

2012

INCREASING BREASTFEEDING IN WIC PARTICIPANTS USING INFORMATION ABOUT FORMULA COST AS A MOTIVATOR

Viviane Fornasaro-Donahue
University of Rhode Island, vfdonahue@gmail.com

Follow this and additional works at: <https://digitalcommons.uri.edu/theses>

Terms of Use

All rights reserved under copyright.

Recommended Citation

Fornasaro-Donahue, Viviane, "INCREASING BREASTFEEDING IN WIC PARTICIPANTS USING INFORMATION ABOUT FORMULA COST AS A MOTIVATOR" (2012). *Open Access Master's Theses*. Paper 140.

<https://digitalcommons.uri.edu/theses/140>

This Thesis is brought to you by the University of Rhode Island. It has been accepted for inclusion in Open Access Master's Theses by an authorized administrator of DigitalCommons@URI. For more information, please contact digitalcommons-group@uri.edu. For permission to reuse copyrighted content, contact the author directly.

INCREASING BREASTFEEDING IN WIC PARTICIPANTS USING INFORMATION ABOUT
FORMULA COST AS A MOTIVATOR

BY

VIVIANE FORNASARO-DONAHUE

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE
IN NUTRITION AND FOOD SCIENCES

UNIVERSITY OF RHODE ISLAND

2012

MASTER OF SCIENCE THESIS
OF
VIVIANE FORNASARO-DONAHUE

APPROVED:

Thesis Committee:

Major Professor Geoffrey W. Greene

Karen McCurdy

Linda Sebelia

Nasser H. Zawia

DEAN OF THE GRADUATE SCHOOL

UNIVERSITY OF RHODE ISLAND

2012

ABSTRACT

Despite the widely documented health benefits of breastfeeding, breastfeeding rates continue to fall short of Healthy People 2020 Objectives, particularly among women enrolled in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). The amount of formula supplied by WIC often is insufficient to fully cover the infant's demands, thus mothers need to purchase extra cans of formula in addition to what is provided by the WIC Program. However, prior to deciding whether to breastfeed or formula feed their infants, mothers may not be aware of the amount spent monthly on the purchase of extra formula. This information is not currently presented in WIC educational materials. This study assessed these costs, investigated mothers' perceptions of these costs, and assessed mothers' opinions about whether providing information about costs would influence their decision to breastfeed.

This research utilized a two-phase descriptive design. A total of 30 non-breastfeeding WIC mothers were asked to take a survey in Phase I, to assess their cost buying extra cans of formula, and total of 14 pregnant WIC women were interviewed in Phase II to assess their perceptions about the cost and opinions about breastfeeding educational material.

It was found in Phase I that non-breastfeeding mothers enrolled in the WIC program were spending on average \$50 per month on extra cans of formula by the time their children were 4 months of age. This cost was perceived by majority of

participating mothers as high. However, for mothers that intended to formula feed, information on cost did not appear to influence their decision to breastfeed. For breastfeeding mothers, the cost information was considered to be motivating. Medical issues, pain, physical appearance, employment constraints, comfort level, and inconvenience were reasons given by mothers for choosing to bottle feed.

Information on supplemental formula cost could be provided in breastfeeding support materials used in WIC programs prenatally and post-partum as an additional motivational tool to women that intend to breastfeed. Further research could investigate if this information would support breastfeeding initiation and increase duration among WIC mothers. Future qualitative work should be done to explore ways of incorporating breastfeeding into the lifestyle of mothers that intend to bottle feed, to demystify pre-conceptualized ideas about breastfeeding, and investigate if incorporating this information into educational materials would increase breastfeeding initiation among WIC mothers.

TABLE OF CONTENTS

ABSTRACT.....ii

TABLE OF CONTENTS.....iv

LIST OF TABLES.....vi

LIST OF FIGURES.....vii

CHAPTER 1.....1

 INTRODUCTION.....1

CHAPTER 2.....3

 LITERATURE REVIEW.....3

CHAPTER 3.....25

 METHODS.....25

CHAPTER 4.....33

 RESULTS.....33

CHAPTER 5.....79

 DISCUSSION.....79

IMPLICATIONS FOR RESEARCH AND PRACTICE.....93

LIST OF REFERENCES.....94

APPENDICES.....119

 A. Participant’s Survey Phase One119

 B. Consent Form Phase One121

 C. Interview Protocol Phase Two123

 D. Consent Form Phase Two.....128

E. Raw Data Phase I.....	130
F. Initial Matrix.....	131
G. Second Matrix.....	157
H. Brochures A, B, C.....	175
BIBLIOGRAPHY.....	179

LIST OF TABLES

TABLE		PAGE
Table 1.	Frequency of Participants and House Hold Size.....	112
Table 2.	Frequency of Participants and Income.....	113
Table 3.	Infant Formula Price Search.....	114
Table 4.	Minimum, Maximum and Mean Cost for the WIC program and Participants.....	115
Table 5a.	Breastfeeding Rates per WIC Site.....	116
Table 5b.	Participant’s Race per WIC Site.....	117
Table 6.	Demographic Characteristics of Participants Phase Two.....	118

LIST OF FIGURES

FIGURE	PAGE
Figure 1.....	82
Figure 2.....	84
Figure 3.....	85

INTRODUCTION

Women enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) are less likely to breastfeed compared with non-participants of WIC program (1, 2, 3, 4). Breastfeeding infants are provided with numerous immunologic, psychologic, social, economic, and environmental benefits that extend beyond infancy and also improve maternal health. Given that a mother's intention to breastfeed and initiation of breastfeeding increases after prenatal education (5), reaching women during the prenatal period may be a crucial opportunity to provide breastfeeding education and help mothers be more knowledgeable about infant feeding practices. Therefore the WIC population could benefit from breastfeeding education.

Qualitative research is needed to develop needs based breastfeeding educational materials (5). Knowing what influences a mother's infant feeding decision and what motivates them to breastfeed will help health professionals focus on information that the mothers consider relevant. Researchers have investigated the multi-factorial components that have an impact on a mother's decisions to breastfeed (6,7,8,9,10,11), have evaluated breastfeeding promotion interventions (12,13,14,15), have studied the effects of interventions on WIC breastfeeding rates (2,3,16,17,18), as well as investigated the economic issues of infant feeding choices (19,20,21), but no previous study has investigated cost of formula feeding for WIC mothers nor explored the effects of this information.

This research estimated the cost of formula feeding for non-breastfeeding WIC mothers in Rhode Island and assessed mother's perception of these costs and the influence of these costs on their decision to breastfeed; explored factors that motivate and deter women to breastfeed, and family member's perceptions of mothers' infant feeding choice. Results of the qualitative analysis could be used to develop needs based WIC breastfeeding education material.

LITERATURE REVIEW

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) promotes the health and well-being of low-income mothers and children through the provision of nutritious foods and referrals to health care services. Yet the WIC program has been criticized because one of its most popular components, the provision of free formula, may have lowered breastfeeding rates. This review of literature investigates key factors involved in breastfeeding, such as the benefits of breastfeeding for the mother and child and the recommendations from the American Academy of Pediatrics. This review also investigates breastfeeding rates in WIC and non-WIC mothers and explores the reasons why women do not initiate or continue to breastfeed. It concludes with a review of the efficacy of breastfeeding interventions.

Breastfeeding Rates

Breastfeeding rates have increased since 1999, but continued to fall short of Healthy People 2010 Objectives regarding duration and exclusivity (22). Healthy People 2010 objectives were to increase the proportion of mothers who breastfeed their babies in the early postpartum period from 64% to 75%, at six months from 29% to 50%, and at one year from 16% to 25% (23). Twenty-eight US states achieved national Healthy People 2010 objectives for initiation in 2006, though only 13 achieved objectives for breastfeeding duration and exclusivity according to the National Immunization Survey (NIS) (22). It is important to note that on December 2,

2010 the Department of Health and Human Services launched *Healthy People 2020*. The objectives have changed in the past ten years since the release of *Healthy People 2010*. The 2010, 2020 targets and final results are as follow:

Increase in Proportion of Mothers Who Breastfeed	1998 Baseline (unless noted) % of Mothers	2010 Target % of Mothers	2006 Baseline (unless noted) % of Mothers	2020 Target % of Mothers
In early postpartum period	64	75	74	81.9
At 6 months	29	50	43.5	60.6
At 1 year	16	25	22.7	34.1
Exclusively through 3 months	43 (2002)	40	33.6	46.2
Exclusively through 6 months	13 (2002)	17	14.1	25.5

CDC Breastfeeding Report Card United States, 2011.

Taking into consideration the 2020 Healthy People breastfeeding goals, only twelve US states have met the objective for the category ever breastfed: Alaska, California, Hawaii, Idaho, Minnesota, Montana, New Hampshire, Oregon, Utah, Vermont, Washington, and Wyoming. Only five states have met the 2020 objective for breastfeeding at six months: Idaho, Montana, Oregon, Utah, and Vermont. Four states have met the objectives for breastfeeding at 12 months: California, Oregon, Vermont, and Washington. Nine states met objectives for exclusive breastfeeding at three months: California, Colorado, Idaho, Montana, New Hampshire, Oregon, Vermont, Washington, and Wyoming. Only two states met objectives for exclusive breastfeeding at 6 months: California and Vermont (24).

Definitions of breastfeeding have varied between studies and breastfeeding has often been treated as a categorical rather than a continuous variable (25). To compare breastfeeding rates between the two largest national surveys, the NIS and Ross Mother's Survey (RMS), it's important to consider differences between definitions regarding breastfeeding initiation and exclusivity (26). In the NIS, initiation (early postpartum breastfeeding, in-hospital before discharge) of breastfeeding was defined based on a positive answer to the question: "Was [child's name] ever breastfed or fed breast milk?" Breastfeeding at ages six months and 12 months (i.e., duration of breastfeeding) was defined by responses to the question, "How long was [child's name] breastfed or fed breast milk?" The wording of this question changed slightly in 2006 to "How old was [child's name] when [child's name] completely stopped breastfeeding or being fed breast milk?" but this wording change did not substantially affect responses. Exclusive breastfeeding was defined based on the answers to the question: "How old was [child's name] when (she/he) was first fed something other than breast milk or water? This includes formula, juice, cow's milk, sugar, water, solid foods, or anything else." This question was also revised in 2006 and changed to: "This question is about the first thing that [child's name] was given other than breast milk or formula. Please include juice, cow's milk, sugar water, baby food, or anything else that [child's name] may have been given, even water. How old was [child's name] when (he/she) was first fed anything other than breast milk or formula?" (27) For the RMS, mothers were asked to recall the type of feeding

provided in the hospital, and exclusivity refers to infants fed human milk with no formula; no distinction was made for the introduction of solid foods (26).

Despite the differences between the NIS and RMS, both surveys indicated that breastfeeding rates varied considerably by demographic characteristics and participation in the Supplemental Nutrition Program for Women, Infants, and Children (WIC) program (26). Older, more educated mothers and mothers who lived in the Pacific, Mountain, and New England states were more likely to breastfeed their infants than younger, less educated mothers and mothers who lived elsewhere in the US (1,26). Low-income mother-infant dyads, who are at higher risk for poor health, tend to have lower breastfeeding rates (28, 29). Many mothers in low-income populations participate in the WIC program; two thirds (67%) of WIC participants with reported income in 2006 were at or below the poverty level (16). Numerous studies have shown that WIC mothers are less likely to breastfeed compared with non-participants of WIC programs, presumably because WIC offers participants free formula (1,2,3,4). Although WIC promotes breastfeeding to all its pregnant women, low breastfeeding rates among WIC participants have raised questions about WIC's effects on breastfeeding (17).

WIC's definition of a breastfeeding woman is the practice of feeding a mother's breast milk to her infant on the average of at least once a day (30). Trends in breastfeeding from 1978 to 2003 have shown that rates for the initiation of breastfeeding among WIC participants lagged behind those of mothers who did not

participate in the WIC program by an average of $23.6 \pm 4.4\%$, with 76.1% of non-WIC women initiating breastfeeding compared with only 54% of WIC women (1). Rates of breastfeeding at six months of age differed between WIC participants and non-WIC mothers by an average of $16.3 \pm 3.1\%$ (1), with non-WIC women more likely to breastfeed (42.7%) than WIC women (21%) (1).

A more recent look at the breastfeeding rates among WIC participants, shows that nationally, women in the WIC program, were divided into pregnant (10.1 percent), breastfeeding (6.6 percent), and postpartum (6.8 percent) (31). The women classified as breastfeeding rose steadily from 3.6 percent in 1992 to 6.9 percent in 2008, but has slightly declined to 6.6 percent in 2010, which may have been affected by the major changes in the WIC food packages (31).

Breastfeeding rates of all WIC programs in Rhode Island, for babies born between January 1, 2010 and June 2010 were as follows:

<i>Period</i>	<i>Rhode Island WIC Programs (%)</i>	<i>CDC Report Card 2010 Rhode Island</i>	<i>Healthy People 2020 (%)</i>
<i>Initiation</i>	58.0	70.8	81.9
<i>Breastfeeding at 3 months</i>	11.4	-	-
<i>Breastfeeding at 6 months</i>	3.88	45.1	60.6
<i>Fully Breastfeeding through 3 months</i>	4.37	29.0	46.2
<i>Fully Breastfeeding through 6 months</i>	1.46	12.1	25.5

(Data from Department of Public Health, Emily Eisenstein)

When all Rhode Island WIC programs were combined, the average for initiation was 58%, breastfeeding at three months was 11.14%, breastfeeding at six months 3.88%; the proportion fully breastfeeding through three months was 4.37%, and fully breastfeeding through six months was 1.46%. It appears, the breastfeeding rates for the Rhode Island WIC programs fall short of Healthy People 2020 objectives in early postpartum period (initiation) (81.9%); at six months (60.6%); exclusively breastfeeding through three months (46.2%); and exclusively through six months (25.5%) (32). Accordingly to the 2010 CDC breastfeeding report card, the state of Rhode Island had an initiation rate of 70.8%, breastfeeding at six months rate of 45.1%, breastfeeding at 12 months 22.7%, fully breastfeeding through three months 29.0%, and fully breastfeeding through six months a rate of 12.1% (33). These data supports the hypothesis that the Rhode Island WIC breastfeeding rates are lower than the general population's rate and of Healthy People 2020 objectives.

Studies have explored the idea that WIC's lower breastfeeding rates may be a reflection of participant's characteristics rather than the effect of the program per se (18). Mothers who choose to participate in WIC are socio-economically disadvantaged and likely to be different than mothers who do not participate, a selection issue, in which the program is more attractive to mothers who choose not to breastfeed and who might not have breastfed even in the absence of the program (17).

The Benefits of Breastfeeding

The benefits of breastfeeding on children and mothers are well documented (34). Breastmilk provides infants with numerous immunological benefits (35, 36, 37). The protection against infection attributed to breastfed infants appear to occur due to a variety of complementary acquired and innate defense factors in human milk (38). The conjugated and unconjugated forms of oligosaccharides, classified as glycans, found in human milk constitute the third most common solid component of human milk after lactose and lipids (39). Human-milk glycans are able to resist digestion (40) and are largely found intact in infant feces. The resistance to digestion allows them to remain available to protect the mucosal surface of the gastrointestinal tract (38). In addition to the accepted function as immunologic or anti-infective agents, a study on human-milk glycans describes their important role as innate anti-adhesion agents that protect the breastfed child by preventing pathogens from adhering to host ligands; this protection is associated with significant protection from diarrhea in breastfed infants (38). As diarrhea remains the leading cause of morbidity and mortality in developing countries (41) breastfeeding can provide significant protection in infancy and early childhood, as one of the most cost-effective strategies known to medicine and public health for the prevention of infancy mortality (41). Immunological protection is demonstrated by reduced rates of gastrointestinal infections (42,43,44,45,46), as well as in reduced rates of ear infections (42,47,48) respiratory-tract illnesses (42,43,49), and allergy-related problems, such as asthma, atopic dermatitis, and allergic rhinitis (36,46,50,51).

Breastfed infants also have lower rates of hospitalization (43, 52), Sudden Infant Death Syndrome (44,53,54,55,56), and mortality (47,56,57,58). The impact of the type of feeding extends beyond infancy; children who were not breastfed are more likely to get childhood cancers (59,60,61), develop juvenile-onset diabetes (36,61,62,63,64), be overweight (36,61,65,66,67,68), and score lower on IQ tests (36,69,70). Infant-feeding choices may have implications for maternal health as well (71), such as early involution of the uterus, enhanced bonding between the mother and the infant (24), reduced postpartum bleeding, reduced hip fractures later in life (72), and a reduction in incidence of ovarian and breast cancer (36,73,74,75). Breastfeeding is therefore recommended as the optimal method of feeding newborns and young infants due to the numerous immunologic, psychologic, social, economic and environmental benefits (35).

Weimer (2001), conducted a study on the economic benefits of breastfeeding for three diseases: necrotizing enterocolitis, otitis media, and gastroenteritis and concluded that \$3.6 billion would potentially be saved if breastfeeding rates were increased from the Healthy People 2000 to 2010 objectives for initiation and six-month duration (76). In 2010, a study using updated data from Weimer's study along with more recent data on breastfeeding rates, disease incidence and cost was conducted and concluded that if 90% of United States (US) families could comply with the medical recommendations to breastfeed exclusively for six months, the US could save \$13 billion/year and prevent an excess of 911 deaths annually, 95% of

which would be infants. With 80% compliance, savings would be approximately \$10.5 billion, with 142 deaths prevented (77).

Infant Feeding

Breastfeeding Recommendations

The Rhode Island Breastfeeding Coalition recognizes breastfeeding as the optimal method of feeding (78) and The World Health Organization (WHO) states that optimal nutrition is exclusive breastfeeding (breast milk with no other liquids and/or foods) for six months and continued breast feeding for two years (79). The American Academy of Pediatrics (AAP) also recommends exclusive breastfeeding during the infant's first six months of life (28). Appropriate complementary foods should be introduced, while breastfeeding continued up to two years of age or for as long as mutually desired by mother and child (15). Nevertheless, exclusive breastfeeding remains uncommon in most countries, even in countries with high rates of breastfeeding initiation (80).

Introduction of Complementary Foods

As previously mentioned, the WHO recommends that infants should be exclusively breastfed for the first six months of life, and safe and properly nutritious foods should be introduced afterwards while breastfeeding continues up to two years of age or longer. Studies have shown that introduction of complementary foods before four to six months of age and cow's milk before age of 12 months are

associated with several health risks (81). Due to the immaturity of the gastrointestinal, renal, and neurophysiological systems in infants younger than six months of age (82), the timing of introduction of foods is particularly important since it is associated with excessive protein (83), excessive total energy intake (84), excessive infant weight gain (85), elevated body fat and body mass index, and respiratory illnesses (86), allergies (87), iron deficiency and anemia (88). And unlike breastmilk, unmodified cow's milk is not properly balanced for a child younger than 12 months, it contains levels of protein, sodium, potassium, phosphorus, and calcium that are higher than the requirements for infants, and it contains insufficient levels of iron, vitamin C, and linoleic acid (89,90,91). These nutritional characteristics of unmodified milk, when introduced prematurely can lead to increased renal solute load, blood loss from the gastrointestinal tract which contributes to iron deficiency and anemia, chronic constipation and anal fissures, and an increased risk for type 1 and type 2 diabetes (89,90,91).

Although the AAP (92) recommendations are to avoid early introduction of complementary food before six months and exposure to cow's milk before 12 months, about one-third of the US infants are introduced to unmodified cow's milk before that age and are offered complementary foods before four months of age(93). The determinants for these feeding practices were investigated in a systematic review which identified six determinants for early weaning (early introduction of complementary foods): young maternal age, low maternal education, low socio-economic status, absence or short duration of breastfeeding, maternal smoking, and

lack of information or advice from health providers (81). Another study that assessed the association between the timing of prenatal participation in WIC and various infant feeding practices, including early introduction of cow's milk and solid foods suggested that entry into the WIC program prenatally is associated with early cow's milk introduction (94). In concordance with that, another study that focused on WIC participation and infant's consumption of cow's milk found that WIC infants between ages four and six months were more likely to have been fed cow's milk than non-WIC infants (95). Given the health implications of early introduction of cow's milk, this finding is important if low-income women who do not breastfeed substitute cow's milk for breast milk or formula (94).

Infant Formula

The AAP recommends parents and care givers follow the baby's feeding cues and feed on demand, and suggests that most babies are satisfied with three to four ounces (90 – 120 ml) per feeding during the first month and increase that amount by one ounce (30 ml) per month until they reach a maximum of about seven to eight ounces (210-240), with a schedule of about every four hours (96). By the end of the first month, infants receiving the lower limit of three ounces every four hours (six feedings in twenty-four hours), will have a formula intake of 18 ounces a day. The infant receiving the most, four ounces every four hours (six feedings in twenty-four hours), will have 24 ounces of formula per day. It is assumed then that on average an infant would receive about 21 ounces per day during the first month. By the end of

second month, by adding one ounce to the lower and higher limits, the baby would be receiving between 24 and 30 ounces per day, averaging 27 ounces per day. By the third month the formula range would be 30 to 36 ounces a day, averaging 33 ounces per day. Finally, by the end of the fourth month, babies would receive 36 to 42 ounces, averaging 39 ounces of formula per day.

Formula Preparation:

Another important aspect of formula feeding is the issue of formula preparation, such as concentrating formula (97). Bottle feeding requires a mother to think in ounces, to adopt ounces as the standard unit of measurement, and to follow formula preparation recipes (96). A study assessing the extent to which mothers learn about proper handling of infant formula from health professionals and package labels concluded that the majority of formula-feeding mothers did not receive adequate instruction about formula preparation (77%) or storage (73%) from a health professional and thirty percent did not read some of the safe-use directions on the formula package label (97).

Reasons Why Women do not Initiate or Continue to Breastfeed

American women are restricted in their ability to choose breastfeeding. Demands of work outside the home and lack of societal support for new mothers are problematic. Although in the US, more new mothers are part of the work force than ever before, there is little evidence of employers accommodating lactating employees. This leaves the vast majority of women without access to a private place

to pump milk, a refrigerator to store milk, or breastfeeding breaks to nurse a nearby infant (98). In 2003, at the national level, in the hospital (initiation), mothers who worked part time had a significantly ($p < 0.05$) higher rate of breastfeeding (68.8%) than those who were employed full time (65.5%), or who were not employed (64.8%). Working full time had a ($p < 0.05$) negative effect on breastfeeding duration. By six months after delivery, 26.1% of mothers employed full time, 36.6% of mothers working part time, and 35.0% of nonworking mothers breastfed their infant (99). Women in WIC face barriers similar to many American women and they are not limited to work-related issues.

Several studies have identified why there are lower initiation and lower continuation rates than the national rates among WIC participants. A study conducted in 1999, collected data from 12 focus groups and 122 in-depth interviews with WIC participants. The purpose of the study was to investigate WIC mothers' knowledge and perceptions, factors that motivate/deter women to breastfeed, and family's member perceptions of breastfeeding benefits and barriers (100). Compared to infant formula, breastmilk was considered by most to provide better nutrition, better immunological protection, and a closer maternal-infant bond. However, many were deterred by the sacrifices they would have to make if they breastfed. They worried about nursing in front of others and about the additional time it takes to nurse a baby conflicting with work, school, or social life. Some were worried about the baby's father, friends or relatives feeling "left out" of the feeding experience. Other barriers associated to breastfeeding were the pain related to nursing, the

dietary changes mothers would have to make, and anxiety about quality and quantity of breastmilk. These mothers also lacked self-efficacy as potential breastfeeders and a lack of support from relatives, friends, and some health providers (9).

A more recent study investigated common barriers for breastfeeding initiation and continuation. The study used a combination of methods, consisting of a longitudinal cohort (1,292 families) and an ethnographic study (30 families) of low-income families in North Carolina (NC) and Pennsylvania (PA) to identify reasons women don't initiate breastfeeding or continue breastfeeding. This study found women that resided in PA were more educated, were married, or who had a first-born child were more likely to breastfeed. Women who were working when their infants were two months old had a decreased likelihood of initiating breastfeeding. Women who did not receive WIC and were not employed were most likely to breastfeed. Of the 30 women in the ethnographic study, 18 initiated breastfeeding. Five had never considered breastfeeding and stated: "I'm not open to breastfeeding". The other seven participants who did not breastfeed considered it, but stated that they were not comfortable with breastfeeding for multiple reasons, which included the pain associated with breastfeeding, return to work or school, embarrassment (public feeding), and that breastfeeding is not socially accepted. Other reasons included smoking and lack of assistance or support (101).

Several other studies have found women don't initiate or continue breastfeeding for reasons such as personal preference, having an unsupportive partner, feeling embarrassed, concerns about pain, physical/mental problems

(7,12,102,103,104,105,106), maternal smoking, whether the pregnancy was intended (102) and mode of delivery (7,102). Hospital support characteristics include breastfeeding support from hospital delivery nurses, lactation specialists or peer counselors, or receipt of free formula packets in the hospital (8, 12,104,107). In addition, mother's prenatal care and the influence of her health professionals, her perception of the father's views on breastfeeding, and her fear of lack an adequate milk supply for the infant have also been described as important influences on women's breastfeeding decisions (9, 10).

Breastfeeding Interventions

A review conducted to evaluate the effectiveness of interventions aimed at encouraging women of different ethnicities to breastfeed found that breastfeeding education increased breastfeeding rates compared to just providing routine care. In addition peer counselor support, needs based, one-to-one, informal education and support sessions delivered either before or after the birth by a trained breastfeeding professional or peer counselor increased breastfeeding rates (13). WIC instituted a number of changes, beginning in the late 1980s, to attempt to increase the breastfeeding rates among its recipients (108), which includes an extensive use of peer counseling, use of social marketing, motivational videos, personalized education, and continuing education opportunities to WIC staff members (109).

The WIC food package was revised and became effective on October 1, 2008. The revision aimed to encourage positive changes in participant's behaviors and

outcomes, to better promote and support the establishment of successful long term breastfeeding among women who choose that feeding method, to address developmental needs of infants and to bring the infant food packages in line with current infant feeding practice guidelines from the AAP (17, 110). The approach focuses on the market value of the package for the mother/infant pair for the first year after birth (17, 110), addresses differences in supplementary nutrition needs of breastfed and formula fed infants, and considers how to minimize early supplementation with infant formula through continued or increased efforts to promote and support breastfeeding (110).

Since the amount of milk a breastfeeding woman produces depends directly on how often and how long she nurses, early supplementation can interfere with the establishment of breastfeeding and may contribute to a short duration (11, 110). The Institute of Medicine (IOM) and the new WIC package initially recommended only two infant feeding options for the first month of life after birth-either fully breastfeeding or full infant formula-feeding with no formula provided for fully breastfeeding infants (17). However, a third infant feeding option was permitted-partially breastfeeding infants. Infants ages zero to one month may receive the equivalent of not more than 104 fluid ounces of reconstituted formula (one can of powder formula) if found appropriate (17, 110). Concerns that a mother who feels less confident about breastfeeding may choose to categorize her infant as fully formula fed, leading to her receiving more formula than necessary, which could

further compromise successful breastfeeding were raised about the new food package and its impact on breastfeeding outcomes (17).

A study evaluated the impact of the regulatory changes on WIC package choices and the initiation and duration of breastfeeding. (18). The percentage of mothers selecting the partial breastfeeding package declined; nearly one-fourth of WIC mothers were assigned the partial breastfeeding package prior to implementation and about one-eighth received it afterwards. The percentage of mothers selecting the full breastfeeding package increased from 9.8 percent to 17.1 percent, likewise, selection of the full formula package increased from 20.8 to 28.5 percent. Infant formula amounts also changed, the percentage of infants receiving no formula increased from 12.2 to 19.7 percent. However, the proportion of infants receiving the maximum or nearly the maximum formula also increased, from 49.4 to 56.4 percent. Breastfeeding initiation rates were essentially unchanged (65.6 percent as pre and 65.2 as post), breastfeeding duration had a slight increase from 76.3 percent pre to 77.2 percent post. Lastly, there was no change after implementation in the percentage of mothers exclusively breastfeeding, suggesting that the partial breastfeeding changes had no unintended adverse consequences (111).

The food package for fully breastfeeding women provides the most food - energy and nutrients and the package for fully formula-feeding women provides the least (110) which increases the market value of the food packages for fully breastfeeding infant/mother pair (17). Although there is some evidence that

attractive food packages for the fully breastfeeding mother/infant pair might increase the mother's incentive to breastfeed (112), a study designed to explore reasons for high rates of formula supplementation in WIC and the limited use of the expanded food package concluded that the mothers were either unaware of the expanded food package or uninterested in it because it was unappealing or contained food that were difficult or time-consuming to prepare. Conversely, infant formula was highly valued, even by breastfeeding mothers, because it was perceived as an expensive item (11). Using 2002 prices, the IOM estimated that the average annual cost to WIC of foods benefits for the fully breastfeeding infant/mother pair increased from \$ 668 in the old food package to \$ 1,027 in the new package, which was 75%, of the value of the food package for fully formula-fed infant/mother pair (113).

Other methods found to help improve breastfeeding rates were the implementation of baby friendly initiatives in hospitals, compliance with the International Code of Marketing of Breast-milk Substitutes (114), scheduled home visits in the first week after delivery, assessment of postpartum mothers for breastfeeding techniques, provision of counseling and hands on support (14).

