



Strong Start for Mothers and Newborns Evaluation:

YEAR 1 ANNUAL REPORT

Volume 1 – Cross-Cutting Synthesis of Findings

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Contents

Executive Summary	I
THE STRONG START AWARDEES AND SITES	II
CROSS CUTTING FINDINGS, EARLY OBSERVATIONS, AND EMERGING ISSUES	III
PROJECT PROGRESS AND PLANS FOR YEAR 2	IX
Introduction	1
OVERVIEW OF STRONG START MODELS	2
The Maternity Care Home	3
Group Prenatal Care	4
Enhanced Prenatal Care Offered Through Birth Centers	4
THE STRONG START AWARDEES AND SITES	5
OVERVIEW OF EVALUATION DESIGN	7
Case Studies of Implementation	7
Participant-Level Process Evaluation	8
Impact Analysis	8
Program Monitoring Data	10
Project Reports	10
ORGANIZATION OF THE YEAR 1 ANNUAL REPORT	11
Cross-Cutting Findings	12
CASE STUDIES	12
Maternity Care Home	13
Group Prenatal Care	24
Birth Centers	33
PROGRAM MONITORING	49
Strong Start Implementation	50
Strong Start Participant Demographics	53
Program Entry and Attrition	56
Strong Start Delivery Outcomes	58
PARTICIPANT-LEVEL PROCESS EVALUATION	63
Data through Quarter 1 2014	65
Sociodemographic Characteristics	66
Lifestyle Related Risk Factors	71
Participant Intentions, Perceptions, and Early Outcomes	73
Concluding Observations	79
EARLY OBSERVATIONS AND EMERGING ISSUES FOR CMMI	79

Project Progress and Plans for Year 2.....	86
PROGRESS THROUGH YEAR 1.....	86
PLANS FOR YEAR 2	88
Case Studies	88
Program Monitoring.....	88
Participant-Level Process Evaluation.....	89
Data Linkage Technical Assistance	89
Impacts Analysis	91
References.....	92
Technical Appendices.....	94
APPENDIX A: FIGURES FROM THE LITERATURE REVIEW	95
APPENDIX B: PARTICIPANT-LEVEL PROCESS EVALUATION DATA COLLECTION FORMS.....	99
APPENDIX C: PARTICIPANT-LEVEL PROCESS EVALUATION DATA.....	118
APPENDIX D: PARTICIPANT-LEVEL PROCESS EVALUATION DATA QUALITY REPORT.....	130

Figures

Figure 1: Strong Start Sites, by Model	51
Figure 2: Strong Start Enrollment through Quarter 1 2014	52
Figure 3: Progress toward Projected Enrollment	52
Figure 4: Strong Start Enrollment through Quarter 1, by Coverage Type and Model	53
Figure 5: Ethnicity of Strong Start Participants, by Model	54
Figure 6: Race of Strong Start Participants	54
Figure 7: Race of Strong Start Participants, by Model	55
Figure 8: Age of Strong Start Participants	56
Figure 9: Gestational Age at Enrollment, by Model	57
Figure 10: Attrition from Strong Start	57
Figure 11: Attrition from Strong Start, by Model	58
Figure 12: Delivery Method of Strong Start Participants (Quarter 1 2014 only	59
Figure 13: Delivery Method, by Model	60
Figure 14: Gestational Age at Live Birth	61
Figure 15: Gestational Age at Live Birth, by Model	61
Figure 16: Birth Weight	62
Figure 17: Birth Weight, by Model	63
Figure 18: Number of Intake Forms Submitted, by Awardee	65
Figure 19: Ethnicity of Strong Start Participants	66
Figure 20: Ethnicity of Strong Start Participants as Percent of Total Enrollment, by Model	67
Figure 21: Race of Strong Start Participants	68
Figure 22: Race of Strong Start Participants as Percent of Intake Forms, by Model	68
Figure 23: Education Level of Strong Start Participants	69
Figure 24: Education Level of Strong Start Participants, by Model	70
Figure 25: Relationship Status of Strong Start Participants	70
Figure 26: Percent of Strong Start Participants Exhibiting Depressive Symptoms at Intake, by Model	72
Figure 27: Percent of Strong Start Participants Experiencing Intimate Partner Violence at Intake, by model ...	73
Figure 28: Third Trimester and Postpartum Surveys Submitted, and Deliveries by Awardee	74
Figure 29: Breastfeeding Intentions	74
Figure 30: Planned versus Actual Breastfeeding, by Model	75
Figure 31: Delivery Intentions versus Actual Delivery	76
Figure 32: Delivery Method, by Model	77
Figure 33: Percent of Women who Received Birth Control Counseling, by Model	77
Figure 34: Satisfaction with Prenatal Care, Total and by Model	78
Figure 35: Satisfaction with Delivery Experience, Total and by Model	78

Tables

Table 1: Strong Start Maternity Care Home Care Coordinator Title and Credentials	15
Table 2: Strong Start Maternity Care Home Care Home Care Coordinator Interactions.....	17
Table 3: Peer Counselor Qualifications and Hiring at AABC Strong Start Sites	39
Table 4: Mode and Frequency of Peer Counselor Encounters	40
Table 5: Strong Start Participant Risk Factors, by Model	71

Exhibits

Exhibit 1: Evaluation Questions, by Evaluation Component	2
Exhibit 2: Participant-Level Process Evaluation Data	64

Executive Summary

The Strong Start for Mothers and Newborns initiative,¹ funded under Section 3021 of the Affordable Care Act, aims to improve maternal and infant outcomes for pregnancies covered by Medicaid and the Children’s Health Insurance Program (CHIP). The initiative funds three enhanced prenatal care models: maternity care homes, group prenatal care, and birth centers.² The initiative is currently supporting service delivery through 27 awardees and 213 provider sites, across 30 states, the District of Columbia, and Puerto Rico, with a proposed target of serving up to 80,000 women. Four-year cooperative agreements, for a total of \$41.4 million, were awarded on February 15, 2013 by the Center for Medicare and Medicaid Innovation (CMMI) of the Centers for Medicare and Medicaid Services.

CMMI contracted with the Urban Institute and its partners—the American Institutes for Research (AIR), Health Management Associates (HMA), and Brilljent—to conduct an independent evaluation of the Strong Start for Mothers and Newborns initiative. This five-year study is charged with evaluating the implementation and impacts of Strong Start on health care delivery, health outcomes, and cost of care.³ To accomplish this, the evaluation includes three primary components:

- Qualitative case studies – to provide an in-depth understanding of how Strong Start models are designed and implemented, document barriers or challenges awardees encounter during implementation, and describe perceived success and factors that contribute to success;
- Participant-level process evaluation – to collect detailed information on the demographic and risk characteristics, service use, and outcomes of all Strong Start participants; and
- Impact analysis – to assess whether and to what extent Strong Start has had an impact on rates of premature births, low birth weight, and Medicaid/CHIP costs, through pregnancy and the first year after the birth. The impact analysis will also assess whether these impacts vary by model type, awardee, site, and type of services offered and received.

¹ Strong Start II, which is the subject of this report, is one of two initiatives to improve birth outcomes that are being funded by CMS. The other initiative, Strong Start I, is designed to reduce early elective deliveries. In addition, the Mother and Infant Home Visiting program (MIHOPE) has a Strong Start component involving sites that provide care beginning in the prenatal period. The MIHOPE-Strong Start evaluation is funded through CMMI but is being evaluated separately. For the remainder of this document, references to Strong Start refer to Strong Start II.

² See pages 3-4 of report for detailed descriptions of the enhanced prenatal care models.

³ See page 2 of the report for a listing of specific research questions.

In Year 1, the evaluation scope of work also included the collection of numerous program monitoring measures to support CMMI's quarterly oversight of Strong Start implementation.

The purpose of this first annual report is to present early findings from the evaluation, summarize the status of the evaluation's research efforts, and present a plan for the next year of work.

THE STRONG START AWARDEES AND SITES

Among the 27 awardees, 13 are implementing the maternity care home model, 12 are implementing group prenatal care, one is implementing birth center care, and two are implementing multiple models. Almost two-thirds of Strong Start's 213 provider sites are implementing the maternity care home (133 sites), approximately 20 percent offer group prenatal care (42 sites), and 14 percent provide Strong Start services in a birth center setting (38 sites).⁴ The sites and awardees are spread widely across the United States, with the highest number in the South (close to half). The clinical sites operate in a wide variety of settings, including hospitals and health systems, health plans, community-based providers, Federally Qualified Health Centers (FQHCs), nationally-certified birth centers, Indian Health services clinics, local health departments, and physician groups. According to the 2010 census, more than half of the Strong Start provider sites reside in urban or metropolitan settings, while about one quarter of the sites practice in rural areas.

Consistent with the overarching goals of the Strong Start initiative, all awardees maintain a goal to reduce preterm birth among Strong Start participants and decrease the rate of low birth weight among Strong Start newborns. Operational plans and site visits have shown other common goals include decreasing the cost of care; increasing outreach to Medicaid and CHIP women to inform them of Strong Start services; and increasing rates of breastfeeding among participants. Specific enrollment goals of the awardees vary greatly, with first year targets ranging from 50 women for one awardee to 3,200 women in another. Most awardees proposed to enroll between 1,500 and 3,000 women over the entire initiative.

⁴ Two awardees have implemented more than one Strong Start model at the same provider site. For our analysis, however, we use their primary Strong Start model.

CROSS CUTTING FINDINGS, EARLY OBSERVATIONS, AND EMERGING ISSUES

This Year 1 report presents early Strong Start findings across awardees, in total and by model where relevant. Cross-cutting summaries are organized by data collection method—case studies, program monitoring, and participant-level process evaluation—and synthesize early implementation progress, participant profiles, shared successes, and common challenges encountered during roughly the first year of Strong Start implementation. Case study analyses summarize findings from site visits and telephone interviews with nine awardees conducted between March and July 2014. Data from quarterly program monitoring reports collected for Quarter 2 2013 through Quarter 1 2014 present an overview of the awardees' progress in implementing Strong Start during this first year, as well as a summary of the characteristics of women enrolling in Strong Start. Participant-level process evaluation data, collected for each woman enrolled in Strong Start, track key indicators and inform an analysis of participant characteristics, utilization experience, and a limited number of birth and satisfaction outcomes. The data presented here draw from Intake Forms awardees have collected since program inception in 2013, as well as Third Trimester and Postpartum Surveys collected during Quarter 1 2014.

Based on data from all three sources, we present a number of early observations about how awardees are implementing Strong Start, common challenges they have faced, promising practices they have adopted, and early program outcomes for Strong Start participants. Early cross-cutting observations include:

- ***Strong Start enrollment has been lower than expected during the first program year, but is steadily increasing.*** Several factors account for lower than expected enrollment, which stood at 7,568 women, or less than 40 percent of projected enrollment by the end of Quarter 1 2014. It took some awardees more time than anticipated to establish an intake and enrollment process and to hire Strong Start program staff. Even with these elements in place, integrating eligibility screening and enrollment into the daily workflow of provider sites was often an involved process that required training (and retraining), continuous provider and clinic staff engagement, and the development of new materials and scheduling formats. Though less common, a few awardees have struggled with low Strong Start take-up rates or experienced considerable rates of attrition from the program. Eligible patients decline Strong Start most commonly because they are unwilling or unable to commit to the time it would require, they feel they do not need or would not benefit from the enhanced care (particularly among multiparous women), or they have transportation barriers. Most program dropouts are due to participants moving out of the area or otherwise becoming lost to follow-up.

In the coming years, as awardees' Strong Start programs become more established and the award period progresses, particularly given the recent change in CMMI program guidance that loosened eligibility criteria, the pace of enrollment will likely increase.

- ***Strong Start participants have high levels of emotional and psychosocial needs, which enhanced care models are designed to address.*** Case study and participant-level data findings illuminate the extensive needs and struggles faced by Strong Start participants. Many experienced food insecurity, very low income or chronic unemployment, unstable housing, and lack of reliable transportation. Unmet dental and behavioral health care needs are also prevalent, as are low levels of education about self-care, nutrition, and healthy pregnancy (though qualitative data collected thus far indicate that the latter point is less often the case among participants seeking care at birth centers). Strong Start providers work diligently to help patients address these needs, but they are constrained by resource limitations and other factors beyond their control, including Medicaid and CHIP-related barriers (e.g., delays in formalizing insurance coverage, lack of coverage once the postpartum period ends, limitations on benefits or inadequate reimbursement) and the limited availability of community resources. Moreover, the Strong Start program is a time-limited intervention that cannot address ongoing needs and stressors that will certainly extend beyond the perinatal period.
- ***A common element among the three enhanced prenatal care models is an emphasis on relationship-centered care.*** The maternity care home and birth center models emphasize the relationship between participants and care providers (e.g., maternity care homes' care coordinators, or the birth centers' peer counselors and midwives), while the group care model emphasizes both peer relationships (between Strong Start enrollees assigned to the same group) and relationships with group facilitators, who also serve as care providers. These relationships appear to be providing valuable social and emotional support for Strong Start participants, and are also important vehicles for providing education on pregnancy, preterm risks, and self-care, and for facilitating connections to external resources in the community.
- ***Across models, awardees faced common implementation challenges, including establishing a consistent and effective process for identifying and enrolling eligible patients; integrating enhanced services into existing models of care; retaining women in the Strong Start program; and complying with Strong Start data requirements.*** Many awardees struggled with enrollment-related processes, including both attracting eligible

women into care and obtaining their consent to enroll in Strong Start, especially when the women had given birth before and did not believe they needed extra services. Integrating Strong Start services into the operational structure of clinics, provider offices, or birth centers was also a challenge. For example, maternity care home care coordinators and birth center peer counselors sometimes experienced problems establishing routine and effective communications with prenatal care providers, while other awardees faced challenges establishing a schedule for group care appointments within a traditional OB office setting. Strong Start program and evaluation data requirements were often mentioned by key informants as a barrier to smooth implementation, particularly because many requirements were not introduced until after awardees had already begun operating their programs (thus requiring mid-course adjustments). The burden of documentation and data collection was unanticipated by most awardees, and some expressed the opinion that the evaluation forms are intrusive and/or take valuable time away from patient care. On the other hand, some Strong Start program staff said that they appreciate the evaluation forms because they provide a standardized means for identifying patient needs and a structure for communications between enhanced care providers and program participants.

- ***Awardees across models also shared common promising practices, including the development of “opt out” enrollment processes; more effective messages for patients about Strong Start; strategies to promote supportive and engaged relationships with prenatal care providers and other site staff; willingness to adapt programs to the specific needs of the site and target population; and the development of dedicated, skilled, and resourceful program staff.*** Awardees that used an opt-out approach to enrolling patients in Strong Start, and/or who provided the enhanced care model to all patients as part of the site’s standard prenatal care, were particularly effective at enrolling eligible patients in Strong Start. Many awardees developed, tested, and disseminated (across sites) messages about the models that have been specifically tailored to address patients’ most common reasons for declining enrollment. Across awardees, key informants were unanimous in singling out the support of prenatal care providers and other staff leadership as key to successful implementation. These individuals are often responsible for identifying eligible patients, educating them about the program, collecting patient data, and communicating with enhanced service providers like care coordinators or peer counselors. Flexibility and adaptability are also important facilitators of success—this includes thinking creatively about how to engage and retain participants in care, adapting program resources and services to fit the needs of the patients at a particular site (e.g., relying on virtual

communication due to patient preference or transportation barriers). Related to this point, successful implementation also appears to be predicated on Strong Start program staff members, particularly care coordinators and peer counselors, whom are personable, dedicated, skilled, and resourceful.

- ***Consistency in implementation varies considerably across models and among sites.*** At this early point in implementation, there can be considerable variation in practices across models and between sites. This is most obvious among the sites implementing the birth center model under the AABC award (where sites vary in their approach to enrollment, the qualifications of peer counselors, and the content, mode, and frequency of peer counselor encounters), but is true for several other awardees as well. Some group care awardees include sites where sessions are facilitated by different types of providers (e.g., attending or resident OBs, advanced practice nurses, social workers); facilitators at some sites are consistent while at others they are not; and the composition of groups also varies (e.g., in terms of size, or whether groups aim include patients of similar or diverse demographic backgrounds). Under the maternity care home model, care coordinators have diverse qualifications, and may work either solo or in teams, and either with one site or across multiple sites. Additionally, the number of required encounters varies greatly. Whether such variations have an impact on the experiences and outcomes among Strong Start participants will be an important issue to track, moving forward.
- ***Women being served by Strong Start, thus far, have lower than average Cesarean section rates, higher rates of breastfeeding, and in some cases lower rates of preterm deliveries than the nation as a whole.*** While it is far too early to make any sweeping generalizations about the effects of Strong Start, current data suggest some positive trends that merit ongoing attention. For one, quarterly program monitoring data through Quarter 1 2014 suggest that women being served by Strong Start have rates of Cesarean section that are lower than the national average. In addition, participant-level process data also indicate that breastfeeding rates may be at least as high as the national average, and potentially much higher for birth center participants. While we do not yet know if there are underlying differences in women enrolled in the different models of care, birth centers and group prenatal care sites, thus far, report lower preterm birth rates than the national average. Birth centers also report rates of very low and low birth weight significantly below the national average. The impacts analysis, which will compare Strong Start women to other Medicaid covered women and control for the observable characteristics that may be

correlated with better outcomes, will ultimately be needed to determine if these differences can be attributed to Strong Start.

- ***Strong Start participants express overwhelming satisfaction with their prenatal care, though satisfaction with their delivery experiences is somewhat lower.***⁵ In data received thus far, which is still preliminary, Strong Start participants report very high rates of satisfaction with the prenatal care they have received. This is evidenced both by the Third Trimester and Postpartum Surveys submitted to date, and by the evaluation’s focus groups, where positive reviews were stated consistently and repeatedly. Satisfaction with delivery was slightly lower than satisfaction with prenatal care for all Strong Start models, particularly among participants enrolled in group prenatal care and at maternity care homes. Data from focus groups indicate that this may be attributable, in part, to the fact that prenatal providers are frequently different than the delivery provider in these two models. In contrast, the midwifery model promoted by birth centers typically commits a consistent or known midwife providing labor support throughout many hours of labor. Additional probing of this disparity, should it persist in future quarters, could be explored during focus groups with postpartum participants to help tease out any systematic differences that do exist.

Year one findings across Strong Start awardees also highlight several emerging issues for CMMI to consider as the program and evaluation progresses, including:

- ***Selection bias remains a concern, complicated by widely varying eligibility criteria across awardees as well as mid-course changes regarding eligibility requirements.*** It will be critical for the evaluation to rule out any systematic selection bias in the sample of women participating in Strong Start as a whole, and by model. Women who choose to receive care at birth centers, for instance, may be more likely to be proactive and educated with regard to healthy pregnancy behaviors (preliminary findings from the participant-level process evaluation data suggest this, even at this early point). In addition, variations in enrollment practices and eligibility criteria, including the issues introduced by an “opt-in” vs. “opt-out” approach, introduce the potential for additional selection bias. This issue will require close attention as the evaluation proceeds.
- ***The incremental benefit of Strong Start services may be challenging to detect.*** The specific additions to prenatal care practice being added by Strong Start are relatively small in many

⁵ Strong Start pays only for enhanced prenatal care services, not for the prenatal and delivery of care already funded by Medicaid. This assessment of care includes all services received, including those not funded by Strong Start.

cases. Peer counselors (in birth centers) and care coordinators (in maternity care homes), for example, represent important augmentations to routine care, yet may not fundamentally change prenatal care practices. Moving forward, case studies (rather than quantitative measures) may hold the most promise for describing the incremental benefits of these services under Strong Start.

- ***Significant model overlap at several Strong Start sites will influence the ability to detect model-specific differences in the impacts of Strong Start.*** Early case study findings indicate that, in several cases, multiple models of enhanced prenatal care are being offered to Strong Start participants. For instance, a number of birth center and maternity care home awardees have reported that group prenatal care is available to patients receiving care at their sites and that some Strong Start participants may be enrolled in group care. Moreover, case management and home visiting services provided by other funders often touch participants enrolled in Strong Start. The evaluation’s Exit Form requests that awardees document all enhanced services participants have received and the type and number of routine prenatal visits provided in order to tease out the extent to which model overlap exists and to better understand the services individual participants are receiving. Comparing Exit Form data with case study findings will be an important step for understanding the extent to which these overlaps are being well documented.
- ***Data burden and data collection fatigue among awardees may ultimately lead to incomplete submissions and poor quality data; keeping a close eye on this going forward will be critical to the success of the evaluation.*** During the first year of the evaluation, it has become apparent that the data collection burden imposed on Strong Start awardees and sites is significant, and some key informants have explicitly complained that data collection is getting in the way of smooth implementation and may be impeding progress. While the importance of thorough data collection to support program monitoring and the evaluation is crucial, federal officials and the evaluation team should also be aware of the potential for this burden to affect data quality. For example, changing requirements have negatively impacted the timely submission of both program monitoring and participant level process evaluation data. Efforts to simplify data collection by (for example) retaining data reported in past quarters or providing the option of electronic submission of participant-level data have been well received; however, the necessity of specific data elements should be considered and questioned on an ongoing basis, and reexamined in the event that data quality concerns arise.

PROJECT PROGRESS AND PLANS FOR YEAR 2

By the end of Year 1 of the Strong Start for Mothers and Newborns evaluation (August 11, 2014), a large number of tasks in the study’s scope of work had been completed, while several others were proceeding somewhat behind schedule. Roughly the first half of Year 1 was spent developing various foundational documents that set the stage for data gathering, including an initial and final Design Plan. In addition, many complex systems were developed and launched to support the evaluation’s data collection efforts, including a web-based system for the submission of program monitoring data by Strong Start awardees and the creation of both paper-based and electronic systems for the submission of participant-level process evaluation data by the awardees.

As described above, Year 1 also witnessed the launch of data collection during roughly the second half of the project year, including case study visits with 14 awardees, quarterly program monitoring data collection for calendar Quarters 3 and 4 2013, and Quarter 1 2014, and participant-level process evaluation collected through calendar Quarter 1 2014, using three of the four data collection instruments (the Intake Form and the Third Trimester and Postpartum Surveys). Finally, Year 1 saw the development of a State Data Linkage Technical Assistance Workplan, as well as a number of draft technical assistance tools.

Year 2 of the evaluation calls for not only continued data collection via qualitative case studies and participant level process evaluation,⁶ but also accelerated implementation of our Data Linkage Technical Assistance task, and potentially the receipt of our first wave of data to be used in the project’s Impacts Analysis. With regard to data collection:

- The first round of site visits to Strong Start awardees and sites will be completed by the end of November 2014, and Year 2 telephone interviews with program staff of each of the 27 awardees will take place between February and June 2015.
- Participant-level process evaluation data will continue to be collected on a quarterly basis—including a high volume of “catch up” Intake Forms completed prior to January 2014 and Exit Forms for deliveries that occurred prior to September 2014—such that, by the end of Year 2, we expect to have collected, compiled, and reported on participant-level data for Quarters 2, 3, and 4, 2014, and Quarter 1, 2015.

With regard to technical assistance, we will begin contacting state officials to introduce the evaluation and discuss the various ways in which we can help build state capacity to link Medicaid

⁶ In October 2014, the CMMI Program Team decided to collect all further Program Monitoring data. The evaluation team will continue to evaluate quarterly program monitoring data.

and Vital Records data and/or securely share these data with the evaluation team. As Year 2 proceeds, we will work to enlist the support and facilitate the participation of as many states as possible, and begin providing a combination of hands-on/customized, as well as group technical assistance to state officials. The first tangible component of the evaluation’s Impact Analysis is scheduled to occur at the very end of Year 2, at which point data for births occurring in 2014 will start becoming available.

In conclusion, this Year 1 Annual Report observes that the Strong Start for Mothers and Newborns initiative has experienced a variety of challenges frequently experienced with the launch of large, complex health care demonstration projects, including slower-than-desired start up and lower-than-projected enrollment. Awardees have largely overcome early “growing pains,” however, and are now providing a large volume of enhanced prenatal care services to a rapidly growing group of pregnant women. Preliminary evidence suggests not only very high levels of satisfaction with the care being provided, but also better birth outcomes—including lower rates of Caesarean section and, in some cases, preterm births—than the nation as a whole.

This evaluation of Strong Start will continue to closely monitor implementation and measure the process of care. Future years will be devoted to precisely analyzing Strong Start’s impacts on birth outcomes, prenatal care delivery, and costs. But at this relatively early stage in implementation, CMMI officials can be satisfied that the initiative is off to a solid start.

Introduction

The Strong Start for Mothers and Newborns initiative,⁷ funded under Section 3021 of the Affordable Care Act, aims to improve maternal and infant outcomes for pregnancies covered by Medicaid and the Children’s Health Insurance Program (CHIP). The initiative funds three evidence-based enhanced prenatal care models: maternity care homes, group prenatal care, and birth centers. The initiative is currently supporting service delivery through 27 awardees and 213 provider sites, across 30 states, the District of Columbia, and Puerto Rico, with a proposed target of serving up to 80,000 women. Four-year cooperative agreements, drawn from a budget of \$41.4 million, were awarded on February 15, 2013 by the Center for Medicare and Medicaid Innovation (CMMI) of the Centers for Medicare and Medicaid Services.

CMMI has contracted with the Urban Institute and its partners—the American Institutes for Research (AIR), Health Management Associates (HMA), and Brilljent—to conduct an independent evaluation of the Strong Start for Mothers and Newborns initiative. This five-year study is charged with evaluating the implementation and impacts of Strong Start on health care delivery, health outcomes, and cost of care; key research questions are displayed in Exhibit 1. To answer these questions, the evaluation includes three primary components: qualitative case studies; participant-level process evaluation; and impact analysis. In addition, the evaluation scope of work includes the collection of numerous program monitoring measures to support CMMI’s oversight of Strong Start implementation; to the extent merited, we draw on these measures as well for the evaluation.

The purpose of this first annual report is to present early findings from the evaluation, summarize the status of the evaluation’s research efforts, and present a plan for the next year of work. For background and contextual purposes, the remainder of this introduction describes the three enhanced prenatal care models supported by Strong Start, provides an overview of the characteristics of the Strong Start awardees and sites, and summarizes the evaluation design and its various research components.

⁷ Strong Start II, which is the subject of this report, is one of two initiatives to improve birth outcomes that are being funded by CMS. The other initiative, Strong Start I, is designed to reduce early elective deliveries. In addition, the Mother and Infant Home Visiting program (MIHOPE) has a Strong Start component involving sites that provide care beginning in the prenatal period. The MIHOPE-Strong Start evaluation is funded through CMMI but is being evaluated separately. For the remainder of this document, references to Strong Start refer to Strong Start II.

EXHIBIT 1: EVALUATION QUESTIONS, BY EVALUATION COMPONENT

Qualitative Case Studies

1. What are the features of the Strong Start models operated by the study sites? What are the common features that define the models across sites? Are the models being implemented as designed? What are the variations in how the models are implemented across the country? How similar/dissimilar are the content and delivery of prenatal care in the maternity care home, group prenatal care, and birth center models?
 2. How do prenatal care and delivery in Strong Start sites differ from usual Medicaid or CHIP prenatal/delivery care in the same geographic areas? How does care in Strong Start sites differ from care provided in the same sites prior to the program's implementation?
 3. What are stakeholder (e.g., awardee, state, provider, beneficiary) views of how Strong Start demonstrations are being implemented, and of the content and delivery of prenatal care under the three different models? What works best (for patients and providers) and what are the most challenging aspects of implementation? What are the most important factors in successful implementation of Strong Start demonstrations, both across models and model-specific?
 4. How generalizable are the Strong Start models to other Medicaid and CHIP care settings and other parts of the country? What features are critical for successful replication and scaling up of Strong Start?
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Participant-Level Process Evaluation

1. What are the characteristics of Strong Start participants by: model, site, time period, demographic characteristics (age, race/ethnicity, family composition, income), eligibility group, risk characteristics (physical, behavioral, and socio-emotional), and prior pregnancy status?
 2. How many Strong Start services are provided to participating women, of what type, by time period, site/model, and participant characteristics?
 3. What are participant outcomes (place of delivery, mode of delivery, gestational age, and birth weight) and how do they change over time?
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Impact Analysis

1. What is the impact of Strong Start on gestational age, birth weight, and cost for women and infants over the first year of life?
2. Does the impact differ across awardees and across the three Strong Start models? Does it vary by characteristics of mothers (eg. race/ethnicity)? If so, how?
3. How does the implementation analysis explain the impact findings? For example, which features of the models led to the greatest impact of the program?

OVERVIEW OF STRONG START MODELS

Strong Start supports the implementation of three promising innovations in enhanced prenatal care that have the potential to improve birth outcomes among high-risk Medicaid and CHIP enrollees.

Specifically, CMMI is funding enhanced prenatal care delivered through maternity care homes, group prenatal care, and birth centers. Each uses evidence-based approaches to improving birth outcomes, including additional social support and health counseling, among other enhanced services.

THE MATERNITY CARE HOME

Maternity care homes are designed to provide continuity of care for pregnant women and their infants during pregnancy, childbirth, and the postpartum period. The maternity care home is the most recently formalized model of maternity care among the Strong Start models. However, the maternity care home concept of a central place where a woman receives high-quality, coordinated prenatal and post-partum care for herself and her infant has existed for decades in a less formal way in many settings, such as Community Health Centers.

Nationally, the maternity care home model builds on a similar concept—the patient centered medical home (PCMH). The PCMH was first defined for pediatric care in the late 1960s and has evolved to cover other forms of primary care. Strong Start promotes an array of practice enhancements for prenatal care providers to become a “maternity care home.” According to Childbirth Connection, the various components of the maternity care home model include a single clinician providing or coordinating care, continuous quality improvement, patient-centeredness, and timely access (Romano 2012). In November 2010, North Carolina began to develop a list of core competencies for a Medicaid maternity care home. This model provides all eligible pregnant women with a medical home and those identified as high-risk with case management services to improve birth outcomes and continuity of care. It builds on a program begun in the state in 1987 called Baby Love, which provides care coordination services to Medicaid-eligible pregnant women.

Because the maternity care home model is relatively new, there is little evaluation research to document its effectiveness. Several studies from the 1990s showed a positive impact of similar programs on birth outcomes, such as the probability of having a low birth weight infant (for example, see Heins et al. 1990). Particularly relevant is an early evaluation of North Carolina’s Baby Love program suggesting that the program lowered low birth weight rates and Medicaid costs (Buescher et al. 1991). However, a recent comprehensive review of the literature on enhanced prenatal care services for Medicaid women shows mixed results across settings (Anum et al. 2010). The national data from the Strong Start evaluation will further policy makers’ understanding of the impact of the maternity care home model on Medicaid birth outcomes.

GROUP PRENATAL CARE

The Centering Pregnancy group prenatal care model was developed by Sharon Rising, a Connecticut nurse-midwife, and piloted in 13 groups in 1993 and 1994. The model provides health assessment, education, and support for pregnant women through group visits to promote healthy behaviors and optimize birth outcomes. Groups of 8-12 pregnant women are brought together about 10 times beginning mid-pregnancy to discuss health, nutrition, childbirth preparation, stress reduction, parenting, and personal relationships. “Centering Pregnancy” is the national model of group prenatal care that was formalized in 1998 through the Centering HealthCare Institute, a 501(c)3 non-profit organization which assists practice sites in making the changes needed to move to group care. Though Strong Start awardees implementing group care are not required to adopt a particular curriculum, nearly all have an affiliation with Centering Pregnancy because it is the largest and most well tested approach.

A review of the literature on the effect of group prenatal care on birth outcomes identified 11 studies that report on its impact on birth weight and/or gestational age (Howell et al. 2014).⁸ Results are mixed in that only four studies show a statistically significant reduction in the rate of preterm birth and three show a positive impact on birth weight. Thus, as with the medical home model, results are mixed and the current evaluation will further this research by expanding the analysis to a larger number of sites.

ENHANCED PRENATAL CARE OFFERED THROUGH BIRTH CENTERS

Freestanding birth centers are facilities usually directed by midwives who provide comprehensive prenatal, delivery, and post-partum care. While women receive their prenatal and post-partum care at a birth center, they deliver their infants either at the birth center (managed by a midwife) or at a hospital, where complicated deliveries may be overseen by physicians. Many birth centers are accredited by the American Association of Birth Centers. Until recently not all states covered birth center care under Medicaid (Ranji et al. 2009), but now such coverage is required by the ACA.

The birth center model of prenatal care, and more generally midwifery care in various settings, is characterized as providing substantial education and psychosocial support along with low rates of medical intervention. For example, a study of three types of prenatal care (one offered through a birth center, one offered through a teaching hospital, and one offered through a safety net clinic) found that midwives in birth centers offered longer prenatal care sessions than they did in the teaching hospital or safety net clinics. The birth center also offered peer counseling in addition to

⁸ See Table A-1 in Appendix A of the final Strong Start Design Plan for detail on the 11 studies.

individual education sessions with the midwife (Palmer et al. 2009). Induced labor and continuous electronic fetal monitoring are generally not used at birth centers (Stapleton et al. 2013).

While research on the impact of birth center-provided prenatal care is limited, there is substantial research on midwife-provided prenatal care both in birth centers and other settings. As with the two other models discussed above, results vary across studies. For example, across nine studies (including one review) of the impact of prenatal midwifery care on birth outcomes, three find a significant reduction in preterm birth rates and four find a significant increase in birth weight (Howell et al. 2014).⁹ None of these studies focuses only on Medicaid-enrolled women. Thus, the current evaluation will contribute substantial additional information concerning the impact of birth center-provided prenatal care on women enrolled in Medicaid and their infants.

THE STRONG START AWARDEES AND SITES

The 27 Strong Start awardees are each adopting one or more of the Strong Start models of care across approximately 213 provider sites in 30 states, the District of Columbia and Puerto Rico. As seen in Appendix A, the number of sites per state ranges from just one site in nine of the states involved in Strong Start, to 49 sites in a single state (Michigan).

Among the 27 awardees, 13 are implementing the maternity care home model, 12 are implementing group prenatal care, one is implementing birth center care, and two are implementing multiple models. Almost two-thirds of Strong Start's 213 provider sites are implementing the maternity care home (133 sites), approximately 20 percent offer group prenatal care (42 sites), and 14 percent provide Strong Start services in a birth center setting (38 sites).¹⁰ In addition, the sites and awardees are spread widely across the United States, with the highest number in the South (close to half), followed by the Midwest.

In addition to geographic diversity, the 27 awardees and their sites represent care delivery in a wide variety of organizations and health care settings, including hospitals and health systems, health plans, and community-based organizations. There is similar diversity among the Strong Start provider sites. For example, more than half are either Federally Qualified Health Centers (FQHCs) or clinics associated with a hospital or health system. The remaining sites include nationally-certified

⁹ More detail on the nine studies is contained in Table 2, Appendix A of the final Strong Start Design Plan.

¹⁰ Two awardees have implemented more than one Strong Start model at the same provider site. For our analysis, however, we use their primary Strong Start model.

birth centers, Indian Health services clinics, local health departments, and physician groups. According to the 2010 census, more than half of the provider sites reside in urban or metropolitan settings, while about one quarter of the sites practice in rural areas.

Consistent with the overarching goals of the Strong Start demonstration, all awardees maintain a goal to reduce preterm birth among Strong Start participants and decrease the rate of low birth weight among Strong Start newborns. Operational plans and site visits have shown that other common goals include decreasing the cost of care; increasing outreach to Medicaid and CHIP women to inform them of Strong Start services; increasing breastfeeding among Strong Start participants; and decreasing smoking. While Strong Start overall has a goal of reaching up to 80,000 women over a four-year period, specific enrollment goals of the awardees vary greatly. For example, first year enrollment targets ranged from 50 women for one awardee to 3,200 women in another. Initially, most awardees proposed to enroll between 1,500 and 3,000 women over the entire initiative.

The state and local context within which Strong Start awardees are operating is likely to affect their operations and, potentially, their success. In particular, Medicaid and CHIP eligibility and coverage policies vary considerably across the states where Strong Start awardees are situated. The 30 states (and the District of Columbia)¹¹ with Strong Start sites include those with some of the most, as well as least, generous Medicaid income eligibility limits and benefits packages. As shown in Appendix A, the combined upper Medicaid/CHIP¹² income eligibility limit for pregnant women in 2013 in the Strong Start states ranged from the federally mandated minimum of 133 percent of the federal poverty level (FPL) to 300 percent FPL.

In 2013, before the implementation of the ACA, only four of the 30 states with Strong Start awardees and the District of Columbia offered full Medicaid benefits to adults without dependents. For parenting adults, income limits were somewhat more generous in 2013 with a median of 105 percent FPL, as all 30 states and the District of Columbia provided full Medicaid coverage to at least some parents. As a practical matter, this patchwork of income limits means that some of the women targeted by Strong Start will have been uninsured prior to becoming pregnant at the start of the initiative, and some (particularly those in states that have not taken up the Medicaid expansion under the ACA) will have few (or no) public coverage options when they are no longer pregnant.

¹¹ Puerto Rico was not included in the Medicaid/CHIP policy review, as information was often unavailable or inconsistent.

¹² Pregnant women are eligible for CHIP in just three of the Strong Start states—DC, New Jersey, and Virginia. However, the following states have adopted the CHIP unborn child option, which permits states to consider the fetus a "targeted low-income child" for CHIP coverage: CA, IL, LA, MI, MN, NE, OK, OR, TN, TX, and WI.

The implementation of the ACA changed the coverage landscape in every state. Starting in 2014, less than half of the Strong Start states (14) extended Medicaid coverage to all adults with incomes up to 138 percent of poverty¹³ (regardless of pregnancy or parenting status) via the ACA’s Medicaid expansion.¹⁴ The remaining 17 states have chosen not to expand Medicaid as of this writing. Also, beginning in 2014 individuals with incomes between 138 and 400 percent of the FPL will be eligible for federal subsidies to buy private health coverage through newly-established health insurance exchanges.

Most Strong Start states—22 of 30 states and the District of Columbia—currently operate special Medicaid programs that cover family planning services for women who do not qualify for more comprehensive Medicaid coverage. In 15 states, these programs are available to all income-eligible women, but others limit enrollment to women who have lost Medicaid coverage after giving birth or for any other reason.

OVERVIEW OF EVALUATION DESIGN

The Strong Start evaluation employs a mixed methods research design, comprising case studies of implementation, the collection and analysis of participant-level process information, and a quantitative analysis of the impacts of Strong Start on birth outcomes and costs of care. The evaluation’s scope of work also includes the collection, on a quarterly basis, of program monitoring data to support CMMI’s program team’s oversight of awardee implementation. Finally, there is a large technical assistance component that is designed to support states in developing their capacity to link Medicaid and Vital Records datasets, a process that must occur if the evaluation is to assess program impacts. This section provides brief summaries of the first four of these research methods; additional detail can be found in the evaluation’s Design Plan (Howell et al. 2014) and Comparison Group Feasibility Study (Dubay et al. 2014).

CASE STUDIES OF IMPLEMENTATION

The evaluation’s case studies will provide an in-depth understanding of how Strong Start models are designed and implemented, document barriers or challenges awardees encounter during implementation, and describe perceived success and factors that contribute to success. The case

¹³ The ACA establishes a minimum income eligibility level of 133 percent of FPL for states that opt to expand Medicaid, and also establishes a standard 5 percent income disregard. Taken together, this means that the ACA’s minimum income eligibility level for the Medicaid expansion is 138 percent of FPL.

¹⁴ This includes states (e.g. Michigan) that have expanded Medicaid through a Section 1115 waiver.

studies occur during the first four years of the evaluation, encompassing the three years of Strong Start program implementation and the fourth and final grant year when awardees are still collecting program data. The first year of case studies is coming to an end and results have been analyzed for nine awardees. Case studies include four components: document review, key informant interviews, focus groups with participating pregnant and postpartum women (as well as some groups with similar, non-participants), and observations of care. Since resource limitations preclude studying all service delivery sites, we plan to collect case study data from all awardees and from approximately one-third of the sites they operate. The intensity of qualitative data collection varies based on whether a site is included in the evaluation's impact analysis. During the first year, we conducted site visits involving all four components with most awardees and selected study sites; for one awardee and a handful of sites (mostly under AABC's award), however, we conducted interviews by phone. The third year case studies will be similar to the first year, and in evaluation years two and four, we will conduct telephone interviews with all awardees and selected study sites.

PARTICIPANT-LEVEL PROCESS EVALUATION

During the first year of the participant-level process evaluation, we started to collect detailed information on the demographic and risk characteristics, service use, and outcomes of all Strong Start participants, using four data-gathering instruments: an Intake Form, 3rd Trimester and Postpartum Surveys, and an Exit Form. Strong Start awardees are required to collect participant-level data from their sites and transmit these data to the evaluation team each quarter. This evaluation component, therefore, is designed to give timely feedback to CMMI, the evaluation, and Strong Start awardees and sites on key indicators of performance and interim outcomes. For example, participant-level process evaluation data will be used to identify and track risk factors for premature birth among participants, complications experienced by participants during pregnancy, enhanced and routine services provided during pregnancy and postpartum, and birth outcomes for mothers and infants. Individual-level data will be collected regularly and summarized in quarterly reports.

IMPACT ANALYSIS

The impact analysis is designed to assess whether and to what extent Strong Start had an impact on three key outcomes: prematurity, low birth weight, and Medicaid/CHIP costs through pregnancy and the first year after the birth. The impact analysis will also assess whether these impacts vary by model type, awardee, site (where feasible), and type of services offered and received. The evaluation's Design Plan and Comparison Group Feasibility Study described our preferred approach

for the impact assessment, as well as two other optional approaches which we may consider if data are not available in some states to conduct the preferred approach, and if sufficient evaluation funds are available.

One of the most challenging issues for the evaluation design will be to select a comparison group that serves as a counterfactual to answer the question: “What would have occurred had Strong Start not been in place?” Further consideration of this broad question led the team to consider two potential alternative questions:

1. Does the additional funding from Strong Start, in combination with one of the program’s three enhanced prenatal models of care, result in improved outcomes when compared to standard Medicaid maternity care practice?
2. What would have occurred if women received care in the same sites, or very similar sites, but without the enhanced services funded by Strong Start?

Answering the first question would require the selection of a comparison group of women who do not receive services in maternity care homes, group prenatal care, or birth centers. Meanwhile, answering the second question—which would explore the marginal effects of enhanced Strong Start services—would require the selection of a comparison group from the same or similar types of sites which follow one of the three Strong Start models, but which only include women who do not receive Strong Start services.

