APPENDICES

FINAL REPORT: WIC INFANT FEEDING PRACTICES STUDY

July 25, 1997

Prepared for:

The United States
Department of Agriculture
Food and Consumer Service
Alexandria, VA

Prepared by:

Battelle
Centers for Public Health
Research and Evaluation
Seattle, WA

Contract No. 53-3198-3-003

Battelle

APPENDICES

FINAL REPORT:
WIC INFANT FEEDING PRACTICES STUDY

July 25, 1997

Authors:

Nazli Baydar
Margaret McCann
Rick Williams
Eric Vesper

Editors:

Doug Wieringa
Kathy Sitchin

Prepared for:

The United States
Department of Agriculture
Food and Agriculture
Alexandria, VA 22302

Prepared by:

Battelle
Centers for Public Health
Research and Evaluation
4000 NE 41st Street
P.O. Box 5395
Seattle, WA 98105-0395

Contract No. 53-3198-3-003

TABLE OF CONTENTS FOR APPENDICES

List of Tables ..... **vi**

Appendix A **Sampling Design and Methods of the WIC-IFPS** **A-1**

A.1. Target Population A-1

A.2. Telephone Coverage A-2

A.3. Non-English Speaking Participants A-3

A.4. Optimum Allocation of Study Resources A-4

A.5. Optimal Design Recommendations A-6

A.6. Sample Design A-7

A.7. Local Agencies A-7

A.8. WIC Clinics A-9

A.9. Participants A-9

Appendix B **Survey Instruments of the WIC-IFPS** **B-1**

B.1 Use of Instruments from Previous Studies B-1

B.2 Pretesting and Revision of Survey Instruments B-4

B.3 Content and Structure of the Questionnaires B-6

Attachment A: Questions Asked Matrix B-8

Appendix C **Description of the WIC-IFPS Sample** **C-1**

C.1 Study Participant Selection and Recruitment C-1

C.2 Monthly Sample Sizes C-3

Attachment Table: WIC Infant Feeding Practices Study Interviewing Status Summary C-5

Appendix D **Description of the Study Data Base** **D-1**

Attachment A: Specification of the Variables in STATICQ File from WIC Infant Feeding Practices Study D-5

Attachment B: The Algorithm for Determining the Initiation of Breastfeeding D-17

Attachment C: The Algorithm for Determining the Timing of Initiation of Exclusive Formula Feeding D-20

Attachment D: WIC-IFPS Interview Final Disposition Codes D-22

Appendix E **Analysis Weights** **E-1**

E.1. Sampling Weights E-1

Local Agency Weights E-1
WIC Clinic Weights E-4
Participant Weights E-5

E.2. Analysis Weights for Main Weighting Cohort E-6

E.3. Main Analysis Cohort E-12

E.4. Attrition Analysis E-13

E.5. Analysis Weights for Month 1 Respondents E-15

E.6. Prenatal Interview Respondents E-17

References E-20

Appendix F **Use of Child Care Among WIC Mothers** **F-1**

F.1. Statistical Methods F-1

F.2. Use of Child Care F-2

F.3. Food Provided by the Child-Care Provider F-4

F.4. Use of Non-Maternal Care According to Maternal Employment Status F-5

F.5. Conclusion F-7

Appendix G **Multivariate Statistical Methods of Analysis** **G-1**

G.1. Linear Regression Analysis G-1

G.2. Logistic Regression Analysis G-2

G.3. Multivariate Analysis of Hazard Rates G-3

Appendix H **A Protocol for Building Multivariate Models of Infant Feeding Practices** **H-1**

Appendix I **Detailed Tables to Accompany Text Tables and Figures** **I-1**

List of Detailed Tables I-1

Detailed Tables I-3

Appendix J **Standard Errors for the Text Tables and Detailed Tables** **J-1**

List of Standard Error Tables J-1

Tables of Standard Errors J-3

List of Tables

A.1. Percentage of breastfed infants in households with and without a telephone: United States 1985 ..... A-3

A.2. Optimal study sample design A-6

A.3. Summary of recommended optimal study sample design A-8

C.1. WIC infant feeding practices study interviewing status summary C-5

E.1. Sampling weights for telephone data collection E-2

E.2. Sampling weights for in-person data collection E-3

E.3. Telephone local agency-level sampling weights E-21

E.4. Telephone clinic-level sampling weights E-23

E.5. Telephone participant-level sampling weights E-25

E.6. Personal local agency-level sampling weights E-27

E.7. Personal clinic-level sampling weights E-28

E.8. WIC infant personal participant-level sampling weights E-29

E.9. Distribution of sample members by eligibility status, site type, and sample type E-8

E.10. Summary of main weighting cohort E-9

E.11. Response rate analysis of the sample E-9

E.12. Non-response adjustment factors by site E-11

E.13. Summary of eligible respondents by interview procedure for CATI-CAPI sites E-12

E.14. Summary of clinic information by self-reports of mother's prenatal WIC status E-13

E.15. Summary of main analysis cohort E-13

E.16. Overall study participation counts and rates E-14

E.17. Counts and percent of respondents by sample type and interview month E-15

E.18. Response rates to prenatal interview by respondent characteristics E-19

E.19. Statistical significance levels for predicting response to the prenatal interview E-20

F.1. Percentage of infants who were cared for by someone other than their mothers during the week preceding selected interview months F-3

F.2. Percentage of infants receiving formula or supplemental foods/drinks provided by the non-maternal care giver F-5

F.3. Percentages of mothers using child care by maternal employment F-5

F.4. Average number of days per week and hours per day of child care by maternal employment F-6

APPENDIX A

SAMPLING DESIGN AND METHODS OF THE WIC-IFPS

The WIC Infant Feeding Practices Study (WIC-IFPS) is a national study of infant feeding practices among WIC participants. The study design is based on a sample of 43 WIC clinics nationally representative of the 48 contiguous United States, including 33 Indian WIC state agencies. The study excluded WIC clinics and participants in Alaska, Hawaii, Puerto Rico, Guam, and the Virgin Islands. In 1991, Puerto Rico accounted for 2.6 percent of all WIC participants, while Alaska, Hawaii, Guam, and the Virgin Islands accounted for only 0.7 percent. Because of the high cost of including clinics located outside the 48 contiguous States and the low percent of the WIC population served by such clinics, WIC clinics outside of the 48 contiguous United States were not included.

A.1. Target Population

The target population for the study consisted of two groups of mothers and their infants: prenatal WIC participants and postnatal WIC participants. The longitudinal data collection period complicated the definition of WIC participation. Infants could have been associated with the WIC program through three pathways for this study. First, the infant's mother could have participated in the program while pregnant, resulting in the infant's indirect participation in utero during the prenatal period. Second, the infant may have been enrolled in WIC after birth. Finally, the mother may have enrolled herself in the WIC program during the postnatal period.

Infants who participated in WIC in utero were included by sampling from the rolls of WIC participants pregnant women in their last trimester of pregnancy. Interviews were attempted with these future mothers prior to the birth of their infants, with follow-up interviews during their infant's first year of life. Infants were followed regardless of their postnatal WIC participation. Thus, the sample of pregnant participants included those infants on WIC whose mothers also participated in the program. The study also included infants whose mothers did not participate in WIC during pregnancy but who were enrolled after delivery. For this postnatal sample,

infants who were less than 3 months old at the time of enrollment were eligible for the study.

Another important consideration was that some of the infants may have been very ill, or even died, at or near the time of birth. Such infants had feeding patterns that are atypical and specialized to specific needs of the infant. It was not possible in the 15-minute interview planned for this study to measure the complex medical conditions influencing the nutritional needs of such infants. In addition, standard WIC nutrition education is not applicable to such infants. For these reasons, infants who spent more than 10 days in the hospital after delivery were excluded from the study. From the 1988 National Maternal and Infant Health Survey, it was estimated that about 5 percent of prenatal infant WIC participants would fall into this category. Of the 1,233 cases enrolled in the WIC-IFPS study, only 3 proved to be ineligible because the infant spent more than 10 days in the hospital.

A.2. Telephone Coverage

The primary mode of data collection for the study was computer-assisted telephone interviewing (CATI). Data from 1988 suggested that approximately 27 percent of low-income households do not have telephones. If persons living in households without telephones have different infant feeding practices than those with telephones, then a substantial bias could be introduced into the study if only households with telephones are interviewed. In fact, there is substantial evidence that this is the case. For example, Table A.1 contains 1985 National Health Interview Survey data showing that children living in telephone households were much more likely to have ever been breastfed than children living in non-telephone households (56% versus 32%). In addition, the percent of children breastfed for 6 or more months was 25 percent in telephone households and only 10 percent in non-telephone households. Such large differences between telephone and non-telephone households on this important infant feeding outcome indicate the importance of including WIC participants without telephones in the WIC-IFPS.

In-person interviews were incorporated into the design to eliminate the bias associated with excluding this large group of people. A computer-assisted personal

Table A.1. Percentage of breastfed infants in households with and without a telephone: United States 1985

	Non-telephone Households	Telephone Households	All Households
Ever Breastfed (children under 5 years of age)	32.7	56.4	53.6
Breastfed 6 Months or More (children 6 months to 4 years of age)	9.5	25.1	23.3

Source: Thornberry O.T., and Massey J.T. Trends in United States Telephone Coverage Across Time and Subgroups. In: *Telephone Survey Methodology*, Wiley, 1988.

interviewing (CAPI) system programmed with the questionnaire was used for the face-to-face interviews.

Study participants were sampled using a sampling plan designed to minimize the cost of the study while still meeting FCS's precision requirements. WIC clinics in a random subsample were designated as CATI-Only sites, in which only telephone interviews were conducted with the selected participants. The remaining clinics were assigned to the CATI-CAPI group, in which interviews were conducted, either in-person or over the telephone, depending on the needs of the WIC participant. Because the sites were randomly assigned to the data collection groups, the study used a nationally representative sample of WIC participants with telephones from all of the sites, and a nationally representative sample of WIC participants without telephones from the CATI-CAPI clinics. When the two parts of the sample are properly combined and weighted, a nationally representative estimate for all WIC participants emerges.

A.3. Non-English Speaking Participants

Data from the 1990 WIC Participant and Program Characteristics Study (PC90) indicate that 24 percent of WIC women are of Hispanic origin. Some of these women do not speak English. Spanish-speaking WIC participants were included in the study by preparing Spanish versions of all data collection instruments and participant contact materials. Once a WIC participant indicated that she wished to complete the interviews in Spanish, her interviews were assigned to one of the

Spanish-speaking interviewers. WIC participants who were not able to complete the interviews in either English or Spanish were excluded. As found in the 1990 WIC Participant and Program Characteristics Study (PC90), only 1.5 percent of women participants were of Asian or Pacific Island origins. Excluding such a small percent of the WIC participants, who might not be English or Spanish speakers, was believed to be an insignificant source of bias. Only 5 cases were dropped because the participant spoke a language other than English or Spanish.

A.4. Optimum Allocation of Study Resources

The sampling plan for the WIC-IFPS was designed to:

- minimize the cost of the study while meeting FCS's precision requirement that a national percent be estimated to within 5 percentage points with 95 percent confidence
- include WIC participants without telephones in the study to prevent any bias from their exclusion.

As noted above, in-person CAPI interviews were conducted with WIC participants without telephones. To satisfy both criteria, cost and variance models were developed that allowed the determination of the most cost-efficient mix of CATI-Only and CATI-CAPI sites and the number of participants sampled from each type of site.

In terms of the WIC-IFPS, the cost model was

$$Total\ Cost = C_f + m_t S_t + m_p S_p + m_t n_t P_t + m_p n_p P_p$$

where C_f was the fixed cost of the study; S_t and S_p were the variable costs of adding one additional CATI-Only site and one CATI-CAPI site, respectively, to the study; P_t and P_p were the variable costs of adding one additional WIC participant to the study in a CATI-Only site and a CATI-CAPI site, respectively; m_t and m_p were the number of CATI-Only and CATI-CAPI sites, respectively, in the study; and n_t and n_p were the number of participants selected per each CATI-Only site and each CATI-CAPI site, respectively. Thus the total study sample size was $m_t n_t + m_p n_p$. Examples of fixed costs were monthly management reporting, instrument

development, and presentations to FCS. Variable costs that would contribute to the WIC-IFPS were reviewed to develop the cost model. Variable costs for the study sites included:

- time and expense to contact state agencies and to recruit local agencies and clinics
- interviewer travel and labor for training
- interviewer travel for WIC record abstraction
- central staff labor for supervision of field staff.

Variable costs related to the study participants included:

- interviewer labor for WIC record abstraction
- interviewer labor for CATI data collection
- interviewer travel for CAPI data collection
- interviewer labor for CAPI data collection
- long-distance telephone charges for CATI interviews
- tracking and incentive cost to maintain the panel of WIC participants over time
- the proportion of CATI and CAPI interviews.

The corresponding model for the variance of an estimate from the WIC-IFPS was

$$V^2 = \frac{V_{St}^2}{m_t} + \frac{V_{Pt}^2}{m_t n_t} + \frac{V_{Sp}^2}{m_p} + \frac{V_{Pp}^2}{m_p n_p}$$

where V^2 was the total variance of the estimate; V_{St}^2 and V_{Sp}^2 were the between-sites components of variance for CATI-Only and CATI-CAPI sites, respectively; and V_{Pt}^2 and V_{Pp}^2 were the between-participants within-site components of variance for CATI-Only and CATI-CAPI sites, respectively. The variance model was developed based on the proportion of infants who initiate breastfeeding using data from the 1988 WIC Participant and Program Characteristics Study (PC88). PC88 used a sample of WIC clinics drawn from a sample of local agencies listed on the FNS191

file. It was important that the variance model be estimated from a study using participant groupings within WIC clinics similar to the WIC-IFPS, lest misleading results be obtained.

A.5. Optimal Design Recommendations

Using the cost and variance models, the sample allocation given in Table A.2 minimized the cost of the study, met the FCS precision requirement that a national proportion be estimated to within 5 percentage points with 95 percent confidence, and included WIC participants who could not respond over the telephone. The allocation called for 23 CATI-Only sites and 19 CATI-CAPI, sites for a total of 42 sites. For the CATI-Only sites, the optimal allocation called for 15 participants to be selected. Approximately 13 individuals were expected to have access to a telephone. Since two modes of data collection were used in the CATI-CAPI sites, fewer participants were required for the optimal design. Nineteen participants were designated for selection and follow-up for the CATI-CAPI sites. A total of 660 responding participants was required.[1]

Table A.2. Optimal study sample design.

	Follow-Up Mode		Total
	CATI-Only	CATI-CAPI	
Sites	23	19	42
Participants Per Site			
Total Selected	15	19	
Dropped without Telephones[1]	(2)	(0)	
Total Followed	13	19	
Total Participants	299	361	660

1. These WIC participants were *not* study non-respondents. Rather, they were not part of the target population in the CATI-only follow-up sites WIC participants without telephones were included in the CATI-CAPI follow-up sites.

[1] This was the number of responding participants. Allowances for non-response are considered later.

A.6. Sample Design

A multistage sample was planned for the WIC-IFPS consisting of WIC local agencies, clinics, and participants. These stages of sample selection were necessary to obtain a complete listing of WIC clinics not directly available. Table A.3 presents the proposed sample sizes based on the optimal sample design. Forty-five local agencies (LAs) were initially selected, 42 as the primary contacts and 3 held in reserve in case of non-cooperation by any primary local agencies. The LAs were contacted and lists of their associated clinics were gathered. One site per LA was then selected. Twenty-three of the clinics were randomly assigned to CATI-Only data collection, with the remaining 19 assigned to CATI-CAPI data collection. A sample of pregnant women in their last trimester of pregnancy and a sample of infants less than 3 months old whose mothers were not on WIC during pregnancy were selected from the participants at the cooperating clinics.

To allow for non-response over the course of the study, the original plan was to select 22 and 27 participants from the CATI-Only and CATI-CAPI sites, respectively. This allowed for a 71 percent compound response rate over the life of the study. As seen in Table A.3, the original response-adjusted plan was intended to yield a total sample size of a 671 respondents.

A.7. Local Agencies

The most recently available FNS191 file served as the sampling frame for local agencies. This file contained one record for each WIC local agency (LA) and listed

- LA name, address, and telephone number
- the number of WIC clinics operated by the LA
- the number of women, infants, and children served during a single month by race/ethnicity.

A probability-proportional-to-size (PPS) sample of LAs was selected. For the PPS sample to be most effective, the number of WIC participants in our target population should have been used as the size measure for each LA. However, this information was not available on the FNS191 file. Using the estimates that 25 percent of

Table A.3. Summary of recommended optimal study sample design.

	Follow Up Mode		Total
	CATI-Only	CATI-CAPI	
Sites	23	19	42
Participants per Site	15	19	
Allowance for Non-Response	7	8	
Total Participants Selected for Record Abstraction per Site	22	27	
Total Participant Record Abstractions (All Sites)	506	513	1,019
Record Abstractions Completed (99%)	501	508	1,009
Participants Dropped without Telephones (15% in CATI-Only Sites)[1]	(75)		
Participants Scheduled for Recruitment	426	508	934
Participants Recruited for Study (90%)	383	457	840
Participants Completing Follow Up Interviews (80%)	306	365	671

1. These WIC participants were *not* study non-respondents. Rather, they were not part of the target population in the CATI-only follow up sites. WIC participants without telephones were included in the CATI-CAPI follow up sites.

pregnant participants enroll during their first trimester, 50 percent in their second trimester, and 25 percent in their last trimester, 60 percent of the current pregnant WIC participants were estimated to be in their last trimester of pregnancy. Also, PC90 and PC88 reported that approximately 60 percent of all WIC women were pregnant participants. Hence, 36 percent of the number of women on the FNS191 file were projected to be in the target population. Turning to the postnatal sample, PC88 found that approximately 15 percent of the mothers of infant WIC participants under the age of 3 months were not on WIC. Thus 60 percent of the count of women plus 15 percent of the infant count were used as an approximate size measure for each LA.

A systematic PPS selection method was implemented to select the LA sample. Implicit strata were formed by sorting the file of LAs prior to sample selection by FCS region, ethnic groups being served, and measure of size. By ordering the variables, a systematic PPS sample selection from the ordered frame automatically stratified the sample by the variables and produced a proportional-to-size allocation. Several states do not list local agencies on the FNS191 file, but present the entire state program as a single LA with a large number of clinics. Two such states were

selected into the sample, Louisiana and Arkansas. After contacting the state agencies and obtaining a list of local agencies, a PPS selection of one LA was made using the same measure of size as discussed previously. Selections in subsequent stages for these states proceeded in a similar manner as the other local agencies.

Forty-five local agencies were originally selected for the study, 42 for the primary sample, and 3 for reserve. Two primary sample LAs were dropped from the study due to flood damage at one LA and noncooperation at another. Two reserve LAs were added to the study to compensate for the loss. Due to a delay in response from a third primary LA, the final reserve was added to the study for fear of another refusal. The third agency consented to their participation, resulting in a final LA sample size of 43 instead of the projected 42. This left 24 CATI-Only and 19 CATI-CAPI clinics in the study.

A.8. WIC Clinics

After selecting the LAs, contacts were made to gain cooperation with the study. Lists of the associated clinics were collected from the LAs and a PPS selection of one site per LA was made from this information. The clinics were randomly assigned to CATI-Only data collection or CATI-CAPI data collection. Two clinics were sampled from a California agency because its large participant case load. Again, the measure of size was approximated using 60 percent of the clinic count of women plus 15 percent of the infant count. Clinics were optimally assigned to either the CATI-Only (n = 24) or the CATI-CAPI (n = 19) data collection group using a stratified probability sampling method. The WIC clinics were stratified by the percent of households in the surrounding county without telephones based on data from the 1990 Decennial Census of United States.

A.9. Participants

Clinics were contacted upon selection into the study to obtain a listing of all eligible pregnant women and infants. Most were able to easily provide the information through computer printouts or data files. However, four clinics did not have automated record systems. To facilitate the selection of participants from

these clinics, file boxes and then participant files were sampled. First, a file box was randomly sampled out of the total number of file boxes within the clinic. Next, information from all eligible pregnant women and infants within the box was recorded for inclusion into the sample. If the number of selected eligibles for either of the two groups met or exceeded their corresponding optimum sample size, then file box sampling ended for that group. File box selection continued until the criteria were satisfied. For example, if file box three satisfied the number of eligible women selected into the sample but failed to generate a sufficient number of eligible infants, additional file boxes were sampled until the optimum number of eligible infants was obtained. If the total number of eligible women in the clinics fell below the optimum, all cases were selected for the study.

Age-eligible infants born to mothers not on WIC during their pregnancy qualified for participation in the study. However, this information was not always available. Due to the lack of data on the prenatal WIC participation and unreliable mailing and phone information for the participants, sample sizes were increased above the optimum levels to accommodate the possible loss in respondents. Clinics were classified into two groups prior to the selection of the infant sample depending on the availability of prenatal WIC participation information. Five infants were selected from clinics in which the mother's WIC status during the pregnancy was available. Ten infants were selected from clinics in which the data had not been recorded. In addition, discussions with WIC clinic staff indicated that the telephone numbers and addresses in the WIC records were less reliable than we had anticipated. Hence, the sample size of women was increased to 26 in CATI-CAPI sites and 21 in CATI-Only sites in addition to the infant sample. A total of 1,233 were sent to the field. Appendix D presents a complete review of the sample and the numbers responding.

APPENDIX B

SURVEY INSTRUMENTS OF THE WIC-IFPS

B.1. Use of Instruments from Previous Studies

As part of the questionnaire development process, Battelle staff reviewed current and existing research on infant feeding practices to find existing questionnaire data that might apply to the current study. One major source of information was the Food and Drug Administration (FDA) Infant Feeding Practices Survey, which was under way when development on the WIC-IFPS began. The FDA study collected similar data items to those collected in the WIC-IFPS.

The FDA thoroughly searched the published literature and requested comments from companies that produce infant formula and infant foods. Those contacted included Ross Laboratories, Mead-Johnson, Gerber Foods, and Heinz. Published materials from Ross Laboratories and Gerber Foods were examined. Through the American Academy of Pediatrics, a panel of experts was assembled that included pediatricians, neonatologists, pediatric nutritionists, and dieticians from both private and university settings. Consultations were held with the National Institutes of Child Health and Human Development (NICHD), the National Center for Health Statistics (NCHS), the Centers for Disease Control (CDC), and the U.S. Department of Agriculture's Food and Nutrition Service [FNS; now the Food and Consumer Services (FCS)]. Each agency was asked about recent and ongoing projects that relate to infant feeding practices. The results of these contacts confirmed for the FDA that the information to be gained by their survey would be unique. This same conclusion applied to the WIC-IFPS because it collected similar data items, but on a population different from the FDA Infant Feeding Practices Survey.

The following relatively recent national surveys included data relevant to some issues in infant feeding practices, but none collected data in enough detail over the first year of life to satisfy FCS's needs for information:[1]

- Infant Feeding Practices Survey (FDA)

[1] Information about the surveys is from Hendershot, 1984; Lewis et al., 1988; Martinez and Ryan, 1985; Montalto et al., 1985; and agency reports on the individual surveys.

- National Maternal and Infant Health Survey (PHS)
- National Health and Nutrition Examination Surveys (PHS)
- Nationwide Food Consumption Study (USDA)
- Continuing Survey of Food Intake by Individuals (USDA)
- National Natality Surveys (PHS)
- National Surveys of Family Growth (PHS)
- Mother's Survey (Ross Laboratories)
- Gerber Nutrition Surveys (Gerber Products Company)

The review of research showed that significant portions of these existing questionnaires, could serve as good reference material. The following paragraphs describe some of the features of these existing questionnaires and how pieces could be used for the WIC-IFPS.

With the exception of the FDA Infant Feeding Survey, all of the other surveys were cross-sectional, and therefore unable to adequately describe infant feeding practices. Infants' eating patterns change quickly over short time periods as the infants grow, so that their consumption patterns depend greatly on the particular point in time data are collected. Hence, longitudinal data were needed in order to obtain a valid description of infants' consumption patterns.

The Public Health Service's (PHS's) National Maternal and Infant Health Survey (NMIHS) collected data on maternal and infant health, and on several measures of infant feeding. These measures included whether the baby was ever breastfed, duration of breastfeeding, brand and type of infant formula fed for each of the first 6 months of life, and a food-frequency check list of categories of food (such as fruits and vegetables) fed during each of the first 6 months.

The NMIHS feeding data were used to guide parts of the research design and questionnaire development. However, the NMIHS feeding data did not provide all of the information FCS needed because the food-frequency check list collected retrospective data for only the first 6 months of life. Also, because NMIHS collected data for 1988, it did not reflect the impact of the WIC national breastfeeding promotion campaign and other recent changes implemented in the WIC program.

The National Health and Nutrition Examination Survey II (NHANES II) conducted by PHS included 356 infants in the second 6 months of life, and collected 1 day food-intake data for them. NHANES III also used a cross-sectional design and small infant sample size. Neither survey contains an adequate number of WIC respondents.

The Nationwide Food Consumption Survey (NFCS) was last conducted by USDA in 1987-88; however, the sample size was reduced by almost two-thirds from that obtained in the 1977-78 data collection, so that, in 1987-88, NFCS included only 166 infants. The design and questionnaire were similar to the 1977-78 collection, using 3-day intake measures to yield relatively stable estimates of food intake. The data have the same limitations as existed in the 1977-78 survey, i.e., the small number of infants, the cross-sectional design, and small number of infants who participated in WIC.

The Continuing Survey of Food Intake by Individuals (CSFII) is conducted by the USDA during the years that the NFCS is not in the field. Measures of food intake are the same as in the NFCS. The sample size is 1,500 households of all incomes and 750 households of low income. Beginning in 1989, the CSFII is designed so that subgroups (such as age groups) may be combined over the years to yield a larger sample.

The PHS's National Natality Survey collected feeding data about incidence and duration of breastfeeding in a design similar to the NMIHS. The National Surveys of Family Growth also collected data about incidence and duration of breastfeeding.

The Ross Laboratories Mothers Survey has been conducted approximately annually since 1955. The sample size is very large (62,438 in 1985) but is not representative; the sampling frame is estimated to include about 70 percent of all births in the United States, and the response rate is just over 50 percent. The infant feeding data collected are retrospective and focus on type of milk fed to the infant, although recent surveys also included the infant's age at introduction of groups of foods, such as cereal and fruit.

Gerber Products Company also conducts a regular survey on infant feeding, the Gerber Nutrition Survey. The surveys collect 4-day food-intake records for several hundred infants (637 in 1986) aged 2-12 months. Although the infant feeding data are very specific, they are cross-sectional, and the sample is not nationally representative.

B.2. Pretesting and Revision of Survey Instruments

Pretest sessions for the WIC-IFPS questionnaires took place through January 1994. Several rounds of cognitive, think-aloud interviews were conducted with WIC participants at three different sites in the United States Three different questionnaires were pretested: the prenatal interview, the neonatal or first postnatal interview, and the subsequent postnatal interview, which was a combination of questions intended to be included in the Month 2 through Month 12 interviews.

Pretest sessions took place at cooperating WIC clinics. The pretest interviewer went to the clinic and set up pretest materials in a designated room. Each pretest respondent was interviewed separately, and all sessions were audiotaped so that staff could review the session and analyze responses and interaction between the interviewer and the respondent. Respondents were given specific instruction on what was expected of them and how the pretest interview sessions would proceed. After conducting pretests at each clinic, the results were compiled and presented. Results were organized question-by-question rather than by respondent so that analysis could easily focus on all the comments surrounding each question in the interviews.

The pretest rounds succeeded in identifying three categories of questionnaire issues that required attention by the development team. The categories were: time-frame wording, ambiguous words/terminology, and complex questions.

Time-Frame Wording

Certain interview questions required respondents to identify events occurring within certain time frames, such as *last month*, *last week*, or *currently*. Because different respondents interpreted such time frames differently, these phrases were replaced with more specific wording. For example, the phrase *last month* meant "during the month of December" to one respondent, but "during the last 30 days" to another. To eliminate this ambiguity, phrases such as *last month* were replaced with wording like *in the last 30 days, that is, from [DATE] until today*, where *[DATE]* was computed automatically by the computer-assisted interviewing (CAI) program based on the date of the interview. This strategy ensured that all respondents understood the specific time frames in question.