Demographic Information

United States Department of Agriculture (USDA) office of research and analysis summarized the demographic characteristics of participants in the WIC program in April 2010. There were ten million women, infants, and children enrolled

in WIC. Among the WIC enrollees, over half (52.9 percent) were children, 23.6 percent were infants and 23.5 percent were women. Ethnicity (i.e., Hispanic or non-Hispanic) and race were reportedly separately: Hispanics made up 42.0 percent of WIC participants. Race data were reported for 98.6 percent of WIC participants. Whites accounted for 61 percent, Blacks/African Americans accounted for 19.3 percent, American Indians/Alaskan Natives were 10.5 percent, Asian or Pacific Islanders accounted for 3.5 percent, multiple races accounted for 4.2 percent, and 1.4 percent were not reported (31).

To participate in the Rhode Island WIC program, a person must live in Rhode Island; be a pregnant, breastfeeding, or post-partum or be a guardian of a child five years of age or younger; plus meet income guidelines (Appendix). The USDA, Food and Nutrition Service, Office of Research and Analysis shows that the distribution of participants by poverty level is about 70% of WIC participants (69.6) at or below the poverty line with 34.6 percent falling below the 50 percent level. In comparison, 14.3 percent in the US general population were below the poverty line with 6.3 percent falling below the 50 percent level (31). In Rhode Island, 12.2% of persons lived below poverty level according to 2006-2010 US Census Bureau report. Rhode Island's median household income between 2006-2010 was \$54,902 compared to \$51,914 nationally according to the US Census Bureau report (115). The number of persons per household in 2006-2010 by the U.S. Bureau Census was 2.47 for Rhode Island and 2.59 for US (115).

Qualitative Research

Qualitative research is a type of scientific research that consists of an investigation that focusing on words rather than numbers and includes the following: seeks answers to a question, uses a predefined set of procedures to answer the question, collects evidence, and produces findings that were not determined in advance. It seeks to understand a given research problem from the point of view of the participants (112) and studies people in their natural settings rather than in artificial or experimental ones (116). When detailed rich descriptions of human behaviors, beliefs, opinions, emotions, and relationships of individuals are desired, qualitative research method is appropriate (112). It is both feasible and legitimate to analyze certain types of qualitative data quantitatively (116, 117) and when both methods are combined it can provide information to interpret and understand the complexity of the topic in question (112). Qualitative research often deals with words rather than numbers and its measurement is usually concern with taxonomy (116).

The methods used in qualitative research include direct observation, interviews, the analysis of texts or documents and the analysis of recorded speech or behavior using audio or video tapes (116). Qualitative researchers use conversation, in the form of interviews, to collect data about people's views and experiences (116, 117) Interviews can be conducted individually or in groups (focus groups) . Semi-structured interviews have attracted interest because interview subjects' view-points

are more likely to be expressed in a relatively openly designed interview situation than in a standardized interview or questionnaire

Decision Making

Consumers are continually making choices among products and many factors are involved in the decision making process. A study providing information about consumer behavior that focused on price and quality of a product found that consumers lack full information about the prices of goods and information about the quality of products they intend to purchase. For any purchasable item, the consumer has a choice between searching for information regarding that item's quality or experimenting with it to obtain the information; however, the cost of experimenting may be more than the cost of searching and more than what a person is willing to pay (118). Another study on decision making in the area of behavioral economics mapped many factors in decision making onto a single variable: value. However, several aspects of value, including emotional content, not only money and quantity, affect decision making. The emotional content is difficult to quantify and presents significant individual variability (119).

Traditional economic thinking assumes that consumers who understand the value between diet and health will rationally respond by choosing to eat a healthful diet. However, behavioral economics research finds that people regularly and predictably behave in ways that contradicts this assumption. Long-term thinking may not always prevail; people may not always make decisions that would follow from

strict expectations of economic rationality, and they may be influenced by factors such as package size and shape (120).

The investigator in this study was a WIC nutritionist and observed that WIC mothers were often surprised that they had to purchase extra cans of formula and information on cost seemed to be important.

Conclusion

A review of the literature suggests that although the WIC program has promoted breastfeeding to all pregnant women as the optimal infant feeding method, mother's participation in the program is associated with lower rates of breastfeeding. Breastfeeding education and support focus has been in multiple areas with the use of social marketing, motivational videos, peer counseling, revisions in the food package, and education to WIC staff. Incorporating new, personalized, information into educational materials for pregnant women participating in the WIC program may prove to be influential in promoting breastfeeding.

METHODS

Overview

This is a descriptive study conducted in two phases. Phase I utilized a survey (Appendix A) which was developed and designed for WIC participants. It was conducted in three WIC sites in the state of Rhode Island during the participant's routine appointment at the WIC office.

This phase of the research study was designed to:

1. Assess information about the amount spent monthly for the purchase of extra cans of formula by non-breastfeeding mothers enrolled in the WIC program in Rhode Island.

Phase II utilized in-depth interviews which were structured for WIC participants (Appendix C).

This phase of the research was designed to:

1. Identify prenatal maternal intent to breastfeed.
2. Assess the mothers' reasons for choosing formula feeding or breastfeeding.
3. Assess mother's perceptions of significant other's support for infant feeding choices.
4. Assess the mothers' perceptions on the cost for the purchase of formula.

5. Assess the mothers' opinions on breastfeeding educational materials.
6. Assess factors that motivate women to breastfeed.

Phase I:

Study Design

Phase I of this study was conducted at the Rhode Island WIC offices in Woonsocket, Johnston, and Providence. Participants were enrolled over a period of five months, from February 2011 to July 2011. In Phase I, WIC participants were asked by the researcher on a one-on-one basis to complete a brief survey (Appendix A). Three cognitive interviews were conducted to assist in developing the survey before the initiation of data collection.

Subjects

Phase I consisted of a sample of women enrolled in the three participating WIC agencies who were recruited in person by the researcher while attending a routine appointment at the WIC offices. Eligibility criteria included: WIC recipient, non-breastfeeding biological mothers of infants from one to four months of age, and ability to understand and speak either English, Spanish or Portuguese. Verbal consent to participate from the participants was obtained and a copy of the consent form was given to all participants (Appendix B). Participants received a pedometer as an incentive upon survey completion. A total of 30 women completed phase I.

Data Collection

The Survey

The survey contained the following questions:

1. Thinking about infant formula purchased for your baby, please indicate the number of cans provided by WIC, and separately the number of cans purchased yourself (cash, SNAP/Food Stamp, etc.) for each baby age. If no cans were purchased please mark zero.
 - If you purchased one or more cans yourself (cash, SNAP/food stamps, etc), what form did you purchase?

Answers from question 1 were used to calculate the average number of cans purchased per month per mother and the average by category (powder, liquid concentrated, and ready to use).

2. If you purchased one or more cans, how did you purchase them?

Answers from question 2 were used to allocate the cost into three categories:

a) Out of pocket, b) SNAP money, and c) Other.

3. How many people live in your house?

Answers from question number three were used to estimate the average of household size.

4. What is your family's monthly income?

Answers from question number four were used to estimate the participant's income range.

Infant Formula Price Search

A price search of liquid concentrate, small and large powder, and ready to feed infant formula was conducted by the researcher in three groceries stores in the areas served by the WIC clinics. Grocery store number one was located 0.41 miles from the Johnston WIC site, store number two was located about 0.53 miles from the Providence WIC site, and store number three was located one mile from the Woonsocket WIC site. The unit price for all forms of formula was recorded by location. The prices of all locations for each form of formula were summed and the average was calculated using Microsoft excel. See table 3.

Three educational materials containing information about cost were developed by the researcher at the nutrition and food science department (Appendix H). Students from the department provided constructive feedback during the process of developing the brochures. The brochures were tested with the participants during the three cognitive interviews that were conducted to assist in developing the survey before the initiation of data collection.

Demographic Information

Demographic information was obtained through the Rhode Island Department of Public Health and included ethnicity and breastfeeding rates per WIC

site. The data is found in table 6. Information on household size and family's monthly income of participants was obtained through completion of the survey.

Phase Two:

Study Design

Phase II of the study utilized in-depth interviews. It was conducted in two Rhode Island WIC offices in Woonsocket and Johnston. Interviews were completed over a five week period (from April 2012 to May 2012). WIC participants were interviewed by the researcher on a one-on-one basis for approximately 20 minutes in a semi-private room. Three cognitive interviews were conducted before the initiation of data collection to refine the interview protocol and questions. In this phase, the participants were asked about their infant feeding choice and their opinion about educational materials. Each participant read and signed an informed consent prior to being interviewed (Appendix D).

Subjects

Phase II consisted of a sample of WIC recipients whom were recruited two ways. First, the potential participant called the program or walked in to schedule an appointment, a member of the WIC staff recorded their name, contact information, and briefly verified their eligibility. Secondly, the WIC senior nutritionist checked the program's schedule on a weekly basis and searched for prenatal appointments. These mothers received a phone call from the nutritionist or receptionist who confirmed

their appointments and verified the mom's eligibility, but no information about the research was given to the participant. After screening for participants, the WIC staff provided the researcher, via e-mail or phone, with the day and the time of those appointments that were confirmed. The researcher went to the WIC sites during those given times. The WIC nutritionist then briefly introduced the researcher to the mothers and asked them if they were interested in taking part in the study. Eligibility criteria included: women who were pregnant, expecting their first child, enrolled in the WIC program, at least 18 years old, and the ability to speak and understand English, Portuguese, or Spanish. All subjects received a \$20.00 gift card to Stop and Shop Supermarket upon completion of the interview. A total of 14 subjects completed Phase II.

Two WIC sites in the state of Rhode Island participated. A total of seventeen mothers were screened by the WIC staff. Seven women out of the seventeen were from WIC site A, five completed the interview, one was under age and didn't qualify, and one interview was discarded due to malfunction in the tape recording equipment. Ten women out of the seventeen were from WIC site B, nine completed the interview and one woman didn't show for the appointment.

Qualitative Data Collection: In-depth Interviews

After a participant agreed to take part in the study, the researcher and the mother moved from the reception area to a semi-private room. The researcher explained the project in detail. All mothers read and signed the consent form and

were asked if they had any questions prior to beginning the interview. At this point, the researcher started the tape recording. The interview process was semi-structured, a list of questions and probes were utilized but the conversation was open and moved in the direction of interest (Appendix C). The interview consisted of one ice-breaker question which was used to help develop rapport and seven additional questions which were designed to evaluate breastfeeding intentions and educational materials. The length of each interview differed depending on the amount of conversation but all interviews lasted between 15 and 20 minutes and averaged 16 minutes. During the discussion, the researcher would ask a new question when she felt that the participant had been given enough time to answer and was ready to move on to the next question. After the interview was completed the participants received a \$20.00 gift certificate for a local grocery store.

Each interview was transcribed by a researcher at the Nutrition and Food Science (NFS) department at University of Rhode Island (URI). Another researcher from the NFS department verified the accuracy of the transcripts. Inconsistencies were reviewed until both researchers agreed on the content. The investigator edited each transcript to preserve confidentiality by deleting any identifiers.

Qualitative Analysis

Overview

Data analysis used the methodology of Miles and Huberman (52). De-identified verified transcripts were printed. Participants were divided into two

categories: 1) mothers intending to formula feed (N=9) and 2) mothers intending to breastfeed (N=5).

The initial matrix consisted of raw data organized by the seven questions. All text from each transcript related to the question (answer) was listed for the seven questions. Each answer was read twice by the investigator and quotes were highlighted. Each quote was abstracted along with the context in which occurred. The transcripts were coded independently by a second investigator; disagreements were discussed with a third investigator until consensus was obtained. Concordance between the two investigators were 84.7%. The second matrix condensed data. Quotes that were similar were merged and themes were generated. The third matrix compared themes by intent to breastfeed. Quantitative demographic data were tallied.

Institutional Review

The University of Rhode Island Institutional Review Board on the Protection of Human Subjects (IRB) approved this project.

RESULTS

Results Phase I

The objective of phase one of this study was to assess information about the amount of money spent monthly on the purchase of extra cans of formula by non-breastfeeding mothers enrolled in the WIC program in Rhode Island.

Sampling

A total of 30 non-breastfeeding biological mothers with infants from one to four months of age that were enrolled in the WIC program participated in phase I of the study. A total of 30 surveys were collected. WIC site A completed 10 surveys (33%), WIC site B completed 11 surveys (37%), and WIC site C completed nine surveys (30%).

Twelve participants (40%) reported a household size of four people. Seven participants (23.3%) reported household size of three, six (20%) reported household size of five people, four people (13.3%) reported size of two, and one participant (3.3%) reported household size of 6 people (Table 1). Therefore, the average persons per household is 3.76. This average is larger than the reported number of persons per household in 2006-2010 by the US Bureau Census of 2.47 for Rhode Island and 2.59 for US (115).

Ten participants (33%) reported a family's monthly income of \$1,250, eight participants (27%) reported a family's income of \$1,750, and six participants (20%)

reported a family income of \$750.00 (Table 2). The participants' median monthly income was calculated as \$1033.33 monthly which indicates that the participants were living below the poverty level accordingly to the 2011 HHS Poverty Guidelines and had income below the median of Rhode Islanders. Rhode Island's median household income for 2006-2010 was \$54,902 compared to \$51,914 nationally according to the U.S. Census Bureau report (115).

Eighty percent of the participants reported buying large cans of powder formula. A report examining the retail price of infant formula found that although prices vary by form and size, milk-based formula in liquid concentrate and powder forms are the most common products sold in the US (76). 30.3 percent of the infant formula sold in supermarkets was milk-based powder in 12- to 32-ounce containers and 15.6 percent were milk-based concentrate in 13-ounce cans, accounting for almost 46 percent of all infant formula sold by volume in 2000 (40).

Appendix E indicates the number of cans provided by WIC, and separately the number of cans purchased by the participant for each month according to infant age for each WIC site. Participants received an average of 9.86 cans of infant formula from the WIC program during baby's first month, 10.3 cans during baby's second and third months and 10.43 cans during fourth month.

Data shows that participants were buying an average of 0.36 cans during baby's first month, 0.83 cans during the second month, 1.76 cans during the third month, and 2.16 cans during the fourth month.

Type of can purchased by the participants

Out of 30 participants, 3 (10%) reported buying small cans of powder infant formula, 24 (80%) reported buying large cans of powder formula, 3 (10%) reported to buy liquid concentrate, and none reported to buy ready to feed formula.

How participants purchased infant formula

Out of 30 participants, 15 (50%) purchased formula with cash, 13 (43%) purchased with SNAP benefits and two (7%) purchased using other sources.

Infant formula price search

Table 3 presents the prices for infant formula in three grocery stores. The average price for the liquid concentrate formula was \$6.65. The average price for the small powder was \$15.22. The average price for a can of large powder was \$23.65. For the ready-to-use formula the average price was \$6.79.

Table 4 details the average cost values of infant formula for the WIC program and for the participants. During the first month of baby's life, average cost for the WIC program \$207.63. For the participant, during month one, the average cost was \$7.54. In the second month, the average WIC cost was \$217.88 and participants spent an average of \$15.75. In month three, the average WIC cost \$217.88 and participants spent an average of \$36.41. In month four, WIC's average cost was \$221.03 and participants spent an average of \$45.87. The total averaged \$864.44 and participants spent an average of \$105.57.

Breastfeeding Rates of WIC sites

WIC site A had a total of 315 babies born between January 1, 2010 and June 30, 2012. Out of these 315 babies, 117 initiated breastfeeding (37%), 20 were breastfeeding at three months (6.35%), five were breastfeeding at six months (1.59%), seven were fully breastfeeding through three months (2.22%), and zero were fully breastfeeding through six months (0.00%). Participating WIC site B had a total of 123 babies born during the same period. Out of these 123 babies, 65 initiated breastfeeding (53%), 11 were breastfeeding at three months (8.94%), five were breastfeeding at six months (4.07%), six were fully breastfeeding through three months (4.88%), and two were fully breastfeeding through six months (1.63%). WIC site C had a total of 75 babies born in the same period. Out of these 75 babies, 36 initiated breastfeeding (48%), seven were breastfeeding at three months (9.33%), three were breastfeeding at six months (4.00%), two were fully breastfeeding through three months (2.67%), and one was fully breastfeeding through six months (1.33%) (Tables 5a and 5b).

Results Phase II

Participants

Fourteen individual interviews were completed. Six mothers (43%) were in their third trimester of pregnancy, seven (50%) were in their second trimester, and one (7%) was in her first trimester. The women were either single (93%) or divorced (7%). Sixty percent had completed high school, the average age was 22.4 years old

and most had a pre pregnancy BMI of 26, indicating they were overweight. Nine (64%) stated their intent was to bottle feed with formula and five mothers (36%) stated that their intent was to breastfeed. Table 6 presents demographic characteristics of participants.

Interview results

The data collected during the interviews was divided into two groups of participants according to their choice of feeding methods: Those who intended to breastfeed and those who intended to formula feed their babies.

Interview question one was designed to identify prenatal maternal intent to breastfeed. The following question was asked:

Question 1: There are many ways of feeding an infant. There is breastfeeding, formula feeding, pumping breast milk, and both breast feeding and formula feeding. You may not have made up your mind how you are planning on feeding your baby, but right now, how do you think you want to feed your baby?

Five women (36%) stated that their intent is to breastfeed. Nine women (64%) stated their intent is to bottle feed formula.

Interview question two was designed to assess the mother's reasons for choosing formula feeding or breastfeeding. The following question was asked:

Question 2: Tell me some of the reasons you choose (breastfeeding or formula feeding)?

Despite a diversity of personal perspectives, several common themes are apparent across the participants. Key findings are presented within six major categories that define some of the reasons mothers choose either formula or breastfeeding: 1. Physical (pertaining to the body, such as medical issues, physical pain, or appearance) 2. Financial (pertaining to money matters and employment constraints), 3. Psychological (pertaining to, dealing with, or affecting the mind, as a function of feeling or motivation), 4. Educational (pertaining to acquiring knowledge), 5. Social (pertaining to constrains of physical and emotional attachment of the infant to the mother, mothers' enjoying the companionship of others, need for others to care for the baby, time and effort involved in pumping, and discomfort of self and others with mother's milk), and 6. Health (pertaining to health benefits of breastfeeding). For the formula feeding group items related to the mother's social life were accounted as their main reason for choosing formula feeding. Aspects such as inconvenience of breastfeeding, included the weaning off of breastfeeding, infant's attachment to the mother, and pumping breast milk; the convenience of formula feeding, such as the easy and fast preparation of bottles and allowance of other to care for the infant. The second main reason for formula feeders was psychological, such as not being comfortable with the overall idea of breastfeeding and having a "mind set" on formula feeding were common. The main reason for mothers to choose breastfeeding was the health benefits for the infant; other reasons included professional support, maternal weight loss, financial advantage, and simplicity of breastfeeding.

Formula Feeding Group

1. Physical

a. Medical issues

One mother stated that breastfeeding would be difficult since she has inverted nipples. A sense of embarrassment was observed by the investigator when the mother avoided eye contact with the investigator while talking about the issue.

“I have inverted nipples, that is going to be more difficult.”

One mothers openly talked about her breast reduction and surgery to remove loose skin and excess residual fat caused by losing weight after a bariatric surgery. She was told that her chances of breastfeeding would be slim or that she wouldn't be able to breastfeed.

“As of right now, I plan on bottle feeding only because I had a breast reduction and they took so much out that they don't think that I would be able to breastfeed or that the chances of it would be slim. So I'm just going to stick to bottle feeding”.

b. Pain

One mother's given reason to bottle feed was her belief that breastfeeding would hurt.

“Because that hurts, so I rather do formula”.

c. Physical Appearance

A feeling of awkwardness about breastfeeding was recognized while a mother reported that she wouldn't appreciate changes in her breast's appearance if they ever happen to be uneven in sizes due to breastfeeding.

"My sister-in-law, both babies were only attached to one boob so she's got like a C and a D and I'm like "I'm good with that". I like to keep them the way they are. I don't want to be all lopsided. It's kind of silly but I kind of think about that too so I'm like "m-m" she can't find a bra, ever."

2. Financial

d. Going back to work

Mothers discussed going back to work as a reason to bottle feed. One added not having paid maternity leave and bottle feeding would make going back to work easier.

"I don't get a paid maternity leave so I need to go back to work very quickly and it's going to make it easier."

"Well, I mean, I plan on going back to work within two months."

3. Psychological

e. Comfortable bottle feeding formula

Many discussed being more comfortable formula feeding than breastfeeding, pumping, or breastfeeding in public.

"I'm just not really comfortable with the idea of breastfeeding".

A clear sense of dislike was identified while one of the mothers talked about her idea of breastfeeding in public and the inconvenience of having to pump.

“...you have to take time to pump or you just have to just do it in public, which is really weird. I would never do that.”

Another mother shared the same feeling of being uncomfortable breastfeeding in public and her dislike about pumping.

“...I’m going to feed her by bottle feeding, I think. I don’t feel comfortable in public with the baby here, so bottle feeding is the way we are going to go. If it was in the privacy of my home that would be fine but just in public, I am not a big fan about it. It doesn’t bother me seeing somebody else doing it because it is life, but I couldn’t do it”.

“Just sticking a pump there and having it there and...eh...it’s not for me!

One talked about her experience raising other children via bottle and being comfortable with using formula.

“Because I was used to feeding with the bottle and not by the breast, like I raised my sister’s kids with her and I am used to the bottle, so I feel more comfortable with a bottle than with breastfeeding.”

f. Mind set on bottle feeding

A common comment among mothers was also having a “mind set” on bottle feeding, which was used by some with the intent of closing the conversation about breastfeeding.

“Yeah, I kind of have my mind pretty much set.”

“I have always been on the mind set of bottle feeding.”

4. Educational

g. Not educated on breastfeeding

One commented that although she would like to explore her infant feeding choices and consider breastfeeding, if she had her baby at that point in time she would formula feed because she felt more confident with the knowledge she had about formula feeding than on breastfeeding.

“I’m not really sure. I’m not really educated on breastfeeding so I would probably like to try it doing it, you know, like maybe at night or something, not consistent, I would like to bottle feed as well.” “Hum, probably bottle feeding only because that is really what I know more about and what I would be more comfortable with.”

5. Social Inconvenience/Convenience

h. Wean baby off of breastfeeding

Mothers discussed the inconvenience or “trouble” of having to wean the baby off of breastfeeding.

“I know a lot of people who have been having lots of trouble weaning the baby off of breastfeeding. So I don’t want to have too much trouble. My friend had to bring my niece to my baby shower because she doesn’t want to switch and it’s kind of hard for her to do a lot of things and what not, so that’s one of the main reasons.”

“My grandmother is going to be watching the baby so it will be a lot easier for me, instead of me trying to wean the baby off of breastfeeding so early...”

i. Attachment

Mothers discussed the difficulty of having the child attached to them if they breastfeed. One mother strongly demonstrated her opposition to having the child attached to her.

“My cousin, her children were very attached to her. They wouldn’t really go to anyone else because they were constantly with her because she was breastfeeding and I don’t want to do that. I want to be able to say: -Oh, you want to watch the baby for a little while, here you go.” “I don’t want my child to be stuck all the time with me...”

j. Easier and quicker

A number of moms mentioned that formula feeding would be easier and/or quicker than breastfeeding or pumping. Pumping was referenced as inconvenient and a burden.

“It is easier to do. Like preparing it and all that. Like preparing it is easier, like you are done right away instead of like breastfeeding.” “Yeah, it’s easier and quicker”.

“Breastfeeding, I think it is really inconvenient because you have to take time to pump. I’ve known people that breastfed and sometimes it takes them a while to pump.”

“Bottles are easy, you can just put them in the bottle and heat it up and give it to the baby. And if someone is babysitting you don’t have to worry about pumping, you just say: here are the bottles.”

“She [cousin] even said it was more like a burden [breastfeeding] a lot of times because she was constantly pumping or feeding or something like that, so I mean, overall, I think bottle feeding is a lot easier.”

One mother talked about how formula would make it easier for the partner to feed the infant, as he wouldn’t have to hold the bags of breast milk, which he didn’t feel comfortable doing and refused to do it.

“He is a little awkward about the pumping, he was like “Well” and I was like “it is life, it is just milk, you are not touching it, you are not handling it, it’s going from a bag to a bottle, to the baby, you are just holding the bottle”, and he was like “No, I can’t knowing something came out of somebody else and going into somebody.” He was like “No, I can’t! I can’t handle it! I can’t touch it”, and I was like “OK”. “It makes it easier for him too because he doesn’t want to sit there and hold the little packages of breast milk.”

Reasons for mothers to choose formula feeding was multi factorial, and included physical, financial, psychological, and educational.

Breastfeeding group

1. Physical

a. Weight loss

Mother's weight loss was enthusiastically reported as one of the reasons for breastfeeding.

"First of all because of the health benefits for the baby and secondly, honestly, to lose the weight. I know that that will help me go back to my pre pregnancy but also obviously the health benefits. And I have seen the difference with friends of mine that have breastfed versus bottle fed and I do see a healthier child with the breastfed children."

1. Financial

- b. Breastfeeding is cheaper

One mentioned the financial aspect of breastfeeding and reported knowing that it's cheaper than formula feeding.

"Actually I read that I guess it's healthier, it's cheaper, and yeah it's like better for the baby, they get less sick, it's just a lot better, I've read."

2. Psychological

- c) Overwhelmed by formula products

Emotionally one of the mothers talked about the overwhelming experience of selecting the right kind of formula would be opposed to the confident feeling that breastfeeding gives her that she would be selecting the right kind of milk.

"And I don't know, and for the formula that you buy you don't know what kind of formula because there are so many kinds and you know that your breastfeeding it's like the right kind of milk and it's giving off all the right

nutrition and everything, you don't know what kind of formula does that and everything else." "Being pregnant is just overwhelming in general."

3. Health

d. Overall health benefits

All mothers reported infant's health as their main reason for breastfeeding.

"You build up immunities from the breast milk that the parent already has built up so it helps the child work with illnesses, there's brain development, eye function, everything, it comes right from there. So by not doing that you're taking key things away". "That's what I want to do so I'm going to try and do that."

"Probably the healthiest way which would be breastfeeding."

"Have a healthy baby, you have to do whatever what's best for them and everyone says breastfeeding is one of the healthiest things for your child."

4. Social

e) Support

A mother simply defined one of her reasons for breastfeeding as encouragement from her doctor.

"Basically overall, even like my doctor encourages it, and it's healthier for the baby."

Interview question two contained a probe that was designed to assess family member's perceptions of mother's infant feeding choices. The following question was asked:

Probe of question 2: How does your family feel about _____? Specifically assess mother, grandmother, sister and find out how the father of the baby &/or her current partner feels about _____.

Formula feeding group

The majority of the mothers in this group strongly felt that choosing the infant's feeding method was their decision, regardless of their families or partner's position on the subject. The families and partners were either supportive or apathetic of mother's decision. People had different reasons to be supportive of mothers and were grouped into four themes: a) Family member formula fed, b) Infant feeding method is a mother's choice, c) Belief that formula is easier for the mother, and d) Empathetic.

1. Supportive

a) Family member formula fed.

Mothers comfortably commented on receiving support from family members that had also chosen to bottle feed their children.

"My sister just had two kids and she bottle fed with formula for both of them. Actually my mom did too, so they are both supportive..."

“They’re fine, because my auntie and my mom they didn’t breast feed for either child.

b) Infant feeding choice is a mother’s decision.

Mothers discussed that the baby’s father and family members supported their decision because they either accepted or understood that it was their decision on how they would be feeding the infant.

“He (baby’s father) was breastfed, but he said it’s my choice because he understands it’s not him that has to do it”.

“He (baby’s father) wanted me to (breastfeed) but when I told him no I was pretty much “tough luck” and he was like “okay fine”. He was okay with it.”

“My aunt thinks I should breast feed because it is healthier for the baby. I told her I was like yeah I’ll think about that, but I was like I don’t know. I’ve been thinking about bottle feeding.”

c) Belief that formula feeding would be easier

Some family members and partners supported mother’s decision to bottle feeding because they believed it would be easier for the mother and/or for them.

“my cousin breastfed all three of her kids, but my mother bottle fed me and she said it was so much easier, it was a combination of whoever was around who was able to feed the baby, it wasn’t just strictly you at that point so it was more helpful.”

“They think it is easier for me to do instead of breast feeding...the baby’s father, my mother, father and some other people...”

“He (baby’s father) supports it any way too. It makes it easier for him too because he doesn’t have to sit there and hold the little packages of breast milk. He was a little uncomfortable with that.”

d) Empathetic

Some comfortably talked about their families and partners being supportive of them regardless of their decision on infant feeding.

“They were very supportive of whatever I choose.”

“They tell me that any decision I make they are going to support it. My mom had three kids, my aunt had a million kids, some breast fed and some bottle fed, some say bottle feeding is better, some say breast feeding and they say whatever you decide we are going to support you anyways.”

2. Apathetic family

Mothers talked about her family’s position on infant feeding.

“It’s just mine I mean they don’t really care. They don’t care it’s whatever I want to do.”

“They don’t really mind. It’s like my decision.”

