



Baby-Friendly Hospital Initiative

Evaluation Report

August 30, 2013

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Executive Summary

In light of the research that has demonstrated numerous benefits associated with breastfeeding for both mother and child, many groups have adopted policies and efforts to support mothers in initiating and sustaining breastfeeding. Recognizing the important role that hospitals and birthing facilities play in supporting or discouraging mothers' efforts to breastfeed, in 1991 the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) developed the Baby-Friendly Hospital Initiative (BFHI), an effort that assists hospitals and birthing facilities to implement policies and practices that provide mothers with the knowledge, skills, and confidence to initiate and continue breastfeeding.

In 2009, First 5 LA committed \$10.5 million in grants to assist up to 21 hospitals with low exclusive in-hospital breastfeeding rates¹ in seeking Baby-Friendly Hospital (BFH) designation. Between June 2009 and October 2011, a total of 16 hospitals received First 5 LA funding for staff training and operational support to implement policy and practice changes recommended by Baby-Friendly USA.

About the Evaluation

In September 2012, First 5 LA contracted with Harder+Company Community Research (Harder+Company) to conduct a point-in-time evaluation to document the challenges and milestones that hospitals have experienced as they seek Baby-Friendly Hospital designation.

The primary research questions that this evaluation sought to address included:

- What have been the most effective strategies for implementing the BFH program?
- What have been the major challenges in implementing the BFH program, and how have the hospitals overcome (or plan to overcome) them?
- What major milestones have hospitals accomplished toward attaining the BFH designation? What have been the maternity department staff reactions to the changes in practice?
- What have been the patients who delivered at the hospitals reactions to the new baby-friendly practices?
- What trends or improvements in hospital practice are observed?

¹ To be eligible for First 5 LA Baby-Friendly Hospital funding, the hospital's exclusive breastfeeding rate must have been below the Los Angeles County average of 33% in 2009 and 39% in 2010.

Methods

This point-in-time evaluation included the following four primary methods.

- **Patient Level Administrative Data.** Each hospital submitted anonymous patient-level data about: the characteristics of the women who birthed at their facility during the grant period, aspects of their birthing (e.g., route of delivery) and hospital experience (e.g., whether the dyad experienced skin-to-skin), as well as feeding intent and in-hospital feeding experiences.

Due to questions about the completeness and accuracy of patient level administrative data (administrative data) submitted by some hospitals, the evaluation team developed a data exclusion process by which each hospital's data were reviewed. The data submitted by three hospitals met the criterion of the data exclusion process and were identified as "case study hospitals". Additional analyses were conducted with data from the case study hospitals.

- **Hospital Staff Interviews.** Interviews were conducted with staff from 12 participating hospitals (e.g., hospital administrators and nurses) to learn about their experiences in implementing policies and practice changes related to Baby-Friendly Hospital designation.
- **Patient Focus Groups.** Fifteen mothers participated in three focus groups to learn about their pre-delivery feeding intentions, their birthing experiences, and to understand what information and supports provided by hospitals was most helpful.
- **Secondary Data.** To provide context about the experiences of the participating hospitals and the women who birthed at those facilities, a number of secondary data sources were included in this evaluation: the California Department of Public Health,

Genetic Disease Screening Program, Newborn Screening Program (Newborn Screen) and a survey conducted by First 5 LA in June 2012 which largely mirrored BFHI's self-assessment.

Findings

What are the characteristics of the participating hospitals?

While a diverse array of hospitals participated in First 5 LA's Baby-Friendly Hospital Initiative, a commonality across all 16 hospitals is that they are located in high poverty neighborhoods.

How do the hospitals' in-hospital breastfeeding rates compare state and county averages?²

From 2009 through 2011, the *any breastfeeding* rates showed a slow, but steady climb for Los Angeles County (4% increase from 87% to 91%) and the state of California (2% increase from 2009 to 92%). The rates of *exclusive breastfeeding* for this same period showed a more dramatic increase; there was a 14% increase in Los Angeles County (33% to 47%) and an 8% increase statewide (52% to 60%).

When the breastfeeding rates were averaged across the hospitals funded in the first round (that began receiving in June and July 2010) for the same time period, a similar consistent and steadily increasing trend can be seen--*any breastfeeding* rates increased by 12% (80% to 92%) and *exclusive breastfeeding* rates increased by 27% (11% to 38%). By 2011, the average *any breastfeeding* rate for first round hospitals was comparable to the state and county averages.

² Breastfeeding rates are based on the California Department of Public Health, Center for Family Health, Genetic Disease Screening Program, Newborn Screening Data, 2009, 2010, and 2011. Data was averaged across the two NBS data collections forms used during the 2009 year (a transitional year). Little Company of Mary NBS data includes San Pedro and Torrance; however, First 5 LA only funds the San Pedro site.

While the average *exclusive breastfeeding* rate of first round hospitals still lagged behind that of the state and county in 2011, the rate of increase seemed to be outpacing the state and county.

What were the demographic and birthing characteristics of mothers who delivered at the case study hospitals?

Based on the administrative data for the case study hospitals (defined under Methods, above), there were 9,906 births at the three hospitals.

- **Ethnicity.** The majority of mothers were Hispanic/ Latina (76%).
- **Primary Language.** For the women who primary language was available³, the majority were primarily English-speaking (65%).
- **Route of Delivery.** The majority of mothers had vaginal births (64%).
- **Skin-to-Skin.** The majority experienced skin-to-skin some time (63%) during their in-patient hospital stay. Of those, the majority of mothers experienced this skin-to-skin time within the first hour after birth (72%).

Was there a relationship among breastfeeding intent, delivery route, and skin-to-skin contact with in-hospital breastfeeding for the case study hospitals?

Key findings from analysis of the three case study hospitals are highlighted below.

- + **Intent Matters.** Most women (91%)⁴ entered the hospital with the intent to breastfeed.⁵ Women who entered the

hospital with the intent to breastfeed were significantly more likely to breastfeed during their hospital stay (95%) compared to women who entered the hospital without the intent (37%).⁶

- + **Delivery route was related to in-hospital breastfeeding.** Overall, women in this sample who delivered vaginally were more likely to breastfeed in the hospital (91%) than women who experienced a C-section (88%).⁷ However the effect size⁸ for this finding is extremely small and is tempered by the significant three-way interaction among breastfeeding intent, delivery route, and skin-to-skin contact.
- + **Women who experienced skin-to-skin contact were significantly more likely to breastfeed** than women who did not experience skin-to-skin contact with their babies (94% versus 84%).⁹
- + **Skin-to-skin contact is more strongly related to breastfeeding for women who entered the hospital without the intent to breastfeed** compared to women who enter with the intent to breastfeed.
- + The three-way interaction among breastfeeding intent, delivery route and skin-to-skin **suggests that skin-to-skin contact was especially supportive of breastfeeding for women who entered the hospital without breastfeeding intent and who experienced a C-section.**¹⁰

³ The primary language for the majority of mothers was missing (n=4632). Due to the fact that information was only collected about the primary of mothers, we were not able to identify whether mothers were monolingual or bilingual.

⁴ Cases that did not have data for breastfeeding intent, delivery route, AND skin-to-skin were dropped from the analysis.

⁵ Although the percent of women who entered without intent to breastfeed at all was small (9.3%) due to the large sample size there were still an ample number of women (n=681) to conduct an

analysis. ANOVAs were conducted using the Type III Sum of Square variance computation (via SPSS) which adjusts for unequal cell sizes.

⁶ $F(1, 7318)=1852.7; p<.01$

⁷ $F(1, 7318) =14.4; p<.01$

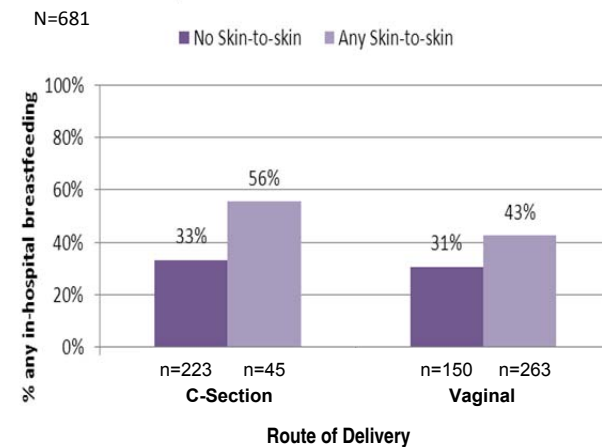
⁸ Partial eta squared=.002

⁹ $F(1, 7318) =85.84; p<.01$

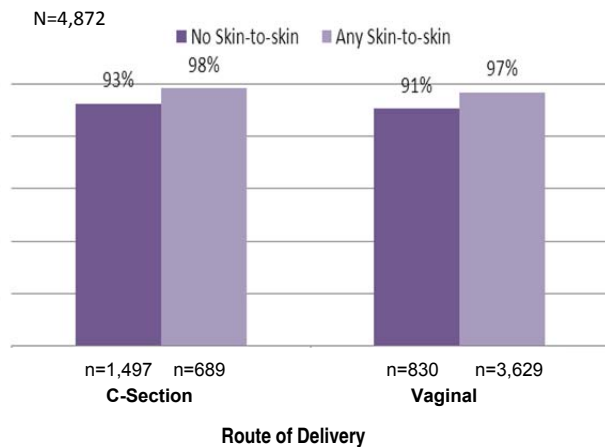
¹⁰ There were two additional two way interactions that achieved statistical significance, (the interaction between delivery route and skin-to-skin and the interaction among BF intent and delivery route), but were extremely small and potentially less meaningful in light of the three-way interaction and are not highlighted here.

Relationship among Breastfeeding Intention, Route of Delivery, and Skin-to-Skin Contact with In-Hospital Breastfeeding for Case Study Hospitals

No intent to breastfeed at admission



Intent to breastfeed at admission



What were the experiences of staff and mothers who delivered at participating hospitals?

This section highlights some of the strategies and challenges that hospitals participating in First 5 LA's Baby-Friendly Hospital Initiative experienced in seeking Baby-Friendly Hospital designation.

- Many hospitals developed a task force with representation from hospital departments affected by the breastfeeding policies. One hospital also included representation from outside agencies (e.g., WIC) and local mothers who had delivered at their hospital on their task force.
- Support from hospital executives was critical role to fostering interdepartmental collaboration that is required of some baby-friendly policies and practices.
- When asked about the major challenges to the Baby-Friendly Hospital Initiative, administrators and nurses from many hospitals identified physician resistance and education among the most difficult challenges. Strategies to train doctors and garner their support included:
 - Placing computers in the Doctors' Lounge where they could easily access the training and materials.
 - Identifying champions within the various departments who could encourage fellow doctors to complete the training and adopt baby-friendly practices.
 - Offering continuing education units to physicians.
 - Hospitals also utilized external supports by bringing in doctors from other baby-friendly hospitals to conduct trainings and address any lingering questions or concerns their own doctors might have.
- Hospitals recognized the importance of early education about breastfeeding and implemented a wide range of strategies to maximize early exposure about the benefits of breastfeeding and baby-friendly hospital practices that mothers could expect. To maximize exposure to breastfeeding and baby-friendly practices before mothers are admitted for delivery, hospitals:
 - Outlined the new policies and practices during regular birthing tours.

- Encouraged obstetricians to expound the benefits of breastfeeding and new hospital practices.
 - Emphasized breastfeeding in their prenatal classes.
 - Utilized strategies to provide education about breastfeeding at community clinics that feed into their hospitals and other community-based locations.
- Implementing skin-to-skin for mothers who delivered via C-section posed additional challenges.
 - Several hospitals viewed a mother's request for formula as an opportunity to maximize patient education and implemented several strategies (e.g., providing education on the benefits of breastfeeding, providing support around any breastfeeding issues, and having mother's sign an informed consent) before distributing formula.
 - Common challenges to rooming in--- allow mothers and infants to remain together 24 hours a day included:
 - Patients' desires to be away from the baby due to fatigue, cultural beliefs about separating newborn babies from mom, etc.
 - Babies were sometimes brought to the nursery for bathing and medication.
 - Some doctors preferred to examine the baby in the nursery either out of preference or out of necessity.
- Strategies to support mothers beyond their hospital stay included:
 - Establishing breastfeeding classes or support groups for moms to attend after discharge.
 - Providing referrals to local organizations such as WIC and La Leche League.
 - Distributing numbers to reach their lactation consultant or breastfeeding hotline.

While all the referrals provided valuable support, mothers in the focus groups highlighted the benefits of services available via breastfeeding support groups and lactation centers.

Introduction

Overview

In light of the research that has demonstrated numerous benefits associated with breastfeeding for both mother and child, many groups have adopted policies and efforts to support mothers in initiating and sustaining breastfeeding. In 2012, the American Academy of Pediatrics affirmed their recommendation of “exclusive breastfeeding for about six months, followed by continued breastfeeding as complementary foods are introduced, with continuation of breastfeeding for one year or longer as mutually desired by mother and infant.”¹¹ Also recognizing the ways in which breastfeeding contributes to maternal and child health, the U.S. Department of Health and Human Services established benchmarks for breastfeeding initiation, exclusivity, and duration as part of Healthy People 2020 (see Healthy People 2020 breastfeeding Targets).

Healthy People 2020 Breastfeeding Targets

- + Increase the proportion of infants who are:
 - Ever breastfed to 81.9%.
 - Breastfed at 6 months to 60.6%.
 - Breastfed at 1 year to 34.1%.
 - Exclusively breastfed through 3 months to 46.2%.
 - Exclusively breastfed through 6 months to 25.5%.
- + Reduce the proportion of breastfed newborns who receive formula supplementation within the first two days of life to 14.2%.
- + Increase the proportion of live births that occur in facilities that provide recommended care for lactating mothers and their babies to 8.1%.

Source: U.S. Department of Health and Human Services. Retrieved from <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26>

Recognizing the important role that hospitals and birthing facilities play in supporting or discouraging mothers’ efforts to breastfeed, in 1991 the World Health Organization (WHO) and United Nations Children’s Fund (UNICEF) developed the Baby-Friendly Hospital Initiative (BFHI), an effort that assists hospitals and birthing facilities to implement policies and practices that provide mothers with the knowledge, skills, and confidence to initiate and continue breastfeeding. Through the BFHI, hospitals are guided through a process to transform their maternity practices and those who successfully implement the “Ten Steps to Successful Breastfeeding” (see Ten Steps to Successful Breastfeeding on the following page) are recognized with the “Baby-Friendly” designation. As of June 2013, there were 163 hospitals and birthing facilities in the United States that hold Baby-Friendly designation; 56 of these hospitals are in California.¹²

¹¹ The American Academy of Pediatrics. March 2012. Policy Statement: Breastfeeding and the Use of Human Milk. Pediatrics 2012; 129; e827. Retrieved from <http://www.pediatricsdigest.mobi/content/129/3/e827.full.pdf+html>.

¹² Baby-Friendly USA. Retrieved from <http://www.babyfriendlyusa.org/find-facilities>.

**Figure 1. Baby-Friendly Hospital Initiative
Ten Steps to Successful Breastfeeding**

- + Have a written breastfeeding policy that is routinely communicated to all health care staff.
- + Train all health care staff in the skills necessary to implement this policy.
- + Inform all pregnant women about the benefits and management of breastfeeding.
- + Help mothers initiate breastfeeding within one hour of birth.
- + Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
- + Give infants no food or drink other than breast-milk, unless medically indicated.
- + Practice rooming in - allow mothers and infants to remain together 24 hours a day.
- + Encourage breastfeeding on demand.
- + Give no pacifiers or artificial nipples to breastfeeding infants.
- + Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center.

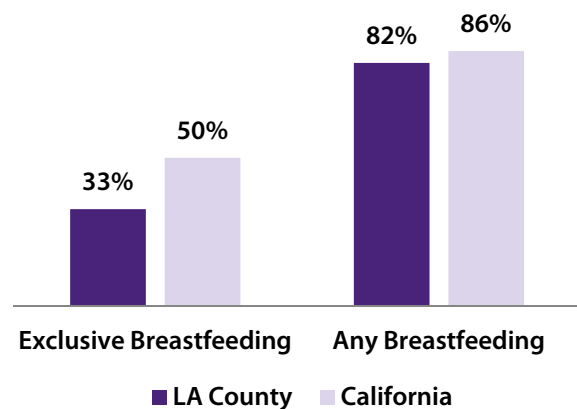
Source: Baby-Friendly USA. Retrieve from <http://www.babyfriendlyusa.org/about-us/baby-friendly-hospital-initiative/the-ten-steps>.

