




VietMOMS Project Evaluation Report MOMS Orange County 2008-2010

This report was funded by a grant from  **The
California
Endowment**

Overview of the Evaluation

This report summarizes program evaluation results for the *MOMS Orange County (MOMS) VietMOMS* Project, a model of care for low-income Vietnamese mothers and their babies that provides health coordination, education and access to community services based on *MOMS* Maternal-Child Health Coordination Program. The VietMOMS Project was funded as a pilot by *The California Endowment* in 2008.

This report was prepared by Dr. Laura D'Anna, an independent evaluator for *MOMS*. (Dr. D'Anna is a Senior Research Fellow and Assistant Director for the NIH-funded RIMI Project at the Center for Health Care Innovation at California State University, Long Beach.) The goal of the present evaluation was to analyze results associated with the following process and outcome indicators:

- 1) Process indicators for the VietMOMS Project (number of women served, socio-demographic characteristics, number and types of service units provided);
- 2) Outcome indicators constructed for all of *MOMS* programming including VietMOMS (birth outcomes, breastfeeding rates, and other selected infant and maternal health outcomes);
- 3) Knowledge related to nutrition, prenatal care, signs and symptoms of preterm labor, diabetes prevention and breastfeeding subsequent to participating in VietMOMS;
- 4) Client evaluation of perceived effectiveness and satisfaction with VietMOMS

The evaluation utilized data provided to the Evaluator by *MOMS* staff in the following forms:

- Client demographic, service usage and behavioral data collected and entered in *MOMS* database by *MOMS* staff and provided in the form of an Excel file for analysis purposes;
- Survey data (in the form of an Excel file) collected by *MOMS* staff from a sample of VietMOMS participants to assess increases in knowledge related to nutrition during pregnancy, recommendations for prenatal care, signs and symptoms of preterm labor, facts about breastfeeding and ways to reduce risk for diabetes;
- Survey data (in the form of an Excel file) collected by *MOMS* staff from a sample of VietMOMS participants to assess client satisfaction and impressions about the effectiveness of the program in assisting them in becoming healthier and/or in having a healthy baby as a result of their participation in *MOMS*.

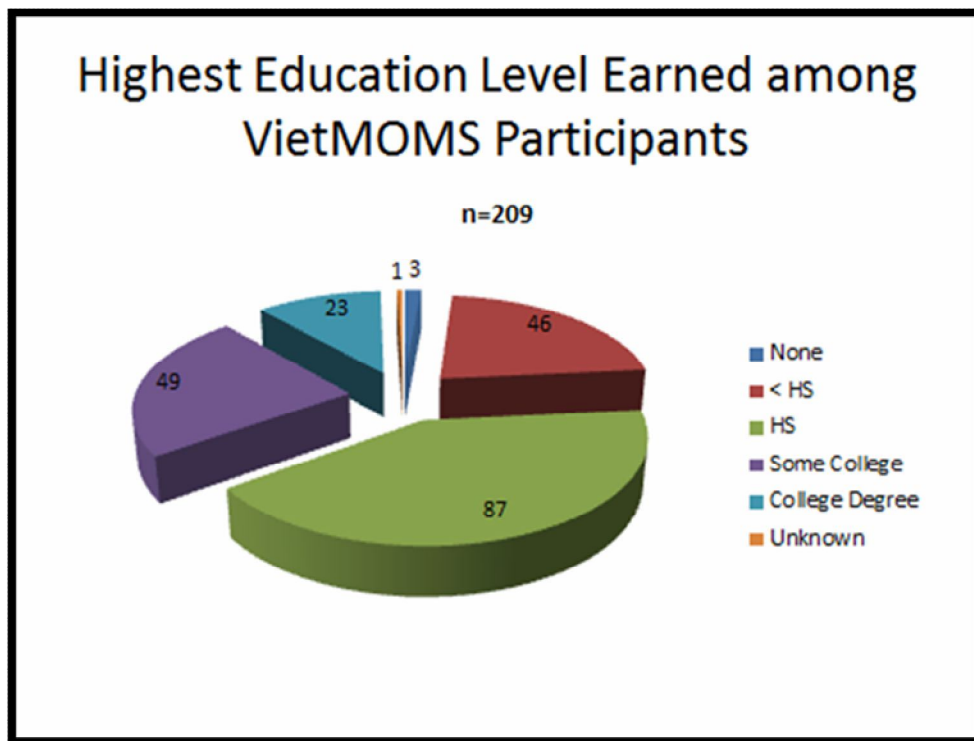
In summary, these results provide comprehensive baseline data describing the sample of Vietnamese mothers who sought services through the VietMOMS Project from 2008-2010. This is an important accomplishment given VietMOMS was a new project for *MOMS* and represents *MOMS*' first, concerted effort to provide underserved Vietnamese women with services designed to facilitate optimal prenatal and postnatal health, birth outcomes, and breastfeeding practices. These data provide important benchmarks from which improvements to future service units and program outcomes can be projected and realized. The specific process and outcome indicators of interest for this evaluation are noted within the respective sections wherein they are addressed and include indicators in the following areas: maternal prenatal health, infant birth outcomes, breastfeeding practices, postnatal maternal health, and infant immunization status at the time of case closure with *MOMS*. Relationships between these indicators are discussed, and some recommendations for future improvements are offered based solely on the findings from this evaluation.

Description of VietMOMS Clientele

A total of 276 women were enrolled into the VietMOMS Project from September 1, 2008 through February 28, 2010. The findings summarized in this report resulted from analyses that were conducted on data associated with VietMOMS participants and their babies for whom complete birth and maternal data were available (n=212 babies delivered to 209 women, 3 of whom delivered twins). The majority of the analyses contained in this report consider the relationship between maternal health status and behaviors and the outcomes of each individual baby. Thus, when birth outcomes are considered, the total sample size is 212, and the three mothers of twins are duplicated. However, when maternal demographics and indicators are addressed, only unduplicated client data are represented and the sample size is 209.

Delivery dates ranged from October 6, 2008 through May 25, 2010 for this group of participants. In a range from 18 to 47 years, the mean age for participants was 32.74 years, with a median age of 33.0 years. The overwhelming majority (n=203) were born in Vietnam and 85.8% were monolingual Vietnamese speaking. The most common cities of residence at the time of service were Garden Grove (40.7%), followed by Westminster (20.1%), Santa Ana (17.7%) and Anaheim (5.3%). The majority (65.1%) had a high school education or less, while 23.4% had received some college education, and 11.0% had earned a college degree. CalOptima was the most commonly held type of health coverage and this was true for 78.9% of the women, followed by insurance (19.6%). Only 2 women reported being without any type of health insurance, and for 1 client coverage was unknown. Finally, 99.0% of the women were first-time mothers.