Breastfeeding Group

The mothers that intended to breastfeed also expressed their opinion in regards to the family's support. Being: 1) Supportive or 2) Apathetic. Those who were supportive of mother's decision believed that a) Infant feeding method is a mother's choice, or b) They were empathetic.

1. Supportive

a) Infant feeding method is a mother's choice

One mother discussed that although the boyfriend suggested her to formula feed, after she explained him the benefits of breastfeeding he was supportive of her after all.

"Actually, my boyfriend he is more "oh just do formula" but I am more "Oh but I want to do breastfeeding" so. He's fine with it. He just thinks it's going to take longer with pumping and everything like that but I explained to him why I'm choosing to breast feed so he is fine with it but it's funny, you know with a guy's perspective, he's like "oh let's just do formula that'll be easier"

One mother mentioned having a supportive boyfriend but a mother in law that is skeptical of her breastfeeding. Regardless of mother-in-law's position, mother confidently stated that her opinion doesn't affect her decision to breastfeed.

"He is very supportive with everything that I do so he knows that I have only the best intentions. I have the final say in everything, it's amazing, I love it! But his mom is skeptical about me doing that. She never breast fed

any of her kids because she claims that it ruins your boobs, and she is all about her appearance and everything, but she doesn't count."

A mother mentioned that her family was somewhat shocked by her decision to breastfeed, due to her young age, but were supportive of her decision.

"Actually, they were shocked a little bit because not a lot of people my age does breastfeeding so they were a little bit shocked."

b) Empathetic

One mother stated that the baby's father was supportive of her decision and wanted her to breastfeed.

"The baby's father is a hundred percent supportive, it is the way he me wanted to go but he kept his opinion to himself until I came out and said it. And then he said "oh thank god I am so glad you said that". My mother looks at it as more of a bonding experience than health benefits. So she told me if I am comfortable with it that's fine and if I'm not comfortable with it that's fine, she's pretty neutral. My friends have breastfed so that's just the natural choice."

2. Apathetic

A mother strongly defended the idea that it was her decision of how she would feed the baby.

“None of them really had an opinion or cared. It’s my decision, not theirs so they don’t really have a say.”

Majority of mothers mentioned having support from family and partners and shared the same idea that the mothers is entitle of choosing the method of feeding. Few reported having an apathetic family.

Question number three was developed to assess mothers’ knowledge about the cost of formula.

Question three: I talked with WIC moms who were using formula and found that they had to buy extra cans of formula in addition to what was provided by WIC. How much do you think these WIC moms had to pay for the extra formula each month? (If she is unaware of formula cost, ask her how many cans and later translate the dollar amount into cans).

Formula feeding group

None of the mothers, from both groups, knew the cost of formula. The mothers estimated cost varied largely from a range of \$40 to \$100 or more per month. Only one mother with experience in formula retail was able to estimate the cost of formula correctly.

The mothers that intended to formula feed had various answers and they were grouped into three common themes: 1. Don’t know, 2. It depends on the infant’s feeding demands, 3. \$100 or more.

1. Don't know

Some mothers simply mentioned not knowing the cost of extra cans of formula. Some that also reported not knowing believed the cost would be a lot.

"I have no idea. I am kind of lost out of the blue when it comes to any of this stuff. I don't really know. My friend's littlest one she is still kind of breast feeding and she has a two year old and I never asked her what she did. And then my sister-in-law she got a 10 and a 7 year old so she probably don't even remember, so I'm a little lost in that situation".

"A lot! Hum...I really don't know the roundabout figure but I do know it is expensive, but I mean, I have the help so I am hoping that it will work, but I'm not really sure exactly how much it would be in addition."

"A lot, because my friend spent over 200 dollars on formula".

2. It depends on the infant's feeding demands.

One mother didn't answer the question directly because she believed the cost would depend on how much the baby demands of formula, which would determine how much the mother has to buy it. The same mother overestimated the price of a can of formula.

"Well it depends on how much they would need because one can is like 30 dollars and that is a lot...for one can that lasts you like a week, if that. So I don't really know just depends on how much they would have to buy."

3. \$100 or more

Some mothers estimated that the cost would be hundred dollars or more. One guessed a couple of hundred dollars but expanded her answer by stating that it would depend on the baby's size.

"Maybe a couple of hundred, a few hundred dollars. It depends on how big the baby is. I mean...You got to feed it more."

One mother's answer was based on her cousin's experience of buying extra cans of non-standard formula each month.

"Well she had to have a special kind of formula because she was allergic to the other ones so she spent somewhere, each can was like somewhere in between 20-25 dollars a can so she was pretty much spending close to over a hundred dollars with the checks."

Breastfeeding group

The groups of mothers that reported intent to breastfeed had their answers grouped into themes: 1. Don't know, but a) estimated \$100 or more, b) estimated \$40 TO \$50, c) a lot; 2) \$80 to \$100; and 3) \$65 to \$80.

1. Don't know

a) Estimated \$100 or more

Mothers reported not being sure of how much a can of formula would cost, one of them guessed that the cost for the bottle feeding mothers would be an extra hundred dollars but stated that she was completely guessing

"I'm not even sure what a can would cost. Maybe an extra hundred dollars. I am completely guessing I really don't know.

b) Estimated \$40 to \$50

One mom guessed that the cost of buying extra cans of formula would be around \$40 to \$50 but she underestimated the price of the can.

"I don't even know what one can of formula even goes for. I'd guess maybe, like the big powder cans? I'd say maybe like \$10 per can would be my guess and if they were already getting 10, I don't know maybe like \$40 or \$50 a month, I'd guess.

c) A lot

One mother stated having no count but she thinks it's a lot.

"I would say a lot, I have no count."

2. \$80 to \$100

One mother estimated that the cost of extra cans of formula would be from \$80 to \$100 but she overestimated the price of a can.

"Oh god, probably almost like \$80...\$100 dollars I'd probably say because those cans run like \$30, \$40 dollars each".

3. \$65 to \$80

One mother that works at a grocery store that sells formula and accepts WIC checks estimated the cost of buying extra cans as \$65 to \$80 per month.

“Oh my god on the extra formula? So much! I worked at Stop and Shop so I saw like how much money. They are probably spending \$65 dollars on top of what they get for free already from WIC. So like about \$65 to \$80 dollars they are probably spending it on, that’s a lot of money!

Question four was developed to assess mothers’ perceptions on the cost for purchase of formula.

Question Four: We developed this brochure (show brochure A). What do you think about when you see the brochure? Probe if cost is not mentioned. A) What do you think about the cost?

Formula feeding

Cost of formula was perceived as high by most mothers from both groups. For only a few the cost was not perceived as a lot. All mentioned the fact that breastfeeding is cheaper than formula and the increasing cost of formula as the baby gets older.

Examples of answers from the formula feeding group are quoted below. The answers were grouped into themes: 1. Breastfeeding is cheaper, 2. Cost of formula feeding increases each month, 3. Formula is costly, and 4. Cost doesn’t seem to be a lot.

1. Breastfeeding is cheaper.

Mother's description of Brochure A included that it's cheaper to breastfeed.

"It basically means that it doesn't cost money for breast feed and it costs money for formula".

"Breastfeeding is cheaper, obviously."

"Obviously it doesn't cost much to feed by breast feeding." "I mean obviously formula feeding is going to cost more than breastfeeding, it's obvious to me..."

2. The cost of formula feeding increases each month.

Mothers reported noticing that the cost increases monthly as the infant gets older.

"Well it definitely goes up because they need to eat more". "It doubles every month pretty much".

"[cost]...yeah, higher and higher and higher."

3. Formula is costly.

Mothers discussed that formula is costly but generally either expected the cost or thought it was worth it to return to work.

"Well it's definitely costly. But I knew it was going to get expensive anyways so I kind of expected it."

"Expensive." "It's taking money out of your pocket and you can't get other things."

"It's a lot. It's just a lot of money..."

It's expensive. It's definitely going to be expensive but it will allow me to go back to work so it will even out each other."

4. Cost doesn't seem to be a lot.

Some mentioned the cost of buying extra cans didn't seem to be a high.

"Well, I would still do this [buy extra cans of formula] but it doesn't seem like it would be a lot.

"Looks cheap." "Not cheap cheap but cheap."

Breastfeeding group

The breastfeeding group also had their opinions on the cost of formula. The answers were separated into four themes: 1. Cost doesn't seem to be a lot, 2. Cost increases each month, 3. Formula is costly, and 4. Breastfeeding is cheaper

1. Cost doesn't seem to be a lot.

One mother acknowledged the cost difference between formula feeding and breastfeeding but she reported not finding the cost of formula feeding outrageous.

"...I mean obviously there is a difference from nothing to something but I really don't think it is extremely that outrageous, the price you know?"

2. The cost of formula increases each month.

Mothers discuss the increasing cost of formula each month.

"It definitely jumps, I mean from like month 2 to month 4 there is definitely a huge difference."

3. Formula is costly.

One strongly described the cost of formula feeding as unfortunate, very expensive, and inevitable for some mothers that would eventually need to purchase formula.

“That sucks”. “The actual amount of money that you have to end up spending, that’s unfortunate. It shouldn’t cost that much for that kind of stuff, like it’s a necessity eventually at some point. I mean you can’t breast feed forever eventually you’re going to have to wean them off at some point. And there are some women that can’t even at all, they try, they can’t. So there are really only a couple routes they can go. And if formula is one of them, that is just really expensive”.

“That’s nuts. It is! Money goes so fast. That’s all I can say! Babies are expensive!” Yeah, like month one you are at \$7.50 and then all of sudden 3 months later, you are at \$50.00 spending it. It’s crazy!

4. Breastfeeding is cheaper.

One mother stated that seeing that breastfeeding is free while the cost of formula feeding increases is comforting.

“WOW, so by the fourth month they were at the 50?” And still zero for the breast fed moms! That’s good. That makes me feel more comfortable!”

In summary, the cost of formula was perceived as high by the majority of the participating from both group of mothers, but for a few the cost was not perceived as

a lot. All mentioned breastfeeding was cheaper than formula and that the cost of formula increases as the baby gets older.

Question four probe was asked to assess how the information about cost would influence mothers' breastfeeding intent.

Question Four Probe b) How would this information about cost influence your choice to (bottle fed or breastfeed)?

Formula feeding group

All mothers from the bottle feeding group stated that the cost of buying extra cans of formula would not influence their decision to breastfeed (Appendix F)

Some of the justification of why the information on cost wouldn't influence their choice to bottle feed included 1. Psychological, a) having a mind set on formula feeding; 2) Financial, b) going back to work, c) prepared to pay the price of formula, d) cost may be inevitable, and e) additional help from family and friends; and 3) Health.

1. Psychological

a) Mind set on formula feeding

Many mothers mentioned that they have made their decision. They strongly held their position on formula and stated that cost would not influence their decision.

"I don't think it would." "I just have my mind set on what I want to do and it's just something that we are already planning on, you know what I mean?"

“I wouldn’t change my mind because of the prices, because I just don’t want to do that [breastfeeding].”

“Not really, no.” “I really want to bottle feed and not breast feed”.

“Um, I still wouldn’t breastfeed, I just feel like I wouldn’t.”

2. Financial

b) Going back to work

One mentioned that cost wouldn’t influence her decision to bottle feed since she is going back to work and breastfeeding would not be a possibility.

“Especially since by 4 months breast feeding probably wouldn’t be much of an option when I am back to work and stuff like that”.

c) Prepared to pay the price of formula

For some, the cost of formula is not surprising; therefore information on cost doesn’t make a difference in their decision. One mother seemed frustrated with the investigator’s question and stated that mothers should know that having a baby will cost money.

“I guess you know when you are having a baby that is going to cost money. So I feel like it shouldn’t be a problem because you are getting so much help from WIC that it shouldn’t be an issue to buy two cans of it.”

“Not really influencing me much, like I said I kind of expected it. I knew breast feeding is like no money at all”.

d) Cost may be inevitable

One mother mentioned that the cost on formula may be inevitable and expressed concern about not being able to breastfeed even if she chooses to do it.

“Personally, it probably wouldn’t affect it because I know that even if I do choose breastfeeding, I may not be able to, so it may be inevitable that I have to pay and I think just keeping an open mind is the best way to go.”

e) Additional help from family and friends

One comfortably talked about money not being a concern since she has support from family and friends.

“I know that family is there if I ever need them, I have a lot of people that will help, we have a lot of family friends that have babies and stuff like that.”

3. Health

A mother mentioned that cost wouldn’t influence her decision because she feels that her child would be just as healthy with formula as with breastfeeding.

“It really doesn’t have that effect because I know that either way I go, she is going to be health.”

It appears that information on cost of formula was not considered influential on their decision to formula feed.

Breastfeeding group

For the whole group of breastfeeding mothers, the information on cost of formula feeding would have a positive influence on their decision on breastfeeding but it wouldn't determine their choice. They found the information: 1) Motivational, 2) Financially beneficial, and 3) Educational.

1. Motivational

Information on cost would be another reason to choose breastfeeding but the health benefits of breastfeeding were the main reason for choosing to breastfeed.

"Yeah that would be another reason, but it wouldn't be a top reason because of the money. For me, it would be health reasons but that wouldn't be my ultimate decision".

"It makes me want to breastfeed more."

2. Financially beneficial

One mother stated her decision to breastfeed didn't change after knowing the cost but it helped her want to breastfeed more and she stated that she would pump breast milk if feeding on the breast didn't work since she couldn't afford the cost of formula.

"My decision hasn't really changed especially because of cost wise, definitely makes me want to do it more. And if actually feeding doesn't work I would rather do the pumping for as long as possible because frankly, I can't afford that."

Another mother stated that saving money by breastfeeding is great, but she never thought of that, and she would actually pay to breastfeed if that was necessary.

“Even if I had to pay to breastfed, like if I had to give an amount to the government say if because you know if they weren’t getting my taxes, I would still breastfeed. Yes, the cost is great but to be honest the cost never crossed my mind, it never did. I don’t know why.”

3. Educational

One woman reported that having information on the health benefits of breastfeeding combined with information on cost is mind opening.

“Yeah, it’s just so smart and easy. It’s the right decision, because you have no idea, and you get all this information and you know everything, it’s just so mind opening.”

In summary, for breastfeeding mothers the information on cost was found to be motivating but not to influence their decision.

Question four probe c was developed to assess mothers’ opinion about how other pregnant women would respond to information about cost of formula feeding. *Question 4 Probe c) How do you think other moms would respond to this information?*

Majority of the mothers from both groups reported finding the information about cost beneficial for other mothers, especially for those who are in an unfavorable financial situation.

Formula feeding group

Information on cost was found to be Influential or not influential.

1. Influential

a) Financially beneficial

Some discussed that other mothers would consider breastfeeding after learning about the cost of formula because breastfeeding is cheaper and they would save money.

“I think that they probably start considering breast feeding more. Obviously, it is cheaper”.

“Um, for them I think they would probably breast feed instead of bottle feed because I guess they will save their money”.

Some discussed that information on cost could influence mothers that are not working or don't have help from others.

“Well, if they don't have any money and they don't work, to breastfeed.”

“It would be hard especially if they are not working full time or not having someone there to help them, but I have my family who is willing to help me with this. I could see where it would be difficult and they would probably choose to breastfeed if they could over formula.”

It was discussed that information on cost of formula for mothers who are not prepared or not willing to pay the price of formula, as well as for those who cannot afford it, could have an influence on their decision.

“Well I think for some people it definitely makes a difference if they’re not prepared or willing to pay what they need to pay for formula.”

“Yeah it’s cheaper and some moms might go that way because they can’t afford it and they don’t have the option, they have to [breastfeed].

b) Educational

One stated that knowing the cost would give other mothers the opportunity to make an informed decision between formula feeding and breastfeeding, she mentions that the cost could be an eye opener for some mothers.

“Yeah it’s cheaper and some moms might go that way because they can’t afford it and they don’t have the option, they have to [breastfeed]. But the mothers that have the option will sit here and look at you and be like “well I know this is free, but I have two options in front of me and I want to give this one [breastfeeding] a try, if it doesn’t work then I will switch over [to formula]...”

“...Okay, now she [the mother] knows that breastfeeding is for free but she still has the option of formula feeding and for some moms, it might be an eye opener and say “I can’t afford this.”

2. Not influential

Others reported that the information on cost would not influence other mother's decision to breastfeed. Discussed reasons were separated into two themes:
a) Psychological and b) Financial.

a) Psychological

It was reported that the cost of formula would influence a mother to breastfeed only if she was comfortable with the overall idea of breastfeeding. One mother states that cost would not influence her since she clearly dislikes breastfeeding.

"I mean It really only depends on how the person is with the breastfeeding. I'm not really comfortable with having a baby attached to my boob."

b) Financial

Participant strongly defended her idea that having a baby is expensive and the price of formula feeding should be accounted by the mother before making the decision of having a child.

"Well if they already have babies I would assume they would think the same way as me [that babies are expensive]. Because, if you don't know the baby is going to be expensive you should have thought about that before.

One discussed having friends on WIC that don't have to purchase extra cans of formula, therefore, she believes that extra formula may not be necessary.

“Well, all of the people that I do know that just had their babies none of them breastfed.” “My friend has WIC, and she says that she is fine. She doesn’t have to get any extra.”

Breastfeeding group

The answers from the group of breastfeeding mothers were also divided into:

1. Influential and 2. Not influential.

1. Influential

- a) Financial

Information could have a positive impact on mother’s decision to breastfeed if they were in an unfavorable financial situation.

“I think it would absolutely maybe impact their decision on going to breast feed instead of formula, if they weren’t expecting those prices and if they are budgeting and all the other costs for having a baby, you have diapers and everything else. I think that definitely could persuade someone to do; or half and half, half breast feed, half formula, try to do breast feeding more, absolutely.

“I am sure if you have any financial difficulty, this would be a factor. I mean if you can save fifty dollars a month, that’s a lot of money, especially if you are in a situation where, you know, fifty dollars is a lot of money.” “If I were going to formula feed my baby and I didn’t have that extra fifty dollars and I think it

would make me look again at breastfeeding. Maybe not make the decision to do it if you're not comfortable with it but definitely get some more information to see if I could."

"The moms that I know they all breast feed or breast pump. Formula was the last option. Any of my other friends that don't have children and if they did have them I would hope that they would breast feed, but I mean if they saw that maybe it would change their mind, but I don't really know at the end of the day I am not in their financial position so it would be different for them and I can't judge so".

b) Psychological

One mentioned that the decision to breastfeed would depend on how comfortable the mother is with breastfeeding, and the comfort level would determine if the mom would mind paying the cost of formula or not.

"...depend on how they feel about breastfeeding, I guess. If they don't really like breastfeeding, they wouldn't mind paying that much."

2. Not influential

c) Mind set on formula feeding

One mother doesn't believe that the information would be sufficient to change the behavior. She reported that although some would look at the information

and say that they would breastfeed, they wouldn't actually do it, they would spend the money on formula instead.

“They would probably look at it and go: - oh yeah I will do breastfeeding, but in reality they will just be spending the money, they will do it the easier way. Everybody takes the easier way out of everything.”

In summary majority of participants believed that information on cost would be beneficial for other mothers, especially if they were in an unfavorable financial situation. However, mother's comfort level with breastfeeding would determine if she would breastfeed, not the available information on cost.

Question five was designed to assess mothers' opinion on breastfeeding educational material.

Question five: We developed two other brochures, they contain the same information but in a different format, which of these two do you like best? What are some reasons you like (brochure name) better than (brochure name)? Show all three and ask for preference then ask for reasons specifying brochure name.

Formula feeding group

Five mothers liked brochure A better than B or C (appendix H). Some of the stated reasons why mothers liked brochure A were that the information on cost is presented in a clearer, simpler manner, easier to understand, because it contains the cost of formula per month, and it also shows the projection of the cost.

“It’s definitely more effective with the prices [referring to brochure A compared to B]”.

“[Brochure A] has the price so it is kind of easier to tell that it’s more [than breastfeeding]”.

“[Brochure A]...like this one, is more simple [simpler] compared to this one [Brochure C].”

“I think the cost helps because it gives you estimation. It kind of gives you a figure as to what you would need each month versus just knowing that it goes up because you don’t know how much it will go up.

“Numbers are definitely a better way to show what it will really cost because it’s more accurate rather than just the projection itself...” “I just think that cut and dry is the best way to prepare you.”

One mother preferred brochure B than A or C. She reported that for her, the point is that the cost of formula feeding increases as the baby gets older, and that every baby is different and will demand different amounts of formula and, therefore, the cost of formula could be a lot more than the cost shown on the brochure.

“I would rather have B because you don’t know how much [the baby demands of formula]. I mean everyone is different, and it’s a lot more than that [the cost].”

Three mothers stated that they preferred brochure C because they liked to see how many cans WIC provides and how many can they would possibly have to buy, instead of just showing the cost of formula feeding as shown on brochure A and B.

“[Brochure C] Because it shows you how many cans”.

“I kind of liked C because it shows you how many cans and it shows you how many cans you will be going through, or how many you have to buy...”

Breastfeeding group

Four mothers preferred brochure A because they liked to see the actual dollar amount associated with the cost, one reported that brochure A gets the point across, two stated that seeing the actual price is more shocking than seeing the image of the two cans of extra formula or just the projection of cost.

“I would rather see the dollar amount [comparing brochure A to B].” “I still like that break down [of cost on brochure A]”.

“I mean if you’re trying to get the point across about cost, I would do A.” “... because you’re seeing a lot of cans [on brochure C], It’s not really hitting exactly like that these two are going to be like almost a hundred dollars extra every month.”

“The price actually is more shocking, I would say.” “[brochure C] I mean it does show that you have the two large cans of formula but if you didn’t know

what the formula costs, like I didn't know what formula costs, so for me it just seems like:- "Okay you just have to go out and buy two cans of formula, not bad."

[On brochure B]...you have no idea of what those prices are." "[Brochure C]...shows that WIC gives you a lot and you would just have to buy these two, which doesn't seem that much."

One mother reported that she preferred brochure C because it shows how much WIC provides but it also shows that the mother still has to buy extra cans, and seeing information about the amount needed to purchase is clearer than just showing the cost.

"Brochure C shows you how much you get, you get all these, but yet you still have to buy more. It's like kind of more clear, seeing what you are buying right in front of you is easier than money wise, than just a number."

In sum, majority of the mothers from both groups preferred brochure A because it provides direct information on cost.

Question six was designed to assess factors that would motivate mothers to breastfeed.

Question six: Thinking about feeding your baby, what would you like to see on a brochure? (Probe about what on a brochure might motivate her to try breastfeeding)

Formula feeding group

Mothers' responses were grouped into themes: 1. Nothing, 2. Difference in methods, 3. Financial, 4. Comfort level, and 5. Breastfeeding initiation.

1. Nothing.

Two mothers mentioned that nothing would motivate them to breastfeed. Mothers that answered *nothing* demonstrated strong dislike about breastfeeding and seemed ready for closing the interview.

"Personally me, no, nothing is probably going to motivate me to breast feed I am really stuck on that. It's difficult trying to wean the baby off, you know? Because then you are the one that's stuck constantly, you can't really do much so. Yeah, breastfeeding is just, for me it was never pretty much an option."

2. Differences in methods

One mother mentioned that she didn't know if anything would motivate her since she believes that breastfeeding is very inconvenient. However, she mentioned that she would like to see a brochure that shows the benefits, advantages and disadvantages of both methods of infant feeding.

"I don't really know. I would make a chart of why you shouldn't breast feed...Benefits of formula and disadvantages of breastfeeding. Well there are benefits for both but I would never breast feed. There are two benefits of

breast feeding, it's good for your baby and it makes you lose weight faster. It's so inconvenient, like if I wanted you to babysit, oh wait, I would just be like I have to pump first and that is just so time consuming."

This theme was common and many mothers mentioned a brochure that would explain in details the existing differences between formula and breast milk, including which method is healthier, what are the benefits of both methods of feeding for the mother and baby, the difference in content between breast milk and formula, and advantages and disadvantages of both methods.

"Health, exactly. Like which one is actually healthier or if there is a difference, especially since formula has changed now since years ago, if there is still any health changes, which one is healthier for the baby and things like that."

"The benefits of both ways of feeding".

"I would want to say, probably like a list of some type of positives and negatives for breast feeding versus formula. A chart basically spelled out what the pros and cons are. Even cost, everything. Even health benefits for the mother as well... double the work, your pumping, you are also feeding the baby after too. You are taking double the time, but again you are weighing out, what's the best for the baby, you know?"

"There are things in breast that isn't in this formula so that's why I would do that [breastfeed] if I chose that."

3. Cost of formula

For some mothers, information on the cost of formula feeding combined with comparison chart of the pros and cons of both feeding methods should be included.

“The average cost, definitely a big factor”. “[cost] of formula or baby food in general and then the out-weighing the good and the bad, versus the pros and cons of breastfeeding versus bottle feeding.”

“[the cost] it’s definitely a disadvantage to bottle feeding but again, it’s important because it may be the reality for some people, so I think you know seeing both views, the benefits and maybe not so beneficial things, because that’s important too.”

4. Comfort level

One mother mentioned a brochure containing a picture of a mother breastfeeding side by side with a mother bottle feeding in public.

“Maybe having like a mother sitting down with a bottle versus another sitting down with a baby so they could visually see the difference: -Am I going to be comfortable sitting in public?”

5. Breastfeeding initiation

One mentioned information on breastfeeding initiation at the hospital.

“I was thinking when I am in the delivery room I was going to try and see how I liked it”

Breastfeeding group

For the group of breastfeeding mothers, information that would motivate them to breastfeed included the themes: 1. Differences in methods, 2) Financial, and 3. Future planning.

1. Differences in methods

Mothers mentioned listing the pros and cons of both methods of infant feeding, including the health benefits for the mother and child, time required for both methods, and cost.

“If there were flat statistics about health of babies and even maybe a growth chart: the breastfed babies versus formula fed babies, because that’s where my head is at, it’s all about the health.” “What do I need? Where are the vitamins in the formula versus the vitamins and fats you know the good lipids in the breast milk? Show me the difference. That would be something that I would be interested in.” “The money factor I’m sure is important to a lot of people especially in this kind of climate. So definitely knowing how much on average per month you were spending versus the breast milk that’s free, as long as you’re eating right. And then if there were health benefits for the mom too other than the weight loss and burning the calories, but that’s the only ones I have ever heard of for moms.”

2. Financial

One strongly believed that cost should be included since many may not be aware of high cost of formula.

“I mean besides the cost difference you know, the health benefits because I don’t think a lot of people get that”. “I think most people don’t really realize how expensive it actually is. That’s why all those girls are getting 16 and pregnant...well it is, because they see it on TV and they think it’s going to be a free ride and it’s not.”

3. Future planning.

One mother mentioned a list of exciting things that she could look forward to in the future if she chooses to breastfeed, as for example saving money to do fun things with the child.

“I would put things down that you can look forward to in the future, like if you choose to do breastfeeding you would save a lot of money so you can put down like things that you would want to do in the future with your kid or even like saving money to get a decent size house, just like show like things that will inspire you to continue to go with that goal and everything else.”

DISCUSSION

Phase One

It was found in phase one that non-breastfeeding mothers enrolled in the WIC program were spending on average \$50 extra a month at age four months on extra cans of formula.

Number of cans provided by WIC and numbers of cans purchased by the participants

WIC provides a total of 10 cans of powder formula a month to its participants, the equivalent to 806 fluid ounces of reconstituted formula, an average of 26 fluid ounces a day. The American Academy of Pediatrics (AAP) recommends 21 ounces a day for the first month (96). In this study, 20 out of the 30 (66.7%) non-breastfeeding mothers didn't have to buy extra cans of formula in the first month. Ten mothers (33%) had to buy one (90%) or two (10%) cans of formula during month one. The WIC formula was sufficient for 11 out of the 30 mothers (36.7%) during the second month. Nineteen mothers (63%) bought one (68.5%) to two (31.5%) cans. By month three, only one mother (3.3%) out of the 30 stated not buying extra cans of formula. The remaining 29 (96.7%) bought one (20.7%), two (75.8%), or three (3.4%) cans. The increase in the amount of cans bought can be explained by the increased number of ounces required by the baby by month three, which was approximately 33 ounces per day. Similar pattern was observed by month four. All mothers (100%) bought at least one can (10%), with most mothers buying two (66.7%), three (20%) cans, or four (3.3%).

In addition to the infant needs, the incorrect handling of formula may increase the need for additional formula. Bottle feeding preparation requires that the mother thinks in ounces and uses it as the standard unit of measurement, and that she follows a formula preparation (96). Fein & Falci found that the majority of formula-feeding mothers did not receive instruction on formula preparation (77%) or storage (73%) from a health professional and thirty percent did not read some of the safe-use directions on the formula package label (97). Therefore, it is possible that some of the participating mothers were handling formula preparation improperly.

By month three, the majority of the mothers (73%) were buying two cans of infant formula a month. However, if the babies are indeed drinking on average 33 ounces of formula, seven ounces more per day than the averaged 26 ounces provided by the WIC program, a minimum of 2.5 cans would need to be purchased by the mothers to cover the infant demands. Therefore, it would be interesting to investigate how mothers are filling the gap between the available amount of formula and the infant's demand. Previous research shows that early introduction of complementary foods (weaning) was strongly associated with young maternal age, low maternal education, low socioeconomic status, absence or short duration of breastfeeding, maternal smoking, and lack of information or advice from health care providers. Early introduction of cow's milk had two determinants: low maternal education and low socioeconomic status (81). Since these demographic characteristics are similar to those who participated in this study and it is known that

about one third of American infants are exposed to unmodified milk before 12 months of age and the same proportion is introduced complementary foods before four months of age (93) it is reasonable to assume that some of these mothers were likely to be supplementing their infants with complementary foods and/or unmodified cow's milk and other liquids.