First 5 LA's Baby-Friendly Hospital Initiative

First 5 LA understands the significance of breastfeeding and the important role hospitals and birthing centers play in educating and encouraging mothers to breastfeed; they also understand that hospitals need support in building their capacity to become Baby-Friendly designated and reach Healthy People 2020 goals. As such, in 2009 when the rates of breastfeeding in Los Angeles County hospitals lagged behind those of the state,¹³ First 5 LA committed \$10.5 million in grants to assist up to 21 hospitals to seek Baby-Friendly Hospital (BFH) designation.

Though hospitals start at different places in their process of seeking BFH designation, First 5 LA targeted those hospitals with exclusive breastfeeding rates among the lowest in the county. (See Appendix A for

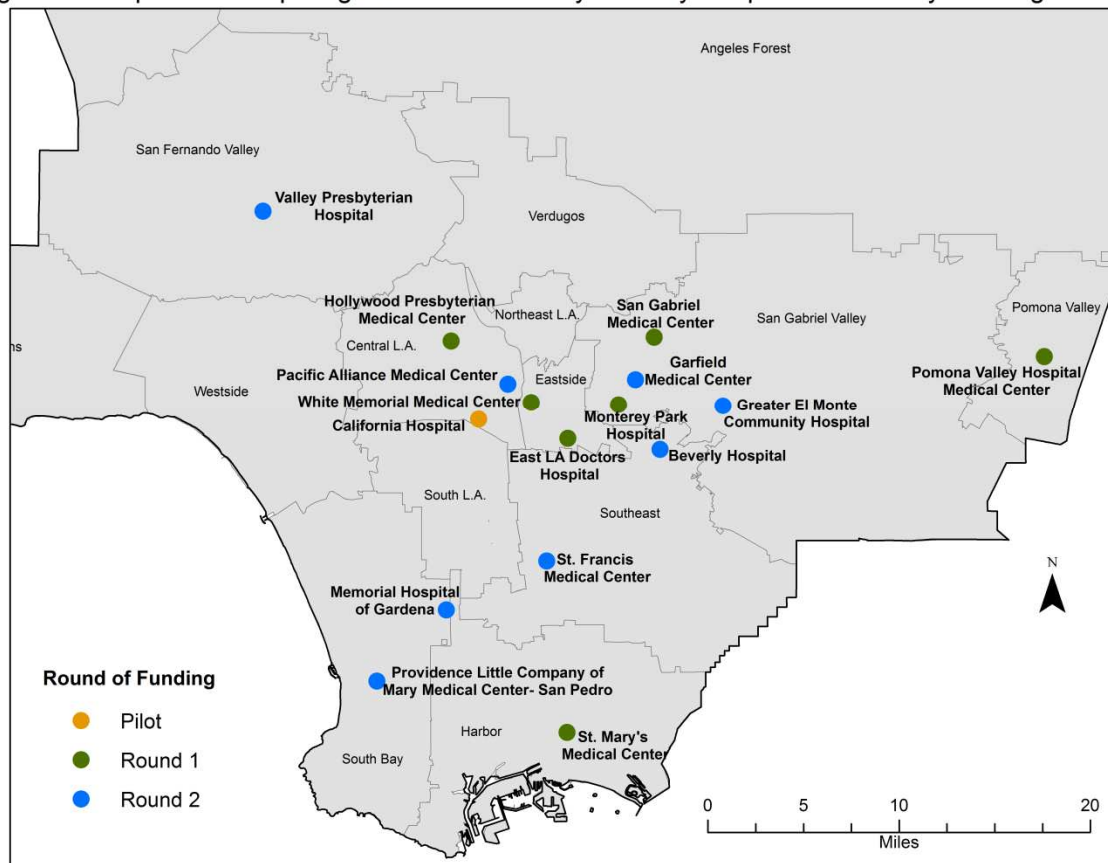
Figure 2. In-Hospital Breastfeeding Rates³ (2009)



¹³ CA Department of Public Health. Retrieved from <http://www.cdph.ca.gov/data/statistics/Pages/InHospitalBreastfeedingInitiationData.aspx>. Data on infant feeding practices are collected by the Genetic Disease Screening Program, Newborn Screening Program. In 2009, a transitional year, two data collection forms were used; thus, the reported in-hospital breastfeeding rates represent an average across the two NBS data collections forms.

the Self-Assessment Survey Findings.) More specifically, to be eligible for First 5 LA Baby-Friendly Hospital funding, the hospital's exclusive breastfeeding rate must have been below the Los Angeles County average of 33% in 2009 and 39% in 2010. Between June 2009 and October 2011, a total of 16 hospitals received First 5 LA funding for staff training and operational support to implement policy and practice changes recommended by Baby-Friendly USA. (See map of participating hospitals.)

Figure 3. Hospitals Participating in First 5 LA's Baby-Friendly Hospital Initiative By Funding Round



About the Evaluation

In September 2012, First 5 LA contracted with Harder+Company Community Research (Harder+Company) to conduct a point-in-time evaluation to document the challenges and milestones that hospitals have experienced as they seek Baby-Friendly Hospital designation. The evaluation sought to understand the experiences of mothers who birth at facilities working to implement Baby-Friendly policies as well as the experiences of the participating hospitals as they strive to implement a number of organizational changes designed to encourage breastfeeding.

The primary research questions that this evaluation sought to address included:

- What have been the most effective strategies for implementing the BFH program?
- What have been the major challenges in implementing the BFH program, and how have the hospitals overcome (or plan to overcome) them?
- What major milestones have hospitals accomplished toward attaining the BFH designation? What have been the maternity department staff reactions to the changes in practice?
- What have been the patients who delivered at the hospitals reactions to the new baby-friendly practices?
- What trends or improvements in hospital practice are observed?

Evaluation Methods

This point-in-time evaluation included information from four sources: (1) patient-level administrative data; (2) interviews conducted with hospital administrators and nurses; (3) focus groups with mothers who recently gave birth at a participating facility; and (4) secondary data sources to address the evaluation questions. Because participation in the initiative was staggered, hospitals were at different points in the implementation of their grants when the evaluation began in September 2012. (See the timeline illustrated in Figure 4 below.) For example, the pilot round began with the funding of CA Hospital in July 2009. The first round of funding began almost a year later in June / July of 2010 with seven grantees, and the second round of funding followed a little over a year later in September / October of 2011 with eight grantees.

The evaluation team received approval from Western Institutional Review Board (IRB) for this study. The purpose of and procedures for obtaining each data source included in this evaluation is described in greater detail in Figure 5.

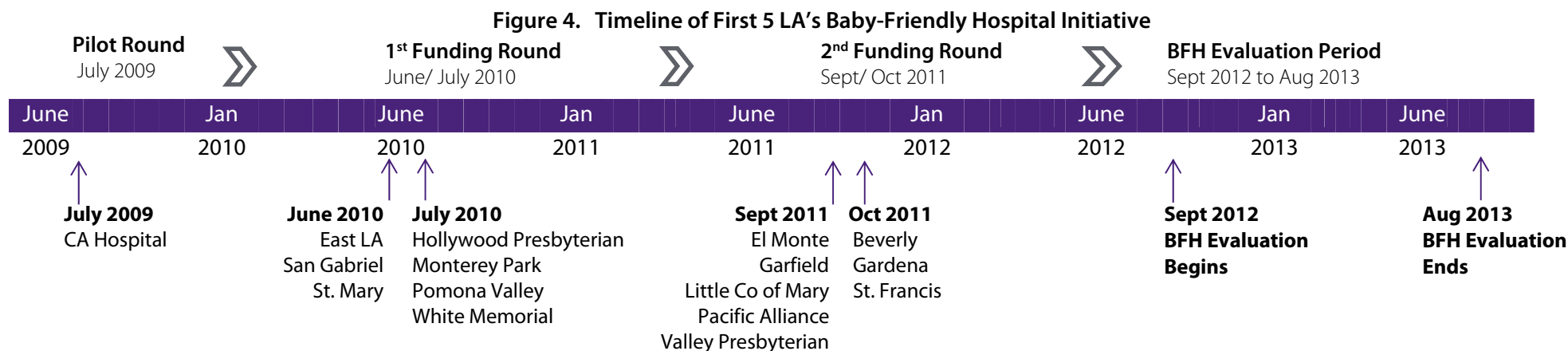


Figure 5. Evaluation Sources

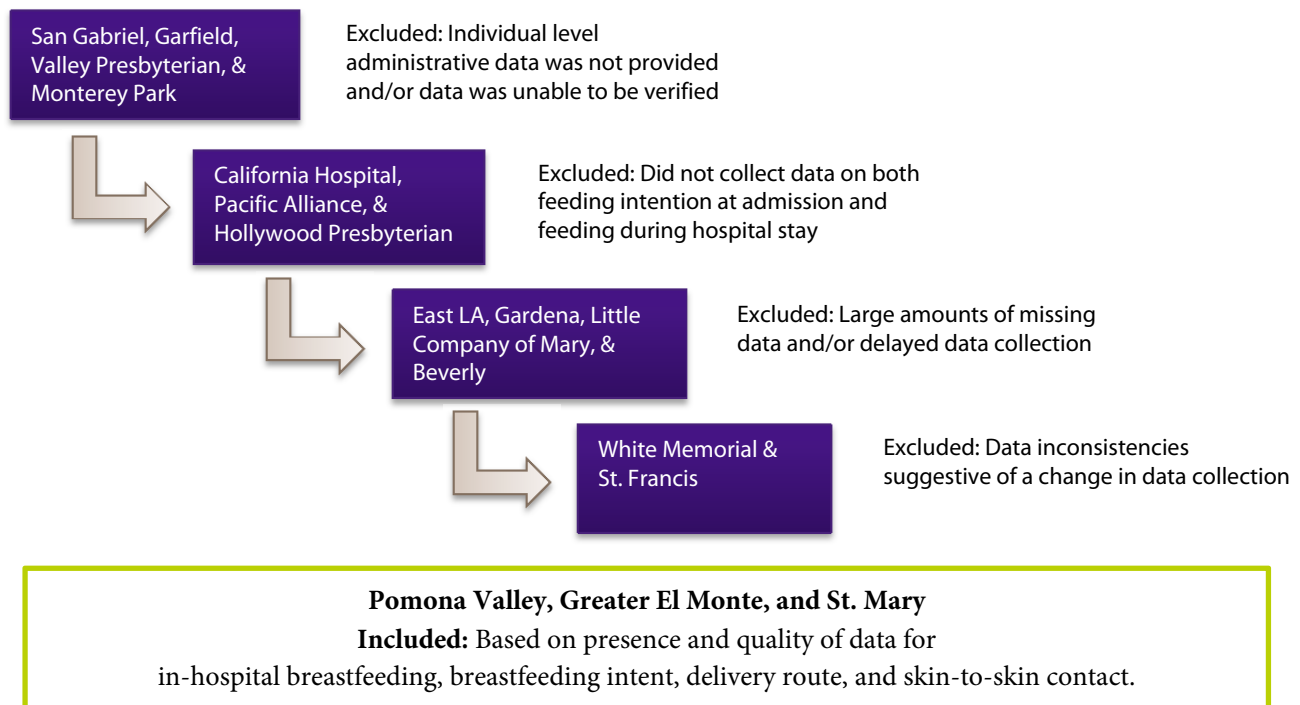
Method	Purpose & Procedures
Patient Level Administrative Data	<p>Purpose: To learn about the characteristics of the women who birthed at the facility during the grant period, aspects of their birthing and hospital experience, as well as feeding intent and experiences.</p> <p>Procedures: Each hospital submitted anonymous patient-level data (no information that could identify patients was provided) during their grant period. The data provided by hospitals were summarized by the evaluation team and shared with hospital staff to verify completeness and accuracy of the data. This was an iterative process, meaning that based on initial summaries some hospitals provided additional or revised datasets that were once again summarized and shared with the participating hospital. Through a defined process the evaluation team determined the hospitals' data that would included in descriptive and deeper statistical analyses (referred to in this report as case study hospitals). This process is further described in the following section, Analytic Approach to Administrative Data.</p>
Hospital Staff Interviews	<p>Purpose: To learn about the experiences of hospital administrative staff and nurses in implementing the "Ten Steps to Successful Breastfeeding" as they seek Baby-Friendly Hospital designation.</p> <p>Procedures: Interviews were conducted with staff from 12 participating hospitals including administrative staff directly involved in the Baby-Friendly transition (e.g. Baby-Friendly Coordinator, Chief Nursing Officer, Director of Maternity) and with Labor and Delivery, Postpartum and, when applicable, Nursery nursing staff. Across the 12 participating hospitals a total of 33 administrative staff and 24 nurses were interviewed. All interviews were confidential.</p>
Patient Focus Groups	<p>Purpose: To learn about the mother's pre-delivery intention to breastfeed, their birthing experience, and to understand what information and supports provided by hospitals was viewed as most helpful.</p> <p>Procedures: Four focus groups were scheduled with mothers who had given birth at participating hospitals during the grant period. Moms were recruited from ongoing classes (e.g. Mommy and Me) from mothers who had recently given birth at two participating hospitals. A total of 15 mothers participated in three focus groups. No mothers participated in the fourth scheduled focus group. All participating mothers gave birth at one of the two hospitals where recruitment efforts were made. The focus groups were confidential and no identifying information was kept with the focus group notes.</p>
Secondary Data	<p>Purpose: To provide context about the experiences of the participating hospitals and the women who birth at those facilities, a number of secondary data sources were included in this evaluation: the California Department of Public Health, Genetic Disease Screening Program, Newborn Screening Program¹⁴ and a survey conducted by First 5 LA in June 2012 which largely mirrored BFHI's self-assessment.</p>

¹⁴ This is often referred to as the PKU form because the program initially began in 1966 testing for phenylketonuria (PKU). Today the test checks for a number of metabolic disorders, endocrine, hemoglobin and other genetic diseases by collecting a few drops of blood from the heel of the newborn's foot before leaving the hospital. For more information on the Genetic Disease Screening Program, Newborn Screening Program, please see <http://www.cdph.ca.gov/programs/nbs/Pages/NBSProgrOVforParents.aspx>.

Analytic Approach to Administrative Data

Hospitals collected demographic information about the mothers they served as well as data related to their BFH policies and procedures (i.e., skin-to-skin contact and feeding practices) as part of the First 5 LA funding requirements. The evaluation team selected hospital-provided data for each analysis based on completeness and reliability. As such, not all hospitals were selected for analysis. Figure 6 below describes the exclusion criteria that the evaluation team used in reviewing the administrative data.

Figure 6. Administrative Data Exclusion Process



Therefore, of the 16 funded hospitals, the administrative data from three hospitals were chosen for additional descriptive and deeper statistical analyses (referred to as case study hospitals). More specifically, the *data for women delivering at Pomona Valley, Greater El Monte, and St. Mary* were selected for inclusion in this analysis based on presence and reliability of data for the dependent variable (in-hospital breastfeeding) and three predictor variables (breastfeeding intent, delivery route, and skin-to-skin contact).

Limitations of this Study

There are three primary limitations of this study.

- The first limitation is in regards to the number of recent mothers who participated in the focus groups.

- Second, inconsistencies were noted in the in-hospital feeding rates from two sources--the hospital administrative data and those that are available via the California Department of Public Health, Genetic Screening Program, Newborn Screening Program data.
- The third limitation is about how representative the mothers who birthed at the three case study hospitals are of the larger population of mothers who birthed at funded hospitals.

These three limitations and their implications are further described below.

Focus group participants' opinions and experiences are not generalizable to the larger population of mothers who birthed at funded hospitals. As described in Figure 5, a total of 15 mothers who recently delivered at one hospital participated in three focus groups. A fourth focus group was scheduled with mothers who delivered at another hospital; however, no mothers participated in that focus group. In addition, the mothers who participated in the focus groups were recruited via convenience sampling; therefore, their opinions and experiences cannot be generalized to the larger population of mothers who birthed at that hospital or the larger population of mothers who delivered at the 16 funded hospitals. However, the focus groups provided rich data from a diverse group of mothers about how they experienced baby-friendly policies and practices. The group of mothers who participated in the focus groups included first time mothers as well as those who already had children, those who were continuing to breastfeed as well as those who were not, and those who had delivered vaginally as well as those who delivered via C-section.

Inconsistencies with in-hospital feeding rates. This report includes information about the in-hospital feeding methods from two sources, the patient level administrative data submitted by participating hospitals (referred to as administrative data) and the California Department of Public Health, Genetic Screening Program, Newborn Screening Program data (Newborn Screen). Data from these two sources were frequently inconsistent. For example, five hospitals submitted 12 or close to 12 consecutive months of administrative data, which included rates for exclusive and any breastfeeding. When this information was compared to the 2011 Newborn Screen, in three out of five hospitals the Newborn Screen data indicated higher exclusive breastfeeding rates and two out of five hospitals indicated higher any breastfeeding rates. The evaluation elected to use the Newborn Screen data for summary and trend analyses across the 16 funded hospitals and used the hospital provided administrative data for deeper statistical analyses of the three case study hospitals. Throughout this report, the data source used in each analysis is referenced.