Through the development of our Design Plan and Comparison Group Feasibility Study, and in consultation with CMMI and the evaluation’s Technical Expert Panel, it was decided that the evaluation would focus on answering the first question, since it was most relevant from a public policy perspective, and most feasible given the data that will be produced. Note that in pursuing the first question, the evaluation will not be able to separate the role of the additional Strong Start funding from the role of the alternative model of care already in place. However, data from the case studies will help us understand the unique contribution of Strong Start services, and special studies will, to the extent budget permits, be designed to address the second research question for selected sites (e.g., in areas where we can find comparison sites willing to participate and able to provide historical data).

In identifying the comparison group to answer the first research question, it will be important to identify women who have similar socio-economic and medical risk factors. Selection bias could result from a woman choosing to go to a Strong Start site because of her own health behaviors or health conditions; in addition, selection at the site could occur when a woman is included in services

because of her risk characteristics or chooses not to participate because of her own preferences. Our approach uses a propensity score re-weighting method to select a well-matched comparison group of Medicaid women who deliver during the same time period, who reside in the same geographic area as Strong Start participants, and who have similar risk characteristics.

The data for the analysis will come from birth certificates and, where feasible, Medicaid data matched to birth certificates. Matching these sources is a primary goal of the evaluation team and all efforts will be made to acquire these data. The impact analysis is to be conducted in 25 of the 32 states where Strong Start sites are operating. It is possible that one or more states will refuse to provide the data either because of legal barriers or resource limitations. Currently underway and in partnership with CMCS, one component of the evaluation is to provide intensive technical assistance to states to overcome these barriers and develop the capacity to link Medicaid and Vital Records data.

PROGRAM MONITORING DATA

During the first year of the evaluation, the evaluation team collected and compiled program monitoring data on a quarterly basis in support of CMMI's program staff oversight of Strong Start awardees. Awardees are asked to submit aggregated data on a number of measures, many of which are relevant for the evaluation, including Strong Start site information, participant enrollment and attrition, participant demographics, and pregnancy outcomes. Program monitoring data were initially submitted quarterly by Strong Start awardee program management staff on Excel spreadsheets, and then through a web-based system designed by the evaluation. The web-based system, which was introduced in Quarter 4 2013, allowed for the collection of higher quality data by retaining information entered from prior quarters to facilitate the ease of reporting and minimize burden on the Strong Start awardees, while enforcing the entry of valid and consistent data. Significant changes to the program monitoring data template were requested by CMMI for Quarter 1 2014, which resulted in considerable consternation among awardees, as well as increased costs to the evaluation. For Year 2, the evaluation team will no longer collect the data on a web-based platform, but instead will analyze the data separately.

PROJECT REPORTS

Numerous reports will be produced from each evaluation component. For each site visit during the first year, we produced short awardee reports that analyzed program implementation. We will continue to do so for future case studies and rounds of phone calls. The participant-level process analysis will produce quarterly reports on key findings related to participant risk factors, service use,

outcomes and satisfaction, among many other measures. Each year an annual report will summarize and synthesize findings across awardees and model types, using data from all evaluation components. A final report, delivered in Year 5, will synthesize all evaluation findings and make recommendations for improving birth outcomes and reducing costs for Medicaid women and their infants.

ORGANIZATION OF THE YEAR 1 ANNUAL REPORT

This Year 1 Annual Report presents early findings from the Strong Start evaluation and concentrates on data and information gathered from three study components:

- Case studies of implementation by nine awardees;
- Program monitoring data from the first four quarters of implementation (calendar Quarter 2 2013 through calendar Quarter 1 2014); and
- Participant-level process evaluation data also covering the first four quarters of implementation.

Volume I of the Annual Report presents cross-cutting findings across awardees based on case study, program monitoring, and participant-level process evaluation data. An accompanying Volume II of the Annual Report presents awardee-specific findings from all three data sources (as available).

Of note, the findings presented here are based on data collected to date. These data include findings from nine case studies, four quarters of program monitoring data (Quarter 2 2013 through Quarter 1 2014), and one quarter of Participant-Level data (Quarter 1 2014). In future years, our Annual Reports will reflect more complete data and comprehensive findings from all evaluation components.

Cross-Cutting Findings

This section presents early Strong Start findings across awardees, in total and by model where relevant. Cross-cutting summaries are organized by data collection method (case studies, program monitoring, and participant-level process evaluation), and synthesize early implementation progress, participant profiles, shared successes, and common challenges encountered during this first year of the Strong Start evaluation.¹⁵

The cross cutting case study analyses summarize findings from site visits and telephone interviews with nine awardees conducted between March and July 2014. Findings are presented by Strong Start model type, and include information from five awardees implementing maternity care homes, three awardees implementing group prenatal care, and ten sites operating the birth center model under the American Association of Birth Centers (AABC) Strong Start award.

Data from quarterly monitoring reports collected for Quarter 2 2013 through Quarter 1 2014 present an overview of the awardees' progress in implementing Strong Start during this first year, as well as a summary of the characteristics of women enrolling in Strong Start. Very early data on a limited set of outcomes are also included in this section.

Participant-level process evaluation data being collected for each woman enrolled in Strong Start are used to track several indicators and inform an analysis of participant characteristics, utilization experience, and a limited number of birth and satisfaction outcomes. Data presented in this section draw from the Intake Forms awardees have collected since they were introduced by CMMI in 2013 as well as Third Trimester and Postpartum Surveys collected during Quarter 1 2014.

Finally, based on data from all three sources, we present a number of early observations, as well as emerging issues for CMMI and the evaluation team to monitor going forward.

CASE STUDIES

This case study analysis provides an early glimpse of the successes and challenges Strong Start awardees have experienced, based on a subset of case studies with nine awardees that were conducted between March and July 2014. Notably, this report was developed mid-way through year one case study data collection, and awardees studied after July 2014 (comprising 18 of the 27

¹⁵ The first year of the evaluation spanned from August 14, 2013 through August 11, 2014.

awardees) are not included in this crosscutting analysis. Findings are presented by model type and in the following order: maternity care home; group prenatal care; and birth center care.

MATERNITY CARE HOME

As discussed above, a maternity care home builds on the concept of a patient-centered medical home, providing a woman with high-quality, coordinated prenatal and post-partum care for herself and her infant.

To promote this model, CMMI's Strong Start requirements for the enhanced prenatal care package by maternity care home awardees are: 1) expand access and provide continuity; 2) assure care coordination; and 3) provide enhanced content of care during visits.

Description of the Awardees: Five Strong Start awardees implementing a maternity care home model are included in this first Annual Report: ACCESS Community Health Network (ACCESS) in Illinois, Florida Association of Healthy Start Coalitions (FAHSC), Johns Hopkins University School of Medicine (Hopkins) in Maryland, Medical University of South Carolina (MUSC), and Texas Tech University Health Sciences Center (TTUHSC).¹⁶

Some awardees had elements of the maternity care home prior to receiving their Strong Start award. For example, ACCESS, a Federally Qualified Health Center (FQHC) with 30 clinic locations providing prenatal care, is already seeking recognition as a patient-centered medical home, which has a great deal of overlap with the maternity care home model. On the other hand, MUSC and Hopkins began with mostly traditional, physician-led maternity care. TTUHSC's sites include both a traditional obstetrical (OB) clinic and a nurse practitioner-led neighborhood clinic.

Regardless of their differences at the outset, all five maternity care home awardees implemented a common Strong Start enhancement to their existing care model: the addition of new staff to provide care coordination and support to eligible pregnant women. The balance of this section is focused on this primary feature. Other enhancements have been introduced by a few awardees but are not common to all models (and, in some cases, have not been fully implemented) and so are not discussed here. These efforts may be analyzed in the next annual report, if they are identified as common across awardees and when there is sufficient information about them. They include (at Hopkins) prenatal classes, a health advocate, a health literacy program, and a quarterly summit for staff and community partners; and (at MUSC) a website for patients and providers and

¹⁶ These five represent fewer than half of the Strong Start awardees implementing the maternity care home model (a total of 13 awardees).

the promotion of evidence-based prenatal care across a network of “referring practices.” In addition, TTUHSC is planning to implement group prenatal care at a site that is not a maternity care home.

Implementation of Strong Start Care Coordination:

The mainstay of the Strong Start maternity care home model among the five awardees included in this analysis is the care coordinator, also alternatively referred to as a ‘care navigator,’ ‘maternal health specialist,’ ‘case manager,’ or ‘community health worker.’ (Sometimes the nomenclature differences are related to distinctions in qualifications or training, as discussed below, but regardless, there is much overlap in functions.) Typically, the care coordinator provides education and organizes a wide range of health and support services for Strong Start participants, bolstering their capacity to adhere to prenatal care guidelines and sustaining their commitment to a healthy pregnancy and baby. The care coordinator provides guidance directly related to prenatal care as well as psychosocial support to address various stressors in the woman’s life, which can indirectly affect the well-being of the mother or baby. The care coordinator is accessible to patients by phone, virtually (via email or text) and/or in person (depending on awardee) and responds to a wide range of routine questions and personal crises.

Two awardees use two-person care coordinator teams: ACCESS pairs a social worker with a nurse, while at Hopkins, three teams—each composed of a nurse case manager and community health worker—are embedded in clinics. In both cases, the nurse is generally assigned to participants with high-risk medical conditions, and the social worker/community health worker focuses on psychosocial concerns and supports. ACCESS key informants report that the pairs work collaboratively, “backing one another up” in areas where they are less knowledgeable.

Training: The five maternity care home awardees require care coordinators to have varying levels of formal training and/or certification (see Table 1). Some care coordinators have clinical training or advanced degrees in nursing or social work. Two awardees (TTUHSC and Hopkins) use community health workers. Texas is one of the few states that require certification for community health workers¹⁷; thus the TTUHSC community health workers have completed at least 160 total hours of coursework in eight core competencies.¹⁸ Some Strong Start care coordinators are selected

¹⁷ According to the Centers for Disease Control and Prevention, four states (MN, OH, OR, and TX) required community health worker certification or training process; one state (MA) authorized such workforce development, and another (MD) authorized state reimbursement or incentives for community health worker services, as of December 2012. (A Summary of State Community Health Worker Laws, Centers for Disease Control and Prevention, July 2013, , http://www.cdc.gov/dhdsp/pubs/docs/chw_state_laws.pdf).

¹⁸ The eight core competencies covered in the Texas Community health workers certification program are: communication, interpersonal skills, service coordination, capacity-building, advocacy, teaching, organizational skills, and specific community health knowledge base.

for their strong interpersonal skills that enable them to connect with the patient population. Often care coordinators share demographic features with the population they serve (e.g., they are the same race or ethnicity, were raised in the same local area, or have young children themselves). All of the Strong Start care coordinators receive additional training for their new roles by the awardee.

TABLE 1: STRONG START MATERNITY CARE HOME CARE COORDINATOR TITLE AND CREDENTIALS

Awardee	Care Coordinator Title and Credentials
ACCESS	Care coordinator dyads, each composed of a trained nurse paired with a master’s level social worker
FAHSC	Maternal health specialists
Hopkins	Teams composed of a nurse case manager and community health worker
MUSC	Care navigators who are registered nurses
TTUHSC	Community health workers, state certified

After the initial training period, awardees provide ongoing professional development and support to the care coordinators through periodic in-person and telephone meetings. Care coordinators working in different sites meet to discuss difficulties, resources, and promising practices. Some adopt the strategies used at other sites or problem solve collectively. For example, TTUHSC and ACCESS have designated supervisors who provide guidance to the care coordinators, and TTUHSC also has a weekly Strong Start team meeting. The Hopkins care coordinators attend a Strong Start Quarterly Summit, to which other Hopkins staff and staff from community organizations are also invited. At Hopkins’ June summit, invited speakers made presentations about addiction and pregnancy, and WIC.

Intake and Enrollment: Patients across all five awardees typically meet the care coordinator once they are identified by an administrative or clinical person as seeming to meet the Strong Start inclusion criteria, which (at the time of data collection) required Medicaid enrollment, gestational age of 24 weeks or less, and having some risk factors for a pre-term birth.¹⁹ The care coordinator makes contact, completes an eligibility assessment, describes the structure and benefits of Strong Start services, and attempts to enroll the patient. This initial assessment is not usually the lengthier Intake Form introduced by the Strong Start evaluation, which several care coordinators say works better in the second or later visits after a relationship with the woman has been established. In most cases, the initial meeting with the care coordinator is in person at the time of the first visit for prenatal care.

¹⁹ In July 2014, and after data collection for the awardee case studies included in this analysis, CMMI modified program eligibility requirements so that they no longer include a qualifying preterm risk factor. The gestational age cutoff was also loosened so that Medicaid/CHIP patients at any stage of pregnancy can enroll in Strong Start, but this policy change had not been finalized at the time of writing.

Unlike the other awardees examined for this report, the MUSC model is completely telephonic. Enrollment is centralized through the main research office; risk assessors identify eligible women, and then the care coordinators reach out for the first assessment by telephone.

Four of the five awardees use an “opt-in” approach to enrollment. Only Hopkins uses an “opt-out” approach, where Strong Start services are presented as “standard care” and women must proactively decline the program if they do not want to participate. It should be noted, however, that the opt-in and opt-out approaches are not very different; often the opt-in approach also presents Strong Start as the standard care before asking whether the woman is willing to participate. Moreover, it was not apparent that the difference in approaches led to very different outcomes in terms of enrollment. Very few women at Hopkins sites have opted out to date, but ACCESS and FAHSC also report high enrollment rates. MUSC estimated that 50 percent of eligible patients decide to participate in Strong Start, while TTUHSC reported about 60 percent participation. Women who decline to participate often cite the time commitment as too burdensome.

Once enrolled, few drop out of the program at most maternity care home sites. Key informants attribute drop outs primarily to patients moving or having transportation problems. Very often, the care coordinator calls the patient to remind her about her visit, or will call a woman who has missed a visit and reschedule her.

Integration in Care Setting: Maternity care homes can be implemented in a wide range of settings, including private practices, hospital-based practices, FQHCs, neighborhood clinics, and local health departments. Among the five Strong Start awardees analyzed here, practice sites work with awardees to design a workflow that integrates the care coordinator with clinician visits. In many sites, the care coordinator meets with the participant before or after the clinical visit with the obstetrician or midwife. In others, the care coordinator makes home visits, conducts phone ‘visits,’ or occasionally meets in another setting such as a coffee shop.

The majority of the maternity care homes profiled here allow Strong Start care coordinators access to patients’ medical records; they can read the charts, leave notes for clinicians, or schedule visits. Direct contact between care coordinators and clinicians is less frequent. More often, the care coordinator’s support and referral activities occur independently and lack good integration with the clinical issues, according to key informants interviewed during our site visits. One care coordinator reported that she had no indication that the doctor at her site (TTUHSC) had read her notes. At another site (FAHSC), the care coordinator has to request that the office staff print a copy of the patient’s record as needed.

Patient Contacts: Maternity health homes are highly variable in the number of contacts they have with patients, ranging from three interactions over the course of the pregnancy to nearly daily contacts (see Table 2, below). Numerous contacts occur with higher risk patients; for example, at MUSC, care coordinators were in frequent contact with a patient with renal failure, and with a patient who had three previous at-term stillbirths. In a few sites, the care coordinator provides her patients with her cell phone number and can be reached 24/7, generally in an effort to establish a connection and trust.

TABLE 2: STRONG START MATERNITY CARE HOME CARE HOME CARE COORDINATOR INTERACTIONS

Awardee	Typical Number of Care Coordinator Interactions
ACCESS	3 to 8, about half in person (occasionally home visits), half by phone
FAHSC	7 or more face-to-face meetings
Hopkins	3 to 4 in-person (occasionally home) visits
MUSC	Telephonic communication daily, weekly, or every several weeks, depending on risk and needs
TTUHSC	3 in-person visits at home or alternate location, often with follow-up calls between visits

Services: Typically, the key services that care coordinators provide are health education about nutrition, exercise, and how to manage health conditions, and referrals to non-medical services such as WIC,²⁰ behavioral health, dental care, child care, housing, and domestic violence services. Care coordinators motivate patients to accept and continue with the support services. Care coordinators check in with patients about how they are feeling, provide reminders, and encourage them to make time for prenatal care visits even in the face of competing demands. In some maternity care homes (ACCESS, MUSC, and Hopkins), care coordinators arrange for home services, such as obtaining durable medical equipment or getting progesterone injections to reduce the risk of a preterm birth.

A care coordinator may work in just one site with a few dozen patients, across several sites, or from a call center. Informants reported patient caseloads of: 90 to 100 (ACCESS); 100 to 120, expected (MUSC); 45 for one maternal health specialist and 61 for another (FAHSC).

Many participants in our focus groups described feeling very comfortable with their care coordinator, emphasizing their care coordinator’s ability to help them through any situation. Some participants reported that they feel more comfortable speaking with their care coordinators than they do their OB clinician, and even hold questions for their care coordinator because when they meet with clinicians they feel rushed, don’t understand instructions, or don’t want to reveal personal information. (Sometimes, this includes information that might be important for the

²⁰ Special Supplemental Nutrition Program for Women, Infants and Children (WIC).

provider to know, such as a patient who is being treated by another doctor for bi-polar disease). In some sites, participants described their care coordinator as the single most important reason they had a good prenatal and birth experience.

“She told me about transportation, said whatever you need we can help you with it. She said we won’t put you on the bus; we will make sure you get home right—found rest stops for me to go in and warm up. She went beyond, that’s why I love her.”

“She’s like a case worker, a counselor, and a doctor all in one.”

“I wouldn’t have told others about being bi-polar. I honestly feel like I can talk with her about anything.”

“I didn’t have anything like this with my first pregnancy and I really just wanted support, especially from an outside source. Sometimes you don’t get that from your family.”

Challenges:

During the first year of implementation, awardees experienced many challenges related to the integration of care coordinators in the patient care process; engaging and retaining women in care; limited community resources; and Strong Start program burdens and limitations. Each is discussed in more detail, below.

Integration and Provider Buy-in: Many care coordinators report that communication and partnership with the clinicians (both physicians and sometimes nurses) are their biggest challenges. Awardees reported that many OB providers were initially reluctant to support the additional person taking care of their patients, though some have become more accepting over time and now appreciate that the care coordinators take on important patient issues. One informant at ACCESS reported, “Some of our providers are used to working alone and don’t want anyone else involved. I had one provider who said, ‘I want to approve all of the care coordinator’s notes before she puts them in [the EMR],’—I had to fight him on that.” Lack of buy-in from clinic staff may be exacerbated by the fact that residents rotate in and out of many clinic settings, so there is often the need to re-establish these relationships. Similarly, MUSC has not gotten Strong Start referrals from many of its referring OB providers, possibly because high-volume practices are too busy, or they may fear that MUSC will “steal” the patient.

Some care coordinators believe their contributions are not visible to clinicians. There are limited opportunities to discuss a patient holistically, as a team. Some report that their site is unwilling to modify its model of care, such that care coordination has become an extra layer, rather than an integrated part of the patient's experience. Some care coordinators feel front desk and nursing staff are tolerant of them, but not welcoming. Care coordinators sense that other staff view Strong Start as creating extra tasks for them, interrupting the workflow, creating new space constraints, or posing a risk to patient confidentiality. In addition, in some sites that offered other support services such as home visitors, the care coordinators are seen as competition for patients' limited "bandwidth" to engage in psychosocial supports.

Another challenge for many sites is lack of space within the facility for private interactions between care coordinators and participants, further hampering their effectiveness and possibly the perception of their importance to the care team.

Reaching, Engaging, and Retaining Women: Risk assessment and enrollment by phone (at ACCESS and MUSC) appear to be more challenging than in-person enrollment encounters. Further, all five awardees have found that maintaining relationships with participants is hindered by frequent changes in phone numbers and addresses—a universal challenge among Medicaid enrollees. Care coordinators rely on being able to reach enrollees to make appointments, remind them about prenatal visits, meet to establish a relationship, discern and address issues, and make and follow up on referrals. They report spending significant time and energy on reaching some women, and sometimes they "lose" them. When unable to reach patients by phone, TTUHSC care coordinators check the patient's EMR for any upcoming medical appointments so they can meet participants at the clinic—a strategy that was only sometimes successful.

Some informants believe additional in-person meetings are necessary to maintain strong and effective relationships. As noted below, lack of transportation and child care are also barriers to retaining women. Some care coordinators report feeling pressured to enroll more women at the expense of having sufficient time per participant.

Enrollment Forms: Three awardees (ACCESS, Hopkins, TTUHSC) noted that the evaluation Intake Form is very time consuming to complete, and two specifically mentioned that very sensitive questions are difficult to ask at an initial encounter, before a trusting relationship has been established. Further, some responses may require immediate attention to an urgent problem, making completion of the form at the first visit challenging. Awardees noted, however, that the form is a useful tool for identifying potential needs of Strong Start participants.

Resources: Lack of convenient transportation options and childcare are barriers to participants' attending prenatal and care coordinator visits and to following through with referred services. At MUSC, for example, most key informants and focus group participants described the service provided by the Medicaid transportation vendor as unreliable and difficult to access, with poor customer service. Also, insufficient referral resources, particularly substance abuse and housing services frustrate some care coordinators (at TTUHSC, for example) when their clients' needs cannot be met.

Reporting Requirements: All maternity care home awardees raised concerns about the reporting burden of Strong Start, including both the program monitoring and participant level evaluation data. Many are frustrated by the late introduction of some reporting requirements and subsequent changes.

Continuity: The lack of continuity of care that existed at some sites prior to Strong Start continues to exist at the end of the first year and is a source of dissatisfaction to women, according to our focus group results. At two awardees' sites, pregnant women are shifted to different providers and sometimes different locations through pregnancy, delivery, and postpartum care. These hand-offs and disruptions of relationships seem counter to the maternity care home model. For example, TTUHSC's neighborhood clinic transfers women to a larger clinic at 34 weeks gestation, and the provider who delivers the baby is generally unfamiliar to the women, who then return to the neighborhood clinic for postpartum care. Similarly, deliveries among Strong Start participants at Hopkins and FAHSC are generally not attended by women's prenatal care providers, but by residents. At the Florida health department site, Strong Start enrollees are transferred to their delivery hospital for remaining prenatal care at 36 weeks and subsequently get their post-partum care from yet a third provider.

Communication: Finally, some program staff and awardees wish there could be more frequent interaction with peers or other awardees. At one site (Hopkins), the lack of day-to-day contact with other Strong Start team members leaves the care coordinators occasionally feeling isolated. Awardees as well feel that it would be beneficial to have opportunities to share their experiences and learn each other's best practices.

Promising Practices:

The maternity care homes included in this Annual Report adopted a number practices that informants and/or the site visit teams believe have contributed to successful implementation of Strong Start. These promising practices relate to selection and support of the care coordinator;

specific elements of the model of care; institutional support and alignment; and staff engagement and communication strategies. Each of these best practices is discussed below.

Selection, Training, and Support of Care Coordinator: Awardees attribute success of the care coordinator within the maternity home model largely to the careful hiring of motivated individuals with strong relationship-building skills and engaging personalities, in addition to their credentials and/or clinical backgrounds. Awardees at one site (FAHSC) wish they had scheduled a longer implementation phase given the importance of the hiring process, but are nonetheless very pleased with their hires to date. Another awardee (TTUHSC) emphasized the value of hiring community health workers who have experience working with low income families in the community, have similar cultural backgrounds to the target population—“speak the same language” literally and figuratively—and have motivational interview training that is particularly helpful for empowering Strong Start participants. MUSC’s two care coordinators were “hand-picked” for the job after previously working with the principal investigator; their extensive experience with prenatal and postpartum care reassures providers that they are well-qualified to provide medical advice to their patients.

Additional training by awardees also helps strengthen care coordinators’ knowledge about pregnancy, preterm births, behavioral change, and local resources. Each of FAHSC’s seven maternity health specialists received 80 hours of training. In contrast, ACCESS did not initially offer much guidance or structure; as a result, the care coordinators worked together to develop resource materials and offer one another support in developing a consistent approach.

Ongoing support for care coordinators through frequent communication (weekly meetings to discuss cases and problems, nearly daily team communication) and a dedicated supervisor and clinical advisor provide emotional support and practical guidance to care coordinators. Frequent communication helps to troubleshoot problems, and promotes learning from one another.

Strong Start Model of Care: Various aspects of the maternity home models of care appear to enhance Strong Start implementation and potential impact. FAHSC informants view their comprehensive model—providing a wide range of supports, 24/7 access to care coordinators, and rigorous follow up—as the key to making a difference in participants’ and their babies’ health. Hopkins has found that providing personal transportation services or gas reimbursement (through their managed care organization, not Strong Start funding) can make a big difference in keeping appointments. Two other sites (MUSC, TTUHSC) report that higher-risk/ higher-need women are

more receptive to enrollment, assistance, and retention in Strong Start; targeting such women may improve the program's success.

Scheduling and Placement: Two promising practices involve scheduling and placement of program staff. First, some maternity care homes place care coordinators at the prenatal care sites on the specific days each week when OB clinical visits are scheduled. This has been an efficient way to enroll women in Strong Start, increase interactions with care coordinators, and promote understanding of providers' instructions. One site (ACCESS) found that when care coordinators are physically on-site and able to present the program in person, enrollment is "easy" and generally more successful than when they follow up on an enrollment referral by phone. At one site, the care coordinator is present during the clinical visit to help interpret and ask questions the woman may have; care coordinators at other sites are not permitted to be present but think it would be valuable.

Second, some maternity care home awardees have found that assigning care coordinators to multiple locations/sites promotes consistency of the model. That is, each care coordinator conducts Strong Start enhanced services fairly similarly across all of her assigned sites. However, awardees also find that differences in sites occasionally require some tweaking of the model to match individual site circumstances and cultures. For example, a TTUHSC care coordinator found that her schedule for approaching women and her interactions with other staff differ when she is at a small neighborhood health center versus a large, academic OB clinic.

Flexibility: As the sites implement and learn from their experiences, flexibility to adapt their models is critical for success. One awardee (TTUHSC), for example, planned to conduct three home visits for each Strong Start participant, but after finding some resistance and lack of residence stability, they now use alternate meeting places or phone "visits" when necessary. Similarly, another awardee (FAHSC) discovered that women prefer getting care in a medical setting rather than at home.

Institutional Experience and Alignment: Project teams with a history of collaboration and institutional support are viewed by awardees as contributing to successful Strong Start implementation. MUSC's experience with a similar two-year pilot project, an existing Preterm Prevention program, and participation in the South Carolina Birth Outcomes Initiative provided a strong foundation for Strong Start. At TTUHSC, institutional supports such as a dedicated data analyst facilitates data collection, analysis, and the awardee's ability to meet other grant requirements. Hopkins supports its Strong Start care coordinators with a specially designed data

system, adapted from a case management system for high-risk chronically ill patients, that documents contacts, risk factors, and tasks.

ACCESS's implementation of a maternity care home aligns well with its broader efforts toward becoming PCMH-accredited. However, awardees were disappointed that there was not more deliberate communication from the FQHC network's administration to providers about Strong Start, which would have emphasized the importance of the program from leadership.

Staff/Provider Engagement and Communication: The maternity care home awardees are working to improve provider and staff buy-in and engagement with Strong Start. Extensive relationship building is necessary between Strong Start program leadership and clinical staff, both before the project launch and on an ongoing basis. The leadership teams need to convince clinicians that Strong Start can provide additional support for them rather than create extra work. One awardee (TTUHSC) held multiple meetings and lunches with clinic staff to introduce and educate them about Strong Start goals and new protocols.

Providers at some sites are enthusiastic about identifying potential Strong Start participants, while others still need additional encouragement; one awardee (TTUHSC) is considering providing incentives for nurses to boost referrals for Strong Start, though another (MUSC) reported requesting referral incentives for provider offices in their initial application for Strong Start and learning that this was not an allowable use of program funds. A care coordinator at another awardee (FAHSC) started bringing homemade brownies for the front desk staff member who sent her the most Strong Start participant referrals each month.

Ongoing communication with providers through the electronic medical record system and staff meetings helps keep providers engaged and aware of the Strong Start interventions' benefits to both patients and themselves. At MUSC, care coordinators are in regular contact with providers, communicating by phone, email, and EHR-messaging at least two or three times per week.

Conclusion:

High-risk Medicaid patients in the maternity care home model are experiencing the benefits of care coordinators whose services complement those of clinical teams. Care coordinators fill important gaps in traditional care, namely assistance navigating the health system (such as keeping prenatal care appointments) and accessing an array of community-based services. Focus group participants attest to the fact that the care coordinators show that they care, and provide both emotional support and practical assistance. The selection, training and engagement of a strong group of care

coordinators is a striking achievement of Strong Start awardees in the first year. The content of the training curricula and additional characteristics of care coordinators that contribute to success is worthy of additional exploration in subsequent years of the evaluation. It will also be important to explore whether clinician-care coordinator partnerships can be strengthened and lead to additional benefits to patients.

GROUP PRENATAL CARE

The Strong Start initiative's model of enhanced prenatal care through group care is an approach whereby patients receive prenatal care from health care providers in a group setting with other women of similar gestational age. The model includes an emphasis on building supportive peer relationships and involves a series of facilitated, face-to-face sessions (approximately 10) covering three components: health assessment, education, and support. Nearly all Strong Start awardees implementing the group prenatal care model are using the Centering Healthcare Institute's (CHI) approach, called Centering Pregnancy.²¹

Description of Awardees: Three awardees are included in the group prenatal care model crosscutting analysis for this first annual report: Albert Einstein Healthcare Network, University of Kentucky Research Foundation, and Harris Health System.²² These awardees are piloting their Strong Start programs in very similar organizational structures—large health and hospital systems that play a critical role as safety net providers in their regions. The proportion of Medicaid or CHIP-enrolled pregnant women that the awardees serve is substantial (estimates ranged from 70 – 95%), as were the proportions of women who are members of a racial/ethnic minority group (estimates ranged from 30 – 70%) or who are undocumented immigrants (specifically at some Einstein and Harris sites).

The awardees were also each familiar with the group prenatal care model (and specifically, Centering Pregnancy) prior to participating in Strong Start. One is relatively new to Centering (e.g., Einstein had been offering Centering for slightly over a year), while the others have been offering Centering for many years (e.g., Harris Health System began its Centering program in 2005 and the University of Kentucky began in 2008).

²¹ Through the end of Quarter 1 2014, there were 14 awardees offering group prenatal care in 42 sites, 23 of which were an approved Centering Health Institute (CHI) site. Of the remaining sites, 16 were members of CHI, but not currently approved, and three were not CHI members.

²² These three awardees represent only a fraction of all group care model awardees participating in Strong Start (a total of 14 awardees, overall).

Enhanced services: The awardees are using Strong Start funds to expand upon pre-existing Centering efforts. This expansion takes at least one of three forms:

- ***Expansion of the number of group prenatal care groups.*** For example, Einstein has institutionalized Centering Pregnancy, describing it as “how they do care” as opposed to an additional service that could only accommodate a small proportion of their pregnant patients.
- ***Expansion of the pregnant populations targeted for group prenatal care enrollment.*** For example, the University of Kentucky was only offering Centering groups that targeted Hispanic women prior to Strong Start, but now is offering several “specialized” groups targeted at populations with a specific concern or need including diabetes, substance abuse, or high psychosocial needs.
- ***Expansion of wrap around support services for women enrolled in group prenatal care.*** For example, Harris Health System hired community health workers to conduct outreach and recruitment for their Centering Pregnancy program, as well as social workers to provide social and emotional support and to refer women to helpful community resources.

Consistent with their pre-Strong Start delivery of group prenatal care, each of the awardees included in this Annual Report follow the CHI approach to group prenatal care, and sites demonstrate high fidelity to the Centering Pregnancy model. For example, typical sessions begin with participants conducting self-assessments (e.g., weight, blood pressure, urine sample) followed by one-on-one individual health assessments with clinicians in a private area of the room, during which group members socialize and share healthy snacks. Once clinicians complete the individual health assessments, the group participates in a topical discussion. Facilitators who have attended CHI training lead the group discussions, which are based on the Centering curriculum. Examples of topics discussed in the group sessions include stress, newborn care, social services like the WIC program, labor and delivery, breastfeeding, family planning, domestic violence, nutrition, preterm birth prevention, oral hygiene, infant safety, and smoking. Facilitators often invite guest speakers—such as pediatricians, prenatal yoga instructors, and representatives from domestic violence organizations—to attend groups and participate in the discussion.

According to key informants, at some sites, each group collectively decides whether support persons, such as friends, family members, and partners, are allowed to attend sessions. Women participating in the evaluation’s focus groups most often said that they appreciate having support persons at group sessions, particularly their partners, who they feel benefit from (and reinforce)

learning about pregnancy and newborn care. However, not all sites are able to accommodate support persons—at UK, one site does not have a group meeting space that is large enough.

The CHI approach outlines ten Centering sessions, each lasting approximately two hours. The sessions follow typical prenatal appointment scheduling frequency. During the early stages, the sessions occur once a month, progressing to bi-weekly and weekly during the second and third trimesters, respectively.

Strong Start participants participating in our focus groups generally spoke very positively about their experiences with group prenatal care. In particular, they liked both the volume and substance of the information provided in the sessions.

“I like the fact that I come, they do check-ups, and I can talk about things I don’t know about. Without Centering, you come, see the doctor and go home. With Centering, you have more information.”

“I think I am gaining more from this than [traditional care].”

Some, however, felt that receiving information in a group format has both advantages and disadvantages. On the one hand, the ability to discuss their pregnancies with other women fosters a sense of camaraderie, knowing that others are experiencing the same feelings, changes, and concerns. In fact, some participants develop bonds that extend beyond the group sessions and provide ongoing social support to each other through activities such as giving rides, babysitting each other’s children, and creating Facebook groups. On the other hand, some participants wanted more private time with their clinicians to ask questions specific to their pregnancies, but most of the time in the sessions is devoted to group discussion. These women worried that they were “missing out” on some aspects of individual one-on-one time with a prenatal care provider.

Strong Start Implementation:

In many ways, the three awardees took a similar approach to implementing group prenatal care because they each used the Centering Pregnancy model, which includes guidelines for how to conduct the groups including suggested curricula and materials for each session. At the same time, awardees’ implementation approaches differ in a few key ways—most notably their enrollment methods, composition of groups, and continuity of group facilitators. These and other key features of group prenatal care implementation are discussed below.

Recruitment and Outreach: Two awardees (Einstein and Harris) are recruiting women to participate in Strong Start both within their organizations as well as in the community. They have developed promotional materials such as brochures, newspaper ads, billboards, websites, and magnets to generally raise public awareness of group prenatal care and/or Strong Start. In addition, these awardees also directly recruit Strong Start participants at health fairs, social service agencies, and popular community spaces. The third awardee included in this report—the University of Kentucky—recruits Strong Start participants from within their own patient population only, but is working with state Medicaid managed care organizations to set up a referral arrangement.

Risk Assessment: At the time of case study data collection, Strong Start eligibility requirements included: enrollment in Medicaid or CHIP, gestational age not more than 24 weeks, and at least one risk factor for an adverse pregnancy outcome.²³ Across all three awardees, site staff gather information needed to assess eligibility at the first prenatal visit. At Einstein and Harris sites, clinical staff – nurses, nurse practitioners, physicians, and midwives—assess women’s risk factors using a variety of different forms, including state-mandated OB intake forms, site-specific intake forms, and the Strong Start evaluation’s Intake Form. The forms focus on risk factors including mental and physical health status, health behaviors, and socio-economic status. University of Kentucky sites do not assess risk, but rather offer group prenatal care to all Medicaid patients.

Enrollment: All three awardees offer group prenatal care to pregnant women seeking care at participating sites, regardless of whether they qualify to participate in Strong Start. However, only group care participants who meet the eligibility criteria described above are enrolled into Strong Start. The “opt-out” approach to enrolling women into Strong Start is the most common among awardees; that is, all eligible women are enrolled into Strong Start unless they explicitly tell their provider that they do not want to participate. Two awardees—Einstein and University of Kentucky—use opt-out, though the approach is less consistently applied across Kentucky sites. Einstein adopted this more inclusive approach after experiencing difficulty reaching target enrollment numbers using an opt-in approach (whereby eligible women were offered the program and had to affirmatively agree to enroll).

Under the opt-out approach, clinicians or front office staff describe group prenatal care and inform new OB patients that Centering Pregnancy is how the site “does prenatal care.” This conversation happens at the first prenatal appointment and culminates with the clinician or staff

²³ In July 2014, and after data collection for the awardee case studies included in this analysis, CMMI modified program eligibility requirements so that they no longer include a qualifying preterm risk factor. The gestational age cutoff was also loosened so that Medicaid/CHIP patients at any stage of pregnancy can enroll in Strong Start, but this policy change had not been finalized at the time of writing.

member giving the patient written materials about Centering along with the schedule of group sessions.

Under the “opt-in” approach, clinical or non-clinical staff also initiate discussions with eligible women about Strong Start. However, the discussion is framed as a choice between group or traditional OB care. Typically, site staff encourage potential participants to choose group prenatal care, highlighting that participants:

- Have more time to ask questions compared to a traditional brief (e.g., 10-15 minute) appointment with a provider;
- Can teach and learn from (and with) other pregnant women with similar gestational age; and
- Will use their time more productively because time typically spent in the waiting room prior to an individual appointment is instead spent participating in a group session.

In general, interest in the group prenatal care model is high among eligible women. When women are reluctant to enroll, or end up dropping out, it is most often because they cannot fit the sessions into their work schedule or find childcare to accommodate attendance. Another less-common source of reluctance is aversion to the group model (e.g., women feel uncomfortable or shy).

Composition of groups: Program staff consider several factors when placing participants into a prenatal care group. At a minimum, staff assign women according to their gestational age—roughly within a 4 week window. In addition to gestational age, one awardee (Kentucky) groups women based on other special educational needs the women have, created by factors such as: race and ethnicity (for example, bringing Hispanic, Spanish-speaking women together into a group), shared experiences (psychosocial risk factors), health behaviors (tobacco and substance abuse), and medical risk factors (diabetes and obesity). The number of women per group varies considerably; key informants reported creating groups with as few as six, and as many as fourteen women.

Group facilitators: Across the three awardees included in this Annual Report, the lead facilitator for the groups is typically a nurse practitioner or a physician (OBGYN or MFM). The co-facilitators are typically other clinical staff in the sites, such as nurses or medical assistants. In most instances the same facilitators lead all ten sessions of a particular group. However, key informants from two awardees report some discontinuity in group facilitators. In some cases discontinuity is episodic. At one site (Einstein’s Paley clinic), for example, a co-facilitator for one group was replaced in the

middle of the curriculum to allow the co-facilitator more time to devote to her other responsibilities. Focus group participants reacted negatively to this change:

“We don’t have [facilitator] anymore... I was disappointed. It felt a little different. Getting a newcomer all the sudden upset the mix.”

In other instances, discontinuity is routine under the Strong Start model. For example, at two of University of Kentucky’s sites (Polk Dalton and Good Samaritan), residents alternate with the midwives and physicians to facilitate groups. Focus group participants at these sites disliked having different providers at the sessions:

“Just having one person would be better. It’s a chain of hospitals, so each doctor in training could have their own group.”

Strong Start participants in focus groups across awardees’ sites noted that they were very satisfied with their group facilitators and felt very comfortable with them. Speaking of the lead facilitator for her group, one participant shared:

“One thing with the group is you need to share what you have, and sometimes it can be hard. But [the facilitator] makes it really comfortable. I really like her; we can talk about anything with her.”

Key informants echoed participants’ sentiments that the group prenatal care model creates a comfortable environment where participants feel safe sharing almost anything, including experiences that they would not typically disclose in a traditional one-on-one prenatal appointment. Examples of these issues include domestic violence, substance abuse, homelessness, and unsafe or unstable housing.

Challenges:

Einstein, Harris Health, and the University of Kentucky experienced a range of implementation challenges in the first program year. Common challenges include provider support, meeting space for groups, scheduling, childcare, funding for snacks and other supplies, and complying with Strong Start data and documentation requirements.

Provider Support: Key informants across sites reported that both front office staff, as well as providers (and sometimes residents), are sometimes resistant to integrating group prenatal care into their traditional delivery approach. In the case of front office staff, adopting a workflow that accommodates extra time to explain group care to eligible women and the scheduling of the groups are typical points of contention. For providers, the challenge more often involves getting them to embrace a new approach to care delivery. In particular, the concept of “opt-out” enrollment was difficult to accept, and some awardees report inconsistency in how the opt-out approach has been implemented. For example, a focus group participant at one awardee site that uses “opt out” (at the University of Kentucky) still described the enrollment process as optional:

“They give you a choice. It’s like an invitation. ‘We have the Centering, would you like to be a part of it?’”

Group Meeting Space: Key informants across the three awardees and their sites reported that finding space that was sufficiently large, that allowed for privacy, and that was inviting and attractive to women has been difficult. One site (Einstein’s Genuardi clinic) shares a space with the rehabilitation team in the hospital, and must put up and take down the room before and after each session. Another site (University of Kentucky’s Polk Dalton clinic) uses a space that functions as a waiting room when not in use by Strong Start. Despite awardees’ best efforts to host groups in a warm and inviting space, one of the most common dissatisfactions reported by focus group participants was that the space for physical exam is not comfortable or private enough:

“Privacy is an issue. It could be a little more private.”

“I would probably say that when you go behind the curtain and they check for the baby’s heart, it was hard from me to get up from the little bed they had. It would be nice to have a room or something...It was both a privacy and comfort issue.”

Scheduling: Key informants reported several challenges regarding scheduling groups. First, it is difficult to determine the most convenient days and times to hold the groups—both for the sites, as well as patients. For example, early morning is typically considered a poor choice because patients may be late risers and more likely to miss sessions. Meanwhile, evening groups pose challenges related to childcare. Second, some participating sites use electronic systems to schedule and remind patients of their appointments. These systems are typically set up such that only one person can be

scheduled for an appointment at a given time slot and thus do not easily accommodate group scheduling. A third challenge regarding scheduling was coordinating participants' other medical appointments with the group prenatal care schedule. It takes considerable time and effort to coordinate ultrasound, lab work, and specialist visits in ways that make it convenient for Strong Start patients to attend all required appointments.