Discussion Phase II

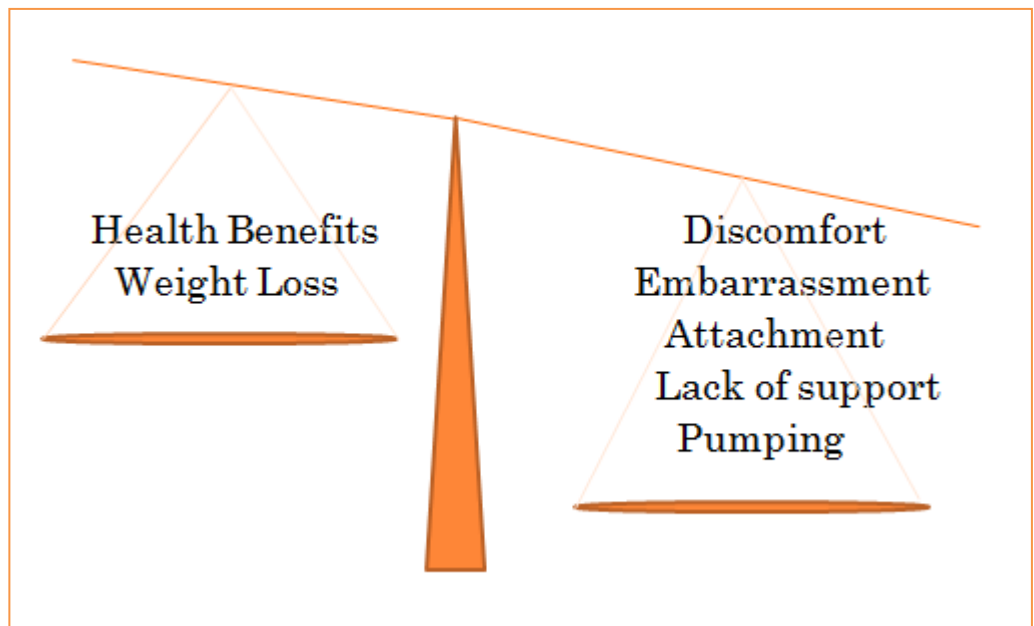
Overview and recommendations

Objectives of phase II included assessing mother's prenatal breastfeeding intent, barriers, and motivators. The present study provides some of the answers why women in WIC are not breastfeeding that are similar to other studies: discomfort, embarrassment, infant's attachment to the mother (need for others to care for baby), lack of supportive work environment, time and effort involved in pumping and discomfort of self and others with handling mother's milk. These factors were considered by the mothers as barriers to breastfeeding and could be perceived as "costs" of breastfeeding. It appears that the mothers' decision to breastfeed or formula feed was based on the value that each of the feeding options had for the mother. For the mothers that intended to formula feed, breastfeeding value (the health benefits for the infant and mother's weight loss), was lower than the perceived value of formula feeding, which was perceived as high since that could provide the mother "freedom" from the breastfeeding barriers (Figure1). Therefore, if the "cost" of breastfeeding outweighs the perceived value of formula feeding,

regardless of the method utilized to try to motivate mothers to breastfeed, including information on cost of formula, breastfeeding may not occur. Value, has been accounted as the key factor in decision making on a study on decision making in behavioral economics, which mapped factors in decision making onto a single variable: value (119). One mother states that during the interview:

“Well, there are benefits for both but I would never breastfeed. There are two benefits of breastfeeding, it’s good for your baby and it makes you lose weight faster. It is so inconvenient, like if I wanted you to babysit, Oh wait, I would just be like I have to pump first and that is just so time consuming.”

Figure 1. Breastfeeding value versus breastfeeding cost.



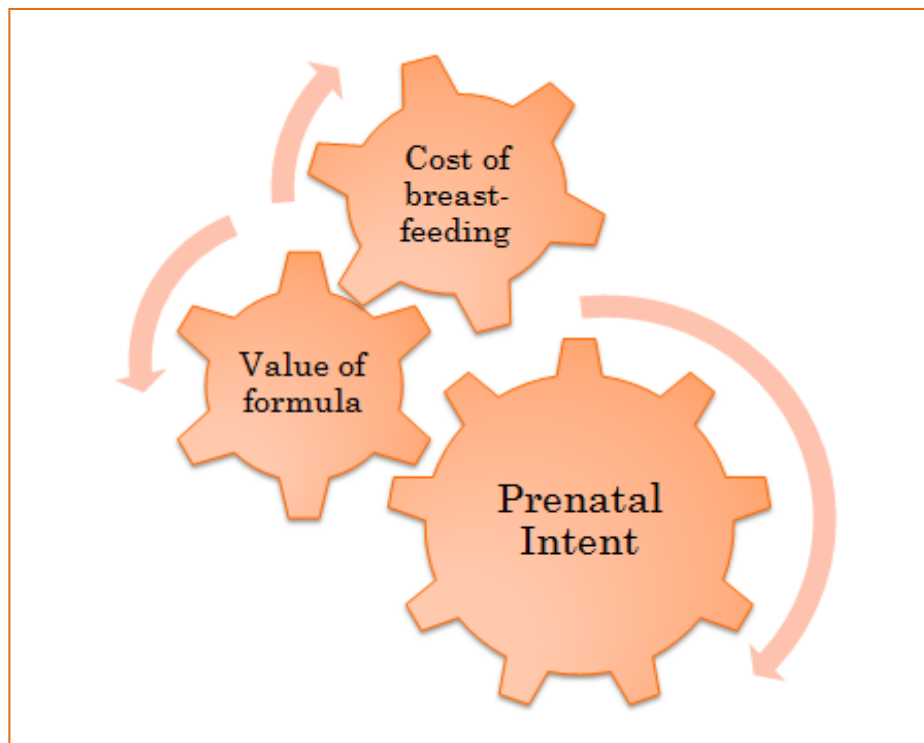
Although the cost of purchasing formula was found to be high by all the participants, for breastfeeding mothers the long-term health benefits of breastfeeding was their number one reason to breastfeed and cost of formula was

seen as a “bonus” that comes with the health benefits. It is possible that mothers that intend to formula feed focused on their short-term objectives, which for most participants of this study would be to maintain their lifestyles and not changing it to accommodate breastfeeding, even when the long term benefits of breastfeeding would outweigh the short-term formula advantages. One study refers to the lack of sense of urgency regarding future health that may make nutrition a low concern and the challenge of helping people incorporate healthy eating into their lifestyle (120). This is an issue that could be projected to breastfeeding, since incorporating a healthier feeding method into a mother’s lifestyle seems to be also a challenge (120). If breastfeeding cost has a higher value for the mother at that point and time than the long-term health benefits and savings on cost, addressing the health benefits of breastfeeding and its economic value would not have a positive influence on mother’s decision to breastfeed, this was demonstrated in this study. Ways of incorporating breastfeeding into the mother’s lifestyle should be further investigated.

An interesting fact about the participants of this study that differ from other studies is that all of the women were pregnant and single and were interviewed in their second or third trimester. It was possible that breastfeeding intent, barriers, and motivators was well established by all mothers. It would be interesting to see if mothers know what they want and why throughout the whole pregnancy in future research. Chertok et al. demonstrated that prenatal breastfeeding intent defines breastfeeding outcomes. Therefore, it might be crucial for future interventions to

focus on breastfeeding intent prenatally and the sooner in the pregnancy as possible. Investigating breastfeeding intent during mothers' prenatal visit may give the professional important information about factors that she perceives as barriers for breastfeeding and possible breastfeeding motivators (Figure 2).

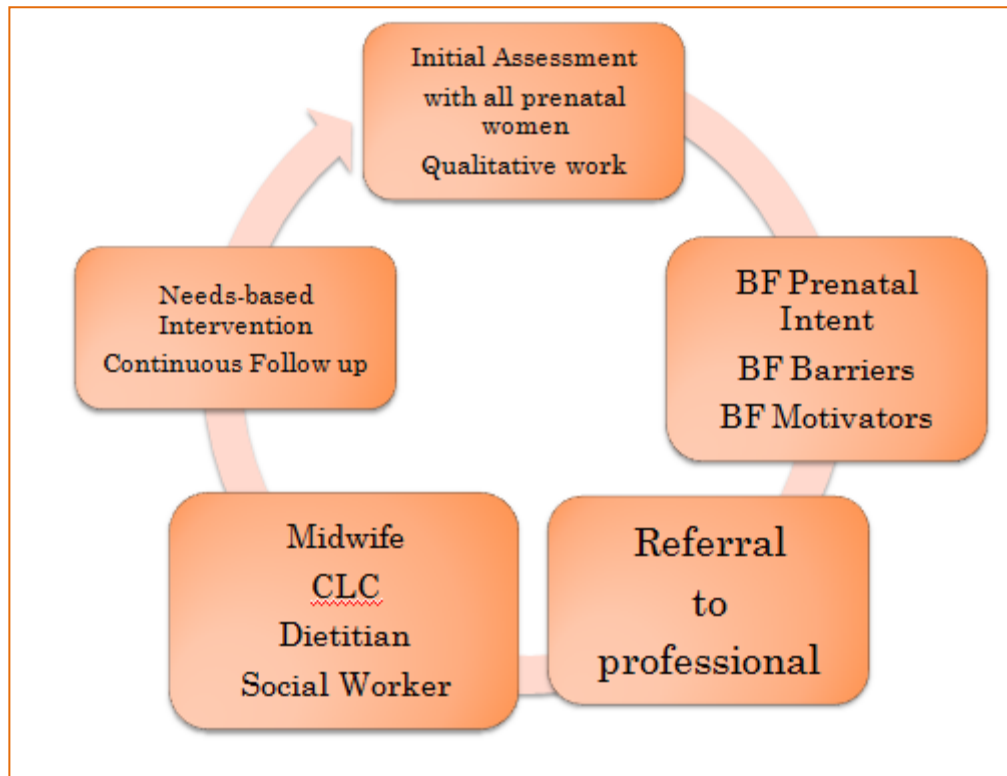
Figure 2. Prenatal intent, cost of breastfeeding, and value of formula feeding correlation.



In a large scale, a future breastfeeding intervention, would initiate with a prenatal breastfeeding intent assessment, where the professional would ask the mother sensitive questions and probes in order to obtain information about her breastfeeding intent, barriers and motivators. Utilizing information learned from this assessment, the professional would be able to identify the problem (what is impeding her from breastfeeding, why, and what could possibly motivate her to try

breastfeeding) and refer the mother to professional (certified lactation counselor, midwife, dietitian, social worker, etc.). This specialist would be able to use the personal information obtained from the mother to tailor the consultations accordingly to her needs. The counseling sessions should be personalized and focused on addressing the specific barriers to that one mother. Starting early in the pregnancy would give the professional an opportunity to build rapport with the mother and to slowly work on key factors that are specific for each mother (Figure 3).

Figure 3. Future Breastfeeding Intervention.



In a smaller scale, since the WIC program doesn't have an independent researcher or professional to conduct the initial assessments, or a multidisciplinary team to refer mothers, it would be interesting to explore the idea of having the WIC

nutritionists conducting an initial breastfeeding prenatal assessment and having all the mothers referred to a peer counselor, as early as possible in the pregnancy, despite of their breastfeeding intent. This intervention would require nutritionists to be involved in supporting the breastfeeding peer counselor program and for the peer counselors to contact mothers before their third trimester.

Parallel to this intervention, an investigation of how breastfeeding could be included into mother's lifestyle, ways to demystify breastfeeding, and communicate with the mothers is needed. The fact that WIC mothers were all single should be taken into consideration while working with the mothers. The finding that mothers felt they were in charge of the decision of how they would feed their babies could be attributed to the fact that they were single and felt that they own the right of deciding, which is a strong factor that should included in future interventions. The idea of a breastfeeding intervention titled "It's your decision" should have potential to bring the attention to the mothers that believe in fact that it's their decision how they will feed their babies.

Information about cost

It was found during Phase I that the mean cost of buying extra cans of formula was \$50 per month for the participant in the fourth month. The material was presented to a group of prenatal women enrolled in the WIC program. It was found that the majority of the mothers considered the cost of buying extra formula high; clear adjectives such as costly and expensive were used to describe the cost. There

was no difference between the breastfeeding and formula feeding group in regards to finding this cost high. Both groups were able to notice the increase in the cost of formula as the child gets older, and similar to another study (121), breastfeeding was noted as cheaper than formula feeding by WIC participants.

Although some mothers stated not finding the high cost of formula surprising and about what they expected it to be, when they were asked to estimate the amount spent on formula, none of them knew the cost of formula, except for one mother which worked at a grocery store. Many participants stated not having an idea of the cost, concluding that the groups were not up to date with information regarding the cost of formula, an item that it was perceived as expensive, and for formula feeding mothers indispensable. A study on consumer behavior talks about consumers lacking full information on prices and quality of items they intend to purchase (118).

Information on cost of formula should be included in prenatal counseling in order to educate mothers about formula cost. These costs should be updated periodically to follow the changes in market prices. Since participation in the program has been linked to early introduction of solids and cow's milk, WIC nutritionists may pay attention to formula feeding post-partum mothers during their WIC visits to ensure that mothers are not replacing the formula with solids or milk when the amount of formula given by the program is insufficient to cover infant's feeding demands. Education about proper mixing of formula, infant's feeding demands and cues, along with information on how to read recipes that utilize ounces should be

ensured to be given to all participants. Mothers that report being in an unfavorable economic situation, maybe “red flagged” by WIC nutritionists and followed up at each visit in regards to infant feeding practices.

WIC characteristics

Mothers that reported intent to breastfeed belonged to the same WIC site, B. Although breastfeeding initiation rate for babies born in 2010 participating in this site was below Healthy People 2020 goals, only 53%, it was superior to the breastfeeding initiation rate of WIC site A (37%). Considering that only WIC site B had participants intending to breastfeed it would be interesting to further investigate how both WIC programs differ from each other in their breastfeeding approaches. Since breastfeeding support from nurses, lactation specialist or peer counselors are an important influence on women’s decision to breastfeed (8,12,104,107), it is possible that the intent of breastfeeding from WIC site B partially came from their staff’s approach to breastfeeding. The group of breastfeeding mothers was older than the group of bottle feeding mothers and they also had a higher level of education, this pattern is confirmed by previous studies that documented that older and more educated mothers are more likely to breastfeed than younger and less educated mothers (1, 26). Therefore breastfeeding intent could be attributed to participant’s characteristics.

Educational materials

The second objective of phase II of this research was to evaluate nutrition education materials through in-depth interviews. It was found that the majority of participants, including mothers from both groups – breastfeeding and formula feeding, liked brochure A better than brochures B and C. These mothers seemed to appreciate learning the actual cost of formula per month. They found having the price displayed on the brochure a simpler and easier way to understand the information, informative and direct to the point. Brochure B was not very popular when compared to brochure A or C, with only one mother preferring its style. Brochure B didn't contain the actual cost of formula, and it was elaborated with the intention of showing graphically to mothers that breastfeeding is free and formula feeding, conversely, has a cost associated to it that increases along with the infant's growth. Some of the issues with brochure C included the use of images of cans of formula to compare the amount of formula given to the amount that would need to be purchase by the participants (two large cans). Since WIC provides majority of the cans, the images of two large cans gave the impression to some of the mothers that the cost of formula feeding may not be high. Therefore, brochure C had the opposite effect desired by the researcher. An example of that opinion is quoted below:

“...this actually makes it look not that bad. Because I mean the way they have it shown its only two extra cans”.

Interestingly, reasons why some formula feeding mothers liked brochure C were that it showed how many cans they would receive from WIC, which was

perceived as positive, versus the other two brochures A and B that only showed the negative side of formula feeding, the cost for the participant. It could be assumed these mothers were focusing on how much they would receive (highly valued) instead of how much they would be spending. Conversely, the reason why a breastfeeding mother liked brochure C was because it informs mothers that WIC provides formula, however, the amount is not sufficient and the mother will have to buy extra cans. From a breastfeeding point of view, the mother's focus was on how many cans she would have to purchase instead of how many she would receive.

Summary

When mothers were asked about factors that would motivate them to breastfeed, many mentioned the main differences between formula and breastfeeding, including differences in nutritional content and health benefits of breastfeeding. However, some of this information is available to WIC participants at the participating sites. Therefore it is possible that mothers may not be reading information that is provided (and reasons why they are not reading it should be investigated) or it is possible that the information is not being given to the participant. Effective ways of communicating information to mothers should be prioritized when promoting breastfeeding. Mothers' language (their own words) should be used in educational materials to address their needs objectively. This research could be utilized to identify common language used by the participants when talking about breastfeeding. The use of images could be explored as way of

communicating with mothers, especially if they are not taking the time to read materials or interested in listening to other people.

Finally, this study found that information on cost may not be effective in influencing mothers that intend to formula feed to breastfeed but motivational to mothers that intent to breastfeed. This cost was found to be important and should be included into educational materials. Multi-factorial reasons are involved in mothers' choice to bottle feed. These reasons, which seemed to be directly associated to their lifestyle and myths associated to breastfeeding, should be explored and ways of incorporating breastfeeding into mother's lifestyle and demystifying breastfeeding should be added to educational materials.

Limitations:

Considering that 87% of Hispanics in Rhode Island and 20% nationally spoke other language than English in 2009 according to U.S. Census Bureau (48), the fact that 86% of the subjects were non-Hispanic of white race, the lack of diversity was a limitation. While a trilingual researcher was available in the WIC sites, Spanish or Portuguese clients were either not recruited or not available for recruitment.

Future Research

Future qualitative research should intend to investigate ways of incorporating breastfeeding into mother's lifestyle. Followed by an investigation of how this could be incorporated into WIC breastfeeding materials that would help mother's achieve

their goals (social, economic, personal, physical, and etc) without sacrificing breastfeeding.

An investigation of how to effectively demystify breastfeeding should be conducted. The use of images may be explored as way of quickly addressing some of the perceived “costs” of breastfeeding. Picture of a mother breastfeeding discretely in public versus a mother bottle feeding; a mother shopping freely (carrying only the baby and a hand bag) versus a mother carrying a large bag with water, bottles, formula, bottle warmers, bottle sanitizers, and etc); a mother breastfeeding in a comfortable rocking chair versus a mother getting up to prepare a bottle in the middle of the night, and many other possible images. It would be interesting to learn how mothers respond to these emotional images that are directly related to their lifestyle and perceptions of breastfeeding.

IMPLICATION FOR RESEARCH AND PRACTICE

This paper provides several contributions to our understanding of infant feeding decisions among WIC participants. It provides information on cost of formula feeding for non-breastfeeding WIC mothers in Rhode Island, which wasn't available. It also provides information on how and why information on cost doesn't influence mothers that intent to formula feed to breastfeed, but motivates mothers that intent to breastfeed, and provides factors that mothers perceived as motivators or deterrents of breastfeeding.

LIST OF REFERENCES

- (1) Ryan, A; Zhou, W. Lower Breastfeeding Rates Persist Among the Special Supplemental Nutrition Program for Women, Infants, and Children Participants, 1978-2003. *Pediatrics Journal*, 2006 Apr;117(4):1136-46.
- (2) Chatterji P, Bonuk K, Dhawan S, Deb N. WIC participation and the initiation and Duration of Breastfeeding. Madison, WI: University of Wisconsin, Madison;2002.
- (3) Lawrence, R.A. (2006) Lower breastfeeding rates among Supplemental Nutrition Program for Women, Infants, and Children participants: A call for action. *Pediatrics*, 117 (4), 1432-1433
- (4) Li, R. Darling, N., Maurice, E., Barker, L., & Grummer-Strawn, L.M. (2005). Breastfeeding rates in the United States by characteristics of the child, mother, or family: The 2002 National Immunization Survey. *Pediatrics*, 115, e31-e37.
- (5) Laantera, S., Pölkki, T., Ekström, A., Pietilä, A. Breastfeeding attitudes of Finnish parents during pregnancy. *BMC Pregnancy and Childbirth* 2010, 10:79.
- (6) Yngve Hofvander, Why women don't breastfeed: a national survey. *Acta Paediatr* 2003; 92: 1243-1244. Stockholm. ISSN 0803-5253.
- (7) Taylor JS, Risica PM, Cabral HJ. Why primiparous mothers do not breastfeed in the United States: A national survey. *Acta Paediatr*. 2003;92:1308-1313.).

- (8) Hofvander Y. Why women don't breastfeed: A national survey. *Acta Paediatrica*. 2003;92:1243–1244.
- (9) Samir Arora, Cheryl McJunkin, Julie Wehrer, and Phyllis Kuhn. Major Factors Influencing Breastfeeding Rates: Mother's Perception of Father's Attitude and Milk Suppl. *Pediatrics*, Nov 2000; 106: e67.
- (10) Humenick SS, Hill PD, Spiegelberg PL. Breastfeeding and health professional encouragement. *J Hum Lact*. 1998 Dec;14(4):305-10.
- (11) Holmes AV, Chin NP, Kaczorowski J, Howard CR. *A barrier to exclusive breastfeeding for WIC enrollees: limited use of exclusive breastfeeding food package for mothers. Breastfeed Med*. 2009 Mar;4(1):25-30.
- (12) Khoury AJ, Moazzem SW, Jarjoura CM, Carothers C, Hinton A. Breast-feeding initiation in low-income women: Role of attitudes, support, and perceived control. *Womens Health Issues*. 2005;15:64–72.
- (13) Dyson L, McCormick FM, Renfrew MJ. Interventions for promoting the initiation of breastfeeding. *Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No.: CD001688.
- (14) Ishtiaq Mannan, Syed Moshfiqur Rahman, Ayesha Sania, Habibur R Seraji, Shams El Arifeen, Peter Winch, Gary L Darmstadt, and Abdullah Baqui. Can Early Postpartum

Home Visits by Trained Community Health Workers Improve Breastfeeding of Newborns? *J Perinatol*. 2008 September; 28(9): 632–640.

(15)Aamer Imdad, Mohammad Yawar Yakoob, Zulfiqar A Bhutta. Effects of breastfeeding promotion interventions on breastfeeding rates, with special focus on developing countries. *BMC Public Health* 2011, 11(Suppl 3): S24.

(16)Bartlett, S., E. Bobronnikov, and M. Mendelson. WIC Participant and Program Characteristics 2006, Report No. WIC-06-PC, U.S. Department of Agriculture, Food and Nutrition Services, Special Nutrition Programs, December 2007.

(17)Oliveira, V., Frazao, E. The WIC Program. Background, Trends, and Economic Issues, 2009 Edition. Economic Research Report Number 73, April 2009.

(18)Miao Jiang, E. Michael Foster, Christina M. Gibson-Davis. The effect of WIC on breastfeeding: A new look at an established relationship. *Children and Youth Services Review* 32 (2010) 264-273.

(19)U.S. Department of Commerce. Economics and Statistics Administration. U.S. CENSUS BUREAU. People Who Spoke a Language Other Than English at Home by Hispanic Origin and Race: 2009. October, 2010.

(20)Phelps E. Charles. Economic Issues of Breastfeeding. *Breastfeeding Medicine*. Volume 6, Number 5, 2011.

- (21) Bartick Melissa. Breastfeeding and the U.S. Economy. *Breastfeeding Medicine*. Volume 6, number 5, 2011.
- (22) CDC National Immunization Survey. Breastfeeding among U.S. Children Born 1999-2005. Available at www.cdc.gov.
- (23) Healthy People 2010. Breastfeeding Goals. Available at:
<http://www.healthypeople.gov/2010/topicsobjectives2010/objectiveslist.aspx?topicid=26>
- (24) CDC National Immunization Survey, Provisional Data, 2008 births.
http://www.cdc.gov/breastfeeding/data/NIS_data/index.htm
- (25) Owen, C. G., R. M. Martin, P. H. Whincup et al. Effect of infant feeding on the risk of obesity across the life course: A quantitative review of published evidence. *Pediatrics* 2005; 115(5):1367-77.
- (26) Alan S. Ryan. More About the Ross Mothers Survey-DOI: 10.1542/peds.2005-0237 *Pediatrics* 2005;115;1450-1451
- (27) CDC. *Breastfeeding Trends and Updated National Health Objectives for Exclusive Breastfeeding --- United States, Birth Years 2000—2004*. 2007
- (28) American Academy of Pediatrics Work Group on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics*.2005;115:416-506.

(29) Department of Health and Human Services, Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health promotion. Breastfeeding: Data and Statistics: Breastfeeding Practices-Results from the 2004 National Immunization Survey.

http://www.cdc.gov/breastfeeding/data/NIS_data/data_2004.htm

(30) Food and Nutrition Service. *Providing Quality Nutrition Services in Implementing the Breastfeeding Promotion and Support Requirements of the New WIC Food Packages*. 2009

(31) U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, WIC participant and Program Characteristics 2010, *WIC-10-PC*, by Patty Connor, Susan Barlett, Michele Mendelson, Kelly Lawrence, David Bell-Feins, Katherine Wen, et al. Project Officer, Fred Lesnett. Alexandria, VA: December 2011.

(32) Healthy People 2020: Breastfeeding Objectives. Available at:

<http://www.usbreastfeeding.org/LegislationPolicy/FederalPoliciesInitiatives/HealthyPeople2020BreastfeedingObjectives/tabid/120/Default.aspx>

(33) CDC Breastfeeding Report Card 2010, United States: Outcome Indicators.

Available at: <http://www.cdc.gov/breastfeeding/data/reportcard.htm>

(34) Stuebe AM, Schawtrz EB: The risk and benefits of infant feeding practices for women and their children. *J Perinatal* 2010, 30(3):155-162.

- (35) Dewey KG, Heinig MJ, Nommsen LA, Peerson JM, Lonnerdal B: Growth of breast-fed and bottle-fed infants from 0 to 18 months: The DARLING Study. *Pediatrics* 1992, 89(6 Pt 1): 1035-1041.
- (36) Alexander K. C. Leung and Reginald S. Sauve. Breast is Best for babies. *J Natl Med Assoc.* 2003; 97(7): 1010–1019. PMID: PMC2569316
- (37) Kent George, Child feeding and human rights. *International Breastfeeding Journal* 2006, 1:27 doi:10.1186/1746-4358-1-27
- (38) Morrow AL, Ruiz-Palacios GM, Jian X, Newburg DS: Human-milk glycans that inhibit pathogen binding protect breast-feeding infants against infectious diarrhea. *J Nutr* 2005, 135:1304-1307.
- (39) Le Pendu, J. (2004) Histo blood group antigen and human milk oligosaccharides: genetic polymorphism and risk of infectious diseases. *Adv. Exp. Med. Biol.* 554:135-143.
- (40) Chaturvedi, P., Warren, C.D., Buescher, C.R., Pickering, L.K. & Newburg, D.S. (2001) Survival of human milk oligosaccharides in the intestine of infants. *Adv. Exp. Med. Biol.* 501:513-523.
- (41) Black, R. E., Morris, S.S. & Bryce, J. (2003) Where and Why are 10 million children dying every year? *Lancet* 361:2226-2234.

(42)Behrman, JR; Rosenzweig, MR; Taubman, P. Endowments and the Allocation of Schooling in the Family and the Marriage Market: The Twins Experiment. *Journal of Political Economy*. 1994;102:1131–74.

(43)Lawrence Noble, Ivan L. Hand, and Anita Noble. Breastfeeding, Hospitalizations, and the Role of Ethnicity. *Pediatrics* 2007 120: 452-453.

(44)Kramer MS, Kakuma R. Optimal duration of exclusive breastfeeding. *Cochrane Database Syst Rev*. 2002;(1):CD003517

(45)Scariati, PD; Grummer-Strawn, LM; Fein, SB. A Longitudinal Analysis of Infant Morbidity and the Extent of Breastfeeding in the United States. *Pediatrics*. 1997;99(6):E5.

(46)Kramer, MS; Chalmers, B; Hodnett, ED; Sevkovskaya, Z; Dzikovich, I; Shapiro, S; Collet, JP; Vanilovich, I; Mezen, I; Ducruet, T; Shishko, G; Zubovich, V; Mknuk, D; Gluchanina, E; Dombrovskiy, V; Ustinovitch, A; Kot, T; Bogdanovich, N; Ovchinikova, L; Helsing, E. PROBIT Study Group. Promotion of Breastfeeding Intervention Trial (PROBIT): A Randomized Trial in the Republic of Belarus. *Journal of the American Medical Association*. 2001;285:413–20.

(47)Dewey, KG; Heinig, MJ; Nommsen-Rivers, LA. Differences in Morbidity between Breast-Fed and Formula-Fed Infants. *Journal of Pediatrics*. 1995;126:696–702.

(48)Vogazianos E, Vogazianos P, Fiala J, Janecek D, Slapák I. *The effect of*

breastfeeding and its duration on acute otitis media in children in Brno, Czech

Republic. Cent Eur J Public Health. 2007 Dec;15(4):143-6. PMID: 18251228

(49)Caroline J. Chantry, Cynthia R. Howard, and Peggy Auinger

Full Breastfeeding Duration and Associated Decrease in Respiratory Tract Infection in US Children. *Pediatrics*, Feb 2006; 117: 425 – 432.