Findings of the three case study hospitals are not generalizable to the other thirteen funded hospitals. To determine if the case study hospitals were significantly different from the hospitals that were not selected for further analysis, crosstabs were conducted with six characteristics of the mother: (1) Caucasian to Non-Caucasian, (2) Latina to Non-Latina, (3) African-American to Non-African-American, (4) Spanish speaking to Non-Spanish speaking, (5) route of delivery, and (6) skin-to-skin.

Case study hospitals, compared to the hospitals not selected for additional analyses, were significantly:

- More likely to have Caucasian compared to Non-Caucasian mothers¹⁵
- More likely to have Latina compared to Non-Latina mothers¹⁶
- Less likely to have African-American compared to Non-African-American mothers¹⁷
- Less likely to have Spanish speaking compared to Non-Spanish speaking mothers¹⁸
- More likely to have any breastfeeding compared to formula exclusive mothers¹⁹
- Less likely to have skin-to-skin contact any time after birth²⁰

There were no statistically significant differences found between case study hospitals and those not selected for further analysis on route of delivery.

These findings indicate that the demographic characteristics of mothers who birthed at the three case study hospitals differed significantly from mothers who delivered at hospitals not selected for inclusion in the case study analysis; therefore, the results of the case study analyses are not generalizable to the other 13 funded hospitals. However, the case study analyses found some interesting three-way interactions that could have meaningful implications for hospitals implementing baby-friendly policies and practice. These interactions could be further explored in future evaluation efforts.

¹⁵ $X^2(1, 30968) = 827.668. p < .01$

¹⁶ $X^2(1, 30968) = 351.935. p < .01$

¹⁷ $X^2(1, 30968) = 540.017. p < .01$

¹⁸ $X^2(1, 21958) = 22.677. p < .01$

¹⁹ $X^2(1, 28285) = 164.924. p < .01$

²⁰ $X^2(1, 28889) = 1047.137. p < .01$

What are the characteristics of the participating hospitals?

While a diverse array of hospitals participated in First 5 LA's Baby-Friendly Hospital Initiative, a commonality across all 16 hospitals is that they are located in high poverty neighborhoods, with all 16 hospitals having at least 30% of the surrounding population within five miles living 200% below the poverty line. Furthermore, in-patient discharge reimbursement rates for all hospital patients show that the majority of patients are Medicare and Medi-Cal clients.²¹ (For more about the characteristics of the participating hospitals, please see Appendix B.)

Across Hospital Breastfeeding Rates

Key Finding: By 2011, the average any breastfeeding rate for the seven hospitals that began receiving funding in June and July of 2010 (referred to as 1st funding round) was comparable to the state and county averages. While the average exclusive breastfeeding rate of these seven hospitals still lagged behind that of the state and county in 2011, the rate of increase seemed to be outpacing the state and county.

According to the CA Department of Public Health, between 2009 and 2011 there was a rise in the average rates of exclusive and any breastfeeding among hospitals and birthing centers in California and Los Angeles County. Further, according to these data, there was also an increase in average rates for exclusive and any breastfeeding for First 5 LA's BFH 1st and 2nd round grantees. (See Figures 7 and 8.)

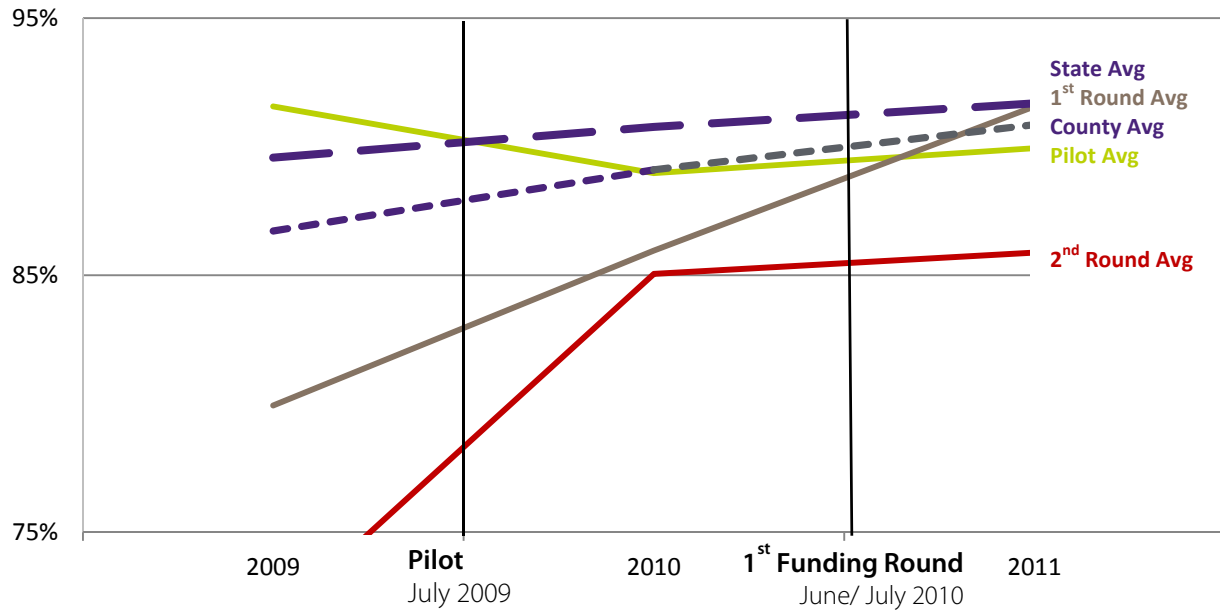
From 2009 through 2011 (years for which data were available at the time of analysis), the any breastfeeding rates²² showed a slow, but steady climb for Los Angeles County (87% in 2009 to 91% in 2011) and the state of California (90% in 2009 to 92% in 2011). The rates of exclusive breastfeeding for this same period showed a more dramatic increase; there was a 14% increase in Los Angeles County (33% to 47%) and an 8% increase statewide (52% to 60%).

When the breastfeeding rates were averaged across the hospitals funded in the first round for the same time period, a similar consistent and steadily increasing trend can be seen--any breastfeeding rates increased by 12% (from 80% in 2009 to 92% in 2011) and exclusive breastfeeding rates increased by 27% (from 11% in 2009 to 38% in 2011). The average any breastfeeding rate for hospitals funded in the second round increased 14% (from 72% to 86%) and exclusive breastfeeding rates increased 16% (from 11% to 27%). It should be noted that funding for the second round hospitals did not begin until the fall of 2011; therefore, the data presented here should be viewed as baseline data for the second round hospitals or trends before First 5 LA's Baby-Friendly Hospital funding began.

²¹ Information on the poverty level and insurance reimbursement rates are based on data from the 2011 CA Office of Statewide Health Planning and Development. <http://gis.oshpd.ca.gov/atlas/places/facility>

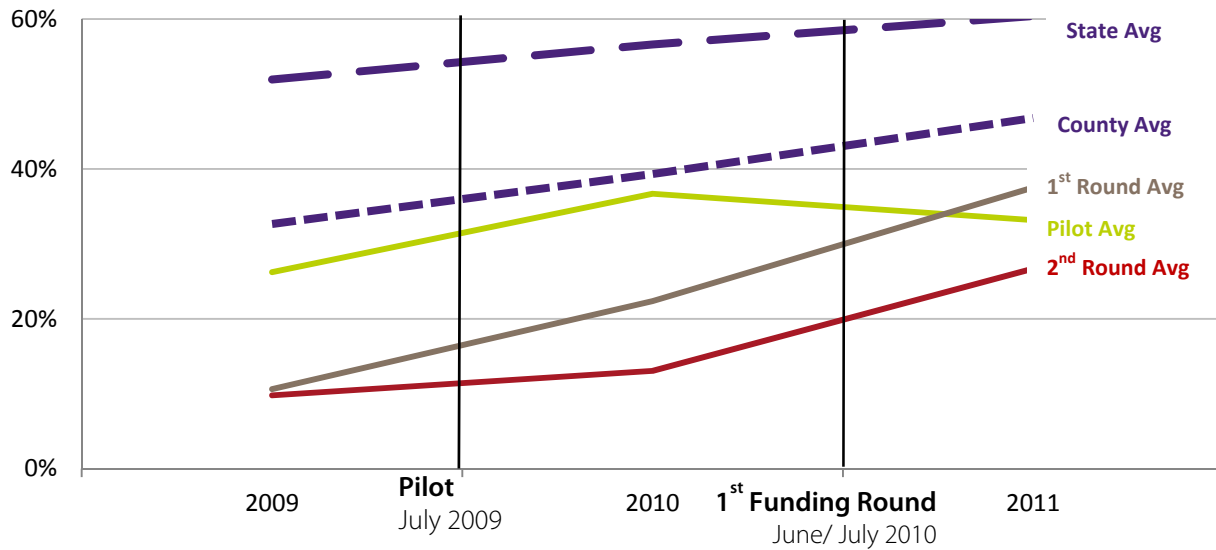
²² Breastfeeding rates are based on the California Department of Public Health, Center for Family Health, Genetic Disease Screening Program, Newborn Screening Data, 2009, 2010, and 2011. Data was averaged across the two NBS data collections forms used during the 2009 year (a transitional year). Little Company of Mary NBS data includes San Pedro and Torrance; however, First 5 LA only funds the San Pedro site.

Figure 7. Trends in Any Breastfeeding Rates across Funding Rounds



Source: California Department of Public Health, Center for Family Health, Genetic Disease Screening Program, Newborn Screening Data, 2009, 2010, and 2011. Data was averaged across the two NBS data collections forms used during the 2009 year (a transitional year). Little Company of Mary data (included in the 2nd Round average) includes San Pedro and Torrance; however, First 5 LA only funds the San Pedro site.

Figure 8. Trends in Exclusive Breastfeeding Rates across Funding Rounds²³



Source: California Department of Public Health, Center for Family Health, Genetic Disease Screening Program, Newborn Screening Data, 2009, 2010, and 2011. Data was averaged across the two NBS data collections forms used during the 2009 year (a transitional year). Little Company of Mary data (included in the 2nd Round average) includes San Pedro and Torrance; however, First 5 LA only funds the San Pedro site.

²³ Note the differences in scales in Figures 7 and 8.

What are the experiences of mothers who delivered at case study hospitals?

Mother Demographics and Birthing Characteristics²⁴

Based on the administrative data (N=9906), the majority of mothers who gave birth in the case study hospitals were Hispanic/ Latina (76%), with 10% or less of the remaining mothers being Caucasian/ White (10%), African-American/ Black (6%), Asian/ Pacific Islander (5%), or Another Race (3%). With the available administrative data,²⁵ 65% of mothers were primarily English-speaking and 34% were Spanish-speaking.

Figure 9. Characteristics of Case Study Hospitals

	Annual Number of Births*	First 5 LA's Funding Round	% of Clients with Medicare and Medi-Cal
Greater El Monte	493	Second	79%
Pomona Valley	6476	First	82%
St. Mary's	2937	First	84%

* The size of the hospital is based on the number of births as reported in the 2011 Maternal, Child, and Adolescent Health data.

The majority of mothers had vaginal births (64%), and experienced skin-to-skin some time (63%) during their in-patient hospital stay. Of those, the majority of mothers experienced this skin-to-skin time within the first hour after birth (72%).

²⁴ Additional details about the demographic characteristics of mothers who birth at these hospitals and their birthing experiences can be found in Appendix D.

²⁵ The primary language for the majority of mothers was missing (n=4632). Due to the fact that information was only collected about the primary of mothers, we were not able to identify whether mothers were monolingual or bilingual.

Feeding Intention and Practice

Among mothers who delivered at the three case study hospitals, feeding intention at admission differed from in-hospital feeding practice. For two hospitals, nearly half of their mothers who intended to breastfeed exclusively at admission experienced another mode of in-hospital feeding. However, as seen in Figure 10, mothers who were open to breastfeeding (any intention of breastfeeding), did have a breastfeeding experience (any practice of breastfeeding) whether that was deciding to exclusively breastfeed or breastfeed and formula feed (any practice of breastfeeding).

Figure 10. Feeding Intention and Practice of Case Study Hospitals

	Pomona N=6476	St. Mary N=2937	El Monte N=493	Total N=9906
Mothers' Feeding Intention at Admission²⁶				
Exclusive Formula	8% (518)	11% (314)	9% (38)	9% (870)
Any Breastfeeding*	92% (5495)	89% (2580)	72% (396)	86% (8471)
Exclusive Breastfeeding	71% (4263)	49% (1413)	67% (288)	64% (5963)
Combination of Breastfeeding & Formula	21% (1233)	40% (1167)	5% (108)	27% (2508)
Mothers' Feeding Practices During Her Hospital Stay				
Exclusive Formula	10% (650)	13% (360)	12% (51)	11% (1061)
Any Breastfeeding*	90% (5776)	87% (2453)	88% (372)	89% (8601)
Exclusive Breastfeeding	21% (1362)	32% (910)	39% (164)	25% (2436)
Combination of Breastfeeding & Formula	69% (4414)	55% (1543)	49% (208)	64% (6165)

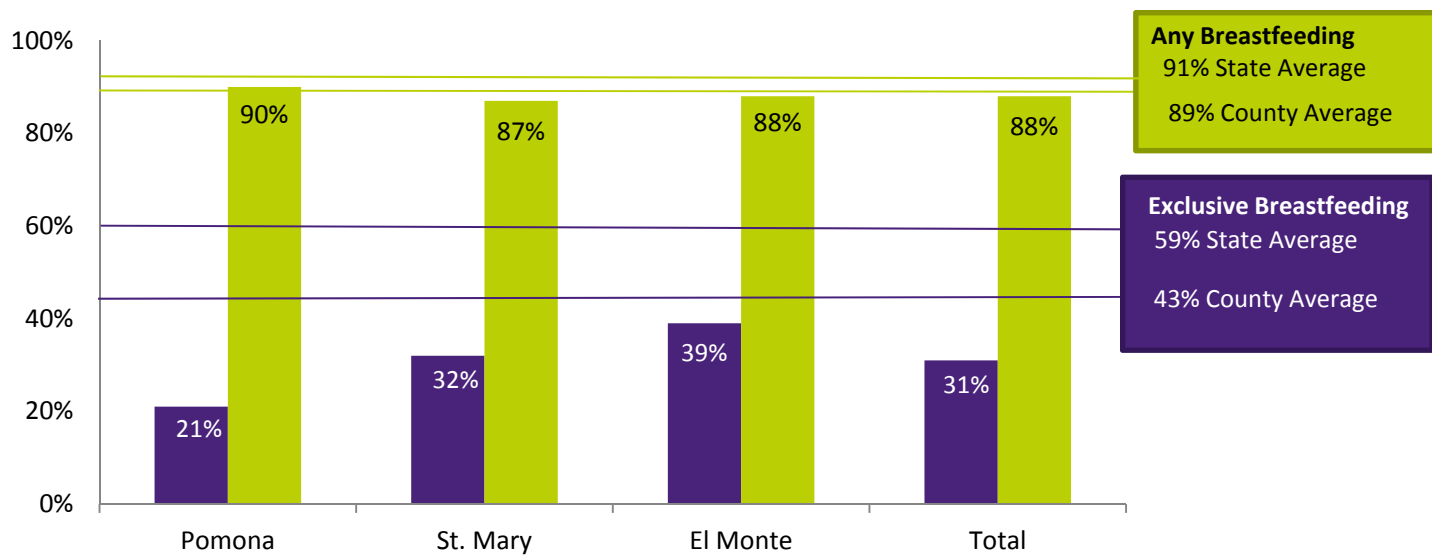
Source: Hospital Administrative Data

*Combines Exclusive Breastfeeding and Combination of Breastfeeding and Formula

²⁶ Missing data for mothers' feeding intention at admission: Pomona (463), St. Mary (43), El Monte (59), and Total (565). Missing data for mothers' feeding practices during her hospital stay: Pomona (50), St. Mary (124), El Monte (70), and Total (244).

Regardless of the difference between intent and practice, when the breastfeeding administrative data (any and exclusive) is averaged for each hospital, the any breastfeeding rate is comparable to that of the any breastfeeding rate for the county and state; the exclusive breastfeeding rates lag behind the county and state. (See Figure 11.)

Figure 11. In-Hospital Breastfeeding Rates of Case Study Hospitals Compared to State and County Rates



Source: Breastfeeding rates for Pomona, St. Mary, El Monte, and their total based on Administrative Data. Average breastfeeding rates for the state and county based on California Department of Public Health, Center for Family Health, Genetic Disease Screening Program, Newborn Screening Data. County and state rates from 2010 and 2011 were averaged to be comparable to the time period for which Administrative Data was available.