Childcare: In accordance with the CHI curriculum, awardees generally discourage children at group prenatal care sessions (although many sites reported that some participants bring their children anyway). This restriction created a barrier to greater enrollment and consistent participation among eligible women because many have difficulty arranging childcare to attend sessions. Many key informants reported that they wished they could offer childcare to participants to alleviate this barrier.

Funding for Group Snacks and Supplies: The Centering curriculum suggests that a particularly effective strategy for encouraging a sense of community among group members (and an incentive to attend sessions) is to offer healthy snacks during the group sessions. An added benefit of offering healthy snacks, key informants believed, is that it teaches patients about what kinds of foods are nutritious and most beneficial to eat during their pregnancies. Yet, awardees are not permitted to use Strong Start funds to purchase snacks or other supplies (markers, stickers, etc.) for the group prenatal care sessions. Some key informants said they paid for Centering session snacks themselves, or solicited donations from local organizations. Key informants noted that Strong Start funds should be available to support the purchase of healthy snacks, as it is considered a “best practice” by CHI.

Strong Start Data and Documentation Requirements: Key informants reported two main challenges associated with the data collection and reporting requirements of the Strong Start program. First, awardees were not prepared for the large amount of data collection that would be requested of them. For example, they did not budget sufficient staff or time to enter and monitor data collection. Second, awardees expressed frustration that the data requests changed frequently during the first year of implementation, and noted that it was inefficient to change their data collection and reporting processes multiple times.

Promising Practices:

The three awardees included in this analysis also shared a number of promising practices and facilitators for implementing group prenatal care. These relate to patient education, the value of previous experience with the group care model, and the support and engagement of executive leadership.

Educating Patients and Site Staff about Group Prenatal Care: Despite the fact that all three of these awardees were familiar with group prenatal care and had been offering Centering for at least one year, some clinical and non-clinical staff within Strong Start sites are still not familiar with the model. Program staff also reported that patients often don't understand the group care model either. Thus, as part of their efforts to implement their Strong Start programs, several awardees spent time educating site staff and eligible women about the content and benefits of the group prenatal care model. A common strategy perceived to be particularly effective in promoting buy-in of clinical staff is to invite them to sit in on groups to see them "in action." Similarly, program staff reported urging eligible patients to "just try it out." The consensus was that once both site staff and patients understood what the group care model is, they find it appealing.

Previous Experience with the Model: As described above, all three awardees were offering Centering to their patients for at least a year before Strong Start began. Key informants described this experience as beneficial because it reduced the startup time for the Strong Start implementation. For example, since several providers were already trained to facilitate Centering sessions, participating sites could begin to expand groups right away. (It is also notable that Year One case study data collection was delayed for many awardees implementing group prenatal care for the first time, since it took these awardees considerably more time to launch their Strong Start programs.)

In addition, one site coordinator (Einstein's Genuardi clinic) had provided technical assistance to organizations implementing Centering and thus had a tool kit of successful implementation strategies that she could use to help the Strong Start sites get up and running quickly. Another benefit to having a history with the group care model was that some site staff had already observed positive outcomes associated with it and thus were willing to champion the model of care among their peers. These champions helped to create buy-in for the Strong Start program.

Support and Engagement of Executive Leadership: Awardee staff at both Einstein and Harris reported that executives within their organizations were strong supporters and advocates of the group prenatal care model and thus were committed to making their Strong Start programs a success. For example, at Einstein, despite the fact that the amount of Strong Start funding was relatively small compared to other grant awards the hospital manages, executive leadership stay abreast of the progress of the Strong Start program and support efforts to raise awareness of the project within and outside the organization.

Conclusion:

These findings represent early insight into the implementation of group prenatal care under the Strong Start initiative. Despite the fact that the awardees included in this report all had experience with group prenatal prior to Strong Start, they still faced challenges associated with offering the model on a larger scale. In particular, logistical challenges related to recruitment, space, and scheduling seem to be the most threatening to awardees' project goals. Key informants intend to continue to adjust their implementation strategies to overcome these challenges. Generating more buy-in from key site personnel was one strategy key informants perceive to have the biggest influence on overcoming barriers to success, and they feel that as more site personnel had opportunities to observe the group prenatal care sessions and witness the benefits of the model, support would increase.

Case study data suggests that these benefits are already starting to manifest. Key informants report that even in the first year of implementation, they have observed many positive outcomes for participants. Several site personnel shared stories of term deliveries occurring for women who had previous pre-term births, and one awardee reported that the preterm birth rate was much lower for Strong Start participants as compared to patients receiving traditional prenatal care. In addition, key informants and focus group participants report that the group prenatal care model has better prepared patients for their childbirth and for parenting. Key informants also shared several anecdotes regarding positive psychosocial outcomes for group prenatal care participants, and most commonly report increased social and emotional support due to strong relationships between group participants. They attribute the positive outcomes to two factors: first, that the group prenatal care sessions allow more time for participants to receive the education that they need to manage their pregnancies successfully; and second, that participants bond over the shared experience of pregnancy and thus feel more comfortable asking important questions, discussing sensitive topics, and seeking help for threats to their pregnancies than they would in a typical one-on-one encounter with a prenatal care provider.

BIRTH CENTERS

The Strong Start model of enhanced prenatal care at birth centers involves a team of health professionals, including midwives and peer counselors, who provide comprehensive prenatal care to Medicaid and CHIP beneficiaries in a birth center setting. According to the American Association of Birth Centers (AABC, the Strong Start awardee operating nearly all sites implementing the birth

center model), a birth center is a homelike facility existing within a healthcare system that provides family-centered care for healthy women before, during and after normal pregnancy, labor and birth.

AABC's Strong Start project has two key components—care provided by midwives and peer support. Strong Start funds support the addition of peer counselor services at AABC sites (midwifery care is already a mandatory covered service under Medicaid) and thus our discussion of program implementation focuses mainly on the peer counselor element. But key informants emphasized the central role of midwifery care in AABC's package of Strong Start enhanced prenatal care services. The midwifery model of care, an inherent feature of birth centers, involves a holistic and wellness approach to pregnancy and birth. Descriptions of midwifery care often highlight its emphasis on “listening to women,” education, and self-care. Since birth center prenatal visits are generally at least 30 minutes (compared to 10 or 15 minutes for a typical prenatal care visit at an OB/GYN practice) midwives are able to build a relationship with patients and can spend more time identifying and addressing their medical, psychosocial, or educational needs.

Overview of AABC Sites: This crosscutting analysis includes findings from qualitative data collection at ten sites (in seven states) operating the Strong Start birth center model under the AABC award:

- El Rio Birth & Women's Health Center (*Tucson, AZ*);
- Best Start Birth Center (*San Diego, CA*); Birth & Beyond (*Grandin, FL*);
- Breath of Life Women's Health & Birth Center (*Largo, FL*);
- Rosemary Birthing Home (*Sarasota, FL*);
- Brooklyn Birthing Center (*Brooklyn, NY*);
- Reading Birth & Women's Center (*Reading, PA*);
- Charleston Birth Place (*Charleston, SC*);
- North Houston Birth Center (*Houston, TX*); and,
- FamilyCare Women's Health & Birth Center (*Hurricane, WV*).²⁴

²⁴ At the time this annual report was prepared, AABC's award included 37 sites. The Strong Start evaluation's case study design includes annual data collection from nearly two dozen selected AABC sites, so this analysis includes nearly half of the sites studied in Year One.

Each is a freestanding birth center (i.e., it is not part of or attached to a hospital) operated by midwives. Certified Nurse Midwives (CNMs) are the primary prenatal care providers at most sites, though one is owned and operated by Certified Professional Midwives (CPMs).²⁵

CNMs and CPMs have similar roles and responsibilities at birth centers, though one distinction is that CNMs often have area hospital privileges while CPMs do not. Indeed, at most study sites, patients have the option of a planned hospital birth (attended by the center's midwives) or delivery at the birth center. The proportion of hospital births varies; 20 percent of the Charleston site's births are at the hospital, for instance, while 90 percent of FamilyCare's births are at the hospital. A number of sites report good working relationships with obstetric hospitals. Three sites also offer a home birth option with the center's midwives.

All sites provide maternity care and women's gynecologic and preventive health care. Birth & Beyond also offers pediatric care and adult primary care (including for men) and is a federally-designated Rural Health Clinic. El Rio and FamilyCare are affiliated with large Federally-Qualified Health Centers (FQHCs). Depending on the size and scope of a site's practice, midwives work in collaboration with other clinicians and staff, including registered nurses, licensed practical nurses, family nurse practitioners, medical assistants, lactation consultants, childbirth and health educators, doulas, and birth assistants.

The AABC sites offer a variety of services to patients that would typically be considered enhanced under a traditional prenatal care model (e.g., an OB/GYN clinic or private practice) but are part of the birth centers' standard prenatal care approach. All offer classes and support groups, for instance on childbirth education, newborn care and parenting, breastfeeding, and nutrition. Some maintain lending libraries for patients. All reported existing relationships with social service organizations and a process for referring patients to resources such as food assistance and behavioral health or substance abuse treatment. These connections were very well-established at some centers. For instance, midwives at FamilyCare refer pregnant patients to an in-house (i.e., working within the same FQHC network) nutritionist, social worker, and diabetes specialist. Birth & Beyond is attached to a methadone clinic, and pregnant patients in treatment there can seek care from the center's midwives.

²⁵ There are several distinctions between CNMs and CPMs. CNMs have a graduate degree in nursing, while CPM preparation typically involves education under a midwife preceptor. The two types of midwives are also certified by different entities. Finally, CPMs are not legally authorized to practice in every state; currently they can practice legally in 28 states, as listed on this website: <http://pushformidwives.org/>. Eleven of AABC's 37 Strong Start sites have CPM staff, including Rosemary Birthing Home which is part of this analysis.

Patient volume varies considerably across the ten sites. The highest volume sites are the El Rio birth center (over 500 births/year) and FamilyCare (approximately 400 births/year) while the lowest volume sites are Rosemary Birthing Home and Birth and Beyond (approximately 100 and 120 births/year, respectively). The latter sites, notably, are also those that do not offer planned hospital births.

Patient demographics are also mixed, though at most sites a majority of patients are Caucasian. (The North Houston site, where most patients are Hispanic, is an exception.) There is no uniform, predominant socioeconomic status among patients among the study sites. Key informants at the El Rio site, for instance, report that a majority of patients are college-educated, middle- or high-income and privately insured; just a quarter of birth center patients have Medicaid. On the other hand, at the Birth and Beyond, Rosemary Birthing Home, and North Houston sites two-thirds or more of patients are low-income and covered by Medicaid or CHIP.

Site staff report a range of reasons that patients—including those eligible for Strong Start—choose their center. Most commonly, patients are attracted to the midwifery model of care; have heard about the center via word-of-mouth; already receive well-woman care there; or are referred from community-based and partner organizations. Some are also seeking certain pain relief methods or birth procedures that are not available at hospitals (e.g., water birth and nitrous oxide at the Charleston Birth Place, or VBACs at FamilyCare). Strong Start participants enrolled in the birth center model echoed these findings in the evaluation’s focus groups. Many chose their birth center because they wanted a more natural birth experience. Some were specifically interested in water birth, and others considered a home birth and saw the birth center as a compromise or stepping stone. Others emphasized that they preferred midwives to OBs because they found them more attentive and empowering.

“All I wanted to do for my first two pregnancies was to be in the water. I got here and it was like heaven.”

“That’s why I wanted to go to midwives. They believe in women...I wasn’t very pleased with my whole experience with my first daughter. I realized all of it was just because I was doing what the doctor said and she wasn’t listening to me. She wasn’t listening to me. I was listening to her. I chose midwives because they listen to us, and they believe in us and I like that.”

“I saw the birth room and I was sold. Especially with the idea that you can labor how you wanted instead of being told.”

Strong Start Implementation:

There is considerable variation in the way AABC’s sites have implemented Strong Start. Each site has agreed to a set of common requirements, such as establishing a process for screening and enrolling patients in the program, providing peer support services, and using the Perinatal Data Registry²⁶ (PDR) and Strong Start evaluation forms to collect patient data. But AABC has taken a flexible approach to many operational details. With a goal of encouraging broad involvement and Strong Start participation by any birth center member actively serving Medicaid or CHIP enrollees, the awardee made a deliberate decision to create a loose structure for implementation that a diversity of centers could adapt to their unique practice environment.

Outreach and Enrollment: Sites follow the same general steps to enroll patients in Strong Start, which in the first year of the program involved screening for Medicaid or CHIP enrollment and gestational age not greater than 24 weeks,²⁷ completing the AABC risk assessment form, and introducing the program to eligible patients and obtaining consent. The screening and enrollment process generally (though not always) occurs at the patient’s first prenatal visit.

Nearly all of the study sites are using an “opt-in” enrollment approach, whereby the program is presented as an optional enhanced service in which patients can choose to enroll or not. Only FamilyCare described a process that resembles an “opt-out” approach, which it has used with its entire prenatal care population (regardless of coverage type). Strong Start is presented as the default arrangement at the site and all patients are enrolled (with informed consent) unless they explicitly opt out.

A variety of enrollment-related messages have evolved across the sites, as program staff have tested and honed different ways of framing Strong Start’s purpose and benefits. Messages encouraging enrollment in the program ranged from (paraphrased) “You’ll receive extra benefits/support,” to “This is part of our standard model of care,” to “Join a research study that will help midwives and birth centers.” Often sites used some combination of these, and had mixed opinions about their relative effectiveness. Key informants at one site wanted to avoid a message that singled out Medicaid and CHIP enrollees as needing anything “extra” and thus emphasized the program’s potential research benefits (i.e., a focus on what the participant is doing for the center,

²⁶ The PDR (originally called the Uniform Data Set or UDS) was developed by AABC a few decades ago and includes patient demographic, utilization and health outcome data. The registry is web-based and comprehensive, including data from a patient’s initial prenatal visit until six weeks postpartum. In the near future AABC plans to connect the PDR to birth centers’ electronic medical records.

²⁷ In July 2014, and after data collection for the awardee case studies included in this analysis, CMMI modified program eligibility requirements so that they no longer include a qualifying preterm risk factor. The gestational age cutoff was also loosened so that Medicaid/CHIP patients at any stage of pregnancy can enroll in Strong Start, but this policy change had not been finalized at the time of writing.

rather than vice versa). On the other hand, another site found that patients—particularly young and new mothers—were very receptive to messages about the “perks” and extra information they would receive under the program.

AABC has not invested significantly in marketing and outreach for Strong Start (though they plan to bolster such efforts in the second program year) and only two study sites conduct outreach in their communities to recruit new Medicaid and CHIP (and, by extension, Strong Start) patients. In most cases, this was because the sites were already at or near capacity, but the Charleston site also expressed reluctance to recruit new Medicaid patients because reimbursement under South Carolina Medicaid is judged as inadequate.

Peer Counseling Services: All sites emphasize the same key features of their peer-counseling program: emotional and social support; education on topics related to pregnancy, self-care, and newborn care; and linking participants to resources and services available in their community. However, there is considerable variation in peer counselors’ qualifications, and in the content, mode and frequency of their encounters.

- *Qualifications.* AABC designed the peer counselor position with flexibility in mind—there is not a standard definition of “peer,” though the awardee expects the role to be distinct from the participant’s prenatal care provider. All peer counselors are required to complete a series of web-based training modules before services are initiated. As shown in Table 3, peer counselors have a range of qualifications. Half of the sites included in this analysis filled the peer counselor position internally (i.e., with staff already working at the center in a different function) though even sites with new hires selected individuals familiar with the birth center. Most peer counselors have clinical or formal health education training. FamilyCare’s peer counselors do not have any formal training beyond AABC’s web-based modules, but were selected for characteristics that qualified them as peers of Strong Start participants, such as being young with small children, raised in the area, and a former birth center prenatal patient.

Key informants have mixed views of which qualifications are most valuable in a peer counselor. Some feel patients are more likely to share openly with an individual with demographic peer qualities. But leadership at the Brooklyn Birthing Center decided to fill the position with licensed social workers because social workers’ skills and experience are beneficial for counseling patients with serious issues. In addition, with a very diverse patient population, key informants at the site indicated that they could not choose just one

demographic (and risk excluding others) when deciding what constituted a “peer.”²⁸ Other sites also emphasized that formal clinical training is an asset, and helps counselors address a wider scope of participant needs and concerns. Charleston Birth Place felt their counselor represented the “complete package” with a combination of clinical training, familiarity with the birth center, and previous experience as a Medicaid and WIC beneficiary.

Sites generally have one FTE Strong Start peer counselor; in cases where there are two counselors, they are typically both part-time to make up one FTE. AABC suggests a caseload of 100-120 enrollees, maximum, per FTE peer counselor, but most of the sites in this analysis did not approach this level.

TABLE 3: PEER COUNSELOR QUALIFICATIONS AND HIRING AT AABC STRONG START SITES

Site Name	Peer Counselor Qualifications (and Number)	Internal or New Hire
El Rio Birth & Women’s Health Center	Doula (2)	New
Best Start Birth Center	Medical Assistant (1)	Internal
Birth & Beyond	Licensed Clinical Social Worker (1)	New
Breath of Life Women’s Health & Birth Center	Registered Nurse (1)	Internal
Rosemary Birthing Home	Licensed Practical Nurse (1)	Internal
Brooklyn Birthing Center	Licensed Clinical Social Workers (2)	New
Reading Birth & Women’s Center	Registered Nurse (1)	Internal
Charleston Birth Place	Registered Nurse (1)	Internal
North Houston Birth Center	Doula/health educator (1)	New
FamilyCare Women’s Health & Birth Center	Peers (2)	New

- Content.** Peer counselor encounters cover a broad range of topics. The topics mentioned most often by key informants are nutrition, food assistance, transportation assistance, behavioral health and dental care referrals, and stress management. The counselor’s first step is usually to identify and assess a participant’s needs—some peer counselors in our sample use tools such as the evaluation’s Intake Form or the AABC-created ‘care plan’ for this purpose. She then provides information (e.g., handouts, web links), direct education, or resource referrals to address the needs that have been identified. Some peer counselor encounters are also purely supportive—for instance, lending a listening ear when a participant is processing relationship issues.
- Mode.** Nearly all the study sites conduct peer counselor sessions in person (see Table 4) which aligns with AABC’s expectations for the encounters. Only Charleston Birth Place

²⁸ After the site visit, researchers learned that this site had substituted a counselor with more demographic peer qualifications for one of the social workers.

reported mostly virtual communication (primarily text and email) between the peer counselor and Strong Start participants. Other sites have expressed interest in phone-based or Skype meetings, but AABC has not formally approved these methods. Sites can also elect to hold one-on-one or group meetings with the peer counselor, though just one of the 10 sites included in this analysis (El Rio) offers group sessions as an option for Strong Start participants. Key informants at the site reported that the groups combine emotional support, education about preterm birth, and a guest speaker or presenter who adds a “fun” element (e.g., a belly dancing or prenatal yoga instructor). Attendance at the groups has been mediocre, which key informants attributed mostly to participants’ transportation barriers. The El Rio birth center peer counselor also visits some Strong Start participants at home. While such encounters are not typical, the counselor felt they illuminated family issues that might not otherwise have been apparent.

- *Frequency.* AABC requires sites to document a minimum of four peer counselor encounters per Strong Start enrollee, including at least one per trimester and a final postpartum encounter. Accordingly, each of the sites provide at least four—and as many as 14—encounters throughout pregnancy and postpartum. Notably, the site with the highest frequency of peer counselor encounters is also the site that relies primarily on virtual communications.

TABLE 4: MODE AND FREQUENCY OF PEER COUNSELOR ENCOUNTERS

Site Name (and Location)	Mode	Average # of Encounters
El Rio Birth & Women’s Health Center	1-on-1 in-person Email or phone (as needed) Optional group sessions Optional home visits	4
Best Start Birth Center	1-on-1, in-person Phone (postpartum)	4
Birth & Beyond	1-on-1, in-person	4
Breath of Life Women’s Health & Birth Center	1-on-1, in-person	4-5
Rosemary Birthing Home	1-on-1, in-person	6
Brooklyn Birthing Center	1-on-1, in-person	4
Reading Birth & Women’s Center	1-on-1, in-person	4
Charleston Birth Place	1-on-1, in person Text, email, or phone (majority)	10-14
North Houston Birth Center	1-on-1, in-person	4
FamilyCare Women’s Health & Birth Center	1-on-1, in-person Email or text (as necessary)	6

Most focus group participants enrolled in the Strong Start birth center model praised their peer counselor, saying they "go above and beyond" to provide support and address needs. Women cited a number of ways the peer counselor is helpful, noting that she provides education on topics from healthy eating to breastfeeding, referrals and connections to resources (e.g., transportation, WIC, housing), and emotional support that helps reduce stress. However, participants in one focus group noted their peer counselor didn't always know the answers to their questions, and another group found some peer counselor advice unrealistic (e.g., to eat all organic foods) and felt she was too talkative. Some participants were also not sure that they needed Strong Start or were benefiting from it in any significant way.

"At 37 weeks I was saying I was ready. And [peer counselor] was like, 'No, you know the benefits.' And I thought, okay no I'm not ready. Never mind."

"I'm the kind of person who wants to know everything. It is great to have another resource to go to. And also, the emotional support too."

"It's nice to know the peer counselor is there for anything. It's not just come in, come out. If you are having a situation with your finances, you know you're covered in different areas."

"She called because I'd had some dental issues, and she said Medicaid allows for emergency dental now. That night, she emailed me the information. It sounds like she's like that with everyone. She runs across information to help us, and she calls us."

"If you bring things up, [the peer counselor] helps you. But that won't serve the program well. It's hard to ask for help. I want to know what's offered so I'm not asking [for more than] that."

"[The peer counselor] says, 'let me talk to you a second'. A second turns into an hour [which is too long]."

Challenges:

The sample of AABC sites included in this analysis have experienced a range of challenges during their first year of implementation. Generally these challenges fall into four categories: identifying and enrolling patients; program retention; establishing peer counseling; complying with program data and documentation requirements; and Medicaid policies and other state regulatory barriers.

Identifying and Enrolling Strong Start-Eligible Patients: A number of AABC sites have struggled with enrollment-related challenges. The awardee is tracking enrollment relative to projections,²⁹ and site-by-site performance varies dramatically. Among the 10 sites included in this analysis, three have been designated by AABC as having ‘high’ enrollment, five have ‘moderate’ enrollment, and two have ‘low’ enrollment. Enrollment in the sites as of July 2014 ranged from 156 ever enrolled at the North Houston site to two ever enrolled at the Reading site. Centers with the most robust enrollment (as compared to AABC projections) are those with a majority of Medicaid patients—the site in North Houston, FamilyCare, and Birth & Beyond.

Some sites have struggled to incorporate the enrollment process into the workflow of their birth center. Midwives are key to capturing as many eligible patients as possible, but sites encounter problems when midwives fail to screen for or make referrals to Strong Start. Also, establishing an effective enrollment process can be more difficult for sites with a part-time peer counselor. When a counselor is available during most business hours, enrollment (usually her responsibility) can be completed whenever a patient is at the center.

A few sites attributed lagging enrollment to the fact that fewer patients than expected are eligible for Strong Start. Some Medicaid-covered patients, for instance, do not have another risk factor for preterm birth or were, prior to CMMI’s decision to loosen eligibility criteria, past Strong Start’s initial gestational age cutoff.

Most sites report that very few eligible patients have declined Strong Start. FamilyCare experienced a low participation rate until adopting opt-out enrollment, which led to significant improvements. According to key informants, the most common reasons that patients decline are because they are unable or unwilling to commit to additional meetings with the peer counselor, or they perceive that they do not need the extra support (particularly multiparous patients). Other reasons include concerns about privacy and data sharing, as well as transportation barriers.

Establishing Peer Counseling Services: Most sites have struggled with some aspect of implementing peer counseling. Hiring and staff turnover has been a barrier for some—for instance, the Reading site’s initial peer counselor hires were unreliable (e.g., repeatedly failing to show up for appointments with patients) and the birth center ultimately trained their staff nurse to provide the service instead. More commonly, sites have encountered problems with scheduling peer counselor

²⁹ AABC made enrollment projections for each site based on their pre-Strong Start Medicaid client volume. Birth centers already serving a large proportion of Medicaid patients have the highest enrollment targets, while sites with a small Medicaid base are expected to operate a much smaller Strong Start program by design.

encounters. Patients are usually reluctant to make a separate trip to the birth center to meet with a peer counselor.

Though they recognized (and generally appreciated) AABC's approach of allowing sites significant flexibility, some key informants reported a desire for more standardization and guidance on how to establish peer counseling. Some also felt that the peer counselor training was not comprehensive enough and did not provide "hands-on" guidance for activities like how to organize group meetings. They suggested that the training include motivational interviewing, or include a demonstration (or role-play) of a typical peer counselor encounter.

Peer counselor reimbursement is also a challenge. Two sites suggested that reimbursement, at \$350 per enrollee, was not adequate to support peer counselors' level of effort (i.e., enrollment activities, scheduling and follow-up, the four-plus encounters, and program and evaluation data collection). A third site (FamilyCare) noted that, because enrollment in the program has been lower than projected and its peer counselors are salaried employees (rather than paid on a per-encounter basis, as is the case with some other sites) the center is currently losing money.

Program Retention: A few sites (Birth & Beyond, El Rio, and Brooklyn Birthing Center) have experienced problems with retention, reporting Strong Start dropout rates that range from 20 to 30 percent of participants. Though key informants at these sites attributed program dropouts primarily to participants moving away from the area and discontinuing care at the birth center altogether, this was not always the case. Other factors (for participants who remain in birth center care but drop out of Strong Start specifically) include transportation barriers and time constraints. A small proportion of participants reportedly drop out of Strong Start because they lose interest or do not view the program as valuable.

Complying with Strong Start Program and Evaluation Requirements: Some key informants describe Strong Start's data and documentation requirements as a barrier to smooth implementation. More specifically, they note difficulties involved with: digesting the large amount of information about Strong Start; training (and retraining) staff on Strong Start requirements and processes, including the PDR; and, incorporating forms into workflow (particularly given changes to the forms during year one). Most sites indicated that they had not anticipated this level of data and documentation burden, and so had not properly planned for it when budgeting resources for the

program.³⁰ Two sites also felt that the intake form was too long and time-consuming, and took valuable time away from patient care.

At the same time, a number of sites included in this analysis reported that the evaluation forms facilitate the peer counselor’s role and are helpful in structuring participant encounters. One peer counselor described the forms as her “vehicle for getting things started and keeping pace.” The intake form helps her pinpoint needs, and the third trimester and postpartum surveys provide opportunities to connect with patients.

A few birth center focus group participants said they found the Intake Form long, intrusive, and “annoying,” though others said they recognized its importance. One shared that she had been in an abusive relationship and appreciated seeing a question about it:

“I appreciated that they asked you all those questions... No one had asked me questions like that. Now I’m not in a relationship like that...it’s important to ask those questions.”

Medicaid Policies and Other State Regulations: Though not an explicit focus of year one data collection, Medicaid policy barriers are particularly pertinent for the birth center model. These barriers prevent some birth centers from serving more Medicaid (and therefore Strong Start-eligible) patients, or could threaten the livelihood of centers with a substantial volume of Medicaid patients. Medicaid-related challenges shared by the ten sites—and particularly those in Florida and South Carolina—included:

- *Inadequate Medicaid reimbursement.* The Medicaid program in Florida, for example, limits coverage to 10 prenatal care visits, but one site’s standard course of prenatal care includes approximately 14 visits; the site provides the unreimbursed visits to Medicaid patients without compensation. The Charleston site shared that South Carolina’s Medicaid managed care reimbursement for prenatal and birth care is less than the cost of providing that care (i.e., \$1600 compared to \$3000).
- *Contracting with Medicaid managed care organizations (MCOs).* Florida Medicaid recently launched statewide mandatory managed care, a change that has added significant administrative burdens. At the same time, key informants in the state expected Medicaid MCO payments to be higher than what they received under fee-for-service. [Notably, this

³⁰ AABC received approval to use project Year 1 carryover funds to increase the per-enrollee payment to sites by \$50; the additional payment is meant to support data collection required for the Strong Start evaluation.

was not the experience of the site in South Carolina, where implementation of Medicaid managed care has led to a reduction in reimbursement.]

Though some AABC sites have reported that Medicaid MCOs will not contract with them (causing delays in program implementation and case study data collection) this was not the case for the sites included in this analysis. In fact, both Florida and New York Medicaid require MCOs to include at least one birth center in their network; key informants in the latter state said this has boosted their Medicaid patient volume.

- *Lengthy Medicaid application processing times.* Key informants at the Florida sites reported that the Medicaid application process is challenging. Patients need a lot of assistance and encouragement to complete it, and eligibility determination could take several months.

Other state policies also create operational challenges for birth centers. Some states, like Florida, have more restrictive rules for advanced-practice nurses (including CNMs), placing limits on scope of practice and requiring physician oversight. Over the past year the Charleston site has been embroiled in a conflict with the South Carolina agency responsible for birth center licensure, which key informants describe as a considerable drain on resources; the conflict is related to specifications about the relationship between a birth center and collaborative physician.

Promising Practices:

The AABC sites included in this report have adopted a number practices that informants and/or the case study team believe contribute to successful implementation of Strong Start. These promising practices relate to enrollment and retention strategies; provider buy-in and support; and, both the integration and content of peer counselor services.

Enrollment & Retention Strategies: A primary focus for AABC's awardee program staff during year one has been to help sites adopt more effective enrollment processes. To encourage consistent identification and enrollment of all eligible patients, AABC has prompted sites to train multiple staff to enroll patients (including those who are in the center full-time during business hours, like receptionists or nurses).

The awardee has also encouraged sites with lagging enrollment to consider an opt-out approach. FamilyCare initially used an opt-in approach but, feeling that it was a factor in their high rate of decline, adjusted their strategy. They also extended Strong Start peer counseling to their pregnant population at large (i.e., not limited to Medicaid and CHIP enrollees). These two modifications have reportedly led to significant improvements in take-up of the Strong Start

program at the FamilyCare site. On the other hand, the El Rio site considered but ultimately decided against adopting opt-out, feeling that it would be at odds with their “emphasis on choice.”

AABC has collaborated with sites to develop talking points addressing the reasons patients might decline Strong Start. For instance, if a patient expresses uncertainty about whether she would benefit from the program, staff can emphasize that Strong Start intends to improve maternity care for women more generally or that it supports birth centers and midwives. Describing Strong Start as part of the center’s standard of care was identified as an effective message by the North Houston and FamilyCare sites (both “high” enrollment sites). Some sites, like the Charleston Birth Center, offer volunteer-donated incentives to encourage participation and retention in Strong Start, such as free yoga or infant massage classes, or monthly participant raffles for a newborn photo shoot.

Provider Buy-In and Support: Sites were unanimous in their assessment that the support of birth center providers is a key ingredient to successful implementation. The providers (midwives and nurses) are often responsible for identifying and introducing the program during prenatal care visits. Without their support, Strong Start eligible patients are likely to “fall through the cracks.” At the same time, sites were cautious not to expect too much of busy providers. One promising approach involves the FamilyCare site, where there is a “midwife liaison” for the peer counselors (e.g., a point person for peer counselors who meets with them regularly and stays abreast of their activities). The liaison has improved providers’ familiarity with the program and helped establish a more consistent enrollment approach.

At the awardee level, AABC has also taken steps to boost provider buy-in. They held an educational webinar for providers in the fall of 2013 and encouraged participants to share the information at an upcoming staff meeting. They felt the webinar increased support for Strong Start and gave midwives a better understanding of its purpose, and associated the learning event with an enrollment increase the following month. And in response to one site that was struggling to establish Strong Start (and where providers felt overwhelmed by the various processes and related forms involved) AABC created a “Quick Start” guide which clearly laid out the steps a site must take to enroll a patient, provide peer support services, and report program data.

Prenatal providers at some sites are supportive of Strong Start because they recognize its benefits not only to patients, but also to the birth center itself. With the addition of a peer counselor, the program has increased participating birth centers’ capacity to provide comprehensive care that meets a patient’s physical and psychosocial needs. Some sites have already expressed a desire to continue peer support after the Strong Start award period and/or extend the services to

non-Medicaid enrollees. Strong Start has also increased sites' capacity for reporting and analyzing data related to patient outcomes, particularly among those sites that didn't participate in the PDR prior to joining Strong Start.

Integration and Content of Peer Counselors: Many sites have grappled with how to best fit peer counselor services into the birth center workflow—both logistically and in terms of ensuring that peer counselor care is not redundant with that of midwives and matches the needs of birth center clientele.

Regarding the logistical challenges of peer counselor scheduling, several sites coordinate peer counselor meetings with participants' prenatal care visits (i.e., either just before or after the patient meets with the midwife). This strategy is most effective at sites where a peer counselor is available whenever the birth center is open, however, and many sites only have part-time counselors who work just part of each week. Accordingly, some sites have front-desk staff schedule prenatal visits for Strong Start participants on certain days of each week, when the part-time peer counselors are expected to be at the center.

As mentioned above, the Charleston Birth Place peer counselor mainly communicates with Strong Start participants through virtual means (text, email) or by phone. She is available to Strong Start participants nearly 24/7 (which focus group participants confirmed) through these modes. She explained, "If [participants] don't feel like it's an obligation or outside of what they have time for, then it runs much better. I've had to be flexible in how I contact them." Another site expressed disappointment that AABC was not more proactive about encouraging virtual peer counselor encounters, noting that such an approach would be more "innovative."

A common feature of AABC sites with a successful peer counselor component is the peer counselor's willingness to adapt the role and services to fit the needs of the center's patient population. Though AABC's peer counselor training modules emphasized a series of different educational topics, for instance, one peer counselor (at the Charleston site) felt that following this curriculum too closely was redundant with the education provided by CNMs during prenatal care visits. Though she incorporates teaching when opportunities arise, more of her time is spent connecting Strong Start participants to local resources and community-based services, using information she has compiled in an extensive electronic resource folder. Other sites (such as the El Rio birth center) also shared that the peer counselor has created a community resource book for participants, and that referrals comprised a large part of the counselor's role. They felt this emphasis was well placed, given that many birth center patients (Strong Start participants included)

are “self-motivated and educated” regarding pregnancy, and may be more receptive to resource referrals than additional education.

Conclusion:

The implementation experiences of the ten AABC sites operating the Strong Start birth center model have been diverse. The awardee gave all sites considerable latitude to create an enrollment process and peer-counseling component that fit within their birth center operations, and some have done so with notable success while others are still working out basic program processes. All sites experienced some growing pains as they established their Strong Start programs in the first year, including challenges related to identifying and enrolling patients, scheduling peer counselor encounters, and complying with program and evaluation requirements have been widespread. Sites experiencing the most success have common key features including supportive providers; dedicated, available, and resourceful peer counselors; and a high volume of eligible Medicaid patients. On the other end of the spectrum, some sites are still struggling to integrate Strong Start into their birth center’s workflow—several of these sites have experienced additional challenges during the implementation period, including limited resources to devote to the program in the midst of competing priorities, Medicaid and other state regulatory barriers, and problems with Strong Start staff hiring and turnover.

Peer-counseling services appear to be enhancing and complementing midwifery care as intended at many sites. The benefits of these services—both to patients and to birth centers more generally—were emphasized by Strong Start participants and key informants during case study data collection. At a few sites, Strong Start participants in the evaluation’s focus groups did not feel that peer counseling services were having an influence (positive or negative) on their pregnancy. Across all sites where focus groups were conducted, however, participants had extensive praise for their birth centers and midwives, emphasizing that their care felt engaged and personalized.

“I liked the care I received because it was very detailed and the staff always answered questions, and would follow up with me if they didn’t have the answer during my visit.”

“I wouldn’t recommend Strong Start for my friends that aren’t on Medicaid. For people who wouldn’t need it, I wouldn’t say to go here because of it. But I’d say go to [the birth center] because of the facility.”

“I’m not scared anymore – I feel safe. It feels like you’re with family.”

“I always look forward to talking to [midwife]. She’s fun to talk to. It’s nice, comfortable, intimate, we get our questions answered, and know in two weeks we’ll come back and get more questions answered.”

“Everyone here is really personable; it doesn’t feel like you’re checking in as a number.”

PROGRAM MONITORING

During the first year of the evaluation, the Urban Institute and its partners were responsible for collecting and compiling program monitoring data on a quarterly³¹ basis in support of CMMI’s program staff overseeing the Strong Start awards. CMMI began collecting select program monitoring measures on Excel spreadsheets for Quarters 1 and 2 2013—prior to the award of the evaluation contract. The Strong Start evaluation team assumed responsibility for this data collection beginning with the reporting period for Quarter 3 2013 using a similar Excel spreadsheet with slightly modified measures designed to improve data consistency and quality. With the approval of the CMMI Strong Start program team, for the collection of Quarter 4 2013 program monitoring data, the evaluation team introduced a web-based reporting system to support more consistent collection of high quality data. By retaining information entered from prior quarters, this method facilitated the ease of reporting and minimized burden on Strong Start awardees, while enforcing the entry of valid and consistent data. The monitoring data collection template was significantly modified for Quarter 1 2014 based on additional input from CMMI; several response categories were modified, and a number of new measures were added.

For Year 2, however, the program team at CMMI decided to reassume responsibility for the collection and reporting of program monitoring data and this task was removed from the evaluation scope of work.

During the first year of the evaluation, awardees were asked to submit on a quarterly basis a narrative summary of challenges and success encountered during the quarter, as well as aggregated data from all of their sites on the following measures:

1. Strong Start site information, including service offerings;
2. Strong Start staffing and vacancies;

³¹ Quarter 1 of a given year is January through March; Quarter 2 is April through June; Quarter 3 is July through September; and Quarter 4 is October through December

3. Participant enrollment and attrition;
4. Participant demographic, health coverage and risk factors;
5. Obstetric management of participants, including delivery method;
6. Pregnancy outcomes;
7. Infant discharge information;
8. Program expenditures; and
9. Awardee goals and progress toward milestones.

Relevant findings from Quarter 2 2013 through Quarter 1 2014 are presented below and aggregated where possible.

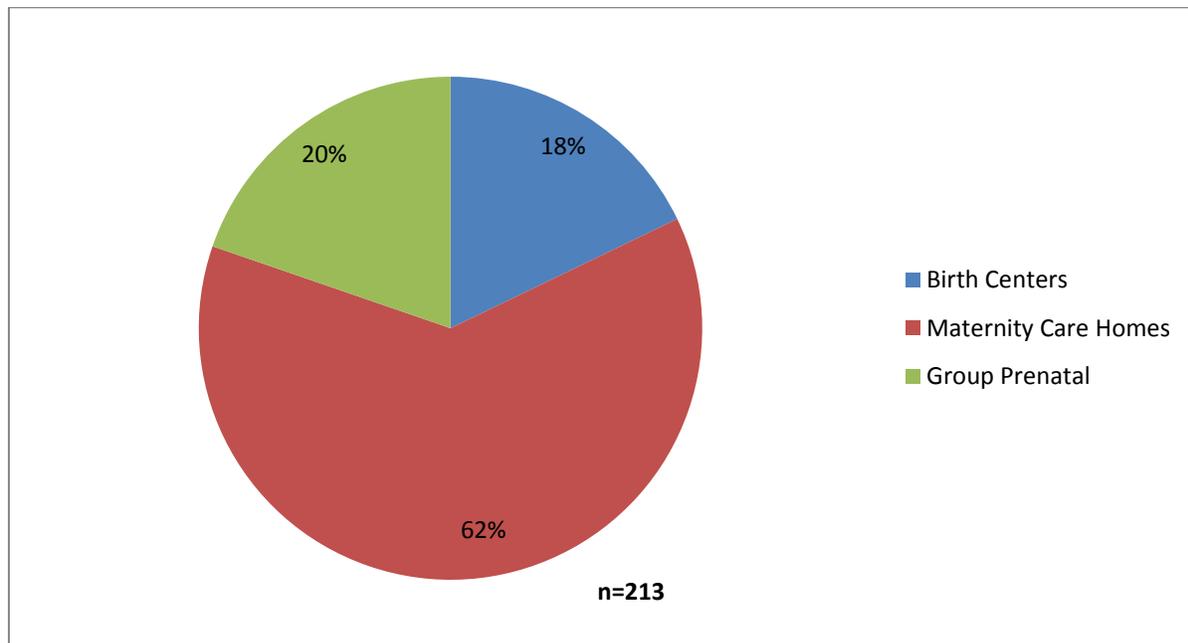
STRONG START IMPLEMENTATION

By the end of Quarter 1 2014, a total of 213 sites had begun offering services in one of the three Strong Start models.³² As demonstrated in Figure 1, almost two thirds of sites (62 percent) are implementing the maternity care home model, while one fifth of sites are offering group prenatal care. The remaining 18 percent are birth centers. Despite their large numbers, maternity care home sites are being implemented by fewer than half of the Strong Start awardees (13 out of 27); while a similar number of awardees (12 out of 27) are implementing group prenatal care in a much more limited number of sites. All but one birth center site are being overseen by one awardee³³. The maternity care home model allows for implementation at more provider sites, given the flexibility of the model as well as the possibility for shared staff across multiple sites. As described in Section II.A (Case Studies), group prenatal care and the birth center models, on the other hand, require a significant time investment, and often a restructuring of a clinic's work flow.

The number of sites implementing Strong Start during the first year of implementation is higher than that originally projected by awardees (213 vs. 186). In Year 2 of the project, four awardees have plans to add additional sites. As described in the case study findings (Section A), some awardees may have expanded the number of sites at which they are implementing Strong Start in an effort to increase enrollment.

³² Two awardees have implemented more than one Strong Start model at the same provider site. For this analysis, however, we have used their primary Strong Start model.

