5.6	5.4
18 through 34 years of age	%	81.3	87.6	83.3	84.0	84.5
35 years and older	%	4.0	9.0	7.8	9.3	8.9
Missing	%	0.9	0.6	2.1	1.1	1.2
Race and Ethnicity	N	347	6594	8559	22996	38149
Hispanic	%	0.9	24.8	39.1	26.7	29.1
Non-Hispanic white	%	1.7	53.6	12.5	22.9	25.9
Non-Hispanic black	%	81.3	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	0.0	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.0	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	0.0	3.6	2.9	1.5	2.1
Missing	%	16.1	0.8	2.4	1.6	1.6
Employed at Intake	N	347	6594	8559	22996	38149
Yes	%	23.1	41.4	34.3	39.6	38.7
No	%	56.8	57.3	62.0	58.6	59.1
Missing	%	20.2	1.3	3.7	1.8	2.2
Education Level at Intake	N	347	6594	8559	22996	38149
Less than high school	%	18.4	13.5	23.2	24.2	22.1
High school graduate or GED	%	43.5	52.7	46.7	50.3	49.9
Bachelor’s degree	%	0.9	10.9	3.3	2.8	4.3
Other college degree(s)	%	1.4	12.5	7.2	6.3	7.5
Missing	%	35.7	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	347	6594	8559	22996	38149
Married, living with spouse	%	4.3	39.7	17.6	17.8	21.6
Married, not living with spouse	%	0.3	1.7	2.0	2.0	1.9
Living with a partner	%	10.1	32.7	31.9	30.3	31.1
In a relationship but not living together	%	18.7	14.3	23.6	29.3	25.5
Not in a relationship right now	%	9.2	10.2	17.3	18.0	16.5
Missing	%	57.3	1.3	7.7	2.6	3.5

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Smokes Cigarettes at Intake	N	347	6594	8559	22996	38149
Yes	%	3.5	10.0	8.2	12.9	11.3
No	%	16.7	80.6	73.8	80.9	79.3
Missing	%	79.8	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	347	6594	8559	22996	38149
Yes	%	9.8	17.2	20.0	16.7	17.5
No	%	30.0	76.9	65.6	74.2	72.7
Missing*	%	60.3	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	347	6594	8559	22996	38149
Yes	%	10.7	21.0	24.3	22.2	22.5
No	%	24.5	68.8	54.0	66.9	64.3
Missing*	%	64.9	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	347	6594	8559	22996	38149
Yes	%	7.2	20.2	16.1	19.0	18.6
No	%	36.3	77.9	76.0	76.5	76.7
Missing*	%	56.5	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	125	2768	3214	8802	14784
<18 months	%	0.0	29.1	18.1	20.6	21.5
≥18 months	%	0.0	48.8	52.1	54.4	52.8
Missing	%	100.0	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	125	2768	3214	8802	14784
Yes	%	9.6	9.6	11.2	17.8	14.8
No	%	70.4	89.7	75.9	70.0	75.0
Not Known	%	16.8	0.3	9.4	8.4	7.1
Missing	%	3.2	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	125	2768	3214	8802	14784
Yes	%	10.4	1.8	8.3	13.9	10.4
No	%	68.0	97.1	64.0	69.1	73.3
Not Known	%	17.6	0.4	14.5	12.4	10.6
Missing	%	4.0	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	281	4747	6148	14056	24951
Yes	%	2.5	0.2	2.4	1.0	1.2
No	%	74.0	99.6	66.5	89.1	85.5
Not Known	%	6.4	0.0	26.8	6.8	10.4
Missing	%	17.1	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	281	4747	6148	14056	24951

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	7.1	0.3	3.6	2.0	2.1
No	%	70.5	99.4	78	88.4	87.9
Not Known	%	6.4	0.0	13.7	6.4	7.0
Missing	%	16.0	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	281	4747	6148	14056	24951
Yes	%	6.8	0.6	6.4	7.6	6.0
No	%	65.8	99.2	78.6	83.3	85.2
Not Known	%	6.4	0.0	10.5	6.1	6.0
Missing	%	21.0	0.2	4.5	3.0	2.8

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	281	4747	6148	14056	24951
Yes	%	1.1	2.4	5.3	5.7	5.0
No	%	72.6	97.2	75.2	76.0	79.8
Not Known	%	12.8	0.1	14.4	14.4	11.7
Missing	%	13.5	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	281	4747	6148	14056	24951
Yes	%	11.4	1.3	7.0	6.3	5.5
No	%	60.9	98.3	73.3	75.6	79.4
Not Known	%	12.5	0.1	14.5	14.1	11.5
Missing	%	15.3	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	173	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	0.0	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	0.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	0.0	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	0.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	43	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	2.3	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0

