

Strong Start for Mothers and Newborns Evaluation:

YEAR 4 ANNUAL REPORT

Volume 2: Awardee Specific Reports

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Introduction

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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, analysis of 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 telephone interviews with all awardees and one site visit to Virginia Commonwealth University, all conducted by the evaluation team between October 2016 and May 2017. Information obtained from other background documents is also included.

Participant-level process evaluation data collected for each woman enrolled in Strong Start are presented to describe the sociodemographic characteristics of participants providing information on participant risk profiles, early outcomes, and satisfaction with care. Available data from program inception through Quarter 4 2016¹ are presented for each awardee and by enhanced prenatal care approach. Programs were all required to cease Strong Start-funded participant services in February 2017, so some additional data will be presented in the evaluation's Final Report.

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. Results of these analyses will be available in the evaluation's Final Report.

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¹ Strong Start program quarters follow the traditional calendar year. That is, Q4 2016 is the period from October 1, 2016 through December 31, 2016.

Access Community Health Network

CASE STUDY

ACCESS Community Health Network (ACCESS) is a large, multisite FQHC network with health centers in the city of Chicago and surrounding suburbs. ACCESS implemented a Maternity Care Home model at most of its prenatal care sites. The number of sites implementing Strong Start fluctuated slightly as sites lost and gained prenatal care providers, but remained close to 30 throughout the award. ACCESS's Strong Start intervention involved care coordination services designed to assist patients with developing and implementing a care plan for their pregnancy and postpartum period, provide support and links to resources in the community, and help patients navigate the ACCESS network and their Medicaid managed care plan. ACCESS's care coordination staff included social workers and nurses, which allowed care coordinators to address both the clinical and psychosocial needs of their patients. ACCESS also offers CenteringPregnancy group prenatal care at one of its larger sites, but this effort preceded Strong Start and is not funded by the award. As a result some participants received both CenteringPregnancy and care coordination through the Strong Start Maternity Care Home. The awardee ended enrollment in January 2016, and deliveries ended by September 2016. Total enrollment in the program was 2,666 women.

ACCESS has built broad care coordination capacity for high-risk patients throughout the network, largely because of experience and lessons derived from Strong Start. The awardee has sustained its Maternity Care Home model and continues to employ six care coordinators who support pregnant patients (at the time of writing, ACCESS was in the process of hiring a seventh care coordinator). The ACCESS network's behavioral health specialists and Licensed Clinical Social Workers (LCSWs) have also begun to work more closely with the care coordinators, which has improved "warm handoffs" between providers. ACCESS has also sustained data collection efforts that stem from Strong Start; the awardee adapted the Strong Start Intake Form and will continue to assess new patients using a revised version of the form.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Access Community Health Network (ACCESS) had Intake Forms for 100.1 percent of participants enrolled through Quarter 4 2016 (2,668 Intake Forms for 2,666 participants). In addition, ACCESS submitted 1,907 Third Trimester Surveys, 1,845 Postpartum Surveys, and 1,993 Exit Forms. Tables 1 through 7 present data collected on ACCESS's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from ACCESS.)

Table 1. Enrollment and Forms Submitted, through Quarter 4, 2016

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	2666	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1952	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	2668	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	100.1*	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	1907	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	71.5	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	1845	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	69.2	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1993	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	74.8	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated. Cells that contain one asterisk (*) indicate that enrollment totals reported on program monitoring reports are the denominator for form receipt and may differ slightly from what awardees have reported in their PLPE data, resulting in percentages <100 percent.

Table 2. Sociodemographic Risk Factors, through Quarter 4, 2016

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	2668	7407	9821	25353	42581
Less than 18 years of age	%	6.3	2.7	6.9	5.5	5.3
18 through 19 years of age	%	9.3	6.4	12.4	9.5	9.6
20 through 34 years of age	%	70.7	81.4	71.7	74.4	75
35 years and older	%	13.2	9.1	7.4	9.6	9.0
Missing	%	0.5	0.4	1.6	1.0	1.1
Race and Ethnicity	N	2668	7407	9821	25353	42581
Hispanic	%	50.7	25.0	36.3	27.7	29.2
White	%	4.9	52.9	12.4	22.0	25.2
Black	%	40.9	16.0	44.1	44.4	39.4
Other race or multiple races	%	2.0	5.3	5.0	4.2	4.6
Missing	%	1.5	0.8	2.3	1.7	1.7
Employed at Intake	N	2668	7407	9821	25353	42581
Yes	%	39.1	41.6	34.3	39.3	38.6
No	%	59.9	57.1	61.3	58.8	59.1
Missing	%	1.0	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	2668	7407	9821	25353	42581
Yes	%	1.0	1.3	1.8	1.5	1.5
Missing	%	99.0	98.7	98.2	98.5	98.5
Education Level at Intake	N	2668	7407	9821	25353	42581
Less than high school	%	25.8	13.2	22.2	23.7	21.5
High school graduate or GED	%	41.3	52.6	47.8	49.9	49.9
Bachelor's degree	%	2.7	11.2	3.1	2.9	4.4
Other college degree(s)	%	6.0	12.5	6.9	6.2	7.5
Missing	%	24.3	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	2668	7407	9821	25353	42581
Married, living with spouse	%	20.6	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.6	1.7	1.8	2.0	1.9
Living with a partner	%	31.9	32.7	31.3	30.3	30.9
In a relationship but not living together	%	28.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	15.9	9.9	17.2	18.0	16.4
Missing	%	1.7	1.3	9.5	2.6	4.0

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Smokes Cigarettes at Intake	N	2668	7407	9821	25353	42581
Yes	%	7.5	9.7	8.1	12.4	10.9
No	%	87.5	81.0	71.9	81.6	79.3
Missing	%	5.1	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	2668	7407	9821	25353	42581
Yes	%	25.8	17.2	19.0	16.5	17.2
No	%	67.7	76.7	64.6	74.5	72.6
Missing*	%	6.5	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	2668	7407	9821	25353	42581
Yes	%	19.0	20.8	23.9	21.6	22.0
No	%	71.2	68.7	53.0	67.0	64.1
Missing*	%	9.8	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	2668	7407	9821	25353	42581
Yes	%	17.2	20.0	15.4	18.7	18.2
No	%	80.8	78.0	75.0	77.0	76.7
Missing*	%	2.0	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	1340	3878	4458	14417	22753
<18 months	%	17.0	29.8	17.5	21.7	22.4
≥18 months	%	52.8	51.2	50.8	55.7	54.0
Missing	%	30.3	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	1340	3878	4458	14417	22753
Yes	%	18.2	9.3	10.9	16.2	14.0
No	%	77.3	88.6	74.5	68.8	73.3
Not Known	%	3.0	0.3	8.7	6.8	6.0
Missing	%	1.5	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	1340	3878	4458	14417	22753
Yes	%	16.1	1.6	8.5	12.6	9.9
No	%	71.9	96.1	64.0	67.4	71.6
Not Known	%	10.1	0.3	12.4	11.1	9.5
Missing	%	1.9	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1993	6401	8494	23070	37965
Yes	%	0.3	0.2	2.4	1.1	1.2
No	%	99.3	99.4	65.4	83.9	82.4
Not Known	%	0.1	0.0	25.0	7.5	10.2
Missing	%	0.4	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1993	6401	8494	23070	37965
Yes	%	5.0	0.3	3.8	2.1	2.2
No	%	94.7	99.3	76.3	84.6	85.2
Not Known	%	0.1	0.0	12.6	5.7	6.3

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	0.3	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1993	6401	8494	23070	37965
Yes	%	6.0	0.6	6.5	6.8	5.7
No	%	93.4	99.0	76.3	80.3	82.5
Not Known	%	0.2	0.0	9.8	5.5	5.6
Missing	%	0.5	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1993	6401	8494	23070	37965
Yes	%	7.5	2.5	5.0	5.8	5.0
No	%	91.8	97.0	75.2	72.7	77.4
Not Known	%	0.0	0.1	12.3	13.4	10.9
Missing	%	0.7	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1993	6401	8494	23070	37965
Yes	%	5.2	1.3	6.9	5.7	5.2
No	%	94.1	98.1	73.2	72.8	77.2
Not Known	%	0.1	0.1	12.4	13.3	10.9
Missing	%	0.7	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1993	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1448	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	72.7	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	9.9	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	58	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	2.9	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	4.9	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	1991	6389	7929	21646	35964
Received Enhanced Encounters	N	1987	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	99.8	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	5.3	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	1982	6210	7424	17929	31563

Data Element	Number (N), Mean, or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Enhanced Services	N	474	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	23.9	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	3.4	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	307	484	867	3380	4731
Yes	%	17.9	3.5	7.4	13.4	11.3
No	%	60.3	89.9	58.6	55.2	59.4
Not known	%	0.0	0.0	15.7	18.0	15.7
Missing	%	21.8	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	1981	6337	6825	19298	32460
Number of Babies Born	N	2019	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1772	6256	7939	21160	35355
Yes	%	16.8	16.1	23.8	19.4	19.8
No	%	48.2	81.7	38.3	35.1	44.0
Not known	%	6.5	0.5	24.8	28.8	22.9
Missing	%	28.4	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1993	6401	8494	23070	37965
Vaginal delivery	%	50.4	86.0	54.0	51.9	58.1
C-Section	%	23.7	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0	0.0	0.1	0.2	0.1
Missing	%	25.9	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	83.0	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	297	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	17.5	28.8	23.6	16.4	18.9
Repeat C-Section	%	82.5	71.2	76.4	83.7	81.2
Scheduled C-Section	N	473	820	1873	5597	8290
Yes	%	46.3	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1479	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	14.1	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	83.8	94.4	81.4	81.0	83.9
Missing	%	2.2	0.3	7.4	4.8	4.4
Infant Birthweight	N	1479	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	11.8	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	85.4	94.2	84.9	82.4	85.3
Missing	%	2.8	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	ACCESS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	1845	5149	5684	15106	25939
Yes	%	72.4	83.6	57.5	63.4	66.1
No	%	21.7	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.7	0.7	5.9	2.5	2.9
Missing	%	5.2	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	99.9	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	1845	5149	5684	15106	25939
Yes	%	72.4	69.5	57.2	72.3	68.4
No	%	16.7	18.1	10.7	11.7	12.7
Unsure	%	3.0	2.7	5.9	2.4	3.2
Missing	%	7.9	9.7	26.2	13.6	15.6

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 appeared that Illinois would not be included in the evaluation. However, in December 2016, the team met to discuss the possibility of using aggregate Vital Records data. A new data request for aggregate data was submitted in April 2017.

Albert Einstein Healthcare Network

CASE STUDY

The **Albert Einstein Healthcare Network (Einstein)** is a private, nonprofit health system with three acute-care hospitals and numerous outpatient centers throughout the greater Philadelphia area. Einstein implemented the Strong Start Group Prenatal Care model, specifically CenteringPregnancy (Centering), at two sites initially: the Paley Clinic in the Einstein Medical Center Philadelphia, a large teaching hospital; and the Genuardi clinic in suburban Montgomery County near another Einstein hospital. In early 2016, Einstein began operating another Strong Start site at the Rising Sun Obstetrics office in northeast Philadelphia to help meet Strong Start enrollment goals. Both the Paley and Genuardi sites are high-volume maternity care practices and run separate Centering groups for patients enrolled and not enrolled in Strong Start. Einstein ended enrollment during Summer 2016, and the last Strong Start deliveries occurred in December 2016. Total enrollment in the program was 1,512 women.

The awardee has sustained Centering with support from a combination of external grants and institutional funding from the Einstein Healthcare Network. Key informants were uncertain of the long-term sustainability of the program, however, given concerns about potential changes to the federal Medicaid financing structure and lack of participation in the model from other payers. In the near future, at least, Einstein will continue to offer Centering to all patients regardless of health insurance coverage status or type. Nurse practitioners and/or midwives will co-facilitate the groups. Though the awardee has no current plans to change how Group Prenatal Care is delivered, program staff may consider adjusting the recruitment strategy to address continuing challenges around patient enrollment and retention.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Albert Einstein Healthcare Network (Einstein) had Intake Forms for 74.2 percent of participants enrolled through Quarter 4 2016 (1,122 Intake Forms for 1,512 participants). In addition, Einstein submitted 404 Third Trimester Surveys, 270 Postpartum Surveys, and 983 Exit Forms. Tables 1 through 7 present data collected on Einstein's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Einstein.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1512	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1194	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1122	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	74.2	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	404	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	26.7	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	270	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	17.9	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	983	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	65.0	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1122	7407	9821	25353	42581
Less than 18 years of age	%	6.4	2.7	6.9	5.5	5.3
18 through 19 years of age	%	12.5	6.4	12.4	9.5	9.6
20 through 34 years of age	%	74.4	81.4	71.7	74.4	75
35 years and older	%	4.5	9.1	7.4	9.6	9.0
Missing	%	2.1	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1122	7407	9821	25353	42581
Hispanic	%	16.2	25.0	36.3	27.7	29.2
White	%	8.6	52.9	12.4	22.0	25.2
Black	%	67.1	16.0	44.1	44.4	39.4
Other race or multiple races	%	6.4	5.3	5.0	4.2	4.6
Missing	%	1.6	0.8	2.3	1.7	1.7
Employed at Intake	N	1122	7407	9821	25353	42581
Yes	%	42.0	41.6	34.3	39.3	38.6
No	%	55.3	57.1	61.3	58.8	59.1
Missing	%	2.8	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1122	7407	9821	25353	42581
Yes	%	1.9	1.3	1.8	1.5	1.5
Missing	%	98.1	98.7	98.2	98.5	98.5
Education Level at Intake	N	1122	7407	9821	25353	42581
Less than high school	%	19.2	13.2	22.2	23.7	21.5
High school graduate or GED	%	61.0	52.6	47.8	49.9	49.9
Bachelor's degree	%	2.4	11.2	3.1	2.9	4.4
Other college degree(s)	%	4.7	12.5	6.9	6.2	7.5
Missing	%	12.7	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1122	7407	9821	25353	42581
Married, living with spouse	%	9.2	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.2	1.7	1.8	2.0	1.9
Living with a partner	%	30.6	32.7	31.3	30.3	30.9
In a relationship but not living together	%	31.9	14.6	23.5	29.0	25.2
Not in a relationship right now	%	20.8	9.9	17.2	18.0	16.4
Missing	%	6.3	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1122	7407	9821	25353	42581
Yes	%	12.0	9.7	8.1	12.4	10.9
No	%	69.3	81.0	71.9	81.6	79.3
Missing	%	18.6	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1122	7407	9821	25353	42581
Yes	%	17.5	17.2	19.0	16.5	17.2
No	%	63.8	76.7	64.6	74.5	72.6
Missing*	%	18.7	6.1	16.5	9.0	10.2

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exhibiting Depressive Symptoms at Intake**	N	1122	7407	9821	25353	42581
Yes	%	31.5	20.8	23.9	21.6	22.0
No	%	45.3	68.7	53.0	67.0	64.1
Missing*	%	23.3	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1122	7407	9821	25353	42581
Yes	%	16.5	20.0	15.4	18.7	18.2
No	%	77.9	78.0	75.0	77.0	76.7
Missing*	%	5.6	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	609	3878	4458	14417	22753
<18 months	%	13.8	29.8	17.5	21.7	22.4
≥18 months	%	43.8	51.2	50.8	55.7	54.0
Missing	%	42.4	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	609	3878	4458	14417	22753
Yes	%	18.2	9.3	10.9	16.2	14.0
No	%	73.4	88.6	74.5	68.8	73.3
Not Known	%	4.3	0.3	8.7	6.8	6.0
Missing	%	4.1	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	609	3878	4458	14417	22753
Yes	%	14.1	1.6	8.5	12.6	9.9
No	%	77.5	96.1	64.0	67.4	71.6
Not Known	%	4.4	0.3	12.4	11.1	9.5
Missing	%	3.9	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	983	6401	8494	23070	37965
Yes	%	0.5	0.2	2.4	1.1	1.2
No	%	94.1	99.4	65.4	83.9	82.4
Not Known	%	4.3	0.0	25.0	7.5	10.2
Missing	%	1.1	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	983	6401	8494	23070	37965
Yes	%	1.6	0.3	3.8	2.1	2.2
No	%	93.1	99.3	76.3	84.6	85.2
Not Known	%	4.2	0.0	12.6	5.7	6.3
Missing	%	1.1	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	983	6401	8494	23070	37965
Yes	%	6.3	0.6	6.5	6.8	5.7
No	%	88.1	99.0	76.3	80.3	82.5
Not Known	%	4.4	0.0	9.8	5.5	5.6
Missing	%	1.2	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	983	6401	8494	23070	37965
Yes	%	2.7	2.5	5.0	5.8	5.0
No	%	84.1	97.0	75.2	72.7	77.4
Not Known	%	11.1	0.1	12.3	13.4	10.9
Missing	%	2.0	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	983	6401	8494	23070	37965
Yes	%	8.5	1.3	6.9	5.7	5.2
No	%	76.7	98.1	73.2	72.8	77.2
Not Known	%	11.9	0.1	12.4	13.3	10.9
Missing	%	2.8	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	983	6401	8494	23070	37965
Received Individual Prenatal Visits	N	815	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	82.9	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	4.4	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	864	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	87.9	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	4.1	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	975	6389	7929	21646	35964
Received Enhanced Encounters	N	472	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	48.4	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	1.8	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	962	6210	7424	17929	31563
Received Enhanced Services	N	277	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	28.8	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.8	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	157	484	867	3380	4731
Yes	%	15.9	3.5	7.4	13.4	11.3
No	%	47.8	89.9	58.6	55.2	59.4
Not known	%	28.0	0.0	15.7	18.0	15.7
Missing	%	8.3	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	844	6337	6825	19298	32460
Number of Babies Born	N	852	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	885	6256	7939	21160	35355
Yes	%	19.4	16.1	23.8	19.4	19.8
No	%	41.2	81.7	38.3	35.1	44.0
Not known	%	30.7	0.5	24.8	28.8	22.9
Missing	%	8.6	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	983	6401	8494	23070	37965
Vaginal delivery	%	59.2	86.0	54.0	51.9	58.1
C-Section	%	22.5	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	18.2	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	86.0	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	147	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	25.2	28.8	23.6	16.4	18.9
Repeat C-Section	%	74.8	71.2	76.4	83.7	81.2
Scheduled C-Section	N	222	820	1873	5597	8290
Yes	%	44.1	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	793	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	14.6	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	77.9	94.4	81.4	81.0	83.9
Missing	%	7.4	0.3	7.4	4.8	4.4
Infant Birthweight	N	793	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	12.1	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	84.2	94.2	84.9	82.4	85.3
Missing	%	3.7	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	270	5149	5684	15106	25939
Yes	%	34.8	83.6	57.5	63.4	66.1
No	%	7.0	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.4	0.7	5.9	2.5	2.9
Missing	%	57.8	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	107.4	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	Einstein (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	270	5149	5684	15106	25939
Yes	%	33.7	69.5	57.2	72.3	68.4
No	%	7.4	18.1	10.7	11.7	12.7
Unsure	%	0.7	2.7	5.9	2.4	3.2
Missing	%	58.1	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

In August 2017, Pennsylvania Medicaid provided Urban with linked eligibility and birth certificate data. However, the files did not include the Strong Start participants' IDs, which are required to identify the site where the woman received services. The state indicated that they were not able to provide the variable because it was not included in the original Data Use Agreement. The evaluation team had several conversations with the Medicaid agency to resolve the issue and find a way for the variable to be shared. However, the state confirmed that in order to share the Strong Start ID, the agreements between the state and Urban would have to be amended, which is a time consuming process. For this reason, the evaluation team decided to move forward without the ID variable. This has no impact on the evaluation team receiving the remaining linked data.

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. Under Strong Start, AABC sites provided the midwifery model of care supplemented by at least four encounters with a peer counselor during pregnancy and postpartum. AABC operated the largest number of Strong Start sites, including all but one of the Strong Start sites implementing the Birth Center approach. At the time of the Year 4 case study interviews, the awardee was operating 36 active Strong Start sites (another 14 sites had left the program or were inactive). AABC ended enrollment in September 2016, and the last Strong Start deliveries occurred in December 2016. Total enrollment in the program was 8,111 women.

Ten of the active AABC sites were selected for the Year 4 case study interviews, and key informants at each of these sites indicated that they continued to offer the midwifery model of prenatal care as they had prior to Strong Start. Eight of the study sites had also sustained the peer counseling services added under Strong Start, although most could do so only partially after Strong Start funding ended. For instance, one site kept the peer counselor role, but instead of one-on-one encounters (as during the Strong Start award) counseling now takes place during group sessions with a limited personal “check-in” during the third trimester. Key informants at another Birth Center decided to sustain just one peer counseling encounter in the third trimester.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, the American Association of Birth Centers (AABC) had Intake Forms for 86.5 percent of participants enrolled through Quarter 4 2016 (7,027 Intake Forms for 8,123 participants). In addition, AABC submitted 5,187 Third Trimester Surveys, 4,864 Postpartum Surveys, and 6,029 Exit Forms. Tables 1 through 7 present data collected on AABC’s participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from AABC.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	8123	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	4445	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	7027	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	86.5	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	5187	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	63.9	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	4864	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	59.9	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	6029	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	74.2	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	7027	7407	9821	25353	42581
Less than 18 years of age	%	2.6	2.7	6.9	5.5	5.3
18 through 19 years of age	%	6.3	6.4	12.4	9.5	9.6
20 through 34 years of age	%	81.6	81.4	71.7	74.4	75
35 years and older	%	9.2	9.1	7.4	9.6	9.0
Missing	%	0.4	0.4	1.6	1.0	1.1
Race and Ethnicity	N	7027	7407	9821	25353	42581
Hispanic	%	26.1	25.0	36.3	27.7	29.2
White	%	55.6	52.9	12.4	22.0	25.2
Black	%	12.1	16.0	44.1	44.4	39.4
Other race or multiple races	%	5.4	5.3	5.0	4.2	4.6
Missing	%	0.8	0.8	2.3	1.7	1.7
Employed at Intake	N	7027	7407	9821	25353	42581
Yes	%	41.9	41.6	34.3	39.3	38.6
No	%	56.8	57.1	61.3	58.8	59.1
Missing	%	1.3	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	7027	7407	9821	25353	42581
Yes	%	0.9	1.3	1.8	1.5	1.5
Missing	%	99.1	98.7	98.2	98.5	98.5
Education Level at Intake	N	7027	7407	9821	25353	42581
Less than high school	%	12.9	13.2	22.2	23.7	21.5
High school graduate or GED	%	52.4	52.6	47.8	49.9	49.9
Bachelor's degree	%	11.4	11.2	3.1	2.9	4.4
Other college degree(s)	%	12.8	12.5	6.9	6.2	7.5
Missing	%	10.5	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	7027	7407	9821	25353	42581
Married, living with spouse	%	41.4	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.7	1.7	1.8	2.0	1.9
Living with a partner	%	33.1	32.7	31.3	30.3	30.9
In a relationship but not living together	%	13.4	14.6	23.5	29.0	25.2
Not in a relationship right now	%	9.0	9.9	17.2	18.0	16.4
Missing	%	1.2	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	7027	7407	9821	25353	42581
Yes	%	9.6	9.7	8.1	12.4	10.9
No	%	81.2	81.0	71.9	81.6	79.3
Missing	%	9.2	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	7027	7407	9821	25353	42581
Yes	%	16.2	17.2	19.0	16.5	17.2
No	%	77.8	76.7	64.6	74.5	72.6
Missing*	%	6.0	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	7027	7407	9821	25353	42581

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Yes	%	20.0	20.8	23.9	21.6	22.0
No	%	69.6	68.7	53.0	67.0	64.1
Missing*	%	10.4	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	7027	7407	9821	25353	42581
Yes	%	19.8	20.0	15.4	18.7	18.2
No	%	78.2	78.0	75.0	77.0	76.7
Missing*	%	2.0	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	3642	3878	4458	14417	22753
<18 months	%	30.5	29.8	17.5	21.7	22.4
≥18 months	%	50.5	51.2	50.8	55.7	54.0
Missing	%	19.0	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	3642	3878	4458	14417	22753
Yes	%	9.3	9.3	10.9	16.2	14.0
No	%	90.7	88.6	74.5	68.8	73.3
Not Known	%	0.1	0.3	8.7	6.8	6.0
Missing	%	0.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	3642	3878	4458	14417	22753
Yes	%	1.3	1.6	8.5	12.6	9.9
No	%	98.6	96.1	64.0	67.4	71.6
Not Known	%	0.0	0.3	12.4	11.1	9.5
Missing	%	0.1	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	6029	6401	8494	23070	37965
Yes	%	0.2	0.2	2.4	1.1	1.2
No	%	99.8	99.4	65.4	83.9	82.4
Not Known	%	0.0	0.0	25.0	7.5	10.2
Missing	%	0.0	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	6029	6401	8494	23070	37965
Yes	%	0.3	0.3	3.8	2.1	2.2
No	%	99.7	99.3	76.3	84.6	85.2
Not Known	%	0.0	0.0	12.6	5.7	6.3
Missing	%	0.1	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	6029	6401	8494	23070	37965
Yes	%	0.6	0.6	6.5	6.8	5.7
No	%	99.4	99.0	76.3	80.3	82.5
Not Known	%	0.0	0.0	9.8	5.5	5.6
Missing	%	0.0	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	6029	6401	8494	23070	37965
Yes	%	2.5	2.5	5.0	5.8	5.0
No	%	97.5	97.0	75.2	72.7	77.4
Not Known	%	0.0	0.1	12.3	13.4	10.9
Missing	%	0.0	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	6029	6401	8494	23070	37965
Yes	%	1.2	1.3	6.9	5.7	5.2
No	%	98.8	98.1	73.2	72.8	77.2
Not Known	%	0.0	0.1	12.4	13.3	10.9
Missing	%	0.0	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	6029	6401	8494	23070	37965
Received Individual Prenatal Visits	N	6022	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	99.9	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	11.2	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	126	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	2.1	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	7.0	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	6027	6389	7929	21646	35964
Received Enhanced Encounters	N	5455	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	90.5	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	3.7	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	6029	6210	7424	17929	31563
Received Enhanced Services	N	1752	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	29.1	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.4	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	449	484	867	3380	4731
Yes	%	2.7	3.5	7.4	13.4	11.3
No	%	92.4	89.9	58.6	55.2	59.4
Not known	%	0.0	0.0	15.7	18.0	15.7
Missing	%	4.9	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	6021	6337	6825	19298	32460
Number of Babies Born	N	6037	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	5893	6256	7939	21160	35355
Yes	%	16.4	16.1	23.8	19.4	19.8
No	%	83.1	81.7	38.3	35.1	44.0
Not known	%	0	0.5	24.8	28.8	22.9
Missing	%	0.5	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	6029	6401	8494	23070	37965
Vaginal delivery	%	87.4	86.0	54.0	51.9	58.1
C-Section	%	12.5	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0	0.0	0.1	0.2	0.1
Missing	%	0.1	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	91.2	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	288	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	26.4	28.8	23.6	16.4	18.9
Repeat C-Section	%	73.6	71.2	76.4	83.7	81.2
Scheduled C-Section	N	753	820	1873	5597	8290
Yes	%	18.1	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	6002	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	5.2	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	94.7	94.4	81.4	81.0	83.9
Missing	%	0.2	0.3	7.4	4.8	4.4
Infant Birthweight	N	6002	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	3.6	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	94.4	94.2	84.9	82.4	85.3
Missing	%	2.0	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	4864	5149	5684	15106	25939
Yes	%	83.6	83.6	57.5	63.4	66.1
No	%	6.7	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.8	0.7	5.9	2.5	2.9
Missing	%	8.9	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	99.6	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	4864	5149	5684	15106	25939
Yes	%	68.5	69.5	57.2	72.3	68.4

Data Element	Number (N) or %	AABC (Birth Center)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	18.6	18.1	10.7	11.7	12.7
Unsure	%	2.8	2.7	5.9	2.4	3.2
Missing	%	10.1	9.7	26.2	13.6	15.6

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 on our efforts to obtain birth certificate and Medicaid data 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, a subsidiary of Anthem, Inc., is a national managed care organization that works extensively with state-sponsored health programs (such as Medicaid) across the United States. Amerigroup worked in concert with the Southeast Louisiana Area Health Education Center (SELAHEC) to develop the Strong Start proposal in Louisiana, though SELAHEC managed the day-to-day operations of the award. Amerigroup, through SELAHEC, implemented the Group Prenatal Care model (specifically CenteringPregnancy, or Centering) in multiple sites throughout Louisiana. Amerigroup Louisiana—a health plan participating in “Bayou Health,” Louisiana’s Medicaid managed care program—began offering enhanced reimbursement to providers serving Medicaid pregnant women through Group Prenatal Care, although Strong Start provider sites did not seem to be fully aware of this benefit and one site was not eligible because it was an FQHC. Amerigroup ended enrollment in August 2016, and the last Strong Start deliveries occurred in December 2016. Total enrollment in the program was 949 women.