FIGURE 1: STRONG START SITES, BY MODEL

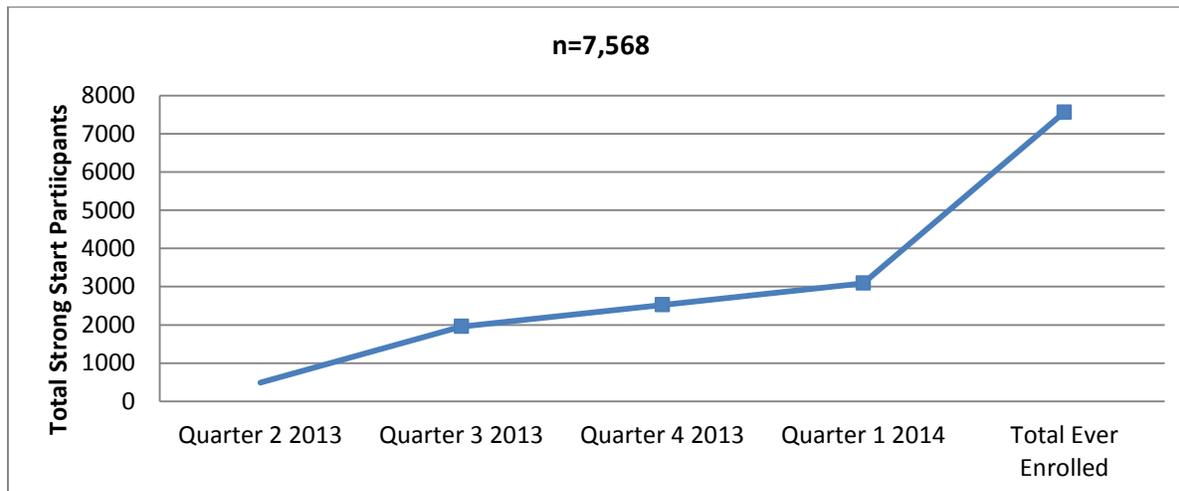


Indeed, as shown in Figure 2, Strong Start grew quite slowly during the first several quarters of implementation, escalating dramatically in Quarter 1 2014. Through the end of Quarter 1 2014, 7,568 participants were enrolled into Strong Start. A majority of Strong Start participants enrolled through Quarter 1 2014 were covered by Medicaid (87 percent), while seven percent were pending eligibility for Medicaid or CHIP at the end of Quarter 1 2014. Given that only three Strong Start states offer full CHIP coverage to pregnant women, it is not surprising that only five percent of participants were enrolled in CHIP.³⁴

Total enrollment through Quarter 1 2014 falls short of original expectations that awardees would enroll approximately 20,000 women in Year 1. As demonstrated in Figure 3, a majority of awardees missed the enrollment targets set forth in their operational plans, with only one awardee exceeding their projected enrollment through Quarter 1 2014. Indeed, more than half of awardees fell short of their targets by 50 percent or more.

³⁴ Only three Strong Start states (each with one awardee) offer full CHIP coverage to pregnant women, and 11 states (and 11 awardees total) offer CHIP coverage to undocumented pregnant women.

FIGURE 2: STRONG START ENROLLMENT THROUGH QUARTER 1 2014



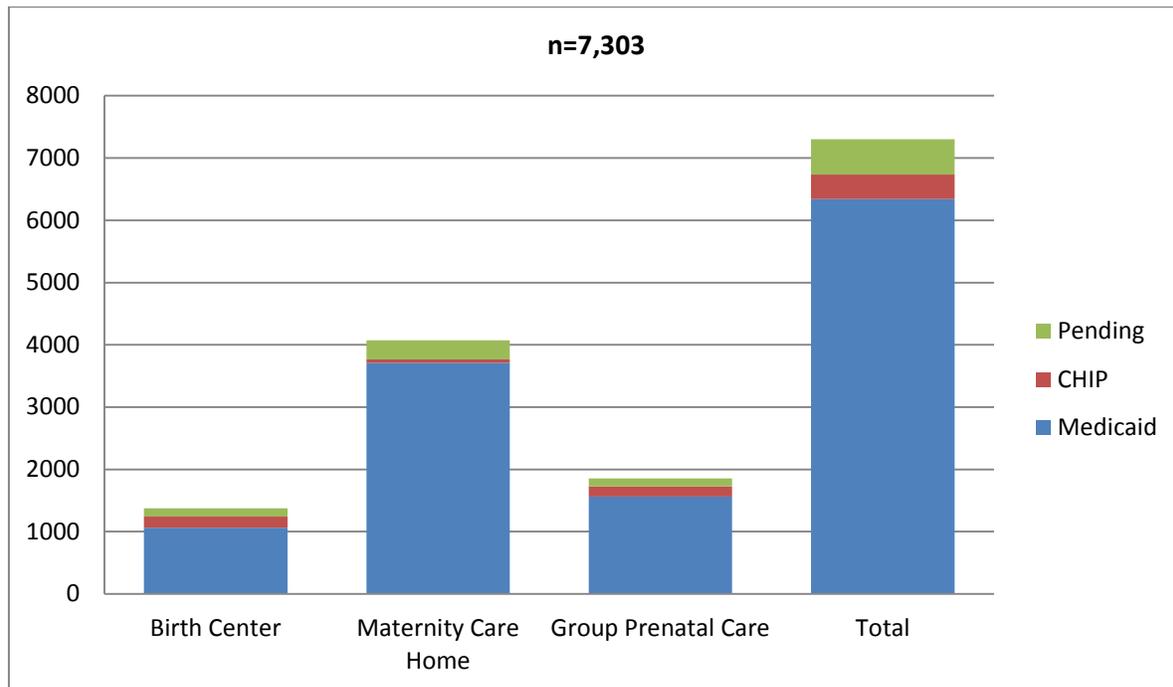
Note: Enrollment data from Quarter 2 2013 were collected by CMMI, before the evaluation contract was awarded.

FIGURE 3: PROGRESS TOWARD PROJECTED ENROLLMENT

Status	Total Number of Awardees
Exceed Enrollment Goals	1
Reached 76-100% of enrollment goal	4
Reached 51-75 % of enrollment goal	3
Reached 25-50% of enrollment goal	13
Reached 0-24% of enrollment goal	6

Given the large number of maternity care home sites, it follows that a majority of Strong Start participants were enrolled in a maternity care home (56 percent). Of the remaining participants, 25 percent were enrolled in sites with group prenatal care, and 19 percent were enrolled at birth centers. This breakdown is presented in Figure 4. Higher enrollment in maternity care homes is both a function of the number of sites offering maternity care home services as well as these sites having fewer capacity limitations compared with birth centers and group prenatal care programs.

FIGURE 4: STRONG START ENROLLMENT THROUGH QUARTER 1, BY COVERAGE TYPE AND MODEL³⁵



STRONG START PARTICIPANT DEMOGRAPHICS

Close to one quarter of all Strong Start participants (1,780 women, or 24 percent) enrolled through Quarter 1 2014 identify as Hispanic. As displayed in Figure 5, the largest proportion of Hispanic women (38 percent or 511 women) are enrolled in birth centers, followed closely by group prenatal care sites (33 percent or 611 women). While approximately the same number of women enrolled at maternity care homes are Hispanic (652 women or 16 percent), they represent a smaller proportion of the enrollees overall. Maternity care homes have enrolled the most women to date, and many are located in dense urban areas with large African American populations. It is, therefore, not particularly surprising that a smaller proportion of enrollees at maternity care home sites identify as Hispanic.

More than 40 percent of participants across all Strong Start sites are Black/African American (3,072 women), and another 35 percent are White/Caucasian (2,649 women). As seen in Figure 6, a small percentage of women are identified in all of the remaining race categories. Race was not disclosed for 17 percent of participants (1,314 women).

³⁵ One awardee has implemented all three models of care. Given the structure of the program monitoring reports, we are unable to attribute aggregated data to a specific model. Accordingly, this awardee has been removed from model-specific analysis Figures 4, 5, 7, 9, 11, 13, 15 and 17. Through the end of Quarter 1 2014, the awardee had enrolled an additional 265 women into Strong Start; 263 of which were Medicaid, and two were pending eligibility.

FIGURE 5: ETHNICITY OF STRONG START PARTICIPANTS, BY MODEL³⁶

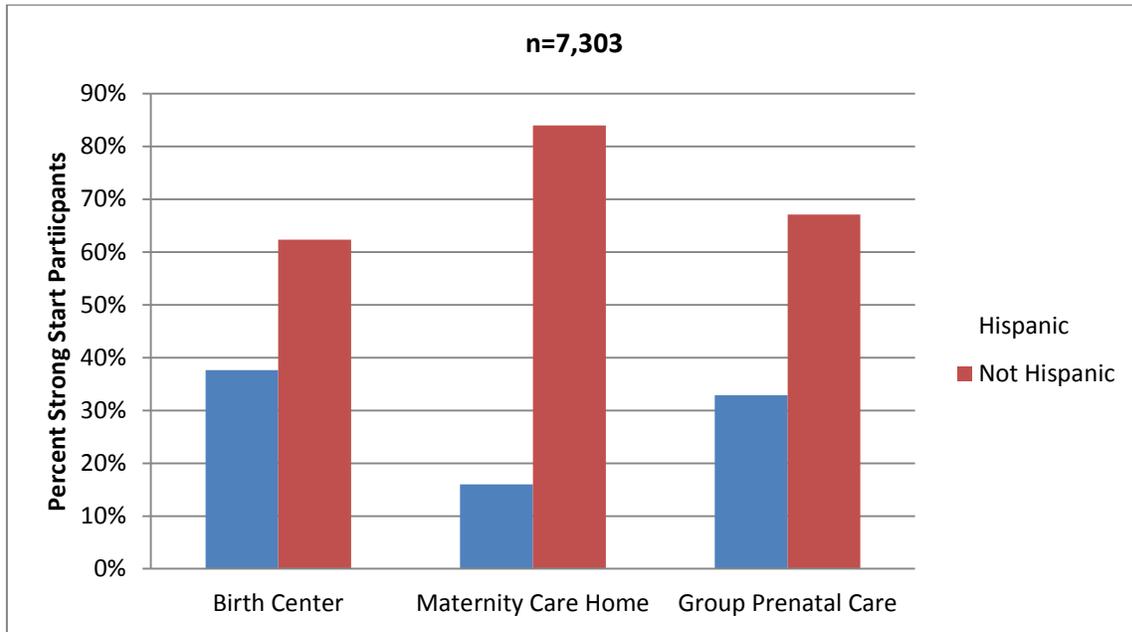
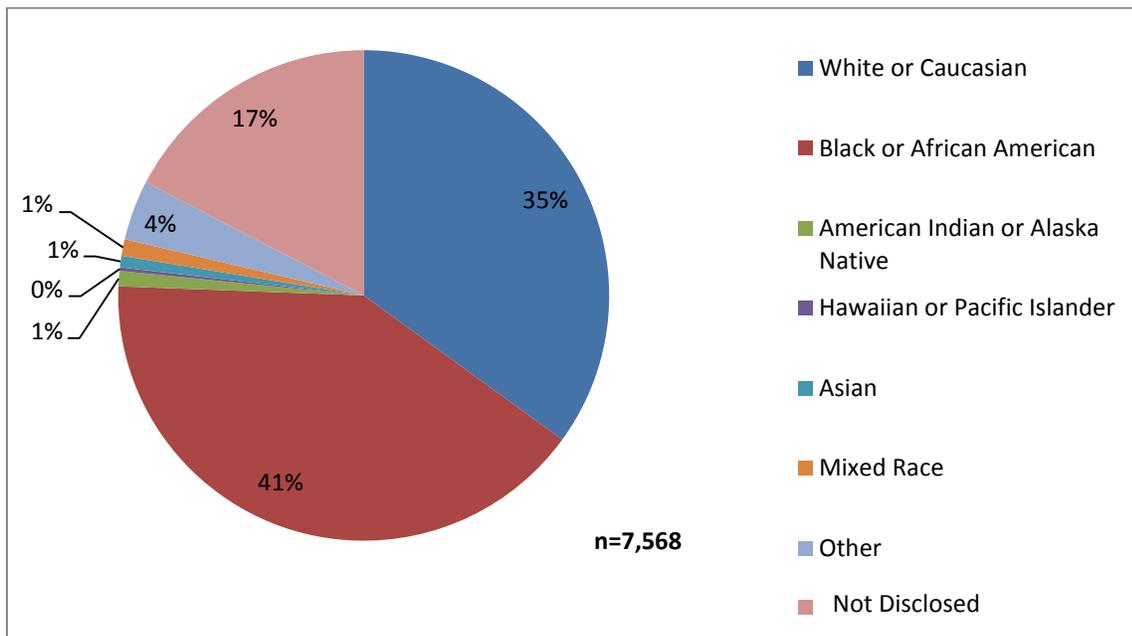


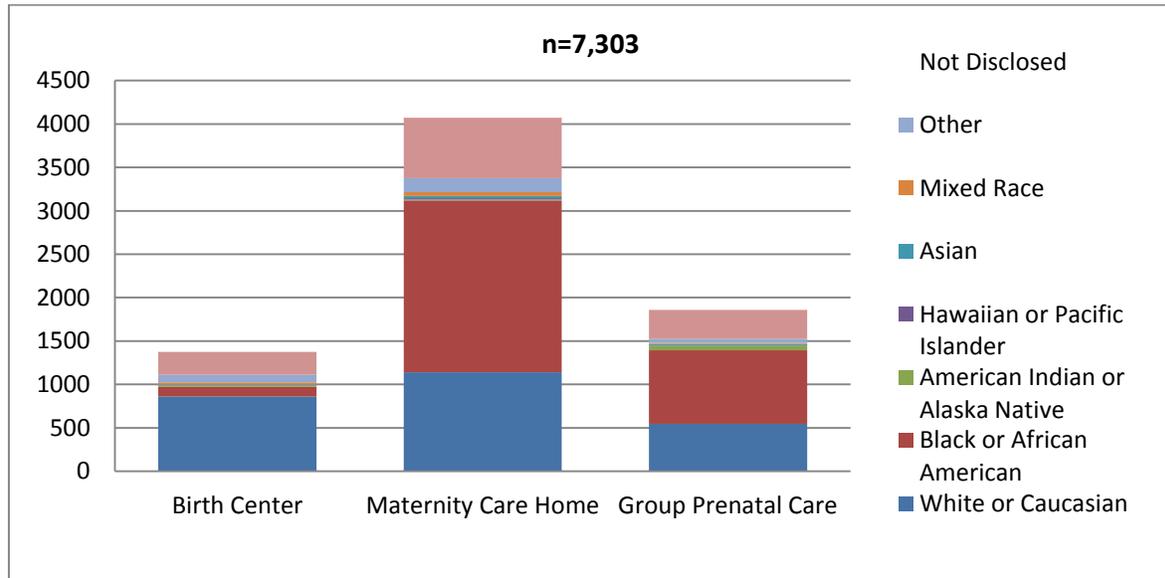
FIGURE 6: RACE OF STRONG START PARTICIPANTS



³⁶ Through the end of Quarter 1 2014, 13 percent (31 women) identify as Hispanic at the awardee implementing more than one model (excluded from this figure).

The racial make-up of participants varies by model. For instance, women enrolled in birth centers are predominantly White/Caucasian (63 percent), while a higher proportion of participants in maternity care homes and group prenatal care sites are Black/African American (49 percent and 45 percent, respectively).

FIGURE 7: RACE OF STRONG START PARTICIPANTS, BY MODEL³⁷

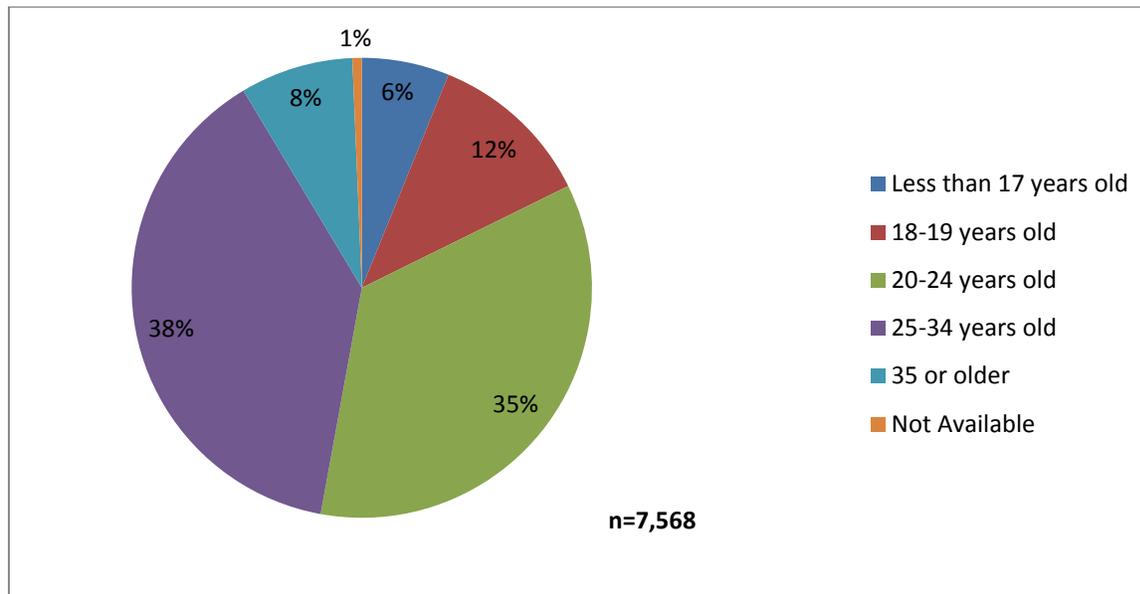


The vast majority of enrollees (73 percent) were between the ages of 20 and 34 years at enrollment. This did not differ substantially among the three models. Only a small minority of women (six percent, or 473 participants) were under the age of 17, or of advanced maternal age (eight percent or 611 women).

The vast majority of enrollees (73 percent) were between the ages of 20 and 34 years at enrollment. This did not differ substantially among the three models. Only a small minority of women (six percent, or 473 participants) were under the age of 17, or of advanced maternal age (eight percent or 611 women).

³⁷ Through the end of Quarter 1, the awardee implementing more than one model had enrolled an additional 265 women, 136 are Black or African American (51 percent), 99 of whom are White/Caucasian (37 percent), four (two percent) are Mixed Race, one participant is Asian, and one is other. The race was not disclosed for 24 women.

FIGURE 8: AGE OF STRONG START PARTICIPANTS



PROGRAM ENTRY AND ATTRITION

Across all sites, three quarters of participants (5,717 women) are enrolling in Strong Start fairly early in their pregnancy (prior to 20 weeks gestation). Birth center participants are the most likely to enroll during the first or early second trimester (as demonstrated in Figure 9). Though more than three quarters of participants at maternity care homes enroll in Strong Start prior to 20 weeks gestation, a significant proportion enroll between 20 and 24 weeks (14 percent) or 25 and 28 weeks (seven percent). Given that Group Prenatal Care sessions often begin between 16 and 20 weeks gestation, it is surprising that the Group Prenatal Care model has the highest proportion of participants enrolling later: between 20 and 24 weeks (17 percent) or 25 and 28 weeks gestation (eight percent).

Through the end of Quarter 1 2014, nine percent of participants (703 women) had disenrolled from Strong Start. As shown in Figure 10, 23 percent of participants who left prior to delivery were lost to follow-up. In addition, 16 percent voluntarily withdrew from the program and 16 percent had a miscarriage or spontaneous abortion. However, the most common category indicated by awardees for women leaving Strong Start was “Other” (26 percent or 183 women), which includes women who changed providers or programs (e.g., to Nurse Family Partnership), were non-compliant, or disenrolled for an unknown reason.

FIGURE 9: GESTATIONAL AGE AT ENROLLMENT, BY MODEL³⁸

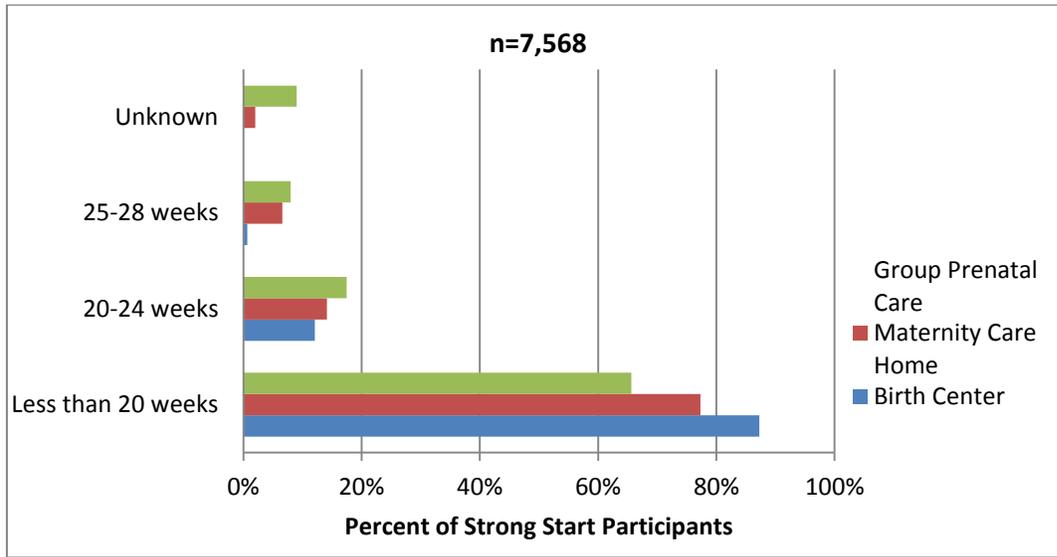
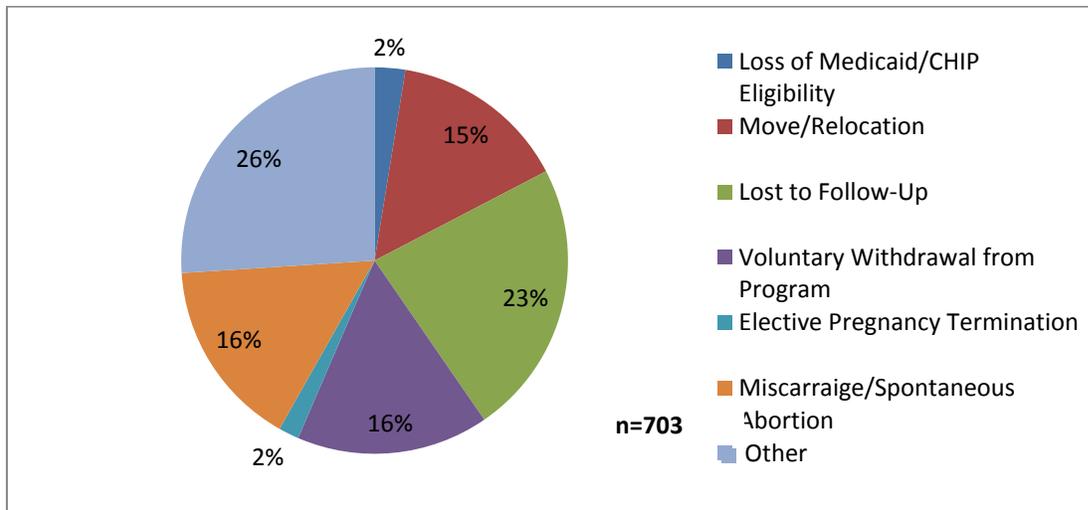


FIGURE 10: ATTRITION FROM STRONG START

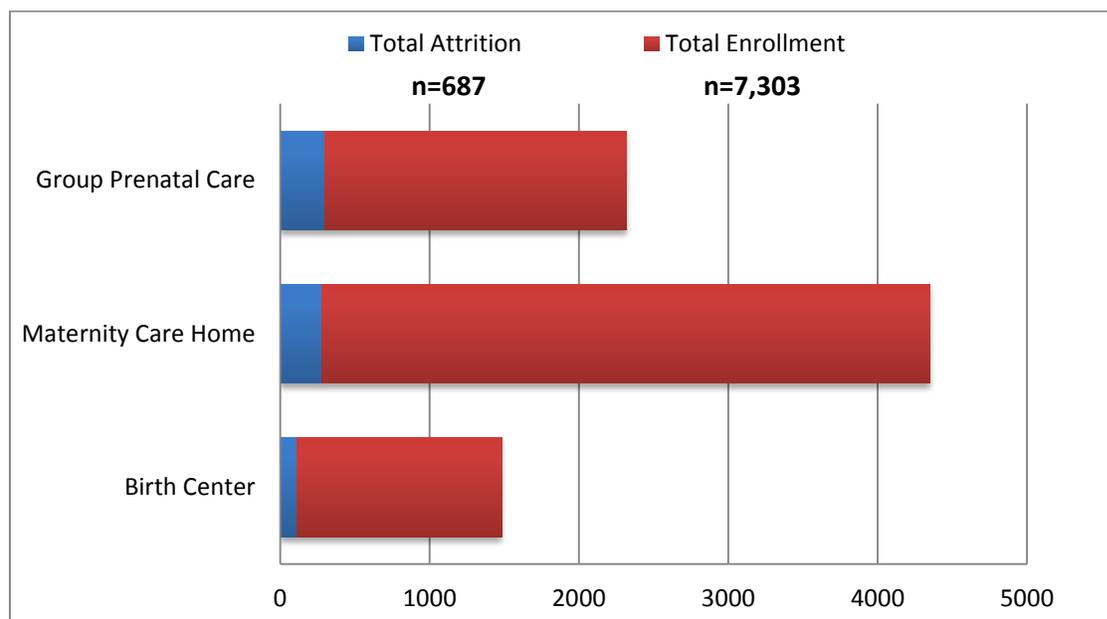


Attrition was higher among women in group prenatal care sites than the other two models. Specifically, 15 percent (279 women) in group prenatal care had disenrolled, while eight percent had disenrolled from birth centers and seven percent had disenrolled from maternity care home programs. As described in Section II.A (Case Studies), the increased likelihood for attrition from group prenatal care may be explained, at least in part, by the higher demands of the model (in the form of a large number of potentially longer group visits). Further, the addition of peer counselors or care coordinators central to the birth center and maternity care home models may work to

³⁸ Of the 265 women enrolled at the awardee implementing more than one model (excluded from this figure), 153 (58 percent) were enrolled before 20 weeks, 37 (14 percent) were enrolled between 20 and 24 weeks, 16 (six percent) were enrolled between 25 and 28 weeks, and the gestational age at enrollment was unknown for 59 women (22 percent).

improve retention, as these staff are often responsible for following up individual with participants. Future case studies will further explore common reasons for disenrollment and the efforts to improve retention rates.

FIGURE 11: ATTRITION FROM STRONG START, BY MODEL³⁹



STRONG START DELIVERY OUTCOMES

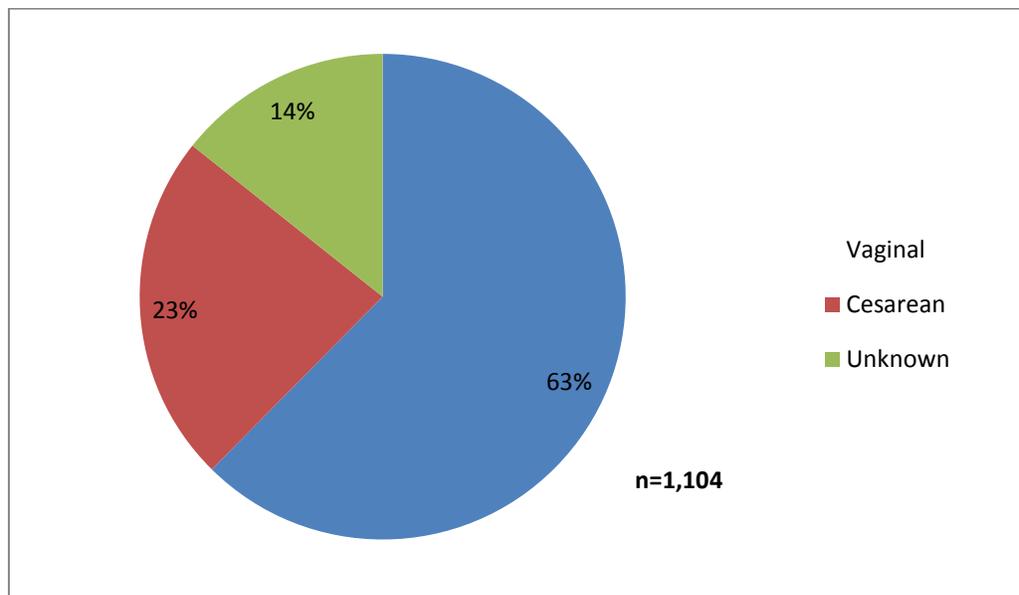
As of Quarter 1 2014, a total of 1,746 Strong Start participants have given birth, resulting in 1,725 live births and 21 fetal deaths. An overwhelming majority of babies born have been singleton (1,695) and 30 were multiples. Similarly, a majority of the fetal deaths have been single gestations (15), and six infants were born in a multiple birth. The rate of fetal death among Strong Start participants (one percent) is slightly higher than the national average of 0.6 percent (MacDorman et al. 2006). A similar proportion of fetal deaths occurred among participants enrolled in maternity care homes (52 percent) and group prenatal care sites (48 percent). There were no fetal deaths reported by birth centers.

The vast majority of deliveries occurred during the first quarter of 2014 (1,104 of 1,725 total deliveries). As shown in Figure 12, 63 percent of the total deliveries in Quarter 1 2014 were vaginal, while 23 percent of women had a Cesarean section (C-section). The rate of Cesarean section (C-

³⁹ An additional 16 women had disenrolled from Strong Start at the awardee implementing more than one model (excluding from this figure). More specifically, two had moved/relocated, three were lost to follow-up, one had an elective pregnancy termination, seven had a miscarriage/spontaneous abortion and three disenrolled for “Other”.

section) among Strong Start awardees is considerably lower than the national average of nearly 33 percent. However, awardees report not knowing the method by which another 14 percent of women delivered during Quarter 1 2014, and the actual rate of C-section is therefore likely an underestimate (CDC, “Methods of Delivery”). The rate of C-Section was higher for multiple births (60 percent).

FIGURE 12: DELIVERY METHOD OF STRONG START PARTICIPANTS (QUARTER 1 2014 ONLY)



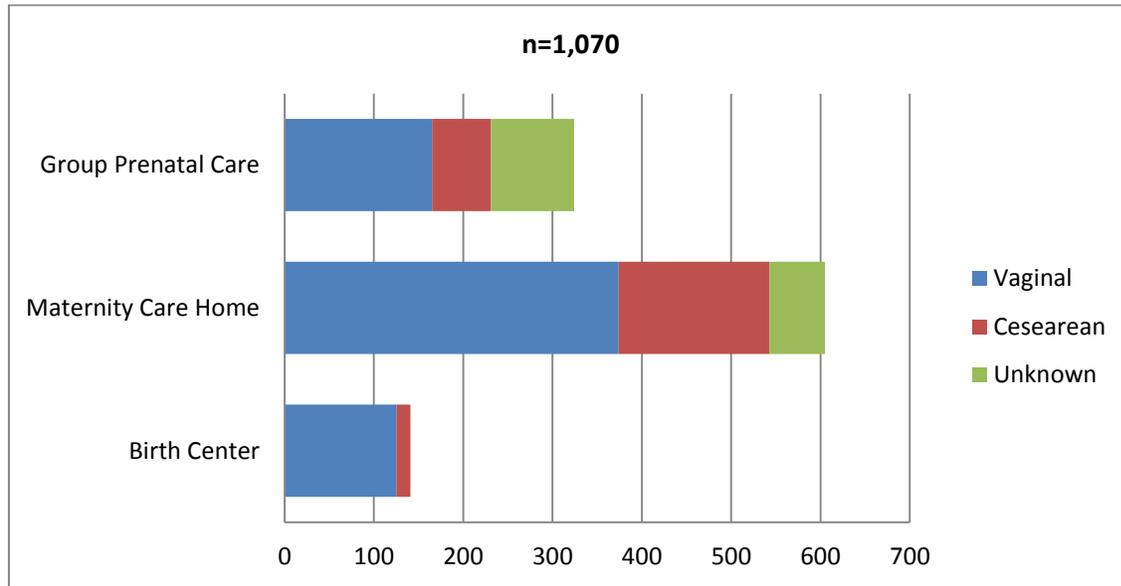
A majority of women who had given birth through Quarter 1 2014 were enrolled at maternity care home sites (605 women), compared to 324 women enrolled in group prenatal care, and 141 women enrolled at birth centers. Given that birth centers tend to serve women who are medically low-risk, often transfer high-risk patients (who might be more likely to have a C-section) to OB/GYN providers before delivery, and are philosophically committed to nonintervention in the normal birth and delivery process, it is not surprising that a larger proportion of participants enrolled in the birth center model had vaginal deliveries (89 percent) compared with the other two models. As seen in Figure 12, almost two thirds of participants (62 percent) had vaginal deliveries in maternity care home sites, while a little more than half (51 percent) had vaginal deliveries in group prenatal care sites. Delivery method was reported as “unknown” for 29 percent of women enrolled in group prenatal on awardee quarterly monitoring reports.

A primary goal of Strong Start is to reduce the rate of preterm birth among Medicaid women⁴⁰. Among the 1,725 live births through Quarter 1 2014, 13 percent (223) were born preterm, and 25

⁴⁰ Preterm birth is less than 37 weeks gestation.

percent (424) were born early term (as seen in Figure 14). At this early stage of the demonstration, the rate of preterm birth for Strong Start participants was slightly higher than the national average for all births (12 percent compared to 13 percent), and identical to the national average for early term births (25 percent).⁴¹ Half of the live births were born at term, and eight percent were born either late term or post term. Data on the gestational age at live birth were unavailable for four percent of participants. More reliable data may ultimately be available from the participant-level process evaluation data that are being collected separately.

FIGURE 13: DELIVERY METHOD, BY MODEL⁴²



As seen in Figure 15, women enrolled in the birth center model were least likely to deliver preterm (two percent). Rates were higher for group care (approximately 10 percent), and highest among participants enrolled in maternity care homes (18 percent). The rate of preterm birth at both birth centers and group prenatal care sites was lower than the national average of 12 percent.

⁴¹ The data for national average was obtained from http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_09.pdf#table21 for all births in 2012, and is not Medicaid specific. Recent research (from 2011) indicates that the preterm birth rate for Medicaid women is 8.9 percent: <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb163.pdf>

⁴² There were an additional 34 deliveries at the awardee implementing more than one model (excluded from this figure), 25 of which were vaginal singleton, six were Cesarean singleton, and three were singleton with an unknown delivery method.

FIGURE 14: GESTATIONAL AGE AT LIVE BIRTH

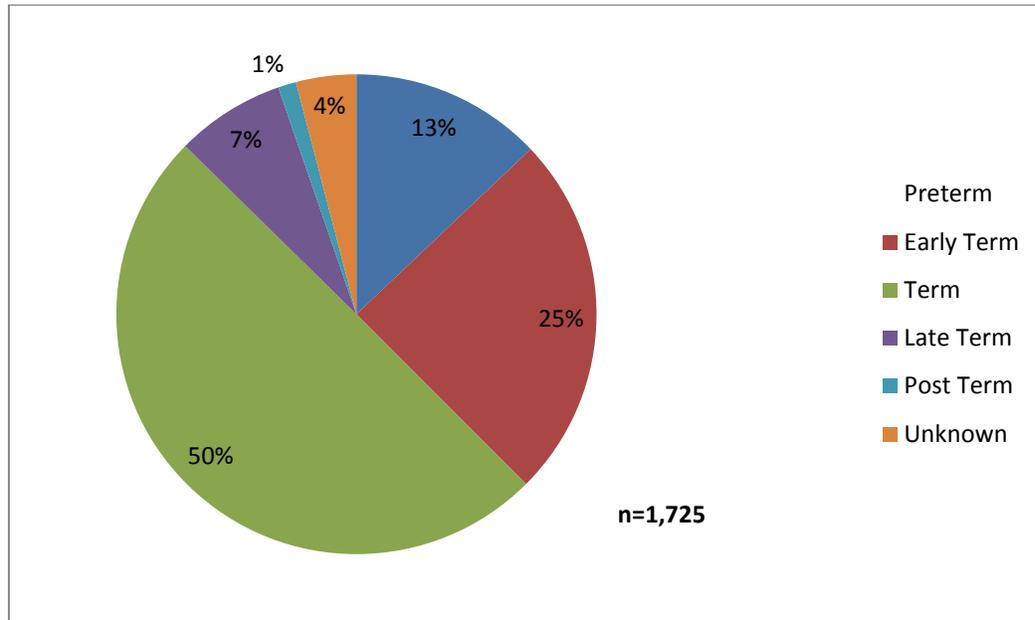
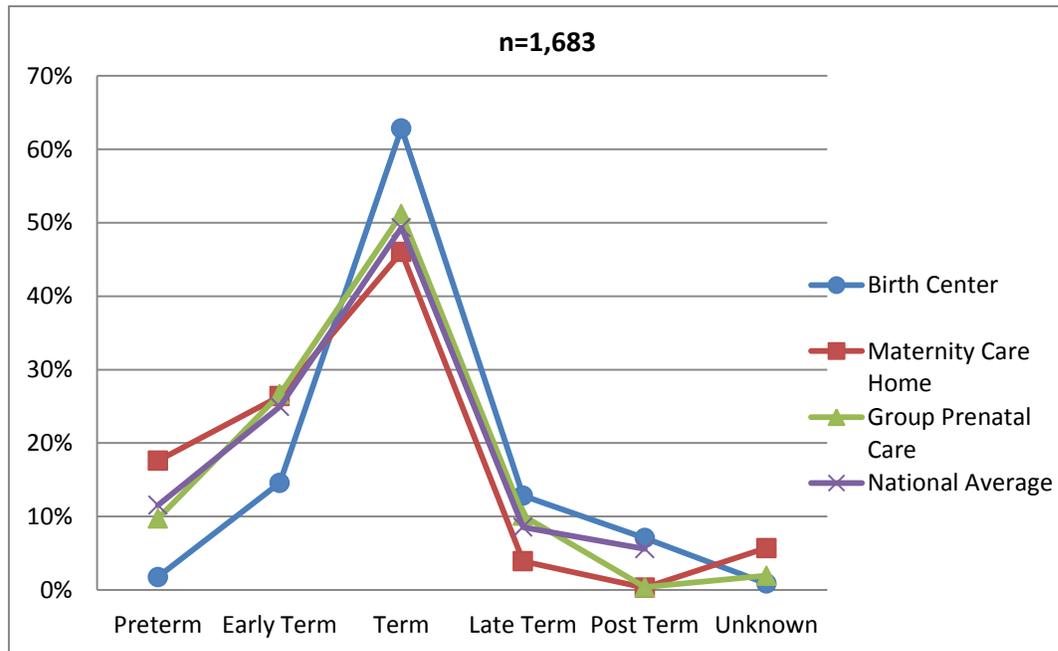


FIGURE 15: GESTATIONAL AGE AT LIVE BIRTH, BY MODEL⁴³



Another central objective of the Strong Start demonstration is to reduce the rate of very low and low birth weight amongst Medicaid deliveries. Through end of Quarter 1 2014, three percent of

⁴³ Of the 42 births at the awardee implementing more than one model (excluded from this figure), three were born preterm, five were early term, 29 were either full term or late term, and five were unknown.

Strong Start infants were born with very low birth weight (<1500g), and ten percent (114) had low birth weight (1501g < 2500 g). The proportions of very low and low birth weight babies were slightly higher than the national averages (one percent of babies born in the United States have very low birth weight and seven percent have low birth weight). A vast majority (79 percent) of births reported on awardee monitoring reports were considered of normal birth weight. Only one percent of infants were large for gestational age (>4000g). Additional detail will be available via the participant-level process evaluation data being collected separately.

When analyzing birth weight by Strong Start model, we find that no babies born to women receiving care at birth centers were very low birth weight, and only two percent were low birth weight. Indeed the vast majority of births (84 percent) were normal birth weight. Among participants enrolled in group prenatal care, nine percent of babies were low birth weight. Maternity care homes had the highest percentage of both very low and low birth weight babies (five percent and 13 percent, respectively). Among the three models of care, birth centers were the only model that had lower rates of very low and low birth weight than the national average. Data on birth weight were unavailable for a higher proportion (11 percent) of births at birth centers and group prenatal care/centering sites than maternity care home sites (three percent).