(50)Kull, I; Wickman, M; Lilja, G; Nordvall, SL; Pershagen, G. Breast Feeding and

Allergic Diseases in Infants—A Prospective Birth Cohort Study. *Archives of Disease in Childhood.* 2002;87(6):478–81.

(51)Van Odijk, J; Kull, I; Borres, MP; Brandtzaeg, P; Edberg, U; Hanson, LÅ; Høst, A;

Kuitunen, M; Olsen, SF; Skerfving, S; Sundell, J; Wille, S. Breastfeeding and Allergic Disease: A Multidisciplinary Review of the Literature (1966–2001) on the Mode of Early Feeding in Infancy and Its Impact on Later Atopic Manifestations. *Allergy.* 2003;58(9):833–43.

(52)Chen, Y; Yu, SZ; Li, WX. Artificial Feeding and Hospitalization in the First 18

Months of Life. *Pediatrics.* 1988;81(1):58–62.

(53)McVea, KL; Turner, PD; Peppler, DK. The Role of Breastfeeding in Sudden Infant

Death Syndrome. *Journal of Human Lactation.* 2000;16(1):13–20.

(54) Alm, B; Wennergren, G; Norvenius, SG; Skjaerven, R; Lagercrantz, H; Helweg-

Larsen, K; Irgens, LM. Breast Feeding and Sudden Infant Death Syndrome in

Scandinavia, 1992–95. *Archives of Disease in Childhood*. 2002;86(6):400–2.

(55) Mitchell, EA; Scragg, R; Stewart, AW; Becroft, DM; Taylor, BJ; Ford, RP; Hassall, IB; Barry, DM; Allen, EM; Roberts, AP. Results from the First Year of the New Zealand Cot Death Study. *New Zealand Medical Journal*. 1991;104:71–6.

(56) Hausmann R. [Sudden death in infancy]. *Ther Umsch*. 2008 Jul;65(7):407-11. German. PMID: 18622925

(57) Chen, A; Rogan, W J. Breastfeeding and the risk o post neonatal death in the United States. *Pediatrics*. 2004;113:e435-439. Doi:10.1542/peds.113.5.e4235.

(58) Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. *Pediatrics*. 2006 Mar;117(3):e380-6. PMID: 16510618

(59) Davis, MK; Savitz, DA; Graubard, BI. Infant Feeding and Childhood Cancer. *Lancet*. 1988;2(8607):365–8.

(60) Løland BF, Baerug AB, Nylander G. [*Human milk, immune responses and health effects*]. *Tidsskr Nor Laegeforen*. 2007 Sep 20;127(18):2395-8. Review. Norwegian. PMID: 17895946

(61) Bosnjak AP, Grgurić J. [*Long-term health effects of breastfeeding*]. *Lijec Vjesn*. 2007 Aug-Sep;129(8-9):293-8. Review. Croatian. PMID: 18198630

(62) Pettitt, DJ; Forman, MR; Hanson, RL; Knowler, WC; Bennett, PH. *Breastfeeding*

and Incidence of Non-Insulin-Dependent Diabetes Mellitus in Pima Indians. Lancet. 1997;350(9072):166–8.

(63) Young, TK; Martens, PJ; Taback, SP; Sellers, EA; Dean, HJ; Cheang, M; Flett, B.

Type 2 Diabetes Mellitus in Children: Prenatal and Early Infancy Risk Factors among Native Canadians. Archives of Pediatric and Adolescent Medicine. 2002;156(7):651–5.

(64) Murphy S, Wilson C. *Breastfeeding promotion: a rational and achievable target for a type 2 diabetes prevention intervention in Native American communities. J Hum Lact. 2008 May;24(2):193-8. Review. PMID: 18436971*

(65) Bartok CJ, Ventura AK. *Mechanisms underlying the association between breastfeeding and obesity. Int J Pediatr Obes. 2009 Feb 24:1-9. PMID: 19235617*

(66) Gilman, M; Rifas-Shiman, SL; Camargo, CA, Jr; Berkey, CS; Frazier, AL; Rockett, HR; Field, AE; Colditz, GA. *Risk of Overweight among Adolescents Who Were Breastfed as Infants. Journal of the American Medical Association. 2001;285(19):2461–7.*

(67) Simon VG, de Souza JM, de Souza SB. *Breastfeeding, complementary feeding, overweight and obesity in pre-school children. Rev Saude Publica. 2009 Feb;43(1):60-9. English, Portuguese. PMID: 19169576*

(68) Butte NF. *Impact of infant feeding practices on childhood obesity. J Nutr. 2009*

Feb;139(2):412S-6S. Epub 2008 Dec 23. PMID: 19106326

(69) Rao, M; Hediger, ML; Levine, RJ; Naficy, AB; Vik, T. Effect of Breastfeeding on Cognitive Development of Infants Born Small for Gestational Age. *Acta Paediatrica*. 2002;91(3):267–74.

(70) Kramer MS, Aboud F, Mironova E, Vanilovich I, Platt RW, Matush L, Igumnov S, Fombonne E, Bogdanovich N, Ducruet T, Collet JP, Chalmers B, Hodnett E, Davidovsky S, Skugarevsky O, Trofimovich O, Kozlova L, Shapiro S; Promotion of Breastfeeding Intervention Trial (PROBIT) Study Group. Breastfeeding and child cognitive development: new evidence from a large randomized trial. *Arch Gen Psychiatry*. 2008 May;65(5):578-84. PMID: 18458209

(71) Eirik Evenhouse and Siobhan Reilly. Improved Estimates of the Benefits of Breastfeeding Using Sibling Comparisons to Reduce Selection Bias. *Health Serv Res*. 2005 December; 40(6 Pt 1): 1781–1802.doi: 10.1111/j.1475-6773.2004.00453.x. PMID: 16313612

(72)Gartner LM, Morton J, Lawrence RA, 104aylor AJ, O’Hare D, Schanler RJ, Eidelman AL: Breastfeeding and the use of human milk. *Pediatrics* 2005, 115(2):496-506.

(73) Heinig, MJ; Dewey, KG. Health Effects of Breastfeeding for Mothers: A Critical Review. *Nutrition Research Reviews*. 1997;10:35–56.

(74) Zheng, T; Duan, L; Liu, Y; Zhang, B; Wang, Y; Chen, Y; Zhang, Y; Owens, PH. Lactation Reduces Breast Cancer Risk in Shandong Province, China. *American Journal of Epidemiology*. 2000;152:1129–35.

(75) Zheng, T; Holford, TR; Mayne, ST; Owens, PH; Zhang, Y; Zhang, B; Boyle, P; Zahm, SH. Lactation and Breast Cancer Risk: A Case–Control Study in Connecticut. *British Journal of Cancer*. 2001;84(11):1472–6.

(76) Jon Weimer. The Economic Benefits of Breastfeeding: A Review and Analysis. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Food Assistance and Nutrition Research Report No. 13 (FANRR-13) 20 pp, March 2001.

(77) Melissa Bartick and Arnold Reinhold. The Burden of Suboptimal Breastfeeding in the United States: A Pediatric Cost Analysis. *Pediatrics* 2010;125:e1048.

(78) Rhode Island Breastfeeding Coalition, Department of Health. <http://www.health.ri.gov/partners/coalitions/breastfeeding/>

(79) WHO. Global strategy for infant and young child feeding. 2008. www.who.int/child_adolescent_health/topics/prevention_care/child/nutrition/global/en/.

(80) Infant and young child nutrition: Global strategy on infant feeding and young

child feeding. (http://apps.who.int/gb/archive/pdf_files/WHA55/ea5515.pdf).

(81) Wijndaele K, Lakshman R, Landsbaugh JR, Ong KK, Ogilvie D. Determinants of early weaning and use of unmodified cow's milk in infants: a systematic review. *J Am Diet Assoc.* 2009 Dec;109(12):2017-28.

(82) Kramer MS, Makuma R. Optimal duration of exclusive breastfeeding. *Cochrane Database Syst Rev.* 2002;1:CD003517.

(83) Michaelsen KF. Are there negative effects of an excessive protein intake? *Pediatrics.* 2000;106:1293.

(84) Harris G. Determinants of the introduction of solid food. *J Reprod Infant Psychol.* 1988;6:241–249

(85) Forsyth JS, Ogston SA, Clark A, Florey CD, Howie PW. Relation between early introduction of solid food to infants and their weight and illnesses during the first 2 years of life. *BMJ.* 1993;306:1572–1576

(86) Wilson AC, Forsyth JS, Greene SA, Irvine L, Hau C, Howie PW. Relation of infant diet to childhood health: Seven-year follow up of cohort of children in Dundee infant feeding study. *BMJ.* 1998;316:21–25

(87) Burr ML. Does infant-feeding affect the risk of allergy. *Arch Dis Child.* 1983;58:561–565

(88) Oski FA, Landaw SA. Inhibition of iron-absorption from human-milk by baby

food. *Am J Dis Child*. 1980;134:459–460

(89) Binns C, Davidson G. Infant Feeding Guidelines for Health Workers (Dietary Guidelines for Children in Australia). Canberra, Australia: National Health and Medical Research Council; 2003;

(90) Binns CW, Graham KI, Scott JA, Oddy WH. Infants who drink cow's milk: A cohort study. *J Paediatr Child Health*. 2007;43:607–610

(91)Knip M, Akerblom HK. Early nutrition and later diabetes risk. *Adv Exp Med Biol*. 2005;569:142–150

(92) American Academy of Pediatrics. The use of whole cow's milk in infancy (policy statement). *AAP News*. 1992;8:8–22

(93)Hendricks K, Briefel R, Novak T, Ziegler P. Maternal and child characteristics associated with infant and toddler feeding practices. *J Am Diet Assoc*. 2006;106(suppl):S135–S148

(94) Kathleen M. Ziol-Guest, Daphne Hernandez. First and Second Trimester WIC Participation Is Associated with Lower Rates of Breastfeeding and *Journal of the American Dietetic Association* Early Introduction of Cow's Milk during Infancy.. November 16, 2009.

(95) Ponza M, Devaney B, Shackman G, Woelfel ML, Ziegler P, Reidy K, Squatrito C, Pruzek R, Stratton H. Looking at WIC. *J Am Diet Assoc*. 2004;104:1074.

(96) American Academy of Pediatrics. Caring for Your Baby and Young Child. Birth to Age 5. Edited by Steven P. Shelov and Tanya Remer Altmann.

(97) Fein, SB, Falci CD. Infant formula preparation, handling, and related practices in the United States. *J Am Diet Assoc.* 1999 Oct;99(10): 1234-40.

(98) Laura Duberstein Lindberg, Trends in the relationship between breastfeeding and postpartum employment in the United States". *Social Biology* 43 (1996): 191-202

(99) Ryan AS, Zhou W, Arensberg MB. *The effect of employment status on breastfeeding in the United States.* Women Health Issues. 2006 Sep-Oct;16(5):243-51

(100) Bryant Carol. Example: WIC-Breastfeeding. Best Start Social Marketing.

September 1995. Available at:

<http://www.orau.gov/cdcynergy/soc2web/Content/activeinformation/examples/example-breastfeeding.htm>

(101) Flower, Kori, et al. Understanding Breastfeeding Initiation and Continuation in Rural Communities: A Combined Qualitative/Quantitative Approach. *Maternal Child Health J.* 2008 May;12(3):402-414.

(102) Ahluwalia IB, Morrow B, Hsia J. Why do women stop breastfeeding? Findings from the Pregnancy Risk Assessment and Monitoring System. *Pediatrics.* 2005;116:1408–1412.

(103) American Dietetic Association. Position of the American Dietetic Association:

Promoting and supporting breastfeeding. *Journal of the American Dietetic Association*. 2005;105:810–818.

(104) Bentley ME, Dee DL, Jensen JL. Breastfeeding among low income, African-American women: Power, beliefs and decision making. *Journal of Nutrition*. 2003;133:305S–309S.

(105) Brownell K, Hutton L, Hartman J, Dabrow S. Barriers to breastfeeding among African American adolescent mothers. *Clinical Pediatrics*. 2002;41:669–673.

(106) Kimbro RT. On-the-job moms: Work and breastfeeding initiation and duration for a sample of low-income women. *Maternal and Child Health Journal*. 2006;10:19–26.

(107) Kuan LW, Britto M, Decolongon J, Schoettker PJ, Atherton HD, Kotagal UR, et al. Health system factors contributing to breastfeeding success. *Pediatrics*. 1999;104:e28.

(108) USDA, Food and Nutrition Services. Legislative History of Breastfeeding Promotion Requirements in WIC, <http://fsn.usda.gov/wic/breastfeeding/bflegishistory.HTM>. Accessed on April 7, 2008a.

(109) Reifsnider E., Gill S., Villarreal P., Tinkle M., Breastfeeding Attitudes of WIC Staff: A Descriptive Study. *The Journal of Perinatal Education*. Vol. 12, No. 3, 2003.

(110) Department of Agriculture-Food and Nutrition Service. Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Revisions in the WIC Food Packages-Interim. Rule.2007.

(111) U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, Evaluation of the Birth Month Breastfeeding Changes to the WIC Food Packages by Parke Wilde, Anne Wolf, Meena Fernandes, Ann Collins; Project Officer, Dr. Joseph F. Robare. Alexandria, VA: December 2011.

(112)Mack, N., Woodsong, C., MacQueen, K., Guest, G., Namey, E.. Qualitative Research Methods: A Data Collector's Field Guide. Family Health International, 2005. Module – Qualitative Research Methods Overview (pg 1 -12).

(113) Institute of Medicine. WIC Food Packages: Time for a Change, Committee to Review the WIC Food Packages, Food and Nutrition Board, Washington, DC: The National Academies Press, 2005.

(114) Ketevan Nemsadze. *Report from the Country of Georgia: Protecting and Promoting Breastfeeding through Regulation of Artificial-Feeding marketing Practices. The Journal of Perinatal Education*. Winter 2004, Vol. 13, No.1

(115) Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building

Permits, Consolidated Federal Funds Report Last Revised: Tuesday, 17-Jan-2012

16:41:37 EST.

(116) Pope, Catherine; Mays, Nicholas. Qualitative Research in health care. Third Edition, 2006 (Ch. 1 Pg 3-5. 7-8)

(117) Flick Uwe. An Introduction to Qualitative Research. Second Edition, 2002. (Ch. 4 Pg 40, 74

(118) Phillip Nelson, Information and Consumer Behavior. *Journal of Political Economy*, Vol. 78, No. 2 (Mar.-Apr., 1990), pp.311-329.

(119) Katahira K., Fujimura T., Okanoya K., Okada M. Decision-making based on emotional images. *Frontiers in Psychology*. Doi: 10.3389/fpsyg.2011.00311. Volume 2, article 311. Published:28 October 2011.

(120) Lisa Mancino and Margaret Andrews. Making healthy food choices easier. Ideas from behavioral economics. Economic Information Bulletin. Number 29-7. USDA. Economics Research Service, September 2007.

(121) Wojcicki Janet M., Gugig Roberto, Tran Cam, Kathiravan Suganya, Holbrook Katherine, Heyman Melvin. Early Exclusive Breastfeeding and Maternal Attitudes Towards Infant Feeding in a Population of New Mothers in San Francisco, California. *Journal of Breastfeeding Medicine*. 2010 February; 5(1):9-15.

Table 1. Frequency of participants and household size Phase I

Household size	Frequency	Percent	Valid Percent	Cumulative Percent
2	4	13.3	13.3	13.3
3	7	23.3	23.3	36.7
4	12	40.0	40.0	76.7
5	6	20.0	20.0	96.7
6	1	3.3	3.3	100.0
Total	30	100.0	100.0	

Table 2. Frequency of participants and monthly income.

Income	Frequency	Percent	Valid Percent	Cumulative Percent
\$250.00	2	6.7	6.7	6.7
\$750.00	6	20.0	20.0	26.7
\$1,250.00	10	33.3	33.3	60.0
\$1,750.00	8	26.7	26.7	86.7
\$2,250.00	1	3.3	3.3	90.0
\$2,750.00	2	6.7	6.7	96.7
\$4,250.00	1	3.3	3.3	100.0
Total	30	100.0	100.0	

Table 3. Infant Formula Price Search

Location	LiqCon	SPowder	Lpowder	RTF
Site B	\$6.17	\$15.99	\$24.99	\$6.99
Site C	\$6.89	\$14.79	\$22.99	\$6.49
Site A	\$6.89	\$14.89	\$22.99	\$6.89
Average	\$6.65	\$15.22	\$23.65	\$6.79

Table 4. Minimum, maximum and mean cost for the WIC program and participants

WIC/Self Cost	N	Minimum	Maximum	Mean	Std. Deviation
Wcost1m	30	.00	283.80	207.6357	70.44048
Wcost2m	30	66.50	283.80	217.8840	59.63073
Wcost3m	30	66.50	283.80	217.8840	59.63073
Wcost4m	30	66.50	283.80	221.0373	61.81655
Scost1m	30	.00	47.30	7.5430	12.30901
Scost2m	30	.00	47.30	15.7510	15.14319
Scost3m	30	.00	47.30	36.4100	14.54340
Scost4m	30	13.30	94.60	45.8700	19.25229
WICcost	30	266.00	1135.20	864.4410	236.96634
SELFCost	30	39.90	189.20	105.5740	38.63077

Table 5a. Breastfeeding Rates per WIC site (January 2010)

Service_site	Total Babies	Initiation	Initiation	BF at 3 mos	BF at 3 mos	BF at 6 mos	BF at 6 mos	Fully BF through 3 mos	Fully BF through 3 months	Fully BF through 6 mos	Fully BF through 6 mos
101 (WIH)	309	179	58%	29	9.39%	4	1.29%	4	1.29%	0	0.00%
111 (St. Joe's)	213	131	62%	19	8.92%	5	2.35%	3	1.41%	0	0.00%
121 (EBCAP E. Providence)	119	61	51%	5	4.20%	1	0.84%	3	2.52%	1	0.84%
122 (EBCAP Bristol)	51	32	63%	5	9.80%	0	0.00%	4	7.84%	0	0.00%
130 (Tritown, Johnston)	123	65	53%	11	8.94%	5	4.07%	6	4.88%	2	1.63%
131 (Tritown Scalabrini)	25	15	60%	2	8.00%	0	0.00%	0	0.00%	0	0.00%
140 (West Bay, Warwick)	133	62	47%	11	8.27%	4	3.01%	6	4.51%	1	0.75%
141 (West Bay, W. Warwick)	93	50	54%	5	5.38%	2	2.15%	1	1.08%	0	0.00%
150 (Thundermist N. Kingstown)	20	11	55%	3	15.00%	3	15.00%	3	15.00%	2	10.00%
151 (Thundermist of SC)	99	57	58%	9	9.09%	2	2.02%	5	5.05%	0	0.00%
152 (Wood River, Hope Valley)	50	29	58%	8	16.00%	2	4.00%	4	8.00%	2	4.00%
153 (Wood River, Westerly)	9	5	56%	1	11.11%	1	11.11%	1	11.11%	1	11.11%
181 (CFS Pawtucket)	252	146	58%	37	14.68%	13	5.16%	7	2.78%	0	0.00%
183 (CFS Central Falls)	203	132	65%	34	16.75%	16	7.88%	5	2.46%	2	0.99%
400 (Chad Brown)	75	36	48%	7	9.33%	3	4.00%	2	2.67%	1	1.33%
500 (CCAP Cranston)	159	92	58%	22	13.84%	5	3.14%	7	4.40%	1	0.63%
501 (CCAP Coventry)	45	29	64%	4	8.89%	2	4.44%	1	2.22%	0	0.00%
600 (Thundermist)	315	117	37%	20	6.35%	5	1.59%	7	2.22%	0	0.00%
701 (EBCAP Newport)	125	85	68%	17	13.60%	5	4.00%	8	6.40%	2	1.60%
702 (EBCAP Tiverton)	32	20	63%	6	18.75%	2	6.25%	4	12.50%	1	3.13%
800 (Tritown Burrillville)	25	15	60%	2	8.00%	0	0.00%	1	4.00%	0	0.00%
901 (PCHC Allen Berry)	157	100	64%	28	17.83%	6	3.82%	0	0.00%	0	0.00%
902 (PCHC Capitol Hill)	162	114	70%	24	14.81%	5	3.09%	6	3.70%	0	0.00%
904 (PCHC Chafee)	146	74	51%	8	5.48%	3	2.05%	1	0.68%	0	0.00%
906 (PCHC Olneyville)	193	126	65%	31	16.06%	11	5.70%	5	2.59%	1	0.52%
Average			58%		11.14%		3.88%		4.37%		1.46%

Table 5b. Participant's Race per WIC site

Service_site	% Black or African American;Hispanic or Latino	% White;Hispanic Latino	%Black or African American;Hispanic or latino;White	% Asian;Not Hispanic or Latino	% Black or African American;Not Hispanic or Latino	%White; Not Hispanic or Latino	% Black or Africa American; White; Not Hispanic or latino	%Other
101 (WIH)	4.36	23.86	14.18	2.16	24.41	22.21	4.54	4.28
111 (St. Joe's)	5.42	56.32	1.79	5.42	15.98	5.08	1.5	8.49
121 (EBCAP E. Providence)	0.85	5	0.09	1.04	11.05	74.98	3.21	3.78
122 (EBCAP Bristol)	0	4.34	0.87	0.58	2.02	87.28	3.76	1.15
130 (Tritown, Johnston)	0.8	15.73	0.8	1.96	5.24	68.8	3.29	3.38
131 (Tritown Scalabrini)	3.43	51.19	2.9	1.06	8.97	23.22	1.58	7.65
140 (West Bay, Warwick)	0.38	4.87	0.29	2.58	3.06	83.57	1.91	3.34
141 (West Bay, W. Warwick)	0.8	6.79	0.4	0.67	3.99	82.69	2.53	2.13
150 (Thundermist N. Kingstown)	3.6	5.04	2.16	0	2.88	69.78	1.44	15.1
151 (Thundermist of SC)	0.48	5.42	1.12	1.44	4.78	70.97	3.83	11.96
152 (Wood River, Hope Valley)	0	3.92	0	2.29	0.33	88.89	0.98	3.59
153 (Wood River, Westerly)	0	0	0	10.81	0	77.03	1.35	10.81
181 (CFS Pawtucket)	3.15	30.21	2.78	0.99	26.64	29.22	3.76	3.25
183 (CFS Central Falls)	3.9	58.88	3.68	0.11	12.59	15.12	2.14	3.58
400 (Chad Brown)	2.97	22.3	3.65	2.57	40.95	18.51	5.95	3.1
500 (CCAP Cranston)	1.01	17.93	1.28	8.78	7.32	56.82	2.1	4.76
501 (CCAP Coventry)	0	5.71	0.54	0.54	1.63	87.77	2.17	1.64
600 (Thundermist)	1.22	26.07	1.05	3.37	7.75	53.24	4.04	3.26
701 (EBCAP Newport)	0.41	19.73	0.61	3.07	13.29	51.74	5.93	5.22
702 (EBCAP Tiverton)	0	4.64	0.52	1.03	1.03	86.6	2.58	3.6
800 (Tritown Burrillville)	0	2.79	0	0.47	0.47	92.56	1.86	1.85
901 (PCHC Allen Berry)	3.27	48.87	15.22	3.2	16.02	7.41	1.34	4.67
902 (PCHC Capitol Hill)	2.89	53.66	0.77	5.2	17.52	14.25	1.8	3.91
904 (PCHC Chafee)	4.4	23.74	3.23	8.93	20.96	22.51	1.03	15.2
906 (PCHC Olneyville)	4.33	58.69	3.25	0.91	11.11	13.96	0.8	6.95

Table 6. Demographic Characteristics of Participants Phase II

Infant Feeding Choice	Location	Minutes	Age	Height	Weight	Gestational weeks	Education	Marital Status	Hisp/Latino	Race
Formula	WIC Site A	13m10s	20	5'2"	165	35	GED	Single	No	White
Formula	WIC Site A	14m33s	23	5'	130	37	High School	Single	No	White
Formula	WIC Site A	12m22s	18	5'3"	163	13	High School	Single	Yes	White
Formula	WIC Site A	14m28s	22	5'2"1/2	125	16	12th	Single	No	White
Formula	WIC Site A	17m18s	19	5'6"	136	29	High School	Single	No	White
Formula	WIC Site B	14m08s	19	5'1"	130	16	11th grade	Single	No	White
Formula	WIC Site B	14m 10s	26	4'10"	130	20	some college	Single	No	White
Formula	WIC Site B	25m43s	21	5'3"	115	25	High School	Single	No	White
Formula	WIC Site B	16m06s	23	5'	109	29	College	Single	No	White
Breastfeeding	WIC Site B	15m26s	31	5'8"	222	37	College	Divorced	No	White
Breastfeeding	WIC Site B	15m30s	23	4'11"	105	13	1 yr college	Single	No	Italian
Breastfeeding	WIC Site B	19m30s	21	5'2"1/2	145	8	High School	Single	No	White
Breastfeeding	WIC Site B	17m17s	30	5'5"	170	36	College	Single	No	White
Breastfeeding	WIC Site B	15m57s	18	5'7"1/2	155	15	High School	Single	Yes	Unavailable

APPENDIX A – Survey Phase I

1. Thinking about infant formula purchased for your baby, please indicate the number of cans provided by WIC, and separately the number of cans purchased yourself (cash, SNAP/food stamps, etc.) for each baby age. If no cans purchased please mark zero.

# Cans Provided by WIC				# Cans Purchased Yourself			
1 Months Old	2 Months Old	3 Months Old	4 Months Old	1 Months Old	2 Months Old	3 Months Old	4 Months
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

If you purchased one or more cans yourself (cash, SNAP/food stamps, etc), what form did you purchase?

Small Powder
 Large Powder
 Liquid Concentrate
 Ready -To-Use
(no mixing required)

2. If you purchased one or more cans yourself, how did you purchased?

Cash
 SNAP/food stamps
 Other

3. How many people live in your house?

1
 2
 3
 4
 5
 6 or more

4. What is your family's monthly income?

- 1. <\$500
- 2. \$501-1.000
- 3. \$1.001-1.500
- 4. \$1.501-2.000
- 5. \$2.001-2.500
- 6. \$2,501-3,000
- 7. \$3,001-3,500
- 8. \$3,501-4,000
- 9. > \$4,000

Thanks for your cooperation!

APPENDIX B: Informed Consent-Phase I

Title of Project: Increasing Breastfeeding in WIC Participants

Dear Participant:

You have been invited to take part in the research project described below. If you have any questions, please feel free to contact Viviane Donahue or Geoffrey Greene, the people mainly responsible for this study.

The purpose of this study is to develop and evaluate educational materials to be used as part of WIC prenatal breastfeeding educational classes. Responses to these items will be collected by a WIC staff member or by the researcher. This is an anonymous survey, your name is not recorded and all information will be confidential.

YOU MUST BE AT LEAST 18 YEARS OLD to be in this research project.

If you decide to take part in this study, your participation will involve filling out a survey about use of infant formula. You will receive an incentive upon completion of the survey.

The possible risks or discomforts of the study are minimal.

Although there are no direct benefits of the study to you, if we develop material that helps encourage breastfeeding this is likely to benefit both mothers and children. If the program is found to be effective it could be used in other WIC programs and could improve the health of children in America.

Your part in this study is anonymous. That means that your answers to all questions are private. No one else can know if you participated in this study and no one else can find out what your answers were. Scientific reports will be based on group data and will not identify you or any individual as being in this project.

The decision to participate in this research project is up to you. You do not have to participate and you can refuse to answer any question.

Participation in this study is not expected to be harmful or injurious to you. However, if this study causes you any injury, you should write or call Viviane Fornasaro-Donahue (401) 277-5270 or Dr. Geoffrey Greene (401) 874-4028 at the University of Rhode Island.

If you have other concerns about this study or if you have questions about your rights as a research participant, you may contact the University of Rhode Island's Vice President for Research, 70 Lower College Road, Suite 2, URI, Kingston, RI, (401) 874-4328.

You are at least 18 years old. You have read the consent form and your questions have been answered to your satisfaction. Your filling out the survey implies your consent to participate in this study.

Thank you,

Viviane Fornasaro-Donahue

APPENDIX C – In Depth Interview’s Protocol

INTERVIEW PROTOCOL

Introduction

Greet participants in a friendly and relaxed way. Congratulate the participant on her pregnancy. Confirm that she is enrolled in WIC and is a primipara at least 18 years of age. Thank her for agreeing to an interview and continue to build rapport by showing respect and keeping an open mind. Briefly tell her who you are and what you do. Tell her you had a baby girl last year (If she asks you how you fed your child tell her that the interview is about her and her plans but you will tell her when the interview is over). Tell her about the topic of the interview, as described on the consent form, explain that answers are used for research only and that her name will remain confidential. Tell her what to expect during the interview, how long it will take, what she will receive as an incentive and that she will receive her incentive as soon as the interview is completed. Remind her the interview will be tape recorded. Review the consent form and ask if she has any questions. Both of must sign the consent form and you must give her a copy. Ask if she knows whether the baby is a boy or girl and note the gender so you can refer to the baby as he or she later in the interview then ask the introductory, “ice breaker” question about their favorite television show. This introductory process will help form rapport, to build a relationship, and to gain trust and confidence.