Was there a relationship among breastfeeding intent, delivery route, and skin-to-skin contact with in-hospital breastfeeding?

Hospital practices can encourage or discourage breastfeeding. (See Figure 12.) To examine whether there were sub-groups of women who experienced barriers and challenges to initiating breastfeeding in the hospital, the evaluation examined whether there were relationships between breastfeeding intent, delivery route, and skin-to-skin contact with in-hospital breastfeeding.²⁷ As described below each of these factors examined directly or indirectly contributes to the implementation of one or more of the Ten Steps to Successful Breastfeeding.

- **Breastfeeding intent.** Step 3 states that all pregnant women will be informed about the benefits and management of breastfeeding. Providing pregnant women with information about the benefits of breastfeeding as well as what they can expect after the child's birth can prepare mothers with information about strategies they may use to make breastfeeding more successful, as well as expose mothers to some of the common challenges that mothers experience.
- **Delivery route.** Implementation of Baby-Friendly policies may challenge staff to question their previous practices. As further described in the following section about the experiences of participating hospitals, there were some additional challenges (either real or perceived) in implementing Baby-Friendly practices for mothers who deliver via caesarian section (C-section).
- **Skin-to-skin.** Placing newborn babies on the mother's skin for at least one hour immediately following birth is identified as Step 4, helping mothers initiate breastfeeding within an hour of birth. The practice of skin-to-skin helps mothers recognize her baby's feeding cues and provides opportunities for breastfeeding.

Figure 12. Hospital Practices and Breastfeeding

According to the American Academy of Pediatrics (AAP), some hospital practices can be disruptive of breastfeeding. Therefore, in 2009 the AAP endorsed the Ten Steps to Successful Breastfeeding which have been found to increase rates of breastfeeding initiation, duration, and exclusivity. In particular, the following five postpartum practices have been found to increase breastfeeding duration for all mothers:

- 1) Breastfeeding in the first hour after birth
- 2) Exclusive breastfeeding
- 3) Rooming-in (allowing mothers and babies to stay together 24 hours a day)
- 4) Avoidance of pacifiers
- 5) Receipt of a telephone number for support after discharge from the hospital

Source: The American Academy of Pediatrics. March 2012. Policy Statement: Breastfeeding and the Use of Human Milk. Pediatrics 2012;129:e827. Retrieved from <http://www.pediatricsdigest.mobi/content/129/3/e827.full.pdf+html>.

²⁷ We conducted a 2 (breastfeeding intent) X 2 (delivery route) X 2 (skin-to-skin contact) ANOVA to test effects of breastfeeding intent (any breast feeding versus none), delivery route (vaginal versus Caesarian section), and skin-to-skin contact (any versus none) on in-hospital breastfeeding. Altogether 7,326 cases were included in the analysis. The results of the ANOVA should be interpreted cautiously due to the large sample size. As a result, some differences achieved statistical significance despite having a very small effect size, which calls into question the practical importance of the finding. We believe these findings are ultimately most useful to describe different sub-groups of women who may experience barriers and challenges to initiating breastfeeding in the hospital.

Our analysis based on the case study hospitals found that women who entered the hospitals with intent to breastfeed, delivered vaginally, and had skin-to-skin contact were significantly more likely to breastfeed compared to their counterparts. The practice of skin-to-skin contact was supportive of breastfeeding among women who entered the hospital without intent to breastfeed and even more so for those who entered the hospital without intent to breastfeed and delivered via C-section. These findings suggest the importance of perinatal education for women about the benefits of breastfeeding, as well as the important role that skin-to-skin can play for women who enter the hospital without breastfeeding intent and those who deliver via C-section. Findings about the relationship between breastfeeding intent, route of delivery, and skin-to-skin contact with in-hospital breastfeeding are described in more detail below.

+ Intent Matters. Most women (91%)²⁸ entered the hospital with the intent to breastfeed.²⁹ Women who entered the hospital with the intent to breastfeed were significantly more likely to breastfeed during their hospital stay (95%) compared to women who entered the hospital without the intent (37%).^{30 31}

+ Delivery route was related to in-hospital breastfeeding. Overall, women in this sample who delivered vaginally were more likely to breastfeed in the hospital (91%) than women who experienced a C-section (88%).³² However the effect size³³ for this finding is extremely small and is tempered by the significant three-way interaction among breastfeeding intent, delivery route, and skin-to-skin contact.

+ Women who experienced skin-to-skin contact were significantly more likely to breastfeed than women who did not experience skin-to-skin contact with their babies (94% versus 84%).³⁴

They provided me with a lot of information. They told me it was important and necessary to breastfeed for the first six months after birth, so my child wouldn't suffer from preventable diseases. They expressed how important breastfeeding is, and how breast milk contains a lot of nutrients that a baby needs.

-Mother

²⁸ Cases that did not have data for breastfeeding intent, delivery route, AND skin-to-skin were dropped from the analysis. As such, the statistics presented here will differ from those presented in Figure 10, which presents data from all cases.

²⁹ Although the percent of women who entered without intent to breastfeed at all was small (9.3%) due to the large sample size there were still an ample number of women (n=681) to conduct an analysis. ANOVAs were conducted using the Type III Sum of Square variance computation (via SPSS) which adjusts for unequal cell sizes.

³⁰ F(1, 7318)=1852.7; p<.01)

³¹ Please see Additional Administrative Data Tables and Exhibits in Appendix D.

³² F(1, 7318) =14.4; p<.01)

³³ Partial eta squared=.002

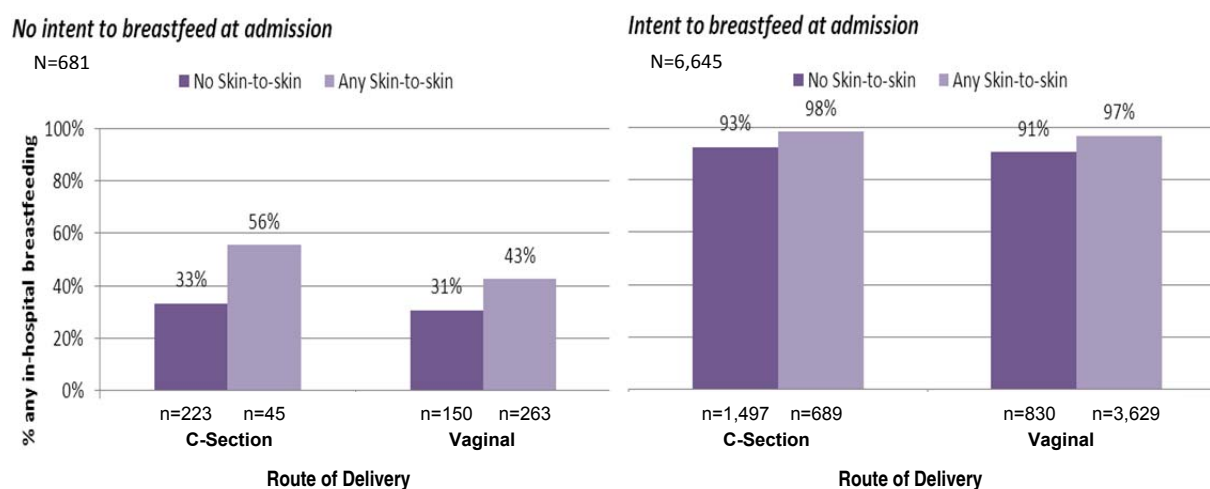
³⁴ F (1, 7318) =85.84; p<.01) This finding would be more compelling if there was enough data to analyze skin-to-skin within the first hour following birth, which is an evidence-based practice and standard of BFHs.

- ✚ **Skin-to-skin contact is more strongly related to breastfeeding for women who entered the hospital without the intent to breastfeed compared to women who enter with the intent to breastfeed.**

Women who entered without intent to breastfeed AND received skin-to-skin contact were 12% more likely to breastfeed in the hospital than their counterparts who did not have skin-to-skin contact. Skin-to-skin contact was less predictive of breastfeeding in women who entered with the intent to breastfeed; there was only a 6% difference between breastfeeding rates for women who experienced skin-to-skin contact and those who did not in this group.³⁵

- ✚ **The three-way interaction among breastfeeding intent, delivery route and skin-to-skin suggests that skin-to-skin contact was especially supportive of breastfeeding for women who entered the hospital without breastfeeding intent and who experienced a C-section.³⁶** Among women delivering vaginally, skin-to-skin contact resulted in about a 5% increase in breastfeeding in the hospital. However, as seen in Figure 13 below, the effect of skin-to-skin contact was much more pronounced among women who entered the hospital without the intent to breastfeed: there was a 12% difference among women who deliver vaginally and a 23% difference among women who experience a C-section.³⁷

Figure 13. Relationship among Breastfeeding Intention, Route of Delivery, and Skin-to-Skin Contact with In-Hospital Breastfeeding for Case Study Hospitals



³⁵ $F(1, 7318)=19.22; p<.01$

³⁶ There were two additional two way interactions that achieved statistical significance, (the interaction between delivery route and skin-to-skin and the interaction among breastfeeding intent and delivery route), but were extremely small and potentially less meaningful in light of the three-way interaction and are not highlighted here.

³⁷ $F(1,7318)=4.74; p<.05$

The results of this analysis suggest that hospitals have the opportunity to change a woman's choice of feeding method when she expresses no intent to breastfeed.

Mothers who are admitted to the hospital with no intention to breastfeed should be a red flag to nurses and doctors to encourage and perform Baby-Friendly practices. More specifically, ensuring that mothers and babies experience skin-to-skin contact, especially after a C-section, may be one important avenue to increase breastfeeding among mothers initially resistant to doing so.

Estimated Impact of Skin-to-Skin Contact

Based on our analysis, given that skin-to-skin contact increased breastfeeding about 23% among mothers without breastfeeding intent experiencing a C-section and about 12% among mothers without breastfeeding intent delivering vaginally, we can estimate that **had all mothers in this group received skin-to-skin contact, approximately 69 more babies would have received at least some breast milk in the hospital.***

*223 women times 23% and 150 women times 12%

Relationships among Breastfeeding Intent, Route of Delivery, and Skin-to-Skin Contact with In-Hospital Breastfeeding Based on Race and Language³⁸

We examined whether the relationships among breastfeeding intent, route of delivery, and skin-to-skin contact were different for African-American women³⁹ and among women who spoke Spanish as a primary language to explore the impact of acculturation on breastfeeding.

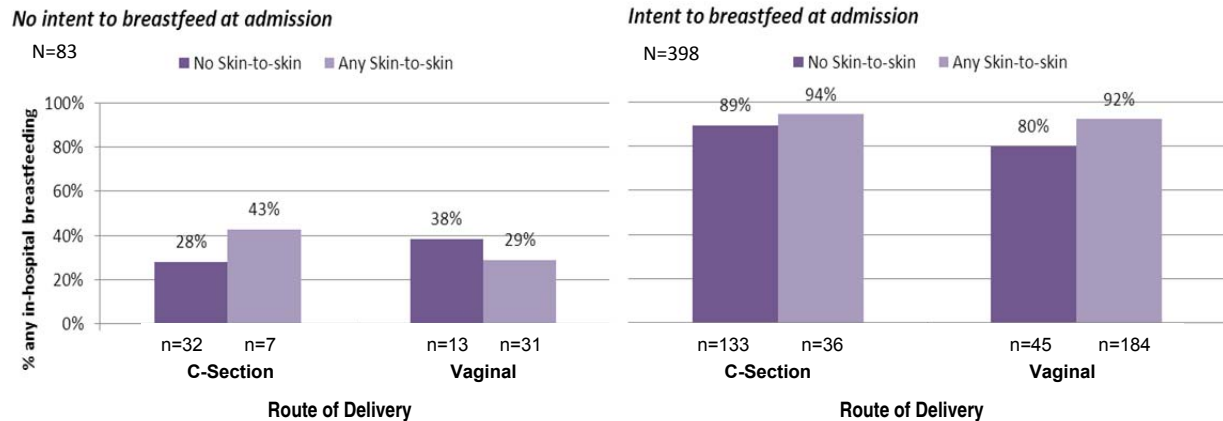
There was a significant main effect for breastfeeding intent in that African-American women who enter the hospital with the intent to breastfeed are far more likely to breastfeed in the hospital than African-American women who enter without intent to breastfeed (90% versus 31% respectively).⁴⁰ We did not observe the same interactions among intent, delivery route, and skin-to-skin contact with this subgroup as found in the overall sample of women included in the evaluation. Specifically, among African-American women entering the hospital without intent to breastfeed, skin-to-skin contact was not related to increased rates of breastfeeding during the hospital stay. (See Figure 14.) This may be an area that warrants further exploration in future work.

³⁸ Please see Additional Administrative Data Tables and Exhibits in Appendix D.

³⁹ We conducted a similar 2 (breastfeeding intent) X 2 (delivery route) X 2 (skin-to-skin contact) ANOVA to test effects of breastfeeding intent (any breast feeding versus none), delivery route (vaginal versus Caesarian section), and skin-to-skin contact (any versus none) on in-hospital breastfeeding for African-American participants. Altogether 481 cases were included in the analysis, which resulted in some small cell sizes.

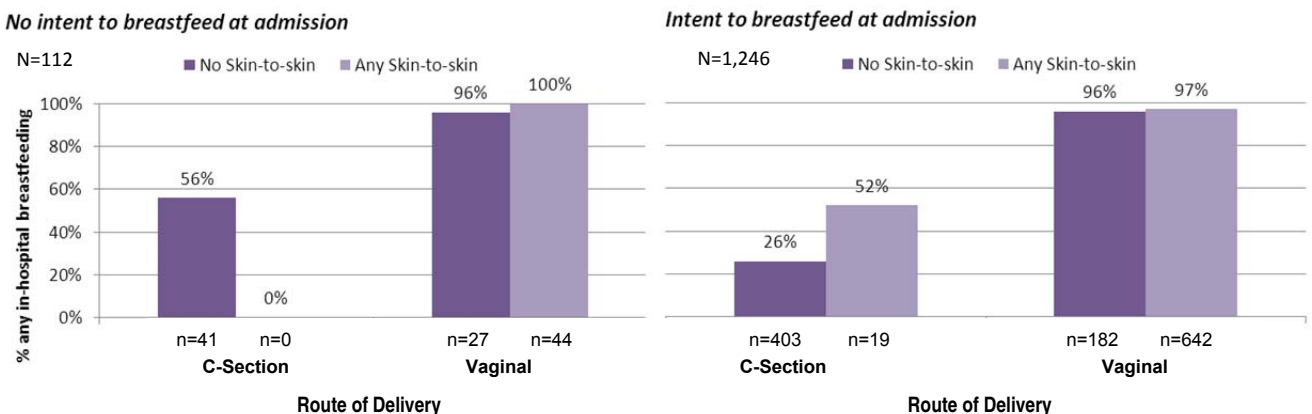
⁴⁰ While there are some interesting trends, no other main effects or interactions were statistically significant. These findings should be interpreted cautiously due to the small cell sizes resulting from using the sub-group for analysis.

Figure 14. Relationships for African-American Mothers



Our ability to conduct meaningful analysis with the subsample of Spanish-speaking women was extremely limited. Although there were initially 1,348 women whose primary language was reported as Spanish, there were no Spanish-speaking women who entered without intent to breastfeed, had a C-section, and received skin-to-skin contact, so the full model including all two- and three-way interactions could not be tested. Overall, Spanish speaking mothers were equally likely to express an intent to engage in any breastfeeding upon admission as the rest of sample (about 92%), which may suggest that this group was similarly acculturated.⁴¹

Figure 15. Relationships for Spanish-Speaking Mothers



⁴¹ The use of predominant language may not be the best marker of acculturation status as this group may also include fully bilingual speakers. If this variable is of importance First 5 LA may consider asking hospitals to report on this differently.

What were the implementation experiences of participating hospitals?

As described on Baby-Friendly USA's website, the process of gaining Baby-Friendly designation entails "a comprehensive, detailed, and thorough journey" through which hospitals and birthing facilities are challenged to "examine and modify longstanding policies and procedures." Implementation of the Ten Steps to Successful Breastfeeding requires training among all levels of staff as well as organizational, policy, and practice changes for participating hospitals and birthing facilities. This section describes the strategies and challenges that hospitals participating in First 5 LA's Baby-Friendly Hospital Initiative experienced as part of their journey in seeking Baby-Friendly Hospital designation. This section is organized by the Ten Steps to Successful Breastfeeding and includes the voices of delivery and postpartum nurses, hospital administrators, and patients who delivered at participating hospitals.

Preparing for Baby-Friendly Certification

Step 1. Have a written breastfeeding policy that is routinely communicated to all health care staff.