Data Element	N, Mean, Median, or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Enhanced Services Information	N	44	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	3.4	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	3.0	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	17	355	619	2185	3159
Yes	%	0.0	2.0	7.6	14.6	11.8
No	%	29.4	87.3	60.6	55.9	60.4
Not known	%	52.9	0.0	15.8	18.0	15.6
Missing	%	17.6	10.7	16.0	11.4	12.2
Total Number of Exit Forms with Valid Birth Information	N	203	4686	4678	10794	20158
Number of Babies Born	N	204	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	268	4667	5728	12895	23290
Yes	%	20.5	15.8	24.9	19.0	19.8
No	%	32.5	82.4	39.9	36.5	46.5
Not known	%	27.6	0.6	25.3	31.1	23.6
Missing	%	19.4	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	281	4747	6148	14056	24951
Vaginal delivery	%	47.7	86.6	53.9	51.8	59.0
C-Section	%	21.0	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	31.3	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	74.6	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	17	226	672	1921	2819
VBAC	%	11.8	31.4	22.9	16.5	19.2
Repeat C-Section	%	88.2	68.6	77.1	83.5	80.8
Scheduled C-Section	N	59	597	1375	3533	5505
Yes	%	20.3	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	204	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	31	242	512	1621	2375
	%	15.2	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	107	4432	3604	8382	16418
	%	52.5	94.4	76.4	76.2	80.4

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	N	66	21	604	1003	1628
	%	32.4	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	204	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	22	178	468	1484	2130
	%	10.8	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	122	4406	3999	8763	17168
	%	59.8	93.8	84.7	79.6	84.1
Missing	N	60	111	253	759	1123
	%	29.4	2.4	5.4	6.9	5.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	90	3407	3983	10659	18049
Yes	%	64.4	85.4	62.8	62.6	66.9
No	%	31.1	7.1	11.7	22.9	17.5
Prefer not to answer	%	1.1	0.4	5.6	1.1	2.0
Missing	%	3.3	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	97.4	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	90	3407	3983	10659	18049
Yes	%	85.6	69.5	61.6	71.1	68.7
No	%	4.4	19.7	11.6	12.6	13.7
Unsure	%	0.0	2.8	6.2	1.9	3.0
Missing	%	10.0	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

In April 2015, the evaluation team spoke with the Division of Policy, Planning, and Assessment within the Tennessee Department of Health (TDH) to learn about the state’s willingness to and process for releasing state Medicaid and birth certificate data to Urban for the impact analysis of the Strong Start evaluation. State officials were receptive to supporting the evaluation, and the Office of Vital Records said that it would be able to link Medicaid and birth certificate data on our behalf. The evaluation team submitted a data request form to the Office of Vital Records in June 2015 and submitted an IRB application to the TDH in January 2016. After the standard 12-week review process, the IRB office requested minor revisions to the application in May 2016, which were submitted in August 2016. Upon IRB approval, the Office of Vital Records will merge the Medicaid and birth certificate data and transfer a linked file to Urban.

Virginia Commonwealth University

CASE STUDY

Virginia Commonwealth University (VCU) is a university health system implementing Group Prenatal Care (the Centering Pregnancy (Centering) model), and increasingly the Maternity Care Home model (begun in Year 2) for women enrolled too late to participate in Centering or who decline to participate in Centering. At the time of the Year 3 interviews, VCU was operating three of its original five Strong Start sites in central and northern Virginia and added one additional site, the Centra Forest Women's Center in Lynchburg. The Year 3 site visit focused on two sites: the VCU Health System (referred to locally as the Medical College of Virginia or MCV), which operates Centering and Maternity Care Home models, and Richmond Health District (RHD), a public health clinic staffed primarily by nurses that offers Centering under Strong Start. The awardee reported that as of Quarter 1 2016, 1,200 women had been enrolled in Strong Start, a substantial increase over Year 2. VCU's Maternity Care Home model varies by site and may include care navigation, connection to classes and community services, social worker visits, or consultation with a nutritionist. VCU informants reported that since our telephone interview last year, the program generally is progressing very well and has been strengthened by a number of changes in both outreach and services offered.