Some Amerigroup sites have continued (or have plans to continue) their Group Prenatal Care programs while others have not. For instance, one site is sustaining Centering and using institutional (health center) funding to cover the salary of the group care facilitator. Another site has ended Group Prenatal Care temporarily because Centering staff (a coordinator and facilitator) left the practice, but providers support restarting the program once a replacement has been hired. Three other sites had no plans to sustain Group Prenatal Care at the time of the Year 4 case studies. At least one Amerigroup site will continue to assess prenatal patients using some of the questions on the evaluation’s Intake Form, such as the depression screening.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Amerigroup Corporation (Amerigroup) had Intake Forms for 93.1 percent of participants enrolled through Quarter 4 2016 (897 Intake Forms for 963 participants). In addition, Amerigroup submitted 560 Third Trimester Surveys, 530 Postpartum Surveys, and 782 Exit Forms. Tables 1 through 7 present data collected on Amerigroup’s participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Amerigroup.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	963	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	624	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	897	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	93.1	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	560	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	58.2	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	530	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	55.0	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	782	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	81.2	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	897	7407	9821	25353	42581
Less than 18 years of age	%	3.9	2.7	6.9	5.5	5.3
18 through 19 years of age	%	10.1	6.4	12.4	9.5	9.6
20 through 34 years of age	%	78.9	81.4	71.7	74.4	75
35 years and older	%	5.6	9.1	7.4	9.6	9.0
Missing	%	1.4	0.4	1.6	1.0	1.1
Race and Ethnicity	N	897	7407	9821	25353	42581
Hispanic	%	7.6	25.0	36.3	27.7	29.2
White	%	16.5	52.9	12.4	22.0	25.2
Black	%	72.2	16.0	44.1	44.4	39.4
Other race or multiple races	%	2.9	5.3	5.0	4.2	4.6
Missing	%	0.8	0.8	2.3	1.7	1.7
Employed at Intake	N	897	7407	9821	25353	42581
Yes	%	42.7	41.6	34.3	39.3	38.6
No	%	47.3	57.1	61.3	58.8	59.1
Missing	%	10.0	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	897	7407	9821	25353	42581
Yes	%	1.1	1.3	1.8	1.5	1.5
Missing	%	98.9	98.7	98.2	98.5	98.5
Education Level at Intake	N	897	7407	9821	25353	42581
Less than high school	%	17.5	13.2	22.2	23.7	21.5
High school graduate or GED	%	52.0	52.6	47.8	49.9	49.9
Bachelor's degree	%	4.0	11.2	3.1	2.9	4.4
Other college degree(s)	%	7.5	12.5	6.9	6.2	7.5
Missing	%	19.1	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	897	7407	9821	25353	42581
Married, living with spouse	%	10.8	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.6	1.7	1.8	2.0	1.9
Living with a partner	%	35.0	32.7	31.3	30.3	30.9
In a relationship but not living together	%	25.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	15.5	9.9	17.2	18.0	16.4
Missing	%	11.9	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	897	7407	9821	25353	42581
Yes	%	7.6	9.7	8.1	12.4	10.9
No	%	77.5	81.0	71.9	81.6	79.3
Missing	%	14.9	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	897	7407	9821	25353	42581
Yes	%	17.6	17.2	19.0	16.5	17.2

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	63.1	76.7	64.6	74.5	72.6
Missing*	%	19.2	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	897	7407	9821	25353	42581
Yes	%	27.5	20.8	23.9	21.6	22.0
No	%	45.6	68.7	53.0	67.0	64.1
Missing*	%	26.8	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	897	7407	9821	25353	42581
Yes	%	13.0	20.0	15.4	18.7	18.2
No	%	75.1	78.0	75.0	77.0	76.7
Missing*	%	11.8	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	386	3878	4458	14417	22753
<18 months	%	18.7	29.8	17.5	21.7	22.4
≥18 months	%	65.3	51.2	50.8	55.7	54.0
Missing	%	16.1	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	386	3878	4458	14417	22753
Yes	%	11.1	9.3	10.9	16.2	14.0
No	%	59.6	88.6	74.5	68.8	73.3
Not Known	%	1.3	0.3	8.7	6.8	6.0
Missing	%	28.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	386	3878	4458	14417	22753
Yes	%	9.6	1.6	8.5	12.6	9.9
No	%	58.3	96.1	64.0	67.4	71.6
Not Known	%	2.6	0.3	12.4	11.1	9.5
Missing	%	29.5	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	782	6401	8494	23070	37965
Yes	%	0.6	0.2	2.4	1.1	1.2
No	%	66.5	99.4	65.4	83.9	82.4
Not Known	%	0.0	0.0	25.0	7.5	10.2
Missing	%	32.9	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	782	6401	8494	23070	37965
Yes	%	0.5	0.3	3.8	2.1	2.2
No	%	66.4	99.3	76.3	84.6	85.2
Not Known	%	0.0	0.0	12.6	5.7	6.3
Missing	%	33.1	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	782	6401	8494	23070	37965
Yes	%	4.5	0.6	6.5	6.8	5.7
No	%	62.7	99.0	76.3	80.3	82.5
Not Known	%	0.0	0.0	9.8	5.5	5.6
Missing	%	32.9	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	782	6401	8494	23070	37965
Yes	%	3.5	2.5	5.0	5.8	5.0
No	%	60.2	97.0	75.2	72.7	77.4
Not Known	%	3.1	0.1	12.3	13.4	10.9
Missing	%	33.2	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	782	6401	8494	23070	37965
Yes	%	5.5	1.3	6.9	5.7	5.2
No	%	58.1	98.1	73.2	72.8	77.2
Not Known	%	2.9	0.1	12.4	13.3	10.9
Missing	%	33.5	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	782	6401	8494	23070	37965
Received Individual Prenatal Visits	N	519	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	66.4	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	4.7	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	524	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	67.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	6.0	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	539	6389	7929	21646	35964
Received Enhanced Encounters	N	36	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	6.7	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	1.6	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	429	6210	7424	17929	31563
Received Enhanced Services	N	14	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	3.3	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.9	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	82	484	867	3380	4731
Yes	%	13.4	3.5	7.4	13.4	11.3
No	%	53.7	89.9	58.6	55.2	59.4
Not known	%	1.2	0.0	15.7	18.0	15.7
Missing	%	31.7	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	546	6337	6825	19298	32460
Number of Babies Born	N	551	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	728	6256	7939	21160	35355
Yes	%	19.5	16.1	23.8	19.4	19.8
No	%	36.1	81.7	38.3	35.1	44.0
Not known	%	4.4	0.5	24.8	28.8	22.9
Missing	%	40.0	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	782	6401	8494	23070	37965
Vaginal delivery	%	42.3	86.0	54.0	51.9	58.1
C-Section	%	19.2	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	38.4	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	80.9	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	76	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	22.4	28.8	23.6	16.4	18.9
Repeat C-Section	%	77.6	71.2	76.4	83.7	81.2
Scheduled C-Section	N	151	820	1873	5597	8290
Yes	%	35.8	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	484	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	9.3	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	78.5	94.4	81.4	81.0	83.9
Missing	%	12.2	0.3	7.4	4.8	4.4
Infant Birthweight	N	484	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	11.6	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	85.1	94.2	84.9	82.4	85.3
Missing	%	3.3	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	530	5149	5684	15106	25939
Yes	%	42.8	83.6	57.5	63.4	66.1
No	%	17.4	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.2	0.7	5.9	2.5	2.9
Missing	%	39.6	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	94.0	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	Amerigroup (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	530	5149	5684	15106	25939
Yes	%	54.0	69.5	57.2	72.3	68.4
No	%	4.7	18.1	10.7	11.7	12.7
Unsure	%	0.6	2.7	5.9	2.4	3.2
Missing	%	40.8	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

Louisiana officials have delivered linked birth certificate and Medicaid data for 2014 and 2015 live births. The evaluation team has submitted a request for 2016 Vital Records and Medicaid data. In July 2017, the team submitted an IRB amendment application to receive additional Medicaid variables for all three years.

Central Jersey Family Health Consortium

CASE STUDY

Central Jersey Family Health Consortium (CJFHC) is a 501(c)-(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 served in a convener role for its Strong Start project. The awardee recruited eight sites, including hospital-based clinics and federally qualified health centers (FQHCs), to implement Group Prenatal Care. Some of the sites had provided Group Prenatal Care prior to participating in Strong Start, while others implemented Group Prenatal Care for the first time under Strong Start. CJFHC completed the program with seven active sites, most of which are using and have high fidelity to the CenteringPregnancy curriculum. The awardee ended Strong Start enrollment in July 2016, and the last Strong Start deliveries occurred in December 2016. Total enrollment in the program was 1,193 women.

Five of CJFHC's seven active sites are sustaining their Group Prenatal Care programs. Two sites that were new to CenteringPregnancy when they joined Strong Start recently completed the credentialing process through the Centering Healthcare Institute (CHI). Overall, the sustaining sites have not changed their approach to Group Prenatal Care in the post-Strong Start environment. Two sites have made notable expansions, however, with one deciding to make Group Prenatal Care its standard of care for all primigravida patients and another planning to extend Group Prenatal Care to Spanish-speaking patients by the end of 2017.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Central Jersey Family Health Consortium (CJFHC) had Intake Forms for 97.3 percent of participants enrolled through Quarter 4 2016 (1,161 Intake Forms for 1,193 participants). In addition, CJFHC submitted 731 Third Trimester Surveys, 624 Postpartum Surveys, and 998 Exit Forms. Tables 1 through 7 present data collected on CJFHC's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from CJFHC.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1193	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	943	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1161	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	97.3	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	731	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	61.3	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	624	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	52.3	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	998	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	83.7	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1161	7407	9821	25353	42581
Less than 18 years of age	%	4.0	2.7	6.9	5.5	5.3
18 through 19 years of age	%	9.8	6.4	12.4	9.5	9.6
20 through 34 years of age	%	77.4	81.4	71.7	74.4	75
35 years and older	%	8.4	9.1	7.4	9.6	9.0
Missing	%	0.3	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1161	7407	9821	25353	42581
Hispanic	%	48.0	25.0	36.3	27.7	29.2
White	%	9.5	52.9	12.4	22.0	25.2
Black	%	36.3	16.0	44.1	44.4	39.4
Other race or multiple races	%	4.1	5.3	5.0	4.2	4.6
Missing	%	2.1	0.8	2.3	1.7	1.7
Employed at Intake	N	1161	7407	9821	25353	42581
Yes	%	39.2	41.6	34.3	39.3	38.6
No	%	58.7	57.1	61.3	58.8	59.1
Missing	%	2.2	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1161	7407	9821	25353	42581
Yes	%	1.4	1.3	1.8	1.5	1.5
Missing	%	98.6	98.7	98.2	98.5	98.5
Education Level at Intake	N	1161	7407	9821	25353	42581
Less than high school	%	13.4	13.2	22.2	23.7	21.5
High school graduate or GED	%	49.3	52.6	47.8	49.9	49.9
Bachelor's degree	%	5.3	11.2	3.1	2.9	4.4
Other college degree(s)	%	8.4	12.5	6.9	6.2	7.5
Missing	%	23.8	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1161	7407	9821	25353	42581
Married, living with spouse	%	19.7	39.8	16.6	18.2	21.6
Married, not living with spouse	%	3.4	1.7	1.8	2.0	1.9
Living with a partner	%	26.9	32.7	31.3	30.3	30.9
In a relationship but not living together	%	27.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	17.7	9.9	17.2	18.0	16.4
Missing	%	5.1	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1161	7407	9821	25353	42581
Yes	%	3.3	9.7	8.1	12.4	10.9
No	%	82.8	81.0	71.9	81.6	79.3
Missing	%	14.0	9.3	20.0	6.0	9.8

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Food Insecure at Intake	N	1161	7407	9821	25353	42581
Yes	%	19.9	17.2	19.0	16.5	17.2
No	%	68.0	76.7	64.6	74.5	72.6
Missing*	%	12.1	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1161	7407	9821	25353	42581
Yes	%	20.8	20.8	23.9	21.6	22.0
No	%	54.9	68.7	53.0	67.0	64.1
Missing*	%	24.3	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1161	7407	9821	25353	42581
Yes	%	14.8	20.0	15.4	18.7	18.2
No	%	80.4	78.0	75.0	77.0	76.7
Missing*	%	4.7	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	369	3878	4458	14417	22753
<18 months	%	14.1	29.8	17.5	21.7	22.4
≥18 months	%	59.1	51.2	50.8	55.7	54.0
Missing	%	26.8	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	369	3878	4458	14417	22753
Yes	%	10.3	9.3	10.9	16.2	14.0
No	%	85.9	88.6	74.5	68.8	73.3
Not Known	%	1.6	0.3	8.7	6.8	6.0
Missing	%	2.2	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	369	3878	4458	14417	22753
Yes	%	6.5	1.6	8.5	12.6	9.9
No	%	87.3	96.1	64.0	67.4	71.6
Not Known	%	3.0	0.3	12.4	11.1	9.5
Missing	%	3.3	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	998	6401	8494	23070	37965
Yes	%	0.1	0.2	2.4	1.1	1.2
No	%	97.8	99.4	65.4	83.9	82.4
Not Known	%	0.8	0.0	25.0	7.5	10.2
Missing	%	1.3	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	998	6401	8494	23070	37965
Yes	%	0.5	0.3	3.8	2.1	2.2
No	%	97.4	99.3	76.3	84.6	85.2
Not Known	%	0.8	0.0	12.6	5.7	6.3
Missing	%	1.3	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	998	6401	8494	23070	37965
Yes	%	3.0	0.6	6.5	6.8	5.7
No	%	94.8	99.0	76.3	80.3	82.5
Not Known	%	0.9	0.0	9.8	5.5	5.6
Missing	%	1.3	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	998	6401	8494	23070	37965
Yes	%	8.3	2.5	5.0	5.8	5.0
No	%	83.1	97.0	75.2	72.7	77.4
Not Known	%	7.6	0.1	12.3	13.4	10.9
Missing	%	1.0	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	998	6401	8494	23070	37965
Yes	%	8.8	1.3	6.9	5.7	5.2
No	%	82.4	98.1	73.2	72.8	77.2
Not Known	%	7.8	0.1	12.4	13.3	10.9
Missing	%	1.0	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	998	6401	8494	23070	37965
Received Individual Prenatal Visits	N	811	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	81.3	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	6.1	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	807	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	80.9	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	6.0	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	996	6389	7929	21646	35964
Received Enhanced Encounters	N	473	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	47.5	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	1.5	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	996	6210	7424	17929	31563
Received Enhanced Services	N	634	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhanced services information	%	63.7	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	2.4	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	52	484	867	3380	4731
Yes	%	5.8	3.5	7.4	13.4	11.3
No	%	76.9	89.9	58.6	55.2	59.4
Not known	%	15.4	0.0	15.7	18.0	15.7

Data Element	Number (N), Mean, or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	1.9	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	990	6337	6825	19298	32460
Number of Babies Born	N	997	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	924	6256	7939	21160	35355
Yes	%	28.2	16.1	23.8	19.4	19.8
No	%	46.5	81.7	38.3	35.1	44.0
Not known	%	20.9	0.5	24.8	28.8	22.9
Missing	%	4.3	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	998	6401	8494	23070	37965
Vaginal delivery	%	56.9	86.0	54.0	51.9	58.1
C-Section	%	28.2	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	14.9	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	76.4	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	96	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	11.5	28.8	23.6	16.4	18.9
Repeat C-Section	%	88.5	71.2	76.4	83.7	81.2
Scheduled C-Section	N	281	820	1873	5597	8290
Yes	%	26.0	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	853	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	7.0	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	87.0	94.4	81.4	81.0	83.9
Missing	%	6.0	0.3	7.4	4.8	4.4
Infant Birthweight	N	853	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	7.0	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	87.1	94.2	84.9	82.4	85.3
Missing	%	5.9	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	624	5149	5684	15106	25939
Yes	%	76.0	83.6	57.5	63.4	66.1
No	%	8.3	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.6	0.7	5.9	2.5	2.9
Missing	%	15.1	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	103.6	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	CJFHC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	624	5149	5684	15106	25939
Yes	%	55.3	69.5	57.2	72.3	68.4
No	%	26.8	18.1	10.7	11.7	12.7
Unsure	%	1.9	2.7	5.9	2.4	3.2
Missing	%	16.0	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

The New Jersey Medicaid Agency has linked 2014 Medicaid and birth certificate data. The evaluation team has requested 2015 and 2016 data, but experienced delays with approval of a required Business Associate Agreement (BAA). The BAA was signed in July 2017, and the team is hopeful that data submission can now move forward. In the meantime, the impacts analysis team has begun analysis of the received 2014 data.

Florida Association of Healthy Start Coalitions

CASE STUDY

The **Florida Association of Healthy Start Coalitions (FAHSC)** directs the state's Healthy Start program and administered the Strong Start initiative in the Tampa Bay area. FAHSC implemented the Maternity Care Home model at seven sites to test the fit of the model in different health care settings. Locations included four clinics 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. Through face-to-face clinic-based visits supplemented by phone calls, Maternal Health Specialists (MHSs) provided screenings, care management, patient education, emotional support, referrals, and follow-up for Strong Start participants. FAHSC ended Strong Start enrollment by June 2016, and the last Strong Start deliveries occurred in October 2016. Total enrollment in the program was 1,343 women.

The awardee is sustaining many Strong Start services at five locations by transitioning the clinic-based MHS model into its Healthy Start program. Awardee program staff have also been working with state agencies and other Healthy Start coalitions to try to expand a "pregnancy medical home" approach that includes Strong Start elements statewide. Four MHS staff have been retained to continue assessments and screening for depression (using the Edinburgh scale) at least three times during pregnancy, and are providing referrals, education, and care navigation. Unlike the Strong Start model that provided MHS contact through postpartum care, clients are now assigned a new in-home case worker to follow postpartum women and their babies for up to three years after delivery; also, the MHSs now close a client case if they cannot reach a client after three attempts.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Florida Association of Healthy Start Coalitions (FAHSC) had Intake Forms for 100.0 percent of participants enrolled through Quarter 4 2016 (1,343 Intake Forms for 1,343 participants). In addition, FAHSC submitted 898 Third Trimester Surveys, 992 Postpartum Surveys, and 1,290 Exit Forms. Tables 1 through 7 present data collected on FAHSC's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from FAHSC.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1343	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1056	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1343	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	100.0	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	898	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	66.9	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	992	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	73.9	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1290	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	96.1	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1343	7407	9821	25353	42581
Less than 18 years of age	%	6.9	2.7	6.9	5.5	5.3
18 through 19 years of age	%	11.7	6.4	12.4	9.5	9.6
20 through 34 years of age	%	74.8	81.4	71.7	74.4	75
35 years and older	%	6.6	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1343	7407	9821	25353	42581
Hispanic	%	22.0	25.0	36.3	27.7	29.2
White	%	29.8	52.9	12.4	22.0	25.2
Black	%	42.4	16.0	44.1	44.4	39.4
Other race or multiple races	%	5.5	5.3	5.0	4.2	4.6
Missing	%	0.3	0.8	2.3	1.7	1.7
Employed at Intake	N	1343	7407	9821	25353	42581
Yes	%	39.9	41.6	34.3	39.3	38.6
No	%	59.5	57.1	61.3	58.8	59.1
Missing	%	0.6	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1343	7407	9821	25353	42581
Yes	%	2.5	1.3	1.8	1.5	1.5
Missing	%	97.5	98.7	98.2	98.5	98.5
Education Level at Intake	N	1343	7407	9821	25353	42581
Less than high school	%	31.8	13.2	22.2	23.7	21.5
High school graduate or GED	%	48.4	52.6	47.8	49.9	49.9
Bachelor's degree	%	1.3	11.2	3.1	2.9	4.4
Other college degree(s)	%	9.2	12.5	6.9	6.2	7.5
Missing	%	9.3	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1343	7407	9821	25353	42581
Married, living with spouse	%	13.2	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.7	1.7	1.8	2.0	1.9
Living with a partner	%	35.4	32.7	31.3	30.3	30.9
In a relationship but not living together	%	29.6	14.6	23.5	29.0	25.2
Not in a relationship right now	%	19.4	9.9	17.2	18.0	16.4
Missing	%	0.6	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1343	7407	9821	25353	42581
Yes	%	16.9	9.7	8.1	12.4	10.9
No	%	82.1	81.0	71.9	81.6	79.3
Missing	%	1.0	9.3	20.0	6.0	9.8

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Food Insecure at Intake	N	1343	7407	9821	25353	42581
Yes	%	22.0	17.2	19.0	16.5	17.2
No	%	75.7	76.7	64.6	74.5	72.6
Missing*	%	2.3	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1343	7407	9821	25353	42581
Yes	%	30.6	20.8	23.9	21.6	22.0
No	%	65.6	68.7	53.0	67.0	64.1
Missing*	%	3.8	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1343	7407	9821	25353	42581
Yes	%	33.1	20.0	15.4	18.7	18.2
No	%	61.7	78.0	75.0	77.0	76.7
Missing*	%	5.1	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	792	3878	4458	14417	22753
<18 months	%	32.2	29.8	17.5	21.7	22.4
≥18 months	%	62.9	51.2	50.8	55.7	54.0
Missing	%	4.9	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	792	3878	4458	14417	22753
Yes	%	22.9	9.3	10.9	16.2	14.0
No	%	74.4	88.6	74.5	68.8	73.3
Not Known	%	2.0	0.3	8.7	6.8	6.0
Missing	%	0.8	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	792	3878	4458	14417	22753
Yes	%	17.2	1.6	8.5	12.6	9.9
No	%	73.1	96.1	64.0	67.4	71.6
Not Known	%	8.7	0.3	12.4	11.1	9.5
Missing	%	1.0	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1290	6401	8494	23070	37965
Yes	%	1.8	0.2	2.4	1.1	1.2
No	%	97.7	99.4	65.4	83.9	82.4
Not Known	%	0.1	0.0	25.0	7.5	10.2
Missing	%	0.5	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1290	6401	8494	23070	37965
Yes	%	1.2	0.3	3.8	2.1	2.2
No	%	98.3	99.3	76.3	84.6	85.2
Not Known	%	0.1	0.0	12.6	5.7	6.3
Missing	%	0.4	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1290	6401	8494	23070	37965
Yes	%	7.4	0.6	6.5	6.8	5.7
No	%	92.0	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	0.2	0.0	9.8	5.5	5.6
Missing	%	0.5	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1290	6401	8494	23070	37965
Yes	%	10.2	2.5	5.0	5.8	5.0
No	%	84.0	97.0	75.2	72.7	77.4
Not Known	%	5.3	0.1	12.3	13.4	10.9
Missing	%	0.4	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1290	6401	8494	23070	37965
Yes	%	4.3	1.3	6.9	5.7	5.2
No	%	89.8	98.1	73.2	72.8	77.2
Not Known	%	5.5	0.1	12.4	13.3	10.9
Missing	%	0.5	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1290	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1008	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	78.1	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	11.6	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	1290	6389	7929	21646	35964
Received Enhanced Encounters	N	1290	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	100.0	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	7.4	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	109	6210	7424	17929	31563

Data Element	Number (N), Mean, or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Enhanced Services	N	0	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	0.0	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	NA	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	215	484	867	3380	4731
Yes	%	23.7	3.5	7.4	13.4	11.3
No	%	56.3	89.9	58.6	55.2	59.4
Not known	%	8.8	0.0	15.7	18.0	15.7
Missing	%	11.2	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	1067	6337	6825	19298	32460
Number of Babies Born	N	1103	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1190	6256	7939	21160	35355
Yes	%	10.9	16.1	23.8	19.4	19.8
No	%	6.2	81.7	38.3	35.1	44.0
Not known	%	67.3	0.5	24.8	28.8	22.9
Missing	%	15.5	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1290	6401	8494	23070	37965
Vaginal delivery	%	47.1	86.0	54.0	51.9	58.1
C-Section	%	27.4	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	25.4	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	81.2	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	191	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	9.9	28.8	23.6	16.4	18.9
Repeat C-Section	%	90.1	71.2	76.4	83.7	81.2
Scheduled C-Section	N	354	820	1873	5597	8290
Yes	%	28.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1019	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	15.6	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	84.3	94.4	81.4	81.0	83.9
Missing	%	0.1	0.3	7.4	4.8	4.4
Infant Birthweight	N	1019	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	14.2	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	82.8	94.2	84.9	82.4	85.3
Missing	%	2.9	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	FAHSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	992	5149	5684	15106	25939
Yes	%	53.2	83.6	57.5	63.4	66.1
No	%	17.5	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.2	0.7	5.9	2.5	2.9
Missing	%	29.0	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	103.6	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	992	5149	5684	15106	25939
Yes	%	58.1	69.5	57.2	72.3	68.4
No	%	9.8	18.1	10.7	11.7	12.7
Unsure	%	1.2	2.7	5.9	2.4	3.2
Missing	%	30.9	9.7	26.2	13.6	15.6

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. In July 2017, the team received the final, complete birth certificate files, which are now ready to be linked to the Medicaid data. The Florida Medicaid Agency plans to submit the remaining 2015 and 2016 data by September 2017.

Grady Memorial Hospital Corporation

CASE STUDY

Grady Health System (Grady) convened four maternity care provider sites to participate in the Strong Start program, all of which had implemented Group Prenatal Care (and specifically CenteringPregnancy, or Centering) prior to Strong Start. Because Centering was already established at each site, Strong Start funded support and expansion (rather than initiation) of Group Prenatal Care. Specifically, the program funded new staff, including a project coordinator at each site and a project director at Grady. These enhancements provided administrative support for site clinicians and administrative staff, expanded the number of providers trained in Centering, and increased data analysis and reporting capacity. A community partner, the Center for Black Women's Wellness, recruited eligible women and cofacilitated some groups. The United Way provided leadership and funds for evaluation and training. Grady ended enrollment in May 2016, and Strong Start deliveries had ended by December 2016. Total enrollment in the program was 1,121 women.

Key informants credit the Strong Start award as a catalyst for Grady leadership's full commitment to continuing the Centering program. Three sites are working to sustain and expand Group Prenatal Care, while one site discontinued Centering in 2016. A recently completed building renovation for Grady Women's Health Services included two new meeting rooms that are ideal for group sessions. Grady is also funding the purchase of CenteringPregnancy books and snacks for participants. The awardee is considering an expansion of Group Prenatal Care to two neighborhood health centers that serve a predominantly Hispanic population, which would involve Spanish-language groups. The Center for Black Women's Wellness is no longer providing a cofacilitator for Grady's Centering sessions, but the awardee is looking for additional opportunities to keep the partnership in place.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Grady Health System (Grady) had Intake Forms for 60.5 percent of participants enrolled through Quarter 4 2016 (678 Intake Forms for 1,121 participants). In addition, Grady submitted 420 Third Trimester Surveys, 139 Postpartum Surveys, and 386 Exit Forms. Tables 1 through 7 present data collected on Grady's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Grady.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1121	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	696	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	678	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	60.5	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	420	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	37.5	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	139	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	12.4	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	386	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	34.4	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	678	7407	9821	25353	42581
Less than 18 years of age	%	7.7	2.7	6.9	5.5	5.3
18 through 19 years of age	%	17.4	6.4	12.4	9.5	9.6
20 through 34 years of age	%	69.3	81.4	71.7	74.4	75
35 years and older	%	2.7	9.1	7.4	9.6	9.0
Missing	%	2.9	0.4	1.6	1.0	1.1
Race and Ethnicity	N	678	7407	9821	25353	42581
Hispanic	%	4.3	25.0	36.3	27.7	29.2
White	%	4.3	52.9	12.4	22.0	25.2
Black	%	88.8	16.0	44.1	44.4	39.4
Other race or multiple races	%	2.7	5.3	5.0	4.2	4.6
Missing	%	0.0	0.8	2.3	1.7	1.7
Employed at Intake	N	678	7407	9821	25353	42581
Yes	%	41.7	41.6	34.3	39.3	38.6
No	%	56.8	57.1	61.3	58.8	59.1
Missing	%	1.5	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	678	7407	9821	25353	42581
Yes	%	1.6	1.3	1.8	1.5	1.5
Missing	%	98.4	98.7	98.2	98.5	98.5
Education Level at Intake	N	678	7407	9821	25353	42581
Less than high school	%	22.4	13.2	22.2	23.7	21.5
High school graduate or GED	%	58.7	52.6	47.8	49.9	49.9
Bachelor's degree	%	3.4	11.2	3.1	2.9	4.4
Other college degree(s)	%	6.8	12.5	6.9	6.2	7.5
Missing	%	8.7	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	678	7407	9821	25353	42581
Married, living with spouse	%	10.0	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.1	1.7	1.8	2.0	1.9
Living with a partner	%	30.1	32.7	31.3	30.3	30.9
In a relationship but not living together	%	31.9	14.6	23.5	29.0	25.2
Not in a relationship right now	%	22.9	9.9	17.2	18.0	16.4
Missing	%	3.1	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	678	7407	9821	25353	42581
Yes	%	5.0	9.7	8.1	12.4	10.9
No	%	84.8	81.0	71.9	81.6	79.3
Missing	%	10.2	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	678	7407	9821	25353	42581
Yes	%	18.9	17.2	19.0	16.5	17.2
No	%	70.6	76.7	64.6	74.5	72.6
Missing*	%	10.4	6.1	16.5	9.0	10.2

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exhibiting Depressive Symptoms at Intake**	N	678	7407	9821	25353	42581
Yes	%	29.4	20.8	23.9	21.6	22.0
No	%	56.6	68.7	53.0	67.0	64.1
Missing*	%	14.0	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	678	7407	9821	25353	42581
Yes	%	12.7	20.0	15.4	18.7	18.2
No	%	85.4	78.0	75.0	77.0	76.7
Missing*	%	1.9	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	138	3878	4458	14417	22753
<18 months	%	26.8	29.8	17.5	21.7	22.4
≥18 months	%	53.6	51.2	50.8	55.7	54.0
Missing	%	19.6	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	138	3878	4458	14417	22753
Yes	%	8.7	9.3	10.9	16.2	14.0
No	%	83.3	88.6	74.5	68.8	73.3
Not Known	%	5.1	0.3	8.7	6.8	6.0
Missing	%	2.9	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	138	3878	4458	14417	22753
Yes	%	10.9	1.6	8.5	12.6	9.9
No	%	76.8	96.1	64.0	67.4	71.6
Not Known	%	10.1	0.3	12.4	11.1	9.5
Missing	%	2.2	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	386	6401	8494	23070	37965
Yes	%	37.6	0.2	2.4	1.1	1.2
No	%	52.3	99.4	65.4	83.9	82.4
Not Known	%	10.1	0.0	25.0	7.5	10.2
Missing	%	0.0	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	386	6401	8494	23070	37965
Yes	%	39.6	0.3	3.8	2.1	2.2
No	%	50.5	99.3	76.3	84.6	85.2
Not Known	%	9.8	0.0	12.6	5.7	6.3
Missing	%	0.0	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	386	6401	8494	23070	37965
Yes	%	49.2	0.6	6.5	6.8	5.7
No	%	42.2	99.0	76.3	80.3	82.5
Not Known	%	7.8	0.0	9.8	5.5	5.6
Missing	%	0.8	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	386	6401	8494	23070	37965
Yes	%	3.6	2.5	5.0	5.8	5.0
No	%	90.2	97.0	75.2	72.7	77.4
Not Known	%	5.2	0.1	12.3	13.4	10.9
Missing	%	1.0	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	386	6401	8494	23070	37965
Yes	%	20.7	1.3	6.9	5.7	5.2
No	%	73.3	98.1	73.2	72.8	77.2
Not Known	%	5.2	0.1	12.4	13.3	10.9
Missing	%	0.8	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	386	6401	8494	23070	37965
Received Individual Prenatal Visits	N	382	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	99.0	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	4.6	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	374	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	96.9	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	5.3	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	383	6389	7929	21646	35964
Received Enhanced Encounters	N	70	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	18.3	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	1.4	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	6	6210	7424	17929	31563
Received Enhanced Services	N	0	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	0.0	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	NA	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	19	484	867	3380	4731
Yes	%	0.0	3.5	7.4	13.4	11.3
No	%	78.9	89.9	58.6	55.2	59.4
Not known	%	15.8	0.0	15.7	18.0	15.7
Missing	%	5.3	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	364	6337	6825	19298	32460
Number of Babies Born	N	364	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	366	6256	7939	21160	35355
Yes	%	45.6	16.1	23.8	19.4	19.8
No	%	38.8	81.7	38.3	35.1	44.0
Not known	%	13.7	0.5	24.8	28.8	22.9
Missing	%	1.9	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	386	6401	8494	23070	37965
Vaginal delivery	%	65.3	86.0	54.0	51.9	58.1
C-Section	%	24.4	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	10.4	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	84.4	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	32	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	21.9	28.8	23.6	16.4	18.9
Repeat C-Section	%	78.1	71.2	76.4	83.7	81.2
Scheduled C-Section	N	94	820	1873	5597	8290
Yes	%	21.3	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	339	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	8.3	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	84.4	94.4	81.4	81.0	83.9
Missing	%	7.4	0.3	7.4	4.8	4.4
Infant Birthweight	N	339	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	9.7	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	87.6	94.2	84.9	82.4	85.3
Missing	%	2.7	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	139	5149	5684	15106	25939
Yes	%	85.6	83.6	57.5	63.4	66.1
No	%	12.2	7.0	10.9	21.4	16.3
Prefer not to answer	%	1.4	0.7	5.9	2.5	2.9
Missing	%	0.7	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	103.0	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	Grady (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	139	5149	5684	15106	25939
Yes	%	92.1	69.5	57.2	72.3	68.4
No	%	5.0	18.1	10.7	11.7	12.7
Unsure	%	1.4	2.7	5.9	2.4	3.2
Missing	%	1.4	9.7	26.2	13.6	15.6

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, the data request needed some slight modifications, but those modifications were completed and approved. The agency provided 2014 and 2015 birth certificate data in March 2017. The 2016 birth certificate files became available in July 2017, and a request to receive those data was submitted in August 2017. In addition, the evaluation team has 2014 and 2015 Medicaid data and is awaiting receipt of 2016 Medicaid data. There have been some delays due to missing information from the data files, but the issue has been resolved, and updated files have been requested.