FIGURE 16: BIRTH WEIGHT

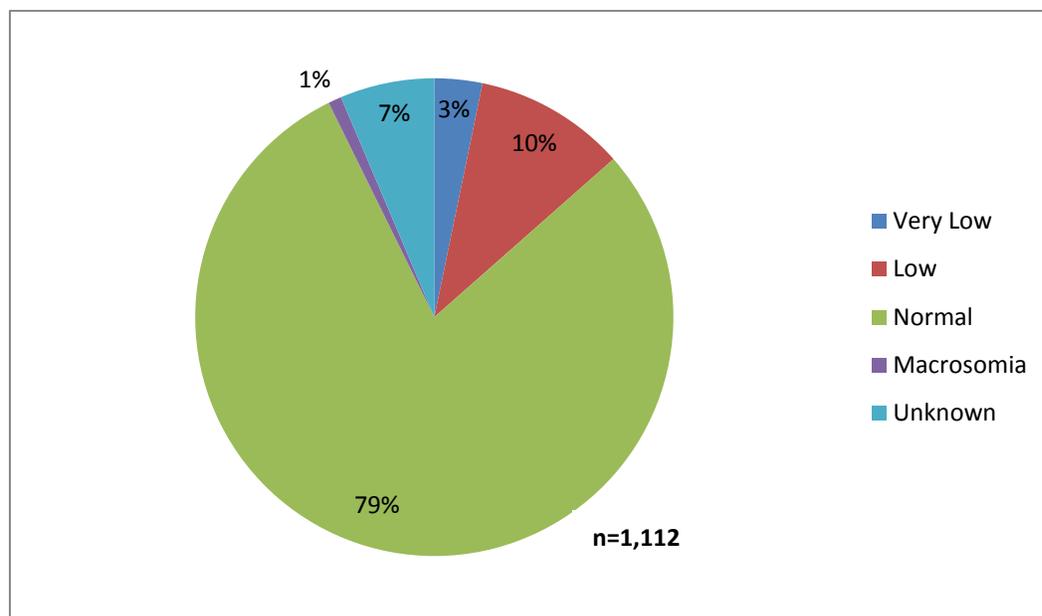
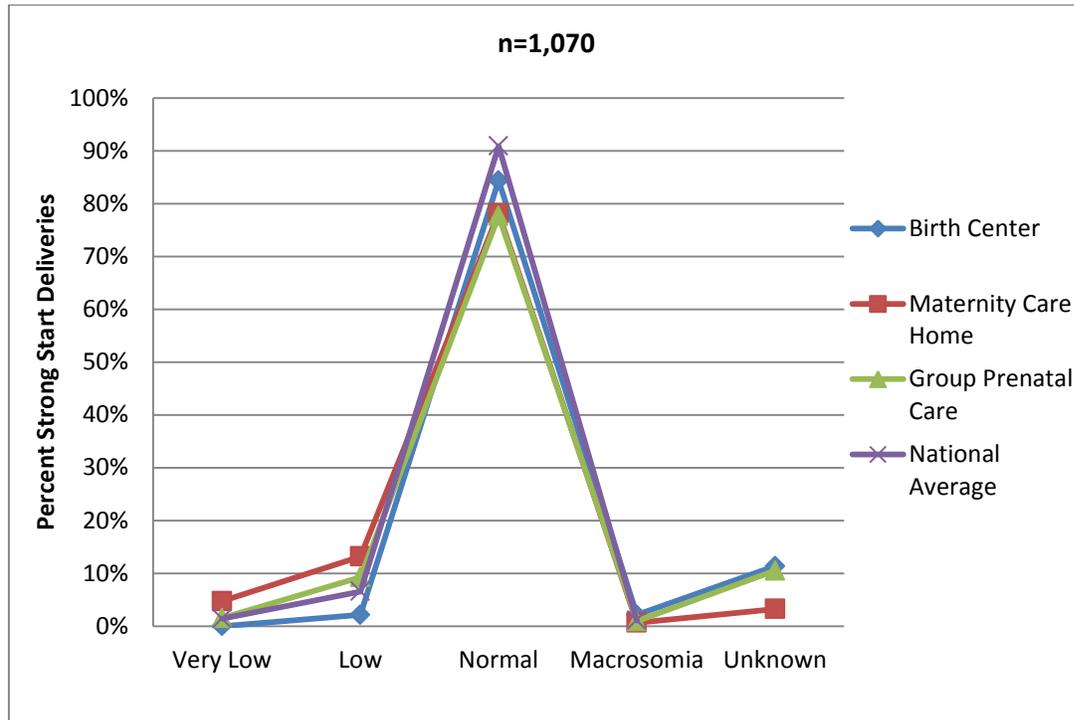


FIGURE 17: BIRTH WEIGHT, BY MODEL⁴⁴



PARTICIPANT-LEVEL PROCESS EVALUATION

Participant-level process evaluation data are used to track several process indicators including the number of prenatal and enhanced visits a patient has over the course of her care, patient demographic and risk characteristics, satisfaction with care received, and a limited number of birth outcome variables that are not available elsewhere. Participant-level process data are being collected at four points as women progress through the Strong Start program:

1. Program intake (Intake Form);
2. Third trimester (Third-Trimester Survey);
3. Postpartum (Postpartum Survey); and
4. Program discharge (Exit Form).

⁴⁴ Of the 42 deliveries at the awardee implementing more than one model, two were born with very low birth weight, none with low birth weight, 31 were considered normal birth weight, and nine had unknown birth weight.

EXHIBIT 2: PARTICIPANT-LEVEL PROCESS EVALUATION DATA

The first three sources of data are participant reported, and instruments are available in both English and Spanish. The Exit Form, which was not launched until September 2014, will draw information from the participant's medical record or program record. (Brief summaries of each form are presented in Exhibit 2. Final versions of all four instruments can be found in Appendix B).

With the exception of the Exit Form, the participant-level process evaluation data collection system was rolled out in January 2014, and data through Quarter 1 2014 were submitted in June 2014 to align with the quarterly program monitoring report submission. Data submitted includes:

- Intake Forms for participants enrolled during the first quarter of 2014, as well as women who were enrolled in prior quarters;
- Third Trimester Surveys for women who were in their Third Trimester during the first quarter of 2014; and
- Postpartum Surveys for women who gave birth during the first quarter of 2014 or late 2013.⁴⁵

Additional information on the breakdown and the quality of the data collected through Quarter 1 2014 are included in Appendix D (Data Quality Report). Once again, the Exit Form was finalized and launched in September 2014, and the first Exit Form data should be available in January 2015.

Intake Form. The Strong Start Intake Form was developed by CMMI and implemented with Strong Start awardees prior to the launch of the evaluation. The form, which is six pages in length, includes questions pertaining to the participant's sociodemographics, pregnancy history, delivery intentions, and risk factors for premature birth. Screening tools for depression, anxiety, intimate partner violence, substance abuse, and food security are included on the form.

Third Trimester and Postpartum Surveys. Two-page surveys, designed by the evaluation team, capture information on select measures of health and well-being (e.g., smoking and depression), as well as delivery and postpartum intentions and client satisfaction. Some measures were included to be consistent with the Intake Form, so participants can be tracked over time. Surveys were developed and piloted during the fall of 2013 and launched along with scannable Intake Forms in January 2014.

Exit Form. This form documents clinical and program data from the medical chart or the Strong Start program record following discharge. These data are being completed for participants who are followed through delivery as well as for those who disenroll from Strong Start prior to delivery. Data will be used to quantify clinical pregnancy risks, clinical outcomes, and the intensity of the intervention. An initial version was piloted with four awardees in January 2014. Additional revisions were made in the spring of 2014 based on feedback from awardees and CMMI program and evaluation staff.

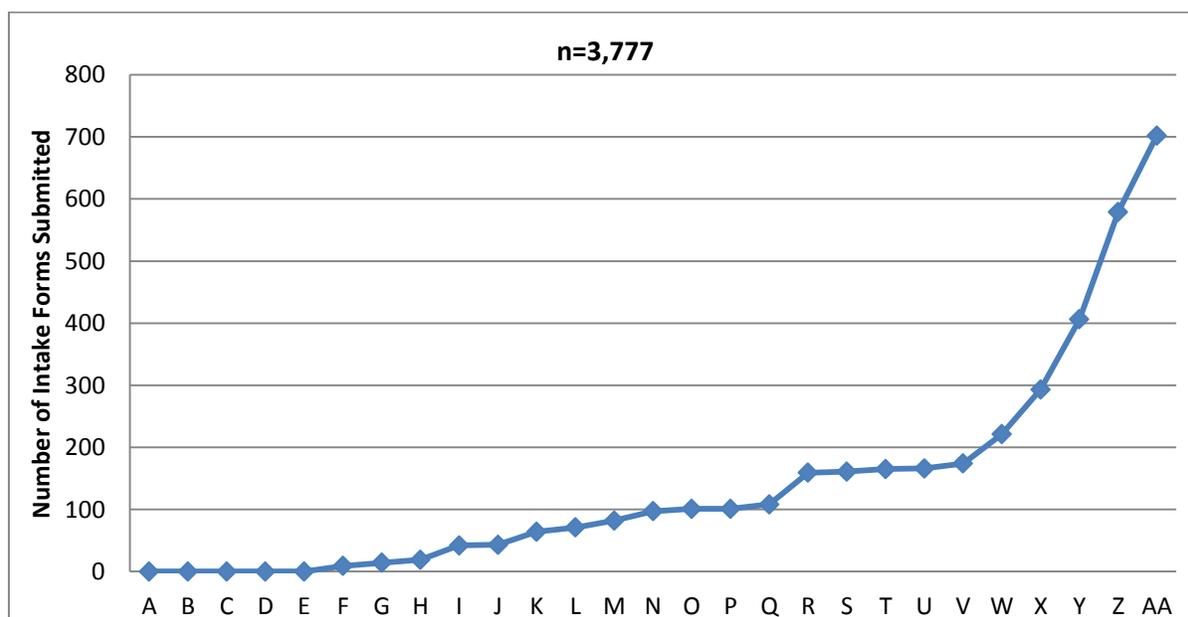
⁴⁵ Awardees are instructed to administer Postpartum Surveys during the postpartum follow up visit or within 10 weeks of delivery.

DATA THROUGH QUARTER 1 2014

Twenty-two of 27 awardees submitted participant-level process evaluation data through Quarter 1 2014. The five awardees for whom all participant-level data were missing either plan to submit data electronically in future quarters or had extenuating circumstances that delayed their ability to submit data during this first quarter.

According quarterly program monitoring data (summarized above in Section II.B), a total of 7,732 women were enrolled in Strong Start through the Quarter 1 2014. However, Intake Forms were submitted in Quarter 1 2014 for only about one-half of these women—3,777, or 49 percent. Across awardees, the proportion of Intake Forms submitted for enrollees ranges from 0 percent to more than 140 percent⁴⁶ (one awardee submitted forms for more women than they'd reported enrolling through Quarter 1 2014). These ranges are presented in Figure 18. Form submission for the Third Trimester and Postpartum Surveys was quite low overall, as well. Given the large amount of missing data, we cannot assume that the women for whom forms were submitted are representative of all enrollees. Therefore, findings from the Intake Form, Third Trimester and Postpartum Surveys cannot be generalized to the full group at this point in the evaluation. They do, however, provide an early look at interesting trends among Strong Start participant characteristics, intentions and outcomes.

FIGURE 18: NUMBER OF INTAKE FORMS SUBMITTED, BY AWARDEE



⁴⁶ Enrollment totals are based on awardee reports in their quarterly program monitoring data.

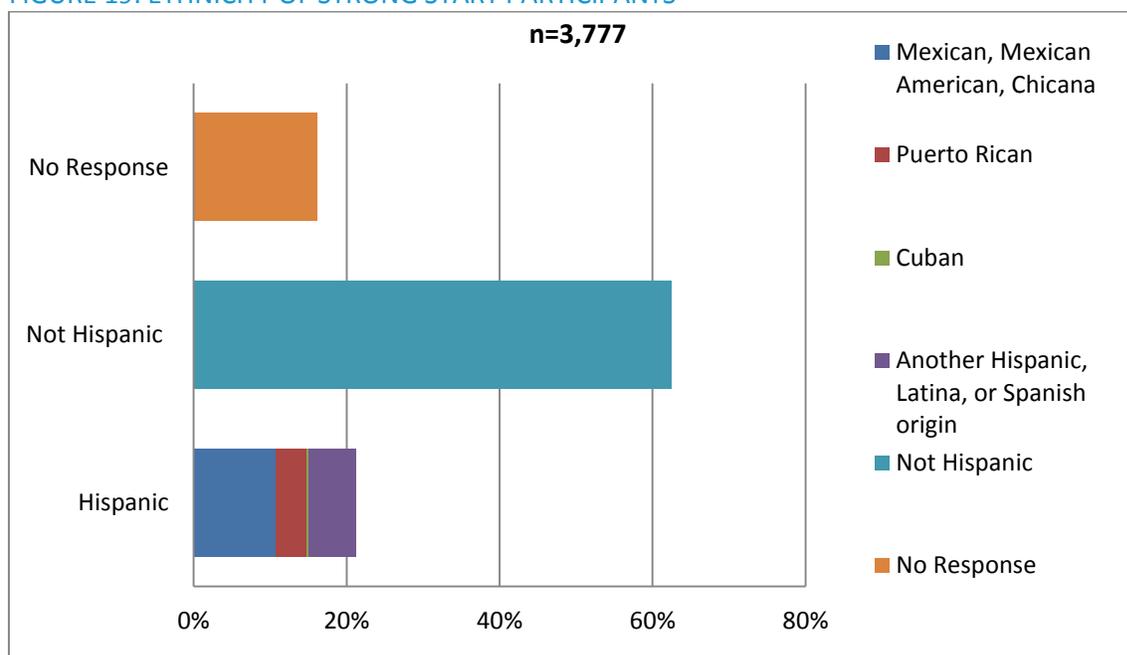
SOCIODEMOGRAPHIC CHARACTERISTICS

Based on the Intake Forms submitted through Quarter 1 2014 we summarize the demographic characteristics of Strong Start participants below, as well as the risk profiles of women enrolling in the program.

Among participants for whom Intake Forms were submitted, a minority are of Hispanic, Latina, or Spanish origin (21 percent). This tracks closely with the quarterly Program Monitoring data, which indicate that 24 percent of participants are Hispanic. Among those who identify as Hispanic on the Intake Form, the largest percentage are Mexican, Mexican American or Chicana, with smaller proportions of Puerto Rican and other origins⁴⁷. Sixteen percent of participants for whom Intake Forms were submitted did not respond to this question.

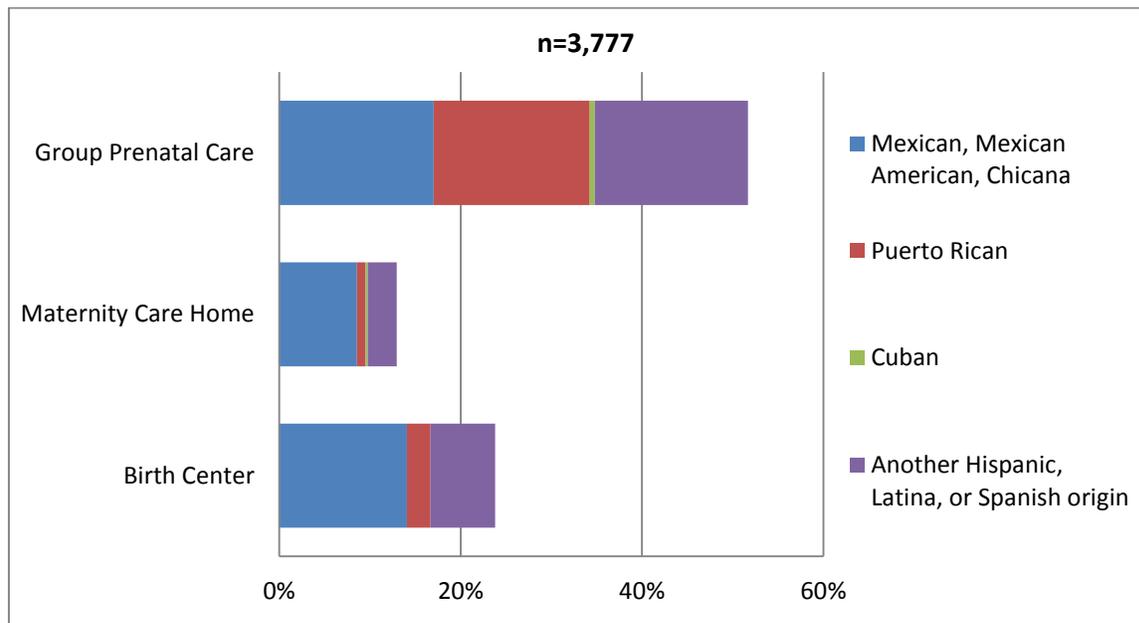
Between the different Strong Start models, data from Intake Forms suggest that group care has the highest percentage of Hispanic women enrolled (47 percent of women enrolled in group care for whom Intake Forms were submitted). This is in contrast to the program monitoring data, which report that birth centers have a larger proportion of Hispanic participants than the other two models.

FIGURE 19: ETHNICITY OF STRONG START PARTICIPANTS



⁴⁷ Participants could select more than one category of Hispanic origin on the Intake Form. Therefore, the sum of percentages may add up to more than 100 percent of Hispanic participants.

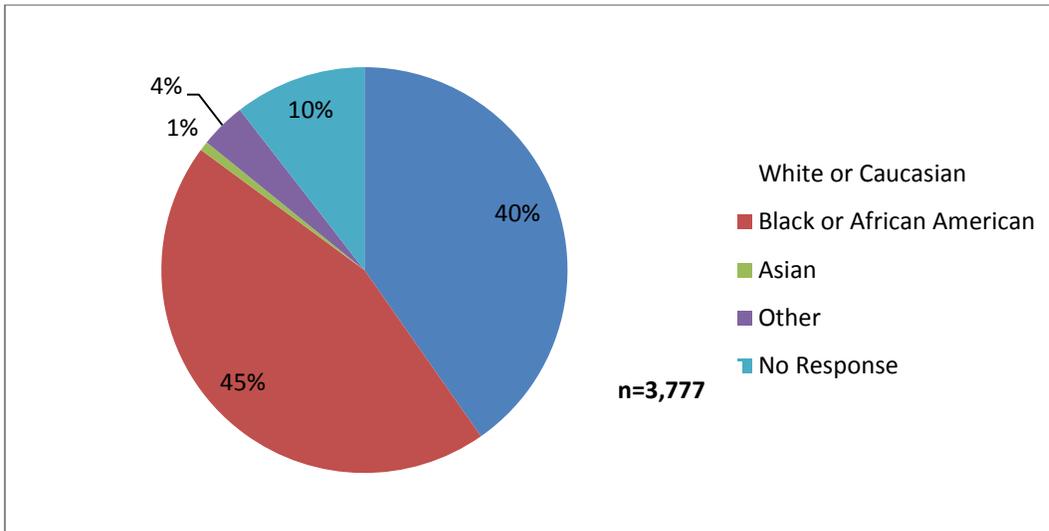
FIGURE 20: ETHNICITY OF STRONG START PARTICIPANTS AS PERCENT OF TOTAL ENROLLMENT, BY MODEL



Note: There were 612 missing responses across all awardees for this measure. Missing responses could not be calculated by model.

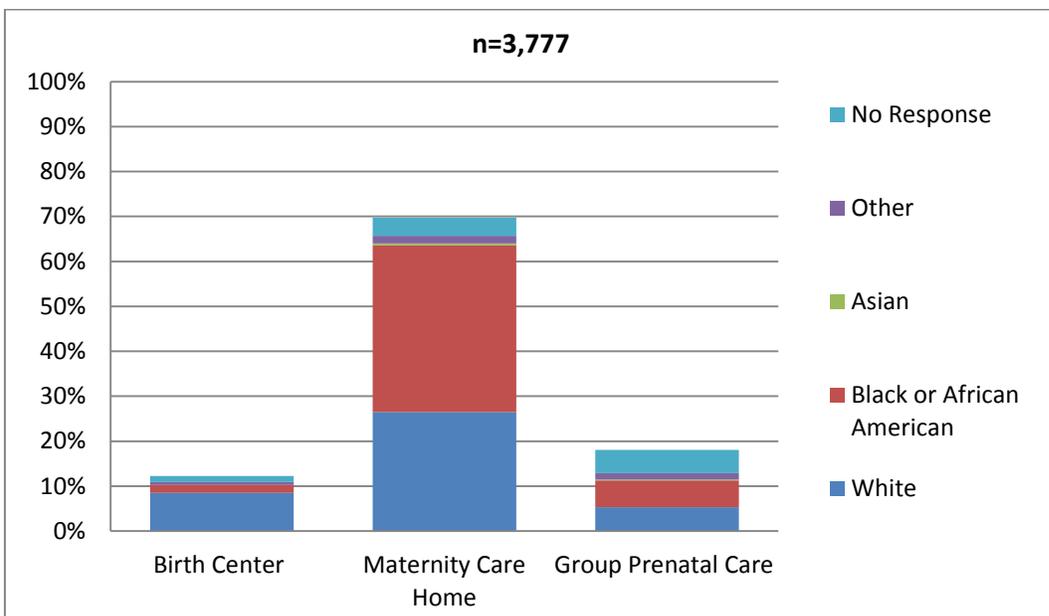
Reported race among those for whom Intake Forms were submitted breaks down fairly evenly between White/Caucasian participants (40 percent), and Black/African American participants (45 percent). These proportions are slightly higher than those reported in the quarterly program monitoring data (35 percent and 41 percent, respectively). Approximately one percent of participants are Asian, and 10 percent of those for whom Intake Forms were submitted did not respond to the question. Awardees have indicated that women who are of Hispanic, Latina or Spanish origin often do not identify with any of the race categories available on the Intake Form and often skip the question. Eighty-six percent of women who skipped the race question identify as Hispanic on the Intake Form.

FIGURE 21: RACE OF STRONG START PARTICIPANTS



According to available Intake data, the racial makeup of participants within the three models varies somewhat. For example, a higher proportion of participants receiving birth center care are White/Caucasian (69 percent of women for whom forms were submitted), in contrast to maternity care homes which are serving a larger percentage of Black/African American participants than the other models (53 percent). Group prenatal care sites have more participants that identify as “other” when compared to the other two models, which may be because they have more Hispanic women enrolled. Racial breakdowns by model are presented in Figure 22.

FIGURE 22: RACE OF STRONG START PARTICIPANTS AS PERCENT OF INTAKE FORMS, BY MODEL



More than half of participants for whom Intake Forms were submitted had either a high school diploma or GED (1,957 women out of 3,777 total Intake Forms submitted). Another 26 percent of participants (973 women) did not have either a high school degree or a GED. Less than one percent of participants report having an Associate’s Degree, a Bachelor’s Degree, or another college degree. More than 400 participants (11 percent) did not respond to the question.

These trends in educational background are fairly similar across the three Strong Start models (see Figure 24). Among women for whom Intake Forms were submitted, the vast majority of participants enrolled have a high school degree or a GED, followed in all cases by women who do not have either a high school degree or a GED. There are, however, two notable divergences. The proportion that holds a Bachelor’s degree is substantially larger in the birth center population than that of the maternity care home and the group prenatal care models. Similarly, of the three models, birth centers serve the lowest proportion of women without a high school degree or a GED. These findings are consistent with general perception that birth center settings serve a higher proportion of well-education women (Walsh and Downe 2004).

FIGURE 23: EDUCATION LEVEL OF STRONG START PARTICIPANTS

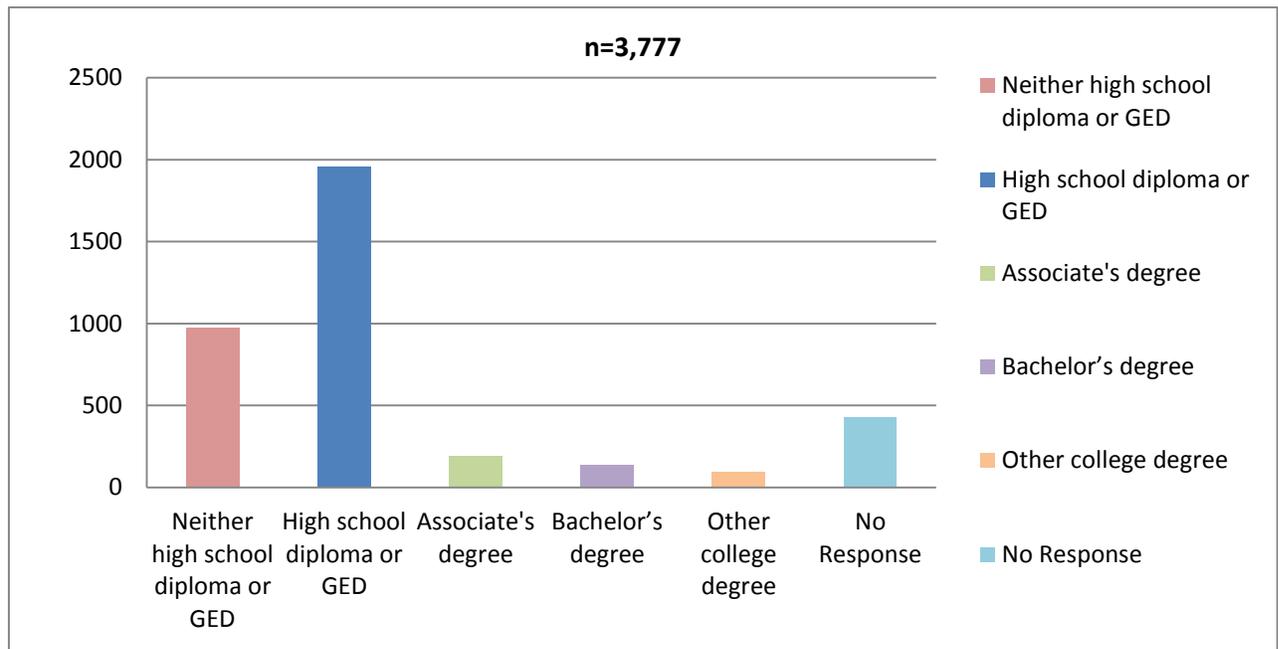
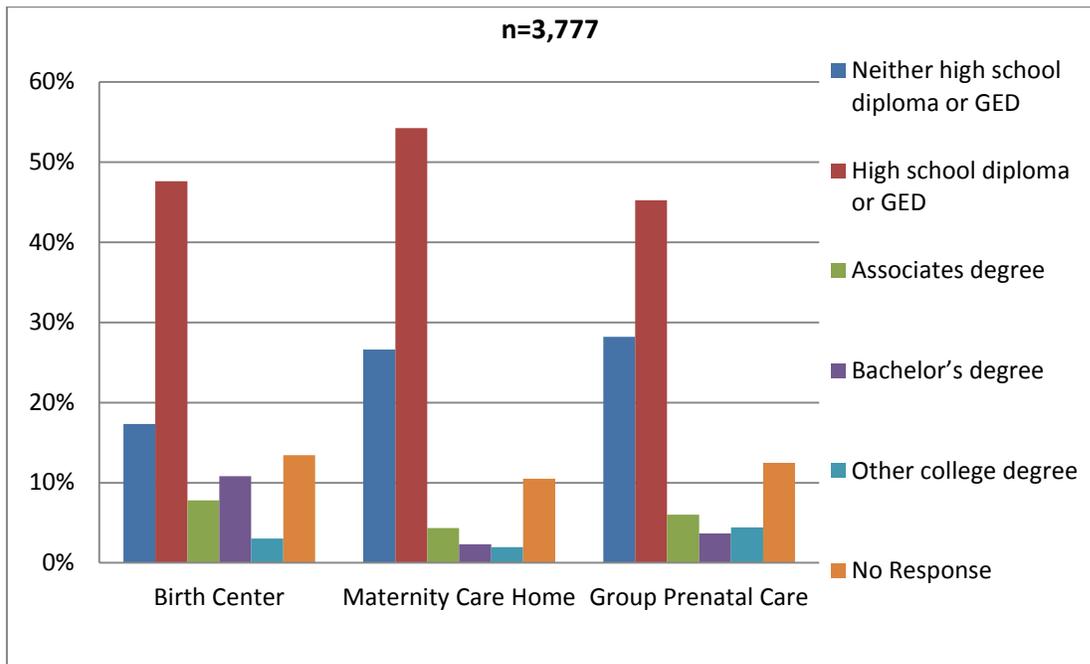
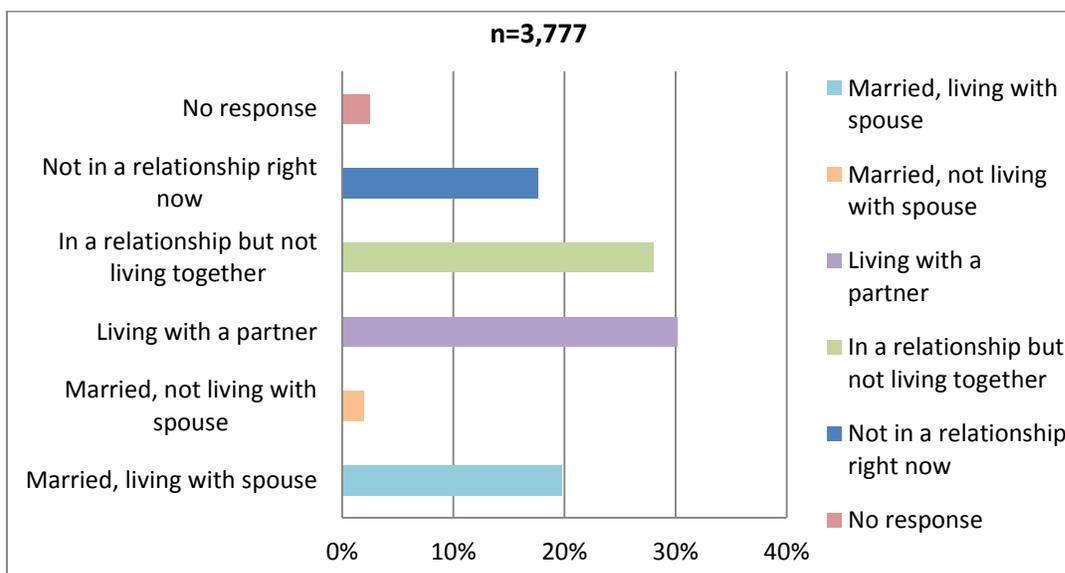


FIGURE 24: EDUCATION LEVEL OF STRONG START PARTICIPANTS, BY MODEL



As presented in Figure 25, half of Strong Start participants for whom Intake Forms were submitted through Quarter 1 2014 report living with a partner or spouse (30 percent and 20 percent, respectively). Another 30 percent of participants report being in a relationship but not living with their partner or spouse. Eighteen percent of participants report being single, and two percent did not respond to the question.

FIGURE 25: RELATIONSHIP STATUS OF STRONG START PARTICIPANTS



LIFESTYLE RELATED RISK FACTORS

A variety of risk factors exist among women for whom Intake forms were submitted, Though few women are reportedly homeless, 16 percent report experiencing food insecurity, and more than 60 percent are unemployed. Some unemployment may be attributed to participants being in school, but that accounts for only 20 percent of women who report not having a job at Intake. Among women for whom Intake Forms were submitted, participants enrolled in the birth center model were most likely to be employed upon enrollment (44 percent).⁴⁸ Slightly lower rates of employment among women enrolled in group prenatal care might facilitate their participation in group care, since work schedules are often cited as a challenge for women considering this form of prenatal care. Women enrolled in maternity care home models were the least likely to report experiencing food insecurity at the time of intake (13 percent) but were the most likely to indicate they smoke cigarettes (15 percent). Women enrolled in group prenatal care, in comparison, were the least likely to report smoking on their Intake Forms (six percent).

TABLE 5: STRONG START PARTICIPANT RISK FACTORS, BY MODEL

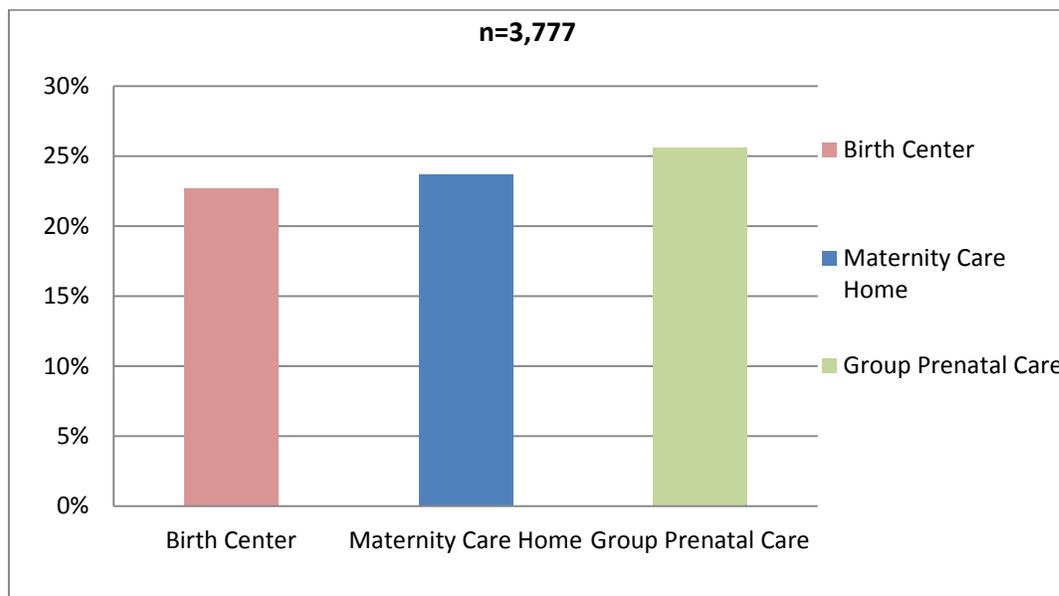
	Birth Center Total (Percent)	Maternity Care Home Total (Percent)	Group Prenatal Care Total (Percent)	All Models Total (Percent)
Smoking at intake	51 (11%)	392 (15%)	41 (6%)	484 (13%)
Living in a homeless shelter	6 (1%)	58 (2%)	9 (1%)	73 (2%)
Unemployed	252 (55%)	1,645 (62%)	431 (63%)	2,328 (62%)
Food insecure	105 (22%)	623 (13%)	174 (22%)	902 (16%)

In total, 902 participants exhibited depressive symptoms at intake as measured by a shortened 10-item version of the CES-D scale.⁴⁹ This represents nearly a quarter of women for whom Intake forms were submitted (24 percent). Individuals who score eight or higher (out of 10 items) are categorized as exhibiting depressive symptoms. Similar proportions are observed within each of the Strong Start models (as shown in Figure 26). Participants enrolled in birth centers were slightly less likely than the overall population to exhibit depressive symptoms (23 percent), and participants enrolled in group care were slightly more likely to score eight or higher than others for whom Intake Forms were submitted (26 percent). These rates are substantially higher than what has been cited in the peer-reviewed literature, where prevalence rates of antenatal depression are estimated to range from about seven percent and 13 percent (Bennett et al. 2004, Katon et al. 2011).

⁴⁸ The remaining proportion of women includes those who skipped the question or answered “No.”

⁴⁹ The version of the CES-D used on the Intake Form is a hybrid of two validated shortened versions of the scale, and is referred to as the MIHOPE-10. This version is also being utilized in the Strong Start MIHOPE evaluation.

FIGURE 26: PERCENT OF STRONG START PARTICIPANTS EXHIBITING DEPRESSIVE SYMPTOMS AT INTAKE, BY MODEL⁵⁰



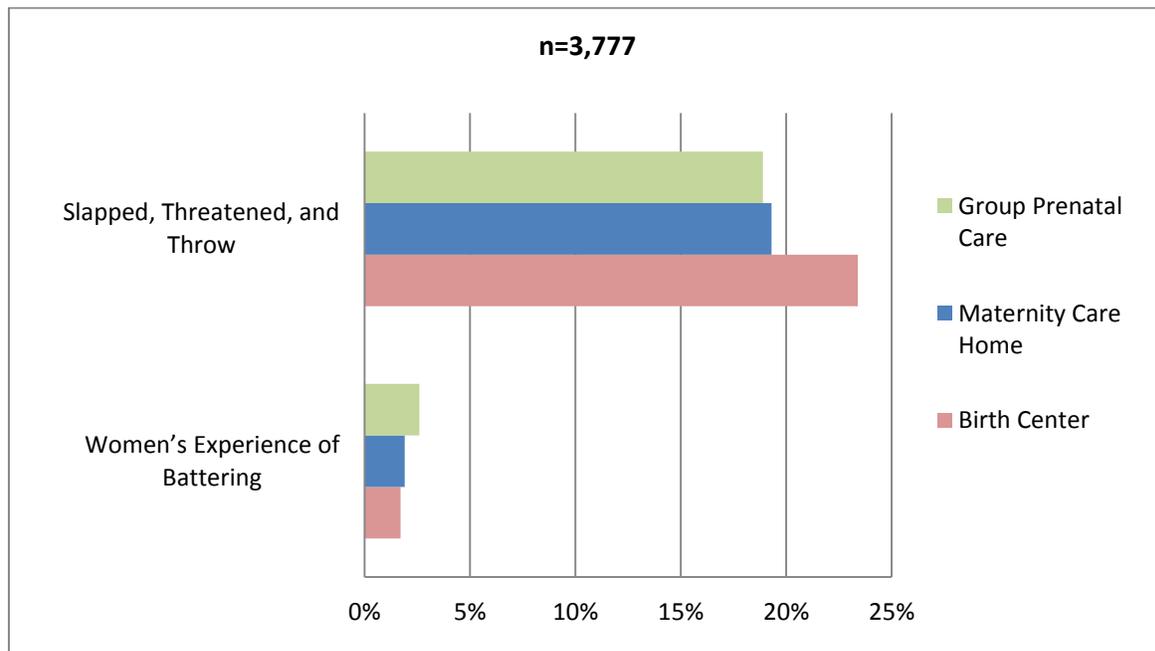
One-fifth of participants for whom Intake Forms were submitted were identified as having experienced intimate partner violence (IPV) as measured by the Slapped, Threatened, and Throw scale (STaT). This three item survey screens for lifetime physical intimate partner violence. As shown in Figure 27, a larger proportion of birth center participants were positively identified as having experienced IPV using the STaT scale (23 percent of birth center participants) compared with maternity care home participants and group care participants.

The opposite trend was observed for IPV as measured by a shortened (six item) version of the Women’s Experience of Battering scale (WEB), which is designed to operationalize the experiences of battered women (also presented in Figure 27). Overall, a small percentage of participants scored above 12—the threshold beyond which women are considered to be battered.⁵¹ Just under two percent of birth center participants, and a similar proportion of maternity care home participants, scored above a 12. A slightly higher proportion of group care participants were identified as experiencing IPV using the WEB scale (three percent).

⁵⁰ 389 women (10 percent) did not receive a depression score because they did not respond to all ten items. Includes women who did not respond to any of the items.

⁵¹ This scoring method has been proposed by the MIHOPE evaluation team, and essentially reduced the cutoff proportional to the reduced number of items included in the shortened scale. Further validation is needed and final approval from the developer will be sought by the MIHOPE evaluation team.

FIGURE 27: PERCENT OF STRONG START PARTICIPANTS EXPERIENCING INTIMATE PARTNER VIOLENCE AT INTAKE, BY⁵² MODEL



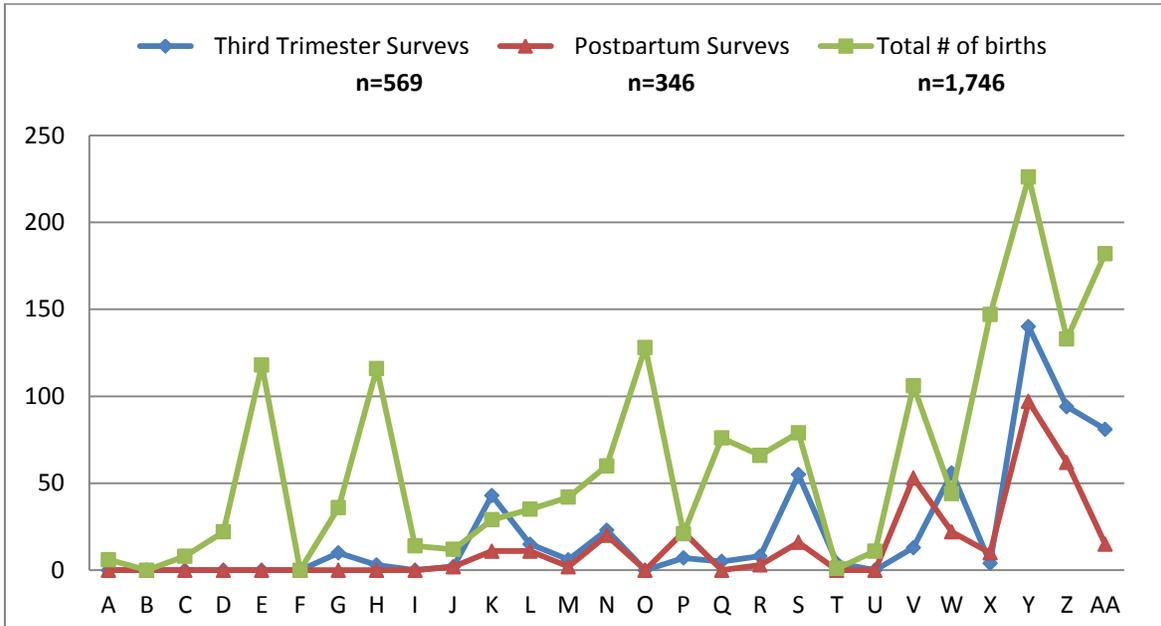
PARTICIPANT INTENTIONS, PERCEPTIONS, AND EARLY OUTCOMES

Based on 569 Third Trimester Surveys and 346 Postpartum Surveys submitted, we present preliminary data on participant intentions, perceptions and delivery outcomes (where available). Importantly, nine awardees did not submit any Third Trimester or Postpartum Surveys, and four awardees submitted only Third Trimester Surveys, but no Postpartum Surveys. One awardee submitted three times as many Postpartum Surveys as Third Trimester Surveys. This distribution is presented in Figure 28, along with the number of deliveries that awardees have reported in program monitoring data through Quarter 1 2014.⁵³

⁵² 70 women (two percent) did not receive a StAt score because they did not respond to all three items on the scale. 389 women (10 percent) did not receive a WEB score because they did not respond to all six items. This includes participants who did not respond to any of the items.

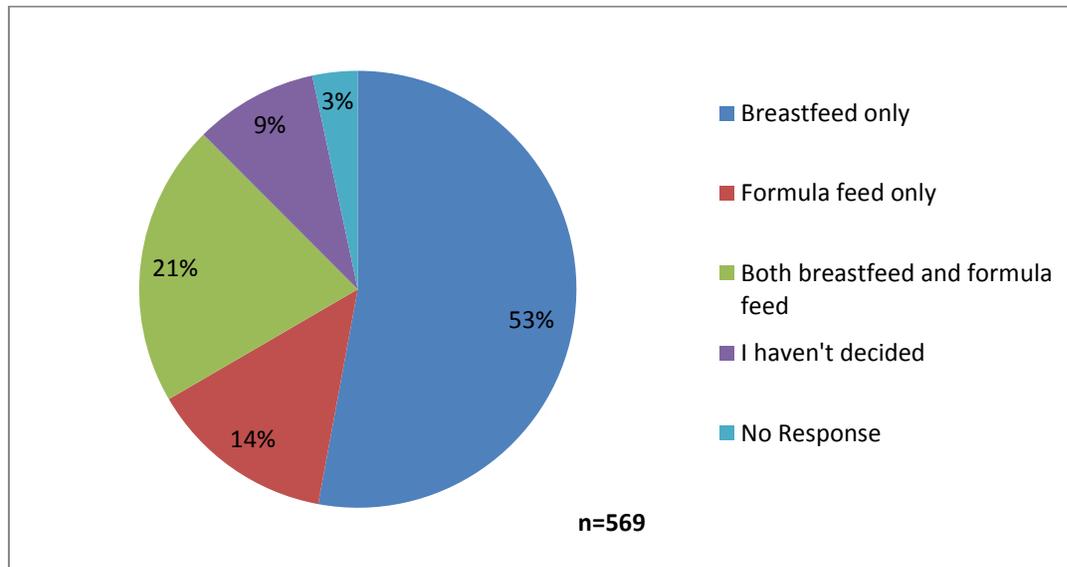
⁵³ Third Trimester and Postpartum forms do not necessarily represent the same group of women

FIGURE 28: THIRD TRIMESTER AND POSTPARTUM SURVEYS SUBMITTED, AND DELIVERIES BY AWARDEE



Nearly three-quarters of women for whom Third Trimester Surveys were submitted indicated they had plans to breastfeed their babies (53 percent planned to breastfeed exclusively and another 21 percent planned to breastfeed and supplement with formula). These data are presented in Figure 29.