Figure 1



Descriptive Evaluation Results

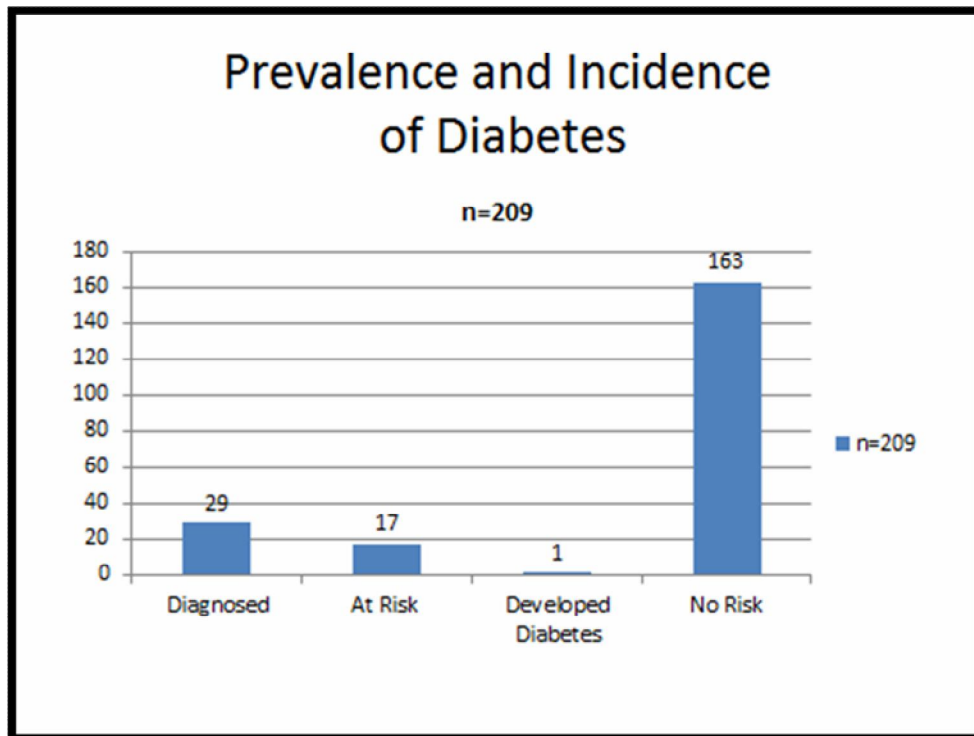
Maternal Prenatal Indicators

The indicators of interest for evaluating maternal health outcomes were as follows: the percentage of VietMOMS participants who were identified as being at risk for depression; percentage who were referred for additional assessment or care related to depression; percentage with gestational diabetes; percentage who were at-risk for diabetes, but who did not develop diabetes during pregnancy; percentage who enrolled in VietMOMS during their first trimester of pregnancy; the number of completed prenatal medical visits; and the number of completed *MOMS* prenatal home visits.

Only 5 (2.4%) Vietnamese mothers enrolled into the VietMOMS Project were identified as being at risk for depression and all were referred to an outside Vietnamese-speaking mental health provider for an additional assessment.

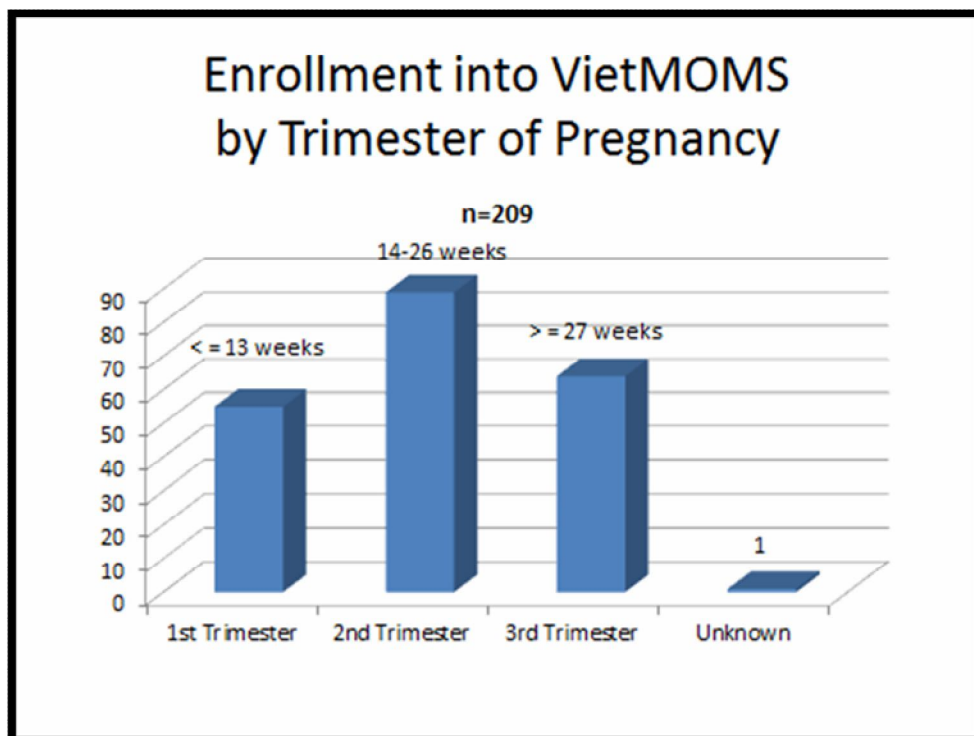
Twenty-nine (29) women entered the VietMOMS Project with a diabetes diagnosis, and an additional 17 were at risk for developing diabetes. Only one (1) participant developed diabetes during her pregnancy. (This participant is reflected in both the “At Risk” and “Developed Diabetes” categories in Figure 2.)

Figure 2



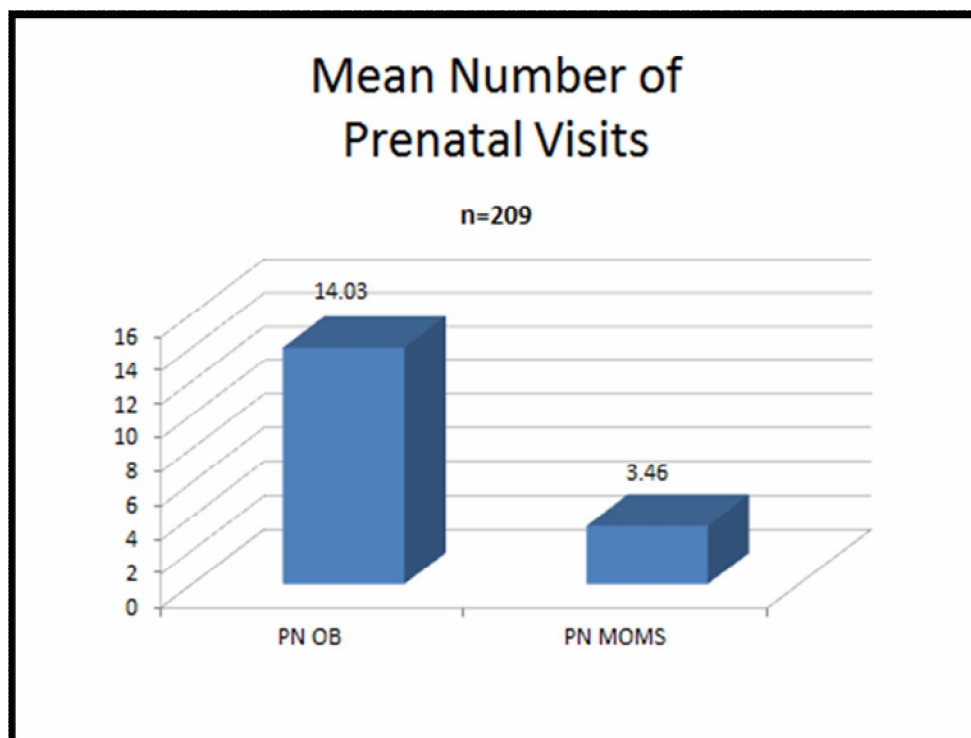
VietMOMS participants were most likely to enroll into the project during their second trimester of pregnancy (89 of 208 (these data were missing for one participant), or 42.8%), followed by those in their third trimester (64 or 30.8%) and those in their first trimester (55 or 26.4%). For purposes of this evaluation, trimesters were delineated by dividing the gestational period equally by 3 as follows: up to 13 weeks (first trimester), 14-26 weeks (second trimester) and 27 weeks and longer (third trimester). (Technically, this calculation would result in the second trimester beginning at 13 weeks and 3 days. However, to facilitate the present analysis, the entire 13th week was included in the first trimester.)

Figure 3



A total of 723 prenatal home visits were provided by *MOMS* staff to the 209 VietMOMS participants included in this evaluation during their prenatal period. Additionally, 2,728 medical visits were completed during the same time period by 205 women (those for whom these data were available). On average, participants completed 14.03 visits with their OB medical provider, and 3.46 home visits with *MOMS* staff during the course of their prenatal participation in VietMOMS.