Harris County Hospital District

CASE STUDY

Harris Health System (Harris), a county public health system in Houston, Texas, has had a CenteringPregnancy (Centering) Group Prenatal Care program in place since 2005. Strong Start was considered an enhancement of the awardee's existing Centering program. Harris implemented Strong Start at its six clinics and a seventh contracted clinic. Two medical schools (the University of Texas and Baylor University) serve the seven clinics in the Harris Health System and provided prenatal care to Strong Start participants. Under Strong Start, two Community Health Workers (CHWs) recruited Medicaid- and CHIP-eligible women into Centering at multiple sites; occasionally attended Centering sessions with them; provided ongoing encouragement and support; and assisted in data collection and patient follow-up. The CHWs enrolled women who would lose Medicaid/CHIP coverage after birth into Harris' Gold Card Program, which provides health care to the uninsured. Three social workers (SWs) also provided counseling, education, referrals, and care navigation to Strong Start participants during pregnancy and postpartum. The SWs coordinated with nurse midwives, who had primary responsibility for medical care management. Harris ended Strong Start enrollment in March 2016, and the last Strong Start deliveries occurred in August 2016. Total enrollment in the program was 1,275 women.

While Harris' longstanding Centering program will continue, the specific Strong Start enhancements adding CHWs and SWs have ended. Consequently, the dedicated in-reach (to women coming to the clinics for prenatal care) and outreach to enroll patients in Centering have not been sustained. CHWs will be used for two new programs, Family Planning Program and Healthy Texas Women, and while the CHWs will be focused on contraceptive use, they will also be able to provide prenatal care information to women.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Harris County Hospital District (Harris) had Intake Forms for 95.2 percent of participants enrolled through Quarter 4 2016 (1,214 Intake Forms for 1,275 participants). In addition, Harris submitted 933 Third Trimester Surveys, 1,153 Postpartum Surveys, and 1,250 Exit Forms. Tables 1 through 7 present data collected on Harris's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Harris.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1275	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1046	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1214	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	95.2	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	933	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	73.2	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	1153	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	90.4	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1250	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	98.0	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1214	7407	9821	25353	42581
Less than 18 years of age	%	8.0	2.7	6.9	5.5	5.3
18 through 19 years of age	%	9.6	6.4	12.4	9.5	9.6
20 through 34 years of age	%	68.8	81.4	71.7	74.4	75
35 years and older	%	13.6	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1214	7407	9821	25353	42581
Hispanic	%	83.1	25.0	36.3	27.7	29.2
White	%	2.4	52.9	12.4	22.0	25.2
Black	%	13.4	16.0	44.1	44.4	39.4
Other race or multiple races	%	0.7	5.3	5.0	4.2	4.6
Missing	%	0.3	0.8	2.3	1.7	1.7
Employed at Intake	N	1214	7407	9821	25353	42581
Yes	%	22.8	41.6	34.3	39.3	38.6
No	%	76.5	57.1	61.3	58.8	59.1
Missing	%	0.7	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1214	7407	9821	25353	42581
Yes	%	0.4	1.3	1.8	1.5	1.5
Missing	%	99.6	98.7	98.2	98.5	98.5
Education Level at Intake	N	1214	7407	9821	25353	42581
Less than high school	%	59.2	13.2	22.2	23.7	21.5
High school graduate or GED	%	29.7	52.6	47.8	49.9	49.9
Bachelor's degree	%	0.6	11.2	3.1	2.9	4.4
Other college degree(s)	%	0.7	12.5	6.9	6.2	7.5
Missing	%	9.7	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1214	7407	9821	25353	42581
Married, living with spouse	%	27.4	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.5	1.7	1.8	2.0	1.9
Living with a partner	%	35.6	32.7	31.3	30.3	30.9
In a relationship but not living together	%	18.0	14.6	23.5	29.0	25.2
Not in a relationship right now	%	16.8	9.9	17.2	18.0	16.4
Missing	%	0.7	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1214	7407	9821	25353	42581
Yes	%	0.8	9.7	8.1	12.4	10.9
No	%	93.6	81.0	71.9	81.6	79.3
Missing	%	5.6	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1214	7407	9821	25353	42581
Yes	%	13.3	17.2	19.0	16.5	17.2
No	%	84.4	76.7	64.6	74.5	72.6
Missing*	%	2.3	6.1	16.5	9.0	10.2

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exhibiting Depressive Symptoms at Intake**	N	1214	7407	9821	25353	42581
Yes	%	12.0	20.8	23.9	21.6	22.0
No	%	84.8	68.7	53.0	67.0	64.1
Missing*	%	3.1	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1214	7407	9821	25353	42581
Yes	%	17.2	20.0	15.4	18.7	18.2
No	%	82.5	78.0	75.0	77.0	76.7
Missing*	%	0.3	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	781	3878	4458	14417	22753
<18 months	%	13.9	29.8	17.5	21.7	22.4
≥18 months	%	62.2	51.2	50.8	55.7	54.0
Missing	%	23.8	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	781	3878	4458	14417	22753
Yes	%	7.6	9.3	10.9	16.2	14.0
No	%	87.3	88.6	74.5	68.8	73.3
Not Known	%	4.1	0.3	8.7	6.8	6.0
Missing	%	1.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	781	3878	4458	14417	22753
Yes	%	11.9	1.6	8.5	12.6	9.9
No	%	82.7	96.1	64.0	67.4	71.6
Not Known	%	4.1	0.3	12.4	11.1	9.5
Missing	%	1.3	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1250	6401	8494	23070	37965
Yes	%	0.1	0.2	2.4	1.1	1.2
No	%	85.1	99.4	65.4	83.9	82.4
Not Known	%	13.1	0.0	25.0	7.5	10.2
Missing	%	1.7	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1250	6401	8494	23070	37965
Yes	%	0.3	0.3	3.8	2.1	2.2
No	%	84.9	99.3	76.3	84.6	85.2
Not Known	%	13.1	0.0	12.6	5.7	6.3
Missing	%	1.7	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1250	6401	8494	23070	37965
Yes	%	0.2	0.6	6.5	6.8	5.7
No	%	85.0	99.0	76.3	80.3	82.5
Not Known	%	13.1	0.0	9.8	5.5	5.6
Missing	%	1.7	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1250	6401	8494	23070	37965
Yes	%	8.9	2.5	5.0	5.8	5.0
No	%	76.8	97.0	75.2	72.7	77.4
Not Known	%	13.4	0.1	12.3	13.4	10.9
Missing	%	1.0	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1250	6401	8494	23070	37965
Yes	%	8.3	1.3	6.9	5.7	5.2
No	%	77.8	98.1	73.2	72.8	77.2
Not Known	%	13.4	0.1	12.4	13.3	10.9
Missing	%	0.6	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1250	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1117	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	89.4	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	6.2	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	1103	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	88.2	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	7.3	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	1248	6389	7929	21646	35964
Received Enhanced Encounters	N	1057	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	84.7	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	2.9	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	1248	6210	7424	17929	31563
Received Enhanced Services	N	122	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	9.8	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.3	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	98	484	867	3380	4731
Yes	%	9.2	3.5	7.4	13.4	11.3
No	%	74.5	89.9	58.6	55.2	59.4
Not known	%	6.1	0.0	15.7	18.0	15.7
Missing	%	10.2	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	1074	6337	6825	19298	32460
Number of Babies Born	N	1080	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1176	6256	7939	21160	35355
Yes	%	48.0	16.1	23.8	19.4	19.8
No	%	33.9	81.7	38.3	35.1	44.0
Not known	%	2.6	0.5	24.8	28.8	22.9
Missing	%	15.4	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1250	6401	8494	23070	37965
Vaginal delivery	%	66.2	86.0	54.0	51.9	58.1
C-Section	%	19.5	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	14.2	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	87.0	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	137	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	33.6	28.8	23.6	16.4	18.9
Repeat C-Section	%	66.4	71.2	76.4	83.7	81.2
Scheduled C-Section	N	245	820	1873	5597	8290
Yes	%	30.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1075	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	8.7	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	90.7	94.4	81.4	81.0	83.9
Missing	%	0.7	0.3	7.4	4.8	4.4
Infant Birthweight	N	1075	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	5.9	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	94.0	94.2	84.9	82.4	85.3
Missing	%	0.1	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	1153	5149	5684	15106	25939
Yes	%	66.0	83.6	57.5	63.4	66.1
No	%	4.7	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.1	0.7	5.9	2.5	2.9
Missing	%	29.2	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	100.9	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	Harris (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	1153	5149	5684	15106	25939
Yes	%	61.4	69.5	57.2	72.3	68.4
No	%	8.6	18.1	10.7	11.7	12.7
Unsure	%	0.6	2.7	5.9	2.4	3.2
Missing	%	29.4	9.7	26.2	13.6	15.6

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 in November 2015 that the evaluation team needed to obtain IRB approval prior to executing a data use agreement (DUA) to allow for the sharing of birth certificate data. The IRB application was approved by the Vital Records Agency IRB board in April 2017. Also in April, the evaluation team submitted an MOU to Medicaid for review and approval. Since its submission, Medicaid has been waiting for input on the MOU from the Vital Records Agency, but they have been unresponsive. The evaluation team is working to determine the cause of the delay so the data request process can continue moving forward. At this time, it is possible that we will not receive data from Texas in time for the final year's impacts analysis. This information is the same as described for the Texas Tech University Health system awardee, also located in Texas.

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 Nevada, New Mexico, Oregon, and Utah. HealthInsight Nevada, the Strong Start awardee, is headquartered in Las Vegas. The organization recruited several providers to participate in Strong Start in the Las Vegas and Reno areas, three of which have implemented Group Prenatal Care under HealthInsight's award: 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 model and UNSOM and WHASN implementing a locally developed Group Prenatal Care curriculum that covers similar content to what is offered through Centering but has some important distinctions. UNSOM and WHASN's group care approach includes eight sessions (as compared to Centering's ten) and sessions can be taken in any order to facilitate flexible scheduling. HealthInsight ended enrollment in July 2016, and the last Strong Start deliveries were expected in February 2017. Total enrollment in the program was 974 women.

All three HealthInsight sites are sustaining Group Prenatal Care, though none have secured long-term funding for their program. Two sites are currently using institutional funding (clinic revenue) to support Group Prenatal Care, and one is also using funding from an external grant. One of the sites that is using a locally developed group care curriculum may pursue a March of Dimes grant to support implementation of CenteringPregnancy. The funding status of the third site was not shared with the evaluation team. Sites reported that their current approaches to Group Prenatal Care are working well; staff do not anticipate changing the structure of the sessions or the programs' target populations; and, staff at WHASN are considering full implementation if they receive a March of Dimes grant to support start-up costs.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, HealthInsight of Nevada (HealthInsight) had Intake Forms for 66.4 percent of participants enrolled through Quarter 4 2016 (710 Intake Forms for 1,069 participants). In addition, HealthInsight submitted 425 Third Trimester Surveys, 344 Postpartum Surveys, and 391 Exit Forms. Tables 1 through 7 present data collected on HealthInsight's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from HealthInsight.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1069	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	587	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	710	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	66.4	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	425	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	39.8	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	344	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	32.2	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	391	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	36.6	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	710	7407	9821	25353	42581
Less than 18 years of age	%	6.2	2.7	6.9	5.5	5.3
18 through 19 years of age	%	17.0	6.4	12.4	9.5	9.6
20 through 34 years of age	%	71.0	81.4	71.7	74.4	75
35 years and older	%	5.5	9.1	7.4	9.6	9.0
Missing	%	0.3	0.4	1.6	1.0	1.1
Race and Ethnicity	N	710	7407	9821	25353	42581
Hispanic	%	39.4	25.0	36.3	27.7	29.2
White	%	24.4	52.9	12.4	22.0	25.2
Black	%	21.4	16.0	44.1	44.4	39.4
Other race or multiple races	%	12.7	5.3	5.0	4.2	4.6
Missing	%	2.1	0.8	2.3	1.7	1.7
Employed at Intake	N	710	7407	9821	25353	42581
Yes	%	34.2	41.6	34.3	39.3	38.6
No	%	64.1	57.1	61.3	58.8	59.1
Missing	%	1.7	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	710	7407	9821	25353	42581
Yes	%	1.5	1.3	1.8	1.5	1.5
Missing	%	98.5	98.7	98.2	98.5	98.5
Education Level at Intake	N	710	7407	9821	25353	42581
Less than high school	%	29.2	13.2	22.2	23.7	21.5
High school graduate or GED	%	52.1	52.6	47.8	49.9	49.9
Bachelor's degree	%	2.4	11.2	3.1	2.9	4.4
Other college degree(s)	%	5.4	12.5	6.9	6.2	7.5
Missing	%	11.0	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	710	7407	9821	25353	42581
Married, living with spouse	%	15.4	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.3	1.7	1.8	2.0	1.9
Living with a partner	%	43.2	32.7	31.3	30.3	30.9
In a relationship but not living together	%	18.9	14.6	23.5	29.0	25.2
Not in a relationship right now	%	17.6	9.9	17.2	18.0	16.4
Missing	%	2.7	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	710	7407	9821	25353	42581
Yes	%	8.7	9.7	8.1	12.4	10.9
No	%	81.7	81.0	71.9	81.6	79.3
Missing	%	9.6	9.3	20.0	6.0	9.8

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Food Insecure at Intake	N	710	7407	9821	25353	42581
Yes	%	27.0	17.2	19.0	16.5	17.2
No	%	62.7	76.7	64.6	74.5	72.6
Missing*	%	10.3	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	710	7407	9821	25353	42581
Yes	%	25.2	20.8	23.9	21.6	22.0
No	%	56.1	68.7	53.0	67.0	64.1
Missing*	%	18.7	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	710	7407	9821	25353	42581
Yes	%	22.4	20.0	15.4	18.7	18.2
No	%	75.4	78.0	75.0	77.0	76.7
Missing*	%	2.2	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	180	3878	4458	14417	22753
<18 months	%	27.8	29.8	17.5	21.7	22.4
≥18 months	%	48.9	51.2	50.8	55.7	54.0
Missing	%	23.3	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	180	3878	4458	14417	22753
Yes	%	5.0	9.3	10.9	16.2	14.0
No	%	86.7	88.6	74.5	68.8	73.3
Not Known	%	1.7	0.3	8.7	6.8	6.0
Missing	%	6.7	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	180	3878	4458	14417	22753
Yes	%	2.8	1.6	8.5	12.6	9.9
No	%	86.1	96.1	64.0	67.4	71.6
Not Known	%	2.2	0.3	12.4	11.1	9.5
Missing	%	8.9	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	391	6401	8494	23070	37965
Yes	%	0.5	0.2	2.4	1.1	1.2
No	%	92.8	99.4	65.4	83.9	82.4
Not Known	%	2.8	0.0	25.0	7.5	10.2
Missing	%	3.8	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	391	6401	8494	23070	37965
Yes	%	0.5	0.3	3.8	2.1	2.2
No	%	92.6	99.3	76.3	84.6	85.2
Not Known	%	2.8	0.0	12.6	5.7	6.3
Missing	%	4.1	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	391	6401	8494	23070	37965
Yes	%	3.8	0.6	6.5	6.8	5.7
No	%	88.7	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	3.8	0.0	9.8	5.5	5.6
Missing	%	3.6	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	391	6401	8494	23070	37965
Yes	%	3.3	2.5	5.0	5.8	5.0
No	%	80.8	97.0	75.2	72.7	77.4
Not Known	%	8.7	0.1	12.3	13.4	10.9
Missing	%	7.2	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	391	6401	8494	23070	37965
Yes	%	2.8	1.3	6.9	5.7	5.2
No	%	81.8	98.1	73.2	72.8	77.2
Not Known	%	8.7	0.1	12.4	13.3	10.9
Missing	%	6.6	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	391	6401	8494	23070	37965
Received Individual Prenatal Visits	N	265	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	67.8	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	5.2	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	365	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	93.4	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	5.6	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	368	6389	7929	21646	35964
Received Enhanced Encounters	N	60	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	16.3	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	1.8	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	368	6210	7424	17929	31563

Data Element	Number (N), Mean, or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Enhanced Services	N	23	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	6.3	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	5.8	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	28	484	867	3380	4731
Yes	%	3.6	3.5	7.4	13.4	11.3
No	%	71.4	89.9	58.6	55.2	59.4
Not known	%	10.7	0.0	15.7	18.0	15.7
Missing	%	14.3	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	326	6337	6825	19298	32460
Number of Babies Born	N	329	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	359	6256	7939	21160	35355
Yes	%	17.8	16.1	23.8	19.4	19.8
No	%	59.9	81.7	38.3	35.1	44.0
Not known	%	8.9	0.5	24.8	28.8	22.9
Missing	%	13.4	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	391	6401	8494	23070	37965
Vaginal delivery	%	58.8	86.0	54.0	51.9	58.1
C-Section	%	22.5	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.3	0.0	0.1	0.2	0.1
Missing	%	18.4	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	84.5	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	35	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	25.7	28.8	23.6	16.4	18.9
Repeat C-Section	%	74.3	71.2	76.4	83.7	81.2
Scheduled C-Section	N	89	820	1873	5597	8290
Yes	%	36.0	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	318	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	6.6	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	89.9	94.4	81.4	81.0	83.9
Missing	%	3.5	0.3	7.4	4.8	4.4
Infant Birthweight	N	318	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	7.2	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	89.6	94.2	84.9	82.4	85.3
Missing	%	3.1	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	HealthInsight (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	344	5149	5684	15106	25939
Yes	%	87.5	83.6	57.5	63.4	66.1
No	%	5.2	7.0	10.9	21.4	16.3
Prefer not to answer	%	2.3	0.7	5.9	2.5	2.9
Missing	%	4.9	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	109.8	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	344	5149	5684	15106	25939
Yes	%	71.2	69.5	57.2	72.3	68.4
No	%	19.2	18.1	10.7	11.7	12.7
Unsure	%	4.1	2.7	5.9	2.4	3.2
Missing	%	5.5	9.7	26.2	13.6	15.6

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). By August 2016, DWSS was processing Medicaid eligibility and claims data for live births in 2014 and planned 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 that Urban would link Nevada Medicaid and birth certificate data. In October 2016, the Medicaid Agency submitted its 2014 and 2015 files. Urban has linked the data and has completed its preliminary analysis. In May 2017, Vital Records submitted 2016 birth certificate data, and 2016 Medicaid data were requested. The Medicaid Agency plans to submit 2016 data in September 2017.

Johns Hopkins University

CASE STUDY

The **Johns Hopkins University School of Medicine** implemented the Maternity Care Home approach to provide care coordination to pregnant Medicaid beneficiaries in the Baltimore area. Hopkins collaborated with Priority Partners (a Hopkins-affiliated Medicaid managed care organization or MCO) to implement the program, and provided Strong Start services to women enrolled in the MCO and receiving care at 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 were originally included in Strong Start, and the other two clinics were added midway through the award period to increase program enrollment. Hopkins ended enrollment in April 2016, and the last Strong Start deliveries occurred in November 2016. Total enrollment in the program was 1,601 women.

Johns Hopkins has sustained all three components of its Maternity Care Home intervention, including case management services, Baby Basics classes (for pregnancy and parenting education) and quarterly summits. The awardee implemented some minor changes in the post-Strong Start environment, but the program has remained consistent overall. Currently, case management services are offered as they were during Strong Start, with no significant changes to the content or number of encounters. The Baby Basics program has been scaled back at certain clinics where there was limited space or administrative support for the program, but it continues to operate at other Hopkins sites that experienced more success with Baby Basics and Priority Partners may expand the classes beyond the Hopkins network. Quarterly summits will continue, but will be more focused on staff training than engaging community partners. Some aspects of the Strong Start evaluation Intake form (such as depression and anxiety screening) will be incorporated into the intake process for a pregnancy case management program that Hopkins operates called Partners with Mom.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Johns Hopkins University (JHU) had Intake Forms for 101.6 percent of participants enrolled through Quarter 4 2016 (1,627 Intake Forms for 1,602 participants as reported via program monitoring reports submitted to CMMI). In addition, JHU submitted 1,136 Third Trimester Surveys, 1,367 Postpartum Surveys, and 1,629 Exit Forms. Tables 1 through 7 present data collected on JHU's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from JHU.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1602	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1497	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1627	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	101.6*	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	1136	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	70.9	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	1367	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	85.3	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1629	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	101.7*	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.
Cells that contain one asterisk (*) indicate that enrollment totals reported on program monitoring reports are the denominator for form receipt and may differ slightly from what awardees have reported in their PLPE data thus resulting in percentages <100 percent.

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1627	7407	9821	25353	42581
Less than 18 years of age	%	7.4	2.7	6.9	5.5	5.3
18 through 19 years of age	%	11.4	6.4	12.4	9.5	9.6
20 through 34 years of age	%	73.0	81.4	71.7	74.4	75
35 years and older	%	7.9	9.1	7.4	9.6	9.0
Missing	%	0.3	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1627	7407	9821	25353	42581
Hispanic	%	8.1	25.0	36.3	27.7	29.2
White	%	13.1	52.9	12.4	22.0	25.2
Black	%	72.3	16.0	44.1	44.4	39.4
Other race or multiple races	%	6.3	5.3	5.0	4.2	4.6
Missing	%	0.2	0.8	2.3	1.7	1.7
Employed at Intake	N	1627	7407	9821	25353	42581
Yes	%	37.8	41.6	34.3	39.3	38.6
No	%	61.8	57.1	61.3	58.8	59.1
Missing	%	0.4	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1627	7407	9821	25353	42581
Yes	%	1.1	1.3	1.8	1.5	1.5
Missing	%	98.9	98.7	98.2	98.5	98.5
Education Level at Intake	N	1627	7407	9821	25353	42581
Less than high school	%	29.8	13.2	22.2	23.7	21.5
High school graduate or GED	%	59.1	52.6	47.8	49.9	49.9
Bachelor's degree	%	2.5	11.2	3.1	2.9	4.4
Other college degree(s)	%	3.6	12.5	6.9	6.2	7.5
Missing	%	5.1	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1627	7407	9821	25353	42581
Married, living with spouse	%	10.8	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.8	1.7	1.8	2.0	1.9
Living with a partner	%	34.5	32.7	31.3	30.3	30.9
In a relationship but not living together	%	29.4	14.6	23.5	29.0	25.2
Not in a relationship right now	%	22.0	9.9	17.2	18.0	16.4
Missing	%	1.4	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1627	7407	9821	25353	42581
Yes	%	15.9	9.7	8.1	12.4	10.9

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	76.0	81.0	71.9	81.6	79.3
Missing	%	8.2	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1627	7407	9821	25353	42581
Yes	%	14.6	17.2	19.0	16.5	17.2
No	%	83.5	76.7	64.6	74.5	72.6
Missing*	%	1.9	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1627	7407	9821	25353	42581
Yes	%	30.7	20.8	23.9	21.6	22.0
No	%	66.3	68.7	53.0	67.0	64.1
Missing*	%	3.0	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1627	7407	9821	25353	42581
Yes	%	14.5	20.0	15.4	18.7	18.2
No	%	85.1	78.0	75.0	77.0	76.7
Missing*	%	0.4	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	1083	3878	4458	14417	22753
<18 months	%	19.1	29.8	17.5	21.7	22.4
≥18 months	%	62.7	51.2	50.8	55.7	54.0
Missing	%	18.1	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	1083	3878	4458	14417	22753
Yes	%	18.7	9.3	10.9	16.2	14.0
No	%	76.1	88.6	74.5	68.8	73.3
Not Known	%	2.1	0.3	8.7	6.8	6.0
Missing	%	3.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	1083	3878	4458	14417	22753
Yes	%	12.0	1.6	8.5	12.6	9.9
No	%	75.7	96.1	64.0	67.4	71.6
Not Known	%	6.6	0.3	12.4	11.1	9.5
Missing	%	5.7	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1629	6401	8494	23070	37965
Yes	%	0.5	0.2	2.4	1.1	1.2
No	%	94.5	99.4	65.4	83.9	82.4
Not Known	%	1.8	0.0	25.0	7.5	10.2
Missing	%	3.2	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1629	6401	8494	23070	37965
Yes	%	1.4	0.3	3.8	2.1	2.2
No	%	93.8	99.3	76.3	84.6	85.2
Not Known	%	1.8	0.0	12.6	5.7	6.3
Missing	%	3.0	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1629	6401	8494	23070	37965
Yes	%	8.2	0.6	6.5	6.8	5.7
No	%	87.4	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	1.8	0.0	9.8	5.5	5.6
Missing	%	2.7	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1629	6401	8494	23070	37965
Yes	%	6.8	2.5	5.0	5.8	5.0
No	%	83.4	97.0	75.2	72.7	77.4
Not Known	%	4.3	0.1	12.3	13.4	10.9
Missing	%	5.5	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1629	6401	8494	23070	37965
Yes	%	10.1	1.3	6.9	5.7	5.2
No	%	80.8	98.1	73.2	72.8	77.2
Not Known	%	3.7	0.1	12.4	13.3	10.9
Missing	%	5.4	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1629	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1414	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	86.8	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	9.1	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	1589	6389	7929	21646	35964
Received Enhanced Encounters	N	1475	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	92.8	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	6.2	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	1585	6210	7424	17929	31563
Received Enhanced Services	N	295	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhanced services information	%	18.6	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	2.8	1.4	2.2	4.0	3.3

Data Element	Number (N), Mean, or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Progesterone Injections (among women with a prior preterm birth)	N	268	484	867	3380	4731
Yes	%	18.3	3.5	7.4	13.4	11.3
No	%	70.9	89.9	58.6	55.2	59.4
Not known	%	3.0	0.0	15.7	18.0	15.7
Missing	%	7.8	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	1525	6337	6825	19298	32460
Number of Babies Born	N	1545	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1467	6256	7939	21160	35355
Yes	%	29.0	16.1	23.8	19.4	19.8
No	%	57.3	81.7	38.3	35.1	44.0
Not known	%	6.0	0.5	24.8	28.8	22.9
Missing	%	7.6	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1629	6401	8494	23070	37965
Vaginal delivery	%	59.9	86.0	54.0	51.9	58.1
C-Section	%	30.9	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	9.1	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	80.3	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	291	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	17.2	28.8	23.6	16.4	18.9
Repeat C-Section	%	82.8	71.2	76.4	83.7	81.2
Scheduled C-Section	N	504	820	1873	5597	8290
Yes	%	32.1	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1508	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	13.7	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	76.7	94.4	81.4	81.0	83.9
Missing	%	9.6	0.3	7.4	4.8	4.4
Infant Birthweight	N	1508	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	14.3	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	83.8	94.2	84.9	82.4	85.3
Missing	%	1.9	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	JHU (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	1367	5149	5684	15106	25939
Yes	%	43.4	83.6	57.5	63.4	66.1
No	%	29.0	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.3	0.7	5.9	2.5	2.9
Missing	%	27.4	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	98.8	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	1367	5149	5684	15106	25939
Yes	%	69.1	69.5	57.2	72.3	68.4
No	%	3.1	18.1	10.7	11.7	12.7
Unsure	%	0.3	2.7	5.9	2.4	3.2
Missing	%	27.6	9.7	26.2	13.6	15.6

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 approved the evaluation's 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 (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. During the call, the parties agreed that: (1) the Hilltop Institute, on behalf of Medicaid, would perform the data linkage and send a linked file to Urban; and (2) a memorandum of agreement and data use agreement (DUA) would be needed (in addition to IRB approval). Following the call, there were several months of discussion with the Hilltop Institute to determine a correct scope of work and budget. In March 2017, an agreement was reached and Medicaid began drafting a DUA. All of the DUAs were finalized and executed in June 2017, and Hilltop began completing the data request.

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 throughout Los Angeles County. LADHS hospitals and clinics are the primary safety net provider in the county, with an annual budget of nearly \$4 billion. Most LADHS patients are enrolled in Medi-Cal (the state's Medicaid program), Healthy Families (the state's CHIP program), or are uninsured. LADHS implemented the Maternity Care Home approach at six sites: Harbor UCLA Medical Center, LAC+USC Medical Center, Olive View Medical Center, MLK Outpatient Center, Hubert Humphrey Comprehensive Health Center, and Wilmington Health Center. LADHS ended program enrollment in August 2016, and the last Strong Start deliveries occurred in December 2016. Total enrollment in the program was 3,203 women.