Ambiguous Words and Phrases

Some respondents had trouble understanding certain terms, especially medical terms. A question originally appearing in a draft of the first postnatal interview asked respondents if they had experienced *toxemia, preeclampsia*, or *eclampsia*. Only one of the respondents was able to correctly equate these terms with swelling. Other questions asked about broad categories that respondents interpreted differently. For example, one question asked whether the baby was eating *fruits and vegetables*, and some respondents understood this to mean only solid foods while others included strained baby food containing these foods. For all of these questions where pretest respondents did not understand question wording or interpreted such wording differently, the design team rephrased the questions to use common language and specific examples to assist respondents.

Complex Questions

Some questions included two or more embedded questions, which confused respondents. For example, one question appearing in a draft of the first postnatal interview was, "Is the amount of formula you get from WIC the right amount for your baby, too much, or too little?" The respondents who were interviewed during the pretest expressed considerable confusion over this item. The reason for their confusion was that respondents first had to calculate whether they receive the right amount of formula, and then, if they did not receive the right amount, to decide whether the amount they received was too much or too little.

To avoid the confusion caused by requiring respondents to think through several questions to arrive at a single answer, these complex questions were split into two or more simpler questions. The example question used here, for instance, was replaced with two simpler questions: "Do you use all of the formula you receive from WIC?" and "Is it the right amount for your baby or is it too little?" If the respondent responds *no* to the first question, it can be inferred that the amount of formula received from WIC is too much. If the respondent answers *yes* to the first question, then the second question is asked to determine whether the amount received is the right amount or too little.

B.3. Content and Structure of the Questionnaires

The WIC-IFPS questionnaires represent a complex and interrelated series of questions that can be asked once, several times, or not at all during as many as 11 different times spread over a year. The study design took advantage of CAI technology to permit such a uniquely tailored approach to longitudinal interviewing. The data collection program automatically linked data across interviewing waves so that the questions relevant to each infant's current feeding situation were included. For example, the data collection program could detect when formula feeding was started, and then route the interview through the questions specific to formula feeding. The CAI questionnaire was able to use responses to previous questions, asked earlier in the same interview or from previous interviews, to avoid duplication or unnecessary questions.

Once the questionnaires had been programmed into the CAI system, extensive quality assurance testing was administered to every interview wave. The CAI testing was conducted by creating mock respondents who exhibited a variety of experiences and behaviors likely to be encountered during the actual data collection. The purpose of creating mock respondents was to simulate the flow of data within and among interview waves. In this exhaustive method, testers would complete an interview wave, making responses to key questions that would affect subsequent waves. Then, those future waves would be run for the same mock respondent to check that the CAI program led interviewers through the correct set of questions, given the data already existing on the mock respondent.

The CAI system was further refined using the results of the computer testing. Changes to the flow and content were made to the computerized interview. These changes included the order of questions, the answer categories, and the checks the computer automatically made on data as they were entered. A Spanish version of the computer-assisted questionnaire was used with WIC participants who desired to be interviewed in Spanish.

The attached table provides a matrix showing the questions and the waves in which questions were eligible to be asked.

Key to the Questions Asked Matrix

PN:	Prenatal interview
BS:	Birth Screener interview
M1:	Month 1 interview
M2:	Month 2 interview
M3:	Month 3 interview
M4:	Month 4 interview
M5:	Month 5 interview
M6:	Month 6 interview
M7:	Month 7 interview
M9:	Month 9 interview
M12:	Month 12 interview

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12

Questions-asked matrix

This table shows for all substantive questions in which wave each is to be asked and under what condition a missed question might be asked on a make-up basis in a subsequent wave.

'Specify' questions which are asked following an 'Other' response are not shown in the matrix although they are shown in the logic and are in the data file. These questions are BORNOTHR (120o), FEEDOTHR (126o), OTHRSPEC (280o), BRFBDEND (326o).

The first four questions in the set, those with a 'P' in the question number column, are asked in the preliminary dialog. If more than one baby of the pregnancy was alive at the time of the interview, the system randomly selected one child as the study subject and all subsequent questions relate to that child.

The key for the cell entries for the PN to M12 wave columns are:

x Ask that wave. If 'Ask next IV' is 'y' and the wave is missed, ask at the next interview.
xn Ask that wave and if wave missed, do not ask at next interview.
xy Ask that wave and if wave missed, at next interview.
-Y Ask in wave if response in previous wave is No

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
P	BIRTHCHK	HAS YOUR BABY BEEN BORN	y	y		x									
P	PREGOUT	# CHIL OF PREG ALIVE	y	y		x									
P	BN	Name	y	y		x									
P	BOBBYDOB	Birthdate	y	y		x									
118	BABYSEX	Sex of baby		y		x									
119a	BABYLBS	Weight of baby		y		x									
119a	BABYOZ	Weight of baby		y		x									
4	BABHOSP	Length of hospital stay – baby		y		x									
5	MOMHOSP	Length of hospital stay – mother	y	y		x									
6	DOBMOM	Date of birth		y	x										
7	RACEMOM	Race/ethnicity		y	x										
8	BORN_US	Place of birth – US?		y	x										
9	COUNTRY	Place of birth – outside of US?		y	x										
10	YRSINUS	Years in US		y	x										
14	MRTLSTAT	Marital status		y	xy							xn			xn
15	HHSIZE	HH size		y	xy							xn			xn
16	HSEHOLD	Members of household		y	xy							xn			xn
17	HHREL	Members of hsehold – relationship		y	xy							xn			xn
18	BABYSDAD	Currently living with baby's dad?	y	y	xy							xn			xn
19	HHONWIC	# in HH on WIC		y	x										
20	MOINCOME	Family income		y	x										
21	FSPGRM	Receiving foodstamps?			x				x				x		x
22	AFDCPGRM	AFDC			x				x						
23	MAIDPGRM	Medicaid			x				x						
24	MOMSMK	Smoking behavior	y	y	x										
25	EDUCCOMP	Education completed?		y	x										
27	HISTSCHL	Educ history – past 3/6 months							x			x		x	x
35	INSCH2	Education history – 2 mos. ago							x			x		x	x

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
36	INSCH1	Education history – 1 mo. ago							x			x		x	x
37	INSCH0	Education history – current month							x			x		x	x
26	CURRSCHL	Currently in school?			x				x			x		x	x
39	HRSSCHL	Education – # hrs/wk			x				x			x		x	x
43	PLANSCHL	Education – post-partum plans	y		x										
44	BACKSCHL	Education – return date	y		x										
47	HISTWORK	Employmt history – past 3/6 months							x			x		x	x
48	MOWORK2	Work history – 2 mos. ago							x			x		x	x
49	MOWORK1	Work history – 1 mos. ago							x			x		x	x
50	MOWORK0	Work history – current month							x			x		x	x
45	CURRWORK	Employment status							x			x		x	x
55	DAYS_WK	Employment – # days/wk			x				x			x		x	x
56	HOURS_DAY	Employment – # hrs/day			x				x			x		x	x
57	HRSVARY	Employment – variable schedule/longest day			x				x			x		x	x
46	PRENWORK	Employment status – prior to first interview			x										
58	PLANWORK	Employment – post-partum plans			x										
59	BACKWORK	Work – return date													
61	MATLV	Maternity leave – did respondent work before baby was born	y	y			x								
62	GETMATLV	Maternity leave?	y	y			x								
380	CURRLEAV	Currently on maternity leave	y	y			x								
63	PDMATLV	Maternity leave – paid/unpaid?	y	y			x								
65	FLPDLV	Maternity leave – # wks fully paid	y	y			x								
66	PRTPDLV	Maternity leave – # wks partially paid	y	y			x								
67	UNPDLV	Maternity leave – # wks unpaid	y	y			x								
68	CHLDCARE	Child care – past 7 days					x	x	x	x	x	x	x	x	x
69	DAYS_WK1	Child care – days/wk					x	x	x	x	x	x	x	x	x
70	HRS_DAY	Child care – hrs/day					x	x	x	x	x	x	x	x	x
71	PRVDFOOD	Provide food for child care?					x	x	x	x	x	x	x	x	x
72	CCPPRVD	Child-care provider provide food?					x	x	x	x	x	x	x	x	x
73	TYPEFOOD	Type of food given by child care provider					x	x	x	x	x	x	x	x	x
75	PREGDBTS	Health probs during pregnancy – diabetes	y	y			x								
77	PREGHYPR	Health probs during pregnancy – hypertension	y	y			x								
78	PREGTOXM	Health probs during pregnancy – swelling	y	y			x								
79	MOMINHSP	Hospitalized during pregnancy?	y	y			x								
80	TMSINHSP	Hospitalized during preg – # times	y	y			x								
81	NITESHSP	Hospitalized during preg – #	y	y			x								

#	Name	Description	Ask only Mom	Ask next IV	P N*	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
		nights													
82	WHYHOSP	Hospitalized during preg – why?	y	y			x								
83	PNCARE	Prenatal care source	y	y	x										
84	PNVISIT	Timing of prenatal visits	y	y	x										
85	NUMPREG	# of pregnancies	y	y	x										
86	PARITY	Parity (# of live births)	y	y	x										
90	PREVPREG	Date of previous pregnancies	y	y	x										
91	DUEDATE	Due date	y	y	x										
92	BKTOHOSP	Hospitalization of infant?					x								
93	BKTOHOS1	Hospitalization of infant?						x	x	x	x	x	x	x	x
94	WHYBKHSP	Hospitalization of infant – why?					x	x	x	x	x	x	x	x	x
95	WELLBABY	Check-up?		y											
96	BBYVACCN	Immunizations							x	-Y	-Y	-Y	-Y	-Y	-Y
97	DATEVACC	Immunizations – date of first													
98	SHOT2ND	Immunizations – rec'd second set of shots?									x		x		
99	WICFOOD	Buy WIC food in pas mo. for mom	y		x		x	x	x	x	x	x	x	x	x
100	USEVOUCH	Vouchers – obtain in past month for baby					x	x	x	x	x	x	x	x	x
102	INFFRMLA	Vouchers – obtained for formula					x	x	x	x	x	x	x	x	x
103	BBYCREAL	Vouchers – obtained for cereal					x	x	x	x	x	x	x	x	x
104	FRTJUICE	Vouchers – obtained for fruit juice					x	x	x	x	x	x	x	x	x
106	BENEFSBF	Nut educ – benefits of breastfeeding (brf)	y	y			x	xy							
107	HOWTOBRF	Nut educ – how to brf	y	y			x	xy							
108	BOWFRMLA	Nut educ – how to bottle feed (bof)	y	y			x	xy							
109	WHNOTHER	Nut educ – when to begin other foods	y	y			x	xy							
110	MOMSDIET	Nut educ – mother's diet while brf	y	y			x	xy							
111	WICAFRL	Nut educ from WIC personnel	y	y			x	xy							
112	WICWHO	Nut educ – pos'n of WIC "advisor"	y	y			x	xy							
114	WICFEED	WIC feeding recommendation?	y	y	xn			xy							
115	WHYTHINK	WIC feeding recommendation - - why?	y	y	xn			xy							
116	SPCLFOOD	Knowledge of maternal feeding pckg?	y	y	xn			xy							
117	WHATTOLD	Knowledge of different food pckgs	y	y	xn			xy							
120	WHERBORN	Place of birth (hospital, home, etc.)	y	y			x								
121	MEDPROB	Medical probs associated with birth	y	y			x								
122	DSCRPROB	Description of medical prob.	y	y			x								
123	ROOMIN	Rooming arrangements in hospital	y	y			x								

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
126	FRSTFEED	First feeding in hosp – what?	y	y			x								
127	TRYTOBFD	Brf during first week after birth	y	y			x								
128	WHYNOTBF	Brf during first week – why not?	y	y			x								
129	FRSTBRFD	First brf – # of hrs after delivery	y	y			x								
	FRSTDAYS	First brf – # of days after delivery	y	y			x								
130	STLBRFD	Still brf?	y	y			x								
131	DURBRFD	Duration of brf	y	y			x								
132	SCHEDULE	Brf on set schedule or on demand	y	y			x								
134	CHOKED	Brf probs – baby choked	y	y			x								
135	SORENIP	Brf probs – sore nipples	y	y			x								
136	INVRTNIP	Brf probs – inverted nipples	y	y			x								
137	BRSTFULL	Brf probs – breasts too full	y	y			x								
138	MILKLATE	Brf probs – too long for milk to come in	y	y			x								
139	NOTENUF	Brf probs – baby not getting enough	y	y			x								
140	HELPPROB	Brf probs – help from people at hosp	y	y			x								
145	DORECHOK	Choking – what did you do?	y	y			x								
146	DORESORE	Sore nipples – what did you do?	y	y			x								
147	DOREINVR	Inverted nipples – what did you do?	y	y			x								
148	DOREFULL	Breasts too full – what did you do?	y	y			x								
149	DORELATE	Late milk – what did you do?	y	y			x								
150	DOREENUF	Not enough milk – what did you do?	y	y			x								
151	PUMPHOSP	Pump breasts in hosp	y	y			x								
153	FEDFRMLA	Other types of food – formula	y	y			x								
154	FDSGRWTR	Other types of 'food' – sugar wtr	y	y			x								
155	FEDPLWTR	Other types of food – plain wtr	y	y			x								
156	BRANDNME	Hospital formula – brand name	y	y			x								
157	FE_LOWFE	Hospital formula – iron or low iron	y	y			x								
158	HOSPHELP	Person in hosp to help with brf?	y	y			x								
159	GIFTPACK	Upon leaving hosp – giftpack?	y	y			x								
161	GFTFRMLA	Contents of giftpack – formula	y	y			x								
162	GFTBRPMP	Contents of giftpack – breast pump	y	y			x								
163	GFTSGWTR	Contents of giftpack – sugar water	y	y			x								
164	GFTBOTL	Contents of giftpack – empty bottle	y	y			x								
165	GIFTTOY	Contents of giftpack – toy	y	y			x								
166	HSPPACIF	Upon leaving hosp – pacifier?	y	y			x								
167	LEAVFEED	Upon leaving hosp – type of feeding	y	y			x								
169	TEETHING	Teething probs – past 7 days					x	x	x	x	x	x	x	x	x
171	SICK	Sicknesses – past 7 days					x	x	x	x	x	x	x	x	x
172	DSCRSICK	Description of sicknesses – past					x	x	x	x	x	x	x	x	x

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
		7 days													
173	COLIC	Colic – past 7 days					x	x	x	x	x	x	x	x	x
175a	CRNTFED1	Feeding past 7 days until stop Brf					x	x	x	x	x	x	x	x	x
175b	CRNTFED2	Feeding past 7 days after stop Brf					x	x	x	x	x	x	x	x	x
176	WHYDECID	Type of feeding – why?					x								
177	WHENDECI	Type of feeding – when decided?					x								
178	XBFYEST	# of feeds yesterday	y				x	x	x					x	x
179	XBFUSUAL	# of feeds yesterday – usual	y				x	x	x	x	x	x	x	x	x
180	XPERDYBF	# feeds/day in past week	y				x	x	x					x	x
181	REGSCHE	Feeding on a regular schedule?	y				x	x	x	x	x	x	x	x	x
182	TMEBTWBF	Longest interval between feeds?	y				x	x							
183	BRSTPUMP	Pump breasts in past 7 days?	y				x	x	x	x		x			
184	X_EXPRES	Express milk in past 7 days – # times	y				x	x	x			x			
185	WHYPUMP	Express milk in past 7 days – why?	y				x	x	x	x		x			
187	ELECPUMP	How? – electric breast pump	y				x		x			x			
188	MANPUMP	How? – manual breast pump	y				x	x	x	x		x			
189	BYHAND	How? – by hand	y				x	x	x	x		x			
190	WICPROVD	Breastpump from WIC?	y						x						
191	WICPROV1	Breastpump from WIC?	y						x						
193	BBYCHOKE	Probs with brf – choking	y				x		x		x				
194	SORENIPL	Probs with brf – sore nipples	y				x		x		x				
195	CRACKNIP	Probs with brf – cracked nipples	y				x		x		x				
196	BRSTINFC	Probs with brf – breast infection	y				x		x		x				
197	BRSTFUL1	Probs with brf – breasts too full	y				x		x		x				
198	BRSTLEAK	Probs with brf – breast leak	y				x		x		x				
199	ENUFMLK	Probs with brf – not enough milk	y				x		x		x				
201	MILKBAD	Probs with brf – something wrong w/ milk	y				x		x		x				
203	WICSTAFF	Who helped with brf probs – WIC clinic staff	y				x		x		x				
204	DOCADVIC	Who helped with brf probs – doctors/nurses	y				x		x		x				
205	FRNDSADV	Who helped with brf probs – friends, relatives	y				x		x		x				
206	BFSUPPAD	Who helped with brf probs – brf support people	y				x		x		x				
207	SOLNCHOK	Sol'n to choking prob.	y				x		x		x				
208	SOLNSORE	Sol'n to sore nipple prob.	y				x		x		x				
209	SOLNCRAK	Sol'n to cracked nipple prob.	y				x		x		x				
210	SOLNINFC	Sol'n to breast infection prob.	y				x		x		x				
211	SOLNFULL	Sol'n to breasts too full prob.	y				x		x		x				
212	SOLNLEAK	Sol'n to leaking prob.	y				x		x		x				
213	SOLNENUF	Sol'n to not enough milk prob.	y				x		x		x				
214	SOLNBAD	Sol'n to milk bad prob.	y				x		x		x				
215	PMPATWRK	Pumping at work?	y						x			x			x

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
216	BREATWRK	Break to brf at work	y						x						x
217	HOWCHANG	Change in feeding schedule b/c of work	y						x			x			x
218	BABY_AGE	Weeks ago of brf cessation	y				x	x	x	x	x	x	x	x	x
218o	BABY_AGX	Baby age at brf cessation	y				x	x	x	x	x	x	x	x	x
219	WHYSTOP	Reason for brf cessation	y				x	x	x	x	x	x	x	x	x
220	TELLSTOP	Anyone tell mother to stop?	y				x	x	x	x	x	x	x	x	x
222	WICTOLD	Who told mother to stop? – WIC staff	y				x	x	x	x	x	x	x	x	x
223	DCTRTOLD	Who told mother to stop? – doctor/nurse	y				x	x	x	x	x	x	x	x	x
224	BBYSDAD	Who told mother to stop? – baby's dad	y				x	x	x	x	x	x	x	x	x
225	BBYSGRMA	Who told mother to stop? – baby's gm	y				x	x	x	x	x	x	x	x	x
226	FRNDTOLD	Who told mother to stop? – friend	y				x	x	x	x	x	x	x	x	x
227	OTHRTOLD	Who told mother to stop? – other person	y				x	x	x	x	x	x	x	x	x
228	BRFDAGAN	Brf another baby					x	x	x	x	x	x	x	x	x
229	ASESBRF	Assessment of brf experience	y				x	x	x	x	x	x	x	x	x
230	FRMLNAME	Brand name of formula					x	x	x	x	x	x	x	x	x
231	FRMLCHCK	Brand name of formula – check					x	x	x	x	x	x	x	x	x
232	WITHIRON	Formula – iron or low-iron					x	x	x	x	x	x	x	x	x
233	IRONCHCK	Formula – iron or low-iron – check					x	x	x	x	x	x	x	x	x
234	CHNGFMLA	Change in formula since birth?					x	x	x	x	x	x	x	x	x
235	WHYCHANG	Change in formula – why?					x	x	x	x	x	x	x	x	x
236	FORMSTRT	Init. formula–week ago					x	x	x	x	x	x	x	x	x
236o	FORMSTX	Init formula–child's age					x	x	x	x	x	x	x	x	x
237	WICTELL	Prep formula – instructions from WIC		y				x							
238	OTHRTELL	Prep formula – instructions from others		y				x							
239	WHOTELL	Prep formula – instructions from who?		y				x							
240	USEALL	WIC formula – use all formula?					x	x	x	x	x	x	x	x	x
241	RGHTAMNT	WIC formula – right amount or too little					x	x	x	x	x	x	x	x	x
242	BUYMRFRM	Buy add'l formula if not enough?					x	x	x	x	x	x	x	x	x
243	OVRDILUT	Overdilute if not enough?													
244	ADDTOFRM	Add anything to baby's bottle?					x	x	x	x	x	x	x	x	x
245	WHYFRMLA	Reason for both brf	y					x		x			x		
246	SAMEFEED	Breastmilk or formula given together	y					x		x			x		
247	WHCHFRST	Breastmilk or formula given first	y					x		x			x		
248	FREQFEED	# days in past week given formula						x		x			x		
249	XBTLYEST	# of bottles yesterday						x		x			x		
250	XBTLUSUL	# of bottles usually						x		x			x		

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
251	EX DYBOTL	# bottles in past week													
252	OZSFRMLA	# oz/bottle						x		x			x		
253	FORMSTOP	When formula was stopped													
254	YFRMSTOP	Why formula was stopped					x	x	x	x	x	x	x	x	x
256	COWMILK	Other things to drink – cows milk													
257	OTHRMILK	Other things to drink – other milk					x	x	x	x	x	x	x	x	x
258	FRUITJCE	Other things to drink – fruit juice													
259	OTHRDRNK	Other things to drink – kool-aid, etc.					x	x	x	x	x	x	x	x	x
260	SOFTDRNK	Other things to drink – soft drinks													
261	SGRWATER	Other things to drink – sugar water					x	x	x	x	x	x	x	x	x
262	COFFTEA	Other things to drink – coffee/tea													
263	WHATMILK	Other things to drink – what other milk					x	x	x	x	x	x	x	x	x
264	WHYLQDS	Other things to drink – why?													
265	NAPWBOTL	Nap/sleep with bottle?							x					x	
266	DRNKERCP	Use of cup held by other													
267	HOLDCUP	Use of cup held by baby											x	-Y	-Y
269	BBYCEREL	Other foods – baby cereal													
270	OTHRCERL	Other foods – other cereals					x	x	x	x	x	x	x	x	x
271	DARYPROD	Other foods – dairy products other than milk													
272	FRUITS	Other foods – fruits					x	x	x	x	x	x	x	x	x
273	VEGGIES	Other foods – vegetables													
274	BEANS	Other foods – beans					x	x	x	x	x	x	x	x	x
275	MEATS	Other foods – meats													
276	PEABUTTR	Other foods – peanut butter					x	x	x	x	x	x	x	x	x
277	EGGS	Other foods – eggs													
278	SWEETS	Other foods – candy, cookies, etc.					x	x	x	x	x	x	x	x	x
279	SNACKFDS	Other foods – chips, pretzels, etc.													
280	OTHRFOOD	Other foods – other					x	x	x	x	x	x	x	x	x
281	CERLSTRT	Initiation date of cereal													
282	FRTSTRT	Initiation date of fruit					x	x	x	x	x	x	x	x	x
283	VEGSTRT	Initiation date of vegetables													
284	MEATSTRT	Initiation date of meat					x	x	x	x	x	x	x	x	x
285	WHYOTHER	Other foods – why?													
286	SPOONFED	Other foods – spoonfed						x		-Y		-Y		-Y	-Y
287	NHFEEDR	Other foods – infant feeder/large nipple													
288	FEEDSELF	Other foods – baby feed him/herself										x		-Y	-Y
289	GIVPACIF	Pacifier in past 7 days													
291	DISCHUS	Discussion on breastfeeding – husband/boyfriend	y		x										
292	DISCGF	Discussion on breastfeeding – girlfriends	y		x										
293	DISCMOTH	Discussion on breastfeeding –	y		x										

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
		mother													
294	WHCHMOTH	Discussion on breastfeeding – mother	y		x										
295	DISCREL	Discussion on breastfeeding – relative	y		x										
296	DISCWIC	Discussion on breastfeeding – WIC staff	y		x										
297	DISCDOC	Discussion on breastfeeding – doctor/nurse	y		x										
298	PERSINFL0-5	Influence on breastfeeding decision	y		x										
299	POSTDISC	postnatal influence on feeding	y				x	x		x		x		x	x
300	PDISCHUS	postnatal influence on feeding – husband	y				x	x		x		x		x	x
301	PDISCGF	postnatal influence on feeding - girlfriends	y				x	x		x		x		x	x
302	PDISCMOT	postnatal influence on feeding – mother	y				x	x		x		x		x	x
303	PDISCMO1	postnatal influence on feeding - mother	y				x	x		x		x		x	x
304	PDISCREL	postnatal influence on feeding – relative	y				x	x		x		x		x	x
305	PDISCWIC	postnatal influence on feeding - WIC staff	y				x	x		x		x		x	x
306	PDISCDOC	postnatal influence on feeding – doctor/nurse	y				x	x		x		x		x	x
307	POSTIMP0-5	postnatal influence on feeding - doctor/nurse	y				x	x		x		x		x	x
309	BSTBOYFR	Perceived attitudes of others – boyfriend	y	y	xn			xy							
310	BTLMTHER	Perceived attitudes of others – maternal gm.	y	y	xn			xy							
311	ATTRELTV	Perceived attitudes of others – relatives	y	y	xn			xy							
312	ATTMOTFR	Perceived attitudes of others – mother's friends	y	y	xn			xy							
313	ATTWIC	Perceived attitudes of others – WIC prog staff	y	y	xn			xy							
314	ATTDOCTR	Perceived attitudes of others – doctor	y	y	xn			xy							
315	BRFASBBY	Brf experiences – mother's	y	y	x										
317	RELATVBF	Brf experiences – others	y		xn			xy							
320	WHORELTV	Brf experiences – which relatives	y		xn			xy							
321	FRENDSBF	Brf experiences – friends	y		xn			xy							
322	EVRBRSFD	Brf other babies?	y	y	x										
323	NWMBFED	# brf	y	y	x										
324	AGE_STOP	How old when prev. brf terminated – 1 prev	y	y	x										
325	OLDSTBF	How old when prev. brf terminated – 2+ prev	y	y	x										
326	METHFEED	Method of feeding mother	y		x										

#	Name	Description	Ask only Mom	Ask next IV	P N	B S	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 9	M 12
		plans to use													
327	AGE_FMLA	If brf, expected age of first bof/other food	y		x										
328	AGE_WEAN	Expected duration of brf	y		x										
329	OTHBFINF	Breastfeeding education-prenatal	y				x								
331	OTHBFIN1	Breastfeeding education-postnatal	y	y					x						
332	DCTRINFO	Breastfeeding education – doctor/nurse	y	y			xn		xy						
333	CHLDBRTH	Breastfeeding education – childbirth educ class	y	y			xn		xy						
334	OTHERSRC	Breastfeeding education – other	y	y			xn		xy						
349	DCTFEED	Recs by pediatrician – type of feed	y				x								
350	BOTLEASY	Convenience – ease of bof/brf	y	y	xn			xy							
351	BRSTTIME	Convenience – time	y	y	xn			xy							
352	BRESTTIE	Convenience – tie down	y	y	xn			xy							
353	BSTNOONE	Convenience – others not feed	y	y	xn			xy							
354	BRSTSMAL	Logistics – breasts too small	y	y	xn			xy							
355	BRSTCLTH	Logistics – clothes probs	y	y	xn			xy							
356	BRSTSCHL	Logistics – school/work probs	y	y	xn			xy							
357	BRSTPUBL	Embarassment – public	y	y	xn			xy							
358	BRSTLK	Embarassment – leak	y	y	xn			xy							
359	BRSTLOSE	Mother's health – diet	y	y	xn			xy							
360	BOTLENUF	Infant's health – enough to eat	y	y	xn			xy							
361	BRSTHLTH	Infant's health – healthier	y	y	xn			xy							
362	ENUFMILK	Infant's health – not enough brstmilk	y	y	xn			xy							
363	BSTALONE	Infant's health – not enough nutrition	y	y	xn			xy							
364	BSTPRTCT	Infant's health – disease	y	y	xn			xy							
365	BRSTCLOS	Relationships – closeness	y	y	xn			xy							
366	MNLFTOUT	Relationships – man feels left out	y	y	xn			xy							
367	BRSTSEX	Relationships – interferes with sex	y	y	xn			xy							
368	BRSTBCPL	Relationships – birth control	y	y	xn			xy							
369	BRSTKNOW	Understanding of brf	y	y	xn			xy							
370	BRSTUGLY	Appearance	y	y	xn			xy							
371	BOTLCOST	Cost	y	y	xn			xy							
372	PUMPCOMF	Pumps	y	y	xn			xy							
373	BRSTPOOR	Status	y	y	xn			xy							
374	ANYWOMAN	Misc attitude	y	y	xn			xy							
375	BRSTSMKE	Misc attitude	y	y	xn			xy							
376	BRSTHURT	Misc attitude	y	y	xn			xy							
377	BSTTIRED	Misc attitude	y	y	xn			xy							
378	EARPRTCT	Infant's health – ear infections	y	y	xn			xy							
379	DIARRHEA	Infant's health – diarrhea	y	y	xn			xy							

APPENDIX C

DESCRIPTION OF THE WIC-IFPS SAMPLE

C.1. Study Participant Selection and Recruitment

Respondents for the WIC-IFPS were enrolled using a multistage process. Respondents, defined as either pregnant women enrolled in WIC or the caretakers of infants (aged 4 months or less) enrolled in WIC, were identified from records at individual WIC clinics. The WIC clinics had been identified from WIC local agency records. To gain the cooperation of WIC local agencies, the recruitment process started by contacting WIC state and regional directors to gain their approval before contacting WIC local agencies. The sampling plan required the enrollment of 43 individual clinics, one from each of the sampled WIC local agencies.