Figure 4

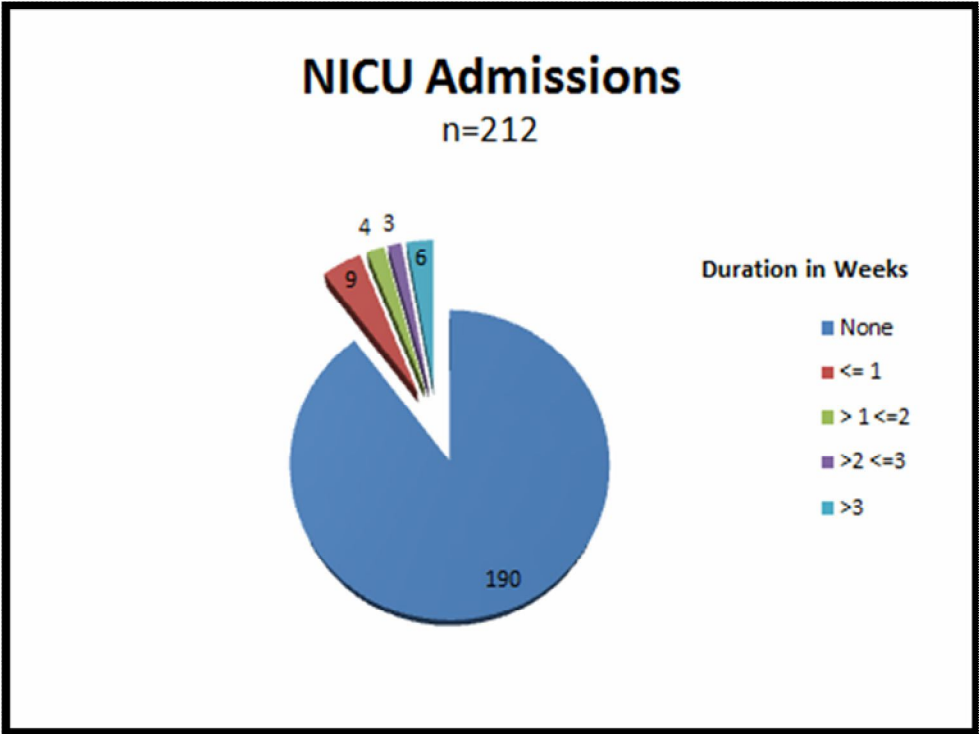


Infant Birth Indicators

A number of indicators were used to assess infant birth outcomes among participants in the VietMOMS Project as follows: the percentage of newborns who were admitted to the Neonatal Intensive Care Unit (NICU); the percentage of babies who were born at low birth weight (LBW); the percentage born preterm (prior to 37 weeks of gestation); and the percentage born healthy (normal birth weight, full term and no NICU admissions) to mothers who had diabetes or who were at-risk for diabetes.

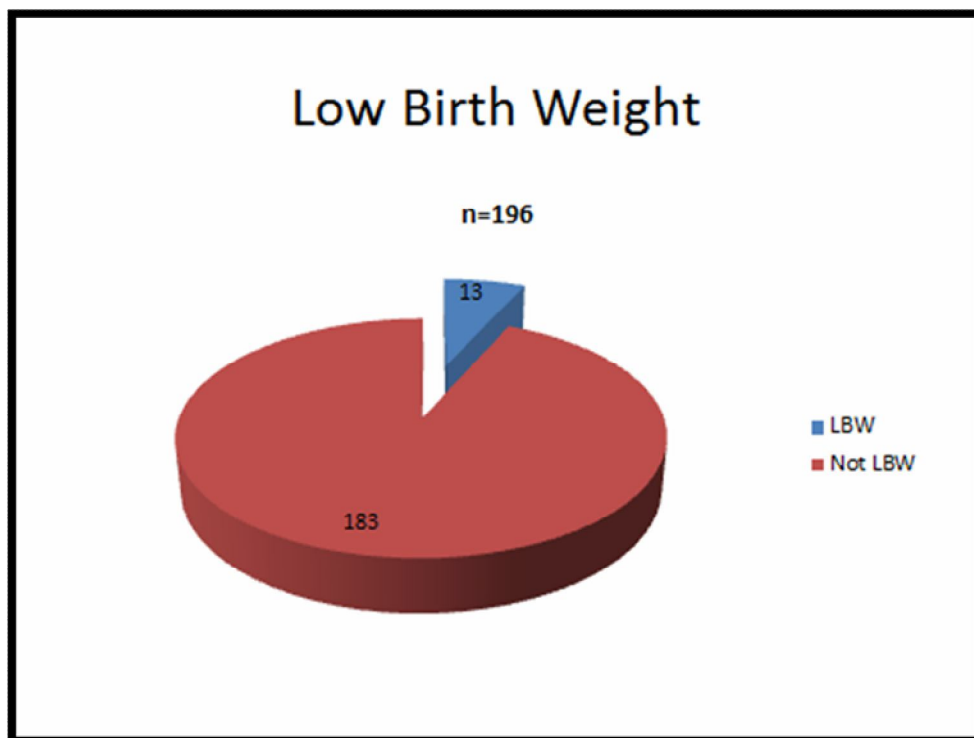
Twenty-two (22) babies (10.4% of all babies born to VietMOMS participants for whom complete data are available) were admitted to the NICU. For 9 (40.9%) of those babies, their length of stay was less than or equal to one week, whereas 4 babies (18.2%) remained in the NICU for greater than 1 and up to 2 weeks, 3 babies (13.6%) were admitted for greater than 2 and up to 3 weeks, and 6 babies (27.3%) were in the NICU for greater than 3 weeks.

Figure 5



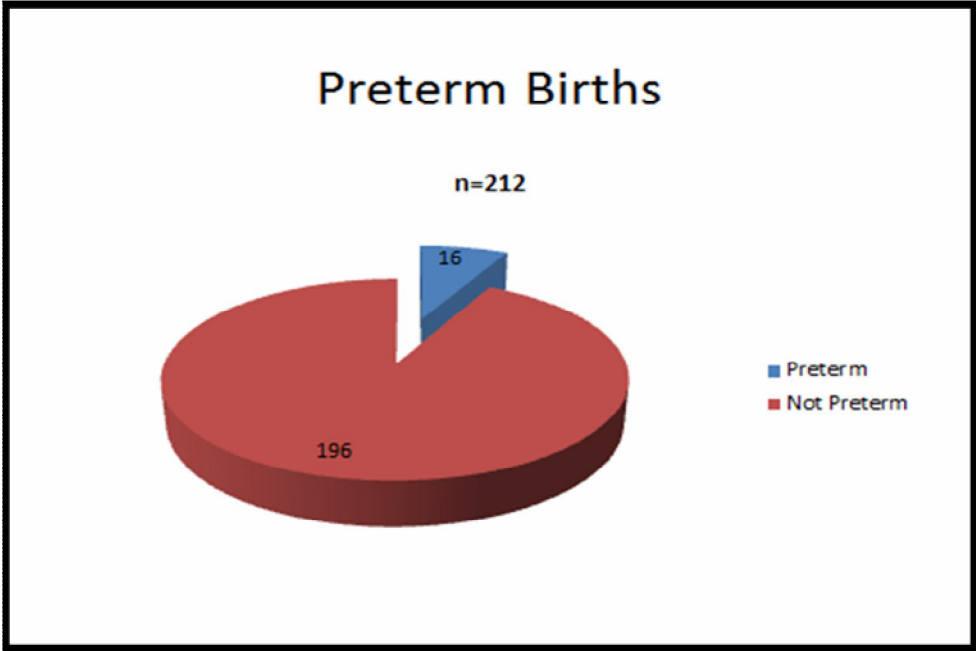
The accepted standard of 5lb 8oz (2,500 grams) was used as the cut-off for determining LBW. Thirteen (6.6%) of the babies born to women during the VietMOMS Project were LBW. Only babies who were considered full-term (n=196) were included in this analysis as LBW is an expected outcome for many babies born preterm.