LADHS is sustaining their Strong Start program, which they call MAMA's Neighborhood, and has plans to expand the patient-centered model of care to all county locations that provide prenatal care. They have retained MAMA's Neighborhood service providers including the care coordination staff, health educator, and mental health care providers. The specific Strong Start services that have continued include a risk assessment at Intake into prenatal care; care coordination for prenatal patients, with intensity based on needs; mental health services, including social work counseling and psychiatric support when necessary; and the opportunity to participate in county-developed resiliency/health education classes. LADHS integrated the MAMA's Neighborhood risk assessment and stratification tool into its electronic health record and will continue to use it at intake to identify the needs of program participants and make appropriate referrals. This tool includes most items on the Strong Start evaluation's Intake form, though some changes have been made.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Los Angeles County Department of Health Services (LADHS) had Intake Forms for 98.4 percent of participants enrolled through Quarter 4 2016 (3,153 Intake Forms for 3,203 participants). In addition, LADHS submitted 1,283 Third Trimester Surveys, 968 Postpartum Surveys, and 2,474 Exit Forms. Tables 1 through 7 present data collected on LADHS's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from LADHS.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	3203	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1679	4747	7943	18019	30709

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Intake Forms Received through Q4 2016	N	3153	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	98.4	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	1283	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	40.1	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	968	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	30.2	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	2474	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	77.2	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	3153	7407	9821	25353	42581
Less than 18 years of age	%	2.5	2.7	6.9	5.5	5.3
18 through 19 years of age	%	5.6	6.4	12.4	9.5	9.6
20 through 34 years of age	%	73.6	81.4	71.7	74.4	75
35 years and older	%	18.1	9.1	7.4	9.6	9.0
Missing	%	0.1	0.4	1.6	1.0	1.1
Race and Ethnicity	N	3153	7407	9821	25353	42581
Hispanic	%	64.0	25.0	36.3	27.7	29.2
White	%	5.6	52.9	12.4	22.0	25.2
Black	%	18.6	16.0	44.1	44.4	39.4
Other race or multiple races	%	8.3	5.3	5.0	4.2	4.6
Missing	%	3.5	0.8	2.3	1.7	1.7
Employed at Intake	N	3153	7407	9821	25353	42581
Yes	%	42.2	41.6	34.3	39.3	38.6
No	%	56.5	57.1	61.3	58.8	59.1
Missing	%	1.3	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	3153	7407	9821	25353	42581
Yes	%	1.2	1.3	1.8	1.5	1.5
Missing	%	98.8	98.7	98.2	98.5	98.5
Education Level at Intake	N	3153	7407	9821	25353	42581
Less than high school	%	26.0	13.2	22.2	23.7	21.5
High school graduate or GED	%	48.5	52.6	47.8	49.9	49.9
Bachelor's degree	%	5.2	11.2	3.1	2.9	4.4
Other college degree(s)	%	4.8	12.5	6.9	6.2	7.5
Missing	%	15.5	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	3153	7407	9821	25353	42581
Married, living with spouse	%	24.9	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.2	1.7	1.8	2.0	1.9
Living with a partner	%	35.2	32.7	31.3	30.3	30.9
In a relationship but not living together	%	27.3	14.6	23.5	29.0	25.2
Not in a relationship right now	%	9.7	9.9	17.2	18.0	16.4
Missing	%	0.6	1.3	9.5	2.6	4.0

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Smokes Cigarettes at Intake	N	3153	7407	9821	25353	42581
Yes	%	4.2	9.7	8.1	12.4	10.9
No	%	91.8	81.0	71.9	81.6	79.3
Missing	%	3.9	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	3153	7407	9821	25353	42581
Yes	%	14.1	17.2	19.0	16.5	17.2
No	%	74.2	76.7	64.6	74.5	72.6
Missing*	%	11.7	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	3153	7407	9821	25353	42581
Yes	%	20.6	20.8	23.9	21.6	22.0
No	%	77.3	68.7	53.0	67.0	64.1
Missing*	%	2.0	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	3153	7407	9821	25353	42581
Yes	%	25.7	20.0	15.4	18.7	18.2
No	%	72.0	78.0	75.0	77.0	76.7
Missing*	%	2.3	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	1220	3878	4458	14417	22753
<18 months	%	8.5	29.8	17.5	21.7	22.4
≥18 months	%	38.7	51.2	50.8	55.7	54.0
Missing	%	52.8	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	1220	3878	4458	14417	22753
Yes	%	13.1	9.3	10.9	16.2	14.0
No	%	77.6	88.6	74.5	68.8	73.3
Not Known	%	5.8	0.3	8.7	6.8	6.0
Missing	%	3.4	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	1220	3878	4458	14417	22753
Yes	%	10.7	1.6	8.5	12.6	9.9
No	%	73.9	96.1	64.0	67.4	71.6
Not Known	%	12.1	0.3	12.4	11.1	9.5
Missing	%	3.4	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	2474	6401	8494	23070	37965
Yes	%	0.6	0.2	2.4	1.1	1.2
No	%	91.3	99.4	65.4	83.9	82.4
Not Known	%	5.3	0.0	25.0	7.5	10.2
Missing	%	2.7	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	2474	6401	8494	23070	37965
Yes	%	3.6	0.3	3.8	2.1	2.2
No	%	88.4	99.3	76.3	84.6	85.2
Not Known	%	5.3	0.0	12.6	5.7	6.3

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	2.7	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	2474	6401	8494	23070	37965
Yes	%	5.2	0.6	6.5	6.8	5.7
No	%	86.6	99.0	76.3	80.3	82.5
Not Known	%	5.5	0.0	9.8	5.5	5.6
Missing	%	2.7	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	2474	6401	8494	23070	37965
Yes	%	9.7	2.5	5.0	5.8	5.0
No	%	68.6	97.0	75.2	72.7	77.4
Not Known	%	19.0	0.1	12.3	13.4	10.9
Missing	%	2.6	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	2474	6401	8494	23070	37965
Yes	%	4.9	1.3	6.9	5.7	5.2
No	%	72.8	98.1	73.2	72.8	77.2
Not Known	%	19.4	0.1	12.4	13.3	10.9
Missing	%	3.0	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	2474	6401	8494	23070	37965
Received Individual Prenatal Visits	N	2242	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	90.6	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	7.6	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	1	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	1.0	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	2435	6389	7929	21646	35964
Received Enhanced Encounters	N	2413	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	99.1	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	3.9	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	2420	6210	7424	17929	31563

Data Element	Number (N), Mean, or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Enhanced Services	N	392	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	16.2	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	2.3	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	275	484	867	3380	4731
Yes	%	17.5	3.5	7.4	13.4	11.3
No	%	49.5	89.9	58.6	55.2	59.4
Not known	%	21.5	0.0	15.7	18.0	15.7
Missing	%	11.6	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	1715	6337	6825	19298	32460
Number of Babies Born	N	1749	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	2251	6256	7939	21160	35355
Yes	%	28.7	16.1	23.8	19.4	19.8
No	%	26.7	81.7	38.3	35.1	44.0
Not known	%	32.2	0.5	24.8	28.8	22.9
Missing	%	12.4	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	2474	6401	8494	23070	37965
Vaginal delivery	%	40.2	86.0	54.0	51.9	58.1
C-Section	%	21.7	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	38.1	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	83.5	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	282	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	20.9	28.8	23.6	16.4	18.9
Repeat C-Section	%	79.4	71.2	76.4	83.7	81.2
Scheduled C-Section	N	537	820	1873	5597	8290
Yes	%	41.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1547	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	14.9	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	72.8	94.4	81.4	81.0	83.9
Missing	%	12.3	0.3	7.4	4.8	4.4
Infant Birthweight	N	1547	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	10.9	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	84.8	94.2	84.9	82.4	85.3
Missing	%	4.3	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	LADHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	968	5149	5684	15106	25939
Yes	%	87.9	83.6	57.5	63.4	66.1
No	%	8.1	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.3	0.7	5.9	2.5	2.9
Missing	%	3.7	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	103.0	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	968	5149	5684	15106	25939
Yes	%	84.3	69.5	57.2	72.3	68.4
No	%	8.2	18.1	10.7	11.7	12.7
Unsure	%	0.9	2.7	5.9	2.4	3.2
Missing	%	6.6	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

State officials from the three agencies involved in the California data acquisition process have been 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 would 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. However, numerous delays were encountered, and Urban did not receive any birth certificate data from VSAC until March 2017. Confusion ensued, since the Medicaid agency was supposed to receive the birth certificate data so that they could conduct the data linkage. Applications were revised, and it was clarified that VSAC would send birth certificate data to the Medicaid Agency. As of July 2017, birth certificate data had not been produced and shared by VSAC with Medicaid. While the evaluation team remains hopeful that it will have all California data in hand by the end of September 2017, there is a chance that further delays will cause California's data to not be included in the final report's impact analysis.

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 managed care plan. MIHS is in Maricopa County, which includes the city of Phoenix. MIHS serves mainly low-income, minority residents who are predominantly Spanish-speaking and of Mexican origin. MIHS implemented the Maternity Care Home model in five of its 11 family health centers. Specifically, a Registered Nurse Care Coordinator (RNCC) and Community Health Workers (CHWs) provided a set of enhanced services to Strong Start participants that include care coordination, health education and social support, and referrals to supplementary services and resources (e.g., substance abuse treatment, mental health care, pregnancy/birth classes, breastfeeding education, and social services). MIHS ended enrollment in December 2016, and the last Strong Start deliveries occurred in early February 2017. Total enrollment in the program was 871 women.

MIHS is not planning to sustain most of the Strong Start enhanced prenatal care services it implemented because of lack of funding, with the exception of a breast pump referral process that was developed under the program. Eligible Strong Start participants transitioned to the newly implemented Healthy Start Program (which MIHS is operating in conjunction with the local health department) after Strong Start ended. Healthy Start covers most of the same geographical area as Strong Start but focuses on African-American women with children up to 2 years old while most Strong Start participants were Hispanic (around 64 percent, see table 1).

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Maricopa Integrated Health System (MIHS) had Intake Forms for 81.6 percent of participants enrolled through Quarter 4 2016 (782 Intake Forms for 958 participants). In addition, MIHS submitted 472 Third Trimester Surveys, 309 Postpartum Surveys, and 959 Exit Forms. Tables 1 through 7 present data collected on MIHS's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from MIHS.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	958	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	670	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	782	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	81.6	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	472	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	49.3	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	309	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	32.3	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	959	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	100.1*	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated. Cells that contain one asterisk (*) indicate that enrollment totals reported on program monitoring reports are the denominator for form receipt and may differ slightly from what awardees have reported in their PLPE data, resulting in percentages <100 percent.

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	782	7407	9821	25353	42581
Less than 18 years of age	%	11.6	2.7	6.9	5.5	5.3
18 through 19 years of age	%	13.7	6.4	12.4	9.5	9.6
20 through 34 years of age	%	68.4	81.4	71.7	74.4	75
35 years and older	%	6.3	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	782	7407	9821	25353	42581
Hispanic	%	64.2	25.0	36.3	27.7	29.2
White	%	13.0	52.9	12.4	22.0	25.2
Black	%	19.1	16.0	44.1	44.4	39.4
Other race or multiple races	%	3.1	5.3	5.0	4.2	4.6
Missing	%	0.6	0.8	2.3	1.7	1.7
Employed at Intake	N	782	7407	9821	25353	42581
Yes	%	33.2	41.6	34.3	39.3	38.6
No	%	66.2	57.1	61.3	58.8	59.1
Missing	%	0.5	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	782	7407	9821	25353	42581
Yes	%	0.6	1.3	1.8	1.5	1.5
Missing	%	99.4	98.7	98.2	98.5	98.5
Education Level at Intake	N	782	7407	9821	25353	42581
Less than high school	%	34.7	13.2	22.2	23.7	21.5
High school graduate or GED	%	42.7	52.6	47.8	49.9	49.9
Bachelor's degree	%	1.3	11.2	3.1	2.9	4.4
Other college degree(s)	%	4.9	12.5	6.9	6.2	7.5
Missing	%	16.5	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	782	7407	9821	25353	42581
Married, living with spouse	%	13.2	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.4	1.7	1.8	2.0	1.9
Living with a partner	%	36.7	32.7	31.3	30.3	30.9
In a relationship but not living together	%	30.6	14.6	23.5	29.0	25.2
Not in a relationship right now	%	17.1	9.9	17.2	18.0	16.4
Missing	%	1.0	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	782	7407	9821	25353	42581
Yes	%	9.7	9.7	8.1	12.4	10.9
No	%	89.5	81.0	71.9	81.6	79.3
Missing	%	0.8	9.3	20.0	6.0	9.8

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Food Insecure at Intake	N	782	7407	9821	25353	42581
Yes	%	6.5	17.2	19.0	16.5	17.2
No	%	86.8	76.7	64.6	74.5	72.6
Missing*	%	6.7	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	782	7407	9821	25353	42581
Yes	%	11.4	20.8	23.9	21.6	22.0
No	%	82.5	68.7	53.0	67.0	64.1
Missing*	%	6.2	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	782	7407	9821	25353	42581
Yes	%	22.5	20.0	15.4	18.7	18.2
No	%	76.5	78.0	75.0	77.0	76.7
Missing*	%	1.1	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	572	3878	4458	14417	22753
<18 months	%	24.2	29.8	17.5	21.7	22.4
≥18 months	%	53.8	51.2	50.8	55.7	54.0
Missing	%	21.9	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	572	3878	4458	14417	22753
Yes	%	14.7	9.3	10.9	16.2	14.0
No	%	81.3	88.6	74.5	68.8	73.3
Not Known	%	2.6	0.3	8.7	6.8	6.0
Missing	%	1.4	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	572	3878	4458	14417	22753
Yes	%	11.4	1.6	8.5	12.6	9.9
No	%	78.5	96.1	64.0	67.4	71.6
Not Known	%	8.0	0.3	12.4	11.1	9.5
Missing	%	2.1	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	959	6401	8494	23070	37965
Yes	%	0.4	0.2	2.4	1.1	1.2
No	%	95.5	99.4	65.4	83.9	82.4
Not Known	%	0.5	0.0	25.0	7.5	10.2
Missing	%	3.5	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	959	6401	8494	23070	37965
Yes	%	0.6	0.3	3.8	2.1	2.2
No	%	95.3	99.3	76.3	84.6	85.2
Not Known	%	0.6	0.0	12.6	5.7	6.3
Missing	%	3.4	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	959	6401	8494	23070	37965
Yes	%	5.3	0.6	6.5	6.8	5.7
No	%	90.6	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	0.5	0.0	9.8	5.5	5.6
Missing	%	3.5	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	959	6401	8494	23070	37965
Yes	%	4.8	2.5	5.0	5.8	5.0
No	%	70.4	97.0	75.2	72.7	77.4
Not Known	%	20.0	0.1	12.3	13.4	10.9
Missing	%	4.8	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	959	6401	8494	23070	37965
Yes	%	9.6	1.3	6.9	5.7	5.2
No	%	58.7	98.1	73.2	72.8	77.2
Not Known	%	26.7	0.1	12.4	13.3	10.9
Missing	%	5.0	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	959	6401	8494	23070	37965
Received Individual Prenatal Visits	N	672	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	70.1	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	9.8	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	958	6389	7929	21646	35964
Received Enhanced Encounters	N	956	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	99.8	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	6.8	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	942	6210	7424	17929	31563

Data Element	Number (N), Mean, or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Enhanced Services	N	0	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	0.0	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	NA	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	113	484	867	3380	4731
Yes	%	6.2	3.5	7.4	13.4	11.3
No	%	69.0	89.9	58.6	55.2	59.4
Not known	%	15.9	0.0	15.7	18.0	15.7
Missing	%	8.8	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	682	6337	6825	19298	32460
Number of Babies Born	N	689	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	921	6256	7939	21160	35355
Yes	%	18.9	16.1	23.8	19.4	19.8
No	%	45.7	81.7	38.3	35.1	44.0
Not known	%	28.9	0.5	24.8	28.8	22.9
Missing	%	6.5	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	959	6401	8494	23070	37965
Vaginal delivery	%	57.5	86.0	54.0	51.9	58.1
C-Section	%	13.7	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	28.9	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	90.1	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	89	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	34.8	28.8	23.6	16.4	18.9
Repeat C-Section	%	65.2	71.2	76.4	83.7	81.2
Scheduled C-Section	N	131	820	1873	5597	8290
Yes	%	29.0	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	668	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	12.6	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	86.2	94.4	81.4	81.0	83.9
Missing	%	1.2	0.3	7.4	4.8	4.4
Infant Birthweight	N	668	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	11.7	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	86.8	94.2	84.9	82.4	85.3
Missing	%	1.5	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	MIHS (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	309	5149	5684	15106	25939
Yes	%	78.6	83.6	57.5	63.4	66.1
No	%	20.4	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.0	0.7	5.9	2.5	2.9
Missing	%	1.0	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	92.4	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	309	5149	5684	15106	25939
Yes	%	79.9	69.5	57.2	72.3	68.4
No	%	17.5	18.1	10.7	11.7	12.7
Unsure	%	0.3	2.7	5.9	2.4	3.2
Missing	%	2.3	9.7	26.2	13.6	15.6

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 of that year. 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 executed a data use agreement with CHiR in June 2016. CHiR submitted 2014 and 2015 merged data files in May 2017, and after some questions from the impacts analysis team regarding the eligibility data, revised files were submitted in July 2017. The evaluation team expects to receive 2016 data at the end of September 2017.

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 implemented the Strong Start Maternity Care Home model at five sites across the state, particularly in the Charleston area. Enhanced services included (1) care coordination and psychosocial support administered telephonically by two registered nurses serving as care navigators; (2) social risk reduction via referrals to a social worker and follow up (also often telephonic) to connect participants to a variety of community-based services; and (3) promotion of evidence-based prenatal care at OB practice sites throughout the state. MUSC ended enrollment in December 2015, and Strong Start deliveries had ended by May 2016. Total enrollment in the program was 1,203 women.

MUSC has not sustained its Maternity Care Home, and Strong Start staff have found new positions elsewhere. The Strong Start program team turned over their “Resource Bible”—a comprehensive list of social and medical services available across the state (and especially in the Charleston area)—to interested prenatal care providers at one of the Strong Start clinics, which the providers intended to use to connect patients to resources.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Medical University of South Carolina (MUSC) had Intake Forms for 68.2 percent of participants enrolled through Quarter 4 2016 (820 Intake Forms for 1,203 participants; Intake Forms for participants who did not have case management were excluded). In addition, MUSC submitted 544 Third Trimester Surveys, 798 Postpartum Surveys, and 877 Exit Forms. Tables 1 through 7 present data collected on MUSC’s participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from MUSC.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1203	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1085	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	820*	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	68.2	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	544*	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	45.2	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	798*	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	66.3	60.6	50.1	57.8	56.4

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms Received through Q4 2016	N	877*	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	72.9	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.
Cells that contain one asterisk (*) indicate that patients who did not have case management are excluded.

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	820	7407	9821	25353	42581
Less than 18 years of age	%	1.8	2.7	6.9	5.5	5.3
18 through 19 years of age	%	6.5	6.4	12.4	9.5	9.6
20 through 34 years of age	%	82.1	81.4	71.7	74.4	75
35 years and older	%	9.6	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	820	7407	9821	25353	42581
Hispanic	%	3.9	25.0	36.3	27.7	29.2
White	%	24.6	52.9	12.4	22.0	25.2
Black	%	69.6	16.0	44.1	44.4	39.4
Other race or multiple races	%	1.3	5.3	5.0	4.2	4.6
Missing	%	0.5	0.8	2.3	1.7	1.7
Employed at Intake	N	820	7407	9821	25353	42581
Yes	%	42.3	41.6	34.3	39.3	38.6
No	%	57.7	57.1	61.3	58.8	59.1
Missing	%	0.0	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	820	7407	9821	25353	42581
Yes	%	1.5	1.3	1.8	1.5	1.5
Missing	%	98.5	98.7	98.2	98.5	98.5
Education Level at Intake	N	820	7407	9821	25353	42581
Less than high school	%	23.4	13.2	22.2	23.7	21.5
High school graduate or GED	%	59.6	52.6	47.8	49.9	49.9
Bachelor's degree	%	3.8	11.2	3.1	2.9	4.4
Other college degree(s)	%	9.1	12.5	6.9	6.2	7.5
Missing	%	4.0	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	820	7407	9821	25353	42581
Married, living with spouse	%	14.8	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.1	1.7	1.8	2.0	1.9
Living with a partner	%	25.9	32.7	31.3	30.3	30.9
In a relationship but not living together	%	41.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	15.9	9.9	17.2	18.0	16.4
Missing	%	0.2	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	820	7407	9821	25353	42581
Yes	%	12.7	9.7	8.1	12.4	10.9
No	%	87.2	81.0	71.9	81.6	79.3
Missing	%	0.1	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	820	7407	9821	25353	42581
Yes	%	15.6	17.2	19.0	16.5	17.2
No	%	82.9	76.7	64.6	74.5	72.6
Missing*	%	1.4	6.1	16.5	9.0	10.2

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exhibiting Depressive Symptoms at Intake**	N	820	7407	9821	25353	42581
Yes	%	12.0	20.8	23.9	21.6	22.0
No	%	86.2	68.7	53.0	67.0	64.1
Missing*	%	1.8	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	820	7407	9821	25353	42581
Yes	%	10.2	20.0	15.4	18.7	18.2
No	%	89.3	78.0	75.0	77.0	76.7
Missing*	%	0.5	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	612	3878	4458	14417	22753
<18 months	%	23.5	29.8	17.5	21.7	22.4
≥18 months	%	61.4	51.2	50.8	55.7	54.0
Missing	%	15.0	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	612	3878	4458	14417	22753
Yes	%	34.8	9.3	10.9	16.2	14.0
No	%	64.9	88.6	74.5	68.8	73.3
Not Known	%	0.3	0.3	8.7	6.8	6.0
Missing	%	0.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	612	3878	4458	14417	22753
Yes	%	29.9	1.6	8.5	12.6	9.9
No	%	55.7	96.1	64.0	67.4	71.6
Not Known	%	12.9	0.3	12.4	11.1	9.5
Missing	%	1.5	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	877	6401	8494	23070	37965
Yes	%	1.5	0.2	2.4	1.1	1.2
No	%	95.1	99.4	65.4	83.9	82.4
Not Known	%	2.6	0.0	25.0	7.5	10.2
Missing	%	0.8	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	877	6401	8494	23070	37965
Yes	%	5.7	0.3	3.8	2.1	2.2
No	%	90.9	99.3	76.3	84.6	85.2
Not Known	%	2.6	0.0	12.6	5.7	6.3
Missing	%	0.8	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	877	6401	8494	23070	37965
Yes	%	17.6	0.6	6.5	6.8	5.7
No	%	78.6	99.0	76.3	80.3	82.5
Not Known	%	3.4	0.0	9.8	5.5	5.6
Missing	%	0.5	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	877	6401	8494	23070	37965
Yes	%	6.7	2.5	5.0	5.8	5.0
No	%	79.0	97.0	75.2	72.7	77.4
Not Known	%	14.1	0.1	12.3	13.4	10.9
Missing	%	0.1	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	877	6401	8494	23070	37965
Yes	%	6.4	1.3	6.9	5.7	5.2
No	%	78.9	98.1	73.2	72.8	77.2
Not Known	%	14.5	0.1	12.4	13.3	10.9
Missing	%	0.2	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	877	6401	8494	23070	37965
Received Individual Prenatal Visits	N	732	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	83.5	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	10.8	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	59	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	6.7	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	4.6	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	877	6389	7929	21646	35964
Received Enhanced Encounters	N	877	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	100.0	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	11.9	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	378	6210	7424	17929	31563
Received Enhanced Services	N	185	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	48.9	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.7	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	233	484	867	3380	4731
Yes	%	42.1	3.5	7.4	13.4	11.3
No	%	52.4	89.9	58.6	55.2	59.4
Not known	%	5.2	0.0	15.7	18.0	15.7
Missing	%	0.4	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	868	6337	6825	19298	32460
Number of Babies Born	N	905	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	760	6256	7939	21160	35355
Yes	%	33.9	16.1	23.8	19.4	19.8
No	%	56.8	81.7	38.3	35.1	44.0
Not known	%	8.2	0.5	24.8	28.8	22.9
Missing	%	1.1	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	877	6401	8494	23070	37965
Vaginal delivery	%	57.4	86.0	54.0	51.9	58.1
C-Section	%	35.9	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	6.7	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.2	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	203	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	15.3	28.8	23.6	16.4	18.9
Repeat C-Section	%	84.7	71.2	76.4	83.7	81.2
Scheduled C-Section	N	315	820	1873	5597	8290
Yes	%	37.1	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	836	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	23.6	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	75.8	94.4	81.4	81.0	83.9
Missing	%	0.6	0.3	7.4	4.8	4.4
Infant Birthweight	N	836	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	22.0	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	77.3	94.2	84.9	82.4	85.3
Missing	%	0.7	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	798	5149	5684	15106	25939
Yes	%	57.6	83.6	57.5	63.4	66.1
No	%	19.7	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.0	0.7	5.9	2.5	2.9
Missing	%	22.7	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	94.2	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	MUSC (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	798	5149	5684	15106	25939
Yes	%	76.7	69.5	57.2	72.3	68.4
No	%	1.1	18.1	10.7	11.7	12.7
Unsure	%	0.3	2.7	5.9	2.4	3.2
Missing	%	21.9	9.7	26.2	13.6	15.6

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 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. Following the approval of the amendment, an updated 2014 file, and a 2015 data file were submitted to Urban in April 2017. In May 2017 the evaluation team began the process of requesting the 2016 data, and at the end of May, the Medicaid Agency began preparing the data to be submitted. The evaluation team will use the submitted data to begin their impacts analysis using the propensity score reweighting method discussed in detail in Volume 1 of the Year 4 Annual Report. However, it has been difficult to create a suitable comparison group for the Strong Start participants in South Carolina, because MUSC is the only clinic for high-risk women in the state.

Meridian Health Plan

CASE STUDY

Meridian Health Plan established a Maternity Care Home model serving Medicaid-enrolled women in five counties in Michigan. Using data available to the health plan, such as enrollment files, Meridian identified eligible plan members early in pregnancy and a care coordinator contacted each woman by phone to conduct a risk screening and recruit participants into the program. Strong Start enrollees received telephonic care coordination and education throughout pregnancy (at least one contact per trimester) and postpartum. A Community Health Outreach Worker (CHOW) conducted home visits with high-risk participants who could not be reached by phone or who accessed the Emergency Department (ED) for prenatal care, linking them to a prenatal care provider and needed medical and social services. The CHOW used daily ED and inpatient visit reports from Allegiance Health System and other provider partners to identify participants in need of outreach. Meridian ended enrollment in December 2015, and the last Strong Start deliveries occurred in February 2016. Total enrollment in the program was 1,809 women.

Meridian is sustaining telephonic care coordination for high-need pregnant women but is also serving other high-need (nonpregnant) members as part of the health plan's larger care coordination efforts. Similarly, the CHOW's role has expanded to work with a broader population of Medicaid and Medicare beneficiaries, not specific to maternity care. The CHOW is still using information provided by Allegiance on ED visits and inpatient stays to identify members for face-to-face follow-up. Unrelated to Strong Start, the Michigan Department of Community Health implemented a requirement that all Medicaid health plans must have at least one CHOW for every 20,000 members statewide. This means Meridian will eventually have 20 to 30 CHOWs statewide by the time they are fully staffed.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Meridian Health Plan (Meridian) had Intake Forms for 99.7 percent of participants enrolled through Quarter 4 2016 (1,804 Intake Forms for 1,809 participants). In addition, Meridian submitted 1,167 Third Trimester Surveys, 1,183 Postpartum Surveys, and 1,795 Exit Forms. Tables 1 through 7 present data collected on Meridian's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Meridian.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1809	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1572	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1804	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	99.7	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	1167	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	64.5	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	1183	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	65.4	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1795	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	99.2	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1804	7407	9821	25353	42581
Less than 18 years of age	%	2.7	2.7	6.9	5.5	5.3
18 through 19 years of age	%	9.9	6.4	12.4	9.5	9.6
20 through 34 years of age	%	83	81.4	71.7	74.4	75
35 years and older	%	4.4	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1804	7407	9821	25353	42581
Hispanic	%	3.4	25.0	36.3	27.7	29.2
White	%	83.2	52.9	12.4	22.0	25.2
Black	%	11.4	16.0	44.1	44.4	39.4
Other race or multiple races	%	1.5	5.3	5.0	4.2	4.6
Missing	%	0.6	0.8	2.3	1.7	1.7
Employed at Intake	N	1804	7407	9821	25353	42581
Yes	%	38.1	41.6	34.3	39.3	38.6
No	%	61.3	57.1	61.3	58.8	59.1
Missing	%	0.6	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1804	7407	9821	25353	42581
Yes	%	0.6	1.3	1.8	1.5	1.5
Missing	%	99.4	98.7	98.2	98.5	98.5
Education Level at Intake	N	1804	7407	9821	25353	42581
Less than high school	%	23.2	13.2	22.2	23.7	21.5
High school graduate or GED	%	62.5	52.6	47.8	49.9	49.9
Bachelor's degree	%	3.0	11.2	3.1	2.9	4.4
Other college degree(s)	%	6.9	12.5	6.9	6.2	7.5
Missing	%	4.4	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1804	7407	9821	25353	42581
Married, living with spouse	%	24.8	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.4	1.7	1.8	2.0	1.9
Living with a partner	%	30.1	32.7	31.3	30.3	30.9
In a relationship but not living together	%	27.4	14.6	23.5	29.0	25.2
Not in a relationship right now	%	15.9	9.9	17.2	18.0	16.4
Missing	%	0.4	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1804	7407	9821	25353	42581
Yes	%	23.4	9.7	8.1	12.4	10.9
No	%	75.5	81.0	71.9	81.6	79.3
Missing	%	1.1	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1804	7407	9821	25353	42581
Yes	%	3.5	17.2	19.0	16.5	17.2

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	93.2	76.7	64.6	74.5	72.6
Missing*	%	3.3	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1804	7407	9821	25353	42581
Yes	%	7.5	20.8	23.9	21.6	22.0
No	%	86.9	68.7	53.0	67.0	64.1
Missing*	%	5.6	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1804	7407	9821	25353	42581
Yes	%	14.8	20.0	15.4	18.7	18.2
No	%	84.1	78.0	75.0	77.0	76.7
Missing*	%	1.1	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	1184	3878	4458	14417	22753
<18 months	%	30.1	29.8	17.5	21.7	22.4
≥18 months	%	61.7	51.2	50.8	55.7	54.0
Missing	%	8.1	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	1184	3878	4458	14417	22753
Yes	%	6.9	9.3	10.9	16.2	14.0
No	%	49.7	88.6	74.5	68.8	73.3
Not Known	%	1.8	0.3	8.7	6.8	6.0
Missing	%	41.6	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	1184	3878	4458	14417	22753
Yes	%	4.4	1.6	8.5	12.6	9.9
No	%	52.2	96.1	64.0	67.4	71.6
Not Known	%	1.9	0.3	12.4	11.1	9.5
Missing	%	41.6	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1795	6401	8494	23070	37965
Yes	%	0.3	0.2	2.4	1.1	1.2
No	%	59.2	99.4	65.4	83.9	82.4
Not Known	%	0.9	0.0	25.0	7.5	10.2
Missing	%	39.6	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1795	6401	8494	23070	37965
Yes	%	1.1	0.3	3.8	2.1	2.2
No	%	58.6	99.3	76.3	84.6	85.2
Not Known	%	0.8	0.0	12.6	5.7	6.3
Missing	%	39.6	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1795	6401	8494	23070	37965
Yes	%	2.5	0.6	6.5	6.8	5.7
No	%	57.2	99.0	76.3	80.3	82.5
Not Known	%	0.8	0.0	9.8	5.5	5.6
Missing	%	39.6	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1795	6401	8494	23070	37965
Yes	%	3.5	2.5	5.0	5.8	5.0
No	%	53.6	97.0	75.2	72.7	77.4
Not Known	%	3.1	0.1	12.3	13.4	10.9
Missing	%	39.8	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1795	6401	8494	23070	37965
Yes	%	2.3	1.3	6.9	5.7	5.2
No	%	54.6	98.1	73.2	72.8	77.2
Not Known	%	3.2	0.1	12.4	13.3	10.9
Missing	%	39.9	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1795	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1004	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	55.9	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	10.9	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	24	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	1.3	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	6.0	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	1084	6389	7929	21646	35964
Received Enhanced Encounters	N	1019	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	94.0	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	3.1	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	957	6210	7424	17929	31563
Received Enhanced Services	N	317	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	33.1	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	4.4	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	174	484	867	3380	4731
Yes	%	8.0	3.5	7.4	13.4	11.3
No	%	43.1	89.9	58.6	55.2	59.4
Not known	%	11.5	0.0	15.7	18.0	15.7
Missing	%	37.4	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	1594	6337	6825	19298	32460
Number of Babies Born	N	1614	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1656	6256	7939	21160	35355
Yes	%	14.6	16.1	23.8	19.4	19.8
No	%	28.1	81.7	38.3	35.1	44.0
Not known	%	13.5	0.5	24.8	28.8	22.9
Missing	%	43.8	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1795	6401	8494	23070	37965
Vaginal delivery	%	60.2	86.0	54.0	51.9	58.1
C-Section	%	27.7	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	12.1	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	83.7	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	139	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	12.9	28.8	23.6	16.4	18.9
Repeat C-Section	%	87.1	71.2	76.4	83.7	81.2
Scheduled C-Section	N	498	820	1873	5597	8290
Yes	%	24.5	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1578	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	10.1	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	86.9	94.4	81.4	81.0	83.9
Missing	%	2.9	0.3	7.4	4.8	4.4
Infant Birthweight	N	1578	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	7.5	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	79.0	94.2	84.9	82.4	85.3
Missing	%	13.6	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	1183	5149	5684	15106	25939
Yes	%	73.4	83.6	57.5	63.4	66.1
No	%	25.9	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.0	0.7	5.9	2.5	2.9
Missing	%	0.8	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	100.3	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	Meridian (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	1183	5149	5684	15106	25939
Yes	%	70.5	69.5	57.2	72.3	68.4
No	%	27.6	18.1	10.7	11.7	12.7
Unsure	%	1.1	2.7	5.9	2.4	3.2
Missing	%	0.8	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

The evaluation team submitted data use and nondisclosure agreements in June 2015 to request access to Medicaid and birth certificate data from the Michigan Department of Health and Human Services (MDHHS). After the agreements were submitted, MDHHS asked the evaluation team to submit an IRB application. Urban submitted the IRB application in April 2016, and received approval in August 2016. The DUA was executed in September 2016. Michigan submitted 2014 and 2015 birth certificate data in February 2017, and 2016 data were submitted in June 2017. The state submitted all of the Medicaid data at once, in June 2017, as a merged data file. The evaluation team is reviewing the data for completeness before analysis begins. This information is the same as described for the St. John Providence Health System awardee, also located in Michigan.