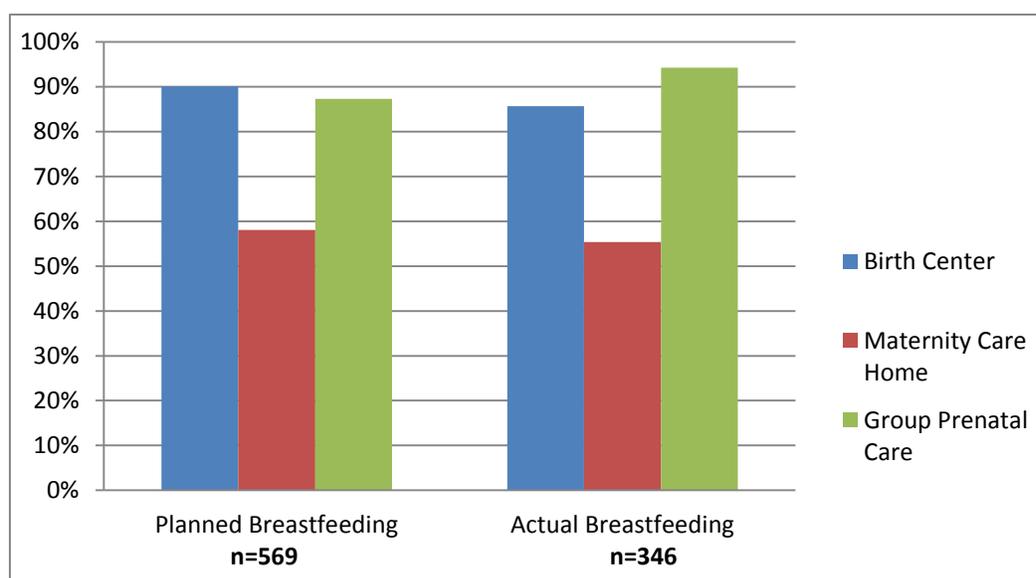
FIGURE 29: BREASTFEEDING INTENTIONS



Post-delivery, the proportion of women that report having breastfed is similar to the proportion of women who intended to breast feed (70 percent overall). National rates of having ever breastfed are slightly higher (75 percent) (CDC, “Breastfeeding Report Card”). There are differences by model, however, as demonstrated in Figure 30. For instance, while 87 percent of women enrolled in group prenatal care report intention to breastfeed, 94 percent of women who responded to the Postpartum Survey report breastfeeding. On the other hand, while 58 percent of women enrolled in maternity care homes indicated intention to breastfeed on the Third Trimester Survey, a smaller proportion of participants, (55 percent) report having breastfed on the Postpartum Survey. A similar, slightly downward trend is observed among women enrolled in birth center care (90 percent vs. 86 percent).

Since Postpartum Surveys were submitted for many fewer women than Third Trimester Surveys, however, it is too early to draw any definitive conclusions at this point. Further, there is a reasonable likelihood that women who filled out Postpartum Surveys may have been overall more likely to breastfeed; either because they received support from program staff and felt connected enough to the program to internalize recommendations to breastfeed, or they were simply more compliant patients who returned for postpartum visits—perhaps even seeking help with breastfeeding.

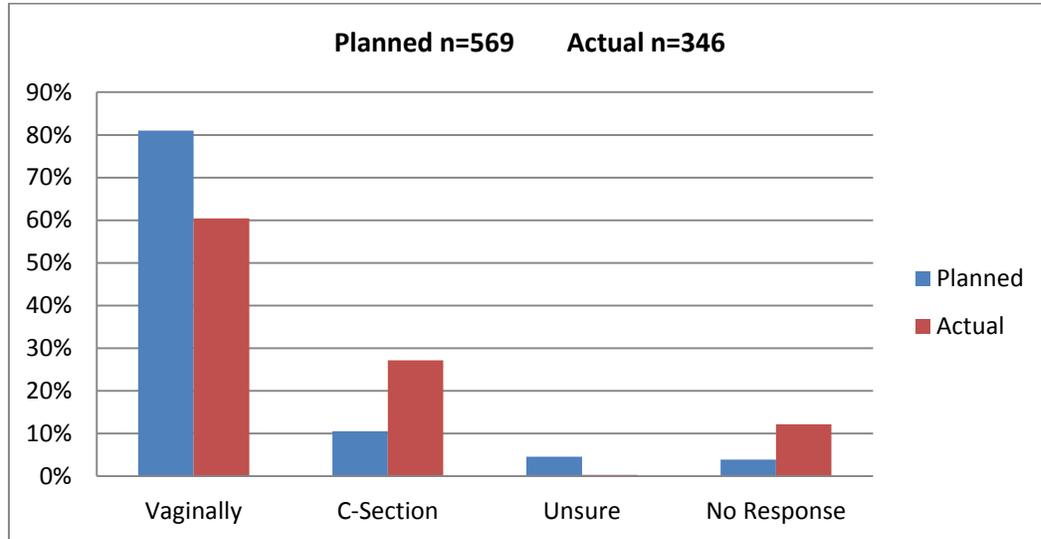
FIGURE 30: PLANNED VERSUS ACTUAL BREASTFEEDING, BY MODEL



A larger proportion of women indicated on their Third Trimester Surveys that they intended to have a vaginal delivery than women who report having had a vaginal birth on the Postpartum Surveys (81 percent vs. 60 percent). These data, presented in Figure 31, also indicate that more

women may have delivered by Cesarean Section than had intended (27 percent vs. 11 percent). Five percent were unsure of their delivery plans prior to delivery.

FIGURE 31: DELIVERY INTENTIONS VERSUS ACTUAL DELIVERY⁵⁴



Birth center patients had the highest proportion of vaginal birth (77 percent of participants for whom Postpartum Surveys were submitted). As displayed in Figure 32, however, Cesarean rates for participants enrolled in maternity care home (28 percent) were lower than the national average of nearly 33 percent, while the Cesarean rate for participants in group prenatal care homes (42 percent) was higher than the national average (CDC, “Methods of Delivery”). Quarterly program monitoring data from Quarter 1 2014 indicate that 23 percent of participants delivered via Cesarean section, while another 14 percent had an unknown delivery method.

In total, nearly 70 percent of women for whom Postpartum Surveys were submitted report that someone spoke with them about using birth control. This was especially true for participants enrolled in group prenatal care (79 percent) and participants who were cared for at birth centers (78 percent). Women enrolled in maternity care homes were the least likely to report having received information on using birth control (62 percent). Data by model are presented in Figure 33.

⁵⁴ Ns are different for responses on planned birth method and actual birth method because they are derived from two different forms (the Third Trimester Survey and the Postpartum Survey). Furthermore, they do not necessarily represent the same women over time.

FIGURE 32: DELIVERY METHOD, BY MODEL

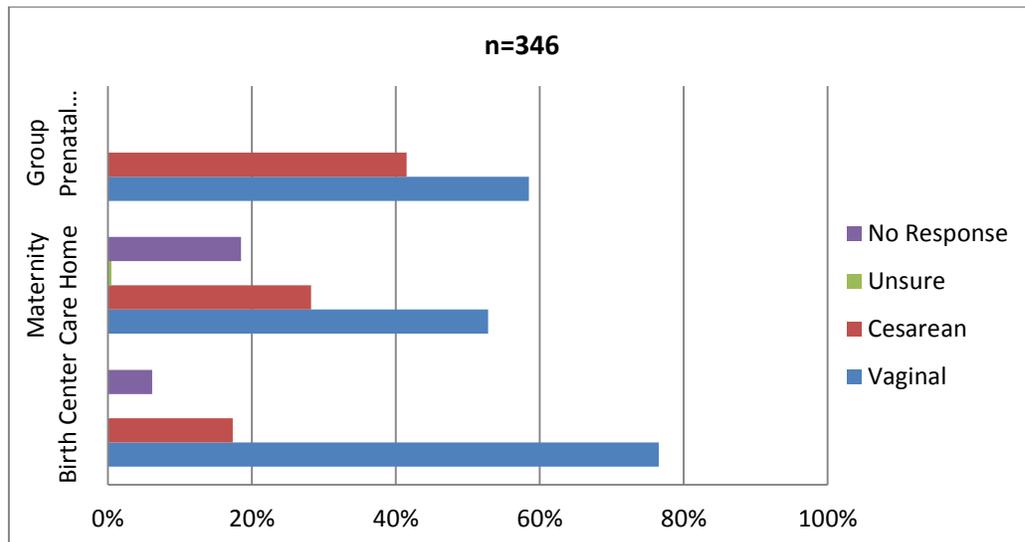
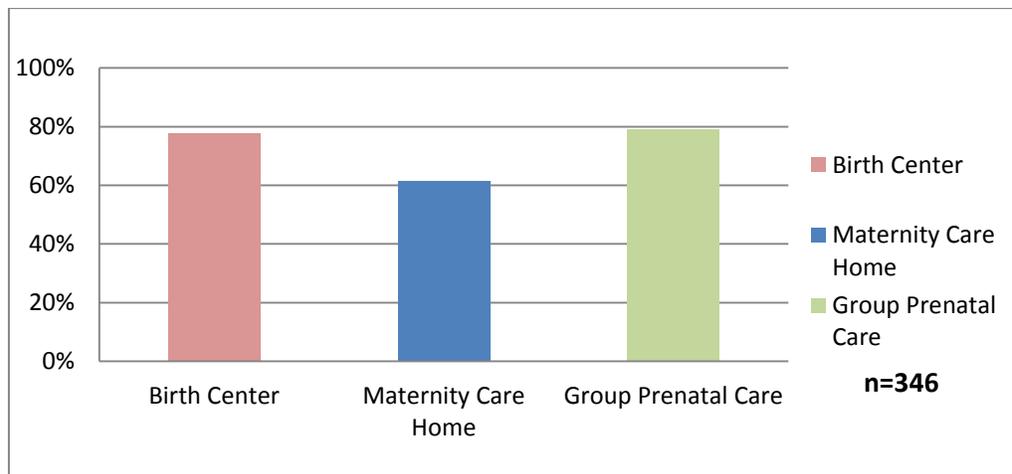


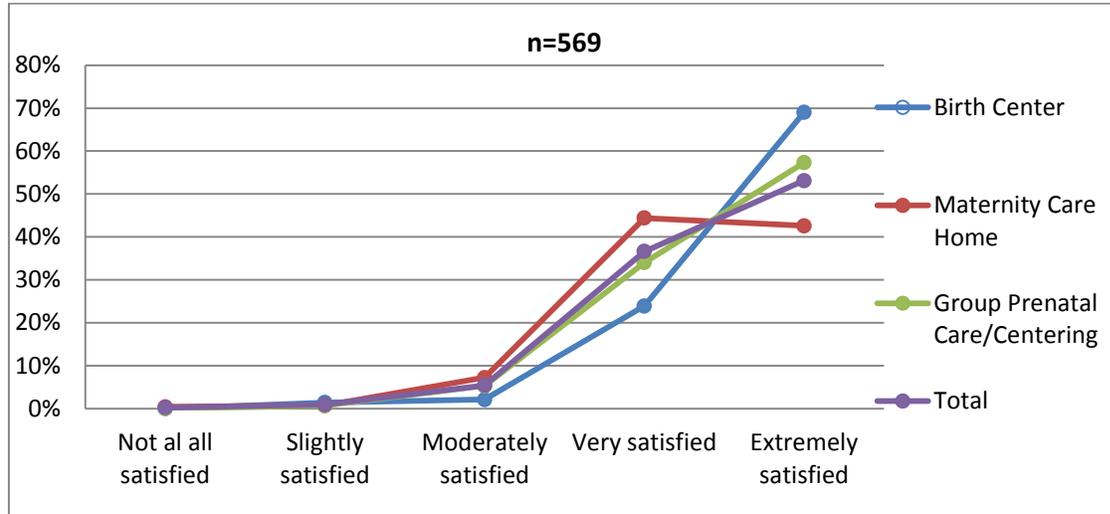
FIGURE 33: PERCENT OF WOMEN WHO RECEIVED BIRTH CONTROL COUNSELING, BY MODEL



Satisfaction with prenatal care was high overall, based on responses to the Third Trimester Survey, with nearly 90 percent of participants indicating they were either very satisfied or extremely satisfied with their prenatal care. As displayed in Figure 34, satisfaction was highest among birth center participants, with nearly 70 percent indicating they were extremely satisfied with the prenatal care they received. Maternity care home participants were most likely to report being very satisfied (44 percent), with slightly fewer indicating they were extremely satisfied (42 percent) on their Third Trimester Surveys. More than half of group prenatal care participants for whom surveys were submitted report being extremely satisfied with the prenatal care they received. The research

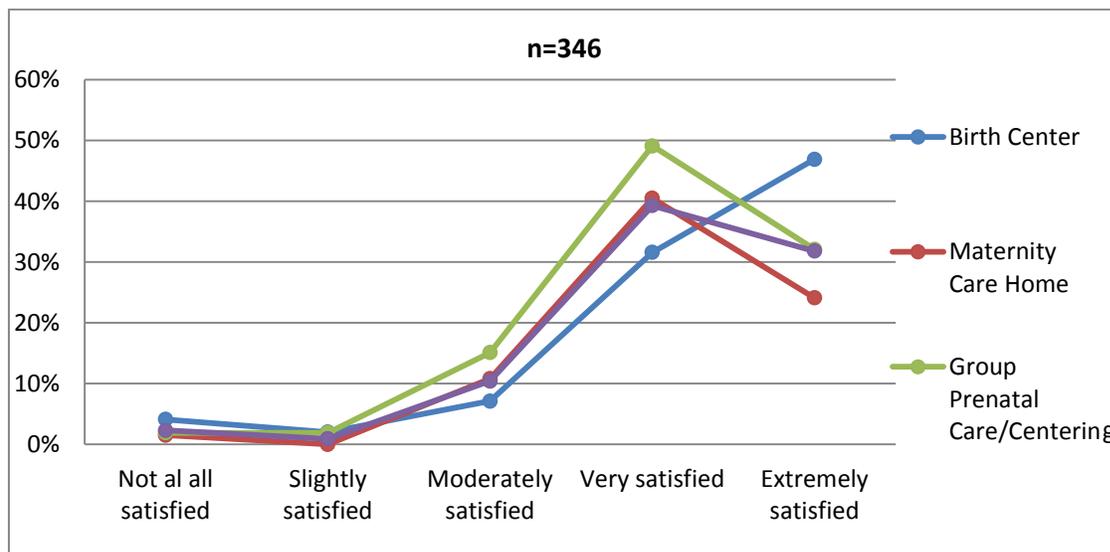
literature suggests, however, that satisfaction surveys pertaining to maternity care services may be of limited reliability, since there tends to be a strong bias toward high ratings (van Teijlingen 2003).

FIGURE 34: SATISFACTION WITH PRENATAL CARE, TOTAL AND BY MODEL



Satisfaction with delivery experiences was also fairly high, but lower than rates of prenatal care satisfaction. Among participants for whom Postpartum Surveys were submitted, approximately 70 percent were either extremely satisfied or very satisfied with their delivery experience. Again, satisfaction levels were highest among participants enrolled at birth centers (47 percent were extremely satisfied) (see Figure 35). Women enrolled at maternity care home sites were the least likely to report that they were extremely satisfied with their delivery experience (24 percent).

FIGURE 35: SATISFACTION WITH DELIVERY EXPERIENCE, TOTAL AND BY MODEL



CONCLUDING OBSERVATIONS

Overall, though these data are preliminary, they suggest that Strong Start participants experience a variety of risk factors, which may be higher than are observed among pregnant women in general. Particular areas that warrant monitoring include antenatal depression rates and experience with intimate partner violence. Early data, however, also suggest that participants are pleased with the services they are receiving. Further, these data suggest C-Section prevalence among women receiving care at Strong Start sites may be lower than the national average—though there is substantial variation across the three models. Additionally, women enrolled in certain Strong Start models may be more likely to attempt breastfeeding, but these data are challenging to interpret at this early stage.

EARLY OBSERVATIONS AND EMERGING ISSUES FOR CMMI

Crosscutting findings from the evaluation's first year of data collection inform a number of early observations about how awardees are implementing Strong Start, common challenges they have faced, promising practices they have adopted, and early program outcomes for Strong Start participants. Early crosscutting observations include the following:

- ***Strong Start enrollment has been slower, and lower, than expected during the first program year, but is steadily increasing.*** Several factors account for lower than expected enrollment, which stood at less than 40 percent of projected enrollment by the end of Quarter 1 2014. For one, it took some awardees more time than anticipated to establish an intake and enrollment process and to hire Strong Start program staff. Even with these elements in place, integrating eligibility screening and enrollment into the daily workflow of provider sites was often an involved process that required training (and retraining), gaining provider buy-in through continuous provider and clinic staff engagement, and the development of new materials and scheduling formats. Moreover, some awardees have found that fewer Medicaid and CHIP patients are eligible for Strong Start than they expected—often, pregnant women either did not possess additional risk factors for preterm birth, or were not identified and screened for enrollment until after the gestational age cutoff. Though less common, a few awardees have struggled with low Strong Start take-up rates or experienced considerable rates of attrition from the program. Eligible patients decline Strong Start most commonly because they are unwilling or unable to commit to the time it would require, they feel they do not need or would not benefit from the enhanced

care (particularly among multiparous women), or they have transportation barriers. Most program dropouts are due to participants moving out of the area or otherwise becoming lost to follow-up.

In the coming years, as awardees' Strong Start programs become more established and the award period progresses, particularly given the recent change in CMMI program guidance that loosened eligibility criteria regarding risk factors, the pace of enrollment will likely increase.

- ***Strong Start participants have high levels of emotional and psychosocial needs, which enhanced care models are designed to address.*** Case study and participant-level data findings illuminate the extensive needs and struggles faced by Strong Start participants. Many experience food insecurity, very low income or chronic unemployment, unstable housing, and lack of reliable transportation. Unmet dental and behavioral health care needs are also prevalent, as are low levels of education about self-care, nutrition, and healthy pregnancy (though qualitative data collected thus far indicate that the latter point is less often the case among participants seeking care at birth centers). Though Strong Start providers work diligently to help patients address these needs, they are constrained by resources limitations and other factors beyond their control, including Medicaid and CHIP-related barriers (e.g., delays in formalizing insurance coverage, lack of coverage once the postpartum period ends, limitations on benefits or inadequate reimbursement) and the limited availability of community resources. Moreover, the Strong Start program is a time-limited intervention that cannot address ongoing needs and stressors that will certainly extend beyond the perinatal period.
- ***A common element among the three enhanced prenatal care models is an emphasis on relationship-centered care.*** The maternity care home and birth center models emphasize the relationship between participants and care providers (e.g., maternity care homes' care coordinators, or the birth centers' peer counselors and midwives), while the group care model emphasizes both peer relationships (between Strong Start enrollees assigned to the same group) and relationships with group facilitators, who also serve as care providers. These relationships appear to be providing valuable social and emotional support for Strong Start participants, and are also important vehicles for providing education on pregnancy, preterm risks, and self-care, and for facilitating connections to external resources in the community.

- Across models, awardees faced common implementation challenges, including: establishing a consistent and effective process for identifying and enrolling eligible patients; integrating enhanced services into existing models of care; retaining women in the Strong Start program; and complying with Strong Start data requirements.*** Many awardees struggled with enrollment-related processes, including both attracting eligible women into care and obtaining their consent to enroll in Strong Start, especially when the women had given birth before and did not believe they needed extra services. Integrating Strong Start services into the operational structure of clinics, provider offices, or birth centers. For example, maternity care home care coordinators and birth center peer counselors sometimes experienced problems establishing routine and effective communications with prenatal care providers, while other awardees faced challenges establishing a schedule for group care appointments within a traditional OB office setting. Strong Start program and evaluation data requirements were often mentioned by key informants as a barrier to smooth implementation, particularly because many requirements were not introduced until after awardees had already begun operating their programs (thus requiring mid-course adjustments). The burden of documentation and data collection was unanticipated by most awardees, and some expressed the opinion that the evaluation forms are intrusive and/or take valuable time away from patient care. On the other hand, some Strong Start program staff said that they appreciate the evaluation forms because they provide a standardized means for identifying patient needs and a structure for communications between enhanced care providers and program participants.
- Awardees across models also shared common promising practices, including the development of “opt out” enrollment processes; more effective messages for patients about Strong Start; strategies to promote supportive and engaged relationships with prenatal care providers and other site staff; willingness to adapt programs to the specific needs of the site and target population; and the development of dedicated, skilled, and resourceful program staff.*** Awardees that used an opt-out approach to enrolling patients in Strong Start, and/or who provided the enhanced care model to all patients as part of the site’s standard prenatal care, were particularly effective at enrolling eligible patients in Strong Start. Many awardees developed, tested, and disseminated (across sites) messages about the models that have been specifically tailored to address patients’ most common reasons for declining enrollment. Across awardees, key informants were unanimous in singling out the support of prenatal care providers and others (e.g., front-office staff, referring organizations, and executive leadership) as a key ingredient to successful

implementation. These individuals are often responsible for identifying eligible patients, educating them about the program, collecting patient data, and communicating with enhanced service providers like care coordinators or peer counselors. Flexibility and adaptability are also important facilitators of success—this includes thinking creatively about how to engage and retain participants in care, adapting program resources and services to fit the needs of the patients at a particular site (e.g., relying on virtual communication due to patient preference or transportation barriers, tailoring program offerings to address individual patient needs rather than a one-size-fits-all approach). Related to this point, successful implementation also appears to be predicated on Strong Start program staff that are personable (especially those responsible for providing services directly to patients, such as care coordinators, peer counselors, or group facilitators), dedicated, skilled, and resourceful.

- ***Consistency in implementation varies considerably across models and among sites.*** The evaluation also found that, at this early point in implementation, there can be considerable variation in practices across models and between sites. This is most obvious among the sites implementing the birth center model under the AABC award (where sites vary in their approach to enrollment, the qualifications of peer counselors, and the content, mode, and frequency of peer counselor encounters), but is true for several other awardees as well. Some group care awardees include sites where sessions are facilitated by different types of providers (e.g., attending or resident OBs, advanced practice nurses, social workers); facilitators at some sites are consistent while at others they are not; and the composition of groups also varies (e.g., in terms of size, or whether groups aim include patients of similar or diverse demographic backgrounds). Under the maternity care home model, care coordinators have diverse qualifications (e.g., a combination of nurses, social workers, and community health workers), and may work either solo or in teams, and either with one site or across multiple sites. Whether such variations have an impact on the experiences and outcomes among Strong Start participants will be an important issue to track, moving forward.
- ***Women being served by Strong Start, thus far, have lower than average Cesarean section rates, higher rates of breastfeeding, and in some models lower rates of preterm deliveries and low birth weight than national averages.*** While it is far too early to make any sweeping generalizations about the effects of Strong Start, current data suggest some positive trends that merit ongoing attention. For one, quarterly program monitoring data

through Quarter 1 2014 suggest that women being served by Strong Start have rates of Cesarean section that are lower than the national average. In addition, participant-level process data also indicate that breastfeeding rates may be at least as high as the national average, and potentially much higher for birth center participants. While we do not yet know if there are underlying differences in women enrolled in the different models of care, birth centers and group prenatal care sites, thus far, report considerably lower preterm birth rates than the national average. Birth centers also report rates of very low and low birth weight substantially below the national average. The impacts analysis, which will compare Strong Start women to other Medicaid covered women and control for the observable characteristics that may be correlated with better outcomes, will ultimately be needed to detect true differences.

- ***Strong Start participants express overwhelming satisfaction with their prenatal care, though satisfaction with their delivery experiences is somewhat lower.***⁵⁵ In the data received thus far, which is still preliminary, Strong Start participants report very high rates of satisfaction with the prenatal care they have received. This is evidenced both by the Third Trimester and Postpartum Surveys submitted to date, and by the evaluation's focus groups, where positive reviews were stated consistently and repeatedly. Satisfaction with delivery was slightly lower than satisfaction with prenatal care for all Strong Start models, particularly among participants enrolled in group prenatal care and at maternity care homes. Data from the focus groups indicate that this may be attributable, in part, to the fact that prenatal providers are frequently different than the delivery provider in these two models. In contrast, the midwifery model promoted by birth centers typically commits a consistent or known midwife providing labor support throughout many hours of labor. Additional probing of this disparity, should it persist in future quarters, could be explored during focus groups with postpartum participants to help tease out any systematic differences that do exist.

Year one findings across Strong Start awardees also highlight several emerging issues for CMMI to consider as the program and evaluation progresses, including:

- ***Selection bias remains a concern, complicated by widely varying eligibility criteria across awardees as well as mid-course changes regarding eligibility requirements.*** It will be critical for the evaluation to rule out any systematic selection bias in the sample of women

⁵⁵ Strong Start pays only for enhanced prenatal care services, not for the prenatal and delivery of care already funded by Medicaid. This assessment of care includes all services received, including those not funded by Strong Start.

participating in Strong Start as a whole, and by model. Women who choose to receive care at birth centers, for instance, may be more likely to be proactive and educated with regard to healthy pregnancy behaviors (preliminary findings from the participant-level process evaluation data suggest this, even at this early point). In addition, variations in enrollment practices and eligibility criteria, including the issues introduced by an “opt-in” vs. “opt-out” approach, introduce the potential for additional selection bias. This issue will require close attention as the evaluation proceeds.

- ***The incremental benefit of Strong Start services may be challenging to detect.*** The specific additions to prenatal care practice being added by Strong Start are relatively small in many cases. Peer counselors (in birth centers) and care coordinators (in maternity care homes), for example, represent important augmentations to routine care, yet may not fundamentally change prenatal care practices. Moving forward, case studies (rather than quantitative measures) may hold the most promise for describing the incremental benefits of these services under Strong Start, though the evaluation will also attempt to measure these quantitatively.
- ***Significant model overlap at several Strong Start sites will influence the ability to detect model-specific differences in the impacts of Strong Start.*** Early case study findings indicate that, in several cases, multiple models of enhanced prenatal care are being offered to Strong Start participants. For instance, a number of birth center and maternity care home awardees have reported that group prenatal care is available to patients receiving care at their sites, and that some Strong Start participants may be enrolled in group care. Moreover, case management and home visiting services provided by other funders often touch participants enrolled in Strong Start. The evaluation’s Exit Form will attempt to tease out the extent to which model overlap exists, and to better understand the services individual participants are receiving, by requesting that awardees document all enhanced services participants have received and the type and number of routine prenatal visits provided. Comparing Exit Form data with case study findings will be an important step for understanding the extent to which these overlaps are being well documented.
- ***Data burden and data collection fatigue among awardees may ultimately lead to incomplete submissions and poor quality data; keeping a close eye on this going forward will be critical to the success of the evaluation.*** During the first year of the evaluation, it has become apparent that the data collection burden imposed on Strong Start awardees and sites is significant, and some key informants have explicitly complained that data

collection is getting in the way of smooth implementation and may be impeding progress. While the importance of thorough data collection to support program monitoring and the evaluation is crucial, federal officials and the evaluation team should also be aware of the potential for this burden to affect data quality. For example, changing requirements have negatively impacted the timely submission of both program monitoring and participant level process evaluation data. Efforts to simplify data collection by (for example) retaining data reported in past quarters or providing the option of electronic submission of data have been well received; however, the necessity of specific data elements should be considered and questioned on an ongoing basis, and reexamined in the event that data quality concerns arise.

Project Progress and Plans for Year 2

This section provides a recap of Year 1 progress with the Strong Start for Mothers and Newborns evaluation, and also summarizes our work plan for Year 2.

PROGRESS THROUGH YEAR 1

At the conclusion of Year 1 of the Strong Start for Mothers and Newborns evaluation, which ended August 10, 2014, a large number of tasks in the study's scope of work had been completed, while several others were proceeding, albeit somewhat behind schedule. Roughly the first half of Year 1 was spent developing various foundational documents that set the stage for data gathering. These included:

- Project Work Plan (Task 1.4);
- Monitoring Management Plan (Task 1.5);⁵⁶
- PII Data Plan (Task 1.6);
- Literature Review (Task 2.1);
- Control Group Feasibility Study (Task 2.2);
- Third Trimester and Postpartum Survey Instruments (Task 2.3);
- Initial and Final Design Plans (Tasks 2.4 and 2.5);
- Selection and Convening of the project's Technical Expert Panel (Task 2.4); and
- Technical Assistance Workplan (Task 3.1).⁵⁷

In addition, many complex systems were developed and launched to support the evaluation's data collection efforts, including the unanticipated creation of a web-based system for the submission of program monitoring data by Strong Start awardees, and the creation of both paper-based and electronic systems for the submission of participant-level process evaluation data by the

⁵⁶ The Monitoring Management Plan was submitted in draft and has not been finalized, due to various requests for changes in the scope and system for collecting program monitoring data. It will be finalized during Year 2.

⁵⁷ Specific details on the development and timing of these deliverables can be found in evaluation's Quarterly Project Progress Reports for quarters 1, 2, and 3 (Task 1.7).

awardees. For the case studies, multiple key informant interview protocols and focus group moderator's guides were developed, reviewed, and refined. Each of these efforts required considerable design, testing, and development, as well as outreach to and education of awardee staff. Thus, numerous webinar trainings were held with Strong Start awardees to orient staff to new data collection forms, tools, and systems. In addition, evaluation team staff were designated as "liaisons" to provide responsive, hands-on assistance to awardee and site staff on the participant-level data collection as needed.

As described in Section II of this report, Year 1 also witnessed the launch of Task 4 data collection during roughly the second half of the project year. Specifically, by August 11, 2014:

- Case study site visits had been conducted with 14 awardees. These visits entailed the conduct of 160 key informant interviews (including some group interviews with multiple informants), 37 focus groups with pregnant and postpartum women (primarily with Strong Start participants, though 7 groups were held with pregnant women not enrolled in the program), and 23 structured observations of enhanced service delivery.
- Quarterly program monitoring data had been collected by the evaluation team for calendar Quarters 3 and 4 2013, and Quarter 1 2014. The first of these data collection cycles used a version of the Excel spreadsheet system initially designed by CMMI, while the last two used the web-based reporting system designed by the evaluators.
- Participant-level process evaluation data were collected through calendar Quarter 1 2014, using three of the four data collection instruments (the Intake Form and the Third Trimester and Postpartum Surveys). This effort also encompassed the collection of "old" Intake Forms that awardees had completed during calendar Quarters 2, 3, and 4 2013, before the evaluation's new participant level data system had been established. These data are being manually keyed in or downloaded electronically. We anticipate that all "old" Intake Forms will be submitted by end of 2014.

As seen above, this Year 1 Final Report (Task 4.1) summarizes and synthesizes the findings from these early data gathering efforts.

PLANS FOR YEAR 2

Plans for Year 2 of the Strong Start for Mothers and Newborns Initiative evaluation call for not only continued data collection via qualitative case studies, program monitoring, and participant level process evaluation, but also accelerated implementation of our Data Linkage Technical Assistance task, and potentially the receipt of our first wave of data to be used in the project's Impacts Analysis. Specific plans for Year 2, by major task, are presented below.

CASE STUDIES

Originally, the evaluation planned to complete its first round of site visits and telephone interviews with the Strong Start awardees by the end of Year 1. However, as early as the completion of the project's Work Plan in January 2014, it was evident that a number of site visits would carry over to the early part of Year 2, in part because many awardees made slow progress implementing the program (and enrollment remained low very low) and were not ready for case study data collection until late in Year 1. Indeed, that has been the case. Additional site visit and telephone interviews will be conducted with 13 awardees and six AABC sites, many of which will occur within the first two months of Year 2.

According to the evaluation's Design Plan, Year 2 work related to our qualitative case studies will also involve the conduct of another round telephone interviews with the program staff of each of the 27 Strong Start awardees. (Interviews are also planned with a small number of selected provider sites.) The development of protocols for these interviews will commence in the fall of 2014, and the interviews themselves will occur between February and June 2015. Interviews will explore the ongoing implementation experiences of awardees and information gathered through these conversations will be synthesized and presented in the project's Year 2 Annual Report.

PROGRAM MONITORING

Awardees submitted Quarter 2 2014 program monitoring data at the beginning of Year 2—on August 31, 2014. These data were already being compiled and analyzed at the time of this writing. Now that the web-based approach for awardee submission of program information is established, we expect this task to proceed fairly routinely. That is, we plan to release the updated template for data submission within one week of the end of each calendar quarter, provide awardees with 45 days to complete their reporting, and, and summarize the data for evaluation purposes within 30 days after the close of data collection. Data will be summarized for the evaluation team to assist

with site visit planning and other evaluation tasks. CMMI’s program team has requested that we no longer provide them with aggregated summaries for now.

Based on this process, by the end of Year 2, we expect to have collected, compiled, and analyzed data for: Quarters 2, 3, and 4 2014, and Quarters 1 2015.

PARTICIPANT-LEVEL PROCESS EVALUATION

The majority of awardees submitted their participant-level process evaluation data for Quarter 2 2014 on August 31, 2014; these included data from completed Intake Forms and Third Trimester and Postpartum Surveys. As described in this Year 1 Annual Report, Intake Form submission rates were low for many awardees. We expect that awardees will need additional time to “catch up” on submitting Intake Forms completed prior to January 2014, and expect to be up to date on form submission by early 2015.

The beginning of Year 2 will also see the launch of the fourth and final participant level form—the Exit Form—which will collect detailed birth outcome information from hospital medical records. Exit Forms are required of all Strong Start participants, including those that leave the program for whatever reason, and so we anticipate that awardees will once again need considerable time to complete and submit Exit Form data for all prior cases. In addition, Year 2 will witness several awardees establishing systems for submitting participant level data via electronic means. This will involve considerable assistance being given by evaluators to awardees, but should result in a more accurate and less time-consuming process for these awardees.

The Year 2 process for submitting participant level data follows a similar sequence to that of program monitoring. Participant-level data are due within 45 days of the end of each calendar quarter to align with quarterly program monitoring requirements. Within 45 days of the data being submitted the evaluation team will analyze the data and prepare a report of the participant-level findings. Based on this schedule, by the end of Year 2, we expect to have collected, compiled, and reported on participant-level data for: Quarters 2, 3, and 4 2014, and Quarter 1 2015.

DATA LINKAGE TECHNICAL ASSISTANCE

State Data Linkage Technical Assistance—Task 3—represents one task that fell considerably behind schedule during Year 1 because of unexpectedly time consuming start-up and design tasks, delays and additional work surrounding program monitoring data collection, and the launch of our demanding case study and participant level data collection efforts. The delay, however, allowed for an extended period to consider states’ needs, facilitated by our team’s attendance at one in-person

and numerous web-based data linkage workshops hosted by AcademyHealth and co-sponsored by the Center for Medicaid and CHIP Services (CMCS) and the Centers for Disease Control (CDC) with a goal similar to that of the Strong Start project—to support states’ learning to link their Medicaid and Vital Records data in support of federal and state reporting initiatives and policy goals. We also identified state contacts through our case study interviews and CMMI interview notes. With the additional insights and information, we were able to reconsider our originally proposed plan for providing technical assistance, and develop new strategies for how to approach this critically important task, particularly helping states through the challenges of data sharing agreements. This resulted in our completion of a TA Workplan in the summer of 2014 and, over the course of Year 1, the completion of a number of draft technical assistance tools that we plan to use in Year 2, including:

- A policy brief that describes for state officials the benefits to be derived from linking Medicaid and Vital Records data;
- A second policy brief that explores the legal and regulatory barriers that can challenge efforts to share data across state agencies and between states and research organizations;
- The first draft of an interview guide; and
- Various spreadsheets that compile and organize information collected on state organizational structures, key data contacts, and prior experiences with data linkage and evaluation.

As we begin Year 2, we have gradually started to implement various phases of our TA Workplan. As approved, the workplan comprises six distinct phases, including:

1. Coordination with federal training efforts, the MIHOPE evaluation team, and CMMI in preparation for state interviews
2. Gaining states’ agreements to share data with the Strong Start evaluation
3. Conducting assessments of states’ current data linking and sharing capacity, and needs for assistance
4. Developing tailored work plans for each state
5. Providing TA services
6. Receiving states’ data for use in the evaluation

We have already worked to coordinate our technical assistance effort with those of other federally-sponsored projects, as evidenced by two conference calls with representatives of the

CMCS/CDC/AcademyHealth data linkage project, and one call with evaluators involved in the MIHOPE Strong Start project. In the remainder of 2014 and early 2015, we plan to continue with Phases 2 through 4 of the Workplan by contacting states with Strong Start awardees, conducting our assessments of their capacities and needs, and developing tailored workplans for how to proceed in each state. Given the large number of states represented in Strong Start, we plan to prioritize our effort by starting with states that: 1) have demonstrated prior experience and expertise with linking Medicaid and Vital Records data; and 2) have a relatively large number of Strong Start participants.

As we move through the second half of Year 2, we plan to implement Phase 5 of the Workplan by providing a combination of hands-on/customized and group technical assistance. As described in our plan, we anticipate technical assistance needs falling into two large buckets: those related to legal and regulatory barriers that surround data sharing and linkage; and those related to the technical aspects and techniques surrounding the linking of Medicaid and Vital Records data. Group technical assistance is likely to take the form of webinars and web-based workshops that address common needs among the states, while hands-on assistance will be provide either in person, or via the Internet or phone to provide technical help to state staff.

Phase 6 of the technical assistance—the delivery of state data to the evaluation—represents the ultimate objective of this task, as the linked datasets will enable evaluators to conduct the analysis of Strong Start’s impacts on birth outcomes and costs of care, discussed below.

IMPACTS ANALYSIS

The first tangible component of the evaluation’s Impact Analysis will likely occur at the very end of Year 2. Specifically, we envision that it will be easiest for states to pull and link data needed for the evaluation on an annual basis, and that there will be at least a 6-month lag between the end of any given period and when the data will be available. Given this, the first set of linked data that could be obtained would be birth certificates for births occurring in 2014 linked with 2013 and 2014 Medicaid eligibility and claims data for mothers enrolled in Strong Start and mothers in the comparison groups. (Based on the locations of participating Strong Start providers and the geographic dispersion of their clients, the evaluation team will identify specific geographic areas from which to draw the comparison groups of mothers.) We anticipate requesting these data in July of 2015. Beginning in Year 2, and moving into Year 3 of the evaluation, we will strive to link Medicaid and birth certificate data or obtain linked data from states. The data, to the extent they are available, would be used to estimate the impact on birth outcomes for the first year cohort of Strong Start mothers in Year 3.

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Technical Appendices

APPENDIX A: FIGURES FROM THE LITERATURE REVIEW

Table 1: Strong Start Awardee and Model

Awardee Name	State	Strong Start model (intervention)	Total Number of Sites		
			Birth Centers	Maternity Home	Group Prenatal Care
Access Community Health Network	Illinois	Maternity Care Home	-	23	-
Albert Einstein Healthcare Network	Pennsylvania	Centering Pregnancy	-	-	2
American Association of Birth Centers	Alaska, Arizona, California, Florida, Illinois, Kansas, Minnesota, Nebraska, New Mexico, New York, North Carolina, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, West Virginia, Wisconsin	Birth Center	37	-	-
Amerigroup Corporation	Louisiana	Centering Pregnancy	-	-	2
Central Jersey Family Health Consortium, Inc.	New Jersey	Centering Pregnancy	-	-	7
Florida Association of Healthy Start Coalitions	Florida	Maternity Care Home	-	6	-
Grady Memorial Hospital Corporation DBA Grady Health System	Georgia	Centering Pregnancy	-	-	4
Harris County Hospital District	Texas	Centering Pregnancy	-	-	7
HealthInsight of Nevada	Nevada	Centering Pregnancy	-	-	2
Johns Hopkins University	Maryland	Maternity Care Home	-	3	-
Los Angeles County Department of Health Services	California	Maternity Care Home	-	4	-
Maricopa Special Health Care District	Arizona	Maternity Care Home	-	5	-
Medical University of South Carolina	South Carolina	Maternity Care Home	-	7	-
Meridian Health Plan ⁵⁸	Michigan	Maternity Care Home	-	48	-

⁵⁸ According to Meridian Health Plan's Operational Plan, Strong Start is operating at one site (Allegiance Health). However, 48 practices within the hospital system are operating a Maternity Care Home under Strong Start, according to the Q1 2014 Monitoring Report.

Awardee Name	State	Strong Start model (intervention)	Total Number of Sites		
			Birth Centers	Maternity Home	Group Prenatal Care
Mississippi Primary Health Care Association, Inc.	Mississippi	Maternity Care Home	-	12	-
Oklahoma Health Care Authority	Oklahoma	Centering Pregnancy	-	-	3
Providence Health Foundation of Providence Hospital	Washington, DC	Birth Center, Maternity Care Home and Centering Pregnancy	1	1	2
Signature Medical Group	Missouri	Maternity Care Home	-	5	-
St. John Community Health Investment Corp.	Michigan	Enhanced Prenatal Care Support Group (Year 1) Centering pregnancy (Year 2)	-	-	1
Texas Tech University Health Sciences Center	Texas	Maternity Care Home	-	2	-
United Neighborhood Health Services, Inc.	Tennessee	Maternity Care Home	-	7	-
University of Alabama at Birmingham	Alabama	Maternity Care Home	-	4	-
University of Kentucky Research Foundation	Kentucky	Centering Pregnancy	-	-	4
University of Puerto Rico Medical Sciences Campus	Puerto Rico	Centering Pregnancy	-	-	1
University of South Alabama ⁵⁹	Alabama	Maternity Care Home and Centering Pregnancy	-	1	6
University of Tennessee Medical Group	Tennessee	Centering Pregnancy	-	-	2
Virginia Commonwealth University ⁵⁹	Virginia	Centering Pregnancy	-	-	5
Total:			38	133	42

Note: Dash marks indicate that the awardee is not operating any sites in a particular model

⁵⁹ The University of South Alabama has one site that operates both Centering Pregnancy and the maternity care home model, though its primary model is the maternity care home. Virginia Commonwealth is also implementing two models at one site (birth center and group prenatal care), though its primary model is group prenatal care.