Figure 6



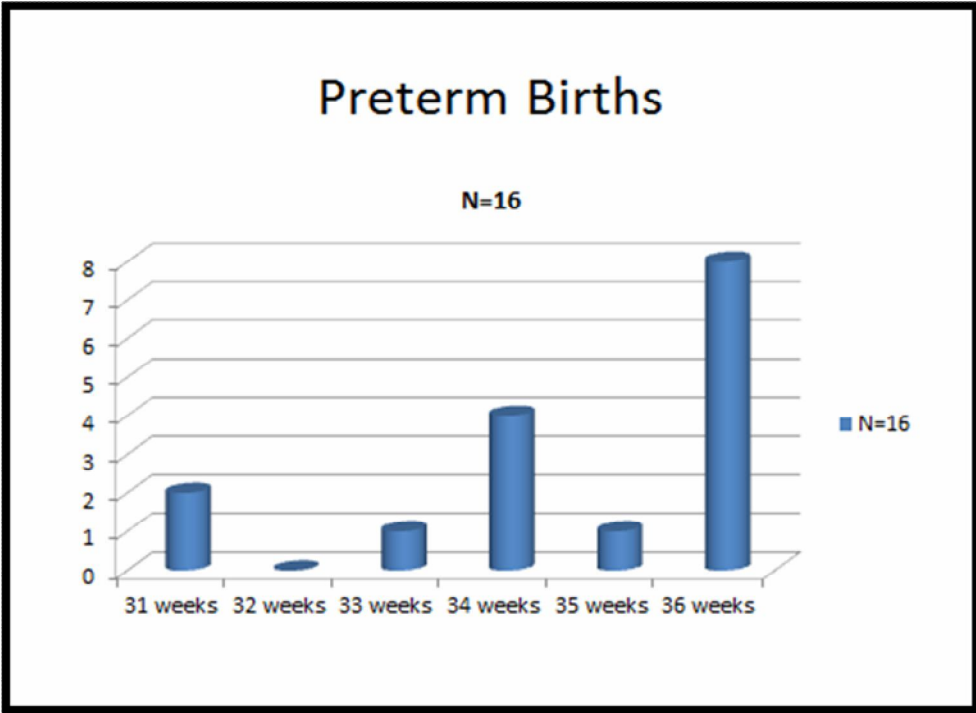
Using March of Dimes accepted guidelines a preterm birth is defined as one that occurs before the 37th week of pregnancy. Thus, 16 babies (7.5%) were born preterm (prior to 37 weeks).

Figure 7



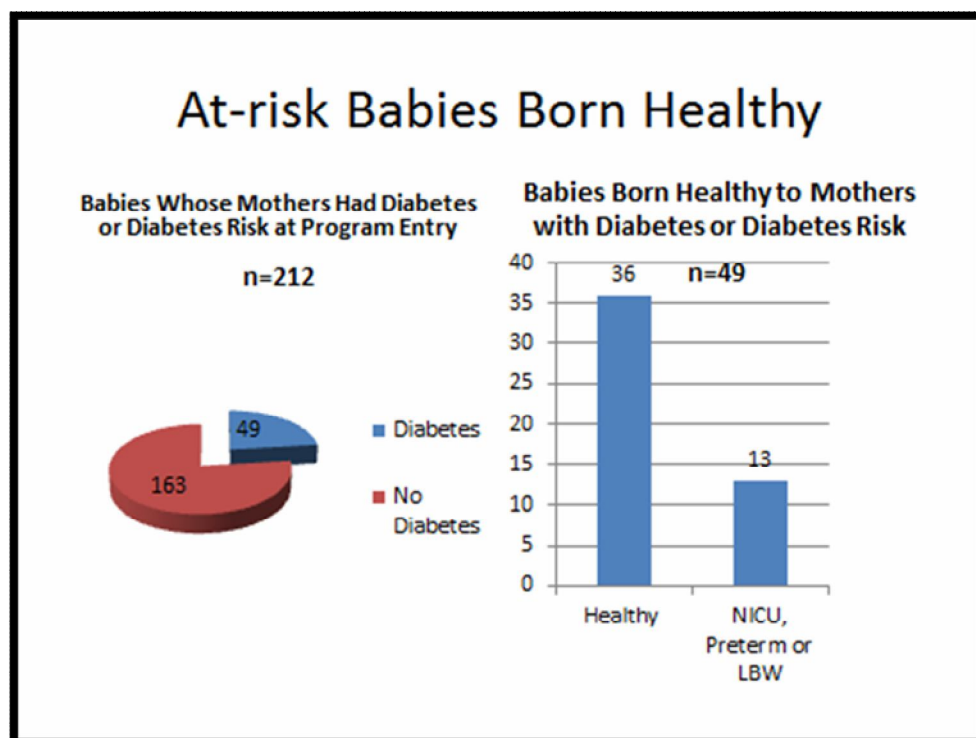
For half (8) of these women, the birth occurred during the 36th week of gestation.

Figure 8



The number of participants who had diabetes (30), or who were at risk for diabetes (17) totaled 47. (This total includes the one mother who converted to diabetes during her pregnancy, and two mothers of twins.) Thus the number of babies who were at potential risk by being born to mothers with or at risk for diabetes totaled 49. Thirty-six (36) of these babies (75.0%) were delivered healthy (i.e., normal birth weight, full-term and no NICU admission), and 22 of these healthy babies were delivered by women with diabetes, while 14 were born to women who were at risk for diabetes. Thirteen (13) babies (27.1%) were born of LBW, preterm and/or were admitted to the NICU; 9 of these babies were born to women with diabetes, whereas 4 babies had mothers who were at risk for diabetes. (Two sets of twins are included.)

Figure 9

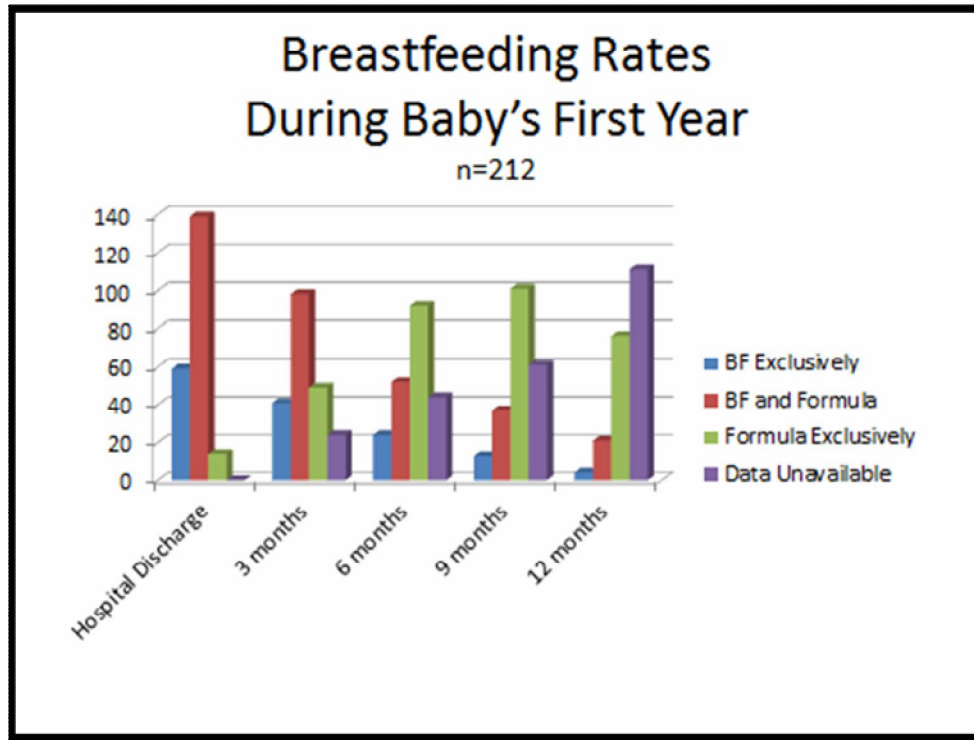


Breastfeeding Indicators

Indicators were selected to characterize breastfeeding practices among VietMOMS participants to include: the percentage who fed their babies exclusively with breast milk; the percentage who fed their babies with both breast milk and formula; and the percentage of those who fed with formula only. These indicators were assessed at the time of hospital discharge, and again at 3, 6, 9, and 12 months postpartum.