Mississippi Primary Health Care Association

CASE STUDY

The **Mississippi Primary Health Care Association (MPHCA)** administered a Strong Start where the Maternity Care Home model was implemented across eight community health centers (CHCs) in Mississippi. Sites offered varying combinations of enhancements under Strong Start, but all provided home visits, care coordination, appointment “no show” tracking and follow-up, and dental services. Other Strong Start enhancements offered at some sites were community outreach, nutritional support, social work services, behavioral health services, health education, and child care. A variety of staff including nurses, health care coordinators, social workers, and nutritionists provided enhanced services. MPHCA ended enrollment in September 2015, and the last Strong Start deliveries occurred in May 2016. Total enrollment in the program was 2,628.

MPHCA’s Strong Start staffing positions have not been retained because of lack of funding. Strong Start supported child care and dental care services were also discontinued. However, many of the enhanced services are still being provided by core clinic staff and through routine prenatal care/OB services and, at some locations, through a state-funded program called the Prenatal High-Risk Management/Infant Services System (PHRM/ISS). These services include home visits, health education, and health assessments. Community outreach, such as attending health fairs and other community events to get women into care earlier, has also been sustained.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Mississippi Primary Health Care Association (MPHCA) had Intake Forms for 86.0 percent of participants enrolled through Quarter 4 2016 (2,259 Intake Forms for 2,628 participants). In addition, MPHCA submitted 1,322 Third Trimester Surveys, 1,394 Postpartum Surveys, and 2,523 Exit Forms. Tables 1 through 7 present data collected on MPHCA’s participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from MPHCA.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	2628	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1588	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	2259	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	86.0	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	1322	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	50.3	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	1394	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	53.0	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	2523	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	96.0	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	2259	7407	9821	25353	42581
Less than 18 years of age	%	8.5	2.7	6.9	5.5	5.3
18 through 19 years of age	%	12.0	6.4	12.4	9.5	9.6
20 through 34 years of age	%	74.1	81.4	71.7	74.4	75
35 years and older	%	5.3	9.1	7.4	9.6	9.0
Missing	%	0.1	0.4	1.6	1.0	1.1
Race and Ethnicity	N	2259	7407	9821	25353	42581
Hispanic	%	1.2	25.0	36.3	27.7	29.2
White	%	8.8	52.9	12.4	22.0	25.2
Black	%	87.7	16.0	44.1	44.4	39.4
Other race or multiple races	%	0.9	5.3	5.0	4.2	4.6
Missing	%	1.5	0.8	2.3	1.7	1.7
Employed at Intake	N	2259	7407	9821	25353	42581
Yes	%	35.0	41.6	34.3	39.3	38.6
No	%	63.2	57.1	61.3	58.8	59.1
Missing	%	1.8	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	2259	7407	9821	25353	42581
Yes	%	1.6	1.3	1.8	1.5	1.5
Missing	%	98.4	98.7	98.2	98.5	98.5
Education Level at Intake	N	2259	7407	9821	25353	42581
Less than high school	%	16.9	13.2	22.2	23.7	21.5
High school graduate or GED	%	53.2	52.6	47.8	49.9	49.9
Bachelor's degree	%	1.3	11.2	3.1	2.9	4.4
Other college degree(s)	%	6.8	12.5	6.9	6.2	7.5
Missing	%	21.8	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	2259	7407	9821	25353	42581
Married, living with spouse	%	8.1	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.2	1.7	1.8	2.0	1.9
Living with a partner	%	18.5	32.7	31.3	30.3	30.9
In a relationship but not living together	%	41.7	14.6	23.5	29.0	25.2
Not in a relationship right now	%	24.3	9.9	17.2	18.0	16.4
Missing	%	5.2	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	2259	7407	9821	25353	42581
Yes	%	14.7	9.7	8.1	12.4	10.9
No	%	65.0	81.0	71.9	81.6	79.3
Missing	%	20.3	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	2259	7407	9821	25353	42581
Yes	%	14.7	17.2	19.0	16.5	17.2

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	78.6	76.7	64.6	74.5	72.6
Missing*	%	6.8	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	2259	7407	9821	25353	42581
Yes	%	28.7	20.8	23.9	21.6	22.0
No	%	58.9	68.7	53.0	67.0	64.1
Missing*	%	12.4	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	2259	7407	9821	25353	42581
Yes	%	15.1	20.0	15.4	18.7	18.2
No	%	83.3	78.0	75.0	77.0	76.7
Missing*	%	1.7	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	1535	3878	4458	14417	22753
<18 months	%	22.2	29.8	17.5	21.7	22.4
≥18 months	%	44.8	51.2	50.8	55.7	54.0
Missing	%	33.0	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	1535	3878	4458	14417	22753
Yes	%	13.3	9.3	10.9	16.2	14.0
No	%	45.0	88.6	74.5	68.8	73.3
Not Known	%	33.1	0.3	8.7	6.8	6.0
Missing	%	8.6	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	1535	3878	4458	14417	22753
Yes	%	11.9	1.6	8.5	12.6	9.9
No	%	44.9	96.1	64.0	67.4	71.6
Not Known	%	34.1	0.3	12.4	11.1	9.5
Missing	%	9.1	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	2523	6401	8494	23070	37965
Yes	%	1.3	0.2	2.4	1.1	1.2
No	%	66.0	99.4	65.4	83.9	82.4
Not Known	%	27.4	0.0	25.0	7.5	10.2
Missing	%	5.3	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	2523	6401	8494	23070	37965
Yes	%	0.8	0.3	3.8	2.1	2.2
No	%	66.3	99.3	76.3	84.6	85.2
Not Known	%	27.3	0.0	12.6	5.7	6.3
Missing	%	5.6	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	2523	6401	8494	23070	37965
Yes	%	9.4	0.6	6.5	6.8	5.7
No	%	59.9	99.0	76.3	80.3	82.5
Not Known	%	25.5	0.0	9.8	5.5	5.6
Missing	%	5.3	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	2523	6401	8494	23070	37965
Yes	%	3.3	2.5	5.0	5.8	5.0
No	%	60.3	97.0	75.2	72.7	77.4
Not Known	%	32.8	0.1	12.3	13.4	10.9
Missing	%	3.6	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	2523	6401	8494	23070	37965
Yes	%	10.5	1.3	6.9	5.7	5.2
No	%	56.6	98.1	73.2	72.8	77.2
Not Known	%	28.9	0.1	12.4	13.3	10.9
Missing	%	4.0	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	2523	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1950	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	77.3	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	9.9	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	6	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.2	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	6.2	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	2475	6389	7929	21646	35964
Received Enhanced Encounters	N	1302	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	52.6	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	2.8	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	2431	6210	7424	17929	31563
Received Enhanced Services	N	1311	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	53.9	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	7.6	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	395	484	867	3380	4731
Yes	%	0.3	3.5	7.4	13.4	11.3
No	%	33.2	89.9	58.6	55.2	59.4
Not known	%	55.2	0.0	15.7	18.0	15.7
Missing	%	11.4	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	2155	6337	6825	19298	32460
Number of Babies Born	N	2204	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	2338	6256	7939	21160	35355
Yes	%	5.6	16.1	23.8	19.4	19.8
No	%	21.8	81.7	38.3	35.1	44.0
Not known	%	60.3	0.5	24.8	28.8	22.9
Missing	%	12.3	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	2523	6401	8494	23070	37965
Vaginal delivery	%	46.4	86.0	54.0	51.9	58.1
C-Section	%	25.9	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	27.6	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	91.2	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	283	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	7.4	28.8	23.6	16.4	18.9
Repeat C-Section	%	92.9	71.2	76.4	83.7	81.2
Scheduled C-Section	N	655	820	1873	5597	8290
Yes	%	28.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1898	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	17.2	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	74.7	94.4	81.4	81.0	83.9
Missing	%	8.1	0.3	7.4	4.8	4.4
Infant Birthweight	N	1898	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	14.0	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	73.8	94.2	84.9	82.4	85.3
Missing	%	12.3	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	1394	5149	5684	15106	25939
Yes	%	38.2	83.6	57.5	63.4	66.1
No	%	32.8	7.0	10.9	21.4	16.3
Prefer not to answer	%	13.6	0.7	5.9	2.5	2.9
Missing	%	15.4	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	92.5	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	MPHCA (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	1394	5149	5684	15106	25939
Yes	%	69.4	69.5	57.2	72.3	68.4
No	%	10.7	18.1	10.7	11.7	12.7
Unsure	%	5.0	2.7	5.9	2.4	3.2
Missing	%	14.9	9.7	26.2	13.6	15.6

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) had 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— 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 also persuaded 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. In March 2017 a BAA was executed. However, the team experienced further delays in receiving approval from Medicaid to share data with the Vital Records Agency. By early summer, however, all approvals were in place, and it appeared that linked birth certificate and Medicaid data would be provided to the evaluation by fall 2017.

Oklahoma Health Care Authority

CASE STUDY

The **Oklahoma Health Care Authority (OKHCA)** is Oklahoma's state Medicaid agency located in Oklahoma City. Initially OKHCA operated three Strong Start sites that each adopted the Group Prenatal Care model using a modified version of the CenteringPregnancy (Centering) approach. Partway through the award period, however, the awardee adopted the Maternity Care Home model instead because two original group care sites had dropped out of the program, and the third had stopped offering Centering and began providing Maternity Care Home services. Two additional Maternity Care Home sites joined OKHCA's program, for a total of three participating Maternity Care Home sites at the time of Y4 data collection. Enhanced services included a face-to-face enrollment session by a care coordinator (usually an RN), followed by four encounters (either in-person or by phone), at least three prenatally and one postpartum. During these encounters, care coordinators provide social support and referrals for community-based services. During evaluation Year 3, OKHCA also implemented a Strong Start "telephonic care coordination" program, which entailed two OKHCA staff calling eligible women in Tulsa to help connect them to social service resources. OKHCA ended enrollment in September 2016, and the last Strong Start deliveries were complete by early January 2017. Total enrollment in the program was 858 women, the vast majority of whom were enrolled in the maternity care home model (704 participants compared with 167 who received Centering).

Some of the clinics that participated in Strong Start planned to sustain some Maternity Care Home services they had implemented under the award. For instance, one site will continue to take advantage of the improved referral process and resource list for community-based services that it gained through Strong Start. The awardee, however, has not continued any Strong Start activities after the award's conclusion. The telephonic care coordination that OKHCA implemented toward the end of the Strong Start initiative has not been sustained.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Oklahoma Health Care Authority (OKHCA) had Intake Forms for 100.3 percent of participants enrolled through Quarter 4 2016 (861 Intake Forms for 858 participants). In addition, OKHCA submitted 326 Third Trimester Surveys, 320 Postpartum Surveys, and 727 Exit Forms. Tables 1 through 7 present data collected on OKHCA's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from OKHCA.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	858	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	529	4747	7943	18019	30709

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Intake Forms Received through Q4 2016	N	861	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	100.3*	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	326	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	38.0	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	320	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	37.3	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	727	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	84.7	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated. Cells that contain one asterisk (*) indicate that enrollment totals reported on program monitoring reports are the denominator for form receipt and may differ slightly from what awardees have reported in their PLPE data, resulting in percentages <100 percent.

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	861	7407	9821	25353	42581
Less than 18 years of age	%	6.7	2.7	6.9	5.5	5.3
18 through 19 years of age	%	10.2	6.4	12.4	9.5	9.6
20 through 34 years of age	%	74.0	81.4	71.7	74.4	75
35 years and older	%	8.7	9.1	7.4	9.6	9.0
Missing	%	0.3	0.4	1.6	1.0	1.1
Race and Ethnicity	N	861	7407	9821	25353	42581
Hispanic	%	41.9	25.0	36.3	27.7	29.2
White	%	17.8	52.9	12.4	22.0	25.2
Black	%	8.7	16.0	44.1	44.4	39.4
Other race or multiple races	%	30.8	5.3	5.0	4.2	4.6
Missing	%	0.8	0.8	2.3	1.7	1.7
Employed at Intake	N	861	7407	9821	25353	42581
Yes	%	40.8	41.6	34.3	39.3	38.6
No	%	57.7	57.1	61.3	58.8	59.1
Missing	%	1.5	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	861	7407	9821	25353	42581
Yes	%	3.5	1.3	1.8	1.5	1.5
Missing	%	96.5	98.7	98.2	98.5	98.5
Education Level at Intake	N	861	7407	9821	25353	42581
Less than high school	%	27.8	13.2	22.2	23.7	21.5
High school graduate or GED	%	38.9	52.6	47.8	49.9	49.9
Bachelor's degree	%	3.4	11.2	3.1	2.9	4.4
Other college degree(s)	%	7.1	12.5	6.9	6.2	7.5
Missing	%	22.9	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	861	7407	9821	25353	42581
Married, living with spouse	%	31.7	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.2	1.7	1.8	2.0	1.9
Living with a partner	%	33.3	32.7	31.3	30.3	30.9

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
In a relationship but not living together	%	16.5	14.6	23.5	29.0	25.2
Not in a relationship right now	%	13.7	9.9	17.2	18.0	16.4
Missing	%	2.6	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	861	7407	9821	25353	42581
Yes	%	10.2	9.7	8.1	12.4	10.9
No	%	82.8	81.0	71.9	81.6	79.3
Missing	%	7.0	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	861	7407	9821	25353	42581
Yes	%	20.6	17.2	19.0	16.5	17.2
No	%	73.9	76.7	64.6	74.5	72.6
Missing*	%	5.6	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	861	7407	9821	25353	42581
Yes	%	17.4	20.8	23.9	21.6	22.0
No	%	68.9	68.7	53.0	67.0	64.1
Missing*	%	13.7	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	861	7407	9821	25353	42581
Yes	%	19.7	20.0	15.4	18.7	18.2
No	%	79.1	78.0	75.0	77.0	76.7
Missing*	%	1.1	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	OKHCA (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	435	3878	4458	14417	22753
<18 months	%	20.2	29.8	17.5	21.7	22.4
≥18 months	%	60.2	51.2	50.8	55.7	54.0
Missing	%	19.5	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	435	3878	4458	14417	22753
Yes	%	5.3	9.3	10.9	16.2	14.0
No	%	41.1	88.6	74.5	68.8	73.3
Not Known	%	9.9	0.3	8.7	6.8	6.0
Missing	%	43.7	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	435	3878	4458	14417	22753
Yes	%	1.1	1.6	8.5	12.6	9.9
No	%	34.0	96.1	64.0	67.4	71.6
Not Known	%	18.9	0.3	12.4	11.1	9.5
Missing	%	46.0	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	727	6401	8494	23070	37965
Yes	%	0.6	0.2	2.4	1.1	1.2
No	%	40.9	99.4	65.4	83.9	82.4
Not Known	%	14.9	0.0	25.0	7.5	10.2
Missing	%	43.7	0.4	7.1	7.5	6.2

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Pre-Pregnancy Diagnosis of Type II Diabetes	N	727	6401	8494	23070	37965
Yes	%	0.3	0.3	3.8	2.1	2.2
No	%	41.0	99.3	76.3	84.6	85.2
Not Known	%	15.3	0.0	12.6	5.7	6.3
Missing	%	43.5	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	727	6401	8494	23070	37965
Yes	%	1.1	0.6	6.5	6.8	5.7
No	%	40.6	99.0	76.3	80.3	82.5
Not Known	%	14.6	0.0	9.8	5.5	5.6
Missing	%	43.7	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	727	6401	8494	23070	37965
Yes	%	2.1	2.5	5.0	5.8	5.0
No	%	32.5	97.0	75.2	72.7	77.4
Not Known	%	20.8	0.1	12.3	13.4	10.9
Missing	%	44.7	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	727	6401	8494	23070	37965
Yes	%	1.2	1.3	6.9	5.7	5.2
No	%	33.4	98.1	73.2	72.8	77.2
Not Known	%	20.6	0.1	12.4	13.3	10.9
Missing	%	44.7	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	727	6401	8494	23070	37965
Received Individual Prenatal Visits	N	252	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	34.7	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	7.4	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	115	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	15.8	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	4.6	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	397	6389	7929	21646	35964

Data Element	Number (N), Mean, or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Enhanced Encounters	N	67	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	16.9	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	6.2	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	392	6210	7424	17929	31563
Received Enhanced Services	N	38	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	9.7	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	8.7	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	76	484	867	3380	4731
Yes	%	0.0	3.5	7.4	13.4	11.3
No	%	28.9	89.9	58.6	55.2	59.4
Not known	%	26.3	0.0	15.7	18.0	15.7
Missing	%	44.7	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	347	6337	6825	19298	32460
Number of Babies Born	N	362	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	697	6256	7939	21160	35355
Yes	%	9.5	16.1	23.8	19.4	19.8
No	%	18.4	81.7	38.3	35.1	44.0
Not known	%	20.1	0.5	24.8	28.8	22.9
Missing	%	52.1	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	727	6401	8494	23070	37965
Vaginal delivery	%	31.9	86.0	54.0	51.9	58.1
C-Section	%	13.2	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	54.7	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	83.3	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	37	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	18.9	28.8	23.6	16.4	18.9
Repeat C-Section	%	81.1	71.2	76.4	83.7	81.2
Scheduled C-Section	N	97	820	1873	5597	8290
Yes	%	30.9	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	336	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	5.4	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	82.1	94.4	81.4	81.0	83.9
Missing	%	12.5	0.3	7.4	4.8	4.4
Infant Birthweight	N	336	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	5.1	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	81.8	94.2	84.9	82.4	85.3
Missing	%	13.1	2.1	5.0	5.1	4.5

Note: Rows labeled with an “N” indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	OKHCA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	320	5149	5684	15106	25939
Yes	%	78.1	83.6	57.5	63.4	66.1
No	%	10.3	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.3	0.7	5.9	2.5	2.9
Missing	%	11.2	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	102.4	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	320	5149	5684	15106	25939
Yes	%	74.7	69.5	57.2	72.3	68.4
No	%	10.6	18.1	10.7	11.7	12.7
Unsure	%	3.1	2.7	5.9	2.4	3.2
Missing	%	11.6	9.7	26.2	13.6	15.6

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 **Providence Health Foundation's Center for Perinatal Advocacy at Providence Hospital** is operating five Strong start sites in Washington, DC. Providence is the only Strong Start awardee implementing all three models of enhanced prenatal care. 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). Enrollment across all Providence sites ended by November 2016, and the last Strong Start deliveries occurred in January 2017. Total enrollment in the program was 3,184 women.

Of the five sites, three have sustained Strong Start models. Providence Hospital, which operated a CenteringPregnancy (Centering) program prior to implementing Strong Start, will use hospital discretionary funds to continue Group Prenatal Care using the Centering approach. Community of Hope Family Health and Birth Center will sustain the prenatal navigator position that began under Strong Start, primarily with new funding from DC's Department of Health. The navigator will provide prenatal case management and care coordination support to Birth Center patients, both at the center and in their homes. Mary's Center will continue the Family Support Worker (FSW) program, which it had in place prior to Strong Start; the program involves risk assessment and providing psychosocial support to pregnant women. Using a broad range of funding sources, the site will continue to fund all FSW positions and the data administrator it added under Strong Start.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Providence Health Foundation of Providence Hospital (Providence) had Intake Forms for 105.4 percent of participants enrolled through Quarter 4 2016 (3,462 Intake Forms for 3,284 participants as reported via program monitoring reports submitted to CMMI). In addition, Providence submitted 2,657 Third Trimester Surveys, 2,434 Postpartum Surveys, and 2,994 Exit Forms. Tables 1 through 7 present data collected on Providence's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Providence.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	3284	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1760	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	3462	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	105.4*	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	2657	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	80.9	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	2434	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	74.1	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	2994	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	91.2	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.
Cells that contain one asterisk (*) indicate that enrollment totals reported on program monitoring reports are the denominator for form receipt and may differ slightly from what awardees have reported in their PLPE data thus resulting in percentages <100 percent.

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	3462	7407	9821	25353	42581
Less than 18 years of age	%	5.6	2.7	6.9	5.5	5.3
18 through 19 years of age	%	8.2	6.4	12.4	9.5	9.6
20 through 34 years of age	%	75.5	81.4	71.7	74.4	75
35 years and older	%	10.5	9.1	7.4	9.6	9.0
Missing	%	0.2	0.4	1.6	1.0	1.1
Race and Ethnicity	N	3462	7407	9821	25353	42581
Hispanic	%	27.2	25.0	36.3	27.7	29.2
White	%	1.2	52.9	12.4	22.0	25.2
Black	%	66.2	16.0	44.1	44.4	39.4
Other race or multiple races	%	3.2	5.3	5.0	4.2	4.6
Missing	%	2.2	0.8	2.3	1.7	1.7
Employed at Intake	N	3462	7407	9821	25353	42581
Yes	%	40.6	41.6	34.3	39.3	38.6
No	%	58.3	57.1	61.3	58.8	59.1
Missing	%	1.1	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	3462	7407	9821	25353	42581
Yes	%	3.2	1.3	1.8	1.5	1.5
Missing	%	96.8	98.7	98.2	98.5	98.5
Education Level at Intake	N	3462	7407	9821	25353	42581
Less than high school	%	23.1	13.2	22.2	23.7	21.5
High school graduate or GED	%	48.6	52.6	47.8	49.9	49.9
Bachelor's degree	%	3.9	11.2	3.1	2.9	4.4
Other college degree(s)	%	5.5	12.5	6.9	6.2	7.5
Missing	%	18.9	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	3462	7407	9821	25353	42581
Married, living with spouse	%	15.0	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.3	1.7	1.8	2.0	1.9
Living with a partner	%	27.7	32.7	31.3	30.3	30.9
In a relationship but not living together	%	31.5	14.6	23.5	29.0	25.2
Not in a relationship right now	%	20.9	9.9	17.2	18.0	16.4
Missing	%	2.5	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	3462	7407	9821	25353	42581
Yes	%	6.2	9.7	8.1	12.4	10.9

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	86.2	81.0	71.9	81.6	79.3
Missing	%	7.6	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	3462	7407	9821	25353	42581
Yes	%	23.8	17.2	19.0	16.5	17.2
No	%	68.1	76.7	64.6	74.5	72.6
Missing*	%	8.0	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	3462	7407	9821	25353	42581
Yes	%	23.6	20.8	23.9	21.6	22.0
No	%	61.2	68.7	53.0	67.0	64.1
Missing*	%	15.2	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	3462	7407	9821	25353	42581
Yes	%	16.3	20.0	15.4	18.7	18.2
No	%	81.3	78.0	75.0	77.0	76.7
Missing*	%	2.4	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	1917	3878	4458	14417	22753
<18 months	%	16.9	29.8	17.5	21.7	22.4
≥18 months	%	64.1	51.2	50.8	55.7	54.0
Missing	%	19.0	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	1917	3878	4458	14417	22753
Yes	%	9.5	9.3	10.9	16.2	14.0
No	%	75.6	88.6	74.5	68.8	73.3
Not Known	%	5.2	0.3	8.7	6.8	6.0
Missing	%	9.8	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	1917	3878	4458	14417	22753
Yes	%	8.5	1.6	8.5	12.6	9.9
No	%	74.6	96.1	64.0	67.4	71.6
Not Known	%	7.0	0.3	12.4	11.1	9.5
Missing	%	10.0	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	2994	6401	8494	23070	37965
Yes	%	0.3	0.2	2.4	1.1	1.2
No	%	91.6	99.4	65.4	83.9	82.4
Not Known	%	4.3	0.0	25.0	7.5	10.2
Missing	%	3.9	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	2994	6401	8494	23070	37965
Yes	%	1.3	0.3	3.8	2.1	2.2
No	%	90.6	99.3	76.3	84.6	85.2
Not Known	%	4.3	0.0	12.6	5.7	6.3
Missing	%	3.8	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	2994	6401	8494	23070	37965
Yes	%	3.6	0.6	6.5	6.8	5.7
No	%	88.5	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	4.2	0.0	9.8	5.5	5.6
Missing	%	3.8	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	2994	6401	8494	23070	37965
Yes	%	3.6	2.5	5.0	5.8	5.0
No	%	84.5	97.0	75.2	72.7	77.4
Not Known	%	8.0	0.1	12.3	13.4	10.9
Missing	%	3.8	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	2994	6401	8494	23070	37965
Yes	%	3.0	1.3	6.9	5.7	5.2
No	%	85.1	98.1	73.2	72.8	77.2
Not Known	%	8.0	0.1	12.4	13.3	10.9
Missing	%	3.8	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	2994	6401	8494	23070	37965
Received Individual Prenatal Visits	N	2646	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	88.4	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	7.9	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	101	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	3.4	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	6.7	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	2946	6389	7929	21646	35964
Received Enhanced Encounters	N	2498	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	84.8	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	5.1	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	1657	6210	7424	17929	31563
Received Enhanced Services	N	803	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhanced services information	%	48.5	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	3.6	1.4	2.2	4.0	3.3

Data Element	Number (N), Mean, or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Progesterone Injections (among women with a prior preterm birth)	N	295	484	867	3380	4731
Yes	%	5.1	3.5	7.4	13.4	11.3
No	%	40.3	89.9	58.6	55.2	59.4
Not known	%	35.6	0.0	15.7	18.0	15.7
Missing	%	19.0	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	2485	6337	6825	19298	32460
Number of Babies Born	N	2514	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	2834	6256	7939	21160	35355
Yes	%	8.7	16.1	23.8	19.4	19.8
No	%	33.5	81.7	38.3	35.1	44.0
Not known	%	44.5	0.5	24.8	28.8	22.9
Missing	%	13.3	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	2994	6401	8494	23070	37965
Vaginal delivery	%	56.7	86.0	54.0	51.9	58.1
C-Section	%	21.2	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	1.0	0.0	0.1	0.2	0.1
Missing	%	21.0	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	86.6	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	323	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	22.9	28.8	23.6	16.4	18.9
Repeat C-Section	%	77.1	71.2	76.4	83.7	81.2
Scheduled C-Section	N	667	820	1873	5597	8290
Yes	%	23.8	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	2412	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	8.6	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	89.3	94.4	81.4	81.0	83.9
Missing	%	2.1	0.3	7.4	4.8	4.4
Infant Birthweight	N	2412	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	9.7	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	86.4	94.2	84.9	82.4	85.3
Missing	%	3.9	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Providence (All Approaches)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	2434	5149	5684	15106	25939
Yes	%	76.6	83.6	57.5	63.4	66.1
No	%	14.3	7.0	10.9	21.4	16.3
Prefer not to answer	%	4.3	0.7	5.9	2.5	2.9
Missing	%	4.8	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	104.3	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	2434	5149	5684	15106	25939
Yes	%	70.0	69.5	57.2	72.3	68.4
No	%	19.5	18.1	10.7	11.7	12.7
Unsure	%	4.5	2.7	5.9	2.4	3.2
Missing	%	6.0	9.7	26.2	13.6	15.6

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 D.C. 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. In January 2017, a data use agreement (DUA) between Urban and the Medicaid agency was executed. Following the DUA, Medicaid decided that they would prefer that Urban link birth certificate and Medicaid data, and proceeded to share eligibility and claims files with Urban in June 2017. The Vital Records Agency submitted 2014 and 2015 birth certificate data in May 2017. As Urban worked to complete the merge, it became apparent that some necessary matching variables were missing. The evaluation team submitted amended data requests to vital records and Medicaid and expects to receive updated files for all three years by fall 2017.

Signature Medical Group

CASE STUDY

Signature Medical Group (Signature), established in 2001, is a physician-owned, independent, multispecialty health care provider serving the greater St. Louis and Kansas City areas as well as other parts of southwestern Missouri. Signature implemented the Maternity Care Home model. Enhanced services included patient education; medical advice in between prenatal visits; brief interpersonal therapy; and counseling, care coordination, and case management services. The Strong Start program staff included one nurse navigator (a registered nurse) and four prenatal care coordinators (four social workers, three master's-level and one bachelor's-level) who worked closely together to meet the needs of the Strong Start program participants. Even though the award has ended, these staff members continue to provide enhanced maternity care services, supported by practice (internal) funds. Signature ended enrollment in December 2015, and the last Strong Start deliveries occurred in August 2016. Total enrollment in the program was 1,898 women.