Highlights from the evaluation's third round of data collection include:

- One new site, the Centra Forest Women's Center in Lynchburg, joined the VCU Strong Start program in Quarter 1 2016 and is reportedly successfully enrolling women.
- Three physician facilitators left MCV (and were not replaced) making physician-led groups fewer in number.
- MCV has discontinued its shortened seven-session version of the Centering curriculum but has introduced a Centering group for pregnant teenagers.
- Strong Start enrollment has increased substantially, from 437 ever enrolled in Quarter 3 2015 to 1,200 ever enrolled at the end of Quarter 1 2016, in part reflecting growing participation in the Maternity Care Home model. Enrollment has also been boosted by the continued partnership with the Medicaid agency and with other programs and departments that direct pregnant women to Centering.
- While specific enhancements vary by site, enhanced services generally available to Strong Start participants (regardless of whether or not they participate in Centering) include dental services, care navigation, social service coordination, and referrals to Healthy Start, which provides home visits. Year 3 key informant interviews and focus groups focused on the Centering approach.

- Key informants reported that Strong Start is improving preterm birth rates and other outcomes. Participant Level Process Evaluation (PLPE) data indicate that the incidence of pre-term births is 7.6 percent through Quarter 3 2015 in the VCU Strong Start sites, and some informants believe RHD's rate is even lower, exceeding VCU's goal of achieving a 10 percent preterm delivery rate.
- Family planning is reported to be a priority at all sites, with substantial education provided during the prenatal period. Both sites provide comprehensive contraceptive services. RHD informants noted that over 90 percent of participants have selected contraception prior to delivery.
- Informants identified several challenges in Year 3, particularly loss of the director of the program, a number of facilitating physicians, and midwives. Key informants at the clinical level reported a decline in physician and administrator support for Centering at MCV, which they attributed to leadership changes. Informants at the awardee level insist that this type of support has remained the same in Year 3, but noted that the loss of providers has significantly reduced the capacity of the program. Leaders are also reportedly concerned about Centering's impact on medical/surgical training opportunities for residents and on revenue at the OB/GYN clinic.
- Social services coordination and mental health services are extremely understaffed both at Strong Start sites and in the community, resulting in access problems.
- Transportation does not appear to be a significant barrier to care, though child care continues to be a barrier for some participants and is a common reason women decline Centering. VCU now allows Centering groups to vote on whether children can accompany their mothers to sessions.
- At MCV, key informants reported that limited physician buy-in, a decrease in physician participation as group facilitators, and tension between physicians and Centering nurses contributed to reductions in the size of the Centering program. The awardee key informants attribute the contraction of the Centering program exclusively to significant staff turnover, including the loss of three physicians who were strong supporters of the program and have not been replaced by other physicians in the department. They did not explain why departing physicians were not replaced by others.
- Focus group participants had overwhelmingly favorable and enthusiastic responses to Centering. Little information was available on the responses of participants who received non-Centering enhanced services. Key informants did not appear to be engaged with non-Centering participants.
- The most significant lesson learned in Year 3 is the importance of leadership and provider support in the viability and operation of Centering. Focus group participants also suggested that more attention be devoted to the individual medical assessments prior to each Centering session.

- The outlook for sustainability varies across sites. Informants at MCV are were pessimistic about sustaining Centering because of lack of buy-in from new leadership but are working to demonstrate a positive return on investment that will encourage Medicaid managed care companies to continue Centering and its enhancements under Strong Start. Informants at the awardee level reported that Centering will continue after Strong Start funding ends but will not be expanded because of limited funding. Data collection will not continue. By contrast, key informants from RHD described strong leadership support, confidence in improved outcomes, and certainty about continuing the Centering program after funding ends.
- Informants identified several challenges experienced this year, particularly loss of the director of the program, a number of facilitating physicians, and midwives.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 1 2016. By March 2016, Virginia Commonwealth University (VCU) had Intake Forms for 97.1 percent of participants enrolled through Quarter 1 2016 (1,250 Intake Forms for 1,287 participants). In addition, VCU submitted 388 Third Trimester Surveys, 681 Postpartum Surveys, and 1,017 Exit Forms. The tables below present data collected on VCU's participants with aggregated rates by approach for the purpose of comparison.