WIC local agency selection was based on the most recently available FNS191 file. This file contains one record for each WIC local agency and includes the number of clinics and participants (by race/ethnicity) served during a single month for the categories of women, infants, and children. Local WIC agencies were recruited using a combination of mailed informational packets and telephone calls. From each WIC local agency, permission was requested to contact the selected WIC clinic and to begin gathering participant data that would allow for respondent selection.

The clinics were divided into two categories: those sites where contact with respondents would only be attempted by telephone (CATI-Only sites) and those sites where contact with respondents would be attempted either by telephone or, where no telephone contact could be made, by an in-person visit (CATI-CAPI sites). To maintain the required level of representation at each WIC clinic site, approximately 22 respondents were sampled from each CATI-Only site and 27 respondents were sampled from each CATI-CAPI site.

Using participant data supplied by the WIC clinics, the final sample was drawn and 987 pregnant women and 246 infants were selected. The original plan for sample selection anticipated the need to visit each of the selected WIC clinics to access clinic records in person. Almost all WIC clinics were able to provide

electronic files or printed lists of their participants. Only one in-person trip was required to collect WIC clinic participant data. The sample selection process took place, clinic by clinic, beginning July 20, 1994, and ending September 8, 1994.

Once the sample was drawn, respondents were assigned to WIC-IFPS interviewers. For respondents in CATI-CAPI sites, respondents were assigned to interviewers living nearby. The CATI-Only site respondents were assigned so as to evenly distribute the workloads of the interviewers. Assignments were made electronically by transmitting respondent data via modem to the notebook computers being used by the interviewers.

Respondent contact was first attempted by mail. An introductory letter was sent to each respondent, explaining the purpose of the study and that an interviewer would be contacting the respondent soon. WIC-IFPS interviewers then followed up these introductory letters with telephone calls and in-person visits to establish contact and administer the first interview. Interviewers who were unable to reach respondents at the address and telephone number provided by the WIC clinic records referred those cases to the main office, where tracing staff used a variety of methods to locate respondents.

About 35 percent of the original contact information proved to be inaccurate, making it difficult to locate these respondents. Because source information on infants enrolled in the WIC program tended to be less helpful for tracing, these respondents took longer to locate. After 1 month of data collection activity, the number of respondents who had not been located dropped to approximately 20 percent of the total sample. Ultimately, interviewing and tracing staff were able to contact 1,048 of the 1,233 sampled respondents, although some of these respondents proved to be ineligible.

It should be noted that difficulty in reaching many of the respondents from information supplied by the WIC clinics does not necessarily reflect poorly on clinic record-keeping. Because so many WIC participants receive their services in person, the need to verify contact information is often unwarranted. Also, records of tracing activity for the study sample show that almost half of the respondents changed their address and/or telephone number during the year-long study. Tracing information indicates that 568 of the 1,233 respondents, almost half, had their

telephone number and/or address changed *after* they had been successfully reached at least once at a different address and/or telephone number.

C.2. Monthly Sample Sizes

Table C.1 (see attachment) is the final interviewing status report. Determination of response rates for each interview wave is somewhat complicated because the number of eligible cases decreased from wave to wave due to cases being dropped. Also, because some respondents were enrolled as infants, they were ineligible for the prenatal interview and as many as three of the monthly interviews. Thus, the total sample available for interview at each wave tended to increase up through the Month 4 interview, when the whole sample became eligible for the same single interview. From that point, subsequent interviewing waves exhibited slight attrition. Both the sample selection process and the tracing activities that were necessary to contact cases contributed to the somewhat low numbers of respondents who completed the prenatal interview (346 completed) and the Month 1 postnatal interview (579 completed).

From the outset, the study was designed so that fewer prenatal interviews would be collected than postnatal interview waves. Only a subset of the sample (987 of 1,233) consisted of pregnant women, making the rest ineligible to complete a prenatal interivew. Pregnant women identified by the WIC clinic records to be in their last trimester were eligible for sample selection. Because of the time required for the reporting of pregnancy data, the recording of such data on clinic records, the transmission of such data for sampling, and the selection and assignment of pregnant women to interviewers, some pregnant women had already had their babies by the time interviewers were able to speak with them. The time spent tracing and locating these women also contributed to the increased chance that they had had their babies by the time an interviewer successfully reached them.

By contrast, once respondents succeeded in completing their first postnatal interview (regardless of whether it was the Month 1, Month 2, Month 3, or Month 4 interview), they remained in the study in higher rates than originally anticipated. The significantly high retention rates from wave to wave throughout the study can be attributed to many factors, including:

- significant cooperation from many of the WIC clinics, whose staff assisted with tracing and asking respondents to call the toll-free study line
- a well-structured computer control system that helped interviewers keep careful track of respondents assigned to them
- a study designed to keep respondent burden to a minimum by using short questionnaires
- a respondent incentive program that maintained respondent interest in the study throughout the project.

While the original study design anticipated collecting complete data from 660 respondents, the actual dataset included 945 respondents, including 706 who completed all the waves for which they were eligible.

Table C.1

WIC INFANT FEEDING PRACTICES STUDY INTERVIEWING STATUS SUMMARY

SITE : ALL **SAMPLE SIZE = 1233** AS OF 01/09/96

WAVE ->	PN		BS		M1		M2		M3		M4	
INTERVIEW DISPOSITIONS	#	%	#	%	#	%	#	%	#	%	#	%
TOTAL DROPPED :	176	14%	184	15%	184	15%	185	15%	190	15%	205	17%
INTERVIEWED	346	28%	802	65%	579	47%	717	58%	818	66%	899	73%
REFUSED	0	0%	1	0%	4	0%	5	0%	9	1%	4	0%
BREAK OFFS W. DT. EXPIRED	0	0%	0	0%	4	0%	7	1%	19	2%	5	0%
OTHER WINDOW DATE EXPIRED	465	38%	0	0%	220	18%	155	13%	170	14%	120	10%
OTHER FINALIZED INCOMPLETES	0	0%	0	0%	1	0%	0	0%	0	0%	0	0%
TOTAL ELIGIBLE FINALIZED:	811	66%	803	65%	808	66%	884	72%	1016	82%	1028	83%
REFUSAL WITHIN WINDOW DATE	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
PENDING - WITHIN WINDOW DATE	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
- NOT YET ELIGIBLE	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
-W. DT EXP. STATUS STILL IN FLD.	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
TOTAL PENDING :	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
TOTAL INFANT SAMPLED INELIGIBLE:	246	20%	246	20%	241	20%	164	13%	27	2%	0	0%

WAVE ->	M5		M6		M7		M9		M12	
INTERVIEW DISPOSITIONS	#	%	#	%	#	%	#	%	#	%
TOTAL DROPPED :	253	21%	267	22%	275	22%	283	23%	288	23%
INTERVIEWED	927	75%	920	75%	936	76%	932	76%	929	75%
REFUSED	3	0%	0	0%	0	0%	0	0%	0	0%
BREAK OFFS W. DT. EXPIRED	0	0%	1	0%	0	0%	0	0%	0	0%
OTHER WINDOW DATE EXPIRED	50	4%	45	4%	22	2%	18	1%	16	1%
OTHER FINALIZED INCOMPLETES	0	0%	0	0%	0	0%	0	0%	0	0%
TOTAL ELIGIBLE FINALIZED:	980	79%	966	78%	958	78%	950	77%	945	77%
REFUSAL WITHIN WINDOW DATE	0	0%	0	0%	0	0%	0	0%	0	0%
PENDING - WITHIN WINDOW DATE	0	0%	0	0%	0	0%	0	0%	0	0%
- NOT YET ELIGIBLE	0	0%	0	0%	0	0%	0	0%	0	0%
-W. DT EXP. STATUS STILL IN FLD.	0	0%	0	0%	0	0%	0	0%	0	0%
TOTAL PENDING :	0	0%	0	0%	0	0%	0	0%	0	0%
TOTAL INFANT SAMPLED INELIGIBLE:	0	0%	0	0%	0	0%	0	0%	0	0%

WIC INFANT FEEDING PRACTICES STUDY

INTERVIEWING PROGRESS BY WAVE

AS OF : 01/09/96

WAVE	TOTAL SAMPLE #	TOTAL SAMPLE %	INELIGIBLE SAMPLE #	INELIGIBLE SAMPLE %	DROPS #	DROPS %	POSSIBLE TO INTV. #	POSSIBLE TO INTV. %	EXP. PRIOR TO INITIAL CONTACT #	EXP. PRIOR TO INITIAL CONTACT %	INTERVIEWED #	INTERVIEWED %	FINALIZED BUT NOT INTERVIEWED #	FINALIZED BUT NOT INTERVIEWED %	PENDING #	PENDING %
PN	1233	100%	246	20%	176	14%	811	66%	465	57%	346	43%	0	0%	0	0%
BS	1233	100%	246	20%	184	15%	803	65%	0	0%	802	100%	1	0%	0	0%
M1	1233	100%	241	20%	184	15%	808	66%	139	17%	579	72%	90	11%	0	0%
M2	1233	100%	164	13%	185	15%	884	72%	90	10%	717	81%	77	9%	0	0%
M3	1233	100%	27	2%	189	15%	1017	82%	101	10%	818	80%	98	10%	0	0%
M4	1233	100%	0	0%	204	17%	1029	83%	47	5%	899	87%	83	8%	0	0%
M5	1233	100%	0	0%	252	20%	981	80%	4	0%	927	94%	50	5%	0	0%
M6	1233	100%	0	0%	267	22%	966	78%	0	0%	920	95%	46	5%	0	0%
M7	1233	100%	0	0%	275	22%	958	78%	0	0%	936	98%	22	2%	0	0%
M9	1233	100%	0	0%	283	23%	950	77%	0	0%	932	98%	18	2%	0	0%
M12	1233	100%	0	0%	288	23%	945	77%	0	0%	929	98%	16	2%	0	0%
TOTAL:	13563	100%	924	7%	2487	18%	10152	75%	846	8%	8805	87%	501	5%	0	0%
			*						**							

* DENOMINATOR = TOTAL SAMPLE

** DENOMINATOR = TOTAL POSSIBLE TO INTERVIEW

WIC - INFANT FEEDING PRACTICES STUDY

DROPPED RESPONDENTS STATUS REPORT AS OF 01/09/96

DROP CD->				66		69		65		68		67		60		61		62		63		64	
SITE	SAMP. SIZE	TOTAL DROPPED #	%	INCAP. #	%	IN HOSPITAL #	%	LANG. #	%	CUSTODY #	%	DECEASED #	%	MISSED 3 WAVES #	%	NEVER LOCATED #	%	REFUSAL #	%	NO PHONE CATI ONLY #	%	DOB INELIG. #	%
01	31	2	6%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	0	0%	0	0%	0	0%	0	0%
02	24	8	33%	0	0%	0	0%	0	0%	0	0%	1	4%	2	8%	2	8%	1	4%	2	8%	0	0%
03	31	12	39%	0	0%	1	3%	1	3%	0	0%	0	0%	1	3%	1	3%	0	0%	8	26%	0	0%
04	36	6	17%	0	0%	0	0%	1	3%	0	0%	0	0%	2	6%	2	6%	1	3%	0	0%	0	0%
05	31	19	61%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	2	6%	0	0%	17	55%	0	0%
06	26	11	42%	0	0%	0	0%	0	0%	0	0%	2	8%	2	8%	1	4%	1	4%	4	15%	1	4%
07	26	5	19%	0	0%	0	0%	0	0%	0	0%	0	0%	2	8%	0	0%	0	0%	3	12%	0	0%
08	31	4	13%	0	0%	0	0%	1	3%	0	0%	0	0%	0	0%	2	6%	1	3%	0	0%	0	0%
09	26	10	38%	0	0%	0	0%	0	0%	0	0%	0	0%	5	19%	2	8%	0	0%	3	12%	0	0%
10	31	4	13%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%	3	10%	0	0%	0	0%	0	0%
11	26	6	23%	0	0%	0	0%	0	0%	0	0%	1	4%	1	4%	1	4%	0	0%	3	12%	0	0%
12	17	2	12%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	6%	0	0%	1	6%	0	0%
13	31	6	19%	0	0%	0	0%	0	0%	0	0%	2	6%	0	0%	0	0%	0	0%	4	13%	0	0%
14	21	9	43%	0	0%	0	0%	0	0%	0	0%	2	10%	1	5%	0	0%	0	0%	6	29%	0	0%
15	31	18	58%	0	0%	0	0%	0	0%	0	0%	2	6%	4	13%	10	32%	2	6%	0	0%	0	0%
16	23	5	22%	0	0%	0	0%	0	0%	0	0%	1	4%	2	9%	1	4%	0	0%	1	4%	0	0%
17	31	6	19%	0	0%	1	3%	0	0%	2	6%	0	0%	1	3%	2	6%	0	0%	0	0%	0	0%
18	36	5	14%	0	0%	0	0%	0	0%	0	0%	1	3%	0	0%	0	0%	2	6%	0	0%	2	6%
19	36	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
20	26	11	42%	0	0%	0	0%	0	0%	0	0%	0	0%	2	8%	4	15%	1	4%	4	15%	0	0%
21	31	6	19%	0	0%	0	0%	0	0%	0	0%	2	6%	0	0%	0	0%	1	3%	3	10%	0	0%
22	36	3	8%	0	0%	0	0%	0	0%	0	0%	1	3%	0	0%	1	3%	1	3%	0	0%	0	0%
23	22	7	32%	0	0%	1	5%	0	0%	0	0%	0	0%	1	5%	1	5%	0	0%	4	18%	0	0%
24	36	11	31%	0	0%	0	0%	0	0%	0	0%	0	0%	5	14%	6	17%	0	0%	0	0%	0	0%
25	17	9	53%	0	0%	0	0%	0	0%	0	0%	0	0%	1	6%	0	0%	0	0%	8	47%	0	0%
26	31	9	29%	0	0%	0	0%	0	0%	0	0%	0	0%	3	10%	4	13%	1	3%	0	0%	1	3%
27	36	1	3%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%	0	0%	0	0%	0	0%

WIC - INFANT FEEDING PRACTICES STUDY

DROPPED RESPONDENTS STATUS REPORT AS OF 01/09/96

DROP CD->				66		69		65		68		67		60		61		62		63		64	
SITE	SAMP. SIZE	TOTAL DROPPED #	%	INCAP. #	%	IN HOSPITAL #	%	LANG. #	%	CUSTODY #	%	DECEASED #	%	MISSED 3 WAVES #	%	NEVER LOCATED #	%	REFUSAL #	%	NO PHONE CATI #	%	DOB INELIG. #	%
28	26	5	19%	0	0%	0	0%	0	0%	1	4%	0	0%	1	4%	0	0%	1	4%	2	8%	0	0%
29	25	4	16%	0	0%	0	0%	0	0%	0	0%	0	0%	1	4%	0	0%	2	8%	1	4%	0	0%
30	26	3	12%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	4%	0	0%	2	8%	0	0%
31	31	3	10%	0	0%	0	0%	0	0%	0	0%	2	6%	0	0%	0	0%	1	3%	0	0%	0	0%
32	27	4	15%	0	0%	0	0%	0	0%	0	0%	1	4%	0	0%	2	7%	0	0%	0	0%	1	4%
33	22	4	18%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	4	18%	0	0%
34	31	6	19%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	5	16%	1	3%	0	0%	0	0%
35	31	8	26%	0	0%	0	0%	1	3%	0	0%	1	3%	1	3%	5	16%	0	0%	0	0%	0	0%
36	26	10	38%	0	0%	0	0%	0	0%	0	0%	1	4%	2	8%	3	12%	0	0%	4	15%	0	0%
37	31	9	29%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%	6	19%	2	6%	0	0%	0	0%
38	31	8	26%	0	0%	0	0%	0	0%	0	0%	3	10%	0	0%	1	3%	0	0%	4	13%	0	0%
39	31	8	26%	0	0%	0	0%	0	0%	0	0%	2	6%	0	0%	3	10%	1	3%	2	6%	0	0%
40	36	6	17%	0	0%	0	0%	1	3%	0	0%	1	3%	2	6%	1	3%	1	3%	0	0%	0	0%
41	31	3	10%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%	1	3%	0	0%	0	0%	0	0%
42	26	7	27%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	7	27%	0	0%
43	22	5	23%	0	0%	0	0%	0	0%	0	0%	1	5%	2	9%	1	5%	0	0%	0	0%	1	5%
TOTAL:	1233	288	23%	0	0%	3	0%	5	0%	3	0%	29	2%	48	4%	76	6%	21	2%	97	8%	6	0%

APPENDIX D

DESCRIPTION OF THE STUDY DATA BASE

The raw data file contains answers to all questions asked for all waves for all respondents. In addition, the raw data file contains all the variables used to direct the flow and phrasing of the questionnaire, and all the necessary variables required for tracking and scheduling the interviewing process.

The following outline details the types of variables contained in the raw data file:

Regular interview:

- Answers to all the questions in questionnaire for each completed wave
- Information needed to be passed to the next interview
- Result of the contact with the respondent
- Information about the identity of the primary caretaker of the infant
- Consent information
- Wave identifier
- Date of last interview
- Language used in interview
- Flags:
  - Tracing
  - Break off
  - Missed previous wave
  - Status of pregnancy
  - Pregnancy outcome

An additional data file contains the retrospective breastfeeding information elicited in Months 6 and 12. These data consist of:

- Current breastfeeding status

- Ever breastfed
- Age of the baby when breastfeeding stopped
- Age of the baby when first regularly started skipping 24-hour periods of breastfeeding
- Breastfeeding frequency

Another data file was created that contains a selected set of variables and some constructed variables. This file was labeled "STATICQ." The STATICQ file contains one record for each respondent. Detailed information regarding these variables and their construction is contained in the STATICQ documentation file and its attachments. This document (Attachment A) outlines, variable by variable, an explanation of the variables, where they came from, and how they were constructed.

The following data are in the STATICQ file:

- Subset of the raw data
  - Length of hospital stay (baby)
  - Baby's date of birth
  - Weight of baby
  - Mother currently living with baby's father
  - Sex of baby
  - Mother's place of birth
  - Mother's date of birth
  - Mother's educational attainment
  - Number of people in household on WIC
  - Household size
  - Family monthly income
  - Length of hospital stay (mother)

- The identity of the respondent (mother or caretaker) for each wave
- Mother's WIC participation status while pregnant
- Mother's smoking status
- Mother's marital status
- Mother's race and ethnicity

- Flag for cases that completed at least one postnatal interview
- Baby's age at the first postnatal interview
- Source where the breastfeeding information was retrieved
- Breastfeeding initiation indicator
- Breastfeeding cessation indicator
- Date of completion of each interview
- Completion status of each interview
- CATI/CAPI status of each interview
- CATI-Only or CATI/CAPI site
- Code of reasons why a respondent was dropped
- When a respondent was dropped
- Date of the interview when formula feeding was first reported
- Exclusive formula feeding indicator
- Age of the baby when the exclusive formula feeding was started
- Month in which exclusive formula feeding was first reported
- Date of the interview when breastfeeding was last reported
- Date of the interview when it was reported that breastfeeding stopped
- Breastfeeding duration in days
- Wave indicator of first postnatal interview
- Indicator of language used in interview

- Date of the first postnatal interview
- Total number of missed waves

Attachments B and C outline the method used to construct some of the variables in the STATICQ file. Attachment B contains the algorithm for determining the initiation of breastfeeding and was used to construct variables 10, 27, and 95. Attachment C is the algorithm for determining the timing of initiation of exclusive formula feeding, and was used to construct variables 29 and 30. Attachment D lists the WIC interview final disposition codes assigned to each interview.

APPENDIX D, ATTACHMENT A

SPECIFICATION OF THE VARIABLES IN STATICQ FILE FROM WIC INFANT FEEDING PRACTICES STUDY

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
1. ANYPOSTN	WAVE	Completed at least 1 postnatal interview	0 No 1 Yes	if WAVE>2 then ANYPOSTN=1 else ANYPOSTN=0	WAVE - Interview wave indicator
2. BABYHOSP	4; BABYHOSP	Length of hospital stay -- Baby	0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 Greater than 11 days 13 Still in hospital	Extracted from raw data	
3. BABYAGE	P; BABYDOB DATEBEG	Baby's age at the 1st postnatal interview	(in days)	DATEBEG (at first postnatal interview) - BABYDOB	DATEBEG - Date interview completed
4. BABYDOB	P; BABYDOB	Baby's date of birth	Month/Day/Year	Extracted from raw data	
5. BABYLBS	119A; BABYLBS	Weight of baby -- pounds		Extracted from raw data	
6. BABYOZ	119A; BABYOZ	Weight of baby -- ounces		Extracted from raw data	
7. BABYSDAD	18; BABYSDAD	Currently living with baby's dad	1 Yes 2 No	Extracted from raw data, and its value was from the last time this question was asked	
8. BABYSEX	118; BABYSEX	Baby sex	1 Boy 2 Girl	Extracted from raw data	
9. BFSOURCE	BADTYPE ADD1; BRFEEDIN	Source where breast feeding information was retrieved	0 From prospective interview 1 From month 6 retrospective interview 2 From month 12 retrospective interview	If BADTYPE=2 then BFSOURCE=1 else BFSOURCE=0 if BFSOURCE=1 and at month 6 BRFEEDIN=1 then BFSOURCE=2	Variable BADTYPE was defined in BADCASE data file BRFEEDIN: Asked in M6, M12 retrospective interview

Variable Name	Based On	Variable Label	Value Label	Method Used to Construct Variable	Comment
10. BFSTART	126; FRSTFEED 127; TRYTOBFD 175a; CRNTFED1 ADD1; BRFEEDIN ADD2; EVERBRFD BADTYPE	Breastfeeding initiation indicator	0 Never tried breastfeeding 1 First feeding was breastmilk 2 Tried breastfeeding at least once 3 Breastfed during the week preceding the 1st postnatal interview 4 Retrieved from retrospective interview . Breastfeeding status can not be determined	(See the document entitled "The algorithm for determining the initiation of breastfeeding) Note: if BADTYPE=2, BFSTART was determined as follows: if EVERBRFD=1 or BRFEEDIN=1 BFSTART=4 else if EVERBRFD=2 BFSTART=0	BRFEEDIN & EVERBRFD: Asked in M6 and M12 retrospective interview Variable BADTYPE was defined in BADCASE data file
11. BORN_US	8; BORN_US	Place of birth -- US	1 Yes 2 No	Extracted from raw data	

12. BRFDEND	BRFDINIT
	MOSTOPBF
		Breastfeeding stopped	0 No
			1 Yes
				if BRFDINIT=1 then
				if MOSTOPBF defined then
				BRFDEND=1
				else
				BRFDEND=0
					BRFDINIT & MOSTOPBF are constructed variables. They are defined below.

13. BRFDINIT	126; FRSTFEED 127; TRYTOBFD 175a; CRNTFED1 ADD1; BRFEEDIN ADD2; EVERBRFD	Breastfeeding initiated	0 No 1 Yes . Can not be determined	It was constructed by using the same method as variable BFSTART did (see above), only coded differently	BRFEEDIN & EVERBRFD: Asked in M6 and M12 retrospective interview
14. BS_DATE	WAVE DATEBEG	Date BS interview was completed	Month/Day/Year	if WAVE=2, BS_DATE=DATEBEG	
15. BS_RMOM	BS_STAT (Defined below)	Respondent was mom/other in BS interview.	1 Mother 2 Other	if BS_STAT=10, 11, 14 or 15 BS_RMOM=1 if BS_STAT=12, 13, 16 or 17 BS_RMOM=2	Constructed based upon information in Control System
16. BS_STAT	BS_STAT	Status of complete - BS	(See document entitled "WIC Interview Final Disposition Codes)	Extracted from Control System TRACKLOG database	
17. BS_TYPE	STATUS RESULTC BS_STAT WAVENAME	Type of complete - BS	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="BS" BS_TYPE=7 else if BS_STAT="10" to "17" BS_TYPE=1	STATUS, RESULTC and WAVENAME are the fields in DAYLOG database in Control System
18. CAT_CAP	CAT_CAP	CATI only or CATI/CAPI site	1 CATI only site 2 CATI/CAPI site	Retrieved from Control System	

Variable Name	Based On	Variable Label	Value Label	Method Used to Construct Variable	Comment
19 COUNTRY	9; COUNTRY	Place of birth outside of US	Name of the country	Extracted from raw data	
20 DOBMOM	6; DOBMOM1	Respondent's date of birth	Month/Day/Year	Extracted from raw data	
21 DROPCODE	DROPCODE	Drop code	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
22 DROPDATE	DROPDATE	Date when respondent was dropped	Month/Day/Year	Retrieved from Control System TRACKLOG database	
23. DROPWAVE	DROPWAVE	Wave in which R was dropped	1 PN 2 BS 3 M1 4 M2 5 M3 6 M4 7 M5 8 M6 9 M7 10 M9 11 M12	Retrieved from Control System TRACKLOG database	
24. DTFRINTV	126; FRSTFEED 127; TRYTOBFD 175a; CRNTFED1 175b; CRNTFED2 DATEBEG	Date of the interview when formula fed was first reported	Month/Day/Year	if FRSTFEED<>2 and TRYTOBFD=2 DTFRINTV=DATEBEG else if it is the first possible postnatal interview in which CRNTFED1=2 OR CRNTFED2=1 DTFRINTV=DATEBEG	
25. DTLASTBF	175a; CRNTFED1 175b; CRNTFED2 DATEBEG	Date of the interview when breastfeeding was last reported	Month/Day/Year	if CRNTFED1=1 or 3 then DTLASTBF=DATEBEG	
26. DTSTOPBF	175a; CRNTFED1 175b; CRNTFED2 DATEBEG BRFDINIT	Date of the interview when it was reported that breastfeeding stopped	Month/Day/Year	if BRFDINIT=1 and (CRNTFED2=1 or CRNTFED1=2 or 4) DTSTOPBF=DATEBEG	BRFDINI was defined above

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
27. DURATION	129o; FRSTDAYS 131; DURBRFD 218; BABY_AGE 218o; WEEK0 218o; MONTHS0 218o; YEARS0 ADD3; DAYS0 ADD3; WEEKS0 ADD3; MONTHS0 BADTYPE	Breastfeeding duration	(in days)	(See the document entitled "The algorithm for determining the initiation of breastfeeding) Note: if BADTYPE=2 and the retrospective interviews are available, variables DAYS0, WEEKS0 and MONTHS0 were used in the formula to calculate the duration	ADD3 is question 3 in the retrospective questionnaire Variable BADTYPE was defined in BADCASE data file
28. EDUCCOMP	25; EDUCCOM1	Respondent's education level	1 1 2 2 3 2 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 1st year of college 14 2nd year of college 15 3rd year of college 16 4th year of college or more	Extracted from raw data	
29. FRSTART	126; FRSTFEED 127; TRYTOBFD 175a; CRNTFED1 175b; CRNTFED2 BADTYPE	Exclusive formula feeding indicator	0 Never start formula feeding 1 Initiated exclusive formula feeding immediately postpartum 2 Initiated exclusive formula feeding after a period of at least partial breastfeeding -9 Formula start status cannot be determined	(See the document entitled "The algorithm for determining the timing of initiation of exclusive formula feeding")	
30. FRSTDAYS	DURATION BRFDEND	Age of the baby when the exclusive formula feeding was started	(in days)	(See the document entitled "The algorithm for determining the timing of initiation of exclusive formula feeding")	Variables DURATION and BRFDEND were defined above