Signature plans to sustain its Strong Start program long-term but had not yet identified an external funding mechanism to do so. At the time of the Y4 interviews, the awardee was seeking out additional grant funding and having discussions with private payers about supporting the program. Key informants believed the program would pay for itself, noting that reduced NICU utilization related to better birth outcomes has already resulted in substantial cost savings for payers. So far, all Strong Start program elements have continued, and all program staff have been retained. The medical group has also added a dietician to its staff, who offers information and support to pregnant patients by phone.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Signature Medical Group (Signature) had Intake Forms for 96.6 percent of participants enrolled through Quarter 4 2016 (1,747 Intake Forms for 1,809 participants). In addition, Signature submitted 905 Third Trimester Surveys, 812 Postpartum Surveys, and 1,770 Exit Forms. Tables 1 through 7 present data collected on Signature's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Signature.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1809	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1180	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1747	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	96.6	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	905	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	50.0	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	812	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	44.9	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1770	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	97.8	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1747	7407	9821	25353	42581
Less than 18 years of age	%	4.2	2.7	6.9	5.5	5.3
18 through 19 years of age	%	10.8	6.4	12.4	9.5	9.6
20 through 34 years of age	%	78.2	81.4	71.7	74.4	75
35 years and older	%	6.4	9.1	7.4	9.6	9.0
Missing	%	0.5	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1747	7407	9821	25353	42581
Hispanic	%	3.3	25.0	36.3	27.7	29.2
White	%	76.5	52.9	12.4	22.0	25.2
Black	%	15.3	16.0	44.1	44.4	39.4
Other race or multiple races	%	3.2	5.3	5.0	4.2	4.6
Missing	%	1.7	0.8	2.3	1.7	1.7
Employed at Intake	N	1747	7407	9821	25353	42581
Yes	%	45.7	41.6	34.3	39.3	38.6
No	%	44.5	57.1	61.3	58.8	59.1
Missing	%	9.8	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1747	7407	9821	25353	42581
Yes	%	1.2	1.3	1.8	1.5	1.5
Missing	%	98.8	98.7	98.2	98.5	98.5
Education Level at Intake	N	1747	7407	9821	25353	42581
Less than high school	%	9.9	13.2	22.2	23.7	21.5
High school graduate or GED	%	51.5	52.6	47.8	49.9	49.9
Bachelor's degree	%	4.4	11.2	3.1	2.9	4.4
Other college degree(s)	%	9.2	12.5	6.9	6.2	7.5
Missing	%	25.1	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1747	7407	9821	25353	42581
Married, living with spouse	%	23.6	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.0	1.7	1.8	2.0	1.9
Living with a partner	%	32.1	32.7	31.3	30.3	30.9
In a relationship but not living together	%	19.3	14.6	23.5	29.0	25.2
Not in a relationship right now	%	13.4	9.9	17.2	18.0	16.4
Missing	%	10.6	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1747	7407	9821	25353	42581
Yes	%	18.2	9.7	8.1	12.4	10.9
No	%	71.8	81.0	71.9	81.6	79.3
Missing	%	10.0	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1747	7407	9821	25353	42581
Yes	%	8.1	17.2	19.0	16.5	17.2

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	63.1	76.7	64.6	74.5	72.6
Missing*	%	28.8	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1747	7407	9821	25353	42581
Yes	%	17.6	20.8	23.9	21.6	22.0
No	%	55.7	68.7	53.0	67.0	64.1
Missing*	%	26.6	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1747	7407	9821	25353	42581
Yes	%	17.6	20.0	15.4	18.7	18.2
No	%	57.2	78.0	75.0	77.0	76.7
Missing*	%	25.3	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	1106	3878	4458	14417	22753
<18 months	%	27.2	29.8	17.5	21.7	22.4
≥18 months	%	42.9	51.2	50.8	55.7	54.0
Missing	%	29.9	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	1106	3878	4458	14417	22753
Yes	%	12.1	9.3	10.9	16.2	14.0
No	%	77.3	88.6	74.5	68.8	73.3
Not Known	%	0.1	0.3	8.7	6.8	6.0
Missing	%	10.5	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	1106	3878	4458	14417	22753
Yes	%	7.5	1.6	8.5	12.6	9.9
No	%	79.0	96.1	64.0	67.4	71.6
Not Known	%	1.6	0.3	12.4	11.1	9.5
Missing	%	11.8	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1770	6401	8494	23070	37965
Yes	%	1.1	0.2	2.4	1.1	1.2
No	%	84.4	99.4	65.4	83.9	82.4
Not Known	%	0.6	0.0	25.0	7.5	10.2
Missing	%	14.0	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1770	6401	8494	23070	37965
Yes	%	0.7	0.3	3.8	2.1	2.2
No	%	83.5	99.3	76.3	84.6	85.2
Not Known	%	0.6	0.0	12.6	5.7	6.3
Missing	%	15.2	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1770	6401	8494	23070	37965
Yes	%	2.4	0.6	6.5	6.8	5.7
No	%	83.0	99.0	76.3	80.3	82.5
Not Known	%	0.6	0.0	9.8	5.5	5.6
Missing	%	14.0	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1770	6401	8494	23070	37965
Yes	%	4.3	2.5	5.0	5.8	5.0
No	%	69.8	97.0	75.2	72.7	77.4
Not Known	%	1.2	0.1	12.3	13.4	10.9
Missing	%	24.7	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1770	6401	8494	23070	37965
Yes	%	4.0	1.3	6.9	5.7	5.2
No	%	71.0	98.1	73.2	72.8	77.2
Not Known	%	1.2	0.1	12.4	13.3	10.9
Missing	%	23.8	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1770	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1547	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	87.4	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	10.5	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	1618	6389	7929	21646	35964
Received Enhanced Encounters	N	1331	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	82.3	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	4.4	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	1519	6210	7424	17929	31563
Received Enhanced Services	N	695	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	45.8	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	5.8	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	181	484	867	3380	4731
Yes	%	12.7	3.5	7.4	13.4	11.3
No	%	59.7	89.9	58.6	55.2	59.4
Not known	%	2.2	0.0	15.7	18.0	15.7
Missing	%	25.4	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	1505	6337	6825	19298	32460
Number of Babies Born	N	1526	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1572	6256	7939	21160	35355
Yes	%	35.3	16.1	23.8	19.4	19.8
No	%	35.9	81.7	38.3	35.1	44.0
Not known	%	2.0	0.5	24.8	28.8	22.9
Missing	%	26.8	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1770	6401	8494	23070	37965
Vaginal delivery	%	58.4	86.0	54.0	51.9	58.1
C-Section	%	23.8	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.2	0.0	0.1	0.2	0.1
Missing	%	17.7	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.4	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	263	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	9.9	28.8	23.6	16.4	18.9
Repeat C-Section	%	90.1	71.2	76.4	83.7	81.2
Scheduled C-Section	N	424	820	1873	5597	8290
Yes	%	46.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1480	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	9.3	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	85.9	94.4	81.4	81.0	83.9
Missing	%	4.7	0.3	7.4	4.8	4.4
Infant Birthweight	N	1480	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	7.5	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	84.7	94.2	84.9	82.4	85.3
Missing	%	7.8	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	812	5149	5684	15106	25939
Yes	%	72.9	83.6	57.5	63.4	66.1
No	%	21.1	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.2	0.7	5.9	2.5	2.9
Missing	%	5.8	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	90.6	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	Signature (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	812	5149	5684	15106	25939
Yes	%	88.3	69.5	57.2	72.3	68.4
No	%	6.2	18.1	10.7	11.7	12.7
Unsure	%	0.4	2.7	5.9	2.4	3.2
Missing	%	5.2	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

While completing our applications in September 2015 to access data from the Missouri Department of Social Services (DSS), which houses Medicaid, and the Missouri Department of Health and Senior Services (DHSS), which houses Vital Records, state officials informed us that they did not have the resources to participate in the evaluation. We said that we understood their constraints and asked if we could touch base again in early 2016 in hopes that their situation had improved; fortunately it had. After contacting both agencies in January 2016, reminding them of the available stipend, and after 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, but due to unforeseen delays, the application was not approved until April 2017. The Medicaid agency submitted some data elements in June 2017, and following approval of the IRB the Vital Records Agency submitted birth certificate data in July 2017. The evaluation team is working to review the data and follow up with the appropriate agency if there are any missing variables.

St. John Providence Health System

CASE STUDY

The **St. John Providence Health System (St. John)**, comprising 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 of Group Prenatal Care under Strong Start, St. John offered “group prenatal support sessions” that supplemented rather than substituted for individual prenatal visits with physicians. These support sessions were conducted at two sites: the “East Side” location (the St. John Providence Hospital and Medical Center on the east edge of Detroit); and the “West Side” location (a primary care and obstetric clinic in Southfield, west of Detroit). The Strong Start social worker and nurse facilitated the sessions, and an outreach worker provided childcare. Because many women were not attending regularly, the awardee implemented a Maternity Care Home model at the East Side location during evaluation Year 3; the social worker provided information and emotional support in person, by phone, or at an occasional home visit. St. John ended Strong Start enrollment in October 2016, and the last Strong Start deliveries occurred in January 2017. Total enrollment in the program reached 245, the vast majority in the Maternity Care Home model.

The awardee is continuing some Maternity Care Home services in collaboration with the Medicaid-affiliated Maternal and Infant Health Program, which provides risk assessment and up to nine home visits to provide support and care coordination for pregnant and postpartum women. While the Strong Start group support sessions have ended, the awardee plans to revive a support group for pregnant women that would be facilitated by the social worker and nurse and open to all patients, not just those with Medicaid coverage.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, St. John Community Health Investment Corporation (St. John) had Intake Forms for 79.2 percent of participants enrolled through Quarter 4 2016 (194 Intake Forms for 245 participants). In addition, St. John submitted 144 Third Trimester Surveys, 137 Postpartum Surveys, and 177 Exit Forms. The awardee encountered data use agreement challenges early on, as well as enrollment delays. They did not begin submitting PLPE data until 2015. Tables 1 through 7 present data collected on St. John’s participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from St. John.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	245	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	161	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	194	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	79.2	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	144	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	58.8	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	137	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	55.9	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	177	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	72.2	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	194	7407	9821	25353	42581
Less than 18 years of age	%	2.1	2.7	6.9	5.5	5.3
18 through 19 years of age	%	8.2	6.4	12.4	9.5	9.6
20 through 34 years of age	%	79.4	81.4	71.7	74.4	75
35 years and older	%	10.3	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	194	7407	9821	25353	42581
Hispanic	%	1.5	25.0	36.3	27.7	29.2
White	%	5.7	52.9	12.4	22.0	25.2
Black	%	89.7	16.0	44.1	44.4	39.4
Other race or multiple races	%	3.1	5.3	5.0	4.2	4.6
Missing	%	0.0	0.8	2.3	1.7	1.7
Employed at Intake	N	194	7407	9821	25353	42581
Yes	%	29.9	41.6	34.3	39.3	38.6
No	%	69.1	57.1	61.3	58.8	59.1
Missing	%	1.0	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	194	7407	9821	25353	42581
Yes	%	3.1	1.3	1.8	1.5	1.5
Missing	%	96.9	98.7	98.2	98.5	98.5
Education Level at Intake	N	194	7407	9821	25353	42581
Less than high school	%	20.6	13.2	22.2	23.7	21.5
High school graduate or GED	%	59.8	52.6	47.8	49.9	49.9
Bachelor's degree	%	1.0	11.2	3.1	2.9	4.4
Other college degree(s)	%	4.6	12.5	6.9	6.2	7.5
Missing	%	13.9	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	194	7407	9821	25353	42581
Married, living with spouse	%	6.2	39.8	16.6	18.2	21.6
Married, not living with spouse	%	3.1	1.7	1.8	2.0	1.9
Living with a partner	%	26.8	32.7	31.3	30.3	30.9
In a relationship but not living together	%	23.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	40.7	9.9	17.2	18.0	16.4
Missing	%	0.0	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	194	7407	9821	25353	42581
Yes	%	7.7	9.7	8.1	12.4	10.9
No	%	88.1	81.0	71.9	81.6	79.3
Missing	%	4.1	9.3	20.0	6.0	9.8

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Food Insecure at Intake	N	194	7407	9821	25353	42581
Yes	%	24.7	17.2	19.0	16.5	17.2
No	%	69.6	76.7	64.6	74.5	72.6
Missing*	%	5.6	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	194	7407	9821	25353	42581
Yes	%	39.2	20.8	23.9	21.6	22.0
No	%	57.2	68.7	53.0	67.0	64.1
Missing*	%	3.6	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	194	7407	9821	25353	42581
Yes	%	24.7	20.0	15.4	18.7	18.2
No	%	73.7	78.0	75.0	77.0	76.7
Missing*	%	1.5	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	131	3878	4458	14417	22753
<18 months	%	20.6	29.8	17.5	21.7	22.4
≥18 months	%	48.1	51.2	50.8	55.7	54.0
Missing	%	31.3	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	131	3878	4458	14417	22753
Yes	%	23.7	9.3	10.9	16.2	14.0
No	%	61.8	88.6	74.5	68.8	73.3
Not Known	%	14.5	0.3	8.7	6.8	6.0
Missing	%	0.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	131	3878	4458	14417	22753
Yes	%	3.8	1.6	8.5	12.6	9.9
No	%	13.7	96.1	64.0	67.4	71.6
Not Known	%	80.2	0.3	12.4	11.1	9.5
Missing	%	2.3	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	177	6401	8494	23070	37965
Yes	%	2.8	0.2	2.4	1.1	1.2
No	%	86.4	99.4	65.4	83.9	82.4
Not Known	%	10.2	0.0	25.0	7.5	10.2
Missing	%	0.6	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	177	6401	8494	23070	37965
Yes	%	2.8	0.3	3.8	2.1	2.2
No	%	87.0	99.3	76.3	84.6	85.2
Not Known	%	9.6	0.0	12.6	5.7	6.3
Missing	%	0.6	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	177	6401	8494	23070	37965
Yes	%	10.7	0.6	6.5	6.8	5.7
No	%	79.7	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	9.6	0.0	9.8	5.5	5.6
Missing	%	0.0	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	177	6401	8494	23070	37965
Yes	%	7.9	2.5	5.0	5.8	5.0
No	%	72.9	97.0	75.2	72.7	77.4
Not Known	%	19.2	0.1	12.3	13.4	10.9
Missing	%	0.0	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	177	6401	8494	23070	37965
Yes	%	14.1	1.3	6.9	5.7	5.2
No	%	76.8	98.1	73.2	72.8	77.2
Not Known	%	9.0	0.1	12.4	13.3	10.9
Missing	%	0.0	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	177	6401	8494	23070	37965
Received Individual Prenatal Visits	N	87	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	49.2	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	8.0	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	145	6389	7929	21646	35964
Received Enhanced Encounters	N	133	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	91.7	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	3.7	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	121	6210	7424	17929	31563

Data Element	Number (N), Mean, or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Enhanced Services	N	50	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	41.3	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	8.3	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	42	484	867	3380	4731
Yes	%	4.8	3.5	7.4	13.4	11.3
No	%	81.0	89.9	58.6	55.2	59.4
Not known	%	14.3	0.0	15.7	18.0	15.7
Missing	%	0.0	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	164	6337	6825	19298	32460
Number of Babies Born	N	169	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	158	6256	7939	21160	35355
Yes	%	22.8	16.1	23.8	19.4	19.8
No	%	63.9	81.7	38.3	35.1	44.0
Not known	%	10.8	0.5	24.8	28.8	22.9
Missing	%	2.5	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	177	6401	8494	23070	37965
Vaginal delivery	%	60.5	86.0	54.0	51.9	58.1
C-Section	%	29.9	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.6	0.0	0.1	0.2	0.1
Missing	%	9.0	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	77.8	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	38	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	23.7	28.8	23.6	16.4	18.9
Repeat C-Section	%	76.3	71.2	76.4	83.7	81.2
Scheduled C-Section	N	54	820	1873	5597	8290
Yes	%	35.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	168	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	19.6	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	78.6	94.4	81.4	81.0	83.9
Missing	%	1.8	0.3	7.4	4.8	4.4
Infant Birthweight	N	168	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	17.9	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	81.0	94.2	84.9	82.4	85.3
Missing	%	1.2	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	St. John (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	137	5149	5684	15106	25939
Yes	%	45.3	83.6	57.5	63.4	66.1
No	%	13.1	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.0	0.7	5.9	2.5	2.9
Missing	%	41.6	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	103.8	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	137	5149	5684	15106	25939
Yes	%	51.1	69.5	57.2	72.3	68.4
No	%	5.8	18.1	10.7	11.7	12.7
Unsure	%	1.5	2.7	5.9	2.4	3.2
Missing	%	41.6	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

The evaluation team submitted data use and nondisclosure agreements in June 2015 to request access to Medicaid and birth certificate data from the Michigan Department of Health and Human Services (MDHHS). After the agreements were submitted, MDHHS asked the evaluation team to submit an IRB application. Urban submitted the IRB application in April 2016 and received approval in August 2016. The DUA was executed in September 2016. Michigan submitted 2014 and 2015 birth certificate data in February 2017, and 2016 data were submitted in June 2017. The state submitted all of the Medicaid data at once, in June 2017, as a merged data file. The evaluation team is reviewing the data for completeness before analysis begins. This information is the same as described for the Meridian awardee, also located in Michigan.

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. TTUHSC initially implemented the Maternity Care Home model at two sites, whereby community health workers (CHWs) provided referrals and psychosocial support to Strong Start participants during clinic visits, three home visits (at initial intake, in the third trimester, and postpartum), and telephone calls and texts. During evaluation Year 2 TTUHSC implemented Group Prenatal Care using the CenteringPregnancy (Centering) approach at a third site staffed by nurse midwives and women's health nurse practitioners. The group care site offered Centering to all prenatal patients regardless of insurance status or type. TTUHSC ended Strong Start enrollment in October 2016, and the last Strong Start deliveries were expected to occur in February 2017. Total enrollment in the program was 1,096 women.

Key informants were confident that the primary elements of their Maternity Care Home model would be continued and expanded to other patient populations. Despite some difficulties attracting patients to the model, the awardee also planned to continue Centering at the Group Prenatal Care site with a goal of expanding the model to become the preferred approach for prenatal care delivery at that site. The awardee is planning to replicate Maternity Care Home services at all TTUHSC's chronic care clinics. More specifically, CHWs (including a Strong Start CHW and a new hire) will be referred to as "Life Coaches" and will provide support and referrals to high-risk patients, both pregnant and nonpregnant. Under the Life Coach initiative, TTUHSC's Strong Start sites will screen pregnant patients using the medical history intake template available from the American Congress of Obstetricians and Gynecologists (ACOG) and the Strong Start criteria for high-risk pregnancies (e.g. preterm delivery or pregnancy loss, diabetes, hypertension). The awardee may also continue to use some questions from Strong Start's evaluation surveys.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Texas Tech University Health Sciences Center (Texas Tech) had Intake Forms for 95.7 percent of participants enrolled through Quarter 4 2016 (1,058 Intake Forms for 1,105 participants). In addition, Texas Tech submitted 646 Third Trimester Surveys, 497 Postpartum Surveys, and 437 Exit Forms. Tables 1 through 7 present data collected on Texas Tech's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from Texas Tech.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1105	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	768	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1058	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	95.7	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	646	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	58.5	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	497	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	45.0	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	437	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	39.5	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1058	7407	9821	25353	42581
Less than 18 years of age	%	4.4	2.7	6.9	5.5	5.3
18 through 19 years of age	%	9.5	6.4	12.4	9.5	9.6
20 through 34 years of age	%	63.7	81.4	71.7	74.4	75
35 years and older	%	6.0	9.1	7.4	9.6	9.0
Missing	%	16.3	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1058	7407	9821	25353	42581
Hispanic	%	56.4	25.0	36.3	27.7	29.2
White	%	22.1	52.9	12.4	22.0	25.2
Black	%	14.0	16.0	44.1	44.4	39.4
Other race or multiple races	%	2.8	5.3	5.0	4.2	4.6
Missing	%	4.6	0.8	2.3	1.7	1.7
Employed at Intake	N	1058	7407	9821	25353	42581
Yes	%	39.1	41.6	34.3	39.3	38.6
No	%	57.8	57.1	61.3	58.8	59.1
Missing	%	3.0	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1058	7407	9821	25353	42581
Yes	%	0.5	1.3	1.8	1.5	1.5
Missing	%	99.5	98.7	98.2	98.5	98.5
Education Level at Intake	N	1058	7407	9821	25353	42581
Less than high school	%	16.6	13.2	22.2	23.7	21.5
High school graduate or GED	%	40.1	52.6	47.8	49.9	49.9
Bachelor's degree	%	1.6	11.2	3.1	2.9	4.4
Other college degree(s)	%	7.9	12.5	6.9	6.2	7.5
Missing	%	33.7	10.6	19.9	17.3	16.7

Data Element	Number (N) or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Relationship Status at Intake	N	1058	7407	9821	25353	42581
Married, living with spouse	%	22.1	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.2	1.7	1.8	2.0	1.9
Living with a partner	%	33.4	32.7	31.3	30.3	30.9
In a relationship but not living together	%	19.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	22.0	9.9	17.2	18.0	16.4
Missing	%	2.1	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1058	7407	9821	25353	42581
Yes	%	11.0	9.7	8.1	12.4	10.9
No	%	83.5	81.0	71.9	81.6	79.3
Missing	%	5.6	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1058	7407	9821	25353	42581
Yes	%	18.3	17.2	19.0	16.5	17.2
No	%	67.4	76.7	64.6	74.5	72.6
Missing*	%	14.3	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1058	7407	9821	25353	42581
Yes	%	18.1	20.8	23.9	21.6	22.0
No	%	57.5	68.7	53.0	67.0	64.1
Missing*	%	24.5	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1058	7407	9821	25353	42581
Yes	%	17.7	20.0	15.4	18.7	18.2
No	%	70.8	78.0	75.0	77.0	76.7
Missing*	%	11.5	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	Texas Tech (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	308	3878	4458	14417	22753
<18 months	%	28.2	29.8	17.5	21.7	22.4
≥18 months	%	52.6	51.2	50.8	55.7	54.0
Missing	%	19.2	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	308	3878	4458	14417	22753
Yes	%	20.1	9.3	10.9	16.2	14.0
No	%	70.8	88.6	74.5	68.8	73.3
Not Known	%	6.2	0.3	8.7	6.8	6.0
Missing	%	2.9	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	308	3878	4458	14417	22753
Yes	%	13.0	1.6	8.5	12.6	9.9
No	%	73.4	96.1	64.0	67.4	71.6
Not Known	%	10.1	0.3	12.4	11.1	9.5

Data Element	Number (N) or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Missing	%	3.6	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	437	6401	8494	23070	37965
Yes	%	4.6	0.2	2.4	1.1	1.2
No	%	84.9	99.4	65.4	83.9	82.4
Not Known	%	6.4	0.0	25.0	7.5	10.2
Missing	%	4.1	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	437	6401	8494	23070	37965
Yes	%	5.7	0.3	3.8	2.1	2.2
No	%	83.8	99.3	76.3	84.6	85.2
Not Known	%	6.2	0.0	12.6	5.7	6.3
Missing	%	4.3	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	437	6401	8494	23070	37965
Yes	%	7.3	0.6	6.5	6.8	5.7
No	%	84.0	99.0	76.3	80.3	82.5
Not Known	%	4.3	0.0	9.8	5.5	5.6
Missing	%	4.3	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	437	6401	8494	23070	37965
Yes	%	11.7	2.5	5.0	5.8	5.0
No	%	77.1	97.0	75.2	72.7	77.4
Not Known	%	6.4	0.1	12.3	13.4	10.9
Missing	%	4.8	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	437	6401	8494	23070	37965
Yes	%	9.6	1.3	6.9	5.7	5.2
No	%	81.0	98.1	73.2	72.8	77.2
Not Known	%	4.8	0.1	12.4	13.3	10.9
Missing	%	4.6	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	437	6401	8494	23070	37965
Received Individual Prenatal Visits	N	387	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	88.6	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	10.5	11.0	5.3	9.5	9.0

Data Element	Number (N), Mean, or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Group Prenatal Visits	N	32	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	7.3	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	11.9	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	387	6389	7929	21646	35964
Received Enhanced Encounters	N	351	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	90.7	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	2.9	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	275	6210	7424	17929	31563
Received Enhanced Services	N	168	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	61.1	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.5	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	97	484	867	3380	4731
Yes	%	0.0	3.5	7.4	13.4	11.3
No	%	95.9	89.9	58.6	55.2	59.4
Not known	%	3.1	0.0	15.7	18.0	15.7
Missing	%	1.0	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	415	6337	6825	19298	32460
Number of Babies Born	N	423	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	406	6256	7939	21160	35355
Yes	%	24.6	16.1	23.8	19.4	19.8
No	%	72.2	81.7	38.3	35.1	44.0
Not known	%	3.0	0.5	24.8	28.8	22.9
Missing	%	0.2	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	437	6401	8494	23070	37965
Vaginal delivery	%	68.4	86.0	54.0	51.9	58.1
C-Section	%	19.5	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	12.1	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	92.4	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	81	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	28.4	28.8	23.6	16.4	18.9
Repeat C-Section	%	71.6	71.2	76.4	83.7	81.2
Scheduled C-Section	N	85	820	1873	5597	8290
Yes	%	36.5	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	396	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	11.4	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	66.2	94.4	81.4	81.0	83.9
Missing	%	22.5	0.3	7.4	4.8	4.4
Infant Birthweight	N	396	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	9.8	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	89.4	94.2	84.9	82.4	85.3
Missing	%	0.8	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	Texas Tech (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	497	5149	5684	15106	25939
Yes	%	73.4	83.6	57.5	63.4	66.1
No	%	25.8	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.2	0.7	5.9	2.5	2.9
Missing	%	0.6	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	97.6	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	497	5149	5684	15106	25939
Yes	%	80.9	69.5	57.2	72.3	68.4
No	%	16.7	18.1	10.7	11.7	12.7
Unsure	%	0.6	2.7	5.9	2.4	3.2
Missing	%	1.8	9.7	26.2	13.6	15.6

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 in November 2015 that the evaluation team needed to obtain IRB approval prior to executing a data use agreement to allow for the sharing of birth certificate data. The IRB application was approved by the Vital Records Agency IRB board in April 2017. Also in April, the evaluation team submitted an MOU to Medicaid for review and approval. Since its submission, Medicaid has been waiting for input on the MOU from the Vital Records Agency, but they have been unresponsive. The evaluation team is working to determine the cause of the delay so the data request process can continue moving forward. At this time, it is possible that we will not receive data from Texas in time for the final year's impacts analysis. This information is the same as described for the Harris County Hospital District awardee, also located in Texas.

United Neighborhood Health Services

CASE STUDY

United Neighborhood Health Services (UNHS) is a Federally Qualified Health Center operating 12 clinics in Davidson County, Tennessee, and the surrounding area. Eight UNHS clinics provide prenatal care, and UNHS implemented the Strong Start Maternity Care Home model at seven of these. The Strong Start clinics are all located in Davidson County, primarily in the city of Nashville. Under UNHS's Strong Start Maternity Care Home model, enrollees received a minimum of three prenatal encounters with a health coach; these encounters were coordinated with patients' prenatal care visits. Enrollees also received one postpartum encounter, conducted either in the clinic or at the patient's home. UNHS ended enrollment at the end of June 2016, and the last Strong Start deliveries were expected to occur by the beginning of March 2017. Total enrollment in the program was 1,207 women.

Many services provided under Strong Start will be maintained at all seven of the UNHS clinics that participated in Strong Start and will be expanded to other UNHS sites as well. The services will be provided through a new TennCare value-based payment reform pilot that began January 2017, which will support care management for UNHS' prenatal population and for "high utilizers" with chronic conditions. UNHS is maintaining the structure introduced under Strong Start (three prenatal and one postpartum encounter) for the pregnant population enrolled in the pilot, though services are now provided by individuals with the title of care manager, rather than health coach.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, United Neighborhood Health Services (United) had Intake Forms for 96.9 percent of participants enrolled through Quarter 4 2016 (1,169 Intake Forms for 1,207 participants). In addition, United submitted 585 Third Trimester Surveys, 474 Postpartum Surveys, and 1,026 Exit Forms. Tables 1 through 7 present data collected on United's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from United.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1207	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	870	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1169	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	96.9	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	585	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	48.5	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	474	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	39.3	60.6	50.1	57.8	56.4

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms Received through Q4 2016	N	1026	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	85.0	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1169	7407	9821	25353	42581
Less than 18 years of age	%	5.2	2.7	6.9	5.5	5.3
18 through 19 years of age	%	8.9	6.4	12.4	9.5	9.6
20 through 34 years of age	%	74.1	81.4	71.7	74.4	75
35 years and older	%	11.8	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1169	7407	9821	25353	42581
Hispanic	%	51.1	25.0	36.3	27.7	29.2
White	%	11.3	52.9	12.4	22.0	25.2
Black	%	33.5	16.0	44.1	44.4	39.4
Other race or multiple races	%	2.5	5.3	5.0	4.2	4.6
Missing	%	1.6	0.8	2.3	1.7	1.7
Employed at Intake	N	1169	7407	9821	25353	42581
Yes	%	37.6	41.6	34.3	39.3	38.6
No	%	61.6	57.1	61.3	58.8	59.1
Missing	%	0.8	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1169	7407	9821	25353	42581
Yes	%	2.0	1.3	1.8	1.5	1.5
Missing	%	98.0	98.7	98.2	98.5	98.5
Education Level at Intake	N	1169	7407	9821	25353	42581
Less than high school	%	27.9	13.2	22.2	23.7	21.5
High school graduate or GED	%	36.3	52.6	47.8	49.9	49.9
Bachelor's degree	%	2.8	11.2	3.1	2.9	4.4
Other college degree(s)	%	3.9	12.5	6.9	6.2	7.5
Missing	%	29.1	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1169	7407	9821	25353	42581
Married, living with spouse	%	28.1	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.4	1.7	1.8	2.0	1.9
Living with a partner	%	33.9	32.7	31.3	30.3	30.9
In a relationship but not living together	%	21.3	14.6	23.5	29.0	25.2
Not in a relationship right now	%	14.1	9.9	17.2	18.0	16.4
Missing	%	1.3	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1169	7407	9821	25353	42581
Yes	%	10.7	9.7	8.1	12.4	10.9
No	%	86.8	81.0	71.9	81.6	79.3
Missing	%	2.5	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1169	7407	9821	25353	42581
Yes	%	9.7	17.2	19.0	16.5	17.2
No	%	82.4	76.7	64.6	74.5	72.6
Missing*	%	8.0	6.1	16.5	9.0	10.2

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exhibiting Depressive Symptoms at Intake**	N	1169	7407	9821	25353	42581
Yes	%	11.9	20.8	23.9	21.6	22.0
No	%	79.7	68.7	53.0	67.0	64.1
Missing*	%	8.4	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1169	7407	9821	25353	42581
Yes	%	14.3	20.0	15.4	18.7	18.2
No	%	81.5	78.0	75.0	77.0	76.7
Missing*	%	4.2	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	682	3878	4458	14417	22753
<18 months	%	19.7	29.8	17.5	21.7	22.4
≥18 months	%	69.1	51.2	50.8	55.7	54.0
Missing	%	11.3	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	682	3878	4458	14417	22753
Yes	%	11.1	9.3	10.9	16.2	14.0
No	%	76.2	88.6	74.5	68.8	73.3
Not Known	%	10.3	0.3	8.7	6.8	6.0
Missing	%	2.3	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	682	3878	4458	14417	22753
Yes	%	10.3	1.6	8.5	12.6	9.9
No	%	74.9	96.1	64.0	67.4	71.6
Not Known	%	12.8	0.3	12.4	11.1	9.5
Missing	%	2.1	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1026	6401	8494	23070	37965
Yes	%	0.8	0.2	2.4	1.1	1.2
No	%	94.2	99.4	65.4	83.9	82.4
Not Known	%	4.1	0.0	25.0	7.5	10.2
Missing	%	0.9	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1026	6401	8494	23070	37965
Yes	%	1.8	0.3	3.8	2.1	2.2
No	%	93.3	99.3	76.3	84.6	85.2
Not Known	%	4.1	0.0	12.6	5.7	6.3
Missing	%	0.9	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1026	6401	8494	23070	37965
Yes	%	5.6	0.6	6.5	6.8	5.7
No	%	89.8	99.0	76.3	80.3	82.5
Not Known	%	3.8	0.0	9.8	5.5	5.6
Missing	%	0.9	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1026	6401	8494	23070	37965
Yes	%	4.6	2.5	5.0	5.8	5.0
No	%	67.2	97.0	75.2	72.7	77.4
Not Known	%	27.9	0.1	12.3	13.4	10.9
Missing	%	0.4	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1026	6401	8494	23070	37965
Yes	%	3.4	1.3	6.9	5.7	5.2
No	%	68.1	98.1	73.2	72.8	77.2
Not Known	%	28.3	0.1	12.4	13.3	10.9
Missing	%	0.2	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1026	6401	8494	23070	37965
Received Individual Prenatal Visits	N	742	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	72.3	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	6.8	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	1024	6389	7929	21646	35964
Received Enhanced Encounters	N	970	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	94.7	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	4.3	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	1015	6210	7424	17929	31563
Received Enhanced Services	N	92	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	9.1	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	3.6	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	123	484	867	3380	4731
Yes	%	1.6	3.5	7.4	13.4	11.3
No	%	47.2	89.9	58.6	55.2	59.4
Not known	%	41.5	0.0	15.7	18.0	15.7
Missing	%	9.8	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	1018	6337	6825	19298	32460
Number of Babies Born	N	1031	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	959	6256	7939	21160	35355
Yes	%	12.5	16.1	23.8	19.4	19.8
No	%	31.5	81.7	38.3	35.1	44.0
Not known	%	47.8	0.5	24.8	28.8	22.9
Missing	%	8.2	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1026	6401	8494	23070	37965
Vaginal delivery	%	49.8	86.0	54.0	51.9	58.1
C-Section	%	20.0	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.1	0.0	0.1	0.2	0.1
Missing	%	30.1	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	83.8	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	132	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	17.4	28.8	23.6	16.4	18.9
Repeat C-Section	%	82.6	71.2	76.4	83.7	81.2
Scheduled C-Section	N	206	820	1873	5597	8290
Yes	%	32.0	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	723	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	13.7	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	84.9	94.4	81.4	81.0	83.9
Missing	%	1.4	0.3	7.4	4.8	4.4
Infant Birthweight	N	723	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	9.3	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	88.2	94.2	84.9	82.4	85.3
Missing	%	2.5	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	474	5149	5684	15106	25939
Yes	%	78.5	83.6	57.5	63.4	66.1
No	%	15.8	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.8	0.7	5.9	2.5	2.9
Missing	%	4.9	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	105.1	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	United (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	474	5149	5684	15106	25939
Yes	%	76.8	69.5	57.2	72.3	68.4
No	%	12.2	18.1	10.7	11.7	12.7
Unsure	%	4.6	2.7	5.9	2.4	3.2
Missing	%	6.3	9.7	26.2	13.6	15.6

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. Following IRB approval, an official data request application was completed in October 2016. In December 2016, the Medicaid Agency shared its claims file for Urban to review. At this time, the evaluation team also learned that an IRB application with the Medicaid agency would not be necessary. In January 2017, all parties agreed on a process of sharing, merging, and submitting the requested data files. The team is now awaiting submission of the complete and merged data file from Medicaid, which is expected by the end of August 2017. This information is the same as described for the University of Tennessee Health Sciences Center (UTHSC), also located in Tennessee.