Interview Questions

The interviewing process is unstructured. Although a list with questions and probes will be provided, the conversation will be open, moving in any direction of interest. The list of questions presented below should be asked of each participant if topics are not covered. If further explanation is needed, use the probes.

1. There are many ways of feeding an infant. There is breastfeeding, formula feeding, pumping breast milk, and both breast feeding and formula feeding. You may not have made up your mind how you are planning on feeding your baby, but right now, how do you think you want to feed your baby? (Encourage participant to choose one of the responses, e.g., "If you had your baby today, how would you feed him/her?") Note if participant's answer is a) breastfeeding, b) formula-feeding, c) pumping, d) combination of methods and use this throughout the interview in where indicated by __.)

2. Tell me some of the reasons you choose __?

Probe: How does your family feel about __? Specifically assess mother, grandmother, sister and find out how the father of the baby &/or her current partner feels about __.

3. I talked with WIC moms who were using formula and found that they had to buy extra cans of formula in addition to what was provided by WIC. How much do you think these WIC moms had to pay for the extra formula each month? (If she is unaware of formula cost, ask her how many cans and later translate the dollar amount into cans).

4. We developed this brochure (show brochure A). What do you think about when you see the brochure?

Probe if cost is not mentioned

- a) What do you think about the cost?
- b) How would this information about cost influence your choice to ___?
- c) How do you think other moms would respond to this information?

5. We developed two other brochures, they contain the same information but in a different format, which of these two do you like best? What are some reasons you like (brochure name) better than (brochure name)? Show all three and ask for preference then ask for reasons specifying brochure name.

6. Thinking about feeding your baby, what would you like to see on a brochure? (Probe about what on a brochure might motivate her to try breastfeeding?)

7. Thank the participant for helping, explain that the interview is almost over and that only a few final questions about her are needed to complete the interview.

- a) How old are you?
- b) How tall are you?
- c) What did you weight before becoming pregnant?
- d) How many weeks pregnant are you?
- e) What is the highest level of education you have completed? (have a list with levels of education).
- f) What is your current marital status?

- Single, never married (probe about male relationships if not mentioned previously)
- Married
- Separated
- Divorced
- Widowed

g) Do you consider yourself Hispanic/Latino?

- Yes
- No
- Declined
- Unavailable/Unknown

h) Which category best describes your race?

- American Indian/Alaska Native
- Asian
- Black or African American
- Native Hawaiian/Other Pacific Islander
- White
- Some other race
- Declined
- Unavailable/Unknown

Final thoughts

Summarize key points and ask if this is correct. Do you have any questions or comments or anything else you want to say? If they wanted to know about your breastfeeding you can respond now. They will be informed the interview has been completed. An incentive will be given in appreciation of subject's participation in the study. Have them sign acknowledgement of incentive receipt. Thank them for helping develop materials that could help other WIC moms.

APPENDIX D – Consent Form In-Depth Interviews

The University of Rhode Island
Department of Nutrition and Food Sciences
112 Ranger Hall, Kingston, RI 02881

Title of Project: Increasing Breastfeeding in WIC Participants

CONSENT FORM FOR RESEARCH

Dear Participant:

You have been invited to take part in a research project described below. Viviane Donahue, the researcher, will explain the project to you in detail. You should feel free to ask questions. If you have more questions later, Geoffrey Greene, the person mainly responsible for this study, 401-874-4028, will discuss them with you. You must be at least 18 years old to be in this research project.

Description of the project:

The purpose of this study is to assess the acceptability of breastfeeding support materials. What do you think and how do you feel about the information presented to you during the interview.

What will be done:

If you decide to take part in this study, you will participate in a 15-minute interview where questions will be asked about your infant feeding choice and your opinion about educational materials. Interviews will be held in private at the WIC office. This interview will be tape-recorded and a transcript of the interview will be prepared. All identifying information will be removed from the transcript to preserve confidentiality. After the interview, you will be asked to read a summary of the interview to confirm accuracy. If you would like to make changes to your interview results, you can schedule an in-person meeting or a telephone call to do so. You will receive an incentive upon completion of interview. After three years, the tape recordings and transcripts will be destroyed.

Risks or discomfort:

No risks are anticipated by participating in this study.

Benefits of this study:

Although there are no direct benefits of the study to you, if we develop material that helps encourage breastfeeding this is likely to benefit both mother and children. If the material is found to be effective it could be used in other WIC programs and could improve the health of children in America.

Confidentiality:

Your part in this study is confidential. None of the information will identify you by name. That means that no one else can know if you participated in this study and no one else can find out what your answers were. All records will be secured in a password-protected computer that is only used by Viviane Donahue, locked when not in use and stored in a locked room at 80 Washington Street Room 300. Providence, RI. Confidentiality will be preserved through the use of pseudonyms and publishing of the results using these pseudonyms. Only the interviewer, Viviane Donahue, will retain the link between the pseudonym and your identity.

Decision to quit at any time:

The decision to take part in this study is up to you. You do not have to participate. If you decide to take part in the study, you may quit at any time. Whatever you decide will in no way penalize you.

Rights and Complaints:

If you are not satisfied with the way this study is performed, you may discuss your complaints with Geoffrey Greene (401-874-4028) if you choose. In addition, if you have questions about your rights as a research participant, you may contact the office of the Vice President for Research, 70 Lower College Road, Suite 2, University of Rhode Island, Kingston, Rhode Island, telephone: (401) 874-4328.

You are at least 18 years old. You have read the Consent Form. Your questions have been answered to your satisfaction. Your signature on this form means that you understand the information and you agree to participate in this study.

_____	_____
Signature of Participant	Signature of Researcher
_____	_____
Typed/printed Name	Typed/printed name
_____	_____
Date	Date

Please sign both consent forms, keeping one for your

APPENDIX E – Raw Data from Phase I – Cans of formula per month

ID	Clinic	WIC1M	WIC2M	WIC3M	WIC4M	SELF1M	SELF2M	SELF3M	SELF4M
1	130	10	10	10	11	0	0	2	2
2	130	10	10	10	11	1	1	2	2
3	130	10	10	10	10	0	2	2	2
4	130	0	10	10	11	0	1	2	3
5	130	10	10	11	11	0	2	2	2
6	130	9	10	10	11	0	0	2	2
7	130	10	10	10	10	0	0	1	2
8	130	10	10	10	10	0	1	2	2
9	130	10	10	10	11	0	0	2	2
10	130	10	10	10	10	1	1	1	2
11	130	11	11	11	11	1	1	1	1
12	400	10	10	10	10	1	1	1	3
13	400	10	11	11	11	1	1	2	3
14	400	10	10	10	10	2	2	2	2
15	400	10	10	10	10	0	0	2	2
16	400	10	10	10	11	0	1	2	4
17	400	10	10	10	10	0	0	2	2
18	400	10	10	10	11	1	1	2	2
19	400	10	10	10	10	1	1	2	2
20	400	10	10	10	10	0	2	3	3
21	600	12	12	12	8	0	0	2	2
22	600	12	12	12	12	0	0	1	1
23	600	12	12	12	12	0	1	2	2
24	600	10	10	10	10	0	0	2	2
25	600	10	11	10	10	1	1	1	1
26	600	10	10	10	10	0	2	2	2
27	600	10	10	10	10	0	0	0	3
28	600	10	10	10	10	0	2	2	2
29	600	10	10	10	10	1	1	2	2
30	600	10	10	10	11	0	0	2	3
Total		296	309	309	313	11	25	53	65
Average		9.86	10.3	10.3	10.43	0.36	0.83	1.76	2.16

APPENDIX F – Initial Matrix

Initial Matrix for Question One

Table 10.1 List of responses to the question 1, how do you think you want to feed your baby?

Participants	Participant Responses
1	“Right now we are planning on bottle feeding but I still trying to keep an open mind about breastfeeding probably something I will try in the hospital but right now I’m pretty much set on bottle feeding.” “[bottle feeding] Formula, yeah, I am not pumping.
2	“Bottle feeding.” “Formula”
3	“Bottle feeding.” “Formula”
4	“Probably formula”
5	“I like the bottle” “Formula”
6	“Not going to breastfeed”
7	“As of right now, I plan on bottle feeding only because I had a breast reduction and they took so much out that they don’t think that I would be able to breastfeed or that the chances of it would be slim. So I’m just going to stick to bottle feeding”
8	“I’m not really sure, I’m not really educated on breast feeding so I’ll probably like to try doing it you know like maybe at night or something, not consistent, I’d like to bottle feed as well.” “Um, probably bottle feeding only because that’s really what I know more about and what I would be more comfortable with.”
9	I’m going to feed her by bottle feeding, I think, I don’t feel comfortable in public with the baby here, so bottle feeding is the way we are going to go!”
10	“I have plans on breastfeeding.” “Pumping also.”
11	“Breast feeding”
12	“Probably the healthiest way which would be breastfeeding; it’s a nerve wrecking thing that you don’t even know what’s right or wrong. But if I had to choose I would probably say breastfeeding right now. That would be my decision today.”
13	“We are going to breastfeed but I am going to pump also. More so to have an adequate supply of milk, moms that I have known have said that had really helped them make sure that they had enough so they could continue to breast feed.”

Initial Matrix for Question Two

Table 10.2 List of responses to question 2, tell me some of the reasons you choose ___?

Participants	Participant Responses
1	<p>"I'm just not really comfortable with the idea of breastfeeding. Also, I have inverted nipples, that's going to be more difficult so. Also, I don't get a paid maternity leave so I need to go back to work very quickly and it's going to make it easier." "Yeah, I kind of have my mind pretty much set so."</p>
2	<p>"Because I was used to feeding with the bottle and to by the breast, like I raised my sister's kid with her and I am used to the bottle so I feel more comfortable with a bottle than with breastfeeding." "I just choose it on my own because I don't feel comfortable with it."</p>
3	<p>"I know a lot of people who have been having lots of trouble weaning the baby off of breastfeeding. So I don't want to have too much [trouble]. My friend Gina had to bring my niece to my baby shower because she doesn't want to switch and it's kind of hard for her to do a lot of things and what not, so that's one of the main reasons." "It's probably a silly one [reason], but my sister-in-law, both babies were only attached to one boob so she's got like a C and a D and I'm like "I'm good with that" I like to keep them the way they are. I don't want to be all lopsided. It's kind of silly but I kind of think about that too so I'm like "m-m" she can't find a bra, ever." "I have always been on the mind set of bottle feeding."</p>
4	<p>"Because that hurts, so I just rather do formula"</p>
5	<p>"It is easier to do". "Like preparing it and all that. Like preparing it is like easier, like you are done right away instead of like breast feeding. "Yeah it's quicker and better".</p>
6	<p>"I just think it's weird". "Breastfeeding I think is really inconvenient because you have to take time to pump or you have to just do it in public, which is really weird. I would never do that." "I've known people that breastfeed and sometimes it takes them a while to pump, sometimes it's</p>

	<p>quick, sometimes you just can't, I don't know." "Bottles are easy, you can just put them in the bottle and heat it up and give to the baby. And if someone is babysitting, you don't have to worry about pumping, you just say: here are bottles."</p>
7	<p>"As of right now, I plan on bottle feeding only because I had a breast reduction and they took so much out that they don't think that I would be able to breastfeed or that the chances of it would be slim. So I'm just going to stick to bottle feeding." "Well, I mean, I plan on going back to work within 2 months; my grandmother is going to be watching the baby so it'll be a lot easier for me, instead of me trying to wean the baby off of breastfeeding so early, just go and just bottle feed."</p> <p>"My cousin, her children were very attached to her. They wouldn't really go to anyone else because they were constantly with her because she was breast feeding and I don't want that. I want to be able to say: "Oh you want to watch the baby for a little while, here you go". I don't want my child to be stuck all the time with me if someone wants to take the baby out for a little while especially my family because they don't get to see me often." "It was more like she [cousin] even said it was more like a burden a lot of times because she was constantly pumping or feeding or something like that so I mean, overall, I think bottle feeding is a lot easier."</p> <p>"Most likely probably my surgery and the sensitivity that I have and things like that."</p>
8	<p>"I'm not really sure, I'm not really educated on breast feeding so I'll probably like to try doing it you know like maybe at night or something, not consistent, I'd like to bottle feed as well." "Um, probably bottle feeding only because that's really what I know more about and what I would be more comfortable with."</p>
9	<p>"I am not comfortable in public with the baby there, if it was in the privacy of my own home that would be fine. But just in public I am not a big fan about it. It doesn't bother me seeing somebody else doing it because its life but I couldn't do it."</p> <p>"I think it's just the whole feeling and the whole concept of it. Just sticking a pump there and having it there and eh...it's not for me!"</p>

	<p>“It makes it easier for him too because he doesn’t have to sit there and hold the little packages of breast milk. He was a little uncomfortable with that too so I was like well okay, I was like, “Well then I’ll go with the bottle because she is going to be going from my house to your house, not right away, but from my house to your house and I’m pretty sure you’re not going to sit there and pump yours and I’m not going to be there so” and he was like, “Alright, the bottle is fine with me”. So I was like “Okay”!</p> <p>“He [baby’s father] is a little awkward about the pumping, he was like “Well” and I was like “it is life, it is just milk, you’re not touching it, you’re not handling it, it’s going from a bag to a bottle, to the baby, you’re just holding the bottle” and he was like “No I can’t, knowing something came out of somebody else and going into somebody.” He was like “No, I can’t! I can’t handle it! I can’t touch it.” And I was like “OK”. So we just went to the formula.”</p> <p>“It didn’t affect [his opinion] me at all because I kind of figured, he is a man and they do the grossest things but the littlest things freak them out. So I was like we will just go with the formula.”</p> <p>“We might have given it [breastfeeding] a try but he wasn’t comfortable with it and I was like well he is not living with me so I can’t have it there so I was like we can just do the formula if it makes it easier on you, less stressful for me. And then we will put so many at your house, I’ll have so many at mine so then we don’t have to worry about “Oh did you grab this? Do you have enough of this?” So we made it work out that way too.”</p>
10	<p>“Basically overall, even like my doctor encourages it and it’s healthier for the baby.” “Probably just health factors right now.”</p>
11	<p>“Because you are doing an extreme disservice to your child if you’re not”</p> <p>“You build up immunities from the breast milk that the parent already has built up so it helps the child work with illnesses, there’s brain development, eye function, everything, it comes right from there. So by not doing that you’re taking key things away.” “I guess it’s beneficial for both but I would say mostly for the baby because from what I hear it is pretty painful so...” “That’s what I want to do so I’m going to try and do that.”</p>
12	<p>“Have a healthy baby, you have to do whatever what’s best for them and everyone says breast feeding is one of the</p>

	<p>healthiest things for your child and obviously for your kid you want to have the best thing for them so that's probably why I would"</p> <p>"Just the whole healthiness and it's kind of what you have to do. And I don't know, and for the formula that you buy you don't know what kind of formula because there are so many kinds and you know that your breastfeeding it's like the right kind of milk and it's giving off all the right nutrition and everything you don't know what kind of formula does that and anything else."</p> <p>"Being pregnant is just overwhelming in general; it's one of the most overwhelming things I am going through right now!"</p>
13	<p>"First of all because of the health benefits, for the baby and secondly, honestly, to lose the weight. I know that that will help me go back to my pre pregnancy but also obviously the health benefits. And I have seen the difference with friends of mine that have breastfed versus bottle fed and I do see a healthier child with the breastfed children."</p> <p>Yes, everyone has said to me "oh don't worry, the weight will fall off if you plan to breastfeed", so I'm hoping they're right."</p>
14	<p>"Actually I read that I guess it's healthier, it's cheaper and yeah it's like better for the baby, they get less sick, it's just a lot better, I've read."</p>

Initial Matrix for Question Two Probe

Table 10.2 List of responses to question 2- probe, how does your family feel about__? Specifically assess mother, grandmother, sister and find out how the father of the baby &/or her current partner feels about__.

Participants	Participant Responses
1	<p>“My sister just had two kids and she bottle fed with formula for both of them. Actually my mom did too so they are both supportive, It was pretty much my choice and same with my boyfriend.” He was breastfed, but he said it’s my choice because he understands it’s not him that has to do it”.</p>
2	<p>“They were fine with it”</p>
3	<p>“They’re fine, because my auntie and my mom they didn’t breast feed for either child. “He [baby’s father] wanted me to [breastfeed] but when I told him no I was pretty much “tough luck” and he was like “okay, fine”. He was okay with it.”</p>
4	<p>“It’s just mine [decision]. I mean, they don’t really care. They don’t care, it’s whatever I want to do.</p>
5	<p>“They think it is easier for me to do instead of breast feeding...the baby’s father, my mother, father, and some other people. My aunt thinks I should breastfeed because it is healthier for the baby. I told her I was like yeah I’ll think about that, but I was like I don’t know. I’ve been thinking about bottle feeding.”</p>
6	<p>“They don’t really mind. It’s like my decision.”</p>
7	<p>“I mean my cousin breastfed all three of her kids, but my mother bottle fed me and she said it was so much easier, it was a combination of whoever was around who was able to feed the baby, it wasn’t just strictly you at that point so it was more helpful.” “My cousin, her children were very attached to her. They wouldn’t really go to anyone else because they were constantly with her because she was breast feeding and I don’t want that. I want to be able to say: “Oh you want to watch the baby for a little while, here you go”. I don’t want my child to be stuck all the time with me if someone wants to take the baby out for a little while especially my family because they don’t get to see me often. “It was more like she [cousin] even said it was more like a</p>

	burden a lot of times because she was constantly pumping or feeding or something like that so I mean, overall, I think bottle feeding is a lot easier.”
8	“That it’s my own decision, nobody was pushy.” “They are very supportive of whatever I chose.”
9	<p>“They tell me that any decision I make they are going to support it. My mom had three kids, my aunt had a million kids, some breastfed and some bottle fed, some say bottle feeding is better, some say breastfeeding and they say whatever you decide we are going to support you anyways.”</p> <p>“He [baby’s father] supports it any way too. It makes it easier for him too because he doesn’t have to sit there and hold the little packages of breast milk. He was a little uncomfortable with that too so I was like well okay, I was like: “Well then I’ll go with the bottle because she is going to be going from my house to your house, not right away, but from my house to your house and I’m pretty sure you’re not going to sit there and pump yours and I’m not going to be there so” and he was like, “Alright, the bottle is fine with me”. So I was like: “Okay”.”</p> <p>“He’s a little awkward about the pumping, he was like “Well...” and I was like “its life, it’s just milk, you’re not touching it, you’re not handling it, it’s going from a bag to a bottle, to the baby, you’re just holding the bottle” and he was like “No I can’t, knowing something came out of somebody else and going into somebody.” He was like “No, I can’t! I can’t handle it! I can’t touch it.” And I was like “OK”. So we just went to the formula.</p> <p>“[Baby’s father opinion] It didn’t affect me at all because I kind of figured, he is a man and they do the grossest things but the littlest things freak them out. So I was like we will just go with the formula.”</p> <p>“We might have given it [breastfeeding] a try but he wasn’t comfortable with it and I was like well he is not living with me so I can’t have it there so I was like we can just do the formula if it makes it easier on you, less stressful for me. And then we will put so many at your house, I’ll have so many at mine so then we don’t have to worry about “Oh did you grab this? Do you have enough of this?” So we made it work out that way too.”</p>
10	“Um actually, my boyfriend he is more “oh just do formula” but I am more “Oh but I want to do breast feeding” so. He’s fine with it. He just thinks it’s going to take longer with

	<p>pumping and everything like that but I explained to him why I'm choosing to breast feed so he is find with it but it's funny, you know with a guys perspective, he's like "oh let's just do formula that'll be easier"</p> <p>"Oh yeah, once I explained why and everything [he was supportive]."</p> <p>"I think everybody supports, my family and everything supports what I am doing."</p>
11	<p>"None of them really had an opinion or cared. It's my decision, not theirs so they don't really have a say."</p>
12	<p>"He is very supportive with everything that I do so he knows that I have only the best intentions. I have the final say in everything, it's amazing, I love it! But his mom is skeptical about me doing that." "She never breast fed any of her kids because she claims that it ruins your boobs, and she is all about her appearance and everything but she doesn't count. Don't tell her! No!" [laughs]</p> <p>"Well you don't want to upset anybody, and she is very opinionative, what she says she wants to happen. It is very stressful to hear everyone else's opinions especially when you're having your baby. You can't really listen to all the negatives and just do what you want to do at the end of the day because it's your life, your family, your baby; just do whatever that's best for them."</p>
12	<p>"The baby's father is a hundred percent supportive, it is the way he me wanted to go but he kept his opinion to himself until I came out and said it. And then he said "oh thank god I am so glad you said that". My mother looks at it as more of a bonding experience than health benefits. So she told me if I am comfortable with it that's fine and if I'm not comfortable with it that's fine, she's pretty neutral. My friends have breastfed so that's just the natural choice; they never even considered a bottle fed baby. And the ones that did, pushed for the bottle feeding. And they say it's much easier and convenient and you can share. My fiancé, he does want to be able to take part in feeding the baby, so once we get to the pumping he will be able to do that. So he is anxious for the pumping part. Well he says that now, we will see when it actually happens when it's 2 in the morning and I'm like "there you go!"</p> <p>"Well, I can tell you my mother had said to me that if I wasn't comfortable with it, it wasn't going to work she was very opinionated about it, she said to me, well that if I wasn't</p>

	<p>comfortable with it, it wasn't going to work and if you don't want to do it, then you don't have to. And she was pretty adamant about me not being comfortable with it and it not working. And I just looked at her and said failure is not an option, this is working whether we have to try and try and try until the doctor tells me I have to do something else, this is what we are doing. So I got mad. That was my reaction but that's my mom so. I don't think I would say anything to anyone; I would still do what I want to do. That's the plan."</p>
14	<p>"Actually, they were shocked a little bit because not a lot of people my age does breastfeeding so they were a little bit shocked. "</p>

Initial Matrix for Question Three

Table 10.3 List of responses to question 3, how much do you think these WIC moms had to pay for the extra formula each month?

Participants	Participant Responses
1	NA
2	"A lot." "I don't know [the cost]." "I think my cousin buy cans when she runs out, and just the big cans itself is \$20.00."
3	"I have no idea. I am kind of lost out of the blue when it comes to any of this stuff. I don't really know. My friend's littlest one she is still kind of breastfeeding and she has a two year old and I never asked her what she did. And then my sister-in-law she got a 10 and a 7 year old so she probably don't even remember, so I'm a little lost in that situation".
4	"Maybe a couple of hundred, a few hundred dollars." "It depends on how big the baby is I mean, you got to feed it more."
5	"A lot, because my friend spent over \$200 on formula."
6	"Well it depends on how much they would need because one can is like 30 dollars and that is a lot for one can that lasts you like a week, if that. So I don't really know just depends on how much they would have to buy."
7	"A lot! Um I really don't know the roundabout figure but I do know it is expensive but I mean I have the help so I am hoping that it'll work but not really sure exactly how much it would be in addition." "No idea"
8	"Maybe \$100"
9	"She [cousin] constantly had to do that [buy formula]." "She had to do that, she'd have so many cans and she would just run through them before her checks were due again, she had to go out and buy at least another two or three cans just to have them because she always ran out." "Well she [cousin] had to have a special kind of formula because she was allergic to the other ones, so she spent somewhere...each can was like somewhere in between \$20 - \$25 a can so she was pretty much spending close to over a hundred dollars with the checks too plus the extras so she was spending quite some money. But she did it the smart

	<p>way, she put money aside for the baby, can't touch it, strictly for this so she planned ahead so that's what we're doing. We are starting to save money already, we already have at least 1300 dollars put aside for her, and we are not touching it, it is for her. So between the diapers, the formula, medicine, everything, that's where that money comes in."</p>
10	<p>"A month, oh jeeze. I'm not even sure what a can would cost."</p> <p>"Maybe an extra hundred dollars. I am completely guessing I really don't know."</p>
11	<p>"Oh god, probably almost like 80-100 dollars I'd probably say because those cans run like 30-40 dollars each."</p>
12	<p>"Oh my god on the extra formula? So much! I worked at stop and shop so I saw like how much money. They are probably spending 65 dollars on top of what they get for free already from WIC. So like about 65-80 dollars they are probably spending it on, that's a lot of money!"</p>
13	<p>"I don't even know what one can of formula even goes for. I'd guess maybe, like the big powder cans?"</p> <p>"I'd say maybe like 10 dollars per can would be my guess and if they were already getting 10, I don't know maybe like 40 or 50 dollars a month, I'd guess."</p>
14	<p>"I have no idea". I would say a lot, I have no count."</p>

Initial Matrix for Question Four - Probe a

Table 10.4a List of responses to question 4, we developed this brochure (show brochure A). What do you think about when you see the brochure? a) What do you think about the cost?

Participants	Participant Responses
1	“That is a lot cheaper to breastfeed”. “Well, it definitely goes up because they need to eat more.” “It doubles every month pretty much”.
2	“It basically means that I don’t cost money for breastfeed and it costs money for formula.” “Well, I would still do this [formula] but it don’t seem like it would be a lot.”
3	“Well it’s definitely costly. But I knew it was going to get expensive anyways so I kind of expected it”. “I expected it to be expensive from formula to breastfeeding because breast feeding is right there and formula is not so I do kind of expect it to be on the pricey side. Yeah so I am definitely not shocked. I know babies are expensive so that one [information on cost] is not too bad.” “I mean, I knew it was going to go up as the baby got bigger, more and more. So, yeah, kind of about what I expected”.
4	“I think that it’s a lot more. The baby is one month old; they are telling me I’m going to only have to pay \$7.50? No way, no [Mother’s perception on cost at 1 month].” “[mother’s perception on cost at month 4] Expensive.” “Well, it’s taking money out of your pocket and you can’t get other things.”
5	“Looks cheap.” “Not cheap cheap but.” “Yeah, higher and higher [referring to the increase on cost ever the months].”
6	“Breast feeding is cheaper obviously” “It’s a lot. It’s just a lot of money, well is that 7.50 for one month? “Um, I still wouldn’t breast feed, I just feel like I wouldn’t. [mother’s comment after learning about the cost at 4 months old]” I guess you know when you’re having a baby that it’s going to cost money. So I feel like it shouldn’t be a problem especially because you’re getting so much help from WIC that it shouldn’t be an issue to buy two cans of it.”
7	“It’s expensive. It’s definitely going to be expensive but it’ll

	<p>allow me to go back to work so it'll out way each other.”</p> <p>“Well, I mean I understand that obviously, as they get older they are going to eat more so obviously it would go up but I mean nothing major. It was something very expected.” “It is [the cost] what I thought it would be.”</p>
8	<p>“It is what it is, you have to do what you have to do to provide for your child so if that’s what they had to do then that’s what they had to do.” Yeah and you get whatever help you can and whatever else, you have to figure out a way.”</p>
9	<p>“This [breastfeeding] is cheaper because they say it’s from you but some people just aren’t comfortable with it so they go the extra mile and they pay the extra money for it [formula]. Like me personally, I would go and pay the extra money for it [formula] just to know that she has it and if she doesn’t need it, at least I know I had it and I can always donate it to like the WIC offices and stuff like that because if I didn’t need it and somebody else who does need it who can’t afford it, I know I helped. So I would pay the extra for it.”</p> <p>“Well it [cost of formula] jumps with everything at most, like gas prices jump, so the food prices jump, everything else is going to jump, so I know I’m not the only one paying the same amount of money for it. And I know that eventually when prices start coming down, so will the price of formula. So I am okay with spending the extra money on that because eventually it will come back down and we won’t be paying so much for it.”</p>
10	<p>“This is in addition to the WIC, right,?”</p> <p>“I mean I don’t think it’s that, I mean obviously there is a difference from nothing to something but I really don’t think it is extremely that outrageous, the price you know?”</p> <p>“Yeah, no, it definitely jumps [the cost], I mean from like month 2 to month 4 there is definitely a huge difference, absolutely.”</p>
11	<p>“That sucks” “The actual amount of money that you have to end up spending that’s unfortunate. It shouldn’t cost that much for that kind of stuff, like it’s a necessity eventually at some point.”</p> <p>“Yeah, I mean you can’t breast feed forever eventually you’re going to have to wean them off at some point. And there are some women that can’t even at all, they try, they can’t. So there are really only a couple routes they can go. And if formula is one of them that’s just really expensive. “</p>

12	<p>“That’s nuts. It is! Money goes so fast that’s all I can to say! Babies are expensive!</p> <p>“Well it just shows how in between two months, like twenty dollars, just saying, that is just an estimating of money just adds up so fast, and then you have this [breastfeeding] it costs nothing, if you’re doing the formula, it’s just throwing the money away basically, it’s a money waster of hecticness its nuts, it’s crazy to think that money can just add up in a matter of a month on how much money can really happen.”</p> <p>“Yeah like month one you’re at 7.50 and then all of a sudden 3 months later you’re at 50 dollars spending it, it’s crazy!”</p>
13	<p>“Wow, so by the fourth month they were at the \$50?” “And still zero for the breastfed moms! That’s good. That makes me more comfortable.”</p>
14	<p>“At first I thought it was a lot cheaper for the first month but then it got a lot more expensive.”</p>

Data Matrix for Question Four – Probe b

Table 10.4b List of responses to question 4, probe b, how would this information about cost influence your choice to ___?