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
31. FRSTPOST	WAVE	First postnatal interview	1 M1 2 M2 3 M3 4 M4 5 M5 6 M6 7 M7 9 M9 12 M12	If FRSTPOST has not been defined and WAVE>2 then if WAVE<10 FRSTPOST=WAVE-2 else if WAVE=10 FRSTPOST=9 else FRSTPOST=12	
32. HHONWIC	19; HHONWIC1	Number of people in household on WIC	0 .. 14	Extracted from raw data	
33. HHSIZE	15; HHSIZE	Household size	1 .. 15	Extracted from raw data, and its value was from the last time this question was asked	
34. ID		Respondent ID #			
35. LANGUAGE	LANGUAGE	Language used in interview	1 English 2 Spanish	Retrieved from Control System TRACKLOG databases	
36. M1_DATE	WAVE DATEBEG	Date M1 interview was completed	Month/Day/Year	if WAVE=3, M1_DATE=DATEBEG	
37. M1_RMOM	M1_STAT	Respondent was mom or other in M1 interview	1 Mother 2 Other	if M1_STAT=10, 11, 14 or 15 M1_RMOM=1 if M1_STAT=12, 13, 16 or 17 M1_RMOM=2	(see comment for BS_RMOM above)
38. M1_STAT	M1_STAT	Status of complete - M1	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
39. M1_TYPE	STATUS RESULTC M1_STAT WAVENAME	Type of complete - M1	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M1" M1_TYPE=7 else if M1_STAT="10" to "17" M1_TYPE=1	(see comment for BS_TYPE above)
40. M2_DATE	WAVE DATEBEG	Date M2 interview was completed	Month/Day/Year	if WAVE=4, M2_DATE=DATEBEG	
41. M2_RMOM	M2_STAT (defined below)	Respondent was mom or other in M2 interview	1 Mother 2 Other	if M2_STAT=10, 11, 14 or 15 M2_RMOM=1 if M2_STAT=12, 13, 16 or 17 M2_RMOM=2	(see comment for BS_RMOM above)

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
42. M2_STAT	M2_STAT	Status of complete - M2	(See document for "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
43. M2_TYPE	STATUS RESULTC M2_STAT WAVENAME	Type of complete - M2	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M2" M2_TYPE=7 else if M1_STAT="10" to "17" M2_TYPE=1	(see comment for BS_TYPE above)
44. M3_DATE	WAVE DATEBEG	Date M3 interview was completed	Month/Day/Year	if WAVE=5, M3_DATE=DATEBEG	
45. M3_RMOM	M3_STAT (Defined below)	Respondent was mom or other in M3 interview	1 Mother 2 Other	if M3_STAT=10, 11, 14 or 15 M3_RMOM=1 if M3_STAT=12, 13, 16 or 17 M3_RMOM=2	(see comment for BS_RMOM above)
46. M3_STAT	M3_STAT	Status of complete - M3	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
47. M3_TYPE	STATUS RESULTC M3_STAT WAVENAME	Type of complete - M3	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M3" M3_TYPE=7 else if M1_STAT="10" to "17" M3_TYPE=1	(see comment for BS_TYPE above)
48. M4_DATE	WAVE DATEBEG	Date M5 interview was completed	Month/Day/Year	if WAVE=6, M4_DATE=DATEBEG	
49. M4_RMOM	M4_STAT (Defined below)	Respondent was mom or other in M4 interview	1 Mother 2 Other	if M4_STAT=10, 11, 14 or 15 M4_RMOM=1 if M4_STAT=12, 13, 16 or 17 M4_RMOM=2	(see comment for BS_RMOM above)
50. M4_STAT	M4_STAT	Status of complete - M4	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
51. M4_TYPE	STATUS RESULTC M4_STAT WAVENAME	Type of complete - M4	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M4" M4_TYPE=7 else if M4_STAT="10" to "17" M4_TYPE=1	(see comment for BS_TYPE above)
52. M5_DATE	WAVE DATEBEG	Date M5 interview was completed	Month/Day/Year	if WAVE=7, M5_DATE=DATEBEG	

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
53. M5_RMOM	M5_STAT (Defined below)	Respondent was mom or other in M5 interview	1 Mother 2 Other	if M5_STAT=10, 11, 14 or 15 M5_RMOM=1 if M5_STAT=12, 13, 16 or 17 M5_RMOM=2	(see comment for BS_RMOM above)
54. M5_STAT	M5_STAT	Status of complete - M5	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
55. M5_TYPE	STATUS RESULTC M5_STAT WAVENAME	Type of complete - M5	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M5" M5_TYPE=7 else if M5_STAT="10" to "17" M5_TYPE=1	(see comment for BS_TYPE above)
56. M6_DATE	WAVE DATEBEG	Date M6 interview was completed	Month/Day/Year	if WAVE8, M6_DATE=DATEBEG	
57. M6_RMOM	M6_STAT (Defined below)	Respondent was mom or other in M6 interview	1 Mother 2 Other	if M6_STAT=10, 11, 14 or 15 M6_RMOM=1 if M6_STAT=12, 13, 16 or 17 M6_RMOM=2	(see comment for BS_RMOM above)
58. M6_STAT	M6_STAT	Status of complete - M6	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
59. M6_TYPE	STATUS RESULTC M6_STAT WAVENAME	Type of complete - M6	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M6" M6_TYPE=7 else if M6_STAT="10" to "17" M6_TYPE=1	(see comment for BS_TYPE above)
60. M7_DATE	WAVE DATEBEG	Date M7 interview was completed	Month/Day/Year	if WAVE=9, M7_DATE=DATEBEG	
61. M7_RMOM	M7_STAT (Defined below)	Respondent was mom or other in M7 interview	1 Mother 2 Other	if M7_STAT=10, 11, 14 or 15 M7_RMOM=1 if M7_STAT=12, 13, 16 or 17 M7_RMOM=2	(see comment for BS_RMOM above)
62. M7_STAT	M7_STAT	Status of complete - M7	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
63. M7_TYPE	STATUS RESULTC M7_STAT WAVENAME	Type of complete - M7	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M7" M2_TYPE=7 else if M7_STAT="10" to "17" M7_TYPE=1	(see comment for BS_TYPE above)
64. M9_DATE	WAVE DATEBEG	Date M9 interview was completed	Month/Day/Year	if WAVE=10, M9_DATE=DATEBEG	
65. M9_RMOM	M9_STAT (Defined below)	Respondent was mom or other in M9 interview	1 Mother 2 Other	if M9_STAT=10, 11, 14 or 15 M9_RMOM=1 if M9_STAT=12, 13, 16 or 17 M9_RMOM=2	(see comment for BS_RMOM above)
66. M9_STAT	M9_STAT	Status of complete - M9	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
67. M9_TYPE	STATUS RESULTC M9_STAT WAVENAME	Type of complete - M9	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M9" M9_TYPE=7 else if M9_STAT="10" to "17" M9_TYPE=1	(see comment for BS_TYPE above)
68. M12_DATE	WAVE DATEBEG	Date M12 interview was completed	Month/Day/Year	if WAVE=11, M12_DATE=DATEBEG	
69. M12_RMOM	M12_STAT (Defined below)	Respondent was mom or other in M12 interview	1 Mother 2 Other	if M12_STAT=10, 11, 14 or 15 M12_RMOM=1 if M12_STAT=12, 13, 16 or 17 M12_RMOM=2	(see comment for BS_RMOM above)
70. M12_STAT	M12_STAT	Status of complete - M12	(See document entitled "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
71. M12_TYPE	STATUS RESULTC M12_STAT WAVENAME	Type of complete - M12	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="M12" M12_TYPE=7 else if M12_STAT="10" to "17" M12_TYPE=1	(see comment for BS_TYPE above)
72. MOFRBEG	FRSTART WAVE	Month in which exclusive formula feeding was first reported		if FRSTART>0 if WAVE<10 MOFRBEG=WAVE-2 else if WAVE=10 MOFRBEG=9 else MOFRBEG=12	Variable FRSTART was defined above

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
73. MOINCOM	20; MOINCOM1	Family monthly income	1 <$99 2 $100-$199 3 $200-$299 4 $300-$399 5 $400-$499 6 $500-$599 7 $600-$699 8 $700-$799 9 $800-$899 10 $900-$999 11 $1000-$1499 12 $1500-$1999 13 $2000-2499 14 $2,500 +	Extracted from raw data	
74. MOLASTBF	175a; CRNTFED1 WAVE	Last month in which beastfeeding was reported		if CRNTFED1=1 or 3 if WAVE<10 MOLASTBF=WAVE-2 else if WAVE=10 MOLASTBF=9 else MOLASTBF=12	
75. MOMHOSP	5; MOMOHOSP	Length of hospital stay -- Mother	0 0 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 Greater than 11 days 13 Still in hospital	Extracted from raw data	
76. MOMISR1	RISMOM WAVE	Respondent was mother or caretaker in PN interview	1 Mother 2 Caretaker	if WAVE=1 MOMISR1=RISMOM	
77. MOMISR2	RISMOM WAVE	Respondent was mother or caretaker in BS interview	1 Mother 2 Caretaker	if WAVE=2 MOMISR2=RISMOM	
78. MOMISR3	RISMOM WAVE	Respondent was mother or caretaker in M1 interview	1 Mother 2 Caretaker	if WAVE=3 MOMISR3=RISMOM	

Variable Name	Based On	Variable Label	Value Label	Method Used to Construct Variable	Comment
79. MOMISR4	RISMOM WAVE	Respondent was mother or caretaker in M2 interview	1 Mother 2 Caretaker	if WAVE=4 MOMISR4=RISMOM	
80. MOMISR5	RISMOM WAVE	Respondent was mother or caretaker in M3 interview	1 Mother 2 Caretaker	if WAVE=5 MOMISR5=RISMOM	
81. MOMISR6	RISMOM WAVE	Respondent was mother or caretaker in M4 interview	1 Mother 2 Caretaker	if WAVE=6 MOMISR6=RISMOM	
82. MOMISR7	RISMOM WAVE	Respondent was mother or caretaker in M5 interview	1 Mother 2 Caretaker	if WAVE=7 MOMISR7=RISMOM	
83. MOMISR8	RISMOM WAVE	Respondent was mother or caretaker in M6 interview	1 Mother 2 Caretaker	if WAVE=8 MOMISR8=RISMOM	
84. MOMISR9	RISMOM WAVE	Respondent was mother or caretaker in M7 interview	1 Mother 2 Caretaker	if WAVE=9 MOMISR9=RISMOM	
85. MOMISR10	RISMOM WAVE	Respondent was mother or caretaker in M9 interview	1 Mother 2 Caretaker	if WAVE=10 MOMISR10=RISMOM	
86. MOMISR11	RISMOM WAVE	Respondent was mother or caretaker in M12 interview	1 Mother 2 Caretaker	if WAVE=11 MOMISR11=RISMOM	
87. MOMONWIC	98.5; MOMONWIC	Mom on WIC while pregnant	1 Yes 2 No	Extracted from raw data Note: 40 respondent's MOMONWIC information was obtained by post interview calling	
88. MOMSMK	24; MOMSMK1	Smoking behavior	1 Yes 2 No	Extracted from raw data	
89. MOSTOPBF	175a; CRNTFED1 175b; CRNTFED2 BRFDINIT WAVE	Month in which it was reported that breastfeeding stopped		if BRFDINIT=1 and (CRNTFED2=1 or CRNTFED1=2 or 4) if WAVE<10 MOSTOPBF=WAVE-2 else if WAVE=10 MOSTOPBF=9 else MOSTOPBF=12	BRFDINIT was defined above

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
90. MRTLSTAT	14; MRTLSTAT	Marital status	1 Married 2 Separated 3 Divorced 4 Widowed 5 Never married	Extracted from raw data, and its value was from the last time this question was asked	
91. PN_DATE	WAVE DATEBEG	Date PN interview was completed	Month/Day/Year	if WAVE=1, PN_DATE=DATEBEG	
92. PN_RMOM	PN_STAT (Defined below)	Respondent was mom or other in PN interview	1 Mother 2 Other	if PN_STAT=10, 11, 14 or 15 PN_RMOM=1 if PN_STAT=12, 13, 16 or 17 PN_RMOM=2	(see comment for BS_RMOM above)
93. PN_STAT	PN_STAT	Status of complete - PN	(See document for "WIC Interview Final Disposition Codes)	Retrieved from Control System TRACKLOG database	
94. PN_TYPE	STATUS RESULTC PN_STAT WAVENAME	Type of complete - PN	1 Regular CATI/CAPI complete 2 Complete due to field work	if STATUS="F" and RESULTC="7" and WAVENAME="PN" PN_TYPE=7 else if PN_STAT="10" to "17" PN_TYPE=1	(see comment for BS_TYPE above)
95. POSTBFMO	175a; CRNTFED1 175b; CRNTFED2 RISMOM	Respondent was mom or caretaker at the 1st post breastfeeding interview	1 Mother 2 Caretaker	(See the document entitled "The algorithm for determining the initiation of breastfeeding)	
96. POSTNDT	FRSTPOST DATEBEG	Date of the first postnatal interview	Month/Day/Year	If FRSTPOST can be determined POSTNDT=DATEBEG	FRSTPOST was defined above
97. RACEMOM	7; RACEMOM1	Race - ethnicity	1 White (not of hispanic origin) 2 Black (not of hispanic origin) 3 Hispanic 4 Asian or Pacific Islander 5 American Indian or Alaskan Native 6 Refused 7 Don't know	Extracted from raw data	
98. TOTALMIS	TOTALMIS	Total # of missed waves	0 .. 11	Retrieved from Control System TRACELOG databases	

Variable Name	Based On:	Variable Label	Value Label	Method Used to Construct Variable	Comment
99. WAVERECR	WAVERECR	Wave in which respondent was recruited	1 PN 2 BS 3 M1 4 M2 5 M3 6 M4 7 M5 8 M6 9 M7 10 M9 11 M12	Retrieved from Control System TRACELOG databases	
100. YRSINUS	10; YRSINUS	Years in US	0 .. 50	Extracted from raw data	

APPENDIX D, ATTACHMENT B

THE ALGORITHM FOR DETERMINING THE INITIATION OF BREASTFEEDING

· Initialize the BFSTART (indicator variable for starting breastfeeding) as missing for all cases.

CHECK MOTHERS' EXPERIENCES IMMEDIATELY POSTPARTUM

· If the answer to the question 126 "*What was the very first thing that BABY was fed after birth?*" is breastmilk, breastfeeding has started, thus BFSTART is 1.

· If the first feeding of the baby was not breastmilk, the mother was asked "*Did you ever try to breastfeed during the first week after BABY was born?*" (item 127). If the mother answered this "yes," breastfeeding has started, thus BFSTART is 2.

· If none of the above questions indicated breastfeeding, BFSTART indicator is temprorarily set to 0.

CHECK MOTHERS' EXPERIENCES AS INDICATED BY MONTHLY CURRENT FEEDING QUESTION, ITEM 175

· If the mother indicated, during her first postnatal interview, that she has been breastfeeding during the last 7 days, then the BFSTART indicator is 3.

The breastfeeding initiation status can then be described as follows:

0 Never tried breastfeeding
1 First feeding was breastmilk
2 Tried breastfeeding at least once
3 Breastfed during the week preceding the first postnatal interview
. Breastfeeding status cannot be determined

For analysis purposes we could recode (1,2,3) as 1, and create a breastfeeding status variable. However, we could use the separate definitions to compare our data to other data. Thus, we should retain those values in the master analysis data file.

The algorithm for determining the duration of breastfeeding:[1]

· If the mother never initiated breastfeeding (BFSTART equals 0), or if breastfeeding initiation status cannot be determined, then breastfeeding duration (DURBRFD) is missing.

· For the infants who ever initiated breastfeeding (BFSTART equals 1), we compute the duration of breastfeeding from three different sources (Questions 131, 218 and 218o) using the following algorithm:

(1) If the mother's first postnatal interview is M1, and if mother answered question 130 (at this point in time are you still breastfeeding?) no, and if the mother gave a valid response to question 131[2] (How many days did you breastfeed?), then baby's age at the time of weaning is calculated as follows:

If the answer to question 129 (How soon after birth did you first breastfeed?) is less than 25, DURBRFD is equal to the answer to question 131.

If the answer to question 129 is 25, and if the answers to question 129o (days after birth when R first breastfed) and question 131 are valid, then the DURBRFD is the sum of the answer to question 129 and the answer to question 131.

(2) If the mother's first postnatal interview is not M1 or, if the baby's age at M1 is greater than 30, or if the mother is still breastfeeding at M1 (question 130 is answered yes), or DURBRFD could not be calculated for some other reason (other variables may have been missing), then the baby's age at the time of weaning is calculated as follows:

(2.1) Determination of the source of information:

If the mother initiated breastfeeding, determine the identity of the informant the month (wave) following the last month mother reported breastfeeding.

This is to be done as follows:
(i) identify the last month when the mother reported breastfeeding,
(ii) then identify the next interview wave (not necessarily the next month but the next conducted interview month),

---

[1] Note that duration of breastfeeding can be interpreted in many different ways. Although a majority of the mothers start breastfeeding within hours of birth, not all of the mothers do so. Some initiate breastfeeding several days after birth. Hence the true *duration* of breastfeeding may or may not be equal to the age of the baby at the time he or she is weaned. However, age at weaning is used as a definition of duration of breastfeeding since it is most easily interpreted and is comparable to other studies.

[2] A valid response to question 131 is defines as follows: (1) The first postnatal interview is M1 and the baby's age at M1 is less than or equal to 30; (2) The response to the question 130 is not missing.

(iii) flag the next interview wave as POSTBFMO (post breastfeeding month). (iv) If the MOMISR flag at POSTBFMO is 1, then a maternal interview was conducted. Proceed as in (2.2).
(v) If the MOMISR flag at POSTBFMO is 2, then a caretaker interview was conducted. Proceed as in (2.3).

(2.2) Maternal interview regarding breastfeeding cessation:

We search M1 through M12 interviews for the first month when the mother reported that she was not breastfeeding (CRNTFED1 is formula fed {2} or neither {4}). Let us call that interview the "index" interview.

Using the question 218 ("*How many weeks ago did you stop breastfeeding?*") and question 218o ("*How old was BABY when you stopped breastfeeding him/her?*"), we determine the baby's age at the time mother stopped breastfeeding as follows:

For the infants whose mothers answered question 218 and the answer is valid: Using the date of the index interview, we compute the age of the baby in days, at the time of the index interview. Then, we subtract 7 x the number of weeks ago weaned (answer to question 218) from the baby's age at the index interview to obtain the age at weaning (DURBRFD). This probably results in a slight underestimation of the baby's age of weaning by 2-3 days, but it is a conservative estimate of the breastfeeding duration.

For the infants whose mothers answered question 218o (the duration between the two interviews is more than 10 weeks apart): Compute the baby's age in days when the mother stopped breastfeeding, by applying the following formula: DURBRFD = (the number of years reported in 218o x 365.25) + (the number of months reported in 218o x 30.44) + (the number of days reported in 218o).

(2.3) Caretaker interview at the time of breastfeeding cessation:

For these cases, we do not have the date of breastfeeding cessation. Hence, their BRFDEND (cessation of breastfeeding) flag is 0 (censored) and the duration is the last date when the mother is known to be breastfeeding. This date is the date of the last maternal interview when the mother reported still breastfeeding.

Note that the above algorithm may result in a few zero or negative breastfeeding duration values. If this occurs, all 0 durations should be changed to 1 (day). Negative durations must be considered on a case-by-case basis.

APPENDIX D, ATTACHMENT C

THE ALGORITHM FOR DETERMINING THE TIMING OF INITIATION OF EXCLUSIVE FORMULA FEEDING

· Initialize the FRSTART (indicator 0-1-2 variable for starting exclusive formula feeding) as missing for all cases.

Possible values of FRSTART:
(1) Initiated exclusive formula feeding immediately postpartum.
(2) Initiated exclusive formula feeding after a period of at least partial breastfeeding.
(0) Never initiated formula feeding.
(-9) Formula start status cannot be determined.

· Initialize the FRSTDAYS (the age of the baby at the time of exclusive feeding of formula) as missing for all cases.

TYPE 1 RESPONDENTS: INITIATED EXCLUSIVE FORMULA FEEDING IMMEDIATELY POSTPARTUM.

· If the answer to the question 126 "*What was the very first thing that BABY was fed after birth?*" is not "breastmilk," and the answer to the question "*Did you ever try to breastfeed during the first week after BABY was born?*" (item 127) was no, the formula feeding has started, thus FRSTART is 1.

· If the above conditions are not true, temporarily set FRSTART to zero.

· The date of initiation of exclusive formula feeding is the date of birth for these cases (i.e. FRSTART=1), therefore FRSTDAYS is zero.

TYPE 2 RESPONDENTS: INITIATED EXCLUSIVE FORMULA FEEDING AFTER A PERIOD OF BREASTFEEDING.

· Check mothers' experiences as indicated by monthly current feeding question, item 175

Identify the *first possible* postnatal interview in which the following conditions are satisfied:

(1) The mother indicated that she has been formula feeding (CRNTFED1 is 2)

OR

(2) The caretaker indicated that she has been formula feeding (CRNTFED2 is 1, for true caretaker interviews).

If these conditions were satisfied in *any* postnatal interview, FRSTART is 2, and the corresponding postnatal interview is flagged as M_FR.

If the caretaker indicated formula feeding and it was NOT a true caretaker interview, then set FRSTART to -9 (cannot be determined).

If FRSTART is 2, the age at which formula feeding started is the day after the breastfeeding stopped (BRFDEND has to be 1, then FRSTDAYS = DURATION + 1).[1]

SPECIFICATION OF FRSTDAYS FOR CENSORED CASES

If formula was not initiated (FRSTART=0) then the FRSTDAYS must provide the age of the baby (measured in days) at the last point in time we observed the baby when he or she was still not receiving formula. For infants who were still breastfeeding at the time of the last interview (BRFDEND=0), this is equivalent to the breastfeeding duration. For infants who were not breastfeeding anymore at the time of the last interview, and who have not initiated formula, FRSTDAYS must be equal to the age of the baby (in days) at the time of the very last interview.

In summary:

```
        IF (FRSTART = 0) THEN;
                IF (BRFDEND = 0) THEN FRSTDAYS = DURATION;
                IF (BRFDEND = 1) THEN FRSTDAYS = AGELINT;
/* AGELINT is age of baby at last interview
        END;
```

Note that there are two cases in the sample, ID 7006 and ID 40022, who started formula feeding but switched to breastfeeding after the first week of life. These cases do have a FRSTART value of 1, because exclusive formula feeding did start right after birth.

[1] The date of initiation of formula feeding is available but it is available for *any* initiation of formula feeding, not exclusive formula feeding. This information is utilized in the algorithm to determine the type of breastfeeding (full versus partial). The information on exclusive formula feeding is determined on the basis of the dates of interviews

APPENDIX D, ATTACHMENT D

WIC-IFPS INTERVIEW FINAL DISPOSITION CODES

Coded by Field Interviewers

COMPLETES

Complete w/Mother - phone 10
Complete w/Mother - field 11
Complete w/Caregiver - phone 12
Complete w/Caregiver - field 13
Refusal Conversion w/Mother - phone 14
Refusal Conversion w/Mother - field 15
Refusal Conversion w/Caregiver - phone 16
Refusal Conversion w/Caregiver - field 17

INCOMPLETE REFUSAL

Refusal w/Mother - phone 34
Refusal w/Mother - field 35
Refusal w/Caregiver - phone 36
Refusal w/Caregiver - field 37

INCOMPLETE BREAKOFF

Breakoff w/Mother - phone 30
Breakoff w/Mother - field 31
Breakoff w/Caregiver - phone 32
Breakoff w/Caregiver - field 33

OTHER INCOMPLETES

Screened Ineligible - Incapable 20
Screened Ineligible - In Hospital X days 21
Screened Ineligible - Language 22
Screened Ineligible - Removed from Custody 23
Ineligible - Now Incapable 40
Ineligible - Baby Deceased 41
Ineligible - Baby Now Removed from Custody 42

TEMPORARY DISPOSITION CODES

Breakoff 90
Refusal 91

Coded by Supervisor or System

WINDOW DATE EXPIRED

No Locate - Mother.....50
No Locate - Caregiver.....51
Never Available/No Contact - Mother.....52
Never Available/No Contact - Caregiver.....53
No Caregiver Identified.....54
Expired Prior to First Contact.....55

FINAL DROP CODES

Missed 3 Waves.....60
Never Located.....61
Final Refusal.....62
No Phone (CATI ONLY SITES).....63
DOB Ineligible.....64
Language Problem.....65
Incapable.....66
Baby Deceased.....67
Baby Removed from Custody.....68

APPENDIX E

ANALYSIS WEIGHTS

As is the case for most studies, not all of the selected WIC participants responded to the WIC-IFPS. Thus, adjusted analysis weights were developed to reflect both the probability sampling methods used to select the study, as described in Appendix A, and to help correct for any bias due to nonresponse. This process began by calculating a sampling weight for each of the 1,233 selected sample members as the inverse of the probability that each sample member was included in the study. The adjusted analysis weights for the responding cases were then created by adjusting the sampling weights to account for the non-responding cases.

E.1. Sampling Weights

Two modes of data collection were used in the study; personal interviews and telephone interviews. Personal interviews were conducted only in the CATI-CAPI sites while telephone interviews were conducted in both the CATI-CAPI and CATI-Only sites. Thus, two types of weights were calculated at every stage of selection: personal and telephone. Two tables are provided with the equations for the sampling weights--Tables E.1 and E.2 display the formulas for the telephone sampling weight and the personal sampling weight, respectively. The components of the weight formulas are discussed in more detail in the following sections.

Local Agency Weights

Local agencies (LAs) were selected using a probability-proportional-to-size (PPS) selection method. The general sampling weight for LAs was

$$W_L = \frac{M_t}{d_c \text{ x } M_a}$$

Table E.1. Sampling weights for telephone data collection.

		Local Agency	AR / LA	Clinic	File Boxes	Participants	Sampling Weight
Standard	Women	$\frac{M_t}{43 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{xab}}{n_{xab}}$	$\frac{M_t}{43 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{xab}}{n_{xab}}$
	Infants	$\frac{M_t}{43 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{yab}}{n_{yab}}$	$\frac{M_t}{43 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{yab}}{n_{yab}}$
Louisiana / Arkansas	Women	$\frac{M_t}{43 \times M_a}$	$\frac{M_{av}}{M_{ar}}$	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{xab}}{n_{xab}}$	$\frac{M_t}{43 \times M_a} \times \frac{M_{av}}{M_{ar}} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{xab}}{n_{xab}}$
	Infants	$\frac{M_t}{43 \times M_a}$	$\frac{M_{av}}{M_{ar}}$	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{yab}}{n_{yab}}$	$\frac{M_t}{43 \times M_a} \times \frac{M_{av}}{M_{ar}} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{yab}}{n_{yab}}$
File Boxes	Women	$\frac{M_t}{43 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	$\frac{N_{Fab}}{n_{Fxab}}$	$\frac{N_{xab}}{n_{xab}}$	$\frac{M_t}{43 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{Fab}}{n_{Fxab}} \times \frac{N_{xab}}{n_{xab}}$
	Infants	$\frac{M_t}{43 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	$\frac{N_{Fab}}{n_{Fyab}}$	$\frac{N_{yab}}{n_{yab}}$	$\frac{M_t}{43 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{Fab}}{n_{Fyab}} \times \frac{N_{yab}}{n_{yab}}$

Table E.2. Sampling weights for in-person data collection.

		Local Agency	AR / LA	Clinic	File Boxes	Participants		Sampling Weight
Standard	Women	$\frac{M_t}{19 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{xab}}{n_{xab}}$		$\frac{M_t}{19 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{xab}}{n_{xab}}$
	Infants	$\frac{M_t}{19 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{yab}}{n_{yab}}$		$\frac{M_t}{19 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{yab}}{n_{yab}}$
Louisiana	Women	$\frac{M_t}{19 \times M_a}$	$\frac{M_{av}}{M_{ar}}$	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{xab}}{n_{xab}}$		$\frac{M_t}{19 \times M_a} \times \frac{M_{av}}{M_{ar}} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{xab}}{n_{xab}}$
	Infants	$\frac{M_t}{19 \times M_a}$	$\frac{M_{av}}{M_{ar}}$	$\frac{M_{at}}{M_{ab}}$	na	$\frac{N_{yab}}{n_{yab}}$		$\frac{M_t}{19 \times M_a} \times \frac{M_{av}}{M_{ar}} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{yab}}{n_{yab}}$
File Boxes	Women	$\frac{M_t}{19 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	$\frac{N_{Fab}}{n_{Fxab}}$	$\frac{N_{xab}}{n_{xab}}$		$\frac{M_t}{19 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{Fab}}{n_{Fxab}} \times \frac{N_{xab}}{n_{xab}}$
	Infants	$\frac{M_t}{19 \times M_a}$	na	$\frac{M_{at}}{M_{ab}}$	$\frac{N_{Fab}}{n_{Fyab}}$	$\frac{N_{yab}}{n_{yab}}$		$\frac{M_t}{19 \times M_a} \times \frac{M_{at}}{M_{ab}} \times \frac{N_{Fab}}{n_{Fyab}} \times \frac{N_{yab}}{n_{yab}}$

where d_c was the number of agencies selected for the c-th data collection mode (either personal or telephone); M_a was the measure of size for the a-th agency; and M_t was the cumulative size measure for all agencies under consideration. As discussed previously, the measure of size for the local agencies was the total number of eligible women and infants for all associated clinics. This estimate for the measure of size was calculated as 60 percent of the number of women plus 15 percent of the infant count. Personal and telephone sampling weights for the LAs had values of 19 and 43 for d_c, respectively.