A total of 27.8% of babies born to VietMOMS participants were exclusively breastfed at the time they were discharged from the hospital. A sizable proportion of babies were breastfed and formula fed at hospital discharge (65.6%) and at three months (46.2%). However, by the six-month follow-up, most babies for whom these data were available (43.4%) were being formula fed. (The “Data Unavailable” column reflects data that are unavailable because the VietMOMS participant closed her case prior to when data collection would have occurred at the indicated month of measurement.)

Figure 10



Maternal Postnatal Indicators

One indicator was selected to evaluate VietMOMS participants' postnatal outcomes: the percentage who completed a follow-up postpartum medical visit within 21-56 days as recommended by the Healthcare Effectiveness Data and Information Set (HEDIS).

1,477 postpartum home visits were provided by *MOMS* staff. Thus, VietMOMS participants completed an average of 7.07 post-partum visits. Further, the vast majority (87.6%) of participants completed their postpartum doctor visit within the recommended 21-56 days.

Infant Case Closure Indicators

The percentage of babies born to VietMOMS participants who had completed the recommended number of immunizations at the time of case closure was the single indicator selected for evaluating infant outcomes at case closure.

Immunization-related data were available for only 198 (93.4%) of the babies born to VietMOMS participants. For these babies, 97% were on target with completing the recommended number of immunizations at the time they closed their case (stopped receiving services) with *MOMS*.

Table 1. Summary of Characteristics and Outcomes for VietMOMS Participants (n=209) and Babies (n=212)

Characteristics/Indicators	%/Mean
Maternal Demographic Characteristics	
Mean Maternal Age	32.7
Born in Vietnam	95.8
Monolingual Vietnamese	85.8
≤ High School Education	65.1
CalOptima Coverage	78.9
First-time Mothers	99.0
Maternal Prenatal Indicators	
Diabetes Diagnosis at Enrollment	14.2
At-risk for Diabetes at Enrollment	8.0
Enrolled in VietMOMS in First Trimester	26.4
Mean Prenatal MOMS Visits per Participant	3.5
Mean Prenatal OB Visits per Participant	14.0
Mean Referrals per Participant	9.3
Infant Birth Indicators	
Low Birth Weight	6.6
Preterm	7.5
Admitted to NICU	10.4
Babies Born Healthy to Mothers w/ Diabetes or Diabetes Risk	73.5
Breastfeeding Indicators	
Exclusive Breastfeeding at Hospital Discharge	27.8
Exclusive Breastfeeding at 3 Months	19.3
Exclusive Breastfeeding at 6 Months	11.3
Maternal Postnatal Indicators	
Completed Medical Visit 21-56 Days Postpartum	87.7
Mean Number Postnatal MOMS Visits	7.1
Infant Case Closure Indicators	
On Target Immunizations at Case Closure	97.0

Source: MOMS Orange County

Evaluation of Relationships between Demographic, Socioeconomic, Behavioral and Service Utilization Characteristics and the Indicators of Interest

Bivariate analyses using Chi-square statistics were conducted to assess associations between a number of demographic, socioeconomic, behavioral and outcome measures, and ANOVA statistics were also used to compare mean values when appropriate. The Evaluator sought to answer a number of questions that have relevance for MOMS' future program and service delivery planning.

Maternal Prenatal Indicators

In evaluating relationships between potential risk factors and maternal outcomes, the following question was assessed, *“Is there an association between maternal risk for depression, diabetes diagnosis, risk of diabetes, or conversion to gestational diabetes mellitus (GDM) and maternal age, education level, health coverage, trimester of pregnancy when enrolled into VietMOMS, number of prenatal medical visits, and number of prenatal MOMS visits?”*

Of these potential risk factors, only one characteristic was statistically significantly associated with diabetes-related maternal outcomes. Lower education level was associated with risk for diabetes at program entry (but not diabetes), with 16 of those at risk for diabetes having earned a high school education (or less), as opposed to 5 at risk who had earned greater than a high school education.

Infant Birth Indicators

To evaluate relationships between factors that may be associated with the birth outcomes of interest in this evaluation, the following question was assessed: *“Were the infant birth outcomes (LBW, preterm births and NICU admissions) associated with maternal age, birth country, education level, city of residence, health coverage, time of enrollment, number of prenatal medical visits, number of prenatal MOMS visits, referrals for depression, or risk for or diagnosis with diabetes?”*

First, it is important to note that low birth weight, preterm birth and NICU admissions are correlated, meaning there is a high possibility that any one of these outcomes will occur in the presence of another, or more than one other. In fact, the three birth outcomes of interest were correlated with each other at a statistically significant level for the group of VietMOMS participants for whom birth data was recorded.

In exploring the relationships between demographic, socioeconomic and behavioral characteristics and the selected outcomes of interest, the vast majority of participants were born in Vietnam and thus, there was no variability on that predictor. With respect to the relationship between health coverage and poor birth outcomes, the majority of the participants served through this program had CalOptima coverage (167 out of 209). As such, the unequal dispersion made it difficult to detect outcomes by insurance type. To the contrary, the city predictor was far too diverse (15 cities of residence were named among participants) to make any meaningful comparisons in outcomes by specific city. Finally, only 5 individuals were referred for depression; a small proportion of the overall sample.

Statistically significant differences in preterm births by maternal age were detected in bivariate analysis. Specifically, 11 of the 16 preterm births (68.8%) occurred when the mother was age 34 and above. Articulated another way, women with full term births had a mean age of 32.4 years, whereas those who experienced a preterm birth had a mean age of 35.4 years. These results suggest that risk for an undesirable birth outcome increases with only a few years, at least among this sample of Vietnamese women.

Statistically significant relationships between the number of prenatal medical visits and all three outcomes (NICU admissions, LBW and preterm births) were detected. This is intuitive in that women who are experiencing problems during their pregnancy, or who are considered high risk for other reasons, are more likely to require additional medical visits. However, only associations and not causality can be inferred from these data.

Breastfeeding Indicators

A similar evaluation question was posed to evaluate characteristics associated with breastfeeding rates as follows, *“Were exclusive breastfeeding rates affected by maternal age, education level, health coverage, trimester of pregnancy when enrolled into VietMOMS, number of prenatal medical visits, number of prenatal MOMS visits, number of postpartum MOMS visits, or whether or not the participant completed her postpartum medical visit within the recommended time frame?”* An additional question was also examined, *“Were LBW, preterm birth, or NICU admission associated with breastfeeding rates?”*

There was a statistically significant drop in exclusive breastfeeding rates among this sample of Vietnamese mothers from the time of hospital discharge to 3 months postpartum and then again from 3 months to 6 months postpartum. Given the relatively small numbers of women who were exclusively breastfeeding at 6 months postpartum, the remaining bivariate analysis were conducted to look for relationships between the various predictors named above, and exclusive breastfeeding rates at the time of hospital discharge and at 3 months postpartum. No significant relationships were noted between maternal age, education level, health coverage, or the trimester during which the participant was enrolled into VietMOMS and exclusive breastfeeding rates at discharge or at 3 months. Additionally, there were no significant differences noted between exclusive breastfeeding practices (compared to breastfeeding and formula feeding, or exclusive formula feeding) and LBW, preterm birth, or NICU admission.