Participants	Participant Responses
1	“I don’t think it would.” “I just have my mind set on what I want to do and it’s just something that we are already planning on, you know what I mean? Especially since by 4 months breastfeeding probably wouldn’t be much of an option when I am back to work and stuff like that.”
2	“I wouldn’t change my mind because of the prices, because I just don’t want to do that.”
3	“Not really influencing me much, like I said I kind of expected it. I knew breast feeding is like no money at all”.
4	NA
5	“I really want to bottle feed and not breastfeed” “Not really, no [influence her decision to breastfeed].”
6	“Um, I still wouldn’t breast feed, I just feel like I wouldn’t.”
7	NA
8	“Personally, it probably wouldn’t affect it because I know that even if I do choose breast feeding, I may not be able to so it may be inevitable that I have to pay and I think just keeping an open mind is the best way to go.”
9	“It really doesn’t have that affect because I know that either way I go, she is going to be healthy but the cost is...I know that family is there if I ever need them, I have a lot of people that will help, we have a lot of family friends that have babies and stuff like that. They have all been telling me this you know, you can try this [WIC brand of formula] if this doesn’t work and their like: who knows, she can be on something that is much cheaper than this and you can go from there. They’re like you’re not going to know until she comes. So we are going to stick with the formula way and if I figure out that if she is allergic to it or what not then I might actually make it easier on everybody depending on the situation and then just probably either switch it over [to breastfeeding] or just keep her one way [formula feeding].”
10	“Yeah that would be another reason, but it wouldn’t be a top

	reason because of the money. For me, it would be health reasons but that wouldn't be my ultimate decision."
11	"Yeah, I mean my decision hasn't really changed especially because of cost wise, definitely makes me want to do it more. And if actually feeding doesn't work I would rather do the pumping for as long as possible because frankly I can't afford that."
12	"Money saving, you would save so much and like that money that you would be spending on that you could use on something else that would help you out more, and the baby, and your family." "[nod]" "Yeah, it's just so smart and easy. It's the right decision, because you have no idea, and you get all this information and you know everything, it's just so mind opening."
13	"Even if I had to pay to breastfeed, like if I had to give an amount to the government say if because you know if they weren't getting my taxes, I would still breastfeed. Yes, the cost is great but to be honest the cost never crossed my mind, it never did. I don't know why. "I thought, okay healthier baby, you know, weight loss for me, convenience of not having to run out of formula or running to the market with a new born. Cost really never crossed my mind."
14	"It makes me want to breastfeed more."

Data Matrix for Question Four – Probe c

Table 10.4c List of responses to question 4, probe c, how do you think other moms would respond to this information?

Participants	Participant Responses
1	“I think that they probably start considering breastfeeding more. Obviously, it is cheaper.”
2	“Probably not [would not influence other mothers]”*
3	“Well if they already have babies I would assume they would think the same way as me. Because, if you don’t know the baby is going to be expensive you should have thought about that before. So I would think they would be about on the same level with me with that”. “Yeah, depending. I mean, It really only depends on how the person is with the breast feeding. I’m not really comfortable with having a baby attached to my boob.”
4	“Well, if they don’t have any money and they don’t work, to breastfeed.”
5	“Um, for them I think they would probably breastfeed instead of bottle feed because I guess they will save their money”.
6	“Well, all of the people that I do know that just had babies none of them breast feed.” “My friend Chelsea has WIC, and she says that she is fine. She doesn’t have to get any extra.”
7	“It would be hard especially if they’re not working full time or not having someone there to help them but I have my family who is willing to help me with this. I could see where it would be difficult and they would probably choose to breast feed if they could over formula.”
8	“Well I think for some people it definitely makes a difference if they’re not prepared or willing to pay what they need to pay for formula then they may already have their decision made.”
9	“They might appreciate it and some just might say that they will go the extra mile and pay it [for formula] anyways, some might not have a care in the world and some just might be like “well, mom and dad said they will help” and I was like, okay, but well...mom and dad aren’t going to be there forever, you’ll have to do it on your own and they’re like, well...we will worry about it when the time comes. And you

	<p>can't do that, you have to worry about it now."</p> <p>"Yeah because they [other mothers] might know [the cost] and then be like well we can't do it, how can we get help, how can we get some support? And by them knowing the information and help them out and then maybe they will figure, alright I can do this and they might actually go the extra mile."</p> <p>"Yeah it's cheaper [breastfeed] and some moms might go that way because they can't afford it and they don't have the option, they have to. But the mothers that have the option will sit here and look at you and be like "well I know this is free, but I have two options in front of me and I want to give this one a try, if it doesn't work then I will switch over and if it has an affect then we will have no choice but to go back or what can I do, and some are just like no, we are just going to pay the money and just go from there, they don't want to hear it."</p> <p>"So maybe I [referring to other mothers] have to go this way [breastfeeding] whether I like it or not because I can't afford to do it this way. You can't starve a child so you have to go one way or the other."</p>
10	<p>"Yeah I think it would absolutely maybe impact their decision on going to breast feed instead of formula, if they weren't expecting those prices and if they are budgeting and all the other costs for having a baby, you have diapers and everything else. I think that definitely could persuade someone to do; or half and half, half breast feed, half formula, try to do breast feeding more, absolutely."</p>
11	<p>"I mean, the moms that I know they all breast feed or breast pump. Formula was the last option. Any of my other friends that don't have children and if they did have them I would hope that they would breast feed, but I mean if they saw that maybe it would change their mind, but I don't really know at the end of the day I am not in their financial position so it would be different for them and I can't judge so."</p>
12	<p>"Well my cousin just had a baby last year in July, she didn't do breastfeeding and she's still doing the whole formula thing. I can see her struggling because she is my age well she is two years older but she was my age when she got pregnant. And she struggled and a lot of my friends would probably do the formula thing too because a lot of people that I know are just very full of themselves and don't really think about anyone else but themselves. So they would</p>

	probably look at it and go oh yeah I'll do breast feeding but in reality they will just be spending the money, they will do it the easier way. Everybody takes the easier way out of everything."
13	<p>"I'm sure if you have any financial difficulty, this would be a factor. I mean if you can save fifty dollars a month, that's a lot of money especially if you are in a situation where, you know, fifty dollars is a lot of money."</p> <p>"I think that could. If I were going to formula feed my baby and I didn't have that extra fifty dollars and I think it would make me look again at breastfeeding. Maybe not make the decision to do it if you're not comfortable with it but definitely get some more information to see if I could. I would think so anyway."</p>
14	"It depends how they feel about breastfeeding, I guess. If they don't really like it then I don't think they would mind paying that much."

*Mother was probed: Do you think that it would influence them in any way?

Initial Matrix for Question Five

Table 10.5 List of responses to question 5, we developed two other brochures, they contain the same information but in a different format, which of these two do you like best? What are some reasons you like (brochure name) better than (brochure name)? Show all three and ask for preference then ask for reasons specifying brochure name.

Participants	Participant Responses
1	<p>“[Brochure B] Same thing [as brochure A], just not with the prices.” “It is definitely more effective with the prices.”</p> <p>“[Brochure C] This actually makes it look not that bad.”</p> <p>“Because, I mean the way they have it shown it’s only two extras.” “[Likes best] Information wise, this one [brochure A].” “It’s just more informative, to see the actual price, it’s just more effective.”</p>
2	<p>“The first one [brochure A is better than B]” “I can understand more.” “[Prefers brochure C than A or B] because it shows how many cans.”</p>
3	<p>“Well, this one [brochure A] kind of, I don’t know it has the price so it is kind of easier to tell that it’s more.”</p> <p>“There is something about it [brochure C], I’m just not sure, seems like this one [brochure A] is more simple compared to this one [brochure C]</p>
4	<p>“Would rather have B because you don’t know how much. I mean everyone is different and it’s a lot more than that [referring to the cost].” “I don’t really get it [brochure C]”.</p>
5	<p>“The A”</p>
6	<p>“A [better than B]”. “[A] it has the prices because, I don’t know, If it was me I would think that that’s like \$100.”</p> <p>“[Brochure C] So you are showing what you are getting for your money, like the money you are spending.” “Well, both of them [brochure A and C are easy to understand] but this one [C] shows more of a clear picture.” “Yeah because this one [A] doesn’t say what WIC gives you, and this one does. And then what the baby would need, it doesn’t say that on here [A] it just says how much you would be spending.”</p> <p>“Well it says here 4 months would be 50 dollars. It says two large cans so it tells you already that that’s 50 dollars by 4</p>

	months that's what you'll be spending a month."
7	<p>"[Brochure A] I think the cost helps because it gives you an estimation. It kind of gives you a figure as to what you would need each month versus just knowing that it will go up because you don't know how much it will go up."</p> <p>"[Brochure C] I mean it basically just shows how much would be needed but not knowing exactly how much you would be getting until the baby is born until you start receiving your checks, it doesn't really help that much you don't know the cost of them and things like that."</p>
8	<p>"I think that numbers are definitely a better way to show what it will really cost because it's more accurate rather than just the projection itself, but again to me it's what's expected so it's not really surprising to me." "[Brochure C] Just a different way of showing it really, I think that brochure A probably provides the best information, again. But if you are more of a visual person rather than a number person then you may think this one [C] to be more beneficial."</p> <p>"I just think that cut and dry is the best way to prepare you [referring to brochure A]."</p>
9	<p>"I kind of liked C because it shows you how many cans and it shows you how many cans you will be going through or how many you have to buy and then pricing them and they could add up the prices too and be like okay well this is the one that I'm on, this is expensive, why am I paying so much, is there something else I can get, but the other ones just show them like the money too so I would have to go with C."</p> <p>"Because it physically shows you the cans. It shows you how many you would go through or how many of these and price it out. I think it gives everyone more grasp on how much they are going to be spending."</p> <p>"Because it gives you a visual like the people that aren't very good with just seeing money, they actual see the cans and they're like okay well this is why it's so much, can I do this and this, will it make it cheaper, they can visually see how many cans, where on these you just see the amounts and some get confused when you through money at them."</p>
10	"I would rather see the dollar amount."
11	"I mean if you're trying to get the point across about cost, I

	<p>would do A.”</p> <p>“I think the other ones [A and B] get the point across a little bit better.” “I think that’s why, because you’re seeing a lot of cans [on brochure C]. It’s not really hitting exactly like that these two are going to be like almost a hundred dollars extra every month.”</p>
12	<p>“I would want to see that one with the money [A] instead of this one [B] because just having these money things really explains how much because on this one it says zero dollars, but here you just see money progressing and you don’t really know how much you would be spending so that’s like kind of an eye-opener of how much money you would really be spending.”</p> <p>“I like it [C], if I had to choose which one I would want to look at it would be this one.” “Yeah because it shows you how much you get, you get all these [cans], but yet you still have to buy more. It’s like kind of more clear, seeing what you’re buying right in front of you is easier than money wise, than just a number. I would go with this one [C].”</p>
13	<p>“I think the price really, like this could be anything, that could be you know, \$5 dollars and then that could be \$20. The price actually is more shocking I would say [on brochure A].</p> <p>“I’d go A”</p> <p>“Um C is, I mean it does show that you have the two large cans of formula but if you didn’t know what the formula costs that, like I didn’t know what formula costs, so for me it just seems like “Okay you just have to go out and buy two cans of formula, not bad”</p>
14	<p>“[Likes A] Because you don’t have an idea what those prices are, so I would say this one.”</p> <p>“You see, now it’s different because it [brochure C] shows you that WIC gives you a lot of those [cans] and you will have to buy only these two. It doesn’t seem that much. So it’s like different than looking at this [A]</p>

Data Matrix for Question Six

Table 10.6 List of responses to question 6, thinking about feeding your baby, what would you like to see on a brochure?

Participants	Participant Responses
1	NA
2	"Nothing"
3	"Personally me, no. Nothing is probably going to motivate me to breastfeed I am really stuck on that. It is difficult trying to wean the baby off, you know? Because then you are the one that's stuck constantly, you can't really do much so. Yeah, breast feeding is just, for me it was never pretty much an option."
4	"The money and the cans, and the powder." "There are things in breast that isn't in this formula so that's why, you know, I would do that if I chose that." "When you breastfeed, there is things in the milk that there isn't in the powder."
5	"I was thinking when I am in the delivery room, I was going to try and see how I liked it."
6	"I don't really know. I would make a chart of why you shouldn't breast feed." "Because it's awkward." "Benefits of formula and disadvantages of breast feeding. Well there are benefits for both but I would never breast feed. There are two benefits of breast feeding, it's good for your baby and it makes you lose weight faster. It's so inconvenient, like if I wanted you to babysit, oh wait, I would just be like I have to pump first and that is just so time consuming. I don't know."
7	"The average costs definitely a big factor." "[Average cost] of formula or baby food in general and then the outweighing the good and the bad versus the pros and cons of breastfeeding versus bottle feeding." "Health, exactly. Like which one is actually healthier or if there is a difference, especially since formula has changed now since years ago, if there is still any health changes, which one is healthier for the baby and things like that."
8	"Benefits of both ways of feeding probably." "I mean physical, health for both the mother and child." "[cost]I mean it's definitely a disadvantage to bottle feeding but

	<p>again, it's important because it may be the reality for some people so I think you know seeing both views and benefits and maybe not so beneficial things because that's important too.</p>
9	<p>Maybe having like a mother sitting down with a bottle versus another sitting down with a baby so they could visually see the difference; am I going to be comfortable sitting in public having a mother hold her here or am I going to be comfortable sitting here and being able to walk around and move and stuff and not have people stare at you. Some people are self conscious and think everybody is staring at them and they're not and they think that the bottle is the better way to go. Some mothers are just like, there are staring at me because I am doing something weird but it's to help my baby so I don't care. So if I were to do a brochure I would do split it down the middle, I would have a mother feeding her baby with a bottle and then have a mother breastfeeding and go through and put some information of yeah if you feed your child with formula you could have some defects, there are some good but it could also happen if you breastfeed too. So either way you go, you have a 50/50 chance of having something wrong or not having something wrong but you're not going to know until you go down the road. So you just put two visuals up and just go from there. "In public somewhere and you could also have a mother and show them why breast feeding is uncomfortable and in the privacy of their own home versus being in public and the bottle public or anything, it's more as you would say people friendly to feed a baby with a bottle because they're used to seeing it, feeding with a bottle and having a mother just holding here. It's more common."</p>
10	<p>"I would want to say, probably like a list of some type of positives and negatives for breastfeeding versus formula, that's what I would want to see. A chart basically spelled out what the pros and cons are." "Even cost, everything. Even health benefits for the mother as well." "Double the work, you are pumping, you are also feeding the baby after too. You are taking double the time, but again you are weighing out, what's the best for the baby, you know?"</p>
11	<p>"I mean besides the cost difference you know, the health benefits because I don't think a lot of people get that." "Yeah because I think most people don't really realize how expensive than it actually is. That's why all those girls are</p>

	getting 16 and pregnant.” “Well it is, because they see it on TV and they think it’s going to be a free ride and it’s not.”
12	“I would put things down that you can look forward to in the future, like if you choose to do breastfeeding you would save a lot of money so you can put down like things that you would want to do in the future with your kid or even like saving money to get a decent size house, just show like things that will inspire you to continue to go with that goal and everything else.”
13	<p>“If there were flat statistics about health of babies and even maybe a growth chart versus the breastfed babies versus formula fed babies that, because that’s where my head is at, it’s all about the health. The only negative thing that I have been told about breast feeding and I was talking about it with the pediatrician, is that breastfed babies tend to lack vitamin D so they’re requesting that you supplement the vitamin D, it’s not a formula it is just a vitamin D supplement. So something to do with that too would probably, like that information that’s the first I have ever heard of it, I didn’t know. So I would probably have something along those lines. What do I need? Where are the vitamins in the formula versus the vitamins and fats you know the good lipids in the breast milk? Show me the difference. That would be something that I would be interested in.”</p> <p>Don’t just say it’s healthier, because you might think it’s healthier but maybe pediatrician B says “oh no, formula is the same thing”, which is what I hear from a lot of women that do formula feed their babies, that it’s the same thing if not better because you don’t have to supplement vitamin D, there’s plenty of vitamin D in the formula. So show me, break it down for me, show me why is it better.</p> <p>“The money factor I’m sure is important to a lot of people especially in this kind of climate. So definitely knowing how much on average per month you were spending versus the breast milk that’s free, as long as you’re eating right. And then if there were health benefits for the mom too other than the weight loss and burning the calories, but that’s the only ones I have ever heard of for moms.”</p>
14	“The health of the baby, it’s what I am most worried about.”

APPENDIX G- Second Matrix

Second Matrix for Question Two

Table 11.2 List of themes generated from question 2, tell me some of the reasons you choose ___?

Themes	Formula Feeding Responses	Breastfeeding Responses
<p>1. Physical</p> <p>a) Medical issues (Inverted nipples and breast reduction)</p> <p>b) Pain</p> <p>c) Physical appearance (breast sizes would be unequal)</p> <p>d) Weight loss</p>	<p>“I have inverted nipples, that’s going to be more difficult”</p> <p>“I had a breast reduction and they took so much out that they don’t think that I would be able to breastfeed or that the chances of it would be slim.”</p> <p>“Because that hurts, so I just rather do formula”</p> <p>“...both babies were only attached to one boob so she’s got like a C and a D and I’m like “I’m good with that” I like to keep them the way they are. I don’t want to be all lopsided. It’s kind of silly but I kind of think about that too so I’m like “m-m” she can’t find a bra, ever.”</p>	<p>“First of all because of the health benefits, for the baby and secondly, honestly, to lose the weight.”</p>

<p>2. Financial</p> <p>e) Going back to work</p> <p>f) Breastfeeding is cheaper</p>	<p>“I don’t get a paid maternity leave so I need to go back to work very quickly and it’s going to make it easier.”</p>	<p>“Actually I read that I guess it’s healthier, it’s cheaper and yeah it’s like better for the baby...”</p>
<p>3. Psychological</p> <p>g) Comfortable bottle feeding</p> <p>h) Mind set on bottle</p>	<p>“Because I was used to feeding with the bottle and to by the breast, like I raised my sister’s kid with her and I am used to the bottle so I feel more comfortable with a bottle than with breastfeeding.”</p> <p>“I’m just not really comfortable with the idea of breastfeeding.”</p> <p>“I’m not comfortable with the baby there, if it was in the privacy of my own home that would be fine...”</p> <p>“...or you just have to do it in public, which is really weird. I would never do that.”</p> <p>“Just sticking a pump there and having it there and eh...it’s not for me!”</p> <p>“I have always been on the mind set of</p>	

<p>feeding</p> <p>i) Overwhelmed by options of formula products</p>	<p>bottle feeding.”</p>	<p>“And I don’t know, and for the formula that you buy you don’t know what kind of formula because there are so many kinds and you know that your breastfeeding it’s like the right kind of milk and it’s giving off all the right nutrition and everything you don’t know what kind of formula does that and anything else.”</p> <p>“Being pregnant is just overwhelming in general...”</p>
<p>4. Educational</p> <p>j) Not educated on breastfeeding</p>	<p>“I’m not really sure, I’m not really educated on breast feeding so I’ll probably like to try doing it you know like maybe at night or something, not consistent, I’d like to bottle feed as well.” “Um, probably bottle feeding only because that’s really what I know more about and what I would be more comfortable with.”</p>	
<p>5. Social inconvenience/Convenience</p> <p>k) Wean baby off of breastfeeding</p>	<p>“I know a lot of people who have been having lots of trouble weaning the baby off of breastfeeding. So I don’t want to have too much [trouble].”</p> <p>“My grandmother is going to be watching the baby so it’ll be a lot easier for me, instead of me trying to wean the baby off of</p>	

<p>l) Attachment</p> <p>m) Easier and quicker</p>	<p>breastfeeding so early, just go and just bottle feed.”</p> <p>“My cousin, her children were very attached to her. They wouldn’t really go to anyone else because they were constantly with her because she was breast feeding and I don’t want that.”</p> <p>“Bottles are easy, you can just put them in the bottle and heat it up and give to the baby. And if someone is babysitting, you don’t have to worry about pumping, you just say: here are bottles.”</p> <p>“My grandmother is going to be watching the baby so it’ll be a lot easier for me, instead of me trying to wean the baby off of breastfeeding so early, just go and just bottle feed.”</p> <p>“It’s easier to do” Like, preparing it and all that. Like preparing it is easier, like you are done right away instead of breastfeeding. “Yeah, it’s quicker and better.”</p> <p>“It makes it easier for him too because he doesn’t have to sit there and hold the little packages of breast milk. He was a little uncomfortable with that too so I was like well okay, I was like, “Well then I’ll go with</p>	
---	--	--

n) support	the bottle because she is going to be going from my house to your house, not right away, but from my house to your house and I'm pretty sure you're not going to sit there and pump yours and I'm not going to be there so" and he was like, "Alright, the bottle is fine with me". So I was like "Okay"!"	"Basically overall, even like my doctor encourages it and it's healthier for the baby."
6. Health o) Overall health benefits		"You build up immunities from the breast milk that the parent already has built up so it helps the child work with illnesses, there's brain development, eye function, everything, it comes right from there. So by not doing that you're taking key things away." "Have a healthy baby, you have to do whatever what's best for them and everyone says breastfeeding is one of the healthiest things for your child..."

Second Matrix for Question Two Probe

Table 11.2 a List of themes generated from question 2- probe, how does your family feel about__? Specifically assess mother, grandmother, sister and find out how the father of the baby &/or her current partner feels about__.

Themes	Formula Feeding Responses	Breastfeeding Responses
<p>1. Supportive</p> <p>a. Family member formula fed</p> <p>b. Infant feeding method is a mother's choice</p> <p>c. Belief formula is easier for the mother</p> <p>d. Empathetic</p>	<p>"My sister just had two kids and she bottle fed with formula for both of them. Actually my mom did too so they are both supportive..."</p> <p>"He [baby's father] wanted me to [breastfeed] but when I told him no I was pretty much "tough luck" and he was like "okay, fine". He was okay with it."</p> <p>"They think it is easier for me to do instead of breast feeding...the baby's father, my mother, father, and some other people."</p> <p>"They tell me that any decision I make they are going to support it." "They are very supportive of whatever I chose."</p>	<p>"It's my decision, not theirs so they don't really have a say."</p> <p>"The baby's father is a hundred percent supportive, it is the way he me wanted to go but he kept his opinion to himself until I came out and said it."</p>
<p>2. Apathetic</p>	<p>"I mean, they don't really care. They don't care, it's whatever I want to do."</p>	<p>"None of them really had an opinion or cared."</p>

Second Matrix for Question Three

Table 11.3 List of themes generated from question 3, how much do you think these WIC moms had to pay for the extra formula each month?

Themes	Formula Feeding Responses	Breastfeeding Group	Breastfeeding Responses
<p>1. Don't know</p> <p>a) A lot</p> <p>b)</p>	<p>"I have no idea. I am kind of lost out of the blue when it comes to any of this stuff. I don't really know.</p> <p>"A lot." "I don't know [the cost]."</p> <p>"A lot, because my friend spent over \$200 on formula."</p>	<p>2. Don't know</p> <p>a) \$100 or more</p> <p>b) \$40 to \$50</p> <p>c) A lot</p>	<p>"Maybe an extra hundred dollars. I am completely guessing I really don't know."</p> <p>"I'd say maybe like 10 dollars per can would be my guess and if they were already getting 10, I don't know maybe like 40 or 50 dollars a month, I'd guess."</p> <p>"I would say a lot, I have no count."</p>
<p>3. It depends on the infant's feeding demand</p>	<p>"Well it depends on how much they would need because one can is like 30 dollars and that is a lot for one can that lasts you like a week, if that. So I don't really know just depends on how much they would have to buy."</p> <p>"It depends on how big the</p>	<p>4. \$80 to \$100</p>	<p>"Oh god, probably almost like 80-100 dollars I'd probably say because those cans run like 30-40 dollars each."</p>

	baby is, I mean, you got to feed it more.”		
5. \$100 or more	“Maybe a couple of hundred, a few hundred dollars.” “It depends on how big the baby is I mean, you got to feed it more.”	6. \$65	“They are probably spending 65 dollars on top of what they get for free already from WIC. So like about 65-80 dollars they are probably spending it on, that’s a lot of money!”

Second Matrix for Question Four - Probe a

Table 11.4a List of themes generated from question 4, we developed this brochure (show brochure A). What do you think about when you see the brochure? a) What do you think about the cost?

Themes	Formula Feeding Responses	Breastfeeding Responses
1. Breastfeeding is cheaper	"That is a lot cheaper to breastfeed".	"I mean obviously there is a difference from nothing to something but I really don't think it is extremely that outrageous, the price you know?"
2. The cost of formula increases each month	"It doubles every month pretty much".	"Yeah like month one you're at 7.50 and then all of a sudden 3 months later you're at 50 dollars spending it, it's crazy!"
3. Formula is costly	"Well it's definitely costly."	"That sucks" "The actual amount of money that you have to end up spending that's unfortunate. It shouldn't cost that much for that kind of stuff." ... that's just really expensive."
4. Cost doesn't seem to be a lot	"Looks cheap." "Not cheap cheap but."	"Wow, so by the fourth month they were at the \$50?" "And still zero for the breastfed moms! That's good."

Data Matrix for Question Four – Probe b

Table 10.4b List of themes generated from question 4, probe b, how would this information about cost influence your choice to ___?

Themes	Formula Feeding Responses	Breastfeeding Responses
NOT INFLUENTIAL		
1. Psychological a) Mind Set on formula feeding	“I just don’t think I would.” I just have my mind set on what I want to do.” I wouldn’t change my mind because of the prices, because I just don’t want to do that.”	
2. Financial b) Going back to work c) Prepared to pay the price of formula d) Cost may be inevitable e) Additional help from family and friends	“...Especially since by 4 months breastfeeding probably wouldn’t be much of an option when I am back to work...” “...like I said, I kind of expected it. I knew breastfeeding is like no money at all.” “Personally, it probably wouldn’t affect it because I know that even if I do choose breast feeding, I may not be able to so it may be inevitable that I have to pay and I think just keeping an open mind is the best way to go.” “I know that family is there if I ever need them, I have a lot of people that will help, we have a lot of family friends that have babies and stuff like	

	that.”	
3. Health	“It really doesn’t have that affect because I know that either way I go, she is going to be healthy...”	“Even if I had to pay to breastfeed, like if I had to give an amount to the government say if because you know if they weren’t getting my taxes, I would still breastfeed. Yes, the cost is great but to be honest the cost never crossed my mind, it never did. I don’t know why.”
INFLUENTIAL		
1. Motivational		“...definitely makes me want to breastfeed more...” “Yeah, that would be another reason, but it wouldn’t be the top reason...”
2. Financially beneficial		“Money saving, you would save so much and like that money that you would be spending on that you could use on something else that would help you out more, and the baby, and your family.”
3. Educational		“[nod]” “Yeah, it’s just so smart and easy. It’s the right decision, because you have no idea, and you get all this information and you know everything, it’s just so mind opening.”

Data Matrix for Question Four – Probe c

Table 10.4c List of themes generated from question 4, probe c, how do you think other moms would respond to this information?

Themes	Formula feeding Responses	Breastfeeding responses
NOT INFLUENTIAL		
1. Psychological a) Not comfortable breastfeeding b) Mind set on formula feeding	<p>“Yeah, depending. I mean, It really only depends on how the person is with the breast feeding. I’m not really comfortable with having a baby attached to my boob.”</p>	<p>“...she struggled and a lot of my friends would probably do the formula thing too because a lot of people that I know are just very full of themselves and don’t really think about anyone else but themselves. So they would probably look at it and go oh yeah I’ll do breast feeding but in reality they will just be spending the money, they will do it the easier way. Everybody takes the easier way out of everything.”</p>
2. Financial	<p>“Well if they already have babies I would assume they would think the</p>	

	<p>same way as me. Because, if you don't know the baby is going to be expensive you should have thought about that before. So I would think they would be about on the same level with me with that".</p> <p>"My friend Chelsea has WIC, and she says that she is fine. She doesn't have to get any extra."</p>	
INFLUENTIAL		
<p>1. Financial</p> <p>a) Financially beneficial</p>	<p>"I think that they probably start considering breastfeeding more. Obviously, it is cheaper."</p> <p>"Well, if they don't have any money and they don't work, to breastfeed."</p> <p>"Um, for them I think they would probably breastfeed instead of bottle feed because I guess they will save their money".</p>	<p>"Yeah I think it would absolutely maybe impact their decision on going to breast feed instead of formula, if they weren't expecting those prices and if they are budgeting and all the other costs for having a baby, you have diapers and everything else. "I'm sure if you have any financial difficulty, this would be a factor. I mean if you can save fifty dollars a month, that's a lot of money especially if you are in a situation where, you know, fifty dollars is a lot of money."</p>
<p>1. Psychological</p>		<p>"It depends how they feel about breastfeeding, I guess. If they don't really like it then I don't think they</p>

		would mind paying that much.”
--	--	-------------------------------

Second Matrix for Question Five

Table 11.5 List of themes generated from question five, we developed two other brochures, they contain the same information but in a different format, which of these two do you like best? What are some reasons you like (brochure name) better than (brochure name)? Show all three and ask for preference then ask for reasons specifying brochure name.