Table 2: Medicaid and CHIP Eligibility Policies for Child-Bearing Women, by Strong Start State

Location	Income Eligibility (Percent of FPL)--Pregnant Women		Medicaid Eligibility-Parents of Dependent Children	Medicaid Eligibility-Other Adults	Family Planning Program	ACA Plans	
	Medicaid (Title XIX)	CHIP (Title XXI)				Medicaid Expansion	Marketplace Type
Alabama	133%	NA	13%	0%	Yes	Not participating	FFM
Alaska	175%	NA	129%	0%	No	Not participating	FFM
Arizona	150%	NA	133%	133%	Yes	Participating	FFM
California	200%	NA	133%	133%	Yes	Participating	SBM
District of Columbia	185%	300%	216%	210%	No	Participating	SBM
Florida	185%	NA	30%	0%	Yes	Not Participating	FFM
Georgia	200%	NA	35%	0%	Yes	Not participating	FFM
Illinois	200%	NA	133%	133%	Yes ¹⁹	Participating	Partnership
Kansas	150%	NA	33%	0%	No	Not Participating	Partnership
Kentucky	185%	NA	133%	133%	No	Participating	SBM
Louisiana	200%	NA	19% ⁸	0% ⁹	Yes	Not participating	FFM
Maryland	250%	NA	133%	133%	Yes	Participating	SBM
Michigan	185%	NA	133%	133%	Yes	Participating	Partnership
Minnesota	275%	NA	200%	200%	Yes	Participating	SBM
Mississippi	185%	NA	22%	0%	Yes	Not participating	FFM
Missouri	185%	NA	18% ⁸	0%	Yes	Not Participating	FFM
Nebraska	185%	NA	57%	0%	No	Not participating	FFM
Nevada	133%	NA	133%	133%	No	Participating	SBM
New Jersey	185%	200%	133%	133%	No	Participating	FFM
New Mexico	235%	NA	133%	133%	Yes	Participating	SBM
New York	200% ²	NA	133%	133%	Yes ²⁰	Participating	SBM
North Carolina	185%	NA	45%	0%	Yes	Not participating	FFM
Oklahoma	185%	NA	42% ⁸	0% ⁹	Yes	Not participating	FFM
Oregon	185%	NA	133%	133%	Yes	Participating	SBM
Pennsylvania	185%	NA	33%	0%	Yes	Not Participating	FFM
South Carolina	185%	NA	62%	0%	Yes	Not participating	FFM
Tennessee	185%	NA	105%	0%	No	Not participating	FFM
Texas	185%	NA	15%	0%	No	Not participating	FFM
Virginia	133%	200%	49%	0%	Yes	Not Participating	FFM
West Virginia	150%	NA	133%	133%	No	Participating	Partnership
Wisconsin	300%	NA	95%	95%	Yes	Not participating	FFM

APPENDIX B: PARTICIPANT-LEVEL PROCESS EVALUATION DATA COLLECTION FORMS

Strong Start for Mothers and Newborns Initiative Patient Intake Form

Place Study ID label in box

Instructions: Please mark your answer by placing a ☒ in the appropriate box with a black pen.

Correct 😊	Incorrect 😞
<div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">X</div>	[<input type="checkbox"/> no] or [<input checked="" type="checkbox"/>] or [<input type="checkbox"/>] or [<input type="checkbox"/> X]

Enter Today's Date, using the following number format: MM/DD/YYYY

____ / ____ / ____

1. Were you on Medicaid when you became pregnant with this pregnancy? Yes No Not Sure
2. Did you have other health insurance when you became pregnant with this pregnancy? Yes No Not Sure
3. Are you in the WIC program right now (do you get food for yourself from WIC)? Yes No

4. Are you of Hispanic, Latina, or Spanish origin?
(One or more categories may be selected)

- No, not of Hispanic, Latina, or Spanish origin
- Yes, Mexican, Mexican American, Chicana
- Yes, Puerto Rican
- Yes, Cuban
- Yes, another Hispanic, Latina, or Spanish origin

4.a. What is your race?
(One or more categories may be selected)

- White
- Black or African American
- American Indian or Alaska Native
- Asian Indian
- Chinese
- Filipino
- Japanese
- Korean
- Vietnamese
- Other Asian
- Native Hawaiian
- Guamanian or Chamorro
- Samoan

5. Do you speak a language other than English at home?

- Yes No

6. If yes, what is this language? Spanish Other language (Identify)

7. How many adults (people 18 and older) live in your home besides you?

8. How many children (people 17 and younger) live in your home?

9. What are the ages (in years) of those children?

Child 1: Child 2: Child 3: Child 4:

Child 5: Child 6: Child 7: Child 8:

9.a. If more than 8 children live in your home, please list their ages here:

10. Check here if you are homeless or living in a shelter right now:

11. Do you have a job right now? Yes No

11.a. If yes, what is your job?

11.b. How many hours (#) do you usually work each week?

12. Are you in school right now? Yes No

12.a. If yes, are you in: High School GED Training College

Other _____ (please explain)

12.b. If you are in school, are you: Full time Part time

13. Do you have: A high school diploma A GED Neither

14. Do you have a college degree? Yes No

14.a. If yes, what college degrees do you have? (Please check all that apply)

Associate's Degree (from a community college or other two year college program)

Bachelor's Degree (from a four year college or university)

Yes, other (please explain)

15. Please put a check next to any of these things that make it hard for YOU to come to appointments.

- I do not have a car
- The bus or train is hard to use to get to my appointment
- I do not have enough money to pay for a ride to the appointment
- My work hours make it hard to come to appointments
- I do not always have someone I trust to watch my older children
- My spouse/partner/boyfriend does not want me to come to appointments
- Other reason(s) (Please list them below.)

15.a. Other reason 1:

15.b. Other reason 2:

15.c. Other reason 3:

16. What is your relationship status now?

- Married, living with spouse
- Married, not living with spouse
- In a relationship but not living together
- Living with a partner

16.a. If yes, have you been living together for more than one year?

Yes No

Not in a relationship right now

17. Have you ever been divorced? Yes No

18. Have you ever been widowed? Yes No 18.a. If yes, year spouse died:

19. During the last 12 months, have you been to the dentist and had a dental check-up? Yes No

Not Sure

20. Were you using birth control when you became pregnant with this pregnancy? Yes No Sometimes

21. Were you trying to become pregnant? Yes No

22. When you have this baby, do you hope to have a: Vaginal birth Cesarean (c-section) Unsure

23. How many times have you been pregnant before this pregnancy?

23.a. How many babies did you have who were born alive?

24. Did you ever have a baby who was born too early (preterm or "preemie," before 37 weeks)? Yes No

25. If you have had a baby, when was your last baby born? (Please give the date)

The following questions address how you have been feeling during the past week (7 days).

Question	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
26. I felt depressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. I felt that everything I did was an effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. My sleep was restless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I was happy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I felt lonely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. People were unfriendly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I enjoyed life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. I felt sad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I felt that people disliked me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. I could not get "going."	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Over the last 2 weeks (14 days), how often have you been bothered by the following problems?

Question	Not at all	Several days	Over half the days	Nearly every day
36. Feeling nervous, anxious, or on edge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Not being able to stop or control worrying.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Worrying too much about different things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Trouble relaxing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. Being so restless that it's hard to sit still.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. Becoming easily annoyed or irritable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Feeling afraid as if something awful might happen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

43. If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

Relationships can be hard. Sometimes arguments get out of control. Sometimes a woman might be afraid of her partner, or she might get hurt. The next questions will ask about things like this that might have happened to you.

Question	
44. Have you ever been in a relationship where your partner has pushed or slapped you?	<input type="checkbox"/> Yes <input type="checkbox"/> No
45. Have you ever been in a relationship where your partner threatened you with violence?	<input type="checkbox"/> Yes <input type="checkbox"/> No
46. Have you ever been in a relationship where your partner has thrown, broken or punched things?	<input type="checkbox"/> Yes <input type="checkbox"/> No

If you have a spouse, partner, or boyfriend right now, please answer the following questions.

Question	Disagree strongly	Disagree somewhat	Disagree a little	Agree a little	Agree somewhat	Agree strongly
47. My spouse/partner/boyfriend makes me feel unsafe even in my own home.	<input type="checkbox"/>					
48. I feel ashamed of the things he does to me.	<input type="checkbox"/>					
49. I try not to rock the boat because I am afraid of what he might do.	<input type="checkbox"/>					
50. I feel like I am programmed to react a certain way to him.	<input type="checkbox"/>					
51. I feel like he keeps me prisoner.	<input type="checkbox"/>					
52. He makes me feel like I have no control over my life, no power, no protection.	<input type="checkbox"/>					

53. If you do smoke cigarettes, how many cigarettes or packs do you smoke on most days?

cigarettes packs of cigarettes I do not smoke cigarettes

54. Which best describes the rules about smoking inside your home now?
- No one is allowed to smoke anywhere inside my home
 - Smoking is allowed in some rooms or at some times
 - Smoking is permitted anywhere inside my home

Note: 1 Drink = 12 oz beer (one regular can)= 12 oz cooler = 5 oz wine = 1 mixed drink (1.5 oz. hard liquor)

55. How many drinks does it take to make you feel high? One or 2 drinks More than 2 drinks
 I do not drink alcohol
56. Have people annoyed you by criticizing your drinking? Yes No
57. Have you felt you ought to cut down on your drinking? Yes No
58. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover?
 Yes No
59. Did any of your parents have a problem with drug use? Yes No
60. Does your partner have a problem with drug use? Yes No
61. In the past, have you had problems in your life because of drugs? Yes No

How true were each of these statements for you and your household during the past 12 months (since this time last year)?

62. I worried about whether {my/our} food would run out before {I/we} got money to buy more.
 Often true Sometimes true Never true
63. The food that {I/we} bought just didn't last, and {I/we} didn't have enough money to get more food.
 Often true Sometimes true Never true
64. {I/we} couldn't afford to eat balanced meals. Often true Sometimes true Never true
65. Since this time last year, did {you/you or other adults in your household} ever cut the size of your meals or skip meals because there wasn't enough money for food? Yes No
- 65.a. How often did this happen?
 Almost every month Some months but not every month In only 1 or 2 months
66. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?
 Yes No
67. In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?
 Yes No

FOR OFFICE USE ONLY

Completed by:

- Patient on paper
 - With Assistance
- Patient electronically
 - With Assistance
- Healthcare worker in person
- Healthcare worker on the phone
- Other

“The project described was supported by Funding Opportunity Number CMS-1D1-12-001 from the Centers for Medicare & Medicaid Services, Center for Medicare & Medicaid Innovation. The contents of this **Intake Form do not necessarily represent the official views of HHS or any of its agencies. This project does not limit a fee-for-service Medicare, Medicaid, or CHIP patient’s freedom to choose a particular health care provider.”**

Strong Start for Mothers and Newborns Initiative Third Trimester Survey

Place Study ID label in box

Instructions: Please mark your answer by placing a ☒ in the appropriate box with a **black pen**. When appropriate, use numbers (0, 1, 2, 3 etc..) to answer questions

Correct 😊	Incorrect ☹️
<div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">x</div>	[<input type="checkbox"/> no] or [<input checked="" type="checkbox"/>] or [<input checked="" type="checkbox"/>] or [<input type="checkbox"/> x]

Your responses are voluntary and will be kept confidential.

Today's Date
 __/__/____
 MM/DD/YYYY

Estimated Due Date
 __/__/____
 MM/DD/YYYY

1. How many adults (people 18 and older) live in your home? (Do not count yourself.)
2. How many children (people 17 and younger) live in your home? (Do not count yourself.)
3. Are you homeless or living in a shelter right now? Yes No Prefer not to answer

4. Please choose the statement that best describes you. (Select one answer. ☒)

<input type="checkbox"/>	I have never smoked or I stopped smoking before I became pregnant.
<input type="checkbox"/>	I stopped smoking when I found out I was pregnant.
<input type="checkbox"/>	I have cut down on my smoking since I found out I was pregnant.
<input type="checkbox"/>	I smoke about the same as before I found out I was pregnant.
<input type="checkbox"/>	Prefer not to answer

5. What is your relationship status now? (Select one answer. ☒)

<input type="checkbox"/>	Married, living with spouse
<input type="checkbox"/>	Married, not living with spouse
<input type="checkbox"/>	Living with a partner/boyfriend
<input type="checkbox"/>	In a relationship but not living together
<input type="checkbox"/>	Not in a relationship
<input type="checkbox"/>	Prefer not to answer

6. Do you have a spouse, partner or boyfriend right now? Yes No Unsure

If you have a spouse, partner, or boyfriend right now, please select one answer to the following questions. ☒

Question Item	Disagree strongly	Disagree somewhat	Disagree a little bit	Agree a little	Agree somewhat	Agree strongly	Prefer not to answer
6.a. My spouse/partner/boyfriend makes me feel unsafe even in my own home.	<input type="checkbox"/>						
6.b. I feel ashamed of the things he does to me.	<input type="checkbox"/>						
6.c. I try not to rock the boat (cause trouble) because I am afraid of what he might do.	<input type="checkbox"/>						
6.d. I feel like I am programmed to react a certain way to him.	<input type="checkbox"/>						
6.e. I feel like he keeps me prisoner.	<input type="checkbox"/>						
6.f. He makes me feel like I have no control over my life, no power, no protection.	<input type="checkbox"/>						

7. Where do you plan to deliver this baby? Hospital Birth Center Home Unsure

8. Do you plan to have a support person with you during labor? Yes No Unsure

8.a. If yes, select all that apply ☒:

Doula Spouse/Partner/Boyfriend Other family member Someone else (specify):

9. Do you plan to take something for pain during labor? Yes No Unsure

9.a. If yes: do you plan to get an Epidural? Yes No Unsure

10. How do you plan to deliver this baby? Vaginally Cesarean Section (C-Section) Unsure

11. Have any of your prenatal care providers suggested scheduling your delivery prior to your due date?

Yes No Unsure

12. How do you plan to feed your baby in the first few weeks?

Breastfeed only Formula feed only Both breast and formula feed I haven't decided

13. How would you rate your level of overall satisfaction with the prenatal care you are receiving?

Would you say you are: (select one ☒)

Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
<input type="checkbox"/>				

Strong Start for Mothers and Newborns Initiative Postpartum Survey

Place study ID label in box

Instructions: Please mark your answer by placing an ☒ in the appropriate box with a black pen. When appropriate, use numbers (0, 1, 2, 3 etc..) to answer questions

Correct 😊	Incorrect 😞
<div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">x</div>	[<input type="checkbox"/> no] or [<input checked="" type="checkbox"/>] or [<input type="checkbox"/>] or [<input type="checkbox"/> x]

Your responses are voluntary and will be kept confidential

Today's Date
 __/__/____
 MM/DD/YYYY

Delivery Date
 __/__/____
 MM/DD/YYYY

1. Where did you deliver this baby?

Hospital
 Birth Center
 Home
 Other (please specify)

2. Did you have a support person with you during labor?

Yes No Unsure

2.a If yes, please specify who supported you during labor (select all that apply ☒):

Doula Spouse/Partner/Boyfriend Other Family member Someone else (specify)

3. Did you have any medicine during labor to help you with pain?

Yes
 No
 Unsure

3.a. If yes: Did you receive an Epidural?

Yes
 No
 Unsure

4. How did you deliver this baby?

Vaginally
 Cesarean Section (C-section)
 Refused

5. Did a doctor, nurse, or midwife try to induce your labor (start your contractions using medicine)?

Yes No Unsure

6. Did a doctor, nurse, or midwife try speed up your labor using medicine?

Yes No Unsure

7. Did a doctor, nurse, or midwife break your bag of water to start or speed up your labor?

Yes No Unsure

8. How satisfied were you with your delivery experience? (select one ☒)

Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
<input type="checkbox"/>				

9. How would you rate your overall level of satisfaction with the prenatal care you received? (select one ☒)

Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
<input type="checkbox"/>				

10. What is your relationship status now? (select one ☒)

<input type="checkbox"/>	Married, living with spouse
<input type="checkbox"/>	Married, not living with spouse
<input type="checkbox"/>	Living with a partner/boyfriend
<input type="checkbox"/>	In a relationship but not living together
<input type="checkbox"/>	Not in a relationship
<input type="checkbox"/>	Prefer not to answer

11. Did you ever breastfeed or pump breast milk to feed your baby after delivery, even for a short period of time?

Yes No Prefer not to answer

11.a. If yes: Are you currently breastfeeding or feeding pumped breast milk to your new baby?

Yes No Refused

12. After your new baby was born, did a doctor, nurse, or other health care worker talk with you about using birth control?

Yes No Unsure

13. Are you or your spouse/partner/boyfriend doing anything now to keep from getting pregnant?

Yes No Unsure

14. If yes, what kind(s) of birth control are you using to keep from getting pregnant? (select all that apply ☒)

- Condom or rubber
- Withdrawal or pulling out
- Vasectomy or male sterilization
- Birth Control Pills
- IUD (for example, Mirena/Paragard)
- Tubal ligation or female sterilization (Tubes Tied)
- Spermicidal foam/jelly/cream/film/suppository
- Hormonal implant or injection (Implanon/Nexplanon)
- Injection (The Shot/Depo)
- Rhythm or safe period
- Breastfeeding
- Something else (please specify):

--

Strong Start for Mothers and Newborns Exit Data Collection Form

Place Study ID label in box

Instructions:

Please mark your answer by placing an in the appropriate box with a black pen. For statements that ask for a number, please answer with a number only (e.g. 5). Do not include any text with or instead of the numbers (e.g. five, five feet, 5 feet).

Important:

If you have submitted all Exit Form information electronically *except* details regarding enhanced services, please mark the box to the left and skip to Section VII, page 7 of this form.

Note: For the purposes of this form, past and current pregnancy are defined as follows:

- **Past Pregnancy:** The pregnancy or pregnancies that occurred prior to this Strong Start pregnancy.
- **Current Pregnancy:** The pregnancy during which most recent enrollment in Strong Start occurred.

Participant information	
1. Today's date	__/__/____ MM/DD/YYYY
2. Date participant enrolled in Strong Start	__/__/____ MM/DD/YYYY
3. Participant's Estimated Date of Delivery (EDD)	__/__/____ MM/DD/YYYY
4. Did the participant stop receiving Strong Start services prior to delivery?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4a. If yes, please select the reason she stopped receiving Strong Start services.	
<input type="checkbox"/> Loss of Medicaid/CHIP eligibility <input type="checkbox"/> Voluntary withdrawal from the program <input type="checkbox"/> Move/Relocation <input type="checkbox"/> Elective pregnancy termination <input type="checkbox"/> Lost to follow-up <input type="checkbox"/> Miscarriage/Spontaneous abortion <input type="checkbox"/> Other: <div style="border: 1px solid black; display: inline-block; width: 200px; height: 20px; vertical-align: middle;"></div>	

I. Past Pregnancy History and Complications

5. Did this participant have any past pregnancies (pregnancies that occurred prior to this Strong Start pregnancy)?

- Yes → If yes, continue to question 5a.
- No → If no, skip to question 12.

5a. If yes, how many prior pregnancies did the participant have?

Instructions: Please place an ☑ in the appropriate box to indicate if the participant had risk factors from past pregnancies. For previous birth outcomes, indicate the number of times the risk factor occurred.

Risk factors from past pregnancy (pregnancies)

6. Please indicate if participant had any of the following risk factors during a previous pregnancy.

Preeclampsia or pregnancy-induced hypertension

Gestational diabetes

Cervical incompetence

Placental abnormalities

Congenital abnormalities of the fetus

None

Not known

Other risk factor(s):

Previous birth outcome(s)	Yes	No	Not Known	If yes, number of occurrences
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7. Previous preterm birth(s) (20 weeks \geq 36 weeks, 6 days Estimated Gestational Age (EGA))	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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7a. If participant had a previous preterm birth(s), please specify the reason(s). If unknown, indicate "Not known".

Not known

Other reason(s):

8. Previous birth(s) less than 2,500 grams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Previous miscarriage(s) (< 20 weeks EGA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Previous elective termination(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Previous stillbirth(s) (fetal death \geq 20 weeks EGA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

II. General Medical Risk Factors

Instructions: Please place an ☑ in the appropriate box to indicate if the participant had any of the risk factors prior to her current pregnancy.

Participant risk factors prior to current pregnancy	Yes	No	Not Known
12. Type I diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Type II diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Hypertension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

III. Risk Factors During Current Pregnancy

Instructions: Please enter the mother's height and weight in the appropriate box. Respond in only one type of measurement (e.g. centimeters OR inches; kilograms OR pounds).

Height	Height in Centimeters	Or	Height in Inches
15. Height of mother at first prenatal visit	----'--		---'--
Weight	Weight in Kilograms	Or	Weight in Pounds
16. Weight of mother at first prenatal visit	----'--		----'--
17. Weight of mother at last prenatal visit	----'--		----'--

Instructions: Place an in the appropriate box to indicate if the participant had a risk factor during her current pregnancy.

Risk factors during current pregnancy	Yes	No	Not Known
18. Urinary tract infection(s) during last 6 months of pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Cervical incompetence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Placenta previa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Placental abruption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Gestational diabetes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Pregnancy-related hypertension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Preeclampsia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Syphilis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Human immunodeficiency virus (HIV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Congenital abnormalities of the fetus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Other risk factor(s): <input style="width: 300px; height: 40px;" type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. Delivery Information – Current Pregnancy

Instructions: Please place an ☒ in the appropriate box to indicate the place and method of delivery for the participant.

Place of delivery			
29. Please indicate the type of facility where the participant's delivery occurred.			
<input type="checkbox"/> Hospital	<input type="checkbox"/> Birth center	<input type="checkbox"/> Home birth	<input type="checkbox"/> Other
Method of delivery			
30. Please indicate the method of delivery. (Check all that apply for this pregnancy)			
<input type="checkbox"/> Vaginal			
<input type="checkbox"/> Cesarean section (C-section)			
If vaginal:			
30a. Was it a vaginal birth after Cesarean (VBAC)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not known
If C-section:			
30b. Was it a repeat C-section?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not known
30c. Was it a scheduled C-section?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not known

Instructions: Please place an ☒ in the appropriate box to indicate whether the participant received the following treatments prior to or during labor.

Treatment prior to or during labor	Yes	No	Not Known
31. Antenatal steroids for impending preterm delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Progesterone injections to prevent preterm birth (e.g., 17P, P17 or 17-OHP; hydroxyprogesterone caproate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Vaginal progesterone to prevent preterm birth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Tocolytics to prevent preterm birth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Was the participant's labor induced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35a. If participant was induced, was Pitocin used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35b. What was the reason for the induction? (List reason(s) or indicate "Not known").			
<input type="checkbox"/> Not known			
<input type="checkbox"/> Other reason(s): <input style="width: 500px;" type="text"/>			

V. Delivery Outcomes- Current Pregnancy

Instructions: Please complete the tables below by entering numbers to indicate number of fetuses identified and born. In the second table, please report the weight of all infants born.

Number of fetuses identified and born	Number
36. How many fetuses were identified?	
37. How many infants were live born?	
38. How many infants were still born?	

Infant weight at birth (grams or pounds and ounces)			
Note: If multiples birth, record the weight for each newborn baby.			
	Grams	OR	Pounds and Ounces
39a. Baby #1	— / — — —		__ lb. __ oz.
39b. Baby #2 (if multiples birth)	— / — — —		__ lb. __ oz.
39c. Baby #3 (if multiples birth)	— / — — —		__ lb. __ oz.
39d. Baby #4 (if multiples birth)	— / — — —		__ lb. __ oz.

VI. Information on Routine Prenatal and Postpartum Care—Current Pregnancy

Instructions: Please place an in the appropriate box to indicate who provided routine obstetric care to the participant.

Routine prenatal service provider	
40. Please indicate who provided routine obstetric care to the participant. (Select one)	
<input type="checkbox"/> Obstetrician	<input type="checkbox"/> Licensed Professional Midwife
<input type="checkbox"/> Nurse Practitioner	<input type="checkbox"/> Certified Nurse Midwife/Certified Midwife
<input type="checkbox"/> Family Medicine Physician	<input type="checkbox"/> Other provider: <input type="text"/>

Instructions: Please list the dates of all routine clinical prenatal AND postpartum follow up visits in the table below. List dates of all routine visits that occurred during the current pregnancy⁶⁰.

	41. Dates of Individual Prenatal and Postpartum Follow-up Visits MM/DD/YYYY	42. Dates of Group Prenatal and Postpartum Follow-up Visits MM/DD/YYYY
Visit 1.	__ / __ / ____	__ / __ / ____
Visit 2.	__ / __ / ____	__ / __ / ____
Visit 3.	__ / __ / ____	__ / __ / ____
Visit 4.	__ / __ / ____	__ / __ / ____
Visit 5.	__ / __ / ____	__ / __ / ____
Visit 6.	__ / __ / ____	__ / __ / ____
Visit 7.	__ / __ / ____	__ / __ / ____
Visit 8.	__ / __ / ____	__ / __ / ____
Visit 9.	__ / __ / ____	__ / __ / ____
Visit 10.	__ / __ / ____	__ / __ / ____
Visit 11.	__ / __ / ____	__ / __ / ____
Visit 12.	__ / __ / ____	__ / __ / ____
Visit 13.	__ / __ / ____	__ / __ / ____
Visit 14.	__ / __ / ____	__ / __ / ____
Visit 15.	__ / __ / ____	__ / __ / ____
Visit 16.	__ / __ / ____	__ / __ / ____
Visit 17.	__ / __ / ____	__ / __ / ____
Visit 18.	__ / __ / ____	__ / __ / ____
Visit 19.	__ / __ / ____	__ / __ / ____
Visit 20.	__ / __ / ____	__ / __ / ____
Or indicate total number of visits, if visit dates are not available.		
	41a. Number of individual visits per trimester: First Trimester: ____ Second Trimester: ____ Third Trimester: ____	42a. Number of group visits per trimester: First Trimester: ____ Second Trimester: ____ Third Trimester: ____

⁶⁰ **For individual visits:** include routine clinical prenatal visits with a physician, midwife, nurse practitioner or similar care provider that occurred during the current pregnancy. **For group visits:** Include group prenatal care visits, such as centering visits only. Do not include specialist visits related to the pregnancy or other medical reasons or “enhanced” services such as group education, peer counseling, or smoking cessation.

VII. Number of Encounters for Enhanced Services

Instructions: Please place an in the appropriate box to indicate whether the participant received an enhanced service. For each enhanced service received, enter the number of encounters that occurred.

Note: An **enhanced** encounter or service is a face-to-face or phone encounter that is **not part of routine clinical prenatal care**. *These visits do not need to be funded by Strong Start.*

Select “No” if the participant did not receive the service because it was not needed or the service is not offered. *Also select “No” if the participant receives the service as part of routine prenatal care.* For example, if care coordination is provided for all patients during routine prenatal care visits, and does not involve meeting with a separate individual, select “No.” Select “Yes” only if the service involves an additional encounter.

Do not double count services. For example, if a care coordinator visit includes health education, select only the care coordinator visit. We will understand from our case study work and your operational plan what is encompassed in those visits.

Enhanced encounters	Yes	No ⁶¹	Not Known	If yes, indicate the number of enhanced encounters
43. Care coordinator encounters (e.g., encounters with a social worker, case manager, nurse or community health worker)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44. Mental health care encounters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45. Doula encounters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

→ If all encounters where enhanced services were provided have been counted in questions 43 to 45, skip to question 51. Otherwise, continue to question 46.

Enhanced services not counted in questions 43-45	Yes	No ⁶¹	Not Known	If yes, indicate the number of encounters where this service was provided
46. Health education (not centering)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47. Home visits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48. Self-care (not centering)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
49. Nutrition counseling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
50. Substance abuse services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
51. Referrals for non-medical services outside of the Strong Start program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
52. Referrals for high risk medical services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

52a. If referred for high risk services, please indicate type of referral(s).
 Maternal Fetal Specialist Pulmonologist Endocrinologist Cardiologist Other:

52b. If known, please indicate the number of high risk encounters the participant had.

Thank you for completing the Exit Form.

⁶¹ Select “No” if: the woman did not receive the service because it was not needed or the service is not offered.

APPENDIX C: PARTICIPANT-LEVEL PROCESS EVALUATION DATA

Participant-Level Process Evaluation Reports—2014 Annual Report

Strong Start—September 12, 2014

The 2014 annual participant-level process evaluation report presents process and outcome data collected by the Strong Start awardees during 2013 and the first quarter of 2014. Strong Start participants were surveyed during the first 4 weeks of enrollment into the Strong Start program, during the third trimester between 28 and 34 weeks of pregnancy, and within 10 weeks after delivery. Table 1 reports numbers and percentages of forms received and major variables to identify where a significant quantity of data are missing. The missing data are reported for each awardee. Table 2 reports on participant satisfaction with prenatal care and the delivery experience. Table 3 reports participants' sociodemographic and lifestyle-related risk factors for premature birth. Tables 2 and 3 present data for each awardee and maternity care model.

TABLE 1: AWARDEE REPORTING COMPLIANCE REPORT

	Access Community Health Network	Albert Einstein Healthcare Network	American Association of Birth Centers	Amerigroup Corporation	Central Jersey Family Health Consortium	Florida Assoc. of Healthy Start Coalitions	Harris County Hospital District	HealthInsight of Nevada	Johns Hopkins University	Maricopa Special Health Care District	Medical University of South Carolina	Meridian Health Plan	Mississippi Primary Health Care Association	Oklahoma Health Care Authority	Providence Health Fndtn. of Providence Hosp.	Signature Medical Group	Texas Tech University Health Sciences Center	United Neighborhood Health Services	University of Alabama at Birmingham	University of Kentucky Research Foundation	Univ. of Puerto Rico Med. Sciences Campus	University of South Alabama	Grady Memorial Hosp. Corp. DBA Grady Health System	LA County Department of Health Services	St. John Community Health Investment Corp.	University of Tennessee Medical Group	Virginia Commonwealth University	Total	Mean	Median	Minimum	Maximum
Number of women enrolled (obtained from the program-level monitoring report)	325	229	1373	19	194	166	311	121	431	274	230	575	999	56	265	141	108	144	241	229	69	183	172	256	17	188	416	7732	286.4	229	17	1373
Forms with date completed in 2013 or Quarter 1, 2014 (as a percentage of all forms that should have been received)																																
Intake Forms	221	108	406	9	159	165	161	64	293	101	174	579	702	43	82	71	42	101	19	14	97	166	0	0	0	0	0	3777	171.7	104.5	9	702
(Percentage)	68.0	47.2	29.6	47.4	82.0	99.4	51.8	52.9	68.0	36.9	75.7	100.7	70.3	76.8	30.9	50.4	38.9	70.1	7.9	6.1	140.6	90.7	0.0	0.0	0.0	0.0	0.0	48.8	61.0	60.4	6.1	140.6
Third-Trimester Forms	56	5	140	0	8	4	55	43	4	0	13	94	81	2	6	15	0	7	3	10	23	0	0	0	0	0	569	25.9	7.5	0	140	
Postpartum Forms	22	0	97	0	3	0	16	11	10	0	53	62	15	2	2	11	0	22	0	0	20	0	0	0	0	0	346	15.7	6.5	0	97	
Critical variables missing data (as a percentage of all forms received within the time period)																																
Missing prenatal satisfaction with care	0	0	5	n/a	0	0	0	1	0	n/a	0	0	2	0	1	4	n/a	7	0	2	0	n/a	n/a	n/a	n/a	n/a	n/a	22	1	0	0	7
(Percentage)	0	0	3.6	n/a	0	0	0	2.3	0	n/a	0	0	2.5	0	16.7	26.7	n/a	100	0	20	0	n/a	n/a	n/a	n/a	n/a	n/a	3.9	9.5	0	0	100
Missing satisfaction with delivery experiences	1	n/a	7	n/a	0	n/a	0	0	5	n/a	10	2	4	0	1	1	n/a	22	n/a	n/a	0	n/a	n/a	n/a	n/a	n/a	n/a	53	2.4	0	0	22
(Percentage)	4.5	n/a	7.2	n/a	0	n/a	0	0	50	n/a	18.9	3.2	26.7	0	50	9.1	n/a	100	n/a	n/a	0	n/a	n/a	n/a	n/a	n/a	n/a	15.3	19.3	5.9	0	100
Missing educational attainment (High school diploma, GED, Neither)	20	7	48	0	27	15	13	8	4	8	3	14	55	2	4	6	4	0	0	0	28	21	n/a	n/a	n/a	n/a	n/a	287	13	7.5	0	55
(Percentage)	9	6.5	11.8	0	17	9.1	8.1	12.5	1.4	7.9	1.7	2.4	7.8	4.7	4.9	8.5	9.5	0	0	0	28.9	12.7	n/a	n/a	n/a	n/a	n/a	7.6	7.5	7.9	0	28.9
Missing planned birth method	1	0	2	n/a	0	0	0	3	0	n/a	0	0	3	0	1	4	n/a	7	0	1	0	n/a	n/a	n/a	n/a	n/a	n/a	22	1	0	0	7
(Percentage)	1.8	0	1.4	n/a	0	0	0	7.0	0	n/a	0	0	3.7	0	16.7	26.7	n/a	100	0	10	0	n/a	n/a	n/a	n/a	n/a	n/a	3.9	9.3	0	0	100
Missing plan to have support person during labor	5	1	5	n/a	0	1	3	1	0	n/a	5	5	19	0	1	6	n/a	7	1	1	0	n/a	n/a	n/a	n/a	n/a	n/a	61	2.8	1	0	19
(Percentage)	8.9	20	3.6	n/a	0	25	5.5	2.3	0	n/a	38.5	5.3	23.5	0	16.7	40	n/a	100	33.3	10	0	n/a	n/a	n/a	n/a	n/a	n/a	10.7	18.5	9.5	0	100
Missing postnatal birth control counseling	1	n/a	8	n/a	0	n/a	0	0	5	n/a	10	3	4	0	1	1	n/a	21	n/a	n/a	0	n/a	n/a	n/a	n/a	n/a	n/a	54	2.5	0	0	21
(Percentage)	4.5	n/a	8.2	n/a	0	n/a	0	0	50	n/a	18.9	4.8	26.7	0	50	9.1	n/a	95.5	n/a	n/a	0	n/a	n/a	n/a	n/a	n/a	n/a	15.6	19.1	6.5	0	95.5

Note: Gray cells labeled n/a indicate no form has been received during the reporting period so that statistics are not calculated.

TABLE 2. SATISFACTION, BIRTH PLANNING, AND DELIVERY EXPERIENCE

Table 2.1. All Awardees

	Access Community Health Network	Albert Einstein Healthcare Network	American Association of Birth Centers	Amerigroup Corporation	Central Jersey Family Health Consortium	Florida Assoc. of Healthy Start Coalitions	Harris County Hospital District	HealthInsight of Nevada	Johns Hopkins University	Maricopa Special Health Care District	Medical University of South Carolina	Meridian Health Plan	Mississippi Primary Health Care Association	Oklahoma Health Care Authority	Providence Health Fndtn. of Providence Hosp.	Signature Medical Group	Texas Tech University Health Sciences Center	United Neighborhood Health Services	University of Alabama at Birmingham	University of Kentucky Research Foundation	Univ. of Puerto Rico Med. Sciences Campus	University of South Alabama	Total	Mean	Median	Minimum	Maximum
Satisfaction With Prenatal Care																											
Not at all satisfied (Percentage)	0 0	0 0	0 0	- -	0 0	0 0	0 0	0 0	0 0	- -	0 0	1 1.1	0 0	0 0	0 0	0 0	- -	0 0	0 0	0 0	0 0	- -	1 0.2	0 0.1	0 0	0 0	1 1.1
Slightly satisfied (Percentage)	1 1.8	0 0	2 1.4	- -	0 0	0 0	1 1.8	0 0	0 0	- -	0 0	1 1.1	0 0	0 0	0 0	0 0	- -	0 0	0 0	0 0	0 0	- -	5 0.9	0.2 0.3	0 0	0 0	2 1.8
Moderately satisfied (Percentage)	2 3.6	0 0	3 2.1	- -	0 0	2 50	2 3.6	4 9.3	0 0	- -	3 23.1	5 5.3	8 9.9	0 0	0 0	0 0	- -	0 0	0 0	1 10	1 4.3	- -	31 5.4	1.4 6.7	0 2.9	0 0	8 50
Very satisfied (Percentage)	27 48.2	1 20	33 23.6	- -	1 12.5	2 50	24 43.6	23 53.5	1 25	- -	3 23.1	58 61.7	30 37	0 0	1 16.7	1 6.7	- -	0 0	1 33.3	2 20	0 0	- -	208 36.6	9.5 26.4	1 23.3	0 0	58 61.7
Extremely satisfied (Percentage)	26 46.4	4 80	97 69.3	- -	7 87.5	0 0	28 50.9	15 34.9	3 75	- -	7 53.8	29 30.9	41 50.6	2 100	4 66.7	10 66.7	- -	0 0	2 66.7	5 50	22 95.7	- -	302 53.1	13.7 56.9	4.5 60.3	0 0	97 100
Satisfaction With Delivery Experience																											
Not at all satisfied (Percentage)	2 9.1	- -	4 4.1	- -	0 0	- -	0 0	0 0	0 0	- -	1 1.9	0 0	0 0	0 0	0 0	0 0	- -	0 0	- -	- -	1 5	- -	8 2.3	0.4 1.4	0 0	0 0	4 9.1
Slightly satisfied (Percentage)	0 0	- -	2 2.1	- -	0 0	- -	0 0	0 0	0 0	- -	0 0	0 0	0 0	0 0	0 0	0 0	- -	0 0	- -	- -	1 5	- -	3 0.9	0.1 0.5	0 0	0 0	2 5
Moderately satisfied (Percentage)	3 13.6	- -	7 7.2	- -	2 66.7	- -	1 6.2	1 9.1	0 0	- -	11 20.8	6 9.7	0 0	1 50	1 50	1 9.1	- -	0 0	- -	- -	2 10	- -	36 10.4	1.6 18	0.5 9.4	0 0	11 66.7
Very satisfied (Percentage)	7 31.8	- -	31 32	- -	1 33.3	- -	10 62.5	5 45.5	0 0	- -	18 34	41 66.1	5 33.3	1 50	0 0	8 72.7	- -	0 0	- -	- -	9 45	- -	136 39.3	6.2 36.2	0.5 33.6	0 0	41 72.7
Extremely satisfied (Percentage)	9 40.9	- -	46 47.4	- -	0 0	- -	5 31.2	5 45.5	5 50	- -	13 24.5	13 21	6 40	0 0	0 0	1 9.1	- -	0 0	- -	- -	7 35	- -	110 31.8	5 24.6	0 27.9	0 0	46 50

	Access Community Health Network	Albert Einstein Healthcare Network	American Association of Birth Centers	Amerigroup Corporation	Central Jersey Family Health Consortium	Florida Assoc. of Healthy Start Coalitions	Harris County Hospital District	Healthinsight of Nevada	Johns Hopkins University	Maricopa Special Health Care District	Medical University of South Carolina	Meridian Health Plan	Mississippi Primary Health Care Association	Oklahoma Health Care Authority	Providence Health Fndtn. of Providence Hosp.	Signature Medical Group	Texas Tech University Health Sciences Center	United Neighborhood Health Services	University of Alabama at Birmingham	University of Kentucky Research Foundation	Univ. of Puerto Rico Med. Sciences Campus	University of South Alabama	Total	Mean	Median	Minimum	Maximum
Breast Feeding Intention At Third Trimester																											
Breastfeed only (Percentage)	10 17.9	4 80.0	112 80.0	- -	3 37.5	1 25.0	35 63.6	33 76.7	0 0.0	- -	6 46.2	53 56.4	5 6.2	2 100.0	1 16.7	10 66.7	- -	0 0.0	2 66.7	6 60.0	18 78.3	- -	301 52.9	13.7 48.8	3.5 58.2	0 0.0	112 100.0
Formula feed only (Percentage)	12 21.4	1 20.0	7 5.0	- -	1 12.5	1 25.0	4 7.3	2 4.7	2 50.0	- -	2 15.4	19 20.2	24 29.6	0 0.0	0 0.0	1 6.7	- -	0 0.0	0 0.0	1 10.0	1 4.3	- -	78 13.7	3.5 12.9	1 8.6	0 0.0	24 50.0
Both breast and formula feed (Percentage)	21 37.5	0 0.0	14 10.0	- -	2 25.0	1 25.0	15 27.3	6 14.0	2 50.0	- -	4 30.8	7 7.4	38 46.9	0 0.0	3 50.0	0 0.0	- -	0 0.0	1 33.3	1 10.0	4 17.4	- -	119 20.9	5.4 21.4	1.5 21.2	0 0.0	38 50.0
I haven't decided (Percentage)	12 21.4	0 0.0	4 2.9	- -	2 25.0	1 25.0	1 1.8	1 2.3	0 0.0	- -	1 7.7	15 16.0	12 14.8	0 0.0	1 16.7	0 0.0	- -	0 0.0	0 0.0	2 20.0	0 0.0	- -	52 9.1	2.4 8.5	0.5 2.6	0 0.0	15 25.0
Breast Feeding after Delivery (Based on Postpartum Form Data)																											
Yes (Percentage)	13 59.1	- -	84 86.6	- -	3 100.0	- -	16 100.0	11 100.0	1 10.0	- -	27 50.9	47 75.8	5 33.3	2 100.0	1 50.0	9 81.8	- -	6 27.3	- -	- -	17 85.0	- -	242 69.9	11 68.6	2.5 78.8	0 10.0	84 100.0
Planned Delivery Method At Third Trimester																											
Vaginal delivery (Percentage)	48 85.7	4 80.0	134 95.7	- -	8 100.0	3 75.0	48 87.3	33 76.7	3 75.0	- -	11 84.6	76 80.9	54 66.7	0 0.0	5 83.3	7 46.7	- -	0 0.0	3 100.0	6 60.0	18 78.3	- -	461 81.0	21 70.9	5.5 79.1	0 0.0	134 100.0
C-Section (Percentage)	5 8.9	0 0.0	3 2.1	- -	0 0.0	1 25.0	4 7.3	2 4.7	1 25.0	- -	2 15.4	15 16.0	17 21.0	2 100.0	0 0.0	4 26.7	- -	0 0.0	0 0.0	1 10.0	3 13.0	- -	60 10.5	2.7 15.3	1 9.5	0 0.0	17 100.0
Actual Delivery Method																											
Vaginal delivery (Percentage)	9 40.9	- -	75 77.3	- -	1 33.3	- -	10 62.5	10 90.9	5 50.0	- -	28 52.8	42 67.7	8 53.3	0 0.0	1 50.0	5 45.5	- -	6 27.3	- -	- -	9 45.0	- -	209 60.4	9.5 49.8	3 50.0	0 0.0	75 90.9
C-Section (Percentage)	12 54.5	- -	17 17.5	- -	2 66.7	- -	6 37.5	1 9.1	0 0.0	- -	16 30.2	18 29.0	2 13.3	2 100.0	0 0.0	5 45.5	- -	2 9.1	- -	- -	11 55.0	- -	94 27.2	4.3 33.4	1.5 29.6	0 0.0	18 100.0

	Access Community Health Network	Albert Einstein Healthcare Network	American Association of Birth Centers	Amerigroup Corporation	Central Jersey Family Health Consortium	Florida Assoc. of Healthy Start Coalitions	Harris County Hospital District	Healthinsight of Nevada	Johns Hopkins University	Maricopa Special Health Care District	Medical University of South Carolina	Meridian Health Plan	Mississippi Primary Health Care Association	Oklahoma Health Care Authority	Providence Health Fndtn. of Providence Hosp.	Signature Medical Group	Texas Tech University Health Sciences Center	United Neighborhood Health Services	University of Alabama at Birmingham	University of Kentucky Research Foundation	Univ. of Puerto Rico Med. Sciences Campus	University of South Alabama	Total	Mean	Median	Minimum	Maximum
Plan to have a support person	51	4	131	-	8	3	51	41	4	-	8	86	60	2	5	9	-	0	2	8	19	-	492	22.4	6.5	0	131
(Percentage)	91.1	80.0	93.6	-	100.0	75.0	92.7	95.3	100.0	-	61.5	91.5	74.1	100.0	83.3	60.0	-	0.0	66.7	80.0	82.6	-	86.5	79.3	83.0	0.0	100.0
Had a support person during labor	19	-	89	-	2	-	14	11	5	-	41	60	11	2	1	10	-	0	-	-	9	-	274	12.5	2	0	89
(Percentage)	86.4	-	91.8	-	66.7	-	87.5	100.0	50.0	-	77.4	96.8	73.3	100.0	50.0	90.9	-	0.0	-	-	45.0	-	79.2	72.5	81.9	0.0	100.0
Had birth control counseling after delivery	13	-	76	-	3	-	15	6	5	-	43	41	10	2	1	7	-	1	-	-	15	-	238	10.8	2.5	0	76
(Percentage)	59.1	-	78.4	-	100.0	-	93.8	54.5	50.0	-	81.1	66.1	66.7	100.0	50.0	63.6	-	4.5	-	-	75.0	-	68.8	67.3	66.4	4.5	100.0

Note: Percentages in the table may not add up to 100 percent because of nonresponses from some participants. Gray cells indicate no form has been received during the reporting period so that statistics are not calculated.