Finally, although a slightly higher mean number of prenatal MOMS visits were completed among those who exclusively breastfed at discharge (3.47 v. 3.46 visits), and at the 3-month follow-up (3.61 v. 3.43 visits) this difference was not statistically significant. Those who were exclusively breastfeeding at discharge and 3-month follow-up completed a slightly lower mean number of prenatal medical visits, but again, this was not a statistically significant difference. Finally, a higher mean number of postpartum MOMS visits were observed among those who were exclusively breastfeeding at discharge (7.47 v. 6.95) and at the 3-month follow-up (7.17 v. 7.08), but this difference also was not statistically significant.

Maternal Postnatal Indicators

In order to better understand which VietMOMS participants were more likely to complete the recommended postpartum medical visit, the following question was assessed, *“Was there an association between completing the recommended postpartum medical visit and maternal age, education level, health coverage, trimester of pregnancy when enrolled into VietMOMS, number of prenatal medical visits, number of prenatal MOMS visits, and number of postpartum MOMS visits?”*

Results from this analysis indicated that on average, those who completed their postpartum medical check-up had completed a significantly greater number of prenatal MOMS visits (3.6 MOMS visits among those who completed their postpartum medical visit v. 2.7 visits among those who did not).

Client Satisfaction Evaluation

Fifty (50) VietMOMS participants who completed at least 4 months of postpartum visits and whose cases had been closed at least 3 additional months, agreed to complete a Client Satisfaction Survey in August of 2010. The evaluation employed a post-test only design. The survey was administered in Vietnamese over the phone by a member of MOMS program staff, or by a trained volunteer, and included 12 questions about specific aspects of the program. Clients were asked to rate these features on a Likert scale from 1-5 (strongly disagree, disagree, somewhat disagree, agree and strongly agree), with 5 being the highest (best) rating. Each aspect of the program was rated highly by the participants. The complete results for these questions are noted below in Table 2.

Table 2. Results for Client Satisfaction Evaluation

Evaluation Questions	Frequency of Participant Responses						Mean Score
	Strongly Disagree 1	Somewhat Disagree 2	Neutral 3	Somewhat Agree 4	Strongly Agree 5	N/A 0	
Q1 Home visitor arrived on time or let me know when she needed to change the scheduled time of our appointment				5	44	1	4.80
Q2 Home visitor was professional and courteous					49	1	4.90
Q3 Home visitor was knowledgeable in the area of pregnancy			1	6	42	1	4.74
Q4 Home visitor was knowledgeable regarding infant development			1	3	44	2	4.70
Q5 Home visitor was knowledgeable regarding available resources in the community			2	10	36	2	4.52
Q6 Educational handouts were helpful				7	41	2	4.66
Q7 I am satisfied with my home visitor					49	1	4.90
Q8 I had a good personal relationship with my home visitor				5	43	2	4.70
Q9 I was able to talk to my home visitor about anything				15	34	1	4.60
Q10 My home visitor knew the answer to my questions or she directed me to a source who was able to answer my questions			1	8	40	1	4.70
Q11 The Home Visitor made a positive impact on the outcome of my pregnancy			3	10	33	4	4.28
Q12 If I called my home visitor and left a message she returned my call in a timely manner				5	43	2	4.70

Additionally, participants were asked to provide suggestions about areas of the program that could be improved and what types of other services they would like to receive from MOMS. The inclusion of home-based programs for children 1+ years of age was named by two recipients. When asked what the most important thing was that they had learned from their home visitor, the responses were as follows: *sippy cup*; *potty training*; *nutrition (3 responses)*; *baby care (9 responses)*; *child developmental milestones (4 responses)*; and *the importance of reading to the baby early*. The majority (64.0%) said they would definitely enroll in the program again if they became pregnant in the future, and 28.0% responded “maybe” to this question. Finally, 94.0% of the women surveyed said they would likely recommend the program to family members or friends who became pregnant (definitely and maybe responses combined).

Knowledge Gained through VietMOMS Participation

The same 50 VietMOMS participants (described previously) who completed the satisfaction survey also agreed to complete a Client Knowledge Survey in August of 2010. The evaluation was conducted using a post-test only design. Twenty-one true and false questions dealing with prenatal care, self-care during pregnancy, signs and symptoms of preterm labor, baby care, and safety were included in this survey. Responses were analyzed by looking at the percent of participants who answered each question correctly, and the total number of questions answered correctly by the group of sampled participants who completed all of the knowledge questions. By analyzing questions individually, MOMS staff will be able to evaluate which questions may be problematic in the delivery (i.e., not always well understood by the client), and which areas of education may need additional attention during the home visits.

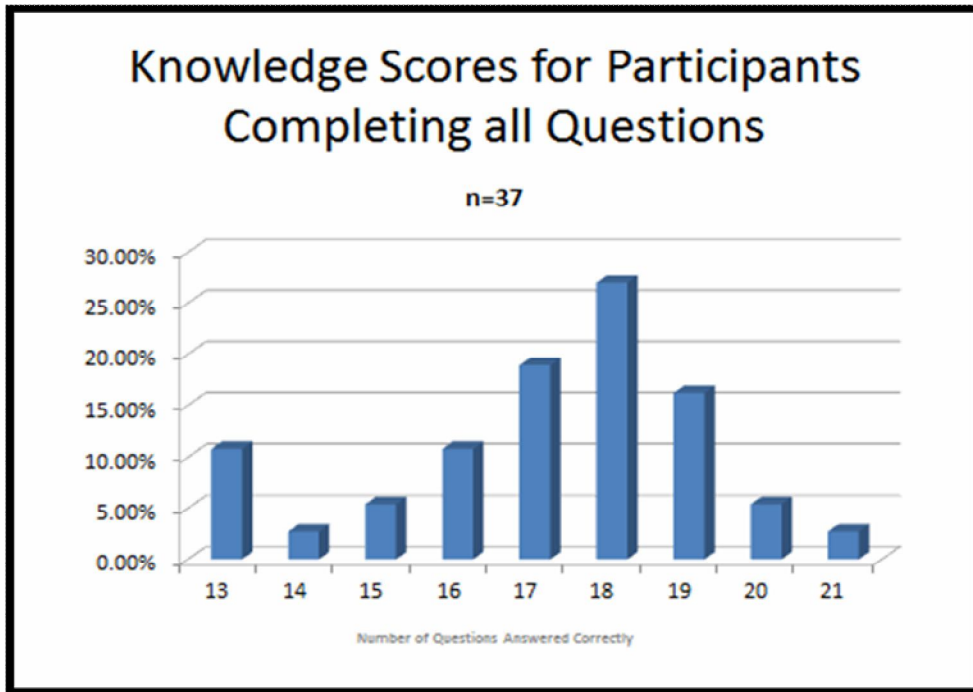
As noted in Table 3, the percentage of respondents who answered each question varied from question to question in a range from 14% to 98%. In Figure 11 we see these results reflected another way, with a total score calculated for the number of questions answered correctly. Among the 37 individuals who completed all 21 questions, 18 out of 21 questions were answered correctly by most respondents, whereas only 1 person (2.7%) answered all 21 correctly.