Participant Preferences	Formula Feeding Responses	Breastfeeding Responses
<p>Brochure A better than B or C</p> <ul style="list-style-type: none"> • Effective • Easier/simpler • Informative • Objective 	<p>“Information wise, this one [A].” “It’s just more informative, to see the actual price, it’s just more effective.”</p> <p>“...seems like this one [A] is more simple compared to this one [C].”</p> <p>“[A] I think the cost helps because it gives you an estimation. It kind of gives you a figure as to what you would need each month versus just knowing that it will go up because you don’t know how much it will go up.”</p> <p>“[Brochure C] I mean it basically just shows how much would be needed but not knowing exactly how much you would be getting until the baby is born until you start receiving your checks, it doesn’t really help that much you don’t know the cost of them and things like that.”</p> <p>“I just think that cut and dry is the best way to prepare you [referring to brochure A].”</p>	<p>“I mean if you’re trying to get the point across about cost, I would do A.”</p> <p>“I think that’s why, because you’re seeing a lot of cans [on brochure C]. It’s not really hitting exactly like that these two are going to be like almost a hundred dollars extra every month.”</p> <p>“I would want to see that one with the money [A] instead of this one [B] because just having these money things really explains how much because on this one it says zero dollars, but here you just see money progressing and you don’t really know how much you would be spending so that’s like kind of an eye-opener of how much money you would really be spending.”</p>
<p>Brochure B better than A or C</p>	<p>“Would rather have B because you don’t know how much. I mean everyone is different and it’s a lot</p>	

<ul style="list-style-type: none"> Personalized 	<p>more than that [referring to the cost].” “I don’t really get it [brochure C]”.</p>	
<p>Brochure C better than A or B</p> <ul style="list-style-type: none"> Visually appealing 	<p>“So you are showing what you are getting for your money, like the money you are spending.” “Well, both of them [A and C are easy to understand] but this one [C] shows more of a clear picture.” “Yeah because this one [A] doesn’t say what WIC gives you, and this one does. And then what the baby would need, it doesn’t say that on here [A] it just says how much you would be spending.” “Because it gives you a visual like the people that aren’t very good with just seeing money, they actual see the cans...”</p>	

Second Matrix for Question Six

Table 11.5 List of themes generated from question five, we developed two other brochures, they contain the same information but in a different format, which of these two do you like best? What are some reasons you like (brochure name) better than (brochure name)? Show all three and ask for preference then ask for reasons specifying brochure name.

Themes	Formula Feeding Responses	Breastfeeding Responses
1. Nothing	“Personally me, no. Nothing is probably going to motivate me to breastfeed. I am really stuck on that.”	
2. Differences in methods	Health, exactly. Like which one is actually healthier or if there is a difference, especially since formula has changed now since years ago, if there is still any health changes, which one is healthier for the baby and things like that.” “There are things in breast that isn’t in this formula...” “Benefits of both ways of feeding probably.” “I mean physical, health for both the mother and child.”	“I would want to say, probably like a list of some type of positives and negatives for breastfeeding versus formula, that’s what I would want to see. A chart basically spelled out what the pros and cons are.” “Double the work, you are pumping, you are also feeding the baby after too. You are taking double the time, but again you are weighing out, what’s the best for the baby, you know?”
3. Financial a) Information on cost	“The average costs definitely a big factor.”	“Even cost, everything...”
4. Comfort Level b) Public feeding	Maybe having like a mother sitting down with a bottle versus another sitting down with a baby so they could visually see the difference; am I going to be comfortable	

	sitting in public having a mother hold her here or am I going to be comfortable sitting here and being able to walk around and move and stuff and not have people stare at you.	
5. Breastfeeding Initiation	"I was thinking when I am in the delivery room, I was going to try and see how I liked it."	
6. Future Planning		"I would put things down that you can look forward to in the future, like if you choose to do breastfeeding you would save a lot of money so you can put down like things that you would want to do in the future with your kid or even like saving money to get a decent size house, just show like things that will inspire you to continue to go with that goal and everything else."

APPENDIX H – Brochures A, B, and C


See the Difference for Yourself

Cost of
FULLY
Breast
feeding

BABY 1 month	BABY 2 months	BABY 3 months	BABY 4 months
\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00

Cost of
FULLY
Formula
Feeding

BABY 1 month	BABY 2 months	BABY 3 months	BABY 4 months
\$ 7.50	\$ 16.00	\$ 36.00	\$ 50.00



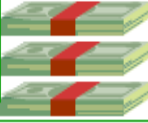



What is the cost of formula feeding?

By your baby's four month birthday WIC mothers spend on average \$50.00 of their own money on infant formula, since WIC does not give you all the formula your baby will need.

See the Difference for Yourself!

Cost of FULLY Breast-feeding	BABY	BABY	BABY	BABY
	1 month	2 months	3 months	4 months
	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00

Cost of FULLY Formula Feeding	BABY	BABY	BABY	BABY
	1 month	2 months	3 months	4 months
				

What is the cost of formula feeding?

By your baby's four month birthday WIC mothers spend on average \$50.00 of their own money on infant formula, since WIC does not give you all the formula your baby will need.

see the Difference For Yourself!

Cans of Formula Provided by the WIC:



10 Cans of Powder Formula

Cans of Formula Babies Will Need:



10 Cans of Powder Formula + 2 Large cans of Powder

The Difference:



2 Large cans of Powder

By your baby's four month birthday WIC mothers spend on average **\$50.00** of their own money on infant formula.

BIBLIOGRAPHY

A. Khoury, S. Moazzem, C. Jarjoura, C. Carothers, A. Hinton. Breast-feeding initiation in low-income women: Role of attitudes, support, and perceived control.

Women's Health Issues, Volume 15, Issue 2, Pages 64-72

Aamer Imdad, Mohammad Yawar Yakoob, Zulfiqar A Bhutta. Effects of breastfeeding promotion interventions on breastfeeding rates, with special focus on developing countries. *BMC Public Health* 2011, 11(Suppl 3): S24.

Ahluwalia IB, Morrow B, Hsia J. Why do women stop breastfeeding? Findings from the Pregnancy Risk Assessment and Monitoring System. *Pediatrics*. 2005;116:1408–1412.

Alan S. Ryan. More About the Ross Mothers Survey-DOI: 10.1542/peds.2005-0237
Pediatrics 2005;115;1450-1451

Alexander K. C. Leung and Reginald S. Sauve. Breast is Best for babies. *J Natl Med Assoc*. 2003; July; 97(7): 1010–1019. PMID: PMC2569316

Alm, B; Wennergren, G; Norvenius, SG; Skjaerven, R; Lagercrantz, H; Helweg-Larsen, K; Irgens, LM. Breast Feeding and Sudden Infant Death Syndrome in Scandinavia, 1992–95. *Archives of Disease in Childhood*. 2002;86(6):400–2.

American Academy of Pediatrics Work Group on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics*.2005;115:416-506.

American Academy of Pediatrics. Caring for Your Baby and Young Child. Birth to Age 5. Edited by Steven P. Shelov and Tanya Remer Altmann.

American Academy of Pediatrics. The use of whole cow's milk in infancy (policy statement). *AAP News*. 1992;8:8–22

American Dietetic Association. Position of the American Dietetic Association: Promoting and supporting breastfeeding. *Journal of the American Dietetic Association*. 2005;105:810–818.

Bartick Melissa. Breastfeeding and the U.S. Economy. *Breastfeeding Medicine*. Volume 6, number 5, 2011.

Bartlett, S., E. Bobronkov, and M. Mendelson. WIC Participant and Program Characteristics 2006, Report No. WIC-06-PC, U.S. Department of Agriculture, Food and Nutrition Services, Special Nutrition Programs, December 2007.

Bartok CJ, Ventura AK. *Mechanisms underlying the association between breastfeeding and obesity*. *Int J Pediatr Obes*. 2009 Feb 24:1-9. PMID: 19235617

Behrman, JR; Rosenzweig, MR; Taubman, P. Endowments and the Allocation of Schooling in the Family and the Marriage Market: The Twins Experiment. *Journal of Political Economy*. 1994;102:1131–74.

Bentley ME, Dee DL, Jensen JL. Breastfeeding among low income, African-American women: Power, beliefs and decision making. *Journal of Nutrition*. 2003;133:305S–309S.

Binns C, Davidson G. Infant Feeding Guidelines for Health Workers (Dietary Guidelines for Children in Australia). Canberra, Australia: National Health and Medical Research Council; 2003;

Binns CW, Graham KI, Scott JA, Oddy WH. Infants who drink cow's milk: A cohort study. *J Paediatr Child Health*. 2007;43:607–610

Black, R. E., Morris, S.S. & Bryce, J. (2003) Where and Why are 10 million children dying every year? *Lancet* 361:2226-2234.

Bosnjak AP, Grgurić J. [*Long-term health effects of breastfeeding*]. *Lijec Vjesn*. 2007 Aug-Sep;129(8-9):293-8. Review. Croatian. PMID: 18198630

Brownell K, Hutton L, Hartman J, Dabrow S. Barriers to breastfeeding among African American adolescent mothers. *Clinical Pediatrics*. 2002;41:669–673.

Bryant Carol. Example: WIC-Breastfeeding. Best Start Social Marketing. September 1995. Available at:
<http://www.orau.gov/cdcynergy/soc2web/Content/activeinformation/examples/example-breastfeeding.htm>

Burr ML. Does infant-feeding affect the risk of allergy. *Arch Dis Child*. 1983;58:561–565

Butte NF. Impact of infant feeding practices on childhood obesity. *J Nutr*. 2009 Feb;139(2):412S-6S. Epub 2008 Dec 23. PMID: 19106326

Caroline J. Chantry, Cynthia R. Howard, and Peggy Auinger. Full Breastfeeding Duration and Associated Decrease in Respiratory Tract Infection in US Children. *Pediatrics*, Feb 2006; 117: 425 – 432.

CDC Breastfeeding Report Card 2010, United States: Outcome Indicators. Available at: <http://www.cdc.gov/breastfeeding/data/reportcard.htm>

CDC National Immunization Survey, Provisional Data, 2008 births.http://www.cdc.gov/breastfeeding/data/NIS_data/index.htm

CDC National Immunization Survey. Breastfeeding among U.S. Children Born 1999-2005. Available at www.cdc.gov.

CDC. *Breastfeeding Trends and Updated National Health Objectives for Exclusive Breastfeeding --- United States, Birth Years 2000—2004*. 2007

Chatterji P, Bonuk K, Dhawan S, Deb N. WIC participation and the initiation and Duration of Breastfeeding. Madison, WI: University of Wisconsin, Madison;2002.

Chaturvedi, P., Warren, C.D., Buescher, C.R., Pickering, L.K. & Newburg, D.S. (2001) Survival of human milk oligosaccharides in the intestine of infants. *Adv. Exp. Med. Biol.* 501:513-523.

Chen, A; Rogan, W J. Breastfeeding and the risk of post neonatal death in the United States. *Pediatrics*. 2004;113:e435-439. Doi:10.1542/peds.113.5.e4235.

Chen, Y; Yu, SZ; Li, WX. Artificial Feeding and Hospitalization in the First 18 Months of Life. *Pediatrics*. 1988;81(1):58-62.

Davis, MK; Savitz, DA; Graubard, BI. Infant Feeding and Childhood Cancer. *Lancet*. 1988;2(8607):365-8.

Department of Agriculture-Food and Nutrition Service. Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Revisions in the WIC Food Packages-Interim. Rule.2007.

Department of Health and Human Services, Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health promotion.

Breastfeeding: Data and Statistics: Breastfeeding Practices-Results from the 2004 National Immunization Survey.

http://www.cdc.gov/breastfeeding/data/NIS_data/data_2004.htm

Dewey KG, Heinig MJ, Nommsen LA, Pearson JM, Lonnerdal B: Growth of breast-fed and bottle-fed infants from 0 to 18 months: The DARLING Study. *Pediatrics* 1992, 89(6 Pt 1): 1035-1041.

Dewey, KG; Heinig, MJ; Nommsen-Rivers, LA. Differences in Morbidity between Breast-Fed and Formula-Fed Infants. *Journal of Pediatrics*. 1995;126:696–702.

Dyson L, McCormick FM, Renfrew MJ. Interventions for promoting the initiation of breastfeeding. *Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No.: CD001688.

Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. *Pediatrics*. 2006 Mar;117(3):e380-6. PMID: 16510618

Eirik Evenhouse and Siobhan Reilly. Improved Estimates of the Benefits of Breastfeeding Using Sibling Comparisons to Reduce Selection Bias. *Health Serv Res*. 2005 December; 40(6 Pt 1): 1781–1802.doi: 10.1111/j.1475-6773.2004.00453.x. PMID: 16510618

Fein, SB. Falci CD. Infant formula preparation, handling, and related practices in the United States. *J Am Diet Assoc*. 1999 Oct;99(10): 1234-40.

Flick Uwe. *An Introduction to Qualitative Research*. Second Edition, 2002. (Ch. 4 Pg 40, 74

Flower, Kori, et al. Understanding Breastfeeding Initiation and Continuation in Rural Communities: A Combined Qualitative/Quantitative Approach. *Maternal Child Health J*. 2008 May;12(3):402-414.

Food and Nutrition Service. *Providing Quality Nutrition Services in Implementing the Breastfeeding Promotion and Support Requirements of the New WIC Food Packages.* 2009

Forsyth JS, Ogston SA, Clark A, Florey CD, Howie PW. Relation between early introduction of solid food to infants and their weight and illnesses during the first 2 years of life. *BMJ.* 1993;306:1572–1576

Gartner LM, Morton J, Lawrence RA, 185aylor AJ, O’Hare D, Schanler RJ, Eidelman AL: Breastfeeding and the use of human milk. *Pediatrics* 2005, 115(2):496-506.

Gilman, M; Rifas-Shiman, SL; Camargo, CA, Jr; Berkey, CS; Frazier, AL; Rockett, HR; Field, AE; Colditz, GA. Risk of Overweight among Adolescents Who Were Breastfed as Infants. *Journal of the American Medical Association.* 2001;285(19):2461–7.

Harris G. Determinants of the introduction of solid food. *J Reprod Infant Psychol.* 1988;6:241–249.

Hausmann R. [Sudden death in infancy]. *Ther Umsch.* 2008 Jul;65(7):407-11. German. PMID: 18622925

Healthy People 2010. Breastfeeding Goals. Available at:

<http://www.healthypeople.gov/2010/topicsobjectives2010/objectiveslist.aspx?topicid=26>

Healthy People 2020: Breastfeeding Objectives. Available at:

<http://www.usbreastfeeding.org/LegislationPolicy/FederalPoliciesInitiatives/HealthyPeople2020BreastfeedingObjectives/tabid/120/Default.aspx>

Heinig, MJ; Dewey, KG. Health Effects of Breastfeeding for Mothers: A Critical Review. *Nutrition Research Reviews*. 1997;10:35–56.

Hendricks K, Briefel R, Novak T, Ziegler P. Maternal and child characteristics associated with infant and toddler feeding practices. *J Am Diet Assoc*. 2006;106(suppl):S135–S148

Hofvander Y. Why women don't breastfeed: A national survey. *Acta Paediatrica*. 2003;92:1243–1244.

Holmes AV, Chin NP, Kaczorowski J, Howard CR. *A barrier to exclusive breastfeeding for WIC enrollees: limited use of exclusive breastfeeding food package for mothers. Breastfeed Med*. 2009 Mar;4(1):25-30.

Humenick SS, Hill PD, Spiegelberg PL. Breastfeeding and health professional encouragement. *J Hum Lact*. 1998 Dec;14(4):305-10.

Infant and young child nutrition: Global strategy on infant feeding and young child feeding. (http://apps.who.int/gb/archive/pdf_files/WHA55/ea5515.pdf).

Institute of Medicine. WIC Food Packages: Time for a Change, Committee to Review the WIC Food Packages, Food and Nutrition Board, Washington, DC: The National Academies Press, 2005.

Ishtiaq Mannan, Syed Moshfiqur Rahman, Ayesha Sania, Habibur R Seraji, Shams El Arifeen, Peter Winch, Gary L Darmstadt, and Abdullah Baqui. Can Early Postpartum Home Visits by Trained Community Health Workers Improve Breastfeeding of Newborns? *J Perinatol*. 2008 September; 28(9): 632–640.

Jon Weimer. The Economic Benefits of Breastfeeding: A Review and Analysis. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Food Assistance and Nutrition Research Report No. 13 (FANRR-13) 20 pp, March 2001.

Katahira K., Fujimura T., Okanoya K., Okada M. Decision-making based on emotional images. *Frontiers in Psychology*. Doi: 10.3389/fpsyg.2011.00311. Volume 2, article 311. Published:28 October 2011.

Kathleen M. Ziol-Guest, Daphne Hernandez. First and Second Trimester WIC Participation Is Associated with Lower Rates of Breastfeeding and *Journal of the American Dietetic Association* Early Introduction of Cow's Milk during Infancy.. November 16, 2009.

Kent George, Child feeding and human rights. *International Breastfeeding Journal* 2006, 1:27doi:10.1186/1746-4358-1-27

Ketevan Nemsadze. *Report from the Country of Georgia: Protecting and Promoting Breastfeeding through Regulation of Artificial-Feeding marketing Practices. The Journal of Perinatal Education*. Winter 2004, Vol. 13, No.1

Khoury AJ, Moazzem SW, Jarjoura CM, Carothers C, Hinton A. Breast-feeding initiation in low-income women: Role of attitudes, support, and perceived control. *Womens Health Issues*. 2005;15:64–72.

Kimbrow RT. On-the-job moms: Work and breastfeeding initiation and duration for a sample of low-income women. *Maternal and Child Health Journal*. 2006;10:19–26.

Knip M, Akerblom HK. Early nutrition and later diabetes risk. *Adv Exp Med Biol*. 2005;569:142–150

Kramer MS, Aboud F, Mironova E, Vanilovich I, Platt RW, Matush L, Igumnov S, Fombonne E, Bogdanovich N, Ducruet T, Collet JP, Chalmers B, Hodnett E, Davidovsky S, Skugarevsky O, Trofimovich O, Kozlova L, Shapiro S; Promotion of Breastfeeding Intervention Trial (PROBIT) Study Group. Breastfeeding and child cognitive development: new evidence from a large randomized trial. *Arch Gen Psychiatry*. 2008 May;65(5):578-84. PMID: 18458209

Kramer MS, Kakuma R. Optimal duration of exclusive breastfeeding. *Cochrane Database Syst Rev*. 2002;(1):CD003517

Kuan LW, Britto M, Decolongon J, Schoettker PJ, Atherton HD, Kotagal UR, et al. Health system factors contributing to breastfeeding success. *Pediatrics*. 1999;104:e28.

Kull, I; Wickman, M; Lilja, G; Nordvall, SL; Pershagen, G. Breast Feeding and Allergic Diseases in Infants—A Prospective Birth Cohort Study. *Archives of Disease in Childhood*. 2002;87(6):478–81.

Laantera, S., Pölkki, T., Ekström, A. , Pietilä, A. Breastfeeding attitudes of Finnish parents during pregnancy. *BMC Pregnancy and Childbirth* 2010, 10:79.

Laura Duberstein Lindberg, *Trends in the relationship between breastfeeding and postpartum employment in the United States*". *Social Biology* 43 (1996): 191-202

Lawrence Noble, Ivan L. Hand, and Anita Noble. Breastfeeding, Hospitalizations, and the Role of Ethnicity. *Pediatrics* 2007 120: 452-453.

Lawrence, R.A. (2006) Lower breastfeeding rates among Supplemental Nutrition Program for Women, Infants, and Children participants: A call for action. *Pediatrics*, 117 (4), 1432-1433

Le Pendu, J. (2004) Histo blood group antigen and human milk oligosaccharides: genetic polymorphism and risk of infectious diseases. *Adv. Exp. Med. Bio.* 554:135-143.

Li, R. Darling, N., Maurice, E., Barker, L., & Grummer-Strawn, L.M. (2005).

Breastfeeding rates in the United States by characteristics of the child, mother, or family: The 2002 National Immunization Survey. *Pediatrics*, 115, e31-e37.

Lisa Mancino and Margaret Andrews. Making healthy food choices easier. Ideas from behavioral economics. Economic Information Bulletin. Number 29-7. USDA. Economics Research Service, September 2007.

Løland BF, Baerug AB, Nylander G. [*Human milk, immune responses and health effects*]. *Tidsskr Nor Laegeforen*. 2007 Sep 20;127(18):2395-8. Review. Norwegian. PMID: 17895946

Mack, N., Woodsong, C., MacQueen, K., Guest, G., Namey, E.. Qualitative Research Methods: A Data Collector's Field Guide. Family Health International, 2005. Module – Qualitative Research Methods Overview (pg 1 -12).

McVea, KL; Turner, PD; Pepler, DK. The Role of Breastfeeding in Sudden Infant Death Syndrome. *Journal of Human Lactation*. 2000;16(1):13–20.

Miao Jiang, E. Michael Foster, Christina M. Gibson-Davis. The effect of WIC on breastfeeding: A new look at an established relationship. *Children and Youth Services Review* 32 (2010) 264-273.

Michaelsen KF. Are there negative effects of an excessive protein intake? *Pediatrics*. 2000;106:1293.

Mitchell, EA; Scragg, R; Stewart, AW; Becroft, DM; Taylor, BJ; Ford, RP; Hassall, IB; Barry, DM; Allen, EM; Roberts, AP. Results from the First Year of the New Zealand Cot Death Study. *New Zealand Medical Journal*. 1991;104:71–6.

Morrow AL, Ruiz-Palacios GM, Jian X, Newburg DS: Human-milk glycans that inhibit pathogen binding protect breast-feeding infants against infectious diarrhea. *J Nutr* 2005, 135:1304-1307.

Murphy S, Wilson C. Breastfeeding promotion: a rational and achievable target for a type 2 diabetes prevention intervention in Native American communities. *J Hum Lact*. 2008 May;24(2):193-8. Review. PMID: 18436971

Oliveira, V., Frazao, E. The WIC Program. Background, Trends, and Economic Issues, 2009 Edition. Economic Research Report Number 73, April 2009.

Oski FA, Landaw SA. Inhibition of iron-absorption from human-milk by baby food. *Am J Dis Child*. 1980;134:459–460

Owen, C. G., R. M. Martin, P. H. Whincup et al. Effect of infant feeding on the risk of obesity across the life course: A quantitative review of published evidence. *Pediatrics* 2005; 115(5):1367-77.

Pettitt, DJ; Forman, MR; Hanson, RL; Knowler, WC; Bennett, PH. *Breastfeeding and Incidence of Non-Insulin-Dependent Diabetes Mellitus in Pima Indians*. *Lancet*. 1997;350(9072):166–8.

Phelps E. Charles. Economic Issues of Breastfeeding. *Breastfeeding Medicine*. Volume 6, Number 5, 2011.

Phillip Nelson, Information and Consumer Behavior. *Journal of Political Economy*, Vol. 78, No. 2 (Mar.-Apr., 1990), pp.311-329.

Ponza M, Devaney B, Shackman G, Woelfel ML, Ziegler P, Reidy K, Squatrito C, Pruzek R, Stratton H. Looking at WIC. *J Am Diet Assoc*. 2004;104:1074.

Pope, Catherine; Mays, Nicholas. Qualitative Research in health care. Third Edition, 2006 (Ch. 1 Pg 3-5. 7-8)

Rao, M; Hediger, ML; Levine, RJ; Naficy, AB; Vik, T. Effect of Breastfeeding on Cognitive Development of Infants Born Small for Gestational Age. *Acta Paediatrica*. 2002;91(3):267-74.

Reifsnider E., Gill S., Villarreal P., Tinkle M., Breastfeeding Attitudes of WIC Staff: A Descriptive Study. *The Journal of Perinatal Education*. Vol. 12, No. 3, 2003.

Rhode Island Breastfeeding Coalition, Department of Health. <http://www.health.ri.gov/partners/coalitions/breastfeeding/>

Ryan AS, Zhou W, Arensberg MB. *The effect of employment status on breastfeeding in the United States*. *Women Health Issues*. 2006 Sep-Oct;16(5):243-51

Ryan, A; Zhou, W. Lower Breastfeeding Rates Persist Among the Special Supplemental Nutrition Program for Women, Infants, and Children Participants, 1978-2003. *Pediatrics Journal* 2006 Apr;117(4):1136-46.

Samir Arora, Cheryl McJunkin, Julie Wehrer, and Phyllis Kuhn. Major Factors Influencing Breastfeeding Rates: Mother's Perception of Father's Attitude and Milk Suppl. *Pediatrics*, Nov 2000; 106: e67.

Scariati, PD; Grummer-Strawn, LM; Fein, SB. A Longitudinal Analysis of Infant Morbidity and the Extent of Breastfeeding in the United States. *Pediatrics*. 1997;99(6):E5.

Simon VG, de Souza JM, de Souza SB. Breastfeeding, complementary feeding, overweight and obesity in pre-school children. *Rev Saude Publica*. 2009 Feb;43(1):60-9. English, Portuguese. PMID: 19169576

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, Consolidated Federal Funds Report Last Revised: Tuesday, 17-Jan-2012 16:41:37 EST.

Stuebe AM, Schawtrz EB: The risk and benefits of infant feeding practices for women and their children. *J Perinatal* 2010, 30(3):155-162.

Taylor JS, Risica PM, Cabral HJ. Why primiparous mothers do not breastfeed in the United States: A national survey. *Acta Paediatrica*. 2003;92:1308–1313.).

U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, Evaluation of the Birth Month Breastfeeding Changes to the WIC Food Packages by Parke Wilde, Anne Wolf, Meena Fernandes, Ann Collins; Project Officer, Dr. Joseph F. Robare. Alexandria, VA: December 2011.

U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, WIC participant and Program Characteristics 2010, *WIC-10-PC*, by Patty Connor, Susan Barlett, Michele Mendelson, Kelly Lawrence, David Bell-Feins, Katherine Wen, et al. Project Officer, Fred Lesnett. Alexandria, VA: December 2011.

USDA, Food and Nutrition Services. Legislative History of Breastfeeding Promotion Requirements in WIC,
<http://fsn.usda.gov/wic/breastfeeding/bflegishistory.HTM>. Accessed on April 7, 2008.

U.S. Department of Commerce. Economics and Statistics Administration. U.S. CENSUS BUREAU. People Who Spoke a Language Other Than English at Home by Hispanic Origin and Race: 2009. October, 2010.

Van Odijk, J; Kull, I; Borres, MP; Brandtzaeg, P; Edberg, U; Hanson, LÅ; Høst, A; Kuitunen, M; Olsen, SF; Skerfving, S; Sundell, J; Wille, S. Breastfeeding and Allergic Disease: A Multidisciplinary Review of the Literature (1966–2001) on the Mode of

Early Feeding in Infancy and Its Impact on Later Atopic Manifestations. *Allergy*. 2003;58(9):833–43.

Vogazianos E, Vogazianos P, Fiala J, Janecek D, Slapák I. *The effect of breastfeeding and its duration on acute otitis media in children in Brno, Czech Republic. Cent Eur J Public Health*. 2007 Dec;15(4):143-6. PMID: 18251228

WHO. Global strategy for infant and young child feeding. 2008.

www.who.int/child_adolescent_health/topics/prevention_care/child/nutrition/global/en/.

Wijndaele K, Lakshman R, Landsbaugh JR, Ong KK, Ogilvie D. Determinants of early weaning and use of unmodified cow's milk in infants: a systematic review. *J Am Diet Assoc*. 2009 Dec;109(12):2017-28.

Wilson AC, Forsyth JS, Greene SA, Irvine L, Hau C, Howie PW. Relation of infant diet to childhood health: Seven-year follow up of cohort of children in Dundee infant feeding study. *BMJ*. 1998;316:21–25

Wojcicki Janet M., Gugig Roberto, Tran Cam, Kathiravan Suganya, Holbrook Katherine, Heyman Melvin. Early Exclusive Breastfeeding and Maternal Attitudes Towards Infant Feeding in a Population of New Mothers in San Francisco, California. *Journal of Breastfeeding Medicine*. 2010 February; 5(1):9-15.

Yngve Hofvander, Why women don't breastfeed: a national survey. *Acta Paediatr* 2003; 92: 1243-1244. Stockholm. ISSN 0803-5253.

Young, TK; Martens, PJ; Taback, SP; Sellers, EA; Dean, HJ; Cheang, M; Flett, B. *Type 2 Diabetes Mellitus in Children: Prenatal and Early Infancy Risk Factors among Native Canadians*. *Archives of Pediatric and Adolescent Medicine*. 2002;156(7):651-5.

Zheng, T; Duan, L; Liu, Y; Zhang, B; Wang, Y; Chen, Y; Zhang, Y; Owens, PH. Lactation Reduces Breast Cancer Risk in Shandong Province, China. *American Journal of Epidemiology*. 2000;152:1129-35.

Zheng, T; Holford, TR; Mayne, ST; Owens, PH; Zhang, Y; Zhang, B; Boyle, P; Zahm, SH. Lactation and Breast Cancer Risk: A Case-Control Study in Connecticut. *British Journal of Cancer*. 2001;84(11):1472-6.