University of Alabama at Birmingham

CASE STUDY

The **University of Alabama, Birmingham (UAB)** is an academic health system that implemented a Maternity Care Home model within its Department of Obstetrics and Gynecology. It operated three Strong Start sites including the UAB hospital and two satellite clinics in Birmingham, Eastern Health Center and Western Health Center. Enhanced services consisted of universal screening and referrals for behavioral health problems (using the Strong Start intake form) and nutritional needs. Participants identified as suffering from depression or a substance use disorder were referred to either of two mental health providers outside the UAB system. Participants with a Body Mass Index below 19 or at 30 or above were referred to a registered dietician at UAB for counseling. Strong Start staff also offered educational videos and written materials covering topics related to pregnancy, birth, and contraception, but these were not widely used. Care coordination, social worker consultation, contraceptive services, and other direct services occur through other programs that operated in tandem with Strong Start, such as the Medicaid-affiliated Steps Ahead and Healthy Start. UAB ended enrollment in February 2016, and the last Strong Start deliveries occurred in August 2016. Total enrollment in the program was 1,289 women.

UAB is not sustaining Strong Start data collection but is implementing universal screening for depression for pregnant women three times during pregnancy, consistent with United States Preventive Services Task Force recommendations. The educational videos developed for Strong Start were also incorporated into a mobile app (developed as part of a separate initiative) and remain available to pregnant patients through the app. Enhanced services focused on nutritional screening and referrals were not sustained. Steps Ahead, which provides three social worker visits to all pregnant Medicaid enrollees, and Healthy Start continue to provide enhanced services to this population, as they have since long before Strong Start was implemented.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, University of Alabama at Birmingham (UAB) had Intake Forms for 102.7 percent of participants enrolled through Quarter 4 2016 (1,324 Intake Forms for 1,289 participants). In addition, UAB submitted 684 Third Trimester Surveys, 1,092 Postpartum Surveys, and 1,322 Exit Forms. Tables 1 through 7 present data collected on UAB's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from UAB.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1289	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1162	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1324	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	102.7*	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	684	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	53.1	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	1092	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	84.7	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1322	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	102.6*	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.
Cells that contain one asterisk (*) indicate that enrollment totals reported on program monitoring reports are the denominator for form receipt and may differ slightly from what awardees have reported in their PLPE data, resulting in percentages <100 percent.

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1324	7407	9821	25353	42581
Less than 18 years of age	%	6.4	2.7	6.9	5.5	5.3
18 through 19 years of age	%	10.0	6.4	12.4	9.5	9.6
20 through 34 years of age	%	76.5	81.4	71.7	74.4	75
35 years and older	%	6.9	9.1	7.4	9.6	9.0
Missing	%	0.2	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1324	7407	9821	25353	42581
Hispanic	%	2.4	25.0	36.3	27.7	29.2
White	%	19.4	52.9	12.4	22.0	25.2
Black	%	77.6	16.0	44.1	44.4	39.4
Other race or multiple races	%	0.3	5.3	5.0	4.2	4.6
Missing	%	0.2	0.8	2.3	1.7	1.7
Employed at Intake	N	1324	7407	9821	25353	42581
Yes	%	38.2	41.6	34.3	39.3	38.6
No	%	61.5	57.1	61.3	58.8	59.1
Missing	%	0.3	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1324	7407	9821	25353	42581
Yes	%	0.9	1.3	1.8	1.5	1.5
Missing	%	99.1	98.7	98.2	98.5	98.5
Education Level at Intake	N	1324	7407	9821	25353	42581
Less than high school	%	23.7	13.2	22.2	23.7	21.5
High school graduate or GED	%	62.6	52.6	47.8	49.9	49.9
Bachelor's degree	%	1.7	11.2	3.1	2.9	4.4
Other college degree(s)	%	5.7	12.5	6.9	6.2	7.5
Missing	%	6.2	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1324	7407	9821	25353	42581
Married, living with spouse	%	10.5	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.3	1.7	1.8	2.0	1.9
Living with a partner	%	24.3	32.7	31.3	30.3	30.9
In a relationship but not living together	%	38.1	14.6	23.5	29.0	25.2
Not in a relationship right now	%	23.9	9.9	17.2	18.0	16.4
Missing	%	0.9	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1324	7407	9821	25353	42581
Yes	%	19.5	9.7	8.1	12.4	10.9

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	80.0	81.0	71.9	81.6	79.3
Missing	%	0.5	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1324	7407	9821	25353	42581
Yes	%	26.4	17.2	19.0	16.5	17.2
No	%	70.2	76.7	64.6	74.5	72.6
Missing*	%	3.4	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1324	7407	9821	25353	42581
Yes	%	39.6	20.8	23.9	21.6	22.0
No	%	45.4	68.7	53.0	67.0	64.1
Missing*	%	15.1	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1324	7407	9821	25353	42581
Yes	%	27.5	20.0	15.4	18.7	18.2
No	%	72.1	78.0	75.0	77.0	76.7
Missing*	%	0.4	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	808	3878	4458	14417	22753
<18 months	%	24.9	29.8	17.5	21.7	22.4
≥18 months	%	64.5	51.2	50.8	55.7	54.0
Missing	%	10.6	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	808	3878	4458	14417	22753
Yes	%	27.5	9.3	10.9	16.2	14.0
No	%	70.5	88.6	74.5	68.8	73.3
Not Known	%	0.1	0.3	8.7	6.8	6.0
Missing	%	1.9	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	808	3878	4458	14417	22753
Yes	%	23.1	1.6	8.5	12.6	9.9
No	%	72.8	96.1	64.0	67.4	71.6
Not Known	%	2.6	0.3	12.4	11.1	9.5
Missing	%	1.5	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1322	6401	8494	23070	37965
Yes	%	4.0	0.2	2.4	1.1	1.2
No	%	94.7	99.4	65.4	83.9	82.4
Not Known	%	0.0	0.0	25.0	7.5	10.2
Missing	%	1.3	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1322	6401	8494	23070	37965
Yes	%	3.7	0.3	3.8	2.1	2.2
No	%	94.9	99.3	76.3	84.6	85.2
Not Known	%	0.0	0.0	12.6	5.7	6.3
Missing	%	1.4	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1322	6401	8494	23070	37965
Yes	%	12.9	0.6	6.5	6.8	5.7
No	%	85.9	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	0.0	0.0	9.8	5.5	5.6
Missing	%	1.1	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1322	6401	8494	23070	37965
Yes	%	6.7	2.5	5.0	5.8	5.0
No	%	88.5	97.0	75.2	72.7	77.4
Not Known	%	4.2	0.1	12.3	13.4	10.9
Missing	%	0.6	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1322	6401	8494	23070	37965
Yes	%	5.6	1.3	6.9	5.7	5.2
No	%	87.2	98.1	73.2	72.8	77.2
Not Known	%	6.5	0.1	12.4	13.3	10.9
Missing	%	0.7	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1322	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1231	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	93.1	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	11.5	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	1319	6389	7929	21646	35964
Received Enhanced Encounters	N	1297	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	98.3	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	1.8	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	852	6210	7424	17929	31563
Received Enhanced Services	N	736	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhanced services information	%	86.4	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	2.2	1.4	2.2	4.0	3.3

Data Element	Number (N), Mean, or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Progesterone Injections (among women with a prior preterm birth)	N	323	484	867	3380	4731
Yes	%	22.3	3.5	7.4	13.4	11.3
No	%	70.6	89.9	58.6	55.2	59.4
Not known	%	0.3	0.0	15.7	18.0	15.7
Missing	%	6.8	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	1217	6337	6825	19298	32460
Number of Babies Born	N	1256	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1193	6256	7939	21160	35355
Yes	%	37.2	16.1	23.8	19.4	19.8
No	%	53.2	81.7	38.3	35.1	44.0
Not known	%	1.3	0.5	24.8	28.8	22.9
Missing	%	8.3	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1322	6401	8494	23070	37965
Vaginal delivery	%	65.4	86.0	54.0	51.9	58.1
C-Section	%	26.0	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.5	0.0	0.1	0.2	0.1
Missing	%	8.2	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	85.9	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	209	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	23.0	28.8	23.6	16.4	18.9
Repeat C-Section	%	77.5	71.2	76.4	83.7	81.2
Scheduled C-Section	N	350	820	1873	5597	8290
Yes	%	36.6	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1208	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	22.1	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	77.8	94.4	81.4	81.0	83.9
Missing	%	0.1	0.3	7.4	4.8	4.4
Infant Birthweight	N	1208	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	22.1	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	77.2	94.2	84.9	82.4	85.3
Missing	%	0.7	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	UAB (Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	1092	5149	5684	15106	25939
Yes	%	53.4	83.6	57.5	63.4	66.1
No	%	22.3	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.0	0.7	5.9	2.5	2.9
Missing	%	24.3	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	98.8	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	1092	5149	5684	15106	25939
Yes	%	72.3	69.5	57.2	72.3	68.4
No	%	2.6	18.1	10.7	11.7	12.7
Unsure	%	0.3	2.7	5.9	2.4	3.2
Missing	%	24.9	9.7	26.2	13.6	15.6

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 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. In October 2016, the Medicaid agency submitted 2014 and 2015 data files. Following this submission, the Urban evaluation team began merging the datasets. However, the match rate for the merger was very low, requiring additional back and forth with the Medicaid agency to resolve the problem. In March 2017, Medicaid approved submission of additional variables to help with the matching process. In May 2017, ADPH submitted 2016 birth certificate data. The evaluation team is now waiting on 2016 Medicaid data and Medicaid comparison group data, which is expected by the end of September 2017. This information is the same as described for the University of South Alabama, also located in Alabama.

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 and is responsible for managing all external grants and contracts at the university. UKRF implemented Group Prenatal Care, specifically the CenteringPregnancy approach. At the end of the Strong Start award, the awardee was operating five sites across the state, including two at University of Kentucky 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. The Polk Dalton site included specialized groups for the Hispanic population and for women with opioid use disorder (called PATHWAY), the latter which did not strictly follow the Centering model. UKRF ended enrollment in March 2016, and the last Strong Start deliveries occurred in September 2016. Total enrollment in the program was 696 women.

One UKRF site is continuing Group Prenatal Care in the post Strong Start environment, while others are not. The Polk Dalton site sustained the PATHWAY Group Prenatal Care program and continues to offer group care for the Hispanic population, but nonspecialized groups have not continued. The site also has added a “Beyond Birth” group for women who have completed PATHWAY program; this new program offers therapy and 12-step groups up to one year postpartum. No other sites will sustain Group Prenatal Care, in part because the rural counties’ prenatal care practices were recently purchased by a Federally Qualified Health Center network that was not interested in continuing Group Prenatal Care.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, University of Kentucky Research Foundation (UKRF) had Intake Forms for 100.0 percent of participants enrolled through Quarter 4 2016 (696 Intake Forms for 696 participants). In addition, UKRF submitted 381 Third Trimester Surveys, 292 Postpartum Surveys, and 640 Exit Forms. Tables 1 through 7 present data collected on UKRF’s participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from UKRF.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	696	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	544	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	696	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	100.0	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	381	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	54.7	64.7	51.6	58.4	57.9

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Postpartum Surveys Received through Q4 2016	N	292	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	42.0	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	640	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	92.0	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	696	7407	9821	25353	42581
Less than 18 years of age	%	5.2	2.7	6.9	5.5	5.3
18 through 19 years of age	%	11.9	6.4	12.4	9.5	9.6
20 through 34 years of age	%	73.0	81.4	71.7	74.4	75
35 years and older	%	6.6	9.1	7.4	9.6	9.0
Missing	%	3.3	0.4	1.6	1.0	1.1
Race and Ethnicity	N	696	7407	9821	25353	42581
Hispanic	%	32.5	25.0	36.3	27.7	29.2
White	%	49.6	52.9	12.4	22.0	25.2
Black	%	12.2	16.0	44.1	44.4	39.4
Other race or multiple races	%	3.9	5.3	5.0	4.2	4.6
Missing	%	1.9	0.8	2.3	1.7	1.7
Employed at Intake	N	696	7407	9821	25353	42581
Yes	%	32.3	41.6	34.3	39.3	38.6
No	%	66.4	57.1	61.3	58.8	59.1
Missing	%	1.3	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	696	7407	9821	25353	42581
Yes	%	5.7	1.3	1.8	1.5	1.5
Missing	%	94.3	98.7	98.2	98.5	98.5
Education Level at Intake	N	696	7407	9821	25353	42581
Less than high school	%	0.0	13.2	22.2	23.7	21.5
High school graduate or GED	%	49.3	52.6	47.8	49.9	49.9
Bachelor's degree	%	2.9	11.2	3.1	2.9	4.4
Other college degree(s)	%	6.2	12.5	6.9	6.2	7.5
Missing	%	41.7	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	696	7407	9821	25353	42581
Married, living with spouse	%	27.0	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.0	1.7	1.8	2.0	1.9
Living with a partner	%	37.5	32.7	31.3	30.3	30.9
In a relationship but not living together	%	19.0	14.6	23.5	29.0	25.2
Not in a relationship right now	%	12.9	9.9	17.2	18.0	16.4
Missing	%	1.6	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	696	7407	9821	25353	42581
Yes	%	32.8	9.7	8.1	12.4	10.9
No	%	67.2	81.0	71.9	81.6	79.3
Missing	%	0.0	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	696	7407	9821	25353	42581
Yes	%	27.9	17.2	19.0	16.5	17.2
No	%	64.2	76.7	64.6	74.5	72.6
Missing*	%	7.9	6.1	16.5	9.0	10.2

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exhibiting Depressive Symptoms at Intake**	N	696	7407	9821	25353	42581
Yes	%	32.5	20.8	23.9	21.6	22.0
No	%	54.5	68.7	53.0	67.0	64.1
Missing*	%	13.1	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	696	7407	9821	25353	42581
Yes	%	24.6	20.0	15.4	18.7	18.2
No	%	70.8	78.0	75.0	77.0	76.7
Missing*	%	4.6	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	398	3878	4458	14417	22753
<18 months	%	23.4	29.8	17.5	21.7	22.4
≥18 months	%	50.0	51.2	50.8	55.7	54.0
Missing	%	26.6	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	398	3878	4458	14417	22753
Yes	%	7.3	9.3	10.9	16.2	14.0
No	%	92.7	88.6	74.5	68.8	73.3
Not Known	%	0.0	0.3	8.7	6.8	6.0
Missing	%	0.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	398	3878	4458	14417	22753
Yes	%	3.5	1.6	8.5	12.6	9.9
No	%	0.0	96.1	64.0	67.4	71.6
Not Known	%	0.0	0.3	12.4	11.1	9.5
Missing	%	96.5	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	640	6401	8494	23070	37965
Yes	%	0.0	0.2	2.4	1.1	1.2
No	%	0.0	99.4	65.4	83.9	82.4
Not Known	%	100.0	0.0	25.0	7.5	10.2
Missing	%	0.0	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	640	6401	8494	23070	37965
Yes	%	1.6	0.3	3.8	2.1	2.2
No	%	96.1	99.3	76.3	84.6	85.2
Not Known	%	0.0	0.0	12.6	5.7	6.3
Missing	%	2.3	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	640	6401	8494	23070	37965
Yes	%	0.9	0.6	6.5	6.8	5.7
No	%	98.8	99.0	76.3	80.3	82.5
Not Known	%	0.0	0.0	9.8	5.5	5.6
Missing	%	0.3	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	640	6401	8494	23070	37965
Yes	%	4.7	2.5	5.0	5.8	5.0
No	%	93.0	97.0	75.2	72.7	77.4
Not Known	%	0.0	0.1	12.3	13.4	10.9
Missing	%	2.3	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	640	6401	8494	23070	37965
Yes	%	2.2	1.3	6.9	5.7	5.2
No	%	95.5	98.1	73.2	72.8	77.2
Not Known	%	0.0	0.1	12.4	13.3	10.9
Missing	%	2.3	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	640	6401	8494	23070	37965
Received Individual Prenatal Visits	N	0	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	NA	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	454	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	70.9	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	7.6	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	640	6389	7929	21646	35964
Received Enhanced Encounters	N	0	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	0.0	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	NA	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	640	6210	7424	17929	31563
Received Enhanced Services	N	0	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	0.0	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	NA	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	80	484	867	3380	4731
Yes	%	7.5	3.5	7.4	13.4	11.3
No	%	11.2	89.9	58.6	55.2	59.4
Not known	%	0.0	0.0	15.7	18.0	15.7
Missing	%	81.2	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	511	6337	6825	19298	32460
Number of Babies Born	N	517	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	640	6256	7939	21160	35355
Yes	%	0.0	16.1	23.8	19.4	19.8
No	%	0.0	81.7	38.3	35.1	44.0
Not known	%	100.0	0.5	24.8	28.8	22.9
Missing	%	0	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	640	6401	8494	23070	37965
Vaginal delivery	%	55.0	86.0	54.0	51.9	58.1
C-Section	%	14.1	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	30.9	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	83.1	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	12	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	100.0	28.8	23.6	16.4	18.9
Repeat C-Section	%	0.0	71.2	76.4	83.7	81.2
Scheduled C-Section	N	90	820	1873	5597	8290
Yes	%	0.0	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	516	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	10.5	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	89.1	94.4	81.4	81.0	83.9
Missing	%	0.4	0.3	7.4	4.8	4.4
Infant Birthweight	N	516	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	9.9	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	85.9	94.2	84.9	82.4	85.3
Missing	%	4.3	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	292	5149	5684	15106	25939
Yes	%	71.9	83.6	57.5	63.4	66.1
No	%	0.0	7.0	10.9	21.4	16.3
Prefer not to answer	%	28.1	0.7	5.9	2.5	2.9
Missing	%	0.0	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	95.0	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	UKRF (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	292	5149	5684	15106	25939
Yes	%	87.0	69.5	57.2	72.3	68.4
No	%	0.0	18.1	10.7	11.7	12.7
Unsure	%	13.0	2.7	5.9	2.4	3.2
Missing	%	0.0	9.7	26.2	13.6	15.6

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 2016. After several months of drafting a DUA, DMAS sent a draft DUA to Urban in August 2016. A fully executed DUA was in place by November 2016. However, following the DUA, the Medicaid agency's privacy officer raised additional concerns about consumer privacy and the idea of linking their data with birth certificates. Several conversations occurred with the Medicaid Privacy Officer in an attempt to resolve the issue, but in June 2017 the agency informed the evaluation team that they would not be able to provide the requested data. The evaluation team made one final attempt to request and obtain aggregate data measures, but was unsuccessful. At the time of this writing, it appears that KY data will not be included in the final year's impact analysis.

University of Puerto Rico

CASE STUDY

The **University of Puerto Rico Medical Sciences Campus (UPR)** implemented Group Prenatal Care (and specifically the CenteringPregnancy model) under Strong Start. 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. UPR ended enrollment in February 2016, and the last Strong Start deliveries occurred in September 2016. Total enrollment in the program was 928 women.

UPR has sustained the Group Prenatal Care program it began under Strong Start in its entirety and has adopted Group Prenatal Care its standard model of care for all pregnant patients. UPR became a Centering Healthcare Institute (CHI)-certified provider in November 2016. At the time of the Year 4 case study interviews, UPR was running 32 separate prenatal care groups. The awardee is supporting two nurses to coordinate and co-facilitate group sessions using funding UPR received to address the Zika epidemic. UPR continues to offer specialized groups for women with HIV, women with diabetes, and women affected by Zika, and has added a group for women with rheumatoid diseases.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, University of Puerto Rico (UPR) had Intake Forms for 97.8 percent of participants enrolled through Quarter 4 2016 (908 Intake Forms for 928 participants). In addition, UPR submitted 599 Third Trimester Surveys, 414 Postpartum Surveys, and 742 Exit Forms. Tables 1 through 7 present data collected on UPR's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from UPR.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	928	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	689	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	908	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	97.8	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	599	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	64.5	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	414	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	44.6	60.6	50.1	57.8	56.4

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms Received through Q4 2016	N	742	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	80.0	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	908	7407	9821	25353	42581
Less than 18 years of age	%	7.4	2.7	6.9	5.5	5.3
18 through 19 years of age	%	10.1	6.4	12.4	9.5	9.6
20 through 34 years of age	%	68.3	81.4	71.7	74.4	75
35 years and older	%	14.2	9.1	7.4	9.6	9.0
Missing	%	0.0	0.4	1.6	1.0	1.1
Race and Ethnicity	N	908	7407	9821	25353	42581
Hispanic	%	96.0	25.0	36.3	27.7	29.2
White	%	1.8	52.9	12.4	22.0	25.2
Black	%	0.3	16.0	44.1	44.4	39.4
Other race or multiple races	%	0.0	5.3	5.0	4.2	4.6
Missing	%	1.9	0.8	2.3	1.7	1.7
Employed at Intake	N	908	7407	9821	25353	42581
Yes	%	27.1	41.6	34.3	39.3	38.6
No	%	71.4	57.1	61.3	58.8	59.1
Missing	%	1.5	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	908	7407	9821	25353	42581
Yes	%	3.4	1.3	1.8	1.5	1.5
Missing	%	96.6	98.7	98.2	98.5	98.5
Education Level at Intake	N	908	7407	9821	25353	42581
Less than high school	%	7.8	13.2	22.2	23.7	21.5
High school graduate or GED	%	35.7	52.6	47.8	49.9	49.9
Bachelor's degree	%	5.7	11.2	3.1	2.9	4.4
Other college degree(s)	%	20.6	12.5	6.9	6.2	7.5
Missing	%	30.2	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	908	7407	9821	25353	42581
Married, living with spouse	%	19.1	39.8	16.6	18.2	21.6
Married, not living with spouse	%	1.4	1.7	1.8	2.0	1.9
Living with a partner	%	44.4	32.7	31.3	30.3	30.9
In a relationship but not living together	%	17.3	14.6	23.5	29.0	25.2
Not in a relationship right now	%	14.0	9.9	17.2	18.0	16.4
Missing	%	3.9	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	908	7407	9821	25353	42581
Yes	%	2.8	9.7	8.1	12.4	10.9
No	%	85.6	81.0	71.9	81.6	79.3
Missing	%	11.7	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	908	7407	9821	25353	42581
Yes	%	23.1	17.2	19.0	16.5	17.2
No	%	66.4	76.7	64.6	74.5	72.6
Missing*	%	10.5	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	908	7407	9821	25353	42581
Yes	%	25.6	20.8	23.9	21.6	22.0
No	%	46.5	68.7	53.0	67.0	64.1
Missing*	%	27.9	10.5	23.1	11.3	13.9

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Have Experienced Intimate Partner Violence in a Relationship***	N	908	7407	9821	25353	42581
Yes	%	14.5	20.0	15.4	18.7	18.2
No	%	82.9	78.0	75.0	77.0	76.7
Missing*	%	2.6	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Inter-Pregnancy Interval with Current Pregnancy Since Last Birth	N	456	3878	4458	14417	22753
<18 months	%	25.0	29.8	17.5	21.7	22.4
≥18 months	%	55.3	51.2	50.8	55.7	54.0
Missing	%	19.7	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	456	3878	4458	14417	22753
Yes	%	7.2	9.3	10.9	16.2	14.0
No	%	54.8	88.6	74.5	68.8	73.3
Not Known	%	37.7	0.3	8.7	6.8	6.0
Missing	%	0.2	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	456	3878	4458	14417	22753
Yes	%	2.0	1.6	8.5	12.6	9.9
No	%	59.0	96.1	64.0	67.4	71.6
Not Known	%	38.8	0.3	12.4	11.1	9.5
Missing	%	0.2	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	742	6401	8494	23070	37965
Yes	%	4.6	0.2	2.4	1.1	1.2
No	%	93.8	99.4	65.4	83.9	82.4
Not Known	%	1.2	0.0	25.0	7.5	10.2
Missing	%	0.4	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	742	6401	8494	23070	37965
Yes	%	9.4	0.3	3.8	2.1	2.2
No	%	88.9	99.3	76.3	84.6	85.2
Not Known	%	1.2	0.0	12.6	5.7	6.3
Missing	%	0.4	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	742	6401	8494	23070	37965
Yes	%	14.0	0.6	6.5	6.8	5.7
No	%	84.8	99.0	76.3	80.3	82.5
Not Known	%	0.9	0.0	9.8	5.5	5.6
Missing	%	0.3	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	742	6401	8494	23070	37965
Yes	%	9.2	2.5	5.0	5.8	5.0
No	%	90.2	97.0	75.2	72.7	77.4
Not Known	%	0.3	0.1	12.3	13.4	10.9
Missing	%	0.4	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	742	6401	8494	23070	37965
Yes	%	5.7	1.3	6.9	5.7	5.2
No	%	93.5	98.1	73.2	72.8	77.2
Not Known	%	0.3	0.1	12.4	13.3	10.9
Missing	%	0.5	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	742	6401	8494	23070	37965
Received Individual Prenatal Visits	N	728	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	98.1	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	3.3	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	739	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	99.6	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	7.2	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	740	6389	7929	21646	35964
Received Enhanced Encounters	N	33	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	4.5	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	1.1	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	740	6210	7424	17929	31563
Received Enhanced Services	N	36	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	4.9	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.1	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	151	484	867	3380	4731
Yes	%	2.6	3.5	7.4	13.4	11.3
No	%	84.8	89.9	58.6	55.2	59.4
Not known	%	6.0	0.0	15.7	18.0	15.7
Missing	%	6.6	6.6	18.3	13.3	13.5

Data Element	Number (N), Mean, or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Birth Information	N	699	6337	6825	19298	32460
Number of Babies Born	N	732	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	591	6256	7939	21160	35355
Yes	%	30.3	16.1	23.8	19.4	19.8
No	%	55.2	81.7	38.3	35.1	44.0
Not known	%	6.9	0.5	24.8	28.8	22.9
Missing	%	7.6	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	742	6401	8494	23070	37965
Vaginal delivery	%	50.1	86.0	54.0	51.9	58.1
C-Section	%	43.5	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	6.3	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	72.7	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	208	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	18.8	28.8	23.6	16.4	18.9
Repeat C-Section	%	81.2	71.2	76.4	83.7	81.2
Scheduled C-Section	N	323	820	1873	5597	8290
Yes	%	46.4	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	695	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	22.3	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	76.5	94.4	81.4	81.0	83.9
Missing	%	1.2	0.3	7.4	4.8	4.4
Infant Birthweight	N	695	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	20.0	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	76.8	94.2	84.9	82.4	85.3
Missing	%	3.2	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	414	5149	5684	15106	25939
Yes	%	71.3	83.6	57.5	63.4	66.1
No	%	24.4	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.5	0.7	5.9	2.5	2.9
Missing	%	3.9	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	90.7	100.1	100.9	99.7	99.9

Data Element	Number (N) or %	UPR (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Had Birth Control Counseling After Delivery	N	414	5149	5684	15106	25939
Yes	%	54.6	69.5	57.2	72.3	68.4
No	%	39.1	18.1	10.7	11.7	12.7
Unsure	%	1.4	2.7	5.9	2.4	3.2
Missing	%	4.8	9.7	26.2	13.6	15.6

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

TECHNICAL ASSISTANCE

Although Puerto Rico had not been an intended target for the impacts analysis, the evaluation team did inquire about the possibility of working with the Puerto Rico vital records agency to acquire birth certificate data. The agency did not reply to repeated attempts, however, and no more efforts were made to obtain data.

University of South Alabama

CASE STUDY

The **University of South Alabama (USA)** Department of Obstetrics and Gynecology operated four Maternity Care Home (MCH) sites in Mobile County, Alabama. Sites included two USA OB/GYN clinics and two Federally Qualified Health Centers—the Mobile County Health Department and Mostellar Medical Center. Strong Start’s MCH model consisted of a nutritionist, clinical coordinator, and social worker who each met with participants upon entry into prenatal care to discuss healthy diet options and provide referrals to social supports. Strong Start staff also conducted a follow-up phone call with participants (usually late in the second or early in the third trimester) to answer additional questions and ensure that participants accessed needed resources. The model complements an existing enhanced prenatal care initiative (MOMCare) available to all Medicaid participants. USA ended enrollment in May 2016, and the last Strong Start deliveries occurred in September 2016. Total enrollment in the program was 1,580 women.