Table 1. Enrollment and Forms Submitted, through Quarter 1 2016

Data Element	N or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Newly Enrolled in Q1 2016	N	84	756	1008	1961	3725
Total Ever Enrolled through Q1 2016	N	1287	7904	10211	24023	42138
Number of Women Delivered through Q1 2016	N	611	3694	5761	13922	23377
Intake Forms Received through Q1 2016	N	1250	6594	8559	22996	38149
Received through Q1 2016 as a percentage of the number of women ever enrolled	%	97.1	83.4	83.8	95.7	90.5
Third Trimester Surveys Received through Q1 2016	N	388	4088	4567	11732	20387
Received through Q1 2016 as a percentage of the number of women delivered	%	63.5	110.7	79.3	84.3	87.2
Postpartum Surveys Received through Q1 2016	N	681	3407	3983	10659	18049
Received through Q1 2016 as a percentage of the number of women delivered	%	111.5	92.2	69.1	76.6	77.2
Exit Forms Received through Q1 2016	N	1017	4747	6148	14056	24951
Received through Q1 2016 as a percentage of the number of women delivered	%	166.4	128.5	106.7	101.0	106.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 2. Sociodemographic Risk Factors, through Quarter 1 2016

Data Element	N or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1250	6594	8559	22996	38149
Less than 18 years of age	%	5.6	2.8	6.8	5.6	5.4
18 through 34 years of age	%	84.2	87.6	83.3	84.0	84.5
35 years and older	%	9.6	9.0	7.8	9.3	8.9
Missing	%	0.6	0.6	2.1	1.1	1.2
Race and Ethnicity	N	1250	6594	8559	22996	38149
Hispanic	%	22.2	24.8	39.1	26.7	29.1
Non-Hispanic white	%	13.5	53.6	12.5	22.9	25.9
Non-Hispanic black	%	49.1	15.7	40.7	44.9	38.9
Non-Hispanic asian	%	4.3	0.9	1.1	1.5	1.3
Non-Hispanic other	%	0.8	0.7	1.3	1.0	1.1
Non-Hispanic multiple race	%	4.7	3.6	2.9	1.5	2.1
Missing	%	5.3	0.8	2.4	1.6	1.6
Employed at Intake	N	1250	6594	8559	22996	38149
Yes	%	34.9	41.4	34.3	39.6	38.7
No	%	53.2	57.3	62.0	58.6	59.1
Missing	%	11.9	1.3	3.7	1.8	2.2
Education Level at Intake	N	1250	6594	8559	22996	38149
Less than high school	%	19.7	13.5	23.2	24.2	22.1
High school graduate or GED	%	41.8	52.7	46.7	50.3	49.9
Bachelor's degree	%	3.9	10.9	3.3	2.8	4.3
Other college degree(s)	%	6.2	12.5	7.2	6.3	7.5
Missing	%	28.3	10.4	19.7	16.4	16.1
Relationship Status at Intake	N	1250	6594	8559	22996	38149
Married, living with spouse	%	17.7	39.7	17.6	17.8	21.6
Married, not living with spouse	%	3.0	1.7	2.0	2.0	1.9
Living with a partner	%	24.2	32.7	31.9	30.3	31.1
In a relationship but not living together	%	19.8	14.3	23.6	29.3	25.5
Not in a relationship right now	%	18.3	10.2	17.3	18.0	16.5
Missing	%	17.0	1.3	7.7	2.6	3.5
Smokes Cigarettes at Intake	N	1250	6594	8559	22996	38149
Yes	%	9.2	10.0	8.2	12.9	11.3
No	%	51.9	80.6	73.8	80.9	79.3
Missing	%	38.9	9.4	18.0	6.2	9.4
Food Insecure at Intake	N	1250	6594	8559	22996	38149
Yes	%	20.1	17.2	20.0	16.7	17.5
No	%	48.6	76.9	65.6	74.2	72.7
Missing*	%	31.3	5.9	14.5	9.1	9.8
Exhibiting Depressive Symptoms at Intake**	N	1250	6594	8559	22996	38149
Yes	%	23.3	21.0	24.3	22.2	22.5
No	%	40.2	68.8	54.0	66.9	64.3
Missing*	%	36.5	10.2	21.7	11.0	13.2
Have Experienced Intimate Partner Violence in a Relationship***	N	1250	6594	8559	22996	38149

Data Element	N or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	12.4	20.2	16.1	19.0	18.6
No	%	60.7	77.9	76	76.5	76.7
Missing*	%	26.9	1.9	7.8	4.4	4.8

Notes: Cells that contain one asterisk indicate that the 'Missing' category includes respondents who did not answer all of the items required to calculate this measure.