Many hospitals developed a task force with representation from hospital departments affected by the breastfeeding policies. According to administrators, developing and implementing a written breastfeeding policy required a hospital-wide, interdisciplinary effort. Seven hospitals formalized this collaboration by creating a Breastfeeding Task Force. The task forces typically met monthly and represented a wide range of departments, including: Hospital CEO, Baby-Friendly Project Coordinator, OB Clinic Manager, Pediatrics, Lactation, Chief Nursing Officer, Physician Champions, Nurse Champions, Risk Management, Laboratory, Community Health, Marketing, Business Development, Pharmacy, Emergency Room, Quality Assurance, Nutrition/Food Service, Medical Office Staff, Performance Improvement, and Material Management (pumps, supplies, etc.). Providence Little Company of Mary went so far as to include outside participation from Women, Infants, and Children (WIC), the Department of Public Health, Breastfeed LA, and community representation (local mothers who had given birth at the hospital) on their Task Force.

The sheer volume and diversity of the departments involved across the hospitals suggest just how far-reaching the Baby-Friendly policy changes are. Inter-departmental communication, at the least, and formalized collaboration, at best, were identified as a vital supports to smoothly implement the new policies.

Though other hospitals may not have established Breastfeeding Task Forces, they still emphasized hospital wide communication and education. At Beverly, for example, the lactation consultant hosted trainings for various *touch departments* (other hospital departments that may come in contact with

breastfeeding mothers) like the Emergency Room (ER) and Intensive Care Unit (ICU). Administrators at Beverly mentioned the success of training the Pharmacy on preferred medications for breastfeeding mothers. At Valley Presbyterian, administrators were proud that the Women's Services Department consistently received calls from the ICU to support admitted breastfeeding mothers, and of their work with the Pharmacy to document formula as any other medication – complete with order forms and physician authorization.

Executive support played a critical role in interdepartmental collaboration. Administrators from five hospitals specifically identified executive support as key to creating collaboration among the staff. As one administrator put it, “When I came on board administration reiterated their support. [...] It’s a concept of *is this where this hospital wants to go?* If administration feels this is the best thing for our moms, the baby, and their health, that’s the deciding factor.” Conversely, one hospital administrator identified the lack of guidance from hospital management as a barrier to meaningful collaboration: “There hasn’t been that inter-disciplinary assistance. [...] In the planning phase this should have been very clear from executive management--that all the departments will be required to work together and have to meet. Each department needs to have their own piece and take ownership of it.”

Administrators sought support from regional consortiums of hospitals that are already certified or are pursuing certification. Administrators from three hospitals indicated that there was great support available from the consortiums. They often adapted policies and practices already implemented in other hospitals, and found that to be an invaluable resource in their transition.

Step 2. Train all health care staff in the skills necessary to implement this policy.

Hospitals utilized various strategies to train staff on baby-friendly policies and practices including the use of expertise internal and external to their hospital. Hospitals informed the staff of the coming changes through various forms of communication (e.g., staff and committee meetings, newsletters, handouts, bulletin boards, and by involving them in the creation and implementation of the new policies). Valley Presbyterian went so far as to develop a group called Nurse Champions to help implement the changes and monitor the challenges. In order to effectively train the staff, hospitals strategically leveraged external expertise in order to build internal capacity. To educate physicians, they brought in expert doctors from other Baby-Friendly hospitals and leaned on internal champions in their respective departments. To educate nurses, they contracted with outside agencies, hired lactation educators and/or utilized train-the-trainer models to encourage nurse participation and ownership.

When asked about the major challenges to the Baby-Friendly Hospital Initiative, administrators from eight hospitals and nurses from seven hospitals listed physician resistance and education among the most difficult challenges. Administrators from four hospitals highlighted nurse resistance, while seven hospitals mentioned the logistics of nurse education.

PHYSICIAN EDUCATION

In the initial stages, hospitals struggled with getting doctors to complete their trainings. Whereas the three-day nurse training was often coordinated by a departmental director, doctors were expected to complete the three-hour training on their own time. Hospitals supported doctors toward completion by

placing computers in the Doctors' Lounge where they could easily access the materials, identifying champions within the various departments who could encourage fellow doctors to complete the training and adopt baby-friendly practices, and offering continuing education units to physicians. Hospitals also utilized external supports by bringing in doctors from other baby-friendly hospitals to conduct trainings and address any lingering questions or concerns their own doctors might have.

A lot of our physicians are very old and old school, so there's also a culture involved. I've been getting our champions [together]. We have a few of the doctors in each of the units to be our champions. When I come to the doctors meetings they have, I come to talk to them and the champions will back me up with the information.

- Administrator

After the education phase, doctors sometimes continued to resist Baby-Friendly practices. Common areas of struggle included resistance to skin-to-skin immediately following birth and a tendency to supplement with formula because of fears of dehydration and jaundice.⁴² According to nurses, skin-to-skin may be delayed because doctors prefer to finish the procedure while the newborn is placed in the warmer to be cleaned and measured. Nurses and administrators indicated that “old school” and “old fashion” doctors often turned to supplementation too quickly due to fears of weight loss and jaundice. Administrators addressed doctors' concerns during their committee meetings. Pacific Alliance, for example, systematically listed the fears of the physicians and addressed them one by one. According to an administrator there, “We became very successful by listening to everyone's concerns and addressing those different types of concerns.” This included working with Baby-Friendly USA to see what other hospitals facing the same challenges were doing, coordinating a medical education on breastfeeding based on the physicians' concerns, changing practices like weighing the baby before and after feedings so they could confirm the baby was getting enough fluid, developing a bili⁴³ scale for the doctors to reference, and purchasing bili lights that could work in the room rather than having to separate mom and baby. A less comprehensive approach was evident at one hospital where administrators implemented changes in the medical staffing so that physicians more inclined to adopt new practices were chairing the committees.

Hospitals have limited influence when they do not own the doctors' offices, but the doctors merely contract birthing privileges at the hospital. An administrator at one such hospital described the challenges of working with doctors under such arrangements stating that doctors had told hospital administration that they could not dictate who can and cannot come into the doctor's office and talk to the doctor's patients about formula. One hospital's response to resistant doctors who contract birthing privileges was

⁴² Jaundice is a common condition in newborns caused by excess bilirubin in the blood usually due to the immaturity of the newborn's liver or insufficient breast milk. Bilirubin is a substance created by the normal breakdown of red blood cells and normally removed by the liver. Jaundice typically does not require treatment and will disappear in a few days, but phototherapy and increased feedings are common treatments that help eliminate the excess jaundice. Source: The American Academy of Pediatrics. A Minute for Kids: Managing Newborn Jaundice. Retrieved from www.aap.org on August 20, 2013.

⁴³ Bili is a common shortened term used for bilirubin, a substance created by the normal breakdown of red blood cells and normally removed by the liver. When there are excessive amounts of bilirubin in blood, it may result in jaundice. Jaundice typically does not require treatment and will disappear in a few days, but phototherapy (sometimes referred to as bili lights) and increased feedings are common treatments that help eliminate the excess jaundice. Bili scales are used to provide guidance on the normal levels of bilirubin found in newborn babies. Source: The American Academy of Pediatrics. A Minute for Kids: Managing Newborn Jaundice. Retrieved from www.aap.org on August 20, 2013.

to present the information about breastfeeding as a moral and ethical issue for patient care, and require the three-hour training as part of their credentialing.

Four hospitals indicated that anesthesiologists presented similar challenges to hospitals as they may not be in regular contact with mothers or are contracted for single procedures. According to administrators, their compliance is vital to skin-to-skin and breastfeeding success after C-sections because they need to allow recovery in the patients' rooms and adjust their medications to breastfeeding standards.

NURSE EDUCATION

Nurse resistance to the new practices was most often associated with a general resistance to change. As one administrator succinctly assessed the situation, “We are closing units they’ve been working in for 30 years and asking them to change a lot of their practices.” In Labor and Delivery, nurses had to learn to conduct the initial cleaning of the baby while mom and baby are skin-to-skin and how to use new non-invasive equipment that allows the dyad to remain together. Postpartum and nursery nurses are now expected to care for the mom and baby together rather than separately as was the typical practice; their challenges emerged in the cross-training required for couplet care and learning new techniques and challenges caring for the mother and baby dyad. Nurses were burdened with the acquisition of new skills, while administrators had to manage the new logistics of staffing and training.



I would recommend everyone attend lactation consultation classes. It really helped me a lot. [...] I better understand what I need to know and how to communicate that to moms.

- Nurse

Administrators identified challenges to training nursing staff ranging from scheduling staff to budgeting nurse overtime, coordinating part-time and per-diem nurses, and ensuring enough employees are in the training while the department remains adequately staffed. Four hospitals side-stepped these challenges by contracting outside agencies to schedule and conduct the trainings. This allowed nurses to attend classes that fit their schedules and relieved administrators of the many scheduling burdens.

Three hospitals had regular breastfeeding skills labs or refresher courses for nurses. At Garfield, the skills lab was run by high performing nurses who could review the materials with their peers. Nurses also became more comfortable assisting mothers in breastfeeding over time as nurses gained experience in this area.

Five hospitals sent nurses to become Certified Lactation Educators (CLEs). These nurses conducted follow-up training with staff and provided extra lactation support on the floor. In addition to training CLEs, Providence utilized a train-the-trainer model in which nurses attended an additional two-day course that allowed them to conduct the trainings at the hospital.

TRAINING NEEDS

The extra presence of CLEs provided much needed assistance to nurses—especially in the initial stages of the initiative when they were tasked with learning their new roles. Nurses from six hospitals suggested

that lactation consultants be made available around the clock. Both nurses and administrators noted that breastfeeding practices were negatively impacted when there was no CLE support on the floor during the night and weekend shifts. Pacific Alliance hired additional lactation consultants to ensure that 24 hour support was available to patients.

Given that 90% of the moms giving birth at these hospitals come from minority populations in Los Angeles, it is no surprise that nurses requested trainings in cultural competency. Staff lamented the fact that there were no built-in supports or materials from Baby-Friendly USA that addressed the cultural challenges prevalent in Los Angeles, including: ideologies of childbirth and childrearing, conceptions about breast milk and formula benefits, and methods of interacting with family members and visitors who might influence the mother to use formula or pacifiers.

MONITORING PROGRESS

Six hospitals used the administrative data to monitor progress among staff practices. Data practices ranged from hospitals using individual physician and nurse performance to schedule follow-up trainings where necessary, to sharing trend data at committee, staff, and task force meetings, showing the increase and decrease in breastfeeding rates and baby-friendly practices over time.

According to hospital administrators and nurses, transitioning to electronic medical records (EMR) was a vital prerequisite to successfully using data to monitor their hospitals' practices. Nurses preferred to have all the information integrated into their standard data collection, and administrators noticed that data collection improved once it became standardized in the EMRs.

TRAINING COSTS

Eight hospitals identified training costs as the largest or most unexpected portion of their budget. Some of these costs were extra staff time to cover the department, overtime for nurses, training materials, and regular follow-up trainings.

Implementing Baby-Friendly Policies and Practices

Step 3. Inform all pregnant women about the benefits and management of breastfeeding.

Hospitals recognized the importance of early education about breastfeeding and implemented a wide range of strategies to maximize early exposure about the benefits of breastfeeding and baby-friendly hospital practices that mothers could expect. As evidenced in the findings of the case study hospitals, initial breastfeeding intent significantly impacted breastfeeding practices. Staff experienced this in their education efforts, and unsurprisingly, administrators from four hospitals and nurses from five hospitals emphasized the importance of educating

We have a women's care clinic associated with the hospital to provide education to [mothers] before they deliver. Only 1/5 of our patients have gone there, but if they get their prenatal education, they are jewels to us. They come prepared and know what to expect when they come in to deliver.

- Administrator

mothers before they reach the hospital. To maximize exposure to breastfeeding and baby-friendly practices before mothers are admitted for delivery, hospitals:

- Outlined the new policies and practices during regular birthing tours.
- Encouraged prenatal doctors to expound the benefits of breastfeeding and new hospital practices.
- Emphasized breastfeeding in their prenatal classes. Speaking about the prenatal classes, one mom at Pomona Valley said, “They let you know that they are going to be promoting breastfeeding. They tell you about the skin-to-skin. It was not a surprise. They [...] already tell you what this hospital is about.”
- Utilized strategies to provide education about breastfeeding at community clinics that feed into their hospitals and other community-based locations. For example, East LA Hospital assigned perinatal and community outreach workers to distribute materials to the 13-15 feeder clinics sending patients to their hospitals. Providence’s Community Health department hosted lunches for local clinicians and visited clinics to educate staff about the new hospital practices and the benefits of breastfeeding. Memorial Gardena trained clinic staff as CLEs to begin educating moms as early as possible.

In cases where hospitals were not able to send outreach workers into the local community, nurses also suggested additional advertising both outside the hospital (e.g., community public service announcements) and in the hospital (e.g., a multi-lingual breastfeeding channel in the patients’ rooms).

Focus group participants reported that the hospital emphasis on breastfeeding was immediately apparent. Because patients may arrive at the hospital with little knowledge about formula or breastfeeding, hospitals are required to clearly advertise the new baby-friendly practices and begin education upon admission. In addition to the interactions with hospital staff, one mother noted, “Around the hospital, as soon as you walk into the Women’s Center, they have the Breastfeeding 10 Tips. It’s posted all over the Women’s Center.”

Step 4. Help mothers initiate breastfeeding within one hour of birth.

Implementing skin-to-skin for mothers who delivered via C-section posed additional challenges. Nurses and administrators indicated that skin-to-skin was regularly implemented after vaginal deliveries. Patients confirmed that skin-to-skin was started almost immediately after birth, and that staff encouraged them to breastfeed right away. According to one patient, “They all do skin-to-skin. Each nurse made me try to breastfeed her.”

However, patients indicated a longer wait time for C-Section births that was corroborated by the staff interviews. Most hospitals were still wrestling with how to best implement skin-to-skin after a C-Section, while some hospitals had not yet begun working on C-Section skin-to-skin at the time of the interviews. The C-Section procedure presents many challenges for hospitals. Not only do

I thought there was going to be more time between, but for me it was immediate. I had this gooey mess on me [and] the timeframe for breastfeeding was immediate. There was a nurse was walking me through this right away.

-Mother

mothers require adequate recovery time before skin-to-skin, but the operating room is sometimes located on a different floor of the hospital or otherwise separate from the patient recovery rooms and/or the postpartum area. In such instances, mothers and babies are transported separately across the hospital—further delaying skin-to-skin even if the mother recovers in a timely manner.

Corroborating staff opinions about the value of lactation support (Step 2, above) was highlighted as an effective way of addressing patient concerns immediately after birth. Mothers reported hearing about the benefits of breastfeeding and becoming frustrated when they were unable to succeed either due to low production of breast milk or latching issues. While one patient said that the nurses were “very knowledgeable” and did not need additional support, another mother clearly required additional support for her and her child:

“The Lactation Consultant was very helpful. I had problems with my daughter latching on. She helped me through it. She was my cheerleader [and provided] emotional support. I wasn’t pumping enough and she made me feel comfortable. My child had jaundice and was underweight, but the Lactation Consultant encouraged me to breastfeed.”

Step 5. Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.

Nurses from two hospitals and administrators from four hospitals emphasized their hand expression⁴⁴ practices with the patients. The nurses that explicitly mentioned hand expression consider it a standard practice of theirs, and they do it with every mother to prepare them for breastfeeding. The value of this practice and early education was made clear in the patient focus group. According to one mother, “During lactation center, they tell you to stimulate the milk for the milk to come down, but they did not tell me that before and my baby was early. I would have done that if I would have known.”

Step 6. Give infants no food or drink other than breast-milk, unless medically indicated.

As mentioned in Step 3 above, many moms arrived without being thoroughly educated to the benefits of breastfeeding or the other baby-friendly practices. Several hospitals viewed a mother’s request for formula as an opportunity to maximize patient education. The strategies implemented included one or more of the following practices before distributing formula:

- The nurse first assessed any issues the mom was having and offered additional education or assistance as required.
- Lactation support was brought in to assist and educate the mom.
- The patient must sign an informed consent detailing that she was educated on and is aware of the benefits of breastfeeding over formula feeding.
- Formula was distributed only after a written physician’s order was completed.

⁴⁴ The practice of hand expression entails expressing breast milk without the use of breast pumps or other machines.

The limitation of formula was immediately apparent to birthing moms. Moms reported that little to no information was given to them on supplementing with formula, and that hospitals did not provide formula in their gift bags. Hospitals offered alternative items like breast pumps and diapers in their gift bags.

Of all the interviewees, only one nurse indicated that babies might be given water in the nursery as staff wait for the mom to recover from a C-section. Other than this single case, staff insisted that no water was given to the babies and that formula was only given if medically indicated. While staff may have only supplemented under these circumstances, patients reported that they were not informed until after the fact that formula was given in these instances.