USA has discontinued Strong Start services because of lack of external funding. At the time of the Year 4 case study interviews, the main Strong Start staff had already moved on to different positions. USA providers plan to continue and expand the use of the Edinburgh Postnatal Depression Scale (EPDS) and the Drug Abuse Screening Test (DAST-10) forms to other nonpregnant populations. Key informants credited the Strong Start program with spurring USA providers to begin using these screening tools.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, University of South Alabama (USA) had Intake Forms for 99.2 percent of participants enrolled through Quarter 4 2016 (1,567 Intake Forms for 1,580 participants). In addition, USA submitted 874 Third Trimester Surveys, 817 Postpartum Surveys, and 1,456 Exit Forms. Tables 1 through 7 present data collected on USA’s participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from USA.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1580	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1101	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1567	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	99.2	87.1	86.5	97.1	92.6
Third Trimester Surveys Received through Q4 2016	N	874	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	55.3	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	817	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	51.7	60.6	50.1	57.8	56.4

Data Element	Number (N) or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms Received through Q4 2016	N	1456	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	92.2	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (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	1567	7407	9821	25353	42581
Less than 18 years of age	%	7.8	2.7	6.9	5.5	5.3
18 through 19 years of age	%	11.4	6.4	12.4	9.5	9.6
20 through 34 years of age	%	68.5	81.4	71.7	74.4	75
35 years and older	%	5.2	9.1	7.4	9.6	9.0
Missing	%	7.1	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1567	7407	9821	25353	42581
Hispanic	%	1.7	25.0	36.3	27.7	29.2
White	%	34.0	52.9	12.4	22.0	25.2
Black	%	60.1	16.0	44.1	44.4	39.4
Other race or multiple races	%	3.6	5.3	5.0	4.2	4.6
Missing	%	0.6	0.8	2.3	1.7	1.7
Employed at Intake	N	1567	7407	9821	25353	42581
Yes	%	39.2	41.6	34.3	39.3	38.6
No	%	58.6	57.1	61.3	58.8	59.1
Missing	%	2.2	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1567	7407	9821	25353	42581
Yes	%	1.2	1.3	1.8	1.5	1.5
Missing	%	98.8	98.7	98.2	98.5	98.5
Education Level at Intake	N	1567	7407	9821	25353	42581
Less than high school	%	26.0	13.2	22.2	23.7	21.5
High school graduate or GED	%	54.6	52.6	47.8	49.9	49.9
Bachelor's degree	%	1.6	11.2	3.1	2.9	4.4
Other college degree(s)	%	7.6	12.5	6.9	6.2	7.5
Missing	%	10.3	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1567	7407	9821	25353	42581
Married, living with spouse	%	12.0	39.8	16.6	18.2	21.6
Married, not living with spouse	%	3.4	1.7	1.8	2.0	1.9
Living with a partner	%	26.2	32.7	31.3	30.3	30.9
In a relationship but not living together	%	30.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	23.8	9.9	17.2	18.0	16.4
Missing	%	4.3	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	1567	7407	9821	25353	42581
Yes	%	20.1	9.7	8.1	12.4	10.9
No	%	72.1	81.0	71.9	81.6	79.3
Missing	%	7.8	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1567	7407	9821	25353	42581
Yes	%	16.0	17.2	19.0	16.5	17.2
No	%	69.0	76.7	64.6	74.5	72.6
Missing*	%	15.0	6.1	16.5	9.0	10.2

Data Element	Number (N) or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exhibiting Depressive Symptoms at Intake**	N	1567	7407	9821	25353	42581
Yes	%	28.3	20.8	23.9	21.6	22.0
No	%	57.6	68.7	53.0	67.0	64.1
Missing*	%	14.1	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1567	7407	9821	25353	42581
Yes	%	16.0	20.0	15.4	18.7	18.2
No	%	82.1	78.0	75.0	77.0	76.7
Missing*	%	1.9	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	861	3878	4458	14417	22753
<18 months	%	26.9	29.8	17.5	21.7	22.4
≥18 months	%	54.9	51.2	50.8	55.7	54.0
Missing	%	18.1	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	861	3878	4458	14417	22753
Yes	%	30.9	9.3	10.9	16.2	14.0
No	%	67.1	88.6	74.5	68.8	73.3
Not Known	%	1.0	0.3	8.7	6.8	6.0
Missing	%	0.9	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	861	3878	4458	14417	22753
Yes	%	21.4	1.6	8.5	12.6	9.9
No	%	70.7	96.1	64.0	67.4	71.6
Not Known	%	5.8	0.3	12.4	11.1	9.5
Missing	%	2.1	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1456	6401	8494	23070	37965
Yes	%	1.4	0.2	2.4	1.1	1.2
No	%	94.2	99.4	65.4	83.9	82.4
Not Known	%	1.4	0.0	25.0	7.5	10.2
Missing	%	2.9	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1456	6401	8494	23070	37965
Yes	%	1.2	0.3	3.8	2.1	2.2
No	%	94.5	99.3	76.3	84.6	85.2
Not Known	%	1.4	0.0	12.6	5.7	6.3
Missing	%	2.9	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1456	6401	8494	23070	37965
Yes	%	11.1	0.6	6.5	6.8	5.7
No	%	84.5	99.0	76.3	80.3	82.5
Not Known	%	1.5	0.0	9.8	5.5	5.6
Missing	%	3.0	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1456	6401	8494	23070	37965
Yes	%	4.2	2.5	5.0	5.8	5.0
No	%	76.4	97.0	75.2	72.7	77.4
Not Known	%	18.9	0.1	12.3	13.4	10.9
Missing	%	0.5	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1456	6401	8494	23070	37965
Yes	%	5.4	1.3	6.9	5.7	5.2
No	%	75.3	98.1	73.2	72.8	77.2
Not Known	%	18.8	0.1	12.4	13.3	10.9
Missing	%	0.5	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1456	6401	8494	23070	37965
Received Individual Prenatal Visits	N	1067	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	73.3	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	9.6	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	116	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	8.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	5.9	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information¹	N	1455	6389	7929	21646	35964
Received Enhanced Encounters	N	1084	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	74.5	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	2.1	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information²	N	1453	6210	7424	17929	31563
Received Enhanced Services	N	899	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	61.9	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	1.1	1.4	2.2	4.0	3.3

Data Element	Number (N), Mean, or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Progesterone Injections (among women with a prior preterm birth)	N	318	484	867	3380	4731
Yes	%	6.3	3.5	7.4	13.4	11.3
No	%	70.1	89.9	58.6	55.2	59.4
Not known	%	12.6	0.0	15.7	18.0	15.7
Missing	%	11.0	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	1120	6337	6825	19298	32460
Number of Babies Born	N	1144	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1327	6256	7939	21160	35355
Yes	%	24.2	16.1	23.8	19.4	19.8
No	%	49.0	81.7	38.3	35.1	44.0
Not known	%	13.4	0.5	24.8	28.8	22.9
Missing	%	13.4	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1456	6401	8494	23070	37965
Vaginal delivery	%	51.6	86.0	54.0	51.9	58.1
C-Section	%	25.1	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	23.3	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	89.4	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	220	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	9.1	28.8	23.6	16.4	18.9
Repeat C-Section	%	90.9	71.2	76.4	83.7	81.2
Scheduled C-Section	N	366	820	1873	5597	8290
Yes	%	35.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	1127	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	17.0	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	79.6	94.4	81.4	81.0	83.9
Missing	%	3.4	0.3	7.4	4.8	4.4
Infant Birthweight	N	1127	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	14.7	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	85.2	94.2	84.9	82.4	85.3
Missing	%	0.1	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	USA (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	817	5149	5684	15106	25939
Yes	%	46.3	83.6	57.5	63.4	66.1
No	%	26.1	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.4	0.7	5.9	2.5	2.9
Missing	%	27.3	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	101.1	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	817	5149	5684	15106	25939
Yes	%	69.6	69.5	57.2	72.3	68.4
No	%	2.7	18.1	10.7	11.7	12.7
Unsure	%	0.2	2.7	5.9	2.4	3.2
Missing	%	27.4	9.7	26.2	13.6	15.6

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 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. In October 2016, the Medicaid agency submitted 2014 and 2015 data files. Following this submission, the Urban evaluation team began merging the datasets. However, the match rate for the merger was very low, requiring additional back and forth with the Medicaid agency to resolve the problem. In March 2017, Medicaid approved submission of additional variables to help with the matching process. In May 2017, ADPH submitted 2016 birth certificate data. The evaluation team is now waiting on 2016 Medicaid data and Medicaid comparison group data, which is expected by the end of September 2017. This information is the same as described for the University of Alabama at Birmingham (UAB) awardee, also located in Alabama.

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 while the Regional One Health Outpatient Center 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 enabled the continuation and expansion of Group Prenatal Care at both sites, which has operated groups following a modified version of CenteringPregnancy since 2005. Strong Start was used to fund new staff that included a program manager, group facilitators, and a high-risk patient coordinator who focused on improving data collection and program management. Strong Start's "value addition" to the preexisting Group Prenatal Care program was case management services whereby facilitators linked participants to psychosocial services and community resources. UTHSC ended enrolled at the end of June 2016, and the last Strong Start deliveries were expected to occur in October 2016. Total enrollment in the program was 691 women.

UTHSC planned to sustain Group Prenatal Care at one or more sites (including possibly expanding to a third site that did not participate in Strong Start) at the time of the Year 4 case study interviews. However, key informants were not sure whether they would continue the enhancements added with Strong Start funding, which permitted them serve a high-risk population through Group Prenatal Care. UTHSC anticipated modifying its targeted patient population; rather than providing Group Prenatal Care to Medicaid beneficiaries, staff now planned to target medically low-risk, younger nulliparous women with all coverage types.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, University of Tennessee Health Sciences Center (UTHSC) had Intake Forms for 105.1 percent of participants enrolled through Quarter 4 2016 (726 Intake Forms for 691 participants). In addition, UTHSC submitted 716 Third Trimester Surveys, 714 Postpartum Surveys, and 713 Exit Forms. Tables 1 through 7 present data collected on UTHSC's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from UTHSC.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	691	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	299	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	726	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	105.1*	87.1	86.5	97.1	92.6

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	716	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	103.6*	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	714	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	103.3*	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	713	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	103.2*	75.3	74.8	88.3	82.6

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated.
Cells that contain one asterisk (*) indicate that enrollment totals reported on program monitoring reports are the denominator for form receipt and may differ slightly from what awardees have reported in their PLPE data, resulting in percentages <100 percent.

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	726	7407	9821	25353	42581
Less than 18 years of age	%	13.8	2.7	6.9	5.5	5.3
18 through 19 years of age	%	18.3	6.4	12.4	9.5	9.6
20 through 34 years of age	%	64.3	81.4	71.7	74.4	75
35 years and older	%	2.9	9.1	7.4	9.6	9.0
Missing	%	0.7	0.4	1.6	1.0	1.1
Race and Ethnicity	N	726	7407	9821	25353	42581
Hispanic	%	1.1	25.0	36.3	27.7	29.2
White	%	1.7	52.9	12.4	22.0	25.2
Black	%	89.3	16.0	44.1	44.4	39.4
Other race or multiple races	%	0.3	5.3	5.0	4.2	4.6
Missing	%	7.7	0.8	2.3	1.7	1.7
Employed at Intake	N	726	7407	9821	25353	42581
Yes	%	22.7	41.6	34.3	39.3	38.6
No	%	66.0	57.1	61.3	58.8	59.1
Missing	%	11.3	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	726	7407	9821	25353	42581
Yes	%	0.8	1.3	1.8	1.5	1.5
Missing	%	99.2	98.7	98.2	98.5	98.5
Education Level at Intake	N	726	7407	9821	25353	42581
Less than high school	%	18.9	13.2	22.2	23.7	21.5
High school graduate or GED	%	54.5	52.6	47.8	49.9	49.9
Bachelor's degree	%	0.7	11.2	3.1	2.9	4.4
Other college degree(s)	%	1.8	12.5	6.9	6.2	7.5
Missing	%	24.1	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	726	7407	9821	25353	42581
Married, living with spouse	%	3.9	39.8	16.6	18.2	21.6
Married, not living with spouse	%	0.1	1.7	1.8	2.0	1.9
Living with a partner	%	12.9	32.7	31.3	30.3	30.9
In a relationship but not living together	%	21.1	14.6	23.5	29.0	25.2
Not in a relationship right now	%	10.6	9.9	17.2	18.0	16.4
Missing	%	51.4	1.3	9.5	2.6	4.0
Smokes Cigarettes at Intake	N	726	7407	9821	25353	42581
Yes	%	2.6	9.7	8.1	12.4	10.9

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
No	%	16.3	81.0	71.9	81.6	79.3
Missing	%	81.1	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	726	7407	9821	25353	42581
Yes	%	7.4	17.2	19.0	16.5	17.2
No	%	39.8	76.7	64.6	74.5	72.6
Missing*	%	52.8	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	726	7407	9821	25353	42581
Yes	%	13.1	20.8	23.9	21.6	22.0
No	%	31.4	68.7	53.0	67.0	64.1
Missing*	%	55.5	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	726	7407	9821	25353	42581
Yes	%	5.8	20.0	15.4	18.7	18.2
No	%	46.3	78.0	75.0	77.0	76.7
Missing*	%	48.0	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (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	355	3878	4458	14417	22753
<18 months	%	0.0	29.8	17.5	21.7	22.4
≥18 months	%	0.3	51.2	50.8	55.7	54.0
Missing	%	99.7	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	355	3878	4458	14417	22753
Yes	%	8.7	9.3	10.9	16.2	14.0
No	%	48.5	88.6	74.5	68.8	73.3
Not Known	%	19.4	0.3	8.7	6.8	6.0
Missing	%	23.4	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	355	3878	4458	14417	22753
Yes	%	8.5	1.6	8.5	12.6	9.9
No	%	48.2	96.1	64.0	67.4	71.6
Not Known	%	19.4	0.3	12.4	11.1	9.5
Missing	%	23.9	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	713	6401	8494	23070	37965
Yes	%	1.5	0.2	2.4	1.1	1.2
No	%	49.4	99.4	65.4	83.9	82.4
Not Known	%	13.3	0.0	25.0	7.5	10.2
Missing	%	35.8	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	713	6401	8494	23070	37965
Yes	%	6.7	0.3	3.8	2.1	2.2
No	%	44.2	99.3	76.3	84.6	85.2
Not Known	%	13.2	0.0	12.6	5.7	6.3
Missing	%	35.9	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	713	6401	8494	23070	37965
Yes	%	6.2	0.6	6.5	6.8	5.7
No	%	41.7	99.0	76.3	80.3	82.5

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	13.3	0.0	9.8	5.5	5.6
Missing	%	38.8	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	713	6401	8494	23070	37965
Yes	%	1.0	2.5	5.0	5.8	5.0
No	%	48.4	97.0	75.2	72.7	77.4
Not Known	%	15.8	0.1	12.3	13.4	10.9
Missing	%	34.8	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	713	6401	8494	23070	37965
Yes	%	8.0	1.3	6.9	5.7	5.2
No	%	40.7	98.1	73.2	72.8	77.2
Not Known	%	15.7	0.1	12.4	13.3	10.9
Missing	%	35.6	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	713	6401	8494	23070	37965
Received Individual Prenatal Visits	N	0	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	NA	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	0	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	0.0	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	NA	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	456	6389	7929	21646	35964
Received Enhanced Encounters	N	69	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	15.1	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	3.0	3.9	2.4	4.8	4.4
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	455	6210	7424	17929	31563
Received Enhanced Services	N	60	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhanced services information	%	13.2	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	3.3	1.4	2.2	4.0	3.3

Data Element	Number (N), Mean, or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Received Progesterone Injections (among women with a prior preterm birth)	N	54	484	867	3380	4731
Yes	%	0.0	3.5	7.4	13.4	11.3
No	%	37.0	89.9	58.6	55.2	59.4
Not known	%	29.6	0.0	15.7	18.0	15.7
Missing	%	33.3	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	392	6337	6825	19298	32460
Number of Babies Born	N	393	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	690	6256	7939	21160	35355
Yes	%	14.8	16.1	23.8	19.4	19.8
No	%	20.9	81.7	38.3	35.1	44.0
Not known	%	24.8	0.5	24.8	28.8	22.9
Missing	%	39.6	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	713	6401	8494	23070	37965
Vaginal delivery	%	34.5	86.0	54.0	51.9	58.1
C-Section	%	14.6	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	50.9	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	75.5	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	38	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	13.2	28.8	23.6	16.4	18.9
Repeat C-Section	%	86.8	71.2	76.4	83.7	81.2
Scheduled C-Section	N	104	820	1873	5597	8290
Yes	%	21.2	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	363	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	15.7	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	59.0	94.4	81.4	81.0	83.9
Missing	%	25.3	0.3	7.4	4.8	4.4
Infant Birthweight	N	363	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	10.5	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	59.2	94.2	84.9	82.4	85.3
Missing	%	30.3	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	UTHSC (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	714	5149	5684	15106	25939
Yes	%	14.0	83.6	57.5	63.4	66.1
No	%	6.0	7.0	10.9	21.4	16.3
Prefer not to answer	%	0.1	0.7	5.9	2.5	2.9
Missing	%	79.8	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	102.4	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	714	5149	5684	15106	25939
Yes	%	18.2	69.5	57.2	72.3	68.4
No	%	0.6	18.1	10.7	11.7	12.7
Unsure	%	0.0	2.7	5.9	2.4	3.2
Missing	%	81.2	9.7	26.2	13.6	15.6

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. Following IRB approval, an official data request application was completed in October 2016. In December 2016, the Medicaid agency shared its claims file for Urban to review. At this time the evaluation team also learned that an IRB application with the Medicaid Agency would not be necessary. In January 2017, all parties agreed on a process of sharing, merging, and submitting the requested data files. The team is now awaiting submission of the complete and merged data file from Medicaid, which is expected by the end of August 2017. This information is the same as described for the United Neighborhood Health Services awardee, also located in Tennessee.

Virginia Commonwealth University

CASE STUDY

Virginia Commonwealth University (VCU) is a university health system implementing Group Prenatal Care (the CenteringPregnancy model or Centering) and the Maternity Care Home model. At the end of the Strong Start program, VCU was operating five sites in central and northern Virginia—one site that had implemented only the Maternity Care Home model and four sites that provided both Strong Start models of care.² Typically, women recruited into the Maternity Care Home program had declined to participate in Centering. VCU's Maternity Care Home model varied by site and could include care navigation, care coordination, outreach in housing projects to hard-to-reach women, connection to classes and community services, social worker visits, and consultation with a nutritionist. VCU ended enrollment at the end of September 2016, and the last Strong Start deliveries occurred by the end of December 2016. Total enrollment in the program was 1,465 women.

Since services provided under Strong Start were co-funded with departmental and other revenue streams, key informants reported that all sites were maintaining enhanced prenatal care services in the post-Strong Start environment. The population served for Centering, however, will be smaller since the end of Strong Start funding led to the termination of outreach services to recruit and track Medicaid participants in Group Prenatal Care.

PARTICIPANT-LEVEL PROCESS EVALUATION

The information presented below is based on data submitted from the four evaluation forms through Quarter 4 2016. By December 2016, Virginia Commonwealth University (VCU) had Intake Forms for 99.2 percent of participants enrolled through Quarter 4 2016 (1,604 Intake Forms for 1,617 participants). In addition, VCU submitted 713 Third Trimester Surveys, 1,156 Postpartum Surveys, and 1,602 Exit Forms. Tables 1 through 7 present data collected on VCU's participants with aggregated rates by approach for the purpose of comparison. (Approach totals include data from VCU.)

Table 1. Enrollment and Forms Submitted, through Quarter 4 2016

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Ever Enrolled through Q4 2016	N	1617	8503	11353	26121	45977
Number of Women Delivered through Q4 2016	N	1012	4747	7943	18019	30709
Intake Forms Received through Q4 2016	N	1604	7407	9821	25353	42581
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	99.2	87.1	86.5	97.1	92.6

² Key informants did not agree on the models offered at one site. Some reported that the site was operating both the Maternity Care Home and Group Prenatal Care models while others said that same site was only operating Group Prenatal Care during the award period but considering the addition of care management services.

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Third Trimester Surveys Received through Q4 2016	N	713	5498	5862	15259	26619
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	44.1	64.7	51.6	58.4	57.9
Postpartum Surveys Received through Q4 2016	N	1156	5149	5684	15106	25939
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	71.5	60.6	50.1	57.8	56.4
Exit Forms Received through Q4 2016	N	1602	6401	8494	23070	37965
Received through Q4 2016 as a percentage of the number of women ever enrolled	%	99.1	75.3	74.8	88.3	82.6

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

Table 2. Sociodemographic Risk Factors, through Quarter 4 2016

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Mother's Age at Intake	N	1604	7407	9821	25353	42581
Less than 18 years of age	%	5.7	2.7	6.9	5.5	5.3
18 through 19 years of age	%	11.0	6.4	12.4	9.5	9.6
20 through 34 years of age	%	73.2	81.4	71.7	74.4	75
35 years and older	%	9.7	9.1	7.4	9.6	9.0
Missing	%	0.3	0.4	1.6	1.0	1.1
Race and Ethnicity	N	1604	7407	9821	25353	42581
Hispanic	%	21.1	25.0	36.3	27.7	29.2
White	%	14.2	52.9	12.4	22.0	25.2
Black	%	49.6	16.0	44.1	44.4	39.4
Other race or multiple races	%	9.4	5.3	5.0	4.2	4.6
Missing	%	5.7	0.8	2.3	1.7	1.7
Employed at Intake	N	1604	7407	9821	25353	42581
Yes	%	33.0	41.6	34.3	39.3	38.6
No	%	54.9	57.1	61.3	58.8	59.1
Missing	%	12.0	1.3	4.3	1.9	2.4
Living in Shelter or Homeless at Intake	N	1604	7407	9821	25353	42581
Yes	%	1.3	1.3	1.8	1.5	1.5
Missing	%	98.7	98.7	98.2	98.5	98.5
Education Level at Intake	N	1604	7407	9821	25353	42581
Less than high school	%	18.7	13.2	22.2	23.7	21.5
High school graduate or GED	%	43.3	52.6	47.8	49.9	49.9
Bachelor's degree	%	3.6	11.2	3.1	2.9	4.4
Other college degree(s)	%	6.0	12.5	6.9	6.2	7.5
Missing	%	28.4	10.6	19.9	17.3	16.7
Relationship Status at Intake	N	1604	7407	9821	25353	42581
Married, living with spouse	%	18.5	39.8	16.6	18.2	21.6
Married, not living with spouse	%	2.7	1.7	1.8	2.0	1.9
Living with a partner	%	23.6	32.7	31.3	30.3	30.9
In a relationship but not living together	%	20.2	14.6	23.5	29.0	25.2
Not in a relationship right now	%	18.4	9.9	17.2	18.0	16.4
Missing	%	16.6	1.3	9.5	2.6	4.0

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Smokes Cigarettes at Intake	N	1604	7407	9821	25353	42581
Yes	%	9.6	9.7	8.1	12.4	10.9
No	%	58.2	81.0	71.9	81.6	79.3
Missing	%	32.2	9.3	20.0	6.0	9.8
Food Insecure at Intake	N	1604	7407	9821	25353	42581
Yes	%	20.0	17.2	19.0	16.5	17.2
No	%	51.2	76.7	64.6	74.5	72.6
Missing*	%	28.8	6.1	16.5	9.0	10.2
Exhibiting Depressive Symptoms at Intake**	N	1604	7407	9821	25353	42581
Yes	%	22.4	20.8	23.9	21.6	22.0
No	%	38.5	68.7	53.0	67.0	64.1
Missing*	%	39.0	10.5	23.1	11.3	13.9
Have Experienced Intimate Partner Violence in a Relationship***	N	1604	7407	9821	25353	42581
Yes	%	12.1	20.0	15.4	18.7	18.2
No	%	64.1	78.0	75.0	77.0	76.7
Missing*	%	23.8	2.0	9.5	4.3	5.1

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 4 2016

Data Element	Number (N) or %	VCU (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	853	3878	4458	14417	22753
<18 months	%	21.1	29.8	17.5	21.7	22.4
≥18 months	%	57.7	51.2	50.8	55.7	54.0
Missing	%	21.3	19.0	31.7	22.6	23.7
Previous Preterm Birth(s); 20 < 37 weeks	N	853	3878	4458	14417	22753
Yes	%	13.7	9.3	10.9	16.2	14.0
No	%	75.4	88.6	74.5	68.8	73.3
Not Known	%	10.9	0.3	8.7	6.8	6.0
Missing	%	0.0	1.8	6.0	8.2	6.7
Previous Birth(s) Less than 2,500 grams	N	853	3878	4458	14417	22753
Yes	%	8.1	1.6	8.5	12.6	9.9
No	%	67.8	96.1	64.0	67.4	71.6
Not Known	%	24.2	0.3	12.4	11.1	9.5
Missing	%	0.0	2.1	15.1	8.8	8.9
Pre-Pregnancy Diagnosis of Type I Diabetes	N	1602	6401	8494	23070	37965
Yes	%	0.3	0.2	2.4	1.1	1.2
No	%	0.0	99.4	65.4	83.9	82.4
Not Known	%	99.7	0.0	25.0	7.5	10.2
Missing	%	0.0	0.4	7.1	7.5	6.2
Pre-Pregnancy Diagnosis of Type II Diabetes	N	1602	6401	8494	23070	37965
Yes	%	0.5	0.3	3.8	2.1	2.2
No	%	51.1	99.3	76.3	84.6	85.2

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Not Known	%	48.4	0.0	12.6	5.7	6.3
Missing	%	0.0	0.5	7.3	7.6	6.3
Pre-Pregnancy Diagnosis of Hypertension	N	1602	6401	8494	23070	37965
Yes	%	4.4	0.6	6.5	6.8	5.7
No	%	61.7	99.0	76.3	80.3	82.5
Not Known	%	33.9	0.0	9.8	5.5	5.6
Missing	%	0.0	0.4	7.4	7.5	6.3

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 4 2016

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Gestational Diabetes	N	1602	6401	8494	23070	37965
Yes	%	2.3	2.5	5.0	5.8	5.0
No	%	54.3	97.0	75.2	72.7	77.4
Not Known	%	43.4	0.1	12.3	13.4	10.9
Missing	%	0.0	0.5	7.4	8.2	6.7
Pregnancy-Related Hypertension	N	1602	6401	8494	23070	37965
Yes	%	3.7	1.3	6.9	5.7	5.2
No	%	52.9	98.1	73.2	72.8	77.2
Not Known	%	43.4	0.1	12.4	13.3	10.9
Missing	%	0.0	0.5	7.5	8.2	6.7

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 4 2016

Data Element	Number (N), Mean, or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Exit Forms with Valid Prenatal Visit Information	N	1602	6401	8494	23070	37965
Received Individual Prenatal Visits	N	947	6330	5675	18030	30035
Received individual prenatal visits as a percentage of exit forms with valid prenatal visit information	%	59.1	98.9	66.8	78.2	79.1
Mean number of individual prenatal visits per participant	Mean	7.5	11.0	5.3	9.5	9.0
Received Group Prenatal Visits	N	828	132	6217	347	6696
Received group prenatal visits as a percentage of exit forms with valid prenatal visit information	%	51.7	2.1	73.2	1.5	17.6
Mean number of group prenatal visits per participant	Mean	4.5	6.9	6.0	5.0	6.0
Total Number of Exit Forms with Valid Enhanced Encounter Information ¹	N	1602	6389	7929	21646	35964
Received Enhanced Encounters	N	246	5800	2735	18486	27021
Received enhanced encounters as a percentage of exit forms with valid enhanced encounter information	%	15.4	90.8	34.5	85.4	75.1
Mean number of enhanced encounters per participant	Mean	3.0	3.9	2.4	4.8	4.4

Data Element	Number (N), Mean, or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Total Number of Exit Forms with Valid Enhanced Services Information ²	N	1602	6210	7424	17929	31563
Received Enhanced Services	N	0	1768	1183	6422	9373
Received enhanced services as a percentage of exit forms with valid enhances services information	%	0.0	28.5	15.9	35.8	29.7
Mean number of enhanced services per participant	Mean	NA	1.4	2.2	4.0	3.3
Received Progesterone Injections (among women with a prior preterm birth)	N	126	484	867	3380	4731
Yes	%	5.6	3.5	7.4	13.4	11.3
No	%	38.1	89.9	58.6	55.2	59.4
Not known	%	56.3	0.0	15.7	18.0	15.7
Missing	%	0.0	6.6	18.3	13.3	13.5
Total Number of Exit Forms with Valid Birth Information	N	835	6337	6825	19298	32460
Number of Babies Born	N	846	6354	6904	19693	32951
Induction of Labor Excluding Planned C-Sections	N	1602	6256	7939	21160	35355
Yes	%	11.9	16.1	23.8	19.4	19.8
No	%	35.7	81.7	38.3	35.1	44.0
Not known	%	52.4	0.5	24.8	28.8	22.9
Missing	%	0.0	1.6	13.1	16.7	13.2
Delivery Method from Exit Data	N	1602	6401	8494	23070	37965
Vaginal delivery	%	40.6	86.0	54.0	51.9	58.1
C-Section	%	13.9	12.8	22.0	24.1	21.7
Vaginal and C-Section (for multiples)	%	0.0	0.0	0.1	0.2	0.1
Missing	%	45.6	1.2	24.0	23.8	20.1
Women Who Had a Vaginal Birth as a Percentage of Women Who Planned to Deliver Vaginally	%	111.1	90.6	83.7	85.3	86.5
Delivery Method Among Women with Previous C-Section	N	118	316	922	3027	4265
Vaginal Birth After Cesarean (VBAC)	%	30.5	28.8	23.6	16.4	18.9
Repeat C-Section	%	69.5	71.2	76.4	83.7	81.2
Scheduled C-Section	N	222	820	1873	5597	8290
Yes	%	0.0	17.7	29.5	33.7	31.1

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

¹Enhanced encounters represent additional encounters beyond routine prenatal care visits.

²Enhanced services represent services that were delivered outside of routine prenatal care.

Table 6. Infant Outcomes, through Quarter 4 2016

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Estimated Gestational Age (EGA)	N	828	6308	6490	17851	30649
Preterm Births, <37 weeks EGA	%	10.5	5.3	11.2	14.2	11.7
Non-Preterm Births, ≥37 weeks EGA	%	72.6	94.4	81.4	81.0	83.9
Missing	%	16.9	0.3	7.4	4.8	4.4

Data Element	Number (N) or %	VCU (Group Prenatal Care and Maternity Care Home)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Infant Birthweight	N	828	6308	6490	17851	30649
Low Birth Weight, < 2500 grams	%	9.5	3.7	10.1	12.6	10.2
Not Low Birth Weight, ≥ 2500 grams	%	83.3	94.2	84.9	82.4	85.3
Missing	%	7.1	2.1	5.0	5.1	4.5

Note: Rows labeled with an "N" indicate the number of observations from which percentages have been calculated; EGA and birthweight are calculated for live births only.

Table 7. Breastfeeding and Family Planning, through Quarter 4 2016

Data Element	Number (N) or %	VCU (Group Prenatal Care)	Birth Center	Group Prenatal Care	Maternity Care Home	Total
Breastfeeding After Delivery	N	1156	5149	5684	15106	25939
Yes	%	53.8	83.6	57.5	63.4	66.1
No	%	20.2	7.0	10.9	21.4	16.3
Prefer not to answer	%	24.6	0.7	5.9	2.5	2.9
Missing	%	1.4	8.6	25.7	12.7	14.7
Women who Breastfed as a Percent of Women who Planned to Breastfeed	%	106.8	100.1	100.9	99.7	99.9
Had Birth Control Counseling After Delivery	N	1156	5149	5684	15106	25939
Yes	%	71.0	69.5	57.2	72.3	68.4
No	%	2.6	18.1	10.7	11.7	12.7
Unsure	%	25.0	2.7	5.9	2.4	3.2
Missing	%	1.4	9.7	26.2	13.6	15.6

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 to 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 could fall under its existing 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. Urban received the 2014 birth certificate data in May 2016. Following the executed DUA, there were a series of delays in the sharing of data between parties. In April 2017 the DUA was amended to reflect that Urban would receive the linked birth certificate and Medicaid data directly from VDH, rather than having to go through VCU, but after that communication ceased from VDH.. As of May 2017, VCU had not submitted the data request, and the cause of delays was unknown. The evaluation team was unable to reach our contact at VCU, nor re-establish communication with VDH to discuss the causes of delays. At the time of this writing, it appears that Virginia's data will not be included in the final year's impacts analysis.