Cells that contain two asterisks indicate that this is as measured by a shortened version of the CES-D.

Cells that contain three asterisks indicate that this is as measured by the Slapped, Threatened, and Throw (STaT) screener.

Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 3. Medical Risk Factors Prior to Current Pregnancy, through Quarter 1 2016

Data Element	N or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	513	2768	3214	8802	14784
<18 months	%	18.4	29.1	18.1	20.6	21.5
≥18 months	%	53.0	48.8	52.1	54.4	52.8
Missing	%	28.5	22.1	29.9	25.1	25.6
Previous Preterm Birth(s) Between 20 and 36 weeks, 6 days EGA	N	513	2768	3214	8802	14784
Yes	%	15.6	9.6	11.2	17.8	14.8
No	%	74.3	89.7	75.9	70.0	75.0
Not Known	%	10.1	0.3	9.4	8.4	7.1
Missing	%	0.0	0.4	3.5	3.8	3.1
Previous Birth(s) Less than 2,500 grams	N	513	2768	3214	8802	14784
Yes	%	9.0	1.8	8.3	13.9	10.4
No	%	61.8	97.1	64.0	69.1	73.3
Not Known	%	29.2	0.4	14.5	12.4	10.6
Missing	%	0.0	0.7	13.2	4.5	5.7
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1017	4747	6148	14056	24951
Yes	%	0.3	0.2	2.4	1.0	1.2
No	%	3.8	99.6	66.5	89.1	85.5
Not Known	%	95.8	0.0	26.8	6.8	10.4
Missing	%	0.1	0.2	4.4	3.0	2.8
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1017	4747	6148	14056	24951
Yes	%	0.4	0.3	3.6	2.0	2.1
No	%	40.4	99.4	78	88.4	87.9
Not Known	%	59.1	0.0	13.7	6.4	7.0
Missing	%	0.1	0.3	4.7	3.2	3.0
Pre-Pregnancy Diagnosis of Hypertension	N	1017	4747	6148	14056	24951
Yes	%	3.7	0.6	6.4	7.6	6.0
No	%	56.1	99.2	78.6	83.3	85.2
Not Known	%	40.0	0.0	10.5	6.1	6.0
Missing	%	0.1	0.2	4.5	3.0	2.8

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 4. Medical Risk Factors during the Current Pregnancy, through Quarter 1 2016

Data Element	N or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1017	4747	6148	14056	24951
Yes	%	2.3	2.4	5.3	5.7	5.0
No	%	45.6	97.2	75.2	76.0	79.8
Not Known	%	52.0	0.1	14.4	14.4	11.7
Missing	%	0.1	0.3	5.1	4.0	3.6
Pregnancy-Related Hypertension	N	1017	4747	6148	14056	24951
Yes	%	2.7	1.3	7.0	6.3	5.5
No	%	45.2	98.3	73.3	75.6	79.4
Not Known	%	52.0	0.1	14.5	14.1	11.5
Missing	%	0.1	0.3	5.1	4.0	3.6

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

Table 5. Participant Visits, Encounters, and Services; Preterm Labor Management; Birth and Delivery Methods, through Quarter 1 2016

Data Element	N, Mean, Median, or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Visit Information	N	710	4722	5116	12010	21848
Average number of individual prenatal visits per participant	Mean	5.8	10.9	4.3	9.0	8.3
Median number of individual prenatal visits per participant	Median	6.0	11.0	4.0	10.0	9.0
Average number of group prenatal visits per participant	Mean	3.2	0.2	5.0	0.1	1.2
Median number of group prenatal visits per participant	Median	3.0	0.0	5.0	0.0	0.0
Total Number of Exit Forms with Valid Enhanced Encounter Information	N	143	4287	2178	11889	18354
Average number of enhanced encounters per participant	Mean	1.8	4.0	2.4	4.8	4.3
Median number of enhanced encounters per participant	Median	1.0	3.0	2.0	3.0	3.0
Total Number of Exit Forms with Valid Enhanced Services Information	N	-	1354	1018	4312	6684
Average number of enhanced services per participant	Mean	-	1.5	2.2	4.4	3.5
Median number of enhanced encounters per participant	Median	-	1.0	1.0	2.0	2.0
Progesterone Injections for Women with Previous Preterm Births	N	87	355	619	2185	3159
Yes	%	3.4	2.0	7.6	14.6	11.8
No	%	35.6	87.3	60.6	55.9	60.4
Not known	%	60.9	0.0	15.8	18.0	15.6
Missing	%	0.0	10.7	16.0	11.4	12.2