First-stage sampling weights for Arkansas and Louisiana had to contain probabilities for the selection of the local agencies, as well as the initial selection of the state agencies from the FNS191 file. The general sampling weight for LAs within the two states was

$$W_L = \frac{M_t}{d_c \ x \ M_a} \ x \ \frac{M_{av}}{M_{ar}}$$

where d_c was the number of agencies selected for the c-th data collection mode; M_a was the measure of size for the a-th agency; M_t was the cumulative size measure for all agencies under consideration; M_{ar} was the measure of size for the r-th LA in the a-th first stage state agency (either Arkansas or Louisiana); and M_{av} was the cumulative size measure for all LAs in the a-th first stage state agency. As with the other sampling weights, personal and telephone sampling weights for the LAs had values of 19 and 43 for d_c, respectively. The combination of the state and local agency will be referred to as the local agency to simplify subsequent discussions.

WIC Clinic Weights

One clinic was selected per LA using a PPS selection method. The general formula for the clinic-level sampling weight was

$$W_C = W_L \ x \ \frac{M_{at}}{M_{ab}}$$

where W_L was the sampling weight for the *a*-th LA; M_{ab} was the measure of size for the *b*-th clinic in the *a*-th LA; and M_{at} was the cumulative size measure for all clinics in the *a*-th LA. The measure of size was the estimated number of eligible women and infants within the clinic—60 percent of the number of women plus 15 percent of the infant count.

Participant Weights

Sampling weights for pregnant women were calculated as

$$W_X = W_C \; x \; \frac{N_{xab}}{n_{xab}}$$

where W_C was the sampling weight for the *b*-th clinic in the *a*-th LA; N_{xab} was the number of pregnant women eligible in the *b*-th clinic in the *a*-th LA; and n_{xab} was the number of eligible pregnant women selected from the *b*-th clinic and the *a*-th LA.

The formula for the infant-level sampling weights was

$$W_Y = W_C \; x \; \frac{N_{yab}}{n_{yab}}$$

where W_C was the sampling weight for the *b*-th clinic in the *a*-th LA; N_{yab} was the number of infants in the *b*-th clinic and the *a*-th LA; and n_{yab} was the number of eligible infants selected from the *b*-th clinic and the *a*-th LA.

Four clinics did not have automated systems and could not provide listings of eligible women and infants. Hence, it was necessary to sample directly from the clinics' files. File boxes were initially sampled before participant selections were made. The corresponding sampling weights for the pregnant women had the form

$$W_X = W_C \; x \; \frac{N_{Fab}}{n_{Fxab}} \; x \; \frac{N_{xab}}{n_{xab}}$$

where W_C was the sampling weight for the *b*-th clinic in the *a*-th LA; N_{Fab} was the total number of file boxes in the *b*-th clinic and the *a*-th LA; n_{Fxab} was the number of file boxes selected for the sample of women from the *b*-th clinic within the *a*-th LA; N_{xab} was the number of eligible pregnant women in the *b*-th clinic and the *a*-th LA from the n_{Fxab} file boxes; and n_{xab} was the number of pregnant women selected from the *b*-th clinic within the *a*-th LA.

The infant-level sampling weight for the four clinics in which file box selections were made was

$$W_Y = W_C \; x \; \frac{N_{Fab}}{n_{Fyab}} \; x \; \frac{N_{yab}}{n_{yab}}$$

where W_C was the sampling weight for the *b*-th clinic in the *a*-th LA; N_{Fab} was the total number of file boxes in the *b*-th clinic and the *a*-th LA; and n_{Fyab} was the number of file boxes selected for the sample of infants from the *b*-th clinic within the *a*-th LA; N_{yab} was the number of eligible infants in the *b*-th clinic and the *a*-th LA from the n_{Fyab} file boxes; and n_{yab} was the number of infants selected from the *b*-th clinic within the *a*-th LA.

Appendix Tables E.3 to E.8 (see attached) are included to provide the values used in the calculation of the sampling weights. For brevity the values are displayed with two decimals points. However, the fully expanded conditional weight values were used in the calculation procedures. Multiplication of the table values may not result in the sampling weight values in the last columns due to the suppressed nature of the data shown.

E.2. Analysis Weights for Main Weighting Cohort

Sampling weights were used to estimate various characteristics of the WIC participant population in the continental United States if all sample members responded. For example, summing all of the sampling weights for the breastfeeding mothers in the sample provides an estimate of the total number of breastfeeding WIC women in the United States who were eligible for the study. However, since

not all of the sample members responded to the survey, the weight summation would result in an underestimate of the population count. Thus, an adjustment factor was needed to account for the loss in sample and to reduce the bias in the population estimates. Multiplying the sampling weights by adjustment factors such as these yields the analysis weights. The first task in constructing the set of adjusted weights is to identify the group of study respondents. Those sample members responding to the survey are known as the main weighting cohort.

For weighting purposes, we need to separate the sample cases into three groups — responding cases, ineligible cases, and nonresponding cases. The responding cases were defined as those

- who completed at least one postnatal interview, and
- for whom breastfeeding status can be determined.

The second group are those who were contacted, but found to be ineligible for the study. Ineligible respondents were excluded from study participation for one or more of the following reasons

- selected subject in CATI-Only site has no phone
- baby died before first interview
- baby's date of birth was ineligible
- baby was removed from custody before first interview
- selected subject speaks a language other than Spanish or English
- baby was in hospital too long after delivery.

Finally, there are those cases who did not respond or could not be located. Table E.9 provides a distribution of the sample members by response and eligibility status. For example, 10 pregnant women in the CATI-CAPI sites were ineligible for the survey because their babies died before the first survey was administered. In the CATI-Only sites, 95 sample members did not have a phone to complete the survey. This criterion did not apply to the CATI-CAPI sites since personal interviews were conducted. Overall, 124 sample members either refused participation in the study or could not be located within budget by tracking procedures. Information

from an additional 138 sample members was not available since they were not eligible for the study. Table E.9 reports that there were 971 cases who responded to the WIC-IFPS, the main weighting cohort, and for whom adjusted analysis weights were created. Table E.10 summarizes how the main weighting cohort was developed in terms of the two criteria required to be considered a respondent to the WIC-IFPS.

Table E.9. Distribution of sample members by eligibility status, site type, and sample type.

Eligibility Status	Women		Infants		
ELIGIBILITY STATUS	CATI-CAPI	CATI-Only	CATI-CAPI	CATI-Only	Totals
TOTAL	493	494	127	119	1,233
Total Eligible Respondents[1]	410	363	107	91	971
Total Ineligible Respondents	18	102	2	16	138
no phone	na[2]	80	na	15	95
baby died before 1st interview	10	17	0	0	27
baby's date of birth ineligible	3	2	1	0	6
baby removed from custody before 1st interview	1	1	0	0	2
language other than Spanish or English	3	0	1	1	5
baby in hosital too long	1	2	0	0	3
Total Nonrespondents	65	29	18	12	124

1 The group of eligible respondents include those who have completed at least one postnatal interview and for whom a breastfeeding status could be determined.
2 Not applicable since in-person interviews were administered.

The proportion of the sample for which an eligibility status could be determined is the *contact response rate*. This rate was calculated as

$$R_c = \frac{A + B}{T}$$

where A was the number of eligible respondents, B was the number of ineligible respondents, and T was the total number of sample members. Table E.11 displays the response rate values within sample and site type, and overall. For example in

the pregnant women sample selected in the CATI-CAPI sites, eligibility statuses

Table E.10. Summary of main weighting cohort.

	Sample Selected	At Least One Postnatal Interview	Postnatal Interview & Breastfeeding Defined
TOTAL	1,233	990	971
Women	987	784	773
Infants	246	206	198

could be determined for 428 women (410 eligible respondents and 18 ineligible respondents) out of a total of 493 selected into the sample. Approximately, 87 percent (428/493) of the sample was contacted either by phone or in person by our field staff.

The proportion of the eligible sample from which a usable questionnaire was obtained is the *eligibility response rate*. This rate was calculated as

$$R_e = \frac{A}{T - B}$$

with the same components as discussed for the previous response rate. For example in the infant samples selected in the CATI-Only sites shown in Table E.11, usable questionnaires were obtained from guardians of 91 selected infants out of 103 (119 total infants minus 16 ineligible infants) eligible cases. Approximately, 88 percent (=91/103 x 100) of the sample returned a usable questionnaire.

Table E.11. Response rate analysis of the sample.

	WOMEN		INFANTS		
	CATI-CAPI	CATI-Only	CATI-CAPI	CATI-Only	Overall
TOTAL	493	494	127	119	1,233
Eligible Respondents	410	363	107	91	971
Ineligible Respondents	18	102	2	16	138
Contact Response Rates	87%	94%	86%	90%	90%
Eligibility Response Rates	86%	93%	86%	88%	89%

A weighting class adjustment procedure was used to adjust for nonresponse where the individual clinics formed the classes. The clinics were a good choice for the weighting classes, because the response rate varied from about 40-100 percent

across the clinics. In addition, the population served and their infant feeding behaviors were different across the clinics. For example, the breastfeeding initiation rate at the clinics ranged from 17-100 percent, with a median of 57 percent. The weight adjustments were calculated as

$$A_{ab} = \frac{n_{ab}}{r_{ab}}$$

where n_{ab} was the number of WIC participants selected from the b-th clinic and the a-th LA, and r_{ab} was the number of participants selected from the b-th clinic and the a-th LA for whom the eligibility status was determined. Combined counts of the pregnant women and infant samples, rather than sample-specific counts, were used in calculating the adjustments. This was done because of the low number of infants, at most 10, who were selected from each clinic. The use of small sample sizes in the calculation of adjustment factors is discouraged due to the unstable nature of the estimate. Prior to combining the sample counts, response patterns were examined to verify that individuals within the infant group responded collectively in the same manner as the pregnant women group. Thus, the groups could be aggregated without fear that response pattern information would be lost and grossly affect the weight adjustments.

The analysis weights were calculated by multiplying the sampling weights by the nonresponse adjustment factors A_{ab} that are reported in Table E.12. All nonresponding sample members were given an analysis weight of zero. Returning to the example discussed earlier, the total number of breastfeeding WIC women in the United States can be estimated by summing the analysis weights for the main weighting cohort. Since the ineligible cases have been dropped from the study, the point estimate is an estimate of the total number of study eligible breastfeeding WIC women.

Table E.12. Non-response adjustment factors by site.

Site No	Number Of Sample Members	Number Of Respon-dents	Non-response Adjustment Factor	Site No	Number Of Sample Members	Number Of Respon-dents	Non-response Adjustment Factor
1	31	30	1.03	23	22	21	1.05
2	24	21	1.14	24	36	27	1.33
3	31	30	1.03	25	17	17	1.00
4	36	34	1.06	26	31	22	1.41
5	31	29	1.07	27	36	35	1.03
6	26	23	1.13	28	26	24	1.08
7	26	26	1.00	29	25	23	1.09
8	31	24	1.29	30	26	24	1.08
9	26	23	1.13	31	31	31	1.00
10	31	28	1.11	32	27	25	1.08
11	26	24	1.08	33	22	22	1.00
12	17	16	1.06	34	31	24	1.29
13	31	31	1.00	35	31	25	1.24
14	21	21	1.00	36	26	22	1.18
15	31	17	1.82	37	31	21	1.48
16	23	22	1.04	38	31	30	1.03
17	31	28	1.11	39	31	27	1.15
18	36	34	1.06	40	36	33	1.09
19	36	36	1.00	41	31	29	1.07
20	26	21	1.24	42	26	25	1.04
21	31	30	1.03	43	22	20	1.10
22	36	34	1.06				

As discussed previously, two modes of data collection were used within the CATI-CAPI sites: personal interviews and telephone interviews. This required two types of analysis weights, one for each collection method. Cases were categorized into completion by telephone or completion by any amount of field work. Field work ranged from obtaining a correct phone number for the selected person by knocking on a relative's front door to completing the questionnaire through a face-to-face

interview. Table E.13 provides the distribution of the interview procedures for the eligible respondents in the CATI-CAPI sites. The appropriate type of analysis weight was assigned to each eligible respondent.

Table E.13. Summary of eligible respondents by interview procedure for CATI-CAPI sites.

	Telephone	Field Work[1]	Total
TOTAL	357	160	517
Women	281	129	410
Infants	76	31	107

1. Field Work includes any personal contact between the field interviewer and the respondent that aided in the completion of the questionnaire.

E.3. Main Analysis Cohort

The original purpose of the study was to obtain information from two WIC participant groups: women in their last trimester of pregnancy and infants less than 3 months old whose mothers were not on WIC while pregnant. Approximately 61 percent of the clinics with at least some eligible infants enrolled in their program were able to provide the information concerning the mother's prenatal WIC status. The remaining clinics did not have this information on record. As discussed in Appendix A, a larger sample of infants was selected from clinics where the mother's prenatal WIC status was not known. The mother was then asked during the interview if she was on WIC while pregnant. For those mothers for which we had both the clinic report and the mother's report of prenatal WIC participation, discrepancies were noted between the two sources of information on prenatal WIC status of the mother. Table E.14 provides the cross-classification of the clinic information and the self-reported data from the eligible infant sample. For those clinics reporting that the mothers were not on WIC while pregnant, 63 self-reports confirmed while 19 denied the prenatal status. It is believed that the clinics were not reliably able to report prenatal WIC participation of the mothers. Hence, it was decided to use the mother's reported prenatal WIC status. However, this left a small number of cases (91) where the mother did not participate in WIC prenatally. It was decided that this group was too small to use in the analysis. The remaining 101 cases were combined with the pregnant women sample to create the main

Table E.14. Summary of clinic information by self-reports of mother's prenatal WIC status.

	Self-Report			TOTAL
	Missing	On WIC	Not On WIC	
TOTAL[1]	6	101	91	198
Not On WIC	3	19	63	85
Unknown	3	82	28	113

1. 25 clinics could provide the prenatal WIC status information, 16 clinics did not have the information on record, and 2 clinics did not have eligible infants from which to sample.

analysis cohort of infants whose mothers participated in WIC while pregnant. Table E.15 displays the digression of the full sample to the main weighting cohort and then to the main analysis cohort.

Table E.15. Summary of main analysis cohort.

	Sample Selected	At Least One Postnatal Interview	Postnatal Interview & Breastfeeding Defined[2]	Mother On WIC While Pregnant[3]
TOTAL	1,233	990	971	874
Women	987	784	773	773
Infants	246	206	198	101

1 Full sample selected for the study.
2 Main Weighting Cohort excluding the ineligible respondents.
3 Main Analysis Cohort.

E.4. Attrition Analysis

The WIC-IFPS used a longitudinal study design. Under such a design it is possible that attrition over time might lead to a progressively less representative sample than was initially assembled. This section studies the patterns of nonresponse to different waves of interviews.

As shown in Table E.16, an overall sample of 1,233 WIC participants were selected consisting of 987 pregnant women and 246 infants. Of these, a total of

Table E.16. Overall study participation counts and rates.

	Sample Selected	Eligible Sample	At Least One Postnatal Interview	Postnatal Interview & Breastfeeding Defined
TOTAL	1,233	1,095	990	971
Percent of Total Sample			80%	79%
Percent of Eligible Sample			90%	89%
Women	987	867	784	773
Percent of Total Sample			79%	78%
Percent of Eligible Sample			90%	89%
Infants	246	228	206	198
Percent of Total Sample			84%	80%
Percent of Eligible Sample			90%	87%

138 cases were determined to be ineligible for the WIC-IFPS after they were selected for the study. Not having a telephone in a CATI-Only site was the most common reason for not being eligible (95 of the 138 cases), and this was anticipated and accounted for in the study design. To be considered a respondent to the WIC-IFPS, a sample member had to (1) complete at least one postnatal interview, and (2) report enough information so that breastfeeding status could be determined. Ninety percent of the eligible sample cases were enrolled and completed at least one postnatal interview, while 88 percent participated to the extent that their breastfeeding statuses could be determined. This is a very high study participation rate.

Because of difficulties in determining the prenatal WIC participation status of the mothers of the infant sample, it was decided to exclude infants from the study whose mothers were not on WIC while pregnant. This left a total of 874 participants for the main analyses of the study. It should be noted that this exclusion did not bias the analysis of the main study cohort. Rather, the conclusions are limited to the feeding patterns of infants whose mothers participated in WIC while pregnant.

Table E.17 presents the participation patterns of the main analysis cohort over the interview time points or waves. The WIC cases proved to be much harder to locate than had been initially anticipated. Therefore, there are somewhat low participation rates for the early study waves; once these WIC cases were located, between 92 and 95 percent were interviewed from the Month 4 interview until the end of the study, with 79 and 87 percent interviewed during Months 2 and 3. Again, these are very high retention rates over a 1-year study, and each wave of interviewing also had very high completion rate. Consequently, there should be no possibility of bias due to study attrition over time. Table E.17. does show that project staff had difficulty completing timely interviews for the prenatal and Month 1 waves. The Month 1 wave was completed by 75 percent of the women sample (the only group who could have potentially completed this interview wave). In addition, the prenatal interviews were only completed by 43 percent of the women. Thus, additional consideration will be given to the respondents for these two waves.

Table E.17. Counts and percent of respondents by sample type and interview month.

	Main Analysis Cohort	Prenatal	M1	M2	M3	M4	M5	M6	M7	M9	M12
TOTAL	874	335	577	690	756	805	820	814	827	824	824
Percent				79%	87%	92%	94%	93%	95%	94%	94%
Women	773	335	577	675	707	713	732	723	728	725	725
Percent		43%	75%	87%	91%	92%	95%	94%	94%	94%	94%
Infants	101	na	na	15	49	92	88	91	99	99	99
Percent				15%	49%	91%	87%	90%	98%	98%	98%

1. Prenatal and Month 1 interviews were conducted only on the pregnant women sample. In addition, most of the infant sample was not eligible for the Month 2 or Month 3 interviews, since most of infants were already 4 months of age at their first interview.

E.5. Analysis Weights for Month 1 Respondents

Relevant questions concerning infant feeding education obtained during the pregnancy were asked only in the Month 1 interview. An attempt was made to

conduct the interviews with members of the pregnant women sample within the first month of the infant's life. However, some mothers could not be located within the 1-month period. Table E.17 shows that only 577 completed Month 1 questionnaires were obtained out of the 773 eligible for the interview. Weights created for the main analysis cohort account for the nonrespondents to the entire study. An additional Month 1 analysis weight was created to account for the study respondents who did not respond to the Month 1 interview.

Adjustments for nonresponse to the Month 1 interview used a logistic modeling technique (Folsom, 1991; Iannacchione et al. 1991). Logistic regression was used to estimate the probability of responding to the Month 1 interview. The Month 1 analysis weights were then created by dividing the main analysis cohort weights by the predicted probability of responding to the Month 1 interview. This process keeps the sum of the newly adjusted Month 1 weights equal to the sum of the main analysis cohort weights, and the estimated eligible population total was maintained. The first task in creating the Month 1 weight adjustment was to select variables for the logistic model associated with the response patterns of the 773 participants eligible for the interview.

Candidate variables for inclusion in the logistic model were identified by visually examining the Month 1 interview response pattern across the levels of the variable. Levels with similar response patterns were combined to create more distinct differences in the rates. For example, the length of the mother's stay in the hospital after delivery ranged from 0-13 nights. Response patterns for those women staying 0-2 nights and 3+ nights were similar enough to warrant the collapsing of the 14 levels into 2 levels. Those variables passing the visual examination were individually tested for a significant statistical association with the Month 1 response variable using a logistic model in SUDAAN. By using SUDAAN, the multistage design of the study was incorporated to provide correct estimates of the standard errors. After insignificant variables were eliminated from the original list, the following variables were used in the logistic model to create the weight adjustments:

- baby's weight in pounds
- family income

- number of consecutive nights the mother spent in the hospital after delivery
- number of consecutive nights the baby spent in the hospital after delivery
- whether the mother was born in the United States
- race/ethnicity of the mother

Family income and the baby's weight in pounds were the variables most significantly associated with nonresponse to the Month 1 interview.

The Month 1 analysis weights were produced by multiplying the main analysis cohort weights by the predicted probability of being a respondent to the Month 1 interview. The weights for the Month 1 nonrespondents were set to zero. After the adjustment was made, weighted values from the Month 1 data provided estimates for the eligible population of WIC participants.

E.6. Prenatal Interview Respondents

Table E.17 shows that only 43 percent of the women completed the prenatal interview. This was the result of the great difficulty in getting timely information from the WIC clinics about their client populations. The WIC clinics were very cooperative, but they did not have access to sufficient current information to allow project staff to contact the sample women prior to the births of their babys. In addition, these women proved much harder to locate and contact than anticipated. This also caused prenatal interviews to be missed for a substantial proportion of the pregnant women. This is unfortunate, because there were many questions concerning prenatal attitudes toward various infant feeding practices that could only be obtained prior to the birth of the infants.

Table E.18 clarifies who did participate in the prenatal sample by presenting the prenatal interview response rates by various participant characteristics among the 773 women who were eligible for the prenatal interview. These variables were further studied by fitting logistic regression models to the prenatal response variable. Table E.19 displays the p-values for testing the significance of each variable in a series of models. The model, labelled "full combined model," included all of the variables. Hence, the significance for each variable is adjusted for all of the other

variables in the model. Infant's birthweight, family income, mother's smoking status, mother's age, subsequent initiation of breastfeeding, and birth order demonstrated potential statistical significance in the full model. A separate regression was then fitted for each of the variables (labelled "individual models") and shows the marginal effect of each variable individually. The same variables are seen to be significant as in the full model, except that the mother's age became less significant. Finally, a reduced model, which included only the variables that were significant in either the full or individual models, was fit. This analysis shows that there are several variables that are related to probability of response. For example, mothers of low-birthweight infants were less likely to have had a prenatal interview. This is most likely due to the premature birth of some infants.

Unfortunately, none of the models yielded a particularly strong prediction of who responded to the prenatal interview. With such a low response rate (43%), the potential for misinterpreting the prenatal data is high. Therefore, an analysis weight for the prenatal data was not constructed.

Table E.18. Response rates to prenatal interview by respondent characteristics.

Effect	Percent Responding	Description
Birthweight	19	Baby's birthweight less than or equal to 4 lbs
	44	Baby's birthweight greater than or equal to 5 lbs
Education	40	Mother's years of education: 1-8 years
	45	Mother's years of education: 9-11 years
	44	Mother's years of education: 12 years or missing data
	41	Mother's years of education: 13 years or greater
Income	32	Family income: $0 - $599
	50	Family income: $600+
	48	Family income: missing
Mother's nights in hospital	43	Mother's nights in the hospital after delivery: 0-2
	44	Mother's nights in the hospital after delivery: 3 nights or more
Baby's nights in hospital	44	Baby's nights in the hospital after delivery: 0-4
	34	Baby's nights in the hospital after delivery: 5 nights or more
Mother foreign born	43	Mother was either born in US or data was missing
	46	Mother not born in US
Mother's smoking status	37	Mother smokes
	45	Mother does not smoke, missing information
Marital status	47	Mother's marital status: Married, missing
	46	Mother's marital status: Separated
	37	Mother's marital status: Divorced, Widowed
	39	Mother's marital status: Never married, refused
Race	45	Mother's race/ethnicity: White
	37	Mother's race/ethnicity: Black
	49	Mother's race/ethnicity: Hispanic, Asian
	31	Mother's race/ethnicity: Other
Mother's age	43	19 or less years of age
	42	20 to 25 years of age
	45	26 or more years of age
Initiated breastfeeding	38	Did not breastfeed
	47	Did breastfeed
Medicaid	50	Not on Medicaid
	42	On Medicaid
Firstborn	38	Not firstborn child
	51	Firstborn child
First prenatal visit	45	Before 3 months
	35	After 3 months

Table E.19. Statistical significance levels for predicting response to the prenatal interview.