When I had my first child, I had easy access to formula at the hospital. But with this child, I had to ask for formula. The fact that I had to ask, it kind of made me want to try to breastfeed. So, in this case, I breastfed him before I gave him the formula.

-Mother

Step 7. Practice rooming in - allow mothers and infants to remain together 24 hours a day.

Interviewees at every hospital indicated that the mom and baby dyad were allowed to remain together in their rooms. According to nursing and administration staff, however, challenges to rooming in included:

- Patients' desires to be away from the baby due to fatigue, cultural beliefs about separating newborn babies from mom, etc.
- Babies were sometimes brought to the nursery for bathing and medication.
- Some doctors preferred to examine the baby in the nursery either out of preference or out of necessity (e.g., a common example here was the silence needed to conduct the hearing test, to conduct blood extraction, or to be under bili lights).

Administrators suggested that rooming in practices would be cemented once nurseries were closed because nurses would not be able to separate the dyad without medical reasons.

Step 8. Encourage breastfeeding on demand.

Eleven of the twelve hospitals confirmed that they encourage moms to practice breastfeeding on demand.

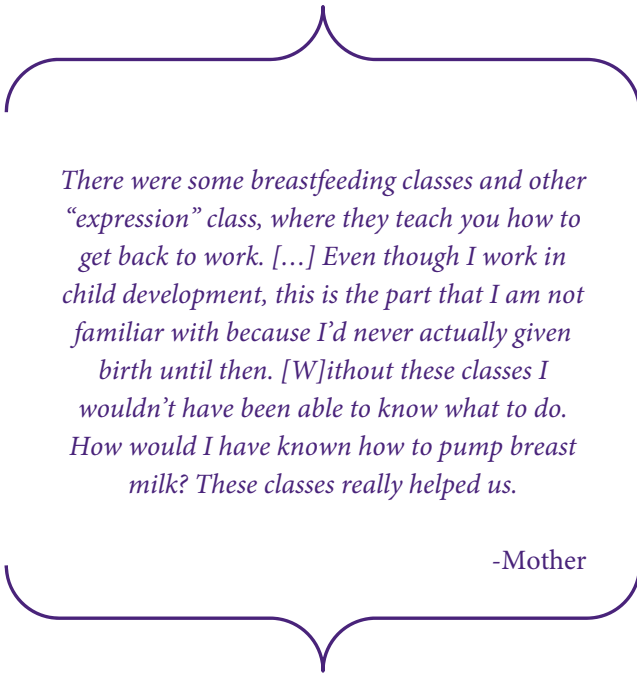
Step 9. Give no pacifiers or artificial nipples to breastfeeding infants.

As alternatives to pacifiers, six hospitals indicated that they used cups, syringes, or finger feeding. Though all hospitals indicated that they restricted the use of artificial nipples and pacifiers, five hospitals indicated that they still give pacifiers for painful procedures or to babies with sucking issues.

Supporting Patients beyond their Hospital Stay

Step 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center.

Five hospitals established breastfeeding classes or support groups for moms to attend after discharge, five hospitals referred new moms to local organizations such as WIC and La Leche League, and seven hospitals distributed numbers to reach their lactation consultant or breastfeeding hotline in case the moms had questions. While all the referrals provided valuable support, patients in the focus groups highlighted the benefits of services available via breastfeeding support groups and lactation centers. For example, patients at Pomona Valley who had trouble breastfeeding continued to visit the lactation center post-discharge to receive valuable assistance.



There were some breastfeeding classes and other “expression” class, where they teach you how to get back to work. [...] Even though I work in child development, this is the part that I am not familiar with because I’d never actually given birth until then. [W]ithout these classes I wouldn’t have been able to know what to do. How would I have known how to pump breast milk? These classes really helped us.

-Mother

Conclusions

Recognizing the numerous benefits associated with breastfeeding and the important role that hospitals and birthing facilities play in educating and supporting new mothers in their decision to breastfeed, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) developed the Baby-Friendly Hospital Initiative (BFHI). This initiative assists hospitals in implementing the “Ten Steps to Successful Breastfeeding,” evidence-based policies and practices that have been found to provide mothers with the knowledge, skills, and confidence to initiate and continue breastfeeding.

In 2009, First 5 LA committed \$10.5 million to assist up to 21 hospitals with low in-hospital exclusive breastfeeding rates to seek Baby-Friendly Hospital designation. This point-in-time evaluation of the 16 hospitals that began receiving funding between 2009 and 2011 identified the challenges and accomplishments of the participating hospitals as well as strategies that they utilized in changing hospital policies and practices. Key findings from this evaluation are highlighted below as well as their implications for future efforts.

- **Intent Matters.** Among the three case study hospitals, the evaluation found that mothers who entered hospitals with intent to breastfeed were more likely to do so. Hospital staff and mothers confirmed that early education about the benefits of breastfeeding and what mothers might expect immediately following delivery were helpful in supporting breastfeeding efforts. In order to educate pregnant women about Baby-Friendly practices, hospitals outlined new policies and practices during regular birthing tours; encouraged prenatal doctors to expound the benefits of breastfeeding and what moms could expect at the hospital; emphasized breastfeeding in their prenatal classes; and assigned perinatal and community outreach workers to create and distribute materials, host lunches for local clinicians, and visit feeder clinics to educate staff about the new hospital practices and the benefits of breastfeeding.
- **Hospital Practices for Mothers with No Intent to Breastfeed.** The evaluation found that for the three case study hospitals there was a three-way interaction among breastfeeding intent, delivery route, and skin-to-skin which suggests that *skin-to-skin contact is especially supportive of breastfeeding for women who enter the hospital without breastfeeding intent and who deliver via C-section*. These results suggest that hospitals have the opportunity to influence a woman's choice of feeding method when she expresses no intent to breastfeed. More specifically, ensuring that mothers and babies experience skin-to-skin contact, especially after a C-section, may be one important avenue to increase breastfeeding among mothers initially resistant to doing so. In light of this finding, it is important to note that staff described how some hospital practices (such as weighing, measuring, and bathing the baby) may prevent or limit skin-to-skin. BFHI and the American Academy of Pediatrics recommend either conducting these procedures while the baby is skin-to-skin with mother or delaying them until the first feeding is complete. Hospital staff described additional challenges in implementing skin-to-skin for mother who deliver via C-section including the mother's need for recovery time, the distance

between the operating room and patient recovery rooms and/or the postpartum area, and anesthesiologists who are often contracted for single procedures and therefore may pose additional training challenges.

- **Capacity for Data Collection.** As described in the report, there were a number of concerns about the quality of data provided by participating hospitals. Hospitals noted and the evaluation team confirmed that in general data quality increased throughout the period of the grant. However, for future evaluation efforts it will be important to consider the resources and capacity that participating hospitals have around data collection and reporting. While the Patient Protection and Affordable Care Act (PPACA) mandates that all public and private healthcare providers must have adopted and demonstrated “meaningful use” of electronic medical records (EMR) in order to maintain their existing Medicaid and Medicare reimbursement levels by January 1, 2014, it is likely that hospitals will still need support in collecting and reporting data elements for evaluative purposes.

Appendix A: Hospital Self-Assessment Survey

In June 2012, six hospitals from the first round of Baby-Friendly funding (Pomona Valley, Hollywood Presbyterian, St. Mary, Monterey Park, East Los Angeles, and White Memorial) and seven hospitals from the second round of Baby-Friendly funding (Garfield, Pacific Alliance, Little Company of Mary, Greater El Monte, Gardena, St. Francis, and Valley Presbyterian) completed a self-assessment gauging how far along they were in completing the 10 steps to becoming designated as a Baby-Friendly Hospital.

Each step is presented followed by a number of activities that if completed indicate progression towards that baby-friendly step. For each activity, hospitals were asked to respond 1) *yes*- they have completed the activity, 2) they are *in progress* to completion, 3) *no*- they have not completed nor are they in progress to complete the activity, or 4) they are *unsure* of where they are in the process of completing the activity. A summary of hospitals progress in each of these steps is summarized below.

Step 1: Have a written breastfeeding policy that is routinely communicated to all health care staff.

1.1 Does your hospital have written breastfeeding policies?

1.2 Do your policies address Baby-Friendly's Ten Steps to Successful Breastfeeding?

1.3 If your hospital has written breastfeeding policies, are they routinely communicated to all health care staff and physicians?

1.4 Do your infant feeding policies clearly state the medical indications for supplementing breastfed babies?

1.5 Are breastfeeding policies posted on bulletin or information boards throughout the hospital?

1.6 Are breastfeeding policies communicated to all new staff, travelers, and registry nurses during orientation?

1.7 Does your hospital have a breastfeeding quality improvement team that reviews and updates policies and practices?

Summary of Step 1 Findings

- Across the six round one hospitals, the number of activities completed ranged from all seven to two activities.
- Across the seven round two hospitals, the number of activities completed ranged from all seven to one activity.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 1.5, with four hospitals (one from round one and three from round two) reporting that they had not yet posted breastfeeding policies on bulletin or information boards throughout the hospital.
 - Activity 1.6, with one round one hospital reporting that they had not yet communicated breastfeeding policies to all new staff, travelers, and registry nurses during orientation.
 - Activity 1.7, with one round one hospital reporting that they had not yet developed a breastfeeding quality improvement team that reviews and updates policies and practices.

STEP 2: Train all health care staff in the skills necessary to implement this policy.

- 2.1 Are breastfeeding policies readily available in nurses' stations?
- 2.2 Are breastfeeding policies available in all maternal and child health departments?
- 2.3 Are breastfeeding policies and breastfeeding and lactation management a part of continuing education for maternity care staff and physicians?
- 2.4 Does your hospital provide breastfeeding education to all non-nursing staff that care for mothers and babies?
- 2.5 Is your maternity care staff trained to recognize the cultural barriers to breastfeeding associated with different ethnic and racial populations served?
- 2.6 Does your hospital use a postnatal breastfeeding checklist to document maternal education/interventions?
- 2.7 Does your hospital offer a 16 to 18 hour breastfeeding and lactation management course to all maternity care nurses?
- 2.8 Are newly hired maternity care nurses trained in breastfeeding and lactation management within six months of hire?
- 2.9 If the hospital has a breastfeeding and lactation management course, is there a three-hour supervised clinical component?

Summary of Step 2 Findings

- Across the six round one hospitals, the number of activities completed ranged from all nine activities to six activities.
- Across the seven round two hospitals, the number of activities completed ranged from eight of the nine activities to one activity.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 2.6, with three hospitals (two from round one and one from round two) reporting that they had not yet begun to use a postnatal breastfeeding checklist to document maternal education/interventions.
 - Activity 2.4, with one round two hospital reporting that they had not yet provided breastfeeding education to all non-nursing staff that care for mothers and babies.
 - Activity 2.9, with one round two hospital reporting that they had not yet implemented a three-hour supervised clinical component to their breastfeeding and lactation management course.

STEP 3: Inform all pregnant women about the benefits and management of breastfeeding.

- 3.1 Does your hospital send expectant mothers any information about breastfeeding prior to admission?
- 3.2 Does your hospital offer prenatal classes?
- 3.3 Does your hospital provide free breastfeeding education to parents?
- 3.4 Is breastfeeding covered in the prenatal class curriculum?
- 3.5 Does your hospital's prenatal education include lessons on formula preparation?
- 3.6 Do prenatal records indicate a mother's intent to breastfeed?
- 3.7 Do pregnant women view hospital-provided information, participate in maternity tours, or other activities that provide instructions in bottle feeding?
- 3.8 Does your hospital display educational media such as posters or signs that promote breastfeeding?
- 3.9 Does your nursing staff have "scripted" or "model" answers to respond to mothers regarding use of pacifiers?
- 3.10 Does your nursing staff have "scripted" or "model" answers to respond to mothers regarding requests to remove baby from the room?
- 3.11 Does your nursing staff have "scripted" or "model" answers to respond to mothers regarding giving infants' formula without medical reasons?

Summary of Step 3 Findings

- Across the six round one hospitals, the number of activities completed ranged from nine of the eleven activities to two activities.
- Across the seven round two hospitals, the number of activities completed ranged from ten of the eleven activities to one activity.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 3.7, with eight hospitals (two from round one and six from round two) reporting that pregnant women had not yet viewed hospital-provided information, participated in maternity tours, or other activities that provided instructions in bottle feeding.
 - Activity 3.5, with seven hospitals (two from round one and five from round two) reporting that their hospitals' prenatal education did not include lesson on formula preparation.
 - Activity 3.1, with four hospitals (three from round one and one from round two) reporting that they had not begun sending expectant mothers information about breastfeeding prior to admission.
 - Activity 3.6, with three hospitals (two hospitals from round one and one from round two) reporting that their prenatal records did not indicate a mother's intent to breastfeed.
 - Activities 3.9 and 3.10, with two hospitals reporting that they had not yet implemented each of these activities.
 - Activities 3.2, 3.4, 3.8, and 3.11 with one hospital indicating that they had not yet implemented each of these activities.

STEP 4: Help mothers initiate breastfeeding within one hour of birth.

- 4.1 At a vaginal delivery, do your doctors/midwives place the baby immediately on the mother's abdomen?
- 4.2 Are all mothers, regardless of their feeding intention, encouraged to hold their babies skin-to-skin (STS) as soon as possible after birth?
- 4.3 In the first hour after a vaginal delivery, does your hospital have a "No Visitor" policy that supports the mother/infant dyad?
- 4.4 Does your hospital have policies that encourage mothers to hold their newborn STS during the first two hours following birth and as much as possible thereafter, unless contraindicated?
- 4.5 Following C-sections, are normal newborns immediately placed STS with mothers in the operating room (OR)?
- 4.6 Following C-sections, are newborns generally taken to the Newborn Nursery?
- 4.7 Following C-sections, are normal newborns placed STS with mothers as soon as they arrive in the post-operative recovery area?
- 4.8 Does your delivery or postpartum documentation include initiation and duration of STS?
- 4.9 Does your delivery or postpartum documentation include reasons for delay of STS?
- 4.10 Does your delivery or postpartum documentation include reasons for delay of breastfeeding?
- 4.11 Are routine newborn procedures (e.g. eye care, foot printing, etc.) postponed until after initial period of STS contact?

Summary of Step 4 Findings

- Across the six round one hospitals, the number of activities completed ranged from ten of the eleven activities to three activities.
- Across the seven round two hospitals, the number of activities completed ranged from eight of the eleven activities to one activity.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 4.3, with six hospitals (three from round one and three from round two) reporting that they had not yet implemented a “no visitor” policy in the first hour after vaginal deliveries.
 - Activity 4.5, with five hospitals (two from round one and three from round two) reporting that they had not yet begun placing normal newborns skin-to-skin immediately following a C-section.
 - Activity 4.6, with three hospitals (one from round one and two from round two) reporting that newborns are generally not taken to the Newborn Nursery following a C-section.
 - Activity 4.7, with two hospitals (one from round one and one from round two) reporting that they had not yet begun placing normal newborns delivered via C-section skin-to-skin with mothers as soon as they arrive in the post-operative recovery area.
 - Activities 4.1, 4.4, 4.8, 4.9, 4.10 and 4.11 with one hospital indicating that they had not yet implemented each of these activities.
- There was one round one hospital that had not yet begun to implement six of the step 4 activities.

STEP 5: Show mothers how to breastfeed and how to maintain lactation even if they are separated from their infants.

- 5.1 Does your hospital have staff specially trained in lactation available full-time to advise and assist mothers with successful breastfeeding?
- 5.2 Does your hospital staff teach mothers how to hand express milk?
- 5.3 Are all mothers taught the proper storage of breast milk?
- 5.4 Does your hospital staff teach all mothers how to recognize infant feeding cues, proper latch and positions for optimal breastfeeding?
- 5.5 Does your hospital staff teach all mothers how to recognize normal urine and stool output?
- 5.6 Does maternity care staff give special attention and support to mothers who have never breastfed or previously encountered problems with breastfeeding?
- 5.7 Does your hospital routinely refer all breastfeeding mothers to a lactation consultant?
- 5.8 Does your hospital refer mothers to a lactation consultant only when there is a feeding problem?

Summary of Step 5 Findings

- Across the six round one hospitals, the number of activities completed ranged from all eight to three activities.
- Across the seven round two hospitals, the number of activities completed ranged from all eight to two activities.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 5.7, with six hospitals (three from round one and three from round two) reporting that they do not routinely refer all breastfeeding mothers to a lactation consultant. .
 - Activity 5.8, with four hospitals (three one round and one from round two) reporting that they do not refer mothers to a lactation consultant only when there is a feeding problem.
 - Activity 5.1, with three round two hospitals reporting that they do not have staff specially trained in lactation available full-time to advise and assist mothers with successful breastfeeding.

STEP 6: Give infants no food or drink other than breast milk unless medically indicated.