Data Element	N, Mean, Median, or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	468	4686	4678	10794	20158
Number of Babies Born	N	472	4695	4720	11006	20421
Induction of Labor Excluding Planned C-Sections	N	1017	4667	5728	12895	23290
Yes	%	11.4	15.8	24.9	19.0	19.8
No	%	35.6	82.4	39.9	36.5	46.5
Not known	%	53.0	0.6	25.3	31.1	23.6
Missing	%	0.0	1.2	10.0	13.3	10.1
Delivery Method from Exit Data	N	1017	4747	6148	14056	24951
Vaginal delivery	%	37.0	86.6	53.9	51.8	59.0
C-Section	%	12.6	12.6	22.3	24.9	21.9
Vaginal and C-Section	%	0.0	0.0	0.0	0.3	0.2
Missing	%	50.4	0.9	23.7	23.0	19.0
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	110.0	90.8	82.7	84.7	86.0
Delivery Method Among Women with Previous C-Section	N	57	226	672	1921	2819
VBAC	%	26.3	31.4	22.9	16.5	19.2
Repeat C-Section	%	73.7	68.6	77.1	83.5	80.8
Scheduled C-Section	N	128	597	1375	3533	5505
Yes	%	0.0	13.4	30.4	32.2	29.7

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Yellow cells labeled with a dash symbol indicate that between 0 and 11 responses had been received during the reporting period. Statistics were only calculated for items with at least 11 responses.

Table 6. Infant Outcomes, through Quarter 1 2016

Data Element	N or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Number of Live Births by Estimated Gestational Age (EGA)	N	472	4695	4720	11006	20421
Preterm Births, <37 weeks EGA	N	36	242	512	1621	2375
	%	7.6	5.2	10.8	14.7	11.6
Non-Preterm Births, ≥37 weeks EGA	N	262	4432	3604	8382	16418
	%	55.5	94.4	76.4	76.2	80.4
Missing	N	174	21	604	1003	1628
	%	36.9	0.4	12.8	9.1	8.0
Number of Live Births by Birth Weight	N	472	4695	4720	11006	20421
Low Birth Weight, <2500 grams	N	43	178	468	1484	2130
	%	9.1	3.8	9.9	13.5	10.4
Not Low Birth Weight, ≥ 2500 grams	N	329	4406	3999	8763	17168
	%	69.7	93.8	84.7	79.6	84.1
Missing	N	100	111	253	759	1123
	%	21.2	2.4	5.4	6.9	5.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.

Table 7. Breastfeeding and Family Planning, through Quarter 1 2016

Data Element	N or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery from Postpartum Survey Data	N	681	3407	3983	10659	18049
Yes	%	53.5	85.4	62.8	62.6	66.9
No	%	16.4	7.1	11.7	22.9	17.5
Prefer not to answer	%	23.2	0.4	5.6	1.1	2.0
Missing	%	6.9	7.1	19.9	13.4	13.6
Women Who Breastfed As a Percentage of Women Who Planned to Breastfeed	%	102.8	99.6	98.4	99.6	99.4
Had Birth Control Counseling After Delivery	N	681	3407	3983	10659	18049
Yes	%	65.1	69.5	61.6	71.1	68.7
No	%	2.8	19.7	11.6	12.6	13.7
Unsure	%	25.3	2.8	6.2	1.9	3.0
Missing	%	6.9	8.1	20.6	14.3	14.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated.

TECHNICAL ASSISTANCE

In May 2015, the evaluation team spoke with the Strong Start awardee in Virginia, Virginia Commonwealth University (VCU). VCU was asked by the Virginia Department of Medical Assistance Services (DMAS) and the Virginia Office of Vital Records to coordinate our data request for the state’s release of Medicaid and birth certificate data to Urban. The state, with assistance from VCU, was receptive to supporting the evaluation, and DMAS staff expressed intention to work with Vital Records link the Medicaid and birth certificate data for our impact analysis. VCU had also requested Medicaid and birth certificate data from the state to conduct its own evaluations of its Strong Start program and was exploring whether our data request can fall under its current agreement with the state or if a separate data sharing agreement would be required. The team completed and submitted a data sharing agreement in November 2015 to the Virginia Department of Health (DOH), and Urban received a fully executed data sharing agreement in April 2016. We received the 2014 birth certificate data in May 2016.