Effect	Degrees of Freedom	Full Combined Model	Individual Models	Reduced Combined Model
Birthweight	1	0.0103	0.0027	0.0057
Education	3	0.1263	0.8058	
Income	2	0.0003	0.0000	0.0003
Mother's nights in hospital	1	0.4425	0.9361	
Baby's nights in hospital	1	0.7215	0.1645	
Mother foreign born	1	0.8567	0.2253	
Mother's smoking status	1	0.0743	0.0058	0.0919
Marital status	3	0.3154	0.1639	
Race	3	0.9399	0.3716	
Mother's age	2	0.0346	0.9105	0.0656
Initiated breastfeeding	1	0.0789	0.0224	0.1164
Medicaid	1	0.3948	0.1481	
Firstborn	1	0.0001	0.0187	0.0007
First prenatal visit after 3 months	1	0.1721	0.1521	

References

Folsom, R.E. (1991). Exponential and logistic weight adjustment for sampling and nonresponse error. *Proceedings of the American Statistical Association, Social Statistic Section.*

Iannacchione, V.G., J.G. Milne, R.E. Folsom (1991). Response probability weight adjustments using logistic regression. *Proceedings of the American Statistical Association, Survey Research Methods Section.*

Table E.3. Telephone Local Agency-Level Sampling Weights

		Site No.	L.A. State	Total L.A. MOS	L.A. MOS	Conditional Local Agency Weight	Total AR/LA MOS	Unit MOS	Conditional AR / LA Weight	Local Agency Weight
Standard	Women	1	AL	665,828.78	120.51	128.49	na	na	na	128.49
		2	AL	665,828.78	131.97	117.33	na	na	na	117.33
		3	AZ	665,828.78	3,558.24	4.35	na	na	na	4.35
		4	AZ	665,828.78	348.27	44.46	na	na	na	44.46
		5	AZ	665,828.78	1,792.83	8.64	na	na	na	8.64
		7	CA	665,828.78	4,982.01	3.11	na	na	na	3.11
		12	CT	665,828.78	196.83	78.67	na	na	na	78.67
		13	FL	665,828.78	1,851.42	8.36	na	na	na	8.36
		14	GA	665,828.78	1,115.07	13.89	na	na	na	13.89
		15	IL	665,828.78	5,721.06	2.71	na	na	na	2.71
		16	IL	665,828.78	77.91	198.75	na	na	na	198.75
		17	IL	665,828.78	701.46	22.07	na	na	na	22.07
		18	IN	665,828.78	451.77	34.27	na	na	na	34.27
		20	MD	665,828.78	2,550.63	6.07	na	na	na	6.07
		21	MO	665,828.78	111.09	139.39	na	na	na	139.39
		22	MO	665,828.78	130.38	118.76	na	na	na	118.76
		23	NH	665,828.78	282.15	54.88	na	na	na	54.88
		24	NJ	665,828.78	132.84	116.56	na	na	na	116.56
		25	NM	665,828.78	101.01	153.30	na	na	na	153.30
		26	NY	665,828.78	1,115.46	13.88	na	na	na	13.88
		27	NC	665,828.78	339.78	45.57	na	na	na	45.57
		28	OH	665,828.78	1,448.04	10.69	na	na	na	10.69
		29	OH	665,828.78	1,263.51	12.26	na	na	na	12.26
		30	OH	665,828.78	249.30	62.11	na	na	na	62.11
		31	PA	665,828.78	3,751.20	4.13	na	na	na	4.13
		32	SC	665,828.78	692.52	22.36	na	na	na	22.36
		33	SC	665,828.78	1,102.29	14.05	na	na	na	14.05
		34	TN	665,828.78	1,017.63	15.22	na	na	na	15.22
		35	TX	665,828.78	3,752.97	4.13	na	na	na	4.13
		36	TX	665,828.78	780.69	19.83	na	na	na	19.83
		37	TX	665,828.78	4,104.99	3.77	na	na	na	3.77
		38	TX	665,828.78	1,978.02	7.83	na	na	na	7.83
		39	VA	665,828.78	263.19	58.83	na	na	na	58.83
		40	WA	665,828.78	2,543.22	6.09	na	na	na	6.09
		41	WV	665,828.78	379.50	40.80	na	na	na	40.80
		42	WY	665,828.78	200.40	77.27	na	na	na	77.27
		43	GA	665,828.78	816.84	18.96	na	na	na	18.96
Standard	Infant	1	AL	665,828.78	120.51	128.49	na	na	na	128.49
		2	AL	665,828.78	131.97	117.33	na	na	na	117.33
		3	AZ	665,828.78	3,558.24	4.35	na	na	na	4.35
		4	AZ	665,828.78	348.27	44.46	na	na	na	44.46
		5	AZ	665,828.78	1,792.83	8.64	na	na	na	8.64
		7	CA	665,828.78	4,982.01	3.11	na	na	na	3.11
		12	CT	665,828.78	196.83	78.67	na	na	na	78.67
		13	FL	665,828.78	1,851.42	8.36	na	na	na	8.36
Standard	Infant	14	GA	665,828.78	1,115.07	13.89	na	na	na	13.89
		15	IL	665,828.78	5,721.06	2.71	na	na	na	2.71
		16	IL	665,828.78	77.91	198.75	na	na	na	198.75
		17	IL	665,828.78	701.46	22.07	na	na	na	22.07
		18	IN	665,828.78	451.77	34.27	na	na	na	34.27
		20	MD	665,828.78	2,550.63	6.07	na	na	na	6.07
		21	MO	665,828.78	111.09	139.39	na	na	na	139.39
		22	MO	665,828.78	130.38	118.76	na	na	na	118.76
		23	NH	665,828.78	282.15	54.88	na	na	na	54.88
		24	NJ	665,828.78	132.84	116.56	na	na	na	116.56
		25	NM	665,828.78	101.01	153.30	na	na	na	153.30
		26	NY	665,828.78	1,115.46	13.88	na	na	na	13.88
		27	NC	665,828.78	339.78	45.57	na	na	na	45.57
		28	OH	665,828.78	1,448.04	10.69	na	na	na	10.69
		29	OH	665,828.78	1,263.51	12.26	na	na	na	12.26

Table E.3. Telephone Local Agency-Level Sampling Weights

		30	OH	665,828.78	249.30	62.11	na	na	• na		62.11
		Site	L.A.	Total L.A.	L.A.	Local Agency	Total AR/LA	Unit	AR / LA		Local Agency
		No.	State	MOS	MOS	Adjustment	MOS	MOS	Adjustment		Weight
Standard	Infant	31	PA	665,828.78	3,751.20	4.13	na	na	na		4.13
		32	SC	665,828.78	692.52	22.36	na	na	na		22.36
		33	SC	665,828.78	1,102.29	14.05	na	na	na		14.05
		34	TN	665,828.78	1,017.63	15.22	na	na	na		15.22
		35	TX	665,828.78	3,752.97	4.13	na	na	na		4.13
		36	TX	665,828.78	780.69	19.83	na	na	na		19.83
		37	TX	665,828.78	4,104.99	3.77	na	na	na		3.77
		38	TX	665,828.78	1,978.02	7.83	na	na	na		7.83
		39	VA	665,828.78	263.19	58.83	na	na	na		58.83
		40	WA	665,828.78	2,543.22	6.09	na	na	na		6.09
		41	WV	665,828.78	379.50	40.80	na	na	na		40.80
		42	WY	665,828.78	200.40	77.27	na	na	na		77.27
		43	GA	665,828.78	816.84	18.96	na	na	na		18.96
AR/LA	Women	6	AR	665,828.78	10,137.93	1.53	9,799.50	343.65	28.52		43.55
		19	LA	665,828.78	16,908.60	0.92	17,171.70	462.75	37.11		33.98
	Infant	6	AR	665,828.78	10,137.93	1.53	9,799.50	343.65	28.52		43.55
		19	LA	665,828.78	16,908.60	0.92	17,171.70	462.75	37.11		33.98
File Boxes	Women	8	CA	665,828.78	1,426.92	10.85	na	na	na		10.85
		9	CA	665,828.78	27,405.90	0.57	na	na	na		0.57
		10	CA	665,828.78	27,405.90	0.57	na	na	na		0.57
		11	CA	665,828.78	1,413.48	10.95	na	na	na		10.95
File Boxes	Infant	8	CA	665,828.78	1,426.92	10.85	na	na	na		10.85
		9	CA	665,828.78	27,405.90	0.57	na	na	na		0.57
		10	CA	665,828.78	27,405.90	0.57	na	na	na		0.57
		11	CA	665,828.78	1,413.48	10.95	na	na	na		10.95

Table E.4. Telephone Clinic-Level Sampling Weights

		Site No.	L.A. State	Local Agency Weight	Total Clinic MOS	Clinic MOS	Conditional Clinic Weight	Clinic Weight
Standard	Women	1	AL	128.49	113.25	113.25	1.00	128.49
		2	AL	117.33	120.69	120.69	1.00	117.33
		3	AZ	4.35	5,257.80	160.20	32.82	142.82
		4	AZ	44.46	361.80	173.85	2.08	92.53
		5	AZ	8.64	1,494.60	180.00	8.30	71.71
		7	CA	3.11	6,873.51	368.55	18.65	57.97
		12	CT	78.67	191.79	29.22	6.56	516.36
		13	FL	8.36	1,946.70	255.00	7.63	63.85
		14	GA	13.89	2,075.85	187.20	11.09	153.99
		15	IL	2.71	7,109.70	275.55	25.80	69.83
		16	IL	198.75	90.75	70.80	1.28	254.75
		17	IL	22.07	875.55	406.20	2.16	47.58
		18	IN	34.27	353.25	287.25	1.23	42.15
		20	MD	6.07	1,677.15	219.75	7.63	46.33
		21	MO	139.39	83.55	83.55	1.00	139.39
		22	MO	118.76	147.15	147.15	1.00	118.76
		23	NH	54.88	216.00	35.85	6.03	330.66
		24	NJ	116.56	94.50	94.50	1.00	116.56
		25	NM	153.30	91.02	91.02	1.00	153.30
		26	NY	13.88	433.35	216.00	2.01	27.85
		27	NC	45.57	312.60	48.75	6.41	292.22
		28	OH	10.69	1,245.00	241.05	5.16	55.23
		29	OH	12.26	1,155.75	119.70	9.66	118.33
		30	OH	62.11	201.75	47.25	4.27	265.21
		31	PA	4.13	4,189.05	227.85	18.39	75.89
		32	SC	22.36	6,850.00	852.00	8.04	179.77
		33	SC	14.05	1,062.90	62.25	17.07	239.86
		34	TN	15.22	1,863.30	159.45	11.69	177.81
		35	TX	4.13	5,111.55	421.50	12.13	50.04
		36	TX	19.83	629.85	537.15	1.17	23.26
		37	TX	3.77	4,396.35	608.25	7.23	27.26
		38	TX	7.83	2,031.00	132.45	15.33	120.04
		39	VA	58.83	361.65	109.50	3.30	194.31
		40	WA	6.09	3,865.95	278.70	13.87	84.46
		41	WV	40.80	502.05	138.90	3.61	147.48
		42	WY	77.27	183.75	181.05	1.01	78.42
		43	GA	18.96	710.25	210.00	3.38	64.11
Standard	Infant	1	AL	128.49	113.25	113.25	1.00	128.49
		2	AL	117.33	120.69	120.69	1.00	117.33
		3	AZ	4.35	5,257.80	160.20	32.82	142.82
		4	AZ	44.46	361.80	173.85	2.08	92.53
		5	AZ	8.64	1,494.60	180.00	8.30	71.71
		7	CA	3.11	6,873.51	368.55	18.65	57.97
		12	CT	78.67	191.79	29.22	6.56	516.36
		13	FL	8.36	1,946.70	255.00	7.63	63.85
Standard	Infant	14	GA	13.89	2,075.85	187.20	11.09	153.99
		15	IL	2.71	7,109.70	275.55	25.80	69.83
		16	IL	198.75	90.75	70.80	1.28	254.75
		17	IL	22.07	875.55	406.20	2.16	47.58
		18	IN	34.27	353.25	287.25	1.23	42.15
		20	MD	6.07	1,677.15	219.75	7.63	46.33
		21	MO	139.39	83.55	83.55	1.00	139.39
		22	MO	118.76	147.15	147.15	1.00	118.76
		23	NH	54.88	216.00	35.85	6.03	330.66
		24	NJ	116.56	94.50	94.50	1.00	116.56
		25	NM	153.30	91.02	91.02	1.00	153.30
		26	NY	13.88	433.35	216.00	2.01	27.85
		27	NC	45.57	312.60	48.75	6.41	292.22
		28	OH	10.69	1,245.00	241.05	5.16	55.23
		29	OH	12.26	1,155.75	119.70	9.66	118.33

Table E.4. Telephone Clinic-Level Sampling Weights

		Site No.	L.A. State	Local Agency Weight	Total Clinic MOS	Clinic MOS	Conditional Clinic Weight	Clinic Weight
Standard	Infant	30	OH	62.11	201.75	47.25	4.27	265.21
		31	PA	4.13	4,189.05	227.85	18.39	75.89
		32	SC	22.36	6,850.00	852.00	8.04	179.77
		33	SC	14.05	1,062.90	62.25	17.07	239.86
		34	TN	15.22	1,863.30	159.45	11.69	177.81
		35	TX	4.13	5,111.55	421.50	12.13	50.04
		36	TX	19.83	629.85	537.15	1.17	23.26
		37	TX	3.77	4,396.35	608.25	7.23	27.26
		38	TX	7.83	2,031.00	132.45	15.33	120.04
		39	VA	58.83	361.65	109.50	3.30	194.31
		40	WA	6.09	3,865.95	278.70	13.87	84.46
		41	WV	40.80	502.05	138.90	3.61	147.48
		42	WY	77.27	183.75	181.05	1.01	78.42
		43	GA	18.96	710.25	210.00	3.38	64.11
AR/LA	Women	6	AR	43.55	382.65	374.10	1.02	44.55
		19	LA	33.98	393.12	393.12	1.00	33.98
	Infant	6	AR	43.55	382.65	374.10	1.02	44.55
		19	LA	33.98	393.12	393.12	1.00	33.98
File Boxes	Women	8	CA	10.85	1,701.15	300.00	5.67	61.53
		9	CA	0.57	65,305.38	713.19	91.57	51.74
		10	CA	0.57	65,305.38	1,452.24	44.97	25.41
		11	CA	10.95	1,998.00	284.70	7.02	76.88
File Boxes	Infant	8	CA	10.85	1,701.15	300.00	5.67	61.53
		9	CA	0.57	65,305.38	713.19	91.57	51.74
		10	CA	0.57	65,305.38	1,452.24	44.97	25.41
		11	CA	10.95	1,998.00	284.70	7.02	76.88

Table E.5. Telephone Participant-Level Sampling Weights

		Site No.	L.A. State	Clinic Weight	Total Number of Boxes	Number Of Selected Boxes	Conditional File Box Weight	Total Number Available	Number Selected	Conditional Participant Weight		Participant Weight
Standard	Women	1	AL	1.00	na	na	na	72	26	2.77		355.82
		2	AL	1.00	na	na	na	71	21	3.38		396.70
		3	AZ	32.82	na	na	na	65	21	3.10		442.07
		4	AZ	2.08	na	na	na	110	26	4.23		391.46
		5	AZ	8.30	na	na	na	81	21	3.86		276.61
		7	CA	18.65	na	na	na	243	21	11.57		670.75
		12	CT	6.56	na	na	na	16	16	1.00		516.36
		13	FL	7.63	na	na	na	115	21	5.48		349.64
		14	GA	11.09	na	na	na	81	21	3.86		593.95
		15	IL	25.80	na	na	na	110	26	4.23		295.45
		16	IL	1.28	na	na	na	33	21	1.57		400.32
		17	IL	2.16	na	na	na	223	26	8.58		408.10
		18	IN	1.23	na	na	na	108	26	4.15		175.09
		20	MD	7.63	na	na	na	91	21	4.33		200.78
		21	MO	1.00	na	na	na	47	21	2.24		311.96
		22	MO	1.00	na	na	na	90	26	3.46		411.10
		23	NH	6.03	na	na	na	45	21	2.14		708.55
		24	NJ	1.00	na	na	na	60	26	2.31		268.99
		25	NM	1.00	na	na	na	17	17	1.00		153.30
		26	NY	2.01	na	na	na	170	26	6.54		182.10
		27	NC	6.41	na	na	na	31	26	1.19		348.42
		28	OH	5.16	na	na	na	125	21	5.95		328.75
		29	OH	9.66	na	na	na	58	21	2.76		326.81
		30	OH	4.27	na	na	na	23	21	1.10		290.46
		31	PA	18.39	na	na	na	147	26	5.65		429.08
		32	SC	8.04	na	na	na	48	26	1.85		331.88
		33	SC	17.07	na	na	na	24	21	1.14		274.12
		34	TN	11.69	na	na	na	77	26	2.96		526.60
		35	TX	12.13	na	na	na	233	26	8.96		448.39
		36	TX	1.17	na	na	na	259	21	12.33		286.84
		37	TX	7.23	na	na	na	316	26	12.15		331.36
		38	TX	15.33	na	na	na	74	21	3.52		422.99
		39	VA	3.30	na	na	na	52	21	2.48		481.15
		40	WA	13.87	na	na	na	43	26	1.65		139.68
		41	WV	3.61	na	na	na	48	26	1.85		272.27
		42	WY	1.01	na	na	na	91	21	4.33		339.82
		43	GA	3.38	na	na	na	138	21	6.57		421.32
Standard	Infant	1	AL	1.00	na	na	na	12	5	2.40		308.38
		2	AL	1.00	na	na	na	3	3	1.00		117.33
		3	AZ	32.82	na	na	na	46	10	4.60		656.99
		4	AZ	2.08	na	na	na	40	10	4.00		370.11
		5	AZ	8.30	na	na	na	14	10	1.40		100.40
		7	CA	18.65	na	na	na	29	5	5.80		336.20
		12	CT	6.56	na	na	na	1	1	1.00		516.36
		13	FL	7.63	na	na	na	21	10	2.10		134.08

Table E.5. Telephone Participant-Level Sampling Weights

		Site No.	L.A. State	Clinic Weight	Total Number of Boxes	Number Of Selected Boxes	Conditional File Box Weight	Total Number Available	Number Selected	Conditional Participant Weight	Participant Weight
Standard	Infant	14	GA	11.09	na	na	na	0	0	-	-
		15	IL	25.80	na	na	na	67	5	13.40	935.78
		16	IL	1.28	na	na	na	2	2	1.00	254.75
		17	IL	2.16	na	na	na	23	5	4.60	218.87
		18	IN	1.23	na	na	na	193	10	19.30	813.50
		20	MD	7.63	na	na	na	17	5	3.40	157.53
		21	MO	1.00	na	na	na	35	10	3.50	487.85
		22	MO	1.00	na	na	na	76	10	7.60	902.60
		23	NH	6.03	na	na	na	1	1	1.00	330.66
		24	NJ	1.00	na	na	na	20	10	2.00	233.13
		25	NM	1.00	na	na	na	0	0	-	-
		26	NY	2.01	na	na	na	96	10	9.60	267.36
		27	NC	6.41	na	na	na	17	10	1.70	496.77
		28	OH	5.16	na	na	na	119	5	23.80	1,314.48
		29	OH	9.66	na	na	na	49	5	9.80	1,159.61
		30	OH	4.27	na	na	na	26	5	5.20	1,379.07
Standard	Infant	31	PA	18.00	na	na	na	17	5	3.40	258.03
		32	SC	8.04	na	na	na	2	2	1.00	179.77
		33	SC	17.07	na	na	na	1	1	1.00	239.86
		34	TN	11.69	na	na	na	8	5	1.60	284.50
		35	TX	12.13	na	na	na	49	5	9.80	490.34
		36	TX	1.17	na	na	na	65	5	13.00	302.34
		37	TX	7.23	na	na	na	51	5	10.20	278.09
		38	TX	15.33	na	na	na	55	10	5.50	660.21
		39	VA	3.30	na	na	na	37	10	3.70	718.95
		40	WA	13.87	na	na	na	78	10	7.80	658.76
		41	WV	3.61	na	na	na	8	5	1.60	235.96
		42	WY	1.01	na	na	na	8	5	1.60	125.47
		43	GA	3.38	na	na	na	1	1	1.00	64.11
AR/LA	Women	6	AR	1.02	na	na	na	181	21	8.62	383.98
		19	LA	1.00	na	na	na	296	26	11.38	386.88
	Infant	6	AR	1.02	na	na	na	16	5	3.20	142.56
		19	LA	1.00	na	na	na	219	10	21.90	744.21
File Boxes	Women	8	CA	5.67	19.00	5.00	3.80	28	26	1.08	251.82
		9	CA	91.57	31.00	2.00	15.50	29	21	1.38	1,107.40
		10	CA	44.97	36.00	5.00	7.20	49	26	1.88	344.76
		11	CA	7.02	16.00	6.00	2.67	28	21	1.33	273.35
File Boxes	Infant	8	CA	5.67	19.00	19.00	1.00	11	5	2.20	135.38
		9	CA	91.57	31.00	21.00	1.48	5	5	1.00	76.37
		10	CA	44.97	36.00	6.00	6.00	11	5	2.20	335.38
		11	CA	7.02	16.00	16.00	1.00	10	5	2.00	153.76

Table E.6: Personal Local Agency-Level Sampling Weights

		Site No.	L.A. State	Total L.A. MOS	L.A. MOS	Conditional Local Agency Weight	Total AR/LA MOS	Unit MOS	Conditional AR / LA Weight	Local Agency Weight
Standard	Women	1	AL	665828.78	120.51	290.79	na	na	na	290.79
		4	AZ	665828.78	348.27	100.62	na	na	na	100.62
		15	IL	665828.78	5,721.06	6.13	na	na	na	6.13
		17	IL	665828.78	701.46	49.96	na	na	na	49.96
		18	IN	665828.78	451.77	77.57	na	na	na	77.57
		22	MO	665828.78	130.38	268.78	na	na	na	268.78
		24	NJ	665828.78	132.84	263.80	na	na	na	263.80
		26	NY	665828.78	1,115.46	31.42	na	na	na	31.42
		27	NC	665828.78	339.78	103.14	na	na	na	103.14
		31	PA	665828.78	3,751.20	9.34	na	na	na	9.34
		32	SC	665828.78	692.52	50.60	na	na	na	50.60
		34	TN	665828.78	1,017.63	34.44	na	na	na	34.44
		35	TX	665828.78	3,752.97	9.34	na	na	na	9.34
		37	TX	665828.78	4,104.99	8.54	na	na	na	8.54
		40	WA	665828.78	2,543.22	13.78	na	na	na	13.78
		41	WV	665828.78	379.50	92.34	na	na	na	92.34
Standard	Infant	1	AL	665828.78	120.51	290.79	na	na	na	290.79
		4	AZ	665828.78	348.27	100.62	na	na	na	100.62
		15	IL	665828.78	5,721.06	6.13	na	na	na	6.13
		17	IL	665828.78	701.46	49.96	na	na	na	49.96
		18	IN	665828.78	451.77	77.57	na	na	na	77.57
		22	MO	665828.78	130.38	268.78	na	na	na	268.78
		24	NJ	665828.78	132.84	263.80	na	na	na	263.80
		26	NY	665828.78	1,115.46	31.42	na	na	na	31.42
		27	NC	665828.78	339.78	103.14	na	na	na	103.14
		31	PA	665828.78	3,751.20	9.34	na	na	na	9.34
		32	SC	665828.78	692.52	50.60	na	na	na	50.60
		34	TN	665828.78	1,017.63	34.44	na	na	na	34.44
		35	TX	665828.78	3,752.97	9.34	na	na	na	9.34
		37	TX	665828.78	4,104.99	8.54	na	na	na	8.54
		40	WA	665828.78	2,543.22	13.78	na	na	na	13.78
		41	WV	665828.78	379.50	92.34	na	na	na	92.34
AR/LA	Women	19	LA	665828.78	16,908.60	2.07	17,171.70	462.75	37.11	76.91
	Infant	19	LA	665828.78	16,908.60	2.07	17,171.70	462.75	37.11	76.91
File Boxes	Women	8	CA	665828.78	1,426.92	24.56	na	na	na	24.56
		10	CA	665828.78	27,405.90	1.28	na	na	na	1.28
	Infant	8	CA	665828.78	1,426.92	24.56	na	na	na	24.56
		10	CA	665828.78	27,405.90	1.28	na	na	na	1.28

Table E.7. Personal Clinic-Level Sampling Weights

		Site No.	L.A. State	Local Agency Weight	Total Clinic MOS	Clinic MOS	Conditional Clinic Weight	Clinic Weight
Standard	Women	1	AL	290.79	113.25	113.25	1.00	290.79
		4	AZ	100.62	361.80	173.85	2.08	209.40
		15	IL	6.13	7,109.70	275.55	25.80	158.05
		17	IL	49.96	875.55	406.20	2.16	107.68
		18	IN	77.57	353.25	287.25	1.23	95.39
		22	MO	268.78	147.15	147.15	1.00	268.78
		24	NJ	263.80	94.50	94.50	1.00	263.80
		26	NY	31.42	433.35	216.00	2.01	63.03
		27	NC	103.14	312.60	48.75	6.41	661.34
		31	PA	9.34	4,189.05	227.85	18.39	171.75
		32	SC	50.60	6,850.00	852.00	8.04	406.84
		34	TN	34.44	1,863.30	159.45	11.69	402.42
		35	TX	9.34	5,111.55	421.50	12.13	113.24
		37	TX	8.54	4,396.35	608.25	7.23	61.70
		40	WA	13.78	3,865.95	278.70	13.87	191.14
		41	WV	92.34	502.05	138.90	3.61	333.77
Standard	Infant	1	AL	290.79	113.25	113.25	1.00	290.79
		4	AZ	100.62	361.80	173.85	2.08	209.40
		15	IL	6.13	7,109.70	275.55	25.80	158.17
		17	IL	49.96	875.55	406.20	2.16	107.68
		18	IN	77.57	353.25	287.25	1.23	95.39
		22	MO	268.78	147.15	147.15	1.00	268.78
		24	NJ	263.80	94.50	94.50	1.00	263.80
		26	NY	31.42	433.35	216.00	2.01	63.03
		27	NC	103.14	312.60	48.75	6.41	661.34
		31	PA	9.34	4,189.05	227.85	18.39	171.75
		32	SC	50.60	6,850.00	852.00	8.04	406.84
		34	TN	34.44	1,863.30	159.45	11.69	402.42
		35	TX	9.34	5,111.55	421.50	12.13	113.24
		37	TX	8.54	4,396.35	608.25	7.23	61.70
		40	WA	13.78	3,865.95	278.70	13.87	191.14
		41	WV	92.34	502.05	138.90	3.61	333.77
AR/LA	Women	19	LA	76.82	393.12	393.12	1.00	76.91
	Infant	19	LA	76.82	393.12	393.12	1.00	76.91
File Boxes	Women	8	CA	24.56	1,701.15	300.00	5.67	139.26
		10	CA	1.28	65,305.38	1,452.24	44.97	57.50
	Infant	8	CA	24.56	1,701.15	300.00	5.67	139.26
		10	CA	1.28	65,305.38	1,452.24	44.97	57.50

Table E.8. WIC Infant Personal Participant-Level Sampling Weights

		Site No.	L A State	Clinic Weight	Total Number Of Boxes	Number Of Selected Boxes	Conditional File Box Weight	Total Number Available	Number Selected	Conditional Participant Weight		Participant Weight
Standard	Women	1	AL	290.79	na	na	na	72.00	26.00	2.77		805.28
		4	AZ	209.40	na	na	na	110.00	26.00	4.23		885.94
		15	IL	158.05	na	na	na	110.00	26.00	4.23		668.66
		17	IL	107.68	na	na	na	223.00	26.00	8.58		923.59
		18	IN	95.39	na	na	na	108.00	26.00	4.15		396.25
		22	MO	268.78	na	na	na	90.00	26.00	3.46		930.39
		24	NJ	263.80	na	na	na	60.00	26.00	2.31		608.78
		26	NY	63.03	na	na	na	170.00	26.00	6.54		412.11
		27	NC	661.34	na	na	na	31.00	26.00	1.19		788.52
		31	PA	171.75	na	na	na	147.00	26.00	5.65		971.07
		32	SC	406.84	na	na	na	48.00	26.00	1.85		751.10
		34	TN	402.42	na	na	na	77.00	26.00	2.96		1,191.78
		35	TX	113.24	na	na	na	233.00	26.00	8.96		1,014.78
		37	TX	61.70	na	na	na	316.00	26.00	12.15		749.93
		40	WA	191.14	na	na	na	43.00	26.00	1.65		316.11
		41	WV	333.77	na	na	na	48.00	26.00	1.85		616.18
Standard	Infant	1	AL	290.79	na	na	na	12.00	5.00	2.40		697.91
		4	AZ	209.40	na	na	na	40.00	10.00	4.00		837.62
		15	IL	158.17	na	na	na	67.00	5.00	13.40		2,117.82
		17	IL	107.68	na	na	na	23.00	5.00	4.60		495.34
		18	IN	95.39	na	na	na	193.00	10.00	19.30		1,841.07
		22	MO	268.78	na	na	na	76.00	10.00	7.60		2,042.73
		24	NJ	263.80	na	na	na	20.00	10.00	2.00		527.61
		26	NY	63.03	na	na	na	96.00	10.00	9.60		605.08
		27	NC	661.34	na	na	na	17.00	10.00	1.70		1,124.28
		31	PA	171.75	na	na	na	17.00	5.00	3.40		583.96
		32	SC	406.84	na	na	na	2.00	2.00	1.00		406.84
		34	TN	402.42	na	na	na	8.00	5.00	1.60		643.87
		35	TX	113.24	na	na	na	49.00	5.00	9.80		1,109.72
		37	TX	61.70	na	na	na	51.00	5.00	10.20		629.37
		40	WA	191.14	na	na	na	78.00	10.00	7.80		1,490.87
		41	WV	333.77	na	na	na	8.00	5.00	1.60		534.03
AR/LA	Women	19	LA	76.91	na	na	na	296.00	26.00	11.38		875.56
	Infant	19	LA	76.91	na	na	na	219.00	10.00	21.90		1,684.27
File Boxes	Women	8	CA	139.26	19.00	5.00	3.80	28.00	26.00	1.08		569.90
		10	CA	57.50	36.00	5.00	7.20	49.00	26.00	1.88		780.24
	Infant	8	CA	139.26	19.00	19.00	1.00	11.00	5.00	2.20		306.38
		10	CA	57.50	36.00	6.00	6.00	11.00	5.00	2.20		759.01

APPENDIX F

USE OF CHILD CARE AMONG WIC MOTHERS

WIC-IFPS collected information about non-maternal child care and food that was fed to the child while in child care. Specifically, the following information is available on child care from each monthly interview of the WIC-IFPS:

- Whether the infant had been taken care of by anyone other than the mother during the previous 7 days
- Whether the infant, while in child care, received formula or supplemental foods that was not provided by the mother
- The number of days infant was cared for by someone other than the mother during the previous week
- The usual daily number of hours infant is cared for by someone other than the mother.

In this Appendix, the analyses of the child-care data from WIC-IFPS are presented. First, the extent of child-care use is examined for all WIC infants and for infants classified by their maternal socio-demographic characteristics. Next, the extent to which WIC infants receive food from the child care provider is investigated. The final section examines the use of non-maternal child care by maternal employment status.

F.1. Statistical Methods

The percentages of WIC mothers who reported at each interview that their infants received care from someone other than themselves during the preceding month were tabulated. These percentages were also broken down by maternal socio-demographic characteristics. Mothers who answered affirmatively to the question about child care were then asked whether the provider gave any food of his/her own to the infant and, if yes, what types of foods were given to the infant.

Specifically, they were asked if any of the following were given: formula, milk, other liquid (i.e., juice), baby food, and table foods. All foods other than formula were classified as supplemental foods. Percentages of infants receiving formula and supplemental foods from the child-care provider were tabulated for each monthly interview.

Next, non-maternal child-care use for employed and unemployed mothers was examined. Percentages who used non-maternal care during the week preceding the interview were tabulated by maternal employment status at the corresponding month. Chi-square tests were conducted to test the significance of the differences between socio-demographic subgroups. These were adjusted chi-square tests to account for the stratified and clustered sampling design of the WIC-IFPS.