Table 3. Results for Client Knowledge Survey

Knowledge Questions	Percent Answered Correctly <i>n=50</i>
1. The best time for a woman to start prenatal care is as soon as she thinks she is pregnant.	90
2. A pregnant mom should call her doctor whenever she is worried about her pregnancy.	98
3. A pregnant mom only needs to see her doctor if she is not feeling well.	56
4. A pregnant mom can reduce her risk for diabetes by exercising according to her doctor’s recommendations.	80
5. Drinking alcoholic beverages during pregnancy is harmful for a baby.	92
6. A low, dull, constant backache could be a warning sign of preterm labor.	72
7. A pregnant mom who is bleeding should tell her doctor at her next scheduled visit.	48

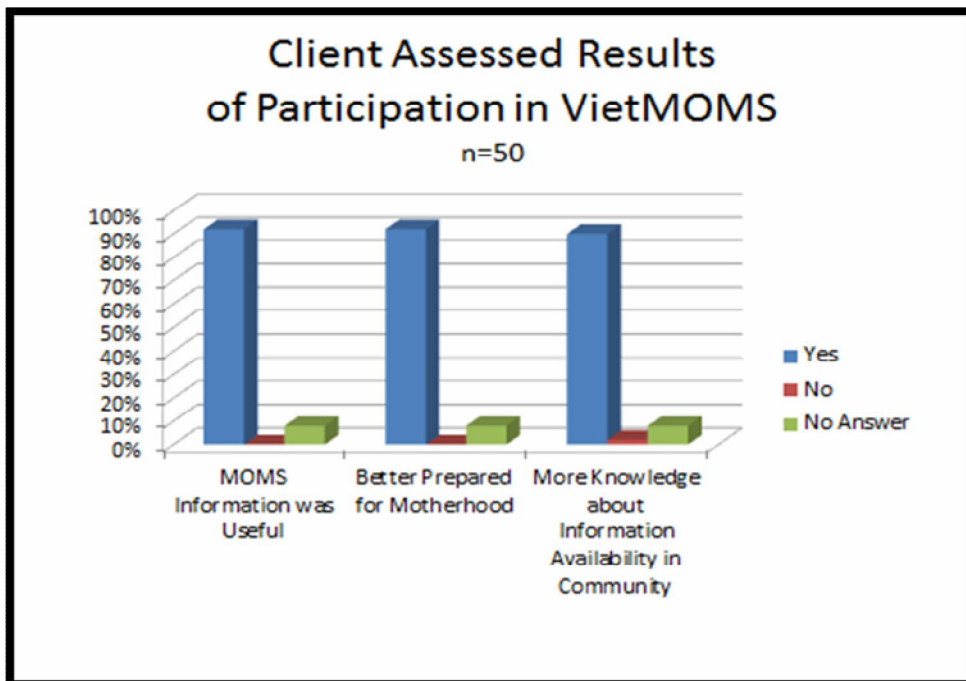
8. Being around people who are smoking can harm a baby even before it is born.	92
9. After delivery, a mom only needs to return to her pregnancy doctor if she is in pain.	62
10. It is healthier for a mom to wait at least one whole year before becoming pregnant again.	82
11. Formula is as good for a baby as breast milk.	64
12. Breast milk is the only food or liquid a baby needs for the first 6 months.	60
13. It is important for a baby to have immunizations on time.	88
14. Picking up a crying baby will spoil them.	62
15. Reading to a baby helps promote brain growth and development.	94
16. Wiping a baby's gums before their teeth come in can help prevent cavities.	92
17. A mom should call the doctor anytime she is worried about her baby.	88
18. A baby does not need health insurance until they go to school.	84
19. A baby should always be securely fastened in a car seat when in a moving vehicle.	94
20. It is important to child-proof the house before a baby starts to crawl.	94
21. It is normal to feel sad and tearful for more than 3 months postpartum.	14

Figure 11



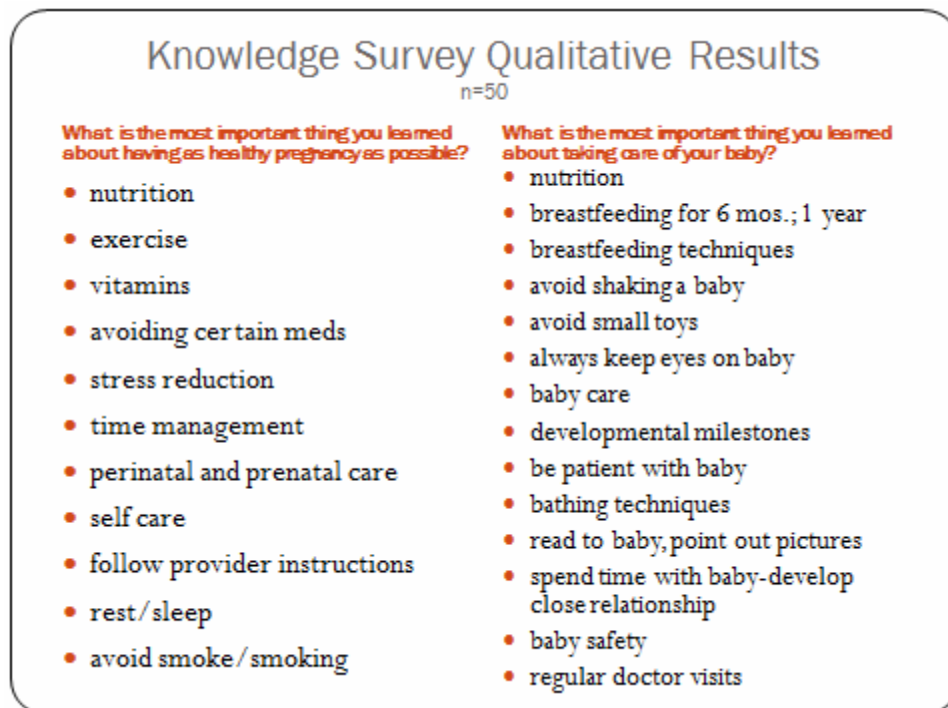
The knowledge survey included three additional questions to assess the clients' overall experience in the program. The first was, "How useful is the information that you received from MOMS?" Clients were also asked, "After participating in MOMS, do you feel better prepared to be a mother?" And the third question was, "After participating in MOMS, do you feel more knowledgeable about where you can get help and information for you and your baby/family in your community?" The results are depicted in Figure 12.

Figure 12



Finally, as was the case with the Client Satisfaction Survey, clients were asked to provide responses to open-ended questions at the end of the survey. These questions were, “*What is the most important thing you learned about having as healthy pregnancy as possible?*” and “*What is the most important thing you learned about taking care of your baby?*” to which clients offered the following list of responses:

Figure 13



Summary of Findings and Opportunities for Improvements

In summary, these results provide comprehensive baseline data describing the sample of Vietnamese mothers who sought services through the VietMOMS Project from 2008-2010. This is an important accomplishment given VietMOMS was a new project for MOMS and it represents MOMS first, concerted effort to provide underserved Vietnamese women with services designed to coordinate health-related services for optimal prenatal and postnatal health, birth outcomes, and breastfeeding practices. **These data provide important benchmarks from which improvements to future service units and program outcomes can be projected and realized.**

Overall, the evaluation results illustrate the need for the VietMOMS project. First, the vast majority of the population served had emigrated from Vietnam, were monolingual Vietnamese speaking, and had low education levels. Although the majority of women served through this pilot project had health care coverage through CalOptima, it is unclear to what degree cultural factors and other barriers may have influenced utilization of those services in absence of the in-home support provided by MOMS.

This section focuses on drawing attention to the areas of need that are most likely to benefit from additional awareness and planning on the part of MOMS leadership, staff and community partners, rather than summarizing all of the findings previously discussed within this report.