6.1 Are babies receiving only breast milk, no other food or drink, unless medically indicated or requested by parent?

6.2 Is it hospital policy to document reasons for giving formula?

6.3 Is it policy to document nursing interventions (e.g. patient education) to prevent non-medically indicated formula supplementation?

6.4 Does your hospital receive low cost or free formula?

6.5 Does your hospital supply any free formula samples or discharge bags to mothers?

6.6 Do you have standing Pediatric orders for PRN formula for breastfed babies?

Summary of Step 6 Findings

- Across the six round one hospitals, the number of activities completed ranged from four of the six activities to two activities.
- Across the seven round two hospitals, the number of activities completed ranged from five of the six activities to one activity.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 6.5, with seven hospitals (three from round one and four from round two) reporting that they do not supply any free formula samples or discharge bags to their mothers. .
 - Activity 6.6, with six hospitals (three from round one and three from round two) reporting that they do not have standing Pediatric orders for PRN formula for breastfed babies.
 - Activity 6.1, with two round two hospital reporting that they had not yet implemented the practice of having babies receive only breast milk, no other food or drink, unless medically indicated or requested by parent.
 - Activity 6.2, with one round two hospital reporting that they had not it was not yet their policy to document reasons for giving formula.

Step 7: Practice rooming-in – allow mothers and infants to remain together twenty-four hours a day.

7.1 Is one RN assigned to the care of both mother and baby / couplet care?

7.2 Do mother and baby couples room-in at least 23 hours a day?

7.3 Are couplets temporarily separated when transferred from the delivery room to the postnatal room?

7.4 Do nurses clearly indicate in records the reason(s) for removing baby from the bedside?

7.5 If babies are separated from their mothers for more than an hour, are mothers allowed to breastfeed their babies in the nursery?

7.6 Does your documentation include how long babies are away from their mothers?

Summary of Step 7 Findings

- Across the six round one hospitals, the number of activities completed ranged from all six to two activities.
- Across the seven round two hospitals, the number of activities completed ranged from four of the six activities to two activities.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 7.3, with five hospitals (four from round one and one from round two) reporting that couplets are not temporarily separated when transferred from the delivery room to the postnatal room.
 - Activity 7.6, with two hospitals (one round one and one round two) reporting that their documentation does not include how long babies are away from their mothers.
 - Activity 7.1, with one round one hospital reporting that one RN is not assigned to the care of both mother and baby / couplet care.

STEP 8: Encourage breastfeeding on demand.

- 8.1 Does your hospital staff instruct mothers to feed their babies on demand?
- 8.2 Are mothers taught to recognize infant feeding cues?
- 8.3 Are mothers taught to understand infant feeding patterns?
- 8.4 Are mothers taught how many urine/meconium diapers to expect per day?
- 8.5 Are mothers taught how many feeds to expect per day?
- 8.6 Are mothers taught to recognize normal behavior during a feed?
- 8.7 Are mothers taught to not limit the number of breastfeeds?
- 8.8 Are mothers taught to not limit the lengths of feeds?

Summary of Step 8 Findings

- Across the six round one hospitals, the number of activities completed ranged from all eight to one activity.
- Across the seven round two hospitals, the number of activities completed ranged from all eight to two activities.
- Twelve of the thirteen hospitals reported that all activities were either completed or in progress.
- One round one hospital was unsure about progress made with two activities.

STEP 9: Give no pacifiers or artificial nipples to breastfeeding infants.

9.1 Does maternity care staff encourage STS contact as a method to soothe the infant?

9.2 Does your hospital staff teach breastfeeding mothers not to give their babies bottles, artificial nipples or pacifiers?

9.3 Does your hospital staff teach any other method of infant feeding besides bottle feeding (e.g. cup, spoon, and syringe)?

Summary of Step 9 Findings

- Across the six round one hospitals, the number of activities completed ranged from all three to none of the activities.
- Across the seven round two hospitals, the number of activities completed ranged from two of the three activities to none.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 9.2, with one round two hospital reporting that they had not yet begun teaching breastfeeding mothers not to give their babies bottles, artificial nipples or pacifiers.
 - Activity 9.3, with one round two hospital reporting that their staff does not teach any other method of infant feeding besides bottle feeding (e.g. cup, spoon, and syringe).

STEP 10: Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center.

10.1 Does your hospital provide "take home" breastfeeding education information to families?

10.2 Does your hospital have a "telephone advice" policy for infant feeding calls to MCH?

10.3 Does your hospital provide breastfeeding mothers with information about community breastfeeding support resources for help after discharge?

10.4 Does your hospital facilitate peer counseling for breastfeeding mothers?

10.5 Does your hospital have a system of follow-up support for mothers after discharge, such as early postnatal or lactation clinic check-ups, home visits or telephone calls?

10.6 Does your hospital staff discuss plans with mothers who are close to discharge for how they will feed their babies when they return home?

Summary of Step 10 Findings

- Across the six round one hospitals, the number of activities completed ranged from five of the six activities to none of the activities.
- Across the seven round two hospitals, the number of activities completed ranged from all six to none of the activities.
- The activities that were most frequently reported as not yet implemented included:
 - Activity 10.4, with six hospitals (three from round one and three from round two) reporting that they do not facilitate peer counseling for breastfeeding mothers.
 - Activity 10.2, with four hospitals (three from round one and one from round two) reporting that they do not have a "telephone advice" policy for infant feeding calls to MCH.

Activity 10.5, with three round one hospitals reporting that they do not have a have a system of follow-up support for mothers after discharge, such as early postnatal or lactation clinic check-ups, home visits or telephone calls.

Appendix B: Hospital Data Summary Tables⁴⁵

Summary of Hospital Characteristics (2011)^{46 47}

	Pilot	1 st Funding Round						
	CA Hospital	St. Mary	East LA	Hollywd Presby	Pomona Valley	White Memorial	San Gabriel	Monterey Park
Number of Births	3967	2762	825	3563	5865	3485	1932	1539
Type of Hospital	Large Chain Nonprofit	Large Chain Nonprofit	Small Community Investor	Large Chain Investor	Large Community Nonprofit	Large Community Nonprofit	Medium Chain Investor	Medium Chain Investor
200% ↓ Poverty Level	64%	46%	54%	52%	30%	60%	30%	42%
In-patient Reimbursement Rates								
Private Insurance	20%	15%	10%	8%	15%	11%	28%	10%
Medicare	13%	33%	21%	30%	27%	31%	41%	30%
Medi-Cal	57%	51%	63%	55%	55%	53%	26%	56%
Other	10%	2%	6%	7%	3%	5%	5%	4%

	2 nd Funding Round							
	Greater El Monte	Gardena	Pacific Alliance	Little Co. of Mary	St. Francis	Garfield	Valley Presby	Beverly
Number of Births	433	1176	2035	2535	4895	3135	3767	804
Type of Hospital	Small Chain Investor	Medium Chain Investor	Medium Community Investor	Medium Chain Nonprofit	Large Community Nonprofit	Large Chain Investor	Large Community Nonprofit	Small Community Nonprofit
200% ↓ Poverty Level	34%	44%	62%	32%	52%	38%	36%	36%
In-patient Reimbursement Rates								
Private Insurance	9%	5%	5%	26%	10%	15%	16%	14%
Medicare	20%	36%	28%	48%	26%	38%	27%	52%
Medi-Cal	59%	52%	65%	22%	55%	34%	54%	30%
Other	12%	7%	2%	4%	9%	14%	3%	4%

⁴⁵ Monterey Park is not represented in the data summaries due because they discounted heir participation in First 5 LA's Baby-Friendly Hospital Initiative in May 2013.

⁴⁶ Per First 5 LA, the size of the hospital is based on the number of births as reported in the 2011 Maternal, Child, and Adolescent Health data. Small >1000 births, medium = 1001 to 3000 births, large < 3001 births for the 2011 year. <http://www.cdph.ca.gov/data/statistics/Documents/MO-BFP-HospitalTotalsReport-2011.pdf>

⁴⁷ Information on the poverty level and insurance reimbursement rates are based on data from the 2011 CA Office of Statewide Health Planning and Development. <http://gis.oshpd.ca.gov/atlas/places/facility>

Demographic Characteristics for Hospitals with Individual Administrative Data

	Pilot	1 st Funding Round					2 nd Funding Round				
	CA Hospital	St. Mary	East LA	Hollywood Presby	Pomona Valley	White Memorial	Greater El Monte	Gardena	Pacific Alliance	Little Co. of Mary	St. Francis
# of Mothers Whose Race/Ethnicity is....											
African-American/Black	22% (2096)	9% (250)	2% (32)	10% (51)	5% (341)	1% (6)	2% (8)	19 (84)	10% (220)	5% (23)	14% (824)
Asian/Pacific Islander	1% (91)	5% (148)	.3% (4)	15% (73)	5%(313)	4% (23)	6% (26)	2% (7)	4% (95)	3% (13)	.4 (24)
Caucasian/White	2% (159)	2% (69)	.5% (8)	5% (27)	15% (942)	2% (11)	2% (6)	4% (17)	.8% (18)	19% (91)	4% (246)
Hispanic/Latina	75% (7026)	77% (2182)	97% (1493)	64% (318)	74% (4773)	92% (557)	89% (365)	74% (334)	84% (1821)	.6% (3)	37% (2260)
Other	1% (53)	7% (177)	.1% (1)	6% (28)	1% (79)	1% (7)	1% (4)	1 % (7)	.6% (15)	73% (358)	45% (2761)
Missing	1	111	11	1	28	91	84	6	1	9	69
# of Mothers Who Speak... as a Primary Language											
English	66% (6241)	66% (1878)	39% (587)	--	68% (1389)	68% (411)	42% (172)	47% (51)	31% (383)	77% (369)	71% (2401)
Spanish	34% (3161)	33% (928)	61% (936)	--	30% (616)	31% (189)	54% (221)	53% (58)	67% (846)	22% (103)	29% (966)
Asian/ API Languages	.1% (8)	.7% (20)	0	--	.8% (16)	.7% (4)	3% (13)	0	2% (23)	0	.1% (3)
Other	.1% (7)	.2% (8)	.2% (3)	--	.6%(13)	0	0	0	.2% (3)	1% (5)	.2% (5)
Missing	9	2834	23	--	4442	91	87	346	915	20	2809
# of Mothers Who Experienced --- Route of Delivery											
Vaginal	70% (6641)	67% (1958)	45% (699)	58% (183)	29% (1442)	66% (401)	53% (241)	57% (256)	63% (1347)	68% (338)	61% (3738)
C-Section	30% (2784)	33% (978)	55% (839)	42% (133)	71% (2129)	34% (203)	48% (218)	43% (194)	37% (803)	32% (158)	39% (2445)
Missing	1	1	11	182	1526	91	34	5	20	1	1
# of Mothers Who Experienced --- Skin to Skin											
STS anytime	84% (7892)	51% (1445)	80% (1239)	74% (244)	70% (3508)	78% (543)	54% (201)	37% (122)	58% (1223)	56% (276)	87% (5328)
STS w/in 1 hr after birth	57% (5328)	51% (1434)	78% (1200)	--	37% (2425)	67% (466)	54% (201)	37% (122)	--	56% (276)	87% (5328)
# of Mothers Intention to Feed --- Admission											
BF Intention	--	49% (1413)	58% (224)	--	71% (4263)	96% (652)	67% (288)	37% (132)	--	71% (328)	50% (2960)
Formula Intention	--	11% (314)	3% (13)	--	9% (518)	4% (24)	9% (38)	15% (55)	--	13% (59)	10% (588)
Both Intention	--	40% (1167)	39% (152)	--	21% (1233)	.1% (1)	5% (108)	48% (174)	--	16% (74)	40% (2430)
Missing	--	43	1160	--	463	18	59	94	--	36	206
# of Mothers Who Fed --- During Stay											
BF During	34% (3216)	32% (910)	31% (462)	--	21% (1362)	37% (146)	39% (164)	5% (5)	78% (1700)	57% (276)	46% (2824)
Formula During	11% (1007)	13% (360)	4% (56)	--	10% (650)	--	12% (51)	45% (42)	--	34% (166)	109% (609)
Both During	55% (5193)	55% (1543)	65% (971)	--	69% (4414)	63% (250)	49% (208)	50% (47)	--	9% (45)	19% (1199)
Missing	10	124	60	--	50	299	70	361	470	10	1552

Appendix C: Administrative Data Verification and Cleaning

Overview

The quantitative analysis was guided by two research questions:

- 1) What were the demographic characteristics of the mothers who gave birth at hospitals participating in First 5 LA's Baby-Friendly Hospital Initiative?
- 2) What were the birthing experiences of mothers who gave birth at participating hospitals?

As noted in the full report, a combination of administrative and secondary data was utilized to answer these questions. This appendix includes information about each data source, approach, and analysis.

History

This section will describe the history leading up to and processes involved with readying grantee administrative data for analysis.

In March of 2012, First 5 LA introduced a data collection component to the funded hospitals and birthing centers. As part of the data collection component, First 5 LA asked grantees to collect and submit patient level data (also referred to as hospital administrative data) to First 5 LA in order to help hospitals monitor their progress throughout the process of implementing baby-friendly policies. Grantees were asked to submit aggregate administrative data during the first funding year and individual level administrative data during the second funding year. (See Exhibit 1 for details about the data that were requested.) In September of that same year, First 5 LA partnered with Harder+Company in the evaluation of their Baby-Friendly Hospital Initiative, which entailed an analysis of baby-friendly hospital administrative data.

Exhibit 1: First 5 LA Data Requests

First Year Funding Aggregate Administrative Data Requested	Second Year Funding Individual Administrative Data Requested
<ul style="list-style-type: none">■ Mother's race and language■ Number of deliveries■ Number of babies transported to more intensive care units■ Mother's in-hospital breastfeeding practice	<ul style="list-style-type: none">■ Mother's race and language■ Mother's zip code■ Mother's intent to breastfeed at admission and upon discharge■ Mother's date and route of delivery■ If baby was placed skin-to-skin within five minutes of birth and the duration of skin-to-skin■ If breastfeeding was initiated within the first hour of birth■ Reason for supplementation

In October, Harder+Company co-led an informational webinar with First 5 LA to introduce the grantees in First 5 LA's Baby-Friendly Hospital Initiative to the evaluation team and the evaluation plan, and to gain suggestions from hospital staff on the evaluation plan.

In November, webinar participants completed an online survey to identify key hospital staff who were knowledgeable about the administrative data hospitals provided First 5 LA. The position and roles/responsibilities held by these key individuals varied. For example, four grantees had a dedicated staff member to collect, clean, and maintain the data sets. These individuals were considered data collection/data specialists. For 12 grantees, the key hospital staff responsible for data played a dual role within the department, having one of several job duties related to data management. These individuals included program directors/coordinators (7), lactation consultants (2), patient educators (2), and a registered nurse (1).

Data Verification and Cleaning

Also during this time, First 5 LA provided Harder+Company the grantees' administrative data. To determine the quality and type of information collected, Harder+Company performed a crosswalk of all available data- this included organizing all individual level and aggregate administrative data files submitted to First 5 LA. From the data crosswalk process, Harder+Company learned that the grantees' administrative data varied greatly.

Based on guidance from First 5 LA, as well as the literature, the most crucial variables to find commonality among were related to: (a) skin-to-skin practices, (b) feeding intention/ practice, (c) route of delivery, and (d) mother demographics. After examining the variables' definition and scaling, it was determined that additional information would be needed in order to compare and summarize the administrative data across hospitals. (See Exhibit 2 for examples of administrative data challenges.)

In December, Harder+Company created and sent grantees a data summary table depicting the frequencies of their baby-friendly variables in the administrative data they sent to First 5 LA.

Harder+Company then conducted data review and verification meetings with all 16 grantees.

Exhibit 2: Administrative Data Challenges

Inconsistent data were provided both within and across hospitals.

- Across hospitals different variables were provided (e.g., only some hospitals provided information about skin-to-skin practices).
- Within hospitals data on some variables were only given for limited time periods (e.g., one hospital may have provided data on skin-to-skin practices for only 6 out of 12 months for which data were provided).
- Other times there were changes in how variables were defined (e.g., one hospital may have submitted 6 months of data about whether skin-to-skin occurred within the hour following delivery and data for another 6 months just indicated whether skin-to-skin occurred at some point during the mother's hospital stay).
- Some hospitals were not able to provide data for the first few months of the project while others were not able to provide data for intermittent periods during their grant.

Challenges with data reporting procedures:

- Some hospitals provided a sample of their individual level administrative data which First 5 LA has approved. However, some hospitals that provided a subset of their data were not able to describe the sampling strategies that they used.
- Some hospitals that provided aggregate data only included percentages and were not able to tell us the number of cases on which these percentages were based.