Mean number of days infant received non-maternal care during the week preceding the interview and the mean usual number of hours per day infant was in non-maternal child care were estimated from maternal reports. These means were tabulated by maternal employment status. The mean number of days per week and hours per day were compared for employed and unemployed mothers. These comparisons were done using the Satterthwaite-adjusted F-statistics. These statistics were computed accounting for the multistage stratified and clustered sampling design of the WIC-IFPS. All statistics were computed using the SUDAAN statistical software.

F.2. Use of Child Care

Table F.1 provides the percentages of WIC infants who were cared for by someone other than their mothers during the week preceding the Month 1, Month 2, Month 3, Month 6, Month 9, and Month 12 interviews. The percentage who received non-maternal child care increases steadily from 22 percent in Month 1 to 53 percent in Month 12. No questions were asked about the identity of the person caring for the infant; thus it is unclear whether this child care was an informal arrangement with family members or a more formal child-care situation.

Table F.1 also provides the percentages in non-maternal child care by socio-demographic characteristics of the mother. There are large differences in the

Table F.1. Percentage of infants who were cared for by someone other than their mothers during the week preceding selected interview months.

Characteristics	Interview Months					
	Month 1	Month 2	Month 3	Month 6	Month 9	Month 12
All	22.2	31.1	43.1	47.1	48.4	52.6
Race and ethnicity	*	**		*	**	*
White	24.8	34.8	48.1	48.9	51.3	57.7
African American	28.5	37.0	42.7	53.2	55.6	56.0
Hispanic	13.7	19.4	35.2	39.0	39.5	42.7
Other	12.7	20.9	26.2	31.1	21.4	21.6
Age	*	*	*		**	
14 - 19	27.9	38.2	52.3	54.1	54.9	57.7
20 - 25	22.6	33.2	41.9	48.1	51.5	55.0
26 or older	17.7	23.6	37.7	40.7	39.6	45.7
Birth order of the infant	*		*			
First born	29.5	36.6	48.8	52.5	51.8	58.0
Second born	17.5	30.5	41.5	43.9	48.7	47.5
Third born or younger	17.1	25.2	36.0	42.4	46.7	49.7
Immigrant status	**	**	**	**	**	**
Born in the U.S.	25.5	35.9	46.4	49.8	51.1	56.8
Born elsewhere	12.3	13.6	28.8	35.9	35.7	33.4
Father of the infant lives with the mother						
Yes	22.2	31.4	41.1	43.6	46.1	54.5
No	22.3	20.4	44.6	49.6	50.1	49.9
Poverty level			*			*
< 50%	23.1	24.7	33.5	42.3	46.1	44.3
50 - 100%	21.7	32.8	42.6	47.8	50.1	60.6
100% or more	26.5	43.0	61.5	53.7	56.8	67.1
Highest grade completed by the mother		*	*			
9th grade or less	14.3	14.9	26.2	32.5	29.8	42.4
10th or 11th grades	30.4	34.3	47.7	46.1	50.7	48.9
12th grade	18.2	32.0	42.3	48.6	51.5	55.3
More than high school	32.5	41.9	55.4	58.3	54.7	61.1
N[1]	577	690	755	814	824	824

[1] All mothers who were interviewed at that month.
* Chi-square test comparing the groups for the corresponding month is significant at $p<.05$.
** Chi-square test comparing the groups for the corresponding month is significant at $p<.01$.

prevalence of use of child care by these characteristics. For most subgroups there is a general increase of percentages in non-maternal care over time. White and African American mothers are more likely than mothers who are of Hispanic origin or in the "other" racial/ethnic category to use child care (and these differences were

statistically significant at all months except the third). Use of child care decreases with maternal age for all months (with significant differences by maternal age for Months 1, 2, 3, and 9). First-born infants are more likely to be cared for by someone other than their mother (significant for Months 1 and 3). The prevalence of child care is about 20 percentage points higher for infants born to mothers who are U.S. natives compared to infants of immigrants, and these differences are statistically significant at every month. There is little difference by whether the mother lived with the infant's father.

In late infancy, higher percentages of economically advantaged mothers use child care. These differences are significant for Month 12, with less than one-half of the poorest mothers using non-maternal care arrangements and two-thirds of the mothers with incomes more than 100% of poverty level using non-maternal child-care arrangements. In every month, mothers who completed 9th grade or less consistently have the lowest use of child care and those who achieved more than a high school diploma have the highest use. Differences by maternal education are significant for Months 2 and 3.

F.3. Food Provided by the Child-Care Provider

Table F.2 shows the percentage of WIC infants who received formula or supplemental foods provided by the non-maternal caregiver among the infants who were cared for by someone other than their mothers the week preceding each interview. Formula is given by the child-care provider to very few infants in child care during each interview month except the twelfth, when this figure increases to 14 percent. Formula is given to 7 percent of infants during the first month, but to only 1-3 percent in Months 2-7. The prevalence of supplemental feeding increases steadily, from 2-38 percent, and was 10 percent or more from the Month 5 interview onward. Only in Month 1 is formula-feeding more common than feeding of supplemental foods.

Table F.2. Percentage of infants receiving formula or supplemental foods/drinks provided by the non-maternal caregiver.

Interview Month	Formula	Supplemental foods/drinks	N[1]
Month 1	7.3	1.8	126
Month 2	2.5	2.8	225
Month 3	1.2	2.8	330
Month 4	2.6	6.4	319
Month 5	3.3	9.7	353
Month 6	3.3	11.0	387
Month 7	2.3	14.5	366
Month 9	6.3	23.4	402
Month 12	13.6	38.4	434

[1] Among the children who received care from someone other than the mother during the week preceding the interview.

F.4. Use of Non-Maternal Care According to Maternal Employment Status

It is expected that the use of non-maternal care will be strongly associated with maternal employment. Table F.3 investigates this association further. As indicated previously, the use of child care increases from one-fourth of infants in Month 1 to half in Month 12. Among mothers who are not employed, 20-30 percent of their

Table F.3. Percentages of mothers using child care by maternal employment.

Month	All	N	Not Employed	N	Employed	N
Month 1*	22.2	547	20.3	483	35.9	64
Month 2**	31.5	652	21.4	507	63.6	145
Month 3**	43.1	755	28.5	579	89.9	176
Month 4 **	39.6	771	24.4	552	77.6	219
Month 5**	43.9	792	28.7	543	76.5	249
Month 6**	47.1	814	29.1	565	88.8	249
Month 7**	45.4	815	29.2	558	82.6	257
Month 9**	48.4	824	27.6	546	91.0	278
Month 12**	52.6	824	30.0	512	89.9	312

* Chi-square statistic testing the employment status differences is significant at $p<.05$.
** Chi-square statistic testing the employment status differences is significant at $p<.01$.

infants receive some type of non-maternal child care at each month. Among employed mothers, use of child care increases from 40 percent in Month 1 to 90 percent in Months 9 and 12. Maternal employment also increases over time, from 12 percent in the first month to 38 percent in the twelfth month. At each month, infants of employed mothers are significantly more likely to be in child care.

The WIC-IFPS also provides information on time spent in non-maternal child care. These data are displayed in Table F.4. The average number of days is 2-3 throughout the 12 months for unemployed mothers and 3-4 for employed mothers. Although the average number of days in child care does not change for unemployed mothers, it increases from 3 to just over 4 by the third month for employed mothers. The average number of hours is 5-6 for unemployed mothers and it increases over the 12 months. For employed mothers it is about 7.

Table F.4. Average number of days per week and hours per day of child care by maternal employment.

Month	Average Number of Days per Week Used Child Care		Average Number of Hours per Day Used Child Care		N[1]	
	Not Employed	Employed	Not Employed	Employed	Not Employed	Employed
Month 1	2.24	3.07	5.3	8.4	96	23
Month 2	2.40*	3.88	5.5	6.6	118	96
Month 3	2.53*	4.35	5.1*	7.1	171	159
Month 4	2.80*	4.32	5.5*	7.4	141	167
Month 5	2.62*	4.15	5.6*	7.2	159	186
Month 6	2.71*	4.26	5.8*	7.2	163	224
Month 7	2.81*	4.37	6.4	7.0	162	207
Month 9	2.57*	4.37	6.6	7.3	158	247
Month 12	2.72*	4.39	6.6	7.5	159	279

[1] Among the mothers who were using non-maternal care in the corresponding month.

* F-statistic comparing the two groups is significant at $p < .05$

F.5. Conclusion

The use of non-maternal child care for WIC infants increases from about one-fifth in Month 1 to over one-half in Month 12. Infants are more likely to be cared for by someone else if their mothers are white or African American, teenagers, born in the United States, or of higher income level and educational attainment. Also, firstborn infants have a higher prevalence of child care.

For young infants who are receiving non-maternal care, feeding of formula or supplemental foods that are not provided by the mother is rather infrequent. This may be due to two reasons. Because of the high cost of formula, child-care providers may ask the mothers to provide the formula, so that they can keep the cost of child care down. Alternatively, the non-maternal child care used by the WIC mothers may be of informal nature, provided by the other family members. If so, it can be expected that the foods provided to the infant by care providers will not deviate much from the food provided by the mother.

Infants of employed mothers are more likely to be cared for by someone other than their mothers, and they are more likely to be in child care more days per week and more hours per day. Thus, these infants are in child care for an average of about 25 hours per week. It appears that many of the employed mothers are part-time workers, who work neither 5 days a week nor 8 hours per day, as most of these infants are not in child care for 40 or more hours per week. Infants of mothers who are not employed are in child care an average about 15 hours per week.

Given that the infants are in child care an average of 5-7 hours per day, it would seem that most would require some type of feeding while in child care. However, the mothers report that the child-care provider gives some food only to a minority of the infants (Table F.2). Several reasons may contribute to this apparent discrepancy: (1) mothers may not be able to accurately report food given by the child-care provider, perhaps because they do not know what is given; (2) the infants could be getting food given to the child-care provider by the mother, or (3) a majority of "child care" may include someone helping with the infant in the infant's

home, such as a grandmother, an older sibling, or the infant's father. In that case, the infant will likely be fed food prepared by the mother.

APPENDIX G

MULTIVARIATE STATISTICAL METHODS OF ANALYSIS

In this report, three types of multivariate analysis methods are used:

(1) Linear regression analysis

(2) Logistic regression analysis

(3) Multivariate analysis of (hazard) rates.

This appendix describes these methods of analysis.

G.1. Linear Regression Analysis

Linear regression models relate one variable (the dependent variable) to a set of predictor variables in a linear manner. The predicted value of the dependent variable can be written as the sum of a set of coefficients times a set of predictor variables:

$$\hat{y} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \ldots \qquad \textbf{(G.1)}$$

In this equation, y is the dependent variable, x represents a predictor variable, and the β coefficients represent the predicted change in the y variable if x changed by a single unit. Statistical testing of the β coefficients yields the information if these coefficients are significantly different from zero. In other words, the statistical significance test of β can be interpreted as the test of the hypothesis that the corresponding x variable is not associated with the dependent variable y.

Because of the complex design of the WIC-IFPS, traditional significance tests for β coefficients, which assume that the data come from a random sample, do not apply. Instead, the coefficients and their standard errors were estimated using the SUDAAN statistical software, which accounts for the stratified and clustered design of the WIC-IFPS and provides corrected significance levels and coefficients for the regression models.

G.2. Logistic Regression Analysis

Several feeding practices analyzed in this report are binary (yes-no) variables. Multivariate analyses of these variables use logistic regression analysis. In logistic regression, the dependent variable is the logarithm of the odds of occurrence of one outcome as opposed to the other. For all cases, it is known whether the outcome of interest has occurred. The logistic regression models take the following form:

$$\log \frac{p}{1-p} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots \tag{G.2}$$

where p is the predicted probability that the outcome of interest happened, β is the estimated coefficient representing the association between a predictor variable x and the odds of the outcome of interest occurring. As it can be seen from Equation G.2, the odds can be expressed as:

$$\frac{p}{1-p} = e^{\beta_0} . e^{\beta_1 x_1} . e^{\beta_2 x_2} . e^{\beta_3 x_3} \ldots \tag{G.3}$$

Hence, the quantity e^{β} can be interpreted as the relative odds. In other words, the quantity e^{β} is equivalent to the odds that an individual with characteristic x will experience the outcome of interest as compared to an individual who has the characteristic $x-1$. Relative odds greater than 1 imply that the characteristic considered is associated with higher odds of breastfeeding. Relative odds less than 1 imply that the characteristic considered is associated with diminished odds of outcome of interest.

The statistical testing of the β coefficients yields the information about whether a given predictor variable is significantly associated with the odds of occurrence of the outcome of interest. The multivariate logistic regression models presented in this report are estimated using the SUDAAN statistical software. Because of the stratified and clustered nature of the WIC-IFPS sample, the statistical significance tests of the coefficients that are provided by most standard statistical packages give downward-biased estimates of these quantities. The estimates provided in this report account for the complex sampling plan underlying the WIC-IFPS data.

G.3. Multivariate Analysis of Hazard Rates

Infant feeding practices that are age-dependent are modeled using multivariate models developed for hazard rates. These models include a component that describes the age dependence and a component that describes the dependence of a duration-specific rate of occurrence on a series of individual characteristics:

$$\log h(t) = \log h_0 + \beta_1 x_1 + \beta_2 x_2(t) + \beta_3 x_3 + \ldots \qquad \textbf{(G.4)}$$

where $h(t)$ refers to the likelihood (rate) that a mother will initiate a certain feeding practice at time (or age) t, h_0 refers to the "baseline" rate, and β refers to the estimated coefficient that represents the strength of the association between a given predictor characteristic (x) and the likelihood of initiating the feeding practice. The predictor characteristics may themselves be time-dependent (e.g., maternal employment). Hence, x_2 in Equation G.4 may change depending on the time indicator t. In contrast, x_1 is a characteristic that remains constant over time (e.g., maternal race).

The coefficients estimated by the multivariate models of "hazard" rates are more easily interpreted if they are exponentiated. The exponentiated coefficients can be interpreted as the estimated relative risk, or the factor by which the rate of initiating the feeding practice of interest is expected to be different for a mother with characteristic x as compared to one with characteristic $x-1$. A relative risk (i.e., e^{β}) greater than 1 indicates that the corresponding predictor variable x is associated with an increase in the risk of initiating the feeding practice of interest. A relative risk less than 1 indicates that the corresponding predictor variable x is associated with a decline in the risk of initiating the feeding practice of interest.

An important issue in the specification of the multivariate models of hazard rates is the specification of the model component that describes the time dependence ($h_0(t)$). A theoretically developed approach to the modeling of the pattern of time dependence is difficult, since the pattern of time dependence itself is often not of substantive interest. There are two approaches to the modeling of time dependence of rates of occurrence, both of which allow flexible, unconstrained (*non-parametric*) specifications. Constrained specifications are not discussed here, since for the

feeding practices examined here, empirical or theoretical evidence for the specification of a pattern of time dependence does not exist. The two unconstrained approaches are the partial-likelihood approach (also referred to as Cox's proportional hazards) and the full-likelihood, piecewise constant hazard rate models. We propose to use the full-likelihood, piecewise constant hazard rate models because of the following three reasons:

(1) The piecewise constant hazard rate models will allow the specification of a flexible pattern of time (age) dependence of the rates of occurrence, while allowing the estimation of this pattern simultaneously with the coefficients of the predictors of rates. The Cox model allows the estimation of the pattern of time dependence, not simultaneously with the coefficients, but rather marginally, after the estimation of the β coefficients.

(2) The piecewise constant hazard rate models provide a very simple way of incorporating the effects of time-varying predictors (i.e., characteristics that tend to change over the period of interest). Examples of time-varying predictors are child-care use and whether the infant receives formula or other foods concurrently. Time-varying predictors are more difficult to incorporate in Cox proportional hazards models.

(3) The efficiency of Cox's proportional hazards models declines to the extent that events of interest cluster in certain durations. While clustering of age of occurrence of some feeding practices (e.g., weaning) is not an issue (the events are very accurately dated and spread out over the infancy), there may be substantial clustering of the age of occurrence of other feeding practices (e.g., ages of initiation of vegetables).

Because of these reasons, the piecewise constant hazard rate specification was adopted in this report. Multivariate models of hazard rates are estimated using the maximum likelihood estimation technique with the SAS statistical software. The standard errors of the estimated β coefficients, however, must be corrected to account for the stratified clustered design of the WIC-IFPS. This was accomplished by using the jackknife technique. This technique involves repeated estimations of the β coefficients, dropping one clinic (sampling unit) at a time from the sample.

The WIC-IFPS has 43 clinics, so the estimation is repeated 43 times. The mean-square deviations of the 43 sets of estimates are used to estimate the corrected standard errors of the β coefficients.

APPENDIX H

A PROTOCOL FOR BUILDING MULTIVARIATE MODELS OF INFANT FEEDING PRACTICES

In this report, a large number of multivariate models are presented that investigate the determinants of infant feeding behaviors. In many cases, the relative contributions of many potential predictors were tested. However, the inclusion of all these predictors in a single model is often impractical, and parsimonious[1] models must be built. The results presented in this report pertain to these parsimonious models, built on the basis of tests of a larger number of predictors.

The model-building protocol that was followed allowed the testing of the predictive powers of clusters of variables and the elimination of some of these variables so that the resulting model would be simple and easy to interpret. The predictors were eliminated from a multivariate model if the following three conditions were satisfied:

- the variable under consideration has no significant predictive power
- the variable under consideration is also not of primary policy concern
- the variable under consideration is not of primary substantive interest.

In testing a cluster of variables, a group of predictors was entered into the multivariate model, where a group is defined as all predictors that pertain to the same construct as indicated in the conceptual model. The constructs in the conceptual model consist of socio-demographic characteristics, health-related characteristics, social context measures, sources of nutrition advice other than WIC, availability of foods from other sources, infant feeding attitudes, concurrent infant feeding practices, and WIC program characteristics and incentives. Any predictors that could be deleted (i.e., satisfied the above criteria) were removed from the multivariate model before the next cluster of variables was tested.

[1] The simplest assumption in the formulation of a model.

In this report, all of these intermediate model-building results are not presented because of the volume of such results and difficulty in interpreting them. Instead, selected reduced models are presented in the text tables.

APPENDIX I

DETAILED TABLES

LIST OF DETAILED TABLES

Page

Table II.5. (Detail) Percentages of mothers reporting the receipt of WIC vouchers for formula and for supplemental foods I-3

Table II.6. (Detail) Percentages of mothers reporting receipt of information about various aspects of infant feeding from WIC by maternal race/ethnicity I-4

Table IV.1. (Detail) and Figure IV.2. (Data) Breastfeeding initiation rates by socio-demographic and health-related characteristics I-5

Table IV.4. (Detail) and Table IV.5. (Detail) Percentage of mothers agreeing with statements about perceived benefits of and barriers to breastfeeding I-7

Figure IV.5. (Data) Percentages of only breastfeeding, breast- and formula-feeding, and only formula-feeding WIC mothers at each month of interview I-11

Table IV.6. (Detail) Percentage distribution of the infants by nursing diets at the time of each interview month, by selected socio-demographic characteristics I-12

Figure IV.6. (Data) Percentages of breastfeeding WIC mothers by type of breastfeeding practice at each month of interview I-14

Table IV.7. (Detail) Median age in days of the infant at the time when formula supplementation is initiated, by selected socio-demographic characteristics I-15

Figure V.2. (Data) Number of days of hospital stay for WIC mothers and infants I-16

Figure V.3. (Data) Percentage of WIC infants who stayed in the nursery overnight, by maternal race/ethnicity I-17

Table V.1. (Detail) and Figure V.4. (Data) Type of first feeding received by the WIC infants in the hospital I-18

Figure V.5. (Data) Percentage of WIC mothers who reported not receiving help from the hospital staff among those who had common nursing problems I-19

Figure V.6. (Data) Percentage of WIC mothers who reported receiving various items in their gift packages from the hospital I-20

Table VI.1. (Detail) and Figure VI.2. (Data) Breastfeeding schedules of WIC mothers over the first 5 months of their infants' first year by maternal socio-demographic characteristics I-21

Table VI.2. (Detail) Usual number of daily breastfeeds, by maternal socio-demographic characteristics I-22

Table VI.3. (Detail) Percentage of WIC mothers who report expressing milk during the past week, by maternal socio-demographic characteristics I-23

Figure VI.3. (Data) Percentage of breastfeeding WIC mothers expressing milk, using electric breastpumps, using manual breastpumps, and expressing milk by hand I-24

Table VI.5. (Detail) and Figure VI.4. (Data) Percentage of WIC mothers who add other foods or liquids into the bottle with the formula, by socio-demographic and health-related characteristics I-25

Figure VI.5. (Data and Detail) Percentage of mothers who report adding other foods in the formula at Months 1, 3 and 6, among those who think that the amount of formula given by WIC is more than enough, the right amount, or not enough I-26

Table VI.6. (Detail) Percentage distribution of formula-feeding WIC mothers, by brand name of formula I-27

Figure VII.1 (Data) Percentage of breastfeeding WIC mothers who report experiencing nursing problems in Months 1,3, and 5 ..... I-28

Table VIII.1. (Detail) Median age of the infant (in days) when specific supplemental foods are initiated by selected socio-demographic characteristics of the mother I-29

Figure VIII.5. (Data) Percentages of mothers initiating cereals, fruits, vegetables, and meats as the first, second, third, or fourth supplemental solid I-30

Table VIII.6. (Detail) Median age of the infant at the time of initiation of fruit juices and sweet drinks, by selected socio-demographic characteristics of the mother I-31

Table IX.2. (Detail), Figure IX.1. (Data) and Figure IX.2. (Data) Methods of feeding supplemental foods at interview months when data were elicited, by maternal race/ethnicity I-32

Table IX.3 (Detail) and Figure IX.3. (Data) Percentages of WIC mothers who adopt supplemental food feeding practices that are generally not recommended I-33

Table II.5. (Detail) Percentages of mothers reporting the receipt of WIC vouchers for formula and for supplemental foods.

	N	Total	Maternal Race/Ethnicity			
			White	African American	Hispanic	Other
Used WIC vouchers to buy formula for the infant						
Month 1	576	66.3	64.7	71.7	67.6	50.7
Month 2	690	79.8	80.3	81.4	77.9	77.8
Month 3	755	81.6	81.3	84.8	80.1	77.6
Month 4	805	81.7	82.3	84.9	77.1	79.4
Month 5	819	82.4	82.7	86.0	77.0	85.5
Month 6	814	83.8	84.4	85.1	81.1	81.7
Month 7	827	82.9	83.7	83.0	80.7	82.5
Month 9	824	82.0	80.5	85.6	80.8	86.4
Month 12	824	61.0	56.9	62.8	69.9	60.6
Used WIC vouchers to buy supplemental food items for the infant						
Month 1	577	4.2	2.0	3.1	9.0	5.9
Month 2	690	4.5	5.3	0.6	6.5	4.0
Month 3	755	5.9	5.8	5.5	7.2	1.9
Month 4	805	17.1	17.3	19.3	15.2	11.6
Month 5*	819	47.5	50.4	48.5	44.4	24.4
Month 6	814	69.0	68.6	65.2	77.2	56.8
Month 7	827	83.3	84.4	77.1	88.2	80.9
Month 9	824	86.3	84.9	86.1	88.4	92.9
Month 12	823	76.5	71.3	80.1	84.5	82.9

Table II.6. (Detail) Percentages of mothers reporting receipt of information about various aspects of infant feeding from WIC by maternal race/ethnicity

	Total		Maternal Race/Ethnicity			
	N	Percent	White	African American	Hispanic	Other
RECEIPT OF INFORMATION ABOUT BREASTFEEDING PRENATALLY[1]						
Received information on benefits of breastfeeding	541	82.8	83.1	79.8	86.6	70.4
Received information on how to breastfeed	541	68.0	61.4	69.5	78.3	76.6
Received information on maternal diet while breastfeeding	538	58.5	57.0	55.4	63.7	58.3
RECEIPT OF INFORMATION ABOUT BREASTFEEDING POSTNATALLY[2]						
Received information on benefits of breastfeeding	838	56.5	53.5	50.6	70.9	55.7
Received information on how to breastfeed	837	49.9	45.7	44.2	67.6	44.0
Received information on maternal diet while breastfeeding	833	48.4	46.9	42.7	59.3	45.6
PERCEPTION ABOUT WIC INFANT FEEDING RECCOMENDATION						
WIC's infant feeding recommendation is thought to be:						
Breastfeeding only	824	37.8	40.9	19.0	50.8	37.8
Bottle feeding only		2.3	0.7	5.4	0.8	12.6
Both are OK		59.8	58.4	75.6	48.4	49.5
RECEIPT OF OTHER INFORMATION/ADVICE						
Received information about the special WIC food package for breastfeeding women who do not accept formula from WIC[1]**	831	29.6	36.7	16.9	24.8	36.5
WIC Program staff told mother to breastfeed[2]*	837	54.1	51.7	44.7	70.8	51.5
RECEIPT OF INFORMATION ON FORMULA FEEDING						
Received information on how to formula feed**	837	58.5	50.8	65.5	68.3	65.0
Received information on how to prepare formula	761	51.6	46.9	58.7	50.9	68.2
RECEIPT OF INFORMATION ON FEEDING OF SUPPLEMENTAL FOODS						
Received information on when to begin giving cereal and other foods	838	59.7	58.8	61.6	60.8	54.1
RECEIPT OF COUNSELING ON INFANT FEEDING						
Reported discussing the methods she is using to feed the infant with WIC staff						
Month 1	542	38.5	32.2	49.4	40.1	47.3
Month 2	663	35.1	36.5	37.4	30.9	29.5
Month 4	794	31.1	29.7	29.9	33.0	45.0
Month 6	802	29.8	28.6	32.9	31.2	21.4
Month 9	812	32.3	32.3	32.3	32.2	29.8
Month 12*	805	32.6	27.5	39.8	38.3	29.9

Notes:

1 The question was phrased as, "Before the child was born, did you receive any of the following information or advice from the WIC office? benefits of breastfeeding; how to breastfeed; mother's diet while breastfeeding..."

2 The question was phrased as, "Since the child was born, have you received any of the following information or advice from the WIC office? benefits of breastfeeding; how to breastfeed; mother's diet while breastfeeding..."

* Chi-square statistic testing the association with maternal race/ethnicity is significant at $p < .05$.

** Chi-square statistic testing the association with maternal race/ethnicity is significant at $p < .01$.

Table IV.1. (Detail) and Figure IV.2. (Data) Breastfeeding initiation rates by socio-demographic and health-related characteristics.

Characteristics	Breastfeeding Initiation Rate	N
Total	55.5	874
SOCIO-DEMOGRAPHIC CHARACTERISTICS		
Race/Ethnicity**		
White	52.9	449
African American	33.5	202
Hispanic	84.2	168
Other	62.3	55
Age*		
14 - 19	44.8	201
20 - 25	57.0	382
26 or older	61.5	291
Birth order of the infant		
First born	55.1	349
Second born	57.3	164
Third born or younger	54.6	348
Immigrant status**		
Born in the U.S.	47.7	703
Born elsewhere	88.3	152
Marital status**		
Married	65.8	376
Post married[1]	50.9	102
Never married	46.0	376
Father of the infant lives with the mother		
Yes	61.8	380
No	51.2	494
Household size (including the infant)		
2	70.5	45
3	54.3	225
4	54.1	236
5	52.9	143
6 or more	55.9	203
Poverty level		
< 50%	55.0	298
50 - 100%	60.4	244
100% or more	61.5	98
Highest grade completed by the mother*		
9th grade or less	59.0	137
10th or 11th grades	48.9	186
12th grade	51.1	366
More than high school	71.1	168
Mother was working while pregnant		
Yes	56.2	339
No	54.6	496
HEALTH-RELATED CHARACTERISTICS		
Experienced health problems during pregnancy		
Yes	54.1	473
No	56.6	363

Characteristics	Breastfeeding Initiation Rate	N
Timing of first prenatal visit		
0 - 3 months	55.1	717
4 months or later	56.6	141
Birthweight**[2]		
Low birthweight	32.6	64
Normal birthweight	56.4	783
Overweight	77.4	26
Number of days in hospital postpartum*		
0 or 1	63.9	326
2	51.5	320
3	45.0	134
4 or more	54.6	78

Notes:

1. Divorced, separated, or widowed.
2. Low birthweight indicates 5 lbs 8 oz or less, normal birthweight indicates 5 lbs 9 oz to 9 lbs14 oz, and high birthweight indicates heavier than 9 lbs 14 oz.