Reduction in Undesirable Birth Outcomes

The undesirable birth outcomes (NICU admissions, LBW and preterm births) for this group of women are concerning. An additional examination of MOMS data collected during 2009 reveal that Vietnamese women had the highest rate of NICU admissions (7.6% of all babies born) when compared to all other women of other racial/ethnic groups who are served by MOMS. Further, Vietnamese women and other Southeast Asian women experienced the highest rates of LBW (9.0% and 12.0%, respectively), and the highest rates of preterm births (6.8% and 8.0%, respectively). **Thus, it appears that the results from the pilot evaluation are not an anomaly, and instead, improving birth outcomes among this population is an important area for continued focus and improvement.**

Targeting Issues Associated with Advanced Maternal Age

Among MOMS total client population, Vietnamese mothers are significantly older than mothers of other racial/ethnic backgrounds. Using 2009 data to make this comparison, Vietnamese mothers had a mean age of 33.0 years as compared to Latina mothers (27.4 years), Caucasian mothers (27.7 years), other Southeast Asian mothers (28.1 years), and African-American women (28.0 years). Further, as noted previously, advanced maternal age among this group is not without complications. Specifically, these pilot results suggest that risk for an undesirable birth outcome increased with only a few years among this sample of Vietnamese women. On average for this group of women, being 34 years of age and older was significantly associated with adverse birth outcomes. These findings hold true among the women served in 2009 in that among those whose babies experienced a NICU admission, or were born of LBW or preterm, Vietnamese and other Southeast Asian women were older when compared to other racial/ethnic groups. **Further tailoring of programmatic content should be explored as it relates to providing health coordination for women of advanced maternal age.**

Risks Associated with Diabetes

It is noteworthy that almost a full quarter of the women accessing VietMOMS services were diagnosed with, or at risk for diabetes at the time of their enrollment into VietMOMS. However, it is also important to note that of those women who entered the program at risk for diabetes (n=17), only one woman

developed diabetes during her pregnancy. Interestingly, among all *MOMS* clients served in 2009, Vietnamese women had a much lower prevalence of diabetes when compared to the pilot data reported here (6.0% of all Vietnamese women served had a diabetes diagnosis, and 10.7% were at risk for diabetes). However, they had the second highest rate of diagnosed diabetes (after Latinas) and accounted for 22.1% of all women with diabetes enrolled in *MOMS* in 2009. **The data provided for this evaluation do not allow us to estimate the value added by *MOMS* resulting in averted risk, but it may be useful to consider attempting to estimate this value in future evaluations.**

The high rates of diabetes and diabetes risk observed among VietMOMS participants were associated with relatively poorer birth outcomes. Specifically, 27.1% of the babies born to mothers with diabetes or diabetes risk factors were admitted to the NICU and/or of LBW or preterm. It is possible that these outcomes would have been worse without the impact of the VietMOMS program, but this is difficult to estimate. Nevertheless, knowing that Vietnamese women who are likely to be served by *MOMS* are at higher risk for diabetes provides opportunities for additional monitoring and emphasis on prenatal care to ideally reduce the incidence of undesirable birth outcomes. **It is important to better understand the risk factors for diabetes in order to develop interventions to ameliorate this health risk.**

Increase in Exclusive Breastfeeding at Discharge

At hospital discharge, the majority of VietMOMS participants were breastfeeding and formula feeding their infants, whereas only 27.8% of babies were breastfed exclusively. Given exclusive breastfeeding practices are expected to diminish over time, it would be ideal to increase the percentage of women who are exclusively breastfeeding at the time of hospital discharge. In order to do this, **it may be important for *MOMS* to further explore the barriers and facilitators to exclusive breastfeeding among this population of women and incorporate this information into culturally relevant interventions designed to increase this practice.**

Maximum Involvement in VietMOMS

With respect to the impact associated with participants' involvement with *MOMS*, only 26.4% of VietMOMS clients enrolled into *MOMS* during their first trimester of pregnancy. Intuitively, it is desirable to reach as many women as possible with the health coordination services offered by *MOMS* as early in their pregnancy as possible. However, the fact that the majority enrolled during their second trimester is not unusual when compared to other women served by *MOMS*. Moreover, in 2009, the percentage of Vietnamese mothers who enrolled in *MOMS* in their first trimester increased slightly to 31.1%. **Therefore, exploring additional community-based strategies to enroll women into the VietMOMS program earlier in their pregnancies is one potential activity that could be targeted in the future.**

Another consideration is the fact that increased numbers of *MOMS* prenatal home visits were associated with completion of the recommended postpartum medical visit. Thus, these findings suggest that there may be a positive "dose response" relationship between participating in *MOMS* programming and postnatal medical care. **Although these data do not allow us to infer causality, they do support the goal of ensuring that participating mothers receive the maximum number of visits possible provided by *MOMS* staff during both the prenatal and postnatal periods.**

Utilization of Client Satisfaction and Knowledge Findings

VietMOMS clients were overwhelmingly satisfied with the program overall, and with its various components as noted in the discussion of the satisfaction survey results. Additionally, a few respondents offered suggestions about areas of the program that could be improved and what types of other services they would like to receive from *MOMS*. **It is recommended that these suggestions are reviewed by *MOMS* staff and the VietMOMS Advisory Council members and incorporated as appropriate.**

The knowledge survey administered to a subset of VietMOMS participants provided some interesting information about areas of strength in education programming, and areas where additional clarification and attention might be focused in the future. In general, questions related to baby care, development and safety reflected high levels knowledge. Conversely, questions related to signs and symptoms of potential pregnancy problems, appropriate utilization of medical care professionals, relative benefits of breastfeeding, and expectations about feeling sad and depressed 3 months postpartum had lower numbers of correct responses. The fact that the knowledge survey was administered at least 7 months postpartum may have resulted in a decrease in knowledge levels that were present during the prenatal period. This is impossible to confirm, however, given a baseline knowledge survey was not conducted. Thus, it seems that **additional exploration of these findings and piloting of the questions posed in this survey may be useful to understand the levels of knowledge attained at the time the information is imparted, and to ensure the questions are being understood by participants as intended.**

Importance of Accurate Interpretation of Findings

Finally, it is recommended that the investment is made to correctly interpret the findings articulated in this report within the cultural and environmental contexts in which they occur.

Additionally, although relationships between demographic, socioeconomic, behavioral and service utilization characteristics and the indicators of interest were explored as to whether or not statistical significance was present, the lack of significant findings among this small sample of women should not be interpreted to mean that relationships between these factors do not exist. Instead, these data should be interpreted as a snapshot of one point in time with a specific group of women, and similar evaluations should be conducted in the future to learn more about trends over time with similar and dissimilar women.

As one example of the need to ensure these findings are interpreted carefully within the appropriate context, staff anecdotally report that Vietnamese mothers often expect to experience discomfort, pain and even bleeding during pregnancy and as such, they may be less likely to seek medical care when they encounter these symptoms. Thus, this behavior should be evaluated in the context of participants' beliefs and accepted norms associated with what is expected to be endured during pregnancy as opposed to deficits in knowledge levels. Importantly, interventions designed to modify expected norms require approaches that are different from those designed to increase knowledge. As another example, VietMOMS clients have reported a reluctance to "bother the doctor" because they perceive him or her to be extremely busy with other patients. Knowing this piece of information allows one to intuit that if the client perceives that the doctor has little time due to high patient demand, she may be less likely to engage in such an appointment when future signs and symptoms occur. Again, the attempt to increase knowledge at the participant level is only one piece of the complex puzzle resulting in improved health care and outcomes for Vietnamese women and their babies residing in Orange County.

To accomplish the aim of ensuring an informed and accurate interpretation these findings, this report will be presented to *MOMS* program staff, Board of Directors, and the VietMOMS Advisory Council, service partners and funders. Areas where improvements are needed in service delivery, health outcomes, or measurement capabilities will be discussed, and strategies to enhance outcomes will be generated from these respective groups. Ideally, specific objectives for each of the evaluation indicators will be defined, and future evaluations will include a comparison in outcomes between VietMOMS participants and all other clients served by *MOMS*, and possibly a comparison to broader community-based outcomes. In this way, ***MOMS will ensure they are doing everything possible to accomplish their mission of helping families have healthy babies.***