The data summary tables provided participating hospitals an overview of the data they submitted to First 5 LA and were used as a reference during the data discussions. Harder+Company used the data summary table as a tool to gain a better understanding of the grantees' experiences versus what was represented in the data, as well as to gain clarity on the data collection methods and variable definitions.

Based on the data conversations, Harder+Company received additional data from nine of the 16 grantees who said that they had more complete or more accurate data. With each addition of new data, Harder+Company cleaned the new data sets, re-ran frequencies, and updated the data summary tables, which were sent back to the grantee for verification. The time devoted to the data meetings varied by grantee, with some hospitals only requiring three data meetings to verify and confirm their data while other hospitals required up to six data meetings.

As data summary tables were verified, Harder+Company created a codebook to ensure a common understanding of the data (i.e., clarifying if bottle fed means supplemented with formula only, fed with both formula and breast milk, or breast milk exclusively). Once all administrative data was clarified and verified for accuracy (the final data meeting in order to complete Harder+Company administrative data collection occurred in April 2013), Harder+Company created a new, clean excel data shell for each grantee with raw data that consisted of the key variables. These excel data shells were then transferred into SPSS for additional transformations and analysis. (See Exhibit 3 for data cleaning and verification steps.)

Exhibit 3: Summary of Data Cleaning and Verification Steps

STEP 1: Perform crosswalk and identify key variables that are shared across grantees' administrative data

STEP 2: Clean and recode grantee individual administrative data
(combining/ analyzing multiple data sources for each grantee)

STEP 3: Run frequencies on variables and create data summary table

STEP 4: Share and verify data summary table with contact from each hospital

STEP 5: Request clarification and supplemental data, if available, from hospitals

STEP 6: Clean new data sets, re-run frequencies, update, and send the data summary table for verification

STEP 7: Create a codebook and excel data shell for verified administrative data to be transferred to SPSS

Data Decisions and Variable Definitions

As previously discussed, grantees collected demographic information on the mothers they served as well as data related to their baby-friendly policies and procedures (i.e., skin-to-skin and feeding practices) as part of the First 5 LA funding requirements. The section highlights data decisions that defined the variables used in higher level statistical analyses for the case study hospitals.

Mothers' Demographics

- + **Mothers' Language** was coded five different ways: 1) *English*; 2) *Spanish*; 3) *Asian/ Pacific Islander Languages* or the threshold languages of Chinese, Cantonese, Khmer, Korean, Mandarin, Tagalog,

and Vietnamese; 4) *Eastern European/ Middle Eastern Languages* or the threshold languages of Arabic, Armenian, Russian, and Farsi; and 5) *Other* or a language that is not included on the list of Los Angeles County Threshold Languages.

- Language was coded using the “threshold languages”⁴⁸ as a guide.
- Language differed across the administrative data, and we were unable to discern from the data if the mother was mono or bi-lingual.
- Based on the analysis, language was also recoded into a dichotomous variable *Non-English Speaking* and *English Speaking*.

+ ***Mothers’ Race and Ethnicity*** was coded five different ways: 1) *Caucasian/ White*, 2) *African-American/ Black*, 3) *Asian/ Pacific Islander*, 4) *Hispanic/ Latino*, and 5) *Other* or a race/ethnicity that did not fall within the NJDHSS Guidelines.

- Race/ ethnicity was coded using the 2007 “NJDHSS Race and Ethnicity Coding Guidelines.”
- If the administrative data identified a race/ethnicity that did not fall within the five race/ethnicity categories, the NJDHSS Race/Ethnicity Guidelines were used to determine how to code that race/ethnicity. For example, Afghani would be coded as *Caucasian/ White*.
- Some hospitals identified ethnicity by Non-Hispanic/Latino or Hispanic/ Latino. In these instances, Hispanic/Latino was coded as such and the Non-Hispanic/Latino was recoded into *Other*.
- Based on the analysis, race/ethnicity was also recoded into a dichotomous variable *Non-African-American* and *African-American*.

Variables Associated with the Mothers’ Birthing Experience

+ ***Feeding intent at admission*** was often recorded during the mother’s admission process or at an earlier appointment (hospital tour). Several hospitals noted that ***feeding practices in-hospital*** was based on the Newborn Screen or “PKU form,” which may be collected any time prior to the mother’s discharge. As such, if the test is performed early in the mother’s stay, the PKU form may not accurately capture the in-hospital feeding practice. In addition, for those hospital that provided twelve or close to twelve months of data on in-hospital feeding data, the evaluation team compared the administrative data provided by participating hospitals to summary data available through the California Department of Public Health based on the Newborn Screen. As mentioned in the report, this comparison found that rates from the hospital administrative data often varied considerably from those published by the California Department of Public Health.

- Both feeding variables were coded into three categories: *exclusive breastfeeding*, *formula*, and *combination*.
- Based on the analysis, breastfeeding was also recoded into two categories: *any breastfeeding* (which included exclusive breastfeeding and combination) and *formula*. Recoding the data in this way also increased our confidence in the data because in some cases it was not clear that the breastfeeding category really indicated exclusive breastfeeding.

⁴⁸ Threshold language is a language identified on the Medi-Cal Eligibility Data System as the primary language of 5% of the beneficiary population given the geographic area.

- + ***Skin-to-skin contact*** was coded three separate ways in the dataset: 1) *Any skin-to-skin* contact at all during the hospital stay, 2) *within five minutes of birth*, and 3) *within one hour of birth* (which also included skin-to-skin that occurred within 5 minutes of birth).
 - We attempted to use skin-to-skin contact within one hour of birth based on the primacy of immediate skin-to-skin contact in the Baby-Friendly Hospital model. However when coded this way, many cases were excluded from the analysis because skin-to-skin contact in the hospitals was most frequently coded as either occurring or not occurring during the hospital stay (any skin-to-skin contact). Therefore, we chose to use the less precise any skin-to-skin contact variable.
- + ***Delivery route*** was coded as *cesarean* or *vaginal* in the dataset. Apart from a small amount of missing data, this was unambiguous. We were unable to perform analyses that distinguish between elective and medically necessary cesarean sections in this data as most grantees did not collect this information.
 - For the few hospitals with more complete data sets, all forms of vaginal deliveries, such as assisted vaginal deliveries using forceps and vacuums, vaginal birth after cesarean (VBAC), and trial of labor after cesarean (TOLAC) were recoded into vaginal. All forms of C-section, such as observed and expected primary C-sections (PCS), observed and expected repeat C-section (RCS), elective repeat cesarean (ERCD), and failed trial of labor after cesarean (FTOLAC) were recoded into cesarean.

Lessons Learned from Data Collection, Cleaning, and Verification of Hospital Administrative Data

Below are key lessons that the evaluation team learned in working with participating hospitals to review, clean, and verify their administrative data. These lessons learned are intended to assist First 5 LA in future data and evaluation efforts with grantees, in particular hospitals.

- + ***Overall Lesson Learned: Hospitals need additional support and technical assistance to build their capacity to collect and use Baby-Friendly Hospital data in a meaningful way.*** Baby-Friendly Hospital (BFH) data collection often began several months after a hospital's BFH program, and for some hospitals data provided were intermittent from there on out; thus, creating gaps in the time periods for which data were provided. Even with First 5 LA's guidance on variables to collect, some hospitals did not collect the information requested, thus creating datasets with large amounts of missing data. When hospitals did collect a First 5 LA requested variables, the collection, interpretation, and labeling of variables differed from hospital to hospital. The amount and quality of data varied by hospital.
- + ***Lesson Learned: Including data collection requirements in the request for proposals (RFP) and early introduction of evaluation efforts could improve data quality.*** First 5 LA staff introduced data collection requirements to participating hospitals in March 2012. Harder+Company and the evaluation framework were then introduced to participating hospitals in October 2012 through an informational webinar. Since hospitals who were awarded grants as part of the first round of BFH

Initiative funding began in mid-2010, there was a significant time gap between clarification of data collection requirements and the evaluation framework and grant funding for some participating hospitals. Therefore, some hospitals retrospectively developed data summaries and datasets to meet the requests made by First 5 LA and the accompanying evaluation. While it was expected that most of the requested data would be collected by hospitals participating in BFH efforts, as described in the previous lesson learned, hospitals were found to have varying levels of capacity around data collection and utilization.

- + ***Lesson Learned: Hospital policies related to how staff collect, organize, and share data affected the availability of data and data collection timeline.*** For example, one hospital reported a policy against providing client information to third parties. Such policies delayed data collection efforts because hospital staff had to gain permission to release data or reanalyze individual level, raw data to provide Harder+Company aggregate reports for requested variables. Including data sharing agreements as part grantee's contracts with First 5 LA may help mitigate this type of issue in the future.
- + ***Lesson Learned: The hospital contacts' knowledge of and experience with the data submitted to First 5 LA differed depending on their role and responsibilities.*** Harder+Company asked the hospitals for the contact information for the individual most knowledgeable about the data they sent First 5 LA. However, Harder+Company often had to speak with more than one person to have data questions answered because hospitals assigned different staff to the data collection, entry, analysis, and/or reporting processes. Related, the data processes hospitals established often evolved when staff changed positions and/or when staff experienced shifts in their roles.
- + ***Lesson Learned: The mode in which hospitals collected and entered their data influenced their ability to use data in a meaningful way.*** Overall, hospitals identified moving towards a culture of collecting and using data. However, because this process often included changing their current methods of data collection and entry, hospitals often identified this process as time-intensive and challenging. With regard to mode, some hospitals operate with paper charts and cannot pull data easily. As such, these hospitals provided sample data sets and aggregate data reports instead of providing Harder+Company individual level data; the type of analyses conducted with sample and aggregate data are limited. Other hospitals were in the process of upgrading their data collection systems from paper charts to Electronic Medical Records (EMR). The process of upgrading data collection systems to EMR made it difficult for hospitals to send data to Harder+Company because some data would be in the paper chart and other data would be in the EMR file.
- + ***Lesson Learned: There is a learning curve associated with how to collect, enter, and analyze BFH evaluation data.*** Overall, hospitals reported a higher percentage of inaccurate data in the beginning months of data collection compared to the later months. For example, one hospital informed Harder+Company that they had "redone" their data and process of data collection three times.

Appendix D: Additional Tables and Figures

Detailed Characteristics of Mothers Who Gave Birth at Case Study Hospitals

Of the 16 funded hospitals, the administrative data from three hospitals were chosen for additional descriptive and deeper statistical analyses (referred to as case study hospitals). More specifically, the *data for women delivering at Pomona Valley, Greater El Monte, and St. Mary* were selected for inclusion for additional analyses based on presence and reliability of data for the dependent variable (in-hospital breastfeeding) and three predictor variables (breastfeeding intent, delivery route, and skin-to-skin contact).

Table 1. Characteristics of Mothers who Gave Birth at Case Study Hospitals

	Pomona N=6476	St. Mary N=2937	El Monte N=493	Total N=9906
Mothers' Race/Ethnicity				
African-American/Black	5% (341)	9% (250)	2% (8)	6% (599)
Asian/Pacific Islander	5% (313)	5% (148)	6% (26)	5% (487)
Caucasian/White	15% (942)	2% (69)	2% (6)	10% (1017)
Hispanic/Latina	74% (4773)	77% (2182)	89% (365)	74% (7317)
Other	1% (80)	7% (177)	1% (4)	3% (261)
Missing	28	111	84	223
Mothers' Primary Language				
English	68% (1389)	66% (1878)	42% (172)	35% (3439)
Spanish	30% (616)	33% (928)	54% (221)	18% (1765)
Other	1% (29)	1% (28)	3% (13)	1% (70)
Missing	4442	103	87	632
Mothers' Route of Delivery				
Vaginal	63% (3710)	67% (1958)	53% (241)	60% (5909)
C-Section	37% (2129)	33% (978)	48% (218)	34% (3325)
Missing	636	1	34	671
Mothers Who Experienced Skin to Skin (STS)				
STS anytime	71% (3512)	51% (1445)	54% (201)	52% (5158)
STS w/in 1 hr after birth	37% (2425)	51% (1434)	54% (201)	41% (4060)
Mothers' Feeding Intention at Admission				
BF Intention	71% (4263)	49% (1413)	67% (288)	60% (5964)
Formula Intention	8% (518)	11% (314)	9% (38)	9% (870)
Both Intention	21% (1233)	40% (1167)	5% (108)	25% (2508)
Missing	463	43	59	565
Mothers' Feeding Practices During Her Hospital Stay				
BF During	21% (1362)	32% (910)	39% (164)	25% (2436)
Formula During	10% (650)	13% (360)	12% (51)	11% (1061)
Both During	69% (4414)	55% (1543)	49% (208)	62% (6165)
Missing	50	124	70	244

Source: Administrative Data

In-Hospital Feeding Practice for Case Study Hospitals by Race/Ethnicity

All three hospitals were able to reach over 80% of their mothers) engaging in (any) breastfeeding practices. This finding holds across racial boundaries, with the exception of African-American mothers from St. Mary who still engaged at a high rate of (any) breastfeeding behavior.⁴⁹

Table 2. Mothers' In-Hospital Feeding Practices for Case Study Hospitals by Race/Ethnicity⁵⁰

	Pomona N=5855	St. Mary N=2762	El Monte N=433	Total N=9050
Breastfeeding Exclusive				
African-American/ Black	47% (114)	35% (86)	MISSING	2% (200)
Asian	42% (99)	44% (56)	13% (11)	2% (166)
Caucasian/ White	62% (341)	67% (102)	MISSING	5% (443)
Hispanic/ Latina	41% (1904)	40% (853)	16% (52)	31% (2809)
Total Exclusive BF	44% (2576)	42% (1162)	15% (67)	42% (3804)
Any Breastfeeding				
African-American/ Black	80% (196)	70% (173)	100% (13)	4% (382)
Asian	89% (208)	82% (105)	99% (78)	4% (391)
Caucasian/ White	87% (481)	88% (134)	100% (5)	7% (620)
Hispanic/ Latina	90% (4135)	90% (1888)	94% (307)	70% (6330)
Total Any BF	89% (5229)	87% (2415)	95% (412)	89% (8056)

Source: Administrative Data

Detailed Information about the Number of Cases included in the Analyses Examining the Relationship among Breastfeeding Intention, Route of Delivery, and Skin-to-Skin Contact with In-Hospital Breastfeeding for Case Study Hospitals

The tables below provide additional details about the number of cases that were included in the analyses that examined the relationship among breastfeeding intention, route of delivery, and skin-to-skin contact with in-hospital breastfeeding for case study hospitals. Table 3 provides additional details about the number of mothers that were included in the overall analyses (refers to Figure 13 within the report). Table 14 provides additional details about the number of mothers that were included in the African-American subsample analyses (refers to Figure 14 within the report) and table 15 provides details about the number of cases in the Spanish-speaking subsample analyses (refers to Figure 15 within the report).

⁴⁹ Breastfeeding rates are based on the California Department of Public Health, Center for Family Health, Genetic Disease Screening Program, Newborn Screening Data 2011. Note additional race/ethnic groups are available; we chose to highlight the four race/ethnic groups with the top populations.

⁵⁰ Note achievement of 80% breastfeeding behavior in bold.

Table 3. Number of Mothers Across Case Study Hospitals (N=7,326)

Breastfeeding (BF) Intent	Delivery Route	Skin-to-Skin	N (% of Grand Total)	
No Intent to BF				
	C-section	No	223 (3%)	
		Yes	45 (1%)	
	Vaginal	No	150 (2%)	
		Yes	263 (4%)	
	Total			681
	Intent to BF			
	C-section	No	1,497 (20%)	
		Yes	689 (9%)	
	Vaginal	No	830 (11%)	
		Yes	3,629 (50%)	
	Total			6,645
	Grand Total			7,326

Table 4. Number of Mothers in African-American Subsample (N=481)

Breastfeeding (BF) Intent	Delivery Route	Skin-to-Skin	N (% of Grand Total)
No Intent to BF			
	C-section	No	32 (7%)
		Yes	7 (2%)
	Vaginal	No	13 (3%)
		Yes	31 (6%)
	Total		83
	Intent to BF		
	C-section	No	133 (28%)
		Yes	36 (8%)
	Vaginal	No	45 (9%)
		Yes	184 (38%)
	Total		398
	Grand Total		481

Table 5. Number of Mothers in Spanish-speaking Subsample (N=1,358)

Breastfeeding (BF) Intent	Delivery Route	Skin-to-Skin	N (% of Grant Total)
No Intent to BF			
	C-section	No	41 (3%)
		Yes	0 (0%)
	Vaginal	No	27 (2%)
		Yes	44 (3%)
Total			112
Intent to BF			
	C-section	No	403 (30%)
		Yes	19 (1%)
	Vaginal	No	182 (13%)
		Yes	642 (47%)
Total			1,246
Grand Total			1,358



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