Note: Dash marks indicate that the awardee is not operating any sites in a particular model.

Table 2.2. Maternity Models

	Birth Center Model	Centering/Group Care Model	Maternity Home Care Model	Total	Mean
Satisfaction With Prenatal Care					
Not at all satisfied (Percentage)	0 0.0	0 0.0	1 0.4	1 0.2	0.3 0.1
Slightly satisfied (Percentage)	2 1.4	1 0.7	2 0.7	5 0.9	1.7 0.9
Moderately satisfied (Percentage)	3 2.1	8 5.3	20 7.2	31 5.4	10.3 4.9
Very satisfied (Percentage)	34 23.9	51 34.0	123 44.4	208 36.6	69.3 34.1
Extremely satisfied (Percentage)	98 69.0	86 57.3	118 42.6	302 53.1	100.7 56.3
Satisfaction With Delivery Experience					
Not at all satisfied (Percentage)	4 4.1	1 1.9	3 1.5	8 2.3	2.7 2.5
Slightly satisfied (Percentage)	2 2.0	1 1.9	0 0.0	3 0.9	1 1.3
Moderately satisfied (Percentage)	7 7.1	8 15.1	21 10.8	36 10.4	12 11.0
Very satisfied (Percentage)	31 31.6	26 49.1	79 40.5	136 39.3	45.3 40.4
Extremely satisfied (Percentage)	46 46.9	17 32.1	47 24.1	110 31.8	36.7 34.4
Breast Feeding Intention At Third Trimester					
Breastfeed only (Percentage)	113 79.6	101 67.3	87 31.4	301 52.9	100.3 59.4
Formula feed only (Percentage)	7 4.9	10 6.7	61 22.0	78 13.7	26 11.2
Both breast and formula feed (Percentage)	15 10.6	30 20.0	74 26.7	119 20.9	39.7 19.1
I haven't decided (Percentage)	4 2.8	7 4.7	41 14.8	52 9.1	17.3 7.4
Breast Feeding after Delivery (Based on Postpartum Form Data)					
Yes (Percentage)	84 85.7	50 94.3	108 55.4	242 69.9	80.7 78.5
Planned Delivery Method At Third Trimester					
Vaginal delivery (Percentage)	136 95.8	120 80.0	205 74.0	461 81.0	153.7 83.3
C-Section (Percentage)	3 2.1	12 8.0	45 16.2	60 10.5	20 8.8
Actual Delivery Method					
Vaginal delivery (Percentage)	75 76.5	31 58.5	103 52.8	209 60.4	69.7 62.6

	Birth Center Model	Centering/Group Care Model	Maternity Home Care Model	Total	Mean
C-Section	17	22	55	94	31.3
(Percentage)	17.3	41.5	28.2	27.2	29.0
Plan to have a support person	133	136	223	492	164
(Percentage)	93.7	90.7	80.5	86.5	88.3
Had a support person during labor	89	39	146	274	91.3
(Percentage)	90.8	73.6	74.9	79.2	79.8
Had birth control counseling after delivery	76	42	120	238	79.3
(Percentage)	77.6	79.2	61.5	68.8	72.8

Note: Percentages in the table may not add up to 100 percent because of nonresponses from some participants.

TABLE 3. SOCIODEMOGRAPHIC AND LIFESTYLE-RELATED RISK FACTORS

Table 3.1. All Awardees

	Access Community Health Network	Albert Einstein Healthcare Network	American Association of Birth Centers	Amerigro Corporation	Central Jersey Family Health Consortium	Florida Assoc. of Healthy Start Coalitions	Harris County Hospital District	HealthInsight of Nevada	Johns Hopkins University	Maricopa Special Health Care District	Medical University of South Carolina	Meridian Health Plan	Mississippi Primary Health Care Association	Oklahoma Health Care Authority	Providence Health Fndtn. of Providence Hosp.	Signature Medical Group	Texas Tech University Health Sciences Center	United Neighborhood Health Services	University of Alabama at Birmingham	University of Kentucky Research Foundation	Univ. of Puerto Rico Med. Sciences Campus	University of South Alabama	Total	Mean	Median	Minimum	Maximum
Lifestyle-Related Risk Factors																											
Smokes cigarettes, on intake (Percentage)	15 6.8	8 7.4	44 10.8	0 0	10 6.3	32 19.4	1 0.6	7 10.9	42 14.3	13 12.9	16 9.2	125 21.6	78 11.1	8 18.6	8 9.8	12 16.9	8 19	11 10.9	2 10.5	4 28.6	2 2.1	38 22.9	484 12.8	22 12.3	10.5 10.9	0 0	125 28.6
Sociodemographic Factors																											
Ethnicity																											
Non-Hispanic (Percentage)	109 49.3	74 68.5	257 63.3	7 77.8	65 40.9	131 79.4	29 18	29 45.3	250 85.3	27 26.7	167 96	552 95.3	315 44.9	36 83.7	60 73.2	48 67.6	12 28.6	38 37.6	19 100	10 71.4	0 0	125 75.3	2362 62.5	107.4 60.7	54 68.1	0 0	552 100
Hispanic, Latina, or Spanish origin (Percentage)	99 44.8	15 13.9	106 26.1	2 22.2	66 41.5	27 16.4	130 80.7	33 51.6	28 9.6	68 67.3	6 3.4	19 3.3	6 0.9	3 7	7 8.5	1 1.4	20 47.6	58 57.4	0 0	4 28.6	94 96.9	2 1.2	794 21	36.1 28.7	19.5 19.3	0 0	130 96.9
Mexican, Mexican American, Chicana (Percentage)	81 36.7	2 1.9	63 15.5	1 11.1	6 3.8	4 2.4	77 47.8	23 35.9	3 1	64 63.4	2 1.1	16 2.8	3 0.4	3 7	2 2.4	0 0	13 31	37 36.6	0 0	4 28.6	0 0	2 1.2	406 10.7	18.5 15	3.5 3.3	0 0	81 63.4
Puerto Rican (Percentage)	6 2.7	10 9.3	12 3	0 0	19 11.9	12 7.3	0 0	0 0	4 1.4	1 1	0 0	2 0.3	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	88 90.7	0 0	154 4.1	7 5.8	0 0	0 0	88 90.7
Cuban (Percentage)	0 0	1 0.9	0 0	0 0	3 1.9	4 2.4	0 0	0 0	2 0.7	1 1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	11 0.3	0.5 0.3	0 0	0 0	4 2.4
Other Hispanic, Latina, or Spanish origin (Percentage)	15 6.8	3 2.8	31 7.6	1 11.1	39 24.5	10 6.1	53 32.9	10 15.6	19 6.5	2 2	4 2.3	2 0.3	3 0.4	0 0	5 6.1	1 1.4	7 16.7	21 20.8	0 0	0 0	6 6.2	0 0	232 6.1	10.5 7.7	4.5 6.1	0 0	53 32.9
Race																											
White (Percentage)	44 19.9	13 12	318 78.3	2 22.2	36 22.6	49 29.7	65 40.4	33 51.6	53 18.1	79 78.2	52 29.9	500 86.4	48 6.8	12 27.9	3 3.7	41 57.7	15 35.7	64 63.4	1 5.3	3 21.4	36 37.1	54 32.5	1521 40.3	69.1 35.5	42.5 29.8	1 3.7	500 86.4
Black or African American (Percentage)	109 49.3	70 64.8	19 4.7	5 55.6	74 46.5	89 53.9	27 16.8	3 4.7	210 71.7	17 16.8	112 64.4	64 11.1	622 88.6	6 14	71 86.6	16 22.5	8 19	32 31.7	17 89.5	5 35.7	11 11.3	106 63.9	1693 44.8	77 42	29.5 41.1	3 4.7	622 89.5
Asian (Percentage)	4 1.8	4 3.7	2 0.5	0 0	1 0.6	2 1.2	0 0	3 4.7	3 1	0 0	0 0	2 0.3	1 0.1	0 0	3 4.2	0 0	0 0	0 0	1 7.1	0 0	2 1.2	28 0.7	1.3 1.2	1 0.2	0 0	4 7.1	
Other Race or Multiple Races (Percentage)	6 2.7	8 7.4	20 4.9	1 11.1	7 4.4	7 4.2	5 3.1	5 7.8	24 8.2	2 2	3 1.7	3 0.5	4 0.6	24 55.8	3 3.7	6 8.5	1 2.4	3 3	1 5.3	0 0	2 2.1	3 1.8	138 3.7	6.3 6.4	3.5 3.4	0 0	24 55.8
Living in shelter or homeless, at intake (Percentage)	0 0	1 0.9	3 0.7	0 0	1 0.6	7 4.2	0 0	0 0	2 0.7	2 2	4 2.3	7 1.2	28 4	1 2.3	4 4.9	1 1.4	0 0	6 5.9	0 0	0 0	5 5.2	1 0.6	73 1.9	3.3 1.7	1 0.8	0 0	28 5.9
Employed, at intake (Percentage)	79 35.7	41 38	178 43.8	3 33.3	71 44.7	70 42.4	36 22.4	23 35.9	109 37.2	27 26.7	66 37.9	227 39.2	243 34.6	17 39.5	36 43.9	29 40.8	14 33.3	38 37.6	5 26.3	8 57.1	30 30.9	56 33.7	1406 37.2	63.9 37.1	37 37.4	3 22.4	243 57.1
Education level, at intake†																											
Neither high school diploma or GED (Percentage)	75 33.9	27 25	67 16.5	2 22.2	26 16.4	64 38.8	89 55.3	18 28.1	92 31.4	45 44.6	34 19.5	127 21.9	143 20.4	11 25.6	19 23.2	14 19.7	14 33.3	47 46.5	5 26.3	3 21.4	10 10.3	41 24.7	973 25.8	44.2 27.5	30.5 24.8	2 10.3	143 55.3

	Access Community Health Network	Albert Einstein Healthcare Network	American Association of Birth Centers	Amerigroup Corporation	Central Jersey Family Health Consortium	Florida Assoc. of Healthy Start Coalitions	Harris County Hospital District	HealthInsight of Nevada	Johns Hopkins University	Maricopa Special Health Care District	Medical University of South Carolina	Meridian Health Plan	Mississippi Primary Health Care Association	Oklahoma Health Care Authority	Providence Health Fndtn. of Providence Hosp.	Signature Medical Group	Texas Tech University Health Sciences Center	United Neighborhood Health Services	University of Alabama at Birmingham	University of Kentucky Research Foundation	Univ. of Puerto Rico Med. Sciences Campus	University of South Alabama	Total	Mean	Median	Minimum	Maximum
High school diploma or GED (Percentage)	96 43.4	56 51.9	188 46.3	4 44.4	89 56	68 41.2	52 32.3	33 51.6	164 56	47 46.5	119 68.4	357 61.7	381 54.3	17 39.5	50 61	35 49.3	20 47.6	47 46.5	10 52.6	10 71.4	29 29.9	85 51.2	1957 51.8	89 50.1	51 50.3	4 29.9	381 71.4
Associate's degree (Percentage)	10 4.5	9 8.3	33 8.1	2 22.2	10 6.3	2 1.2	0 0	2 3.1	13 4.4	1 1	3 1.7	31 5.4	39 5.6	2 4.7	4 4.9	6 8.5	2 4.8	3 3	0 0	1 7.1	14 14.4	4 2.4	191 5.1	8.7 5.5	3.5 4.7	0 0	39 22.2
Bachelor's degree (Percentage)	1 0.5	5 4.6	49 12.1	0 0	6 3.8	2 1.2	1 0.6	1 1.6	5 1.7	0 0	8 4.6	24 4.1	11 1.6	2 4.7	2 2.4	5 7	1 2.4	2 2	0 0	0 0	9 9.3	2 1.2	136 3.6	6.2 3	2 1.8	0 0	49 12.1
Other college degree (Percentage)	8 3.6	3 2.8	11 2.7	1 11.1	5 3.1	5 3	0 0	1 1.6	3 1	0 0	2 1.1	13 2.2	9 1.3	3 7	3 3.7	6 8.5	1 2.4	1 1	1 5.3	0 0	17 17.5	3 1.8	96 2.5	4.4 3.7	3 2.5	0 0	17 17.5
Relationship Status, at intake†																											
Married, living with spouse (Percentage)	43 19.5	12 11.1	168 41.4	2 22.2	25 15.7	27 16.4	56 34.8	16 25	35 11.9	10 9.9	24 13.8	155 26.8	46 6.6	12 27.9	10 12.2	22 31	7 16.7	27 26.7	3 15.8	5 35.7	21 21.6	22 13.3	748 19.8	34 20.7	22 18.1	2 6.6	168 41.4
Married, not living with spouse (Percentage)	6 2.7	1 0.9	9 2.2	0 0	4 2.5	1 0.6	4 2.5	0 0	9 3.1	0 0	0 0	9 1.6	6 2.8	0 0	0 0	0 0	1 2.4	0 0	0 0	0 0	1 1	9 5.4	74 2	3.4 1.3	1 0.8	0 0	20 5.4
Living with a partner (Percentage)	70 31.7	23 21.3	149 36.7	3 33.3	40 25.2	51 30.9	33 20.5	30 46.9	105 35.8	35 34.7	54 31	185 32	151 21.5	20 46.5	20 24.4	25 35.2	11 26.2	39 38.6	2 10.5	5 35.7	45 46.4	42 25.3	1138 30.1	51.7 31.4	37 31.8	2 10.5	185 46.9
In a relationship but not living together (Percentage)	69 31.2	47 43.5	35 8.6	4 44.4	45 28.3	46 27.9	41 25.5	15 23.4	72 24.6	36 35.6	68 39.1	137 23.7	277 39.5	5 11.6	31 37.8	13 18.3	10 23.8	28 27.7	8 42.1	1 7.1	19 19.6	50 30.1	1057 28	48 27.9	35.5 27.8	1 7.1	277 44.4
Not in a relationship right now (Percentage)	31 14	16 14.8	38 9.4	0 0	34 21.4	39 23.6	25 15.5	3 4.7	67 22.9	18 17.8	28 16.1	92 15.9	181 25.8	5 11.6	17 20.7	10 14.1	11 26.2	7 6.9	6 31.6	3 21.4	7 7.2	29 17.5	667 17.7	30.3 16.3	17.5 16	0 0	181 31.6
Food insecure at intake (Percentage)	49 22.2	20 18.5	83 20.4	3 33.3	40 25.2	40 24.2	22 13.7	19 29.7	38 13	3 3	22 12.6	22 3.8	93 13.2	14 32.6	24 29.3	12 16.9	6 14.3	24 23.8	5 26.3	4 28.6	21 21.6	29 17.5	593 15.7	27 20.2	22 21	3 3	93 33.3
Exhibiting depressive symptoms at intake (Percentage)	56 25.3	31 28.7	90 22.2	1 11.1	45 28.3	60 36.4	28 17.4	20 31.2	93 31.7	7 6.9	31 17.8	60 10.4	199 28.3	9 20.9	22 26.8	24 33.8	15 35.7	23 22.8	7 36.8	5 35.7	28 28.9	48 28.9	902 23.9	41 25.7	28 28.3	1 6.9	199 36.8
Experiencing intimate partner violence at intake (measured by Women's Experience of Battery) (Percentage)	7 3.2	0 0	6 1.5	0 0	8 5	9 5.5	3 1.9	1 1.6	6 2	0 0	4 2.3	2 0.3	16 2.3	0 0	3 3.7	2 2.8	0 0	1 1	0 0	0 0	5 5.2	3 1.8	76 2	3.5 1.8	2.5 1.7	0 0	16 5.5
Have experienced intimate partner violence in a relationship (measured by Slapped,,Threatened, and Throw) (Percentage)	47 21.3	14 13	93 22.9	1 11.1	36 22.6	72 43.6	36 22.4	14 21.9	40 13.7	15 14.9	25 14.4	119 20.6	102 14.5	10 23.3	21 25.6	23 32.4	11 26.2	27 26.7	3 15.8	2 14.3	10 10.3	24 14.5	745 19.7	33.9 20.3	23.5 20.9	1 10.3	119 43.6

* The percentage of Hispanic and Non-Hispanic may not add up to 100 percent because of nonresponses from some participants. The sum of the percentages of the four Hispanic origins may not add up to the total percentage of Hispanic participants because more than one Hispanic origin category could be selected.

† Percentages may not add up to 100 percent because of nonresponses from some participants.

Table 3.2. By Maternity Care Model

	Birth Center Model	Centering/Group Care Model	Maternity Home Care Model	Total	Mean
Lifestyle-Related Risk Factors					
Smokes cigarettes, on intake (Percentage)	51 11	41 6.0	392 14.9	484 12.8	161.3 10.6
Sociodemographic Factors					
Ethnicity					
Non-Hispanic (Percentage)	299 64.7	269 39.5	1794 68.1	2362 62.5	787.3 57.4
Hispanic , Latina, or Spanish origin (Percentage)	110 23.8	350 51.4	334 12.7	794 21	264.7 29.3
Mexican, Mexican American, Chicana (Percentage)	65 14.1	116 17.0	225 8.5	406 10.7	135.3 13.2
Puerto Rican (Percentage)	12 2.6	117 17.2	25 0.9	154 4.1	51.3 6.9
Cuban (Percentage)	0 0	4 0.6	7 0.3	11 0.3	3.7 0.3
Other Hispanic, Latina, or Spanish origin (Percentage)	33 7.1	115 16.9	84 3.2	232 6.1	77.3 9.1
Race					
White (Percentage)	320 69.3	201 29.5	1000 38.0	1521 40.3	507 45.6
Black or African American (Percentage)	67 14.5	224 32.9	1402 53.2	1693 44.8	564.3 33.5
Asian (Percentage)	2 0.4	9 1.3	17 0.6	28 0.7	9.3 0.8
Other Race or Multiple Races (Percentage)	23 5	52 7.6	63 2.4	138 3.7	46 5
Living in shelter or homeless, at intake (Percentage)	6 1.3	9 1.3	58 2.2	73 1.9	24.3 1.6
Employed, at intake (Percentage)	203 43.9	240 35.2	963 36.6	1406 37.2	468.7 38.6
Education level, at intake†					
Neither high school diploma or GED (Percentage)	80 17.3	192 28.2	701 26.6	973 25.8	324.3 24
High school diploma or GED (Percentage)	220 47.6	308 45.2	1429 54.3	1957 51.8	652.3 49
Associate’s degree (Percentage)	36 7.8	41 6	114 4.3	191 5.1	63.7 6
Bachelor’s degree (Percentage)	50 10.8	25 3.7	61 2.3	136 3.6	45.3 5.6
Other college degree (Percentage)	14 3	30 4.4	52 2	96 2.5	32 3.1

	Birth Center Model	Centering/Group Care Model	Maternity Home Care Model	Total	Mean
Relationship Status, at intake†					
Married, living with spouse (Percentage)	175 37.9	152 22.3	421 16	748 19.8	249.3 25.4
Married, not living with spouse (Percentage)	9 1.9	10 1.5	55 2.1	74 2	24.7 1.8
Living with a partner (Percentage)	163 35.3	205 30.1	770 29.2	1138 30.1	379.3 31.5
In a relationship but not living together (Percentage)	55 11.9	188 27.6	814 30.9	1057 28	352.3 23.5
Not in a relationship right now (Percentage)	50 10.8	98 14.4	519 19.7	667 17.7	222.3 15
Food insecure at intake (Percentage)	105 21.9	174 21.9	623 13	902 15.7	197.7 18.9
Exhibiting depressive symptoms at intake (Percentage)	105 22.7	189 25.6	608 23.7	902 23.9	300.7 24
Experiencing intimate partner violence at intake (measured by Women’s Experience of Battering) (Percentage)	8 1.7	18 2.6	50 1.9	76 2	25.3 2.1
Have experienced intimate partner violence in a relationship (measured by Slapped,,Threatened, and Throw) (Percentage)	108 23.4	129 18.9	508 19.3	745 19.7	248.3 20.5

* The percentage of Hispanic and Non-Hispanic may not add up to 100 percent because of nonresponses from some participants. The sum of the percentages of the four Hispanic origins may not add up to the total percentage of Hispanic participants because more than one Hispanic origin category could be selected.

† Percentages may not add up to 100 percent because of nonresponses from some participants

APPENDIX D: PARTICIPANT-LEVEL PROCESS EVALUATION DATA QUALITY REPORT

Strong Start Participant-level Process Evaluation

Data Quality Report

Quarter 1, 2014

This document summarizes the Strong Start participant-level process evaluation data quality issues for data submitted for the first quarter (Q1) of 2014. We summarize issues related to incorrect dates, missing date completed, multiple values, and duplicate values.

Forms Processed for Q1 2014

TABLE 1: NUMBER OF FORMS PROCESSED, Q1 2014

Form	Number of Forms Processed	Number of Valid Forms Analyzed
New Intake Forms	2,049	2,043
Old Intake Forms	2,345	2,341
Total Intake Forms	4,394	4,384
Third Trimester Surveys	1,003	997
Postpartum Surveys	682	677
Total	6,079	6,058

A total of 23 awardees **submitted** data for Q1 2014:

TABLE 2: NUMBER OF FORMS PROCESSED BY AWARDEE, Q1 2014

Awardee	Intake Form	Old Intake Form	Third Trimester Survey	Postpartum Survey
Access Community Health Network	191	31	59	22
Albert Einstein	98	58	26	0
American Association of Birth Centers (AABC)	384	133	186	136
Amerigroup Corporation	9	0	0	0
Central Jersey Family Health Consortium, Inc.	36	128	16	5
Florida Association of Healthy Start Coalitions	166	0	6	N/A
Harris County Hospital District dba Harris Health System	38	123	55	16
Health Insight of Nevada	31	46	57	27
Johns Hopkins University School of Medicine	105	244	35	32
Maricopa Integrated Health System	0	103	0	0
Medical University of South Carolina (MUSC)	183	13	59	106
Meridian Health Plan	389	342	205	146
Mississippi Primary Health Care Association, Inc	181	575	160	68
Oklahoma Health Care Authority	18	25	2	2
Providence Health Foundation of Providence Hospital	20	77	34	19
Signature Medical Group	40	66	28	24
Texas Tech University Health Sciences Center	21	34	0	0
United Neighborhood Health Services, Inc	1	107	15	33
University of Alabama at Birmingham	76	0	4	4
University of Kentucky Research Foundation	14	0	14	0
University of Puerto Rico Medical Sciences Campus	30	80	36	37
University of South Alabama	12	156	0	0
Total	2,043	2,340	997	677

The following 5 awardees **did not** submit data for Q1 2014, and intend to submit Q1 and Q2 data at the same time:

1. Grady Memorial Hospital Corporation
2. Los Angeles (LA) County Department of Health Services*
3. University of Tennessee Medical Group
4. Virginia Commonwealth University
5. St. John Community Health Investment Corp.

*LA County Department of Health Services experienced some early programmatic delays and does not intend to submit Q1 data until closer to the Q3 due date.

Incorrect Dates

INVALID DATES

A program automatically checked the month, date, and year for every date entered into the database and flagged any date fields that were not valid. All dates entered for Q1 across the three forms were within an acceptable range, except in three instances.

- 1 Third Trimester Survey and 1 Postpartum Survey had “form completed” dates where the day of the month did not exist.
- 1 Intake Form listed an incorrect birthdate (i.e. day of month did not exist) for the participant’s most recently delivered baby.

DATES NOT WITHIN RANGE

We checked the “form completed” data for dates given prior to January 1, 2013.

- There were no incorrect dates in the Third Trimester Survey or Postpartum Survey.
- Twenty-one participants gave dates before 1/1/2013 in the Intake Form.

TABLE 3: NUMBER OF INTAKE FORMS WITH DATES NOT WITHIN RANGE, BY AWARDEE, Q1 2014

Awardee	# of Errors
Mississippi Primary Health Care Association	6
Access Community Health Network	3
American Association of Birth Centers	3
Johns Hopkins University	2
Meridian Health Plan	2
Albert Einstein Healthcare Network	1
Central Jersey Family Health Consortium	1
Texas Tech University Health Sciences Center	1
United Neighborhood Health Services	1
University of Puerto Rico Medical Sciences Campus	1
Total	21

Missing Data

RESEARCH VARIABLES

Among survey questions that are supposed to be answered by every respondent, there were several survey items that had missing data > 5% across the 3 forms: 14 items in the Intake Form, 4 items in the Third Trimester Survey, and 2 items in the Postpartum Survey. One possible reason for much of the missing data is the lack of an “N/A” response option. For instance, it is possible that women who hadn’t been pregnant before skipped the questions inquiring about previous births and preterm babies, resulting in missing data. Likewise, women who do not smoke cigarettes or consume alcohol have no “Not Applicable” option to choose from. We also suspect that the sensitive nature of these questions may have deterred participants from selecting truthful answers. For what we suspect to be similar reasons, we noticed missing data for questions asking about homelessness and the presence of a spouse/partner/boyfriend and a support person during labor. Lastly, we noticed missing data in both the 3rd trimester form and the postpartum form on the questions asking about treatment for pain during labor. We believe that participants may have skipped this question due to its sensitive nature, or preferred not to answer because they were unsure about the intent of the question or the meanings of some of the medical terms included as answer choices.

DATE COMPLETED

There were 468 total omission errors where participants did not fill out the date the survey was completed. The date the survey was completed determines the quarter in which data will be reported.

For example if a form is completed in April 2014 and is submitted with the Q1 2014 data, we would hold the data and report it in the Q2 2014 report.

- In the “old” Intake Form, this error occurred 375 times, across 15 awardees.
- In the “new” scannable Intake Form, this error occurred 18 times, across 10 awardees.
- In the Third Trimester Survey, this error occurred 29 times, across 7 awardees.
- In the Postpartum Survey, this error occurred 46 times, across 9 awardees.

TABLE 4: NUMBER OF FORMS IN WHICH DATE COMPLETED IS OMITTED

Form	# of Omission Errors	Awardee
Intake Form (OLD)	375	<ol style="list-style-type: none"> 1. Albert Einstein Healthcare Network 2. American Association of Birth Centers 3. Central Jersey Family Health Consortium 4. HealthInsight of Nevada 5. Johns Hopkins University 6. Maricopa Special Health Care District 7. Medical University of South Carolina 8. Meridian Health Plan 9. Mississippi Primary Health Care Association 10. Oklahoma Health Care Authority 11. Providence Health Foundation of Providence Hospital 12. Signature Medical Group 13. Texas Tech University Health Sciences Center 14. University of Puerto Rico Medical Sciences Campus 15. University of South Alabama
Intake Form (NEW)	18	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. HealthInsight of Nevada 5. Medical University of South Carolina 6. Meridian Health Plan 7. Mississippi Primary Health Care Association 8. Providence Health Foundation of Providence Hospital 9. Texas Tech University Health Sciences Center 10. University of Puerto Rico Medical Sciences Campus

Form	# of Omission Errors	Awardee
Third Trimester Survey	29	<ol style="list-style-type: none"> 1. American Association of Birth Centers 2. HealthInsight of Nevada 3. Johns Hopkins University 4. Mississippi Primary Health Care Association 5. Providence Health Foundation of Providence Hospital 6. Signature Medical Group 7. United Neighborhood Health Services
Postpartum Survey	46	<ol style="list-style-type: none"> 1. American Association of Birth Centers 2. Johns Hopkins University 3. Medical University of South Carolina 4. Meridian Health Plan 5. Mississippi Primary Health Care Association 6. Providence Health Foundation of Providence Hospital 7. Signature Medical Group 8. United Neighborhood Health Services 9. University of Puerto Rico Medical Sciences Campus

AWARDEE-SPECIFIC ISSUES

Intake Form:

- Three awardees had high percentage of missing data on the date of completion:
 - Johns Hopkins University: 31.8% of the 349 participants were missing the date of completion.
 - Oklahoma Health Care Authority: 48.8% of the 43 participants were missing the date of completion.
 - University of Puerto Rico Medical Sciences Campus: 74.5% of the 110 participants were missing the date of completion.

Third Trimester Survey:

- A total of 11 participants had valid study ids but none of the survey questions, including 4 participants from Signature Medical Group and 7 participants from United Neighborhood Health Services. This could indicate a participant’s refusal to answer the questions, or a lack of time for the awardee to administer the survey. We will assess data reported in future quarters to identify any patterns indicating potential issues with this awardee.
- One awardee (Access Community Health Network) had a high percentage of missing data on three survey questions on the third trimester forms. Specifically,

- 52.5% of data missing for question 3: “Are you homeless or living in a shelter right now?”
- 57.6% of data missing for question 6: “Do you have a spouse, partner or boyfriend right now?”
- 57.6% of data missing for question 9: “Do you plan to take something for pain during labor?”

Question 6 in the third trimester survey is a screening question where participants who do not have a spouse, partner, or boyfriend right now are asked to skip the following set of questions (from Question 6.a to 6.f). Missing responses to Question 6 prevents us from being able to validate if participants correctly skipped or answered Questions 6.a to 6.f based on their answers to Question 6.

This finding does not necessarily indicate any issues of form administration at sites of this awardee. Participants from this awardee may have felt these three questions were too sensitive, and refused to answer. We will assess data reported in future quarters to identify any patterns indicating potential issues with this awardee.

Postpartum Survey:

- A total of 37 participants had valid study ids but had missing values for all the survey questions, including
 - 5 participants from American Association of Birth Centers,
 - 5 participants from Johns Hopkins University,
 - 6 participants from Medical University of South Carolina,
 - 1 participant from Meridian Health Plan,
 - 5 participants from Mississippi Primary Health Care Association,
 - 1 participant from Providence Health Foundation of Providence Hospital,
 - 1 participant from Signature Medical Group,
 - 13 participants from United Neighborhood Health Services.

24 out of the 37 participants did not complete the postpartum surveys because awardees were unable to contact them. The reason(s) surveys were not completed by the remaining 13 participants is unknown.

Multiple Values

We checked for instances in the Q1 data where multiple values were given for a question. We describe these instances below by each form and provide detailed tables on questions where there were more than 5 errors each question.

Intake Form:

- There were 298 total instances in the Intake Form data where 20 awardees sent in data where multiple values were given for a total of 81 questions.
- There were 68 questions with less than 5 errors and 13 questions with more than 5 errors. The “Completed by” field and questions 12a, 28, 31, and 32 had more than 10 errors. We will carefully monitor the data for repeated problems, particularly with these questions, over the next few quarters. The 13 questions with more than 5 errors are summarized below:

TABLE 5: NUMBER OF MULTIPLE VALUE ERRORS PER QUESTION IN PATIENT INTAKE FORM

Question #	Question	# of Errors	Awardee
N/A	“Completed by”	13	<ol style="list-style-type: none"> 1. Access Community Health Network 2. American Association of Birth Centers 3. Florida Association of Healthy Start Coalitions University of South Alabama 4. Johns Hopkins University 5. Mississippi Primary Health Care Association 6. University of Alabama at Birmingham
5	“Do you speak a language other than English at home?”	10	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. Johns Hopkins University 5. Mississippi Primary Health Care Association 6. University of Puerto Rico Medical Sciences Campus
6	“If yes, what is this language?” (if speak a language other than English at home)	9	<ol style="list-style-type: none"> 1. Access Community Health Network 2. American Association of Birth Centers 3. Central Jersey Family Health Consortium 4. Florida Association of Healthy Start Coalitions 5. United Neighborhood Health Services
12a	“If yes, are you in high school, GED, training, college, other:” (if in school)	12	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. Central Jersey Family Health Consortium 5. Medical University of South Carolina 6. Mississippi Primary Health Care Association 7. Oklahoma Health Care Authority 8. Providence Health Foundation of Providence Hospital 9. Signature Medical Group 10. University of South Alabama

Question #	Question	# of Errors	Awardee
13	“Do you have a high school diploma or GED:”	7	<ol style="list-style-type: none"> 1. Access Community Health Network 2. HealthInsight of Nevada 3. Mississippi Primary Health Care Association 4. University of Puerto Rico Medical Sciences Campus
16	“What is your relationship status now?”	9	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. Central Jersey Family Health Consortium 5. Harris County Hospital District 6. Mississippi Primary Health Care Association 7. University of South Alabama
20	“Were you using birth control when you became pregnant with this pregnancy?”	8	<ol style="list-style-type: none"> 1. Access Community Health Network 2. American Association of Birth Centers 3. Central Jersey Family Health Consortium 4. HealthInsight of Nevada 5. Mississippi Primary Health Care Association 6. Providence Health Foundation of Providence Hospital 7. University of Alabama at Birmingham
21	“Were you trying to become pregnant?”	6	<ol style="list-style-type: none"> 1. American Association of Birth Centers 2. HealthInsight of Nevada 3. Mississippi Primary Health Care Association 4. Signature Medical Group
27	How you have been feeling in the past week - “I felt that everything I did was an effort.”	7	<ol style="list-style-type: none"> 1. Access Community Health Network 2. American Association of Birth Centers 3. Amerigroup Corporation 4. Mississippi Primary Health Care Association 5. University of Alabama at Birmingham
28	How you have been feeling in the past week - “My sleep was restless.”	14	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. Central Jersey Family Health Consortium 5. Florida Association of Healthy Start Coalitions 6. HealthInsight of Nevada 7. Mississippi Primary Health Care Association 8. Signature Medical Group 9. Texas Tech University Health Sciences Center 10. University of Alabama at Birmingham 11. University of Puerto Rico Medical Sciences Campus 12. University of South Alabama

Question #	Question	# of Errors	Awardee
29	How you have been feeling in the past week - "I was happy."	10	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Central Jersey Family Health Consortium 3. HealthInsight of Nevada 4. Medical University of South Carolina 5. Mississippi Primary Health Care Association 6. University of Alabama at Birmingham 7. University of South Alabama
31	How you have been feeling in the past week - "People were unfriendly."	15	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. Central Jersey Family Health Consortium 5. HealthInsight of Nevada 6. Medical University of South Carolina 7. Mississippi Primary Health Care Association 8. Oklahoma Health Care Authority 9. Providence Health Foundation of Providence Hospital 10. Signature Medical Group 11. Texas Tech University Health Sciences Center 12. University of Alabama at Birmingham 13. University of Puerto Rico Medical Sciences Campus University of South Alabama
32	How you have been feeling in the past week - "I enjoyed life."	11	<ol style="list-style-type: none"> 1. American Association of Birth Centers 2. Central Jersey Family Health Consortium 3. Harris County Hospital District 4. Mississippi Primary Health Care Association 5. Providence Health Foundation of Providence Hospital 6. University of Alabama at Birmingham 7. University of Puerto Rico Medical Sciences Campus
30	How you have been feeling in the past week - "I felt lonely."	6	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Amerigroup Corporation 3. Central Jersey Family Health Consortium 4. HealthInsight of Nevada 5. Mississippi Primary Health Care Association
40	Over the last 2 weeks, how often have you been bothered by - "Being so restless that it's hard to sit still"	5	<ol style="list-style-type: none"> 1. Access Community Health Network 2. American Association of Birth Centers 3. Oklahoma Health Care Authority 4. University of South Alabama
43	"If you checked off any problems, how difficult have these made it for you to do your work take care of things at home, or get along with other people?"	6	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. HealthInsight of Nevada 5. Mississippi Primary Health Care Association 6. Signature Medical Group

Question #	Question	# of Errors	Awardee
54	“Which best describes the rules about smoking inside your home now?”	9	<ol style="list-style-type: none"> 1. Access Community Health Network American Association of Birth Centers 2. Albert Einstein Healthcare Network 3. Mississippi Primary Health Care Association 4. Providence Health Foundation of Providence Hospital
55	“How many drinks does it take to make you feel high?”	5	<ol style="list-style-type: none"> 1. American Association of Birth Centers 2. Mississippi Primary Health Care Association
59	“Did any of your parents have a problem with drug use?”	5	<ol style="list-style-type: none"> 1. Access Community Health Network 2. American Association of Birth Centers 3. Johns Hopkins University 4. Mississippi Primary Health Care Association 5. Signature Medical Group

Third Trimester Survey:

- There were a total of 29 total instances in the Third Trimester Survey data where 10 awardees sent in data with multiple values for 8 questions.
- Six questions had less than 5 errors. Two questions had more than 5 errors and are summarized below:

TABLE 6. NUMBER OF MULTIPLE VALUE ERRORS PER QUESTION IN THIRD TRIMESTER SURVEY

Question #	Question	# of Errors	Awardee
4	“Please choose the statement that best describes you”	8	<ol style="list-style-type: none"> 1. Access Community Health Network 2. American Association of Birth Centers 3. HealthInsight of Nevada 4. Johns Hopkins University 5. Providence Health Foundation of Providence Hospital
12	“How do you plan to feed your baby in the first few weeks?”	6	<ol style="list-style-type: none"> 1. Access Community Health Network 2. Albert Einstein Healthcare Network 3. American Association of Birth Centers 4. Meridian Health Plan

Postpartum Survey:

- There were a total of 11 instances in the Postpartum Survey data where 7 awardees submitted multiple values across 10 questions.
- None of the questions had more than 5 errors.

Duplicates

We checked for duplicate forms that were sent in. Below, we summarize the list of duplicate forms and provide our recommendations on which set of data (form) to enter into the database.

Intake Form:

- *American Association of Birth Centers – Childbirth Options Birth and Wellness Center* (Study ID # 03-09810-0011): Both versions have handwritten “0011” on ID stickers. The second version is dated one day prior to the first version, but is not fully filled out.

Recommendation: While the two versions have different dates, the first pages of both versions have identical answers. Since the second version only has the first page complete and the first version is completed, retain the first copy and delete the second copy.

- *American Association of Birth Centers – Childbirth Options Birth and Wellness Center* (Study ID # 03-9810-0024): Both versions have handwritten “0024” on ID stickers. The two versions are dated a week apart and while some answers are the same, there are a significant number of answers that differ.

Recommendation: Evaluation team followed-up with AABC with some of the responses from each form. From this information, they were able to notify us of the correct form to retain for our records.

Third Trimester Survey:

- *American Association of Birth Centers – El Rio Birth & Women’s Health Center* (Study ID # 03-9160-0094): Both versions have handwritten “94” on ID stickers. It appears as though the same form was just scanned twice and submitted, resulting in a duplicate.

Recommendation: Retain the first copy and delete the second copy.

- *Medical University of South Carolina – MUSC Downtown* (Study ID # 13-0197-0028): Both have pre-printed stickers with the same ID number. It is clear that these two different forms belong to two participants.

Recommendation: Evaluation team will follow up with MUSC with the responses from each form to help them determine which version of the form we should retain. .

- *Meridian Health Plan – Allegiance Health* (Study ID # 14-0136-0865): Both have pre-printed stickers with the same ID number. It appears as though two different people filled out a third trimester form for the same woman.
- Recommendation: Retain the first copy and delete the second copy.

Postpartum Survey:

- *American Association of Birth Centers – Lisa Ross Birth & Women’s Center* (Study ID # 03-9384-0181): Both versions have handwritten “0181” on ID stickers. It seems as though these two forms belong to two different participants.

Recommendation: Evaluation team followed-up with AABC with some of the responses from each form. From this information, they were able to notify us of the correct form to retain for our records.

- *Meridian Health Plan – Allegiance Health* (Study ID # 14-0136-1009): One version has a fully handwritten ID number while the other has a printed ID sticker. It appears as though two different people filled out a postpartum form for the same woman.

Recommendation: Retain the first copy and delete the second copy.

- *Meridian Health Plan – Allegiance Health* (Study ID # 14-0136-1230): Both versions have pre-printed stickers with the same ID number. Like the other duplicate case at this site, both versions have identical responses but different handwriting. It appears as though two different people filled out a postpartum form for the same woman.

Recommendation: Retain the first copy and delete the second copy.



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