* Chi-square statistic testing the group differences is significant at $p<.05$.

** Chi-square statistic testing the group differences is significant at $p<.01$.

Table IV.4. (Detail) and Table IV.5. (Detail) Percentage of mothers agreeing with statements about perceived benefits of and barriers to breastfeeding.

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
Breastfeeding is easier than bottle feeding.[1,3]							
Agree	50.4	43.3	40.2	76.5	63.1	22.6	72.9
Not sure	9.8	10.4	11.7	6.6	6.9	19.1	2.2
Disagree	39.8	46.3	48.1	16.9	30.0	58.3	24.8
Breastfeeding takes too much time.[3]							
Agree	34.0	29.6	39.5	39.3	32.1	42.2	27.4
Not sure	8.0	9.7	8.7	3.8	3.9	15.3	2.0
Disagree	58.0	60.7	51.8	56.9	64.0	42.5	70.6
Breastfeeding would tie you down.[3]							
Agree	41.3	40.6	50.0	34.1	37.0	51.4	33.0
Not sure	4.9	4.4	8.5	2.8	2.2	9.8	0.9
Disagree	53.8	55.1	41.5	63.0	60.9	38.8	66.1
Breastfeeding means no one else can feed your baby.[1,3]							
Agree	47.5	35.3	63.7	57.7	57.0	53.6	42.5
Not sure	2.5	2.4	4.4	1.1	0.8	4.0	1.3
Disagree	50.0	62.3	31.9	41.2	42.2	42.4	56.1
Your breasts are too small to breastfeed.[3]							
Agree	11.2	7.0	9.4	23.3	12.7	13.0	9.7
Not sure	3.2	5.0	2.4	0.4	0.0	6.7	0.3
Disagree	85.6	88.0	88.1	76.3	87.3	80.3	89.9
Women who breastfeed have a hard time finding the right kind of clothes to wear.[3]							
Agree	23.9	20.7	27.9	27.3	22.6	25.7	22.4
Not sure	9.8	12.2	8.4	6.0	7.9	18.1	3.2
Disagree	66.3	67.1	63.7	66.6	69.5	56.3	74.5
Breastfeeding means you can't go back to school or work.							
Agree	13.3	9.1	9.9	24.5	26.6	13.4	13.2
Not sure	2.6	2.6	3.0	2.5	1.5	4.5	1.1
Disagree	84.1	88.3	87.1	73.1	71.9	82.2	85.8
You would not want to breastfeed in public.[2,3]							
Agree	60.8	60.2	68.4	55.2	54.3	74.5	49.7
Not sure	1.8	1.9	1.6	2.0	0.0	2.9	0.8
Disagree	37.4	37.9	30.0	42.8	45.7	22.6	49.5

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
You would be afraid that breastmilk would leak onto your clothes.[2,3]							
Agree	46.5	45.3	61.0	35.6	36.3	55.6	39.1
Not sure	1.5	1.4	2.1	1.3	1.5	2.4	0.8
Disagree	51.9	53.3	36.9	63.1	62.1	42.0	60.1
With bottle feeding, the mother knows that the baby is getting enough to eat.							
Agree	75.6	75.0	75.2	78.5	72.0	77.4	74.2
Not sure	4.4	4.5	3.6	6.0	0.8	5.3	3.7
Disagree	19.9	20.5	21.2	15.6	27.2	17.3	22.0
Breastfeeding helps women lose weight.[3]							
Agree	53.2	51.5	41.8	70.1	52.3	35.3	67.7
Not sure	23.6	26.5	25.7	13.3	26.5	36.4	13.1
Disagree	23.3	21.9	32.5	16.6	21.2	28.3	19.2
Breastfed babies are healthier than bottlefed babies.[1,3]							
Agree	61.3	51.0	62.0	85.9	62.6	42.0	77.2
Not sure	11.7	12.4	16.3	3.8	16.6	17.1	7.3
Disagree	27.0	36.6	21.7	10.4	20.8	41.0	15.5
You have enough breastmilk to feed the baby.[3]							
Agree	55.2	53.9	64.5	49.4	50.0	47.6	61.5
Not sure	13.9	17.3	14.2	5.0	14.2	26.3	3.8
Disagree	30.9	28.8	21.3	45.6	35.8	26.1	34.7
Breastmilk alone gives a new baby all he/she needs to eat.[2,3]							
Agree	70.6	69.3	59.1	86.3	73.3	53.3	84.8
Not sure	11.8	13.0	15.2	6.2	6.9	21.6	3.9
Disagree	17.5	17.7	25.7	7.4	19.8	25.1	11.3
Breastfeeding helps protect the baby from diseases.[2,3]							
Agree	76.9	76.2	64.0	92.8	79.9	58.4	92.1
Not sure	9.8	10.1	15.2	4.4	3.9	18.1	3.1
Disagree	13.2	13.7	20.8	2.9	16.1	23.5	4.8
Breastfeeding brings a mother closer to her baby.[2,3]							
Agree	80.9	74.7	80.7	93.3	95.5	64.5	94.2
Not sure	3.9	4.9	2.8	3.6	0.0	7.9	0.6
Disagree	15.2	20.5	16.5	3.1	4.5	27.6	5.1

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
A man feels left out if a women breastfeeds.[3]							
Agree	31.9	31.4	36.1	27.4	37.3	30.9	32.7
Not sure	17.8	17.1	21.2	17.6	9.4	25.7	11.4
Disagree	50.3	51.6	42.7	55.0	53.3	43.4	55.9
Breastfeeding interferes with peoples' sex lives.[3]							
Agree	11.3	9.6	11.3	16.4	7.2	9.3	13.0
Not sure	16.1	18.6	16.7	11.1	6.4	26.4	7.6
Disagree	72.6	71.8	71.9	72.5	86.4	64.3	79.5
Women who breast feed should not take birth control pills.[4]							
Agree	58.6	61.6	55.4	56.0	53.6	61.3	56.4
Not sure	22.5	22.6	24.1	19.1	29.8	26.8	19.0
Disagree	18.8	15.9	20.5	24.9	16.6	11.9	24.6
You know a lot about breastfeeding.[1,3]							
Agree	57.6	62.7	41.7	58.3	78.4	37.2	74.2
Not sure	8.0	9.4	6.2	8.0	1.5	10.9	5.6
Disagree	34.4	27.9	52.1	33.7	20.0	51.9	20.2
Breastfeeding will make your breasts sag.[1,3]							
Agree	28.9	20.2	31.8	49.3	18.1	24.1	32.8
Not sure	21.2	24.0	21.3	13.4	24.7	32.3	12.1
Disagree	49.9	55.9	46.9	37.2	57.2	43.7	55.1
Bottle feeding is more expensive than breastfeeding							
Agree	93.5	95.4	93.9	88.1	95.5	92.6	94.3
Not sure	1.9	1.4	1.6	2.9	3.7	3.1	0.9
Disagree	4.6	3.3	4.5	8.9	0.8	4.3	4.9
Breast pumps are easy to use.[2,3]							
Agree	43.6	36.5	37.5	68.1	41.4	27.3	57.0
Not sure	33.4	38.4	37.6	17.8	26.4	56.3	14.4
Disagree	23.1	25.1	25.0	14.1	32.2	16.4	28.5
Any woman who wants to can breastfeed.[2,4]							
Agree	79.9	75.5	76.4	94.2	83.6	73.3	85.3
Not sure	2.7	3.0	4.0	0.5	1.8	4.1	1.4
Disagree	17.4	21.5	19.6	5.3	14.6	22.5	13.2
Women who breastfeed shouldn't smoke.							
Agree	92.8	93.7	91.3	92.9	87.3	91.4	94.0
Not sure	3.2	2.6	3.0	5.0	2.3	4.6	2.0
Disagree	4.1	3.7	5.4	2.1	10.4	4.2	4.0

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
Breastfeeding is painful.[1,3]							
Agree	39.4	32.1	49.7	47.1	33.2	35.4	42.7
Not sure	15.8	19.9	20.5	3.8	0.0	34.3	0.8
Disagree	44.8	48.0	29.8	49.1	66.8	30.3	56.6
There is too much pressure on women to breastfeed.[3]							
Agree	28.1	27.4	34.4	24.2	20.8	39.5	18.7
Not sure	6.9	7.2	7.4	6.3	3.6	11.3	3.3
Disagree	65.0	65.3	58.3	69.5	75.6	49.1	78.0
Breastfeeding will protect your baby against ear infections.[2,3]							
Agree	46.5	39.4	43.6	66.0	52.0	30.2	59.9
Not sure	32.2	37.1	35.0	21.5	10.8	40.8	25.2
Disagree	21.3	23.4	21.5	12.5	37.2	29.0	14.9
Breastfeeding will protect your baby against diarrhea.[2,3]							
Agree							
Not sure	36.4	25.2	32.8	64.9	53.0	21.7	48.4
Disagree	33.2	37.8	37.7	21.5	10.1	43.2	25.0
	30.4	37.0	29.5	13.6	36.8	35.1	26.6
Only poor women breastfeed.							
Agree	3.9	1.0	1.2	13.7	5.1	3.4	4.3
Not sure	3.4	2.7	6.1	1.8	3.5	5.2	1.9
Disagree	92.8	96.3	92.7	84.5	91.4	91.4	93.9

Notes

1. Chi-square statistic testing the association with maternal race/ethnicity is significant at p< 01.
2. Chi-square statistic testing the association with maternal race/ethnicity is significant at p<.05
3. Chi-square statistic testing the association with maternal breastfeeding status is significant at p< 01
4. Chi-square statistic testing the association with maternal breastfeeding status is significant at p< 05

Figure IV.5. (Data) Percentages of only breastfeeding, breast- and formula-feeding, and only formula-feeding WIC mothers at each month of interview.

Interview Month	Nursing Diet				N[1]
	Only Breastfed	Breast and Formula Fed	Only Formula Fed	Neither Breast or Formula Fed	
Month 1	13.0	20.2	65.3	1.4	577
Month 2	9.9	14.7	74.3	1.1	690
Month 3	8.9	11.5	78.9	0.7	755
Month 4	7.9	11.4	79.9	0.7	805
Month 5	7.1	8.8	83.3	0.8	819
Month 6	6.3	7.9	84.3	1.5	814
Month 7	5.7	6.7	85.8	1.7	827
Month 9	4.7	5.4	85.2	4.7	824
Month 12	4.9	2.3	55.6	37.2	824

Note:
1 Includes all infants whose mothers were interviewed that month.

Table IV.6. (Detail) Percentage distribution of the infants by nursing diets at the time of each interview month, by selected socio-demographic characteristics.

Characteristics	Nursing Diet				N[1]
	Only Breastfed	Breast and Formula Fed	Only Formula Fed	Neither Breast or Formula Fed	
MONTH 1					
Race/Ethnicity**					
White	14.5	16.8	66.7	2.0	295
African American	3.2	14.3	82.0	0.5	125
Hispanic	14.7	33.2	50.7	1.4	125
Other	34.4	12.6	53.0	0.0	32
Age					
14 - 19	8.5	9.3	81.7	0.5	135
20 - 25	14.4	23.0	60.6	2.0	247
26 or older	14.8	24.9	58.9	1.4	195
Highest grade completed by the mother*					
9th grade or less	11.0	22.2	64.0	2.8	90
10th or 11th grades	7.1	12.5	80.4	0.0	112
12th grade	13.6	16.9	67.5	2.1	242
More than high school	19.7	33.7	45.9	0.6	122
MONTH 2					
Race/Ethnicity**					
White	9.5	11.5	78.0	1.0	359
African American	4.8	7.8	87.1	0.4	152
Hispanic	14.2	26.7	57.0	2.1	139
Other	17.3	22.4	60.3	0.0	40
Age					
14 - 19	7.6	7.1	84.5	0.8	153
20 - 25	8.8	13.4	78.2	0.6	332
26 or older	11.7	15.6	71.8	0.9	248
Highest grade completed by the mother**					
9th grade or less	11.0	13.0	72.1	4.0	111
10th or 11th grades	3.6	11.9	84.0	0.4	140
12th grade	10.6	10.8	78.1	0.5	296
More than high school	16.2	28.6	54.6	0.6	130
MONTH 3					
Race/Ethnicity**					
White	8.3	8.7	82.1	0.9	392
African American	3.5	4.3	91.8	0.4	167
Hispanic	15.2	23.1	61.0	0.7	154
Other	10.9	20.0	69.1	0.0	42
Age					
14 - 19	5.5	4.4	89.4	0.7	175
20 - 25	8.8	12.4	78.2	0.6	332
26 or older	11.7	15.6	71.8	0.9	248

Characteristics	Nursing Diet				N[1]
	Only Breastfed	Breast and Formula Fed	Only Formula Fed	Neither Breast or Formula Fed	
Highest grade completed by the mother**					
9th grade or less	11.2	13.1	73.6	2.0	121
10th or 11th grades	3.1	6.1	90.4	0.4	152
12th grade	9.3	8.9	81.3	0.5	323
More than high school	13.7	22.5	63.3	0.5	145
MONTH 4					
Race/Ethnicity**					
White	7.9	7.5	83.7	0.9	423
African American	1.9	7.6	90.2	0.3	182
Hispanic	14.0	24.2	61.0	0.8	150
Other	10.2	19.1	70.7	0.0	50
Age*					
14 - 19	4.5	4.8	90.4	0.3	183
20 - 25	6.4	12.2	80.9	0.5	354
26 or older	12.6	15.4	70.7	1.2	268
Highest grade completed by the mother*					
9th grade or less	8.9	13.6	75.9	1.5	124
10th or 11th grades	2.4	7.4	89.9	0.3	164
12th grade	8.6	7.4	83.2	0.8	345
More than high school	13.9	21.8	63.9	0.5	155

Notes:

1 Includes all infants whose mothers were interviewed that month

* Chi-square statistic testing the group differences is significant at $p<.05$

** Chi-square statistic testing the group differences is significant at $p<.01$

Figure IV.6. (Data) Percentages of breastfeeding WIC mothers by type of breastfeeding practice at each month of interview.

Interview Month	Breastfeeding Practice			N[4]
	Exclusive or Predominant Breastfeeding[1]	Breastfeeding with Formula or Milk[2]	Complementary Breastfeeding[3]	
Month 1	38.2	50.6	11.1	195
Month 2	32.8	43.2	24.0	175
Month 3	31.7	36.1	32.2	158
Month 4	18.1	20.0	62.0	158
Month 5	5.7	3.6	90.7	138
Month 6	2.1	0.8	97.1	124
Month 7	3.7	0.3	96.0	111
Month 9	0.0	0.0	100.0	88

Notes:
1. Breastmilk alone or breastmilk and other drinks but no milk or formula.
2. Breastmilk and formula or milk; diet may include other drinks but no solids.
3 Breastmilk and supplementary solids with or without formula or milk.
4 Includes all breastfeeding mothers who were interviewed that month.

Table IV.7. (Detail) Median age in days of the infant at the time when formula supplementation is initiated, by selected socio-demographic characteristics.

Characteristics	Median Age[1] of the Infant at the Time Formula Supplementation is Initiated	N
Total	16	477
SOCIO-DEMOGRAPHIC CHARACTERISTICS		
Race/Ethnicity		
White	20	233
African American	12	69
Hispanic	13	135
Other	24	40
Age		
14 - 19	13	95
20 - 25	16	206
26 or older	20	176
Birth order of the infant		
First born	13	196
Second born	12	85
Third born or younger	23	186
Immigrant status		
Born in the U.S.	18	337
Born elsewhere	13	128
Father of the infant lives with the mother		
Yes	17	228
No	14	249
Poverty level		
< 50%	13	156
50 - 100%	17	142
100% or more	14	63
Highest grade completed by the mother		
9th grade or less	12	75
10th or 11th grades	14	88
12th grade	16	184
More than high school	24	116

Note:
1. Age when 50% of the mothers have initiated formula supplementation.

Figure V.2. (Data) Number of days of hospital stay for WIC mothers and infants.

Number of Days	Mothers (Percentage)	Infants (Percentage)
0	2.7	3.2
1	36.1	33.9
2	36.5	34.3
3	16.1	14.5
4	4.8	4.8
5	1.9	3.1
6	0.9	1.2
7	0.3	1.3
8	0.2	0.7
9	0.0	0.4
10	0.2	0.5
11	0.1	0.5
12 or more	0.2	1.5
N	858	873

Figure V.3. (Data) Percentage of WIC infants who stayed in the nursery overnight, by maternal race/ethnicity.*

	Percentage that Stayed in the Nursery Overnight	N
Total	72.4	824
White	72.6	421
African American	82.4	195
Hispanic	63.7	160
Other	59.0	48

* Chi-square statistic testing the race/ethnicity differences is significant at $p<.05$.

Table V.1. (Detail) and Figure V.4. (Data) Type of first feeding received by the WIC infants in the hospital.

Characteristics	Percentage Receiving					N
	Formula	Breast-milk	Sugar Water	Plain Water	Other	
Total	59.6	28.8	5.5	4.2	2.0	815
Race/Ethnicity						
White	54.6	34.1	6.5	3.5	1.3	419
African American	76.8	12.1	4.7	5.7	1.1	191
Hispanic	56.8	32.8	3.1	3.1	4.2	157
Other	41.1	35.7	8.8	10.6	3.9	48
Age						
14 - 19	66.7	21.5	4.2	4.3	3.2	190
20 - 25	56.7	32.7	4.0	5.2	1.4	358
26 or older	58.0	29.0	8.5	2.7	1.8	267
Birth order of the infant						
First born	61.5	25.5	5.4	4.8	2.8	326
Second born	57.9	31.2	4.3	4.2	2.4	154
Third born or younger	58.6	30.9	5.7	3.8	1.0	179
Immigrant status						
Born in the U.S.	61.4	26.9	6.2	4.3	1.2	665
Born elsewhere	52.4	37.5	2.4	3.9	3.9	133
Marital status*						
Married	50.2	28.3	6.7	3.3	1.4	349
Post married	61.5	23.4	5.9	6.2	3.0	98
Never married	68.9	21.0	4.2	4.4	1.5	350
Father of the infant lives with the mother*						
Yes	47.9	39.5	7.8	3.5	1.3	362
No	67.8	21.3	3.8	4.6	2.5	453
Poverty level						
< 50%	64.1	25.5	3.6	5.4	1.4	276
50 - 100%	55.1	34.5	6.4	3.0	1.0	224
100% or more	52.3	32.7	8.5	5.5	1.0	92
Highest grade completed by the mother						
9th grade or less	68.8	19.7	1.0	7.8	2.8	122
10th or 11th grades	66.5	23.5	5.8	3.0	1.2	171
12th grade	59.9	27.1	6.8	4.0	2.3	353
More than high school	40.6	49.1	5.1	3.5	1.8	154
Birthweight						
Low birthweight[1]	64.6	11.7	11.7	6.7	5.3	60
Normal birthweight[2]	59.7	29.6	4.8	4.1	1.7	730
Overweight[3]	41.9	42.0	13.1	0.0	3.0	24
Number of days in the hospital postpartum*						
0 or 1	50.5	38.4	5.7	3.8	1.6	305
2	60.0	28.3	5.9	5.0	0.8	296
3	73.5	15.7	4.9	4.4	1.4	127
4 or more	75.6	13.0	4.9	3.2	3.3	72

Notes:
1 Less than 5 lbs., 9 oz.
2. Between 5 lbs., 9 oz. and 9 lbs., 14 oz.
3. 9 lbs., 15 oz. or heavier.
* Chi-square statistic for the subtable is significant at $p < .05$.

Figure V.5. (Data) Percentage of WIC mothers who reported not receiving help from the hospital staff among those who had common nursing problems.

Experiencing Nursing Problems	Percentage not Receiving Help	N[1]
Sore nipples	29.7	203
Breasts were too full	16.9	119
Milk came in late	23.0	105
Not enough milk	25.3	172

Note:
1. Number of mothers who reported experiencing the nursing problem.

Figure V.6. (Data) Percentage of WIC mothers who reported receiving various items in their gift packages from the hospital.

Gift Item	Received	Did not Receive	No Gift Pack	N
Formula	85.5	7.6	6.9	816
Pacifier	64.0	29.1	6.9	820
Toy	48.0	45.0	7.0	815
Bottle	37.9	55.2	6.9	822
Sugar water	15.4	77.7	6.9	820
Breast pump	12.3	80.8	6.9	819
Formula or bottle or sugar water or pacifier	91.7	1.4	6.9	821

Table VI.1. (Detail) and Figure VI.2. (Data) Breastfeeding schedules of WIC mothers over the first 5 months of their infants' first year by maternal socio-demographic characteristics.

Socio-Demographic Characteristics	Interview Months										
	Month 1			Month 2			Month 3			Month 4	
	Percent on Set Schedule	Percent When Cried or Seemed Hungry	Percent Both	Percent on Set Schedule	Percent When Cried or Seemed Hungry	Percent Both	Percent on Set Schedule	Percent When Cried or Seemed Hungry	Percent Both	Percent on Set Schedule	Percent When Cried or Seemed Hungry
Total	23.2	64.5	12.2	19.4	67.4	13.2	18.8	69.4	11.8	12.4	71.6
Race/Ethnicity											
White	16.8	67.6	15.6	21.1	66.2	12.8	13.6	77.2	9.2	6.7	70.5
African American	38.4	54.5	7.2	21.0	57.3	21.7	10.7	57.6	31.7	0.0	85.5
Hispanic	28.0	61.0	11.0	17.2	68.7	14.1	25.9	64.3	9.9	22.0	68.4
Other	16.2	81.2	2.6	18.5	81.5	0.0	17.5	65.9	16.6	11.6	75.2
Age											
14 - 19	19.8	74.7	5.5	21.0	67.4	11.6	15.1	69.9	15.0	18.7	81.3
20 - 25	24.2	65.9	9.9	13.5	71.5	15.0	15.0	74.6	10.4	6.8	73.2
26 or older	23.2	59.7	17.1	25.4	62.8	11.8	23.8	63.8	12.4	15.9	67.8
Birth order of the infant										19.4	66.3
First born	27.2	58.1	14.6	20.7	64.8	14.5	18.4	70.0	11.6	9.5	79.3
Second born	40.5	49.1	10.3	30.9	57.7	11.4	34.2	57.0	8.7		
Third born or younger	11.4	76.8	11.8	14.8	71.7	13.4	14.4	72.0	13.5	6.7	73.0
Immigrant status											
Born in the U S	20.4	67.1	12.5	19.5	65.6	14.9	14.5	70.1	15.4	5.5	76.6
Born elsewhere	28.3	59.8	11.9	18.7	69.6	11.7	25.6	67.9	6.5	23.6	64.0
Father of the infant lives with the mother											
Yes	16.7	71.4	11.9	14.8	72.3	12.9	11.1	77.5	11.4	12.2	72.8
No	29.5	58.0	12.5	23.9	62.6	13.5	25.5	62.3	12.2	12.6	70.7
Poverty level											
< 50%	38.0	49.5	12.5	26.6	60.7	12.6	27.8	61.9	10.4	13.3	68.4
50 - 100%	18.4	73.9	7.7	15.7	74.3	10.0	14.3	70.7	14.9	10.0	72.8
100% or more	31.5	53.0	15.5	24.0	60.2	15.8	29.3	61.4	9.3	14.0	72.2
Highest grade											
9th or less	20.3	73.9	5.9	11.6	81.2	7.2	19.9	63.7	16.4	5.4	81.9
10th - 11th	31.9	56.2	11.9	22.7	64.6	12.7	13.8	79.1	7.1	8.6	79.6
12th	21.6	60.6	17.8	27.4	54.6	18.0	20.9	64.8	14.3	14.8	62.9
> high school	25.9	65.5	8.5	14.4	76.4	9.3	19.2	74.0	6.9	9.6	75.3
N[1]	198			185			163			165	

Note

[1] Breastfeeding mothers who were interviewed at that month only

Table VI.2. (Detail) Usual number of daily breastfeeds, by maternal socio-demographic characteristics.[1]

Socio-Demographic Characteristics	Interview Months				
	Month 1	Month 2	Month 3	Month 4	Month 5
Total	6.87	6.59	6.66	6.12	5.97
Race/Ethnicity					
White	7.66	7.05	7.04	6.36	6.27
African American	6.35	6.77	6.95	5.68	6.01
Hispanic	5.92	6.06	6.37	6.07	5.79
Other	7.32	6.35	5.69	5.67	5.23
Age					
14 - 19	7.63	7.01	6.03	5.97	4.61
20 - 25	6.81	6.62	6.83	6.29	6.17
26 or older	6.69	6.41	6.66	6.01	6.14
Birth order of the infant					
First born	6.86	6.67	6.82	6.05	5.82
Second born	6.57	5.85	5.20	5.46	4.84
Third born or younger	7.13	6.87	7.02	6.44	6.46
Immigrant status		*			
Born in the U.S.	7.45	7.05	7.01	6.28	6.28
Born elsewhere	5.88	5.90	6.15	5.94	5.46
Father of the infant lives with the mother	**	*			
Yes	7.73	7.18	7.02	6.40	5.98
No	6.06	6.02	6.35	5.90	5.96
Poverty level	*	**			
< 50%	5.99	5.11	6.94	5.82	6.12
50 - 100%	7.25	7.08	6.16	6.40	5.99
100% or more	7.62	6.68	6.53	5.66	5.14
Highest grade completed by the mother					
9th grade or less	6.30	6.39	6.62	6.19	5.40
10th or 11th grades	6.57	5.58	5.47	5.71	5.21
12th grade	6.88	6.91	6.88	6.51	6.39
More than high school	7.42	6.83	6.69	5.83	6.06
N[2]	196	186	163	165	143

Notes:
1 Numbers presented are means
2 Breastfeeding mothers who were interviewed at that month only
* F-statistic comparing the means for this month is significant at p< .05
* * F-statistic comparing the means for this month is significant at p< .01

Table VI.3. (Detail) Percentage of WIC mothers who report expressing milk during the past week, by maternal socio-demographic characteristics.

Characteristics	Interview Months		
	Month 1	Month 2	Month 3
Total	35.9	32.1	23.9
Race/Ethnicity			
White	46.2	40.4	35.2
African American	32.2	49.6	39.8
Hispanic	22.7	18.2	10.8
Other	43.1	28.0	13.4
Age			
14 - 19	35.2	40.6	25.8
20 - 25	38.1	37.5	28.1
26 or older	33.7	23.0	19.0
Birth order of the infant	*		*
First born	37.2	38.7	37.1
Second born	55.7	34.1	20.6
Third born or younger	24.5	26.3	16.2
Immigrant status	*	*	*
Born in the U.S.	43.3	39.5	34.0
Born elsewhere	22.8	18.0	7.5
Father of the infant lives with the mother			*
Yes	44.9	36.9	33.6
No	27.4	27.4	15.5
Poverty level			
< 50%	34.4	22.7	14.3
50 - 100%	42.1	39.3	28.4
100% or more	42.3	22.1	22.9
Highest grade completed by the mother			
9th grade or less	33.9	27.8	13.4
10th or 11th grades	33.7	21.3	17.0
12th grade	29.0	33.1	24.1
More than high school	48.1	40.0	33.0
N[1]	198	186	163

Notes:
1 Among the mothers who were breastfeeding and who were interviewed at that month only
* Chi-square statistic testing the group differences for that month is significant at p< 05

Figure VI.3. (Data) Percentage of breastfeeding WIC mothers expressing milk, using electric breastpumps, using manual breastpumps, and expressing milk by hand.

	Percentage	N[1]
Expressing milk	35.9	198
Using electric breastpump	28.3	74
Using manual breastpump	58.1	74
Expressing by hand	23.1	74

Table VI.5. (Detail) and Figure VI.4. (Data) Percentage of WIC mothers who add other foods or liquids into the bottle with the formula, by socio-demographic and health-related characteristics.

Characteristics	Interview Months		
	Month 1	Month 3	Month 6
Total	11.3	23.6	26.0
SOCIO-DEMOGRAPHIC CHARACTERISTICS			
Race/Ethnicity	*	**	**
White	12.5	21.5	21.3
African American	15.7	35.7	35.2
Hispanic	5.7	17.8	30.0
Other	4.5	11.7	13.1
Age		*	*
14 - 19	14.1	27.9	36.9
20 - 25	11.6	25.2	23.2
26 or older	8.8	17.7	21.5
Birth order of the infant			
First born	14.0	29.0	29.4
Second born	8.0	18.3	22.6
Third born or younger	9.2	20.0	23.6
Immigrant status	*	**	
Born in the U.S.	14.1	25.9	26.8
Born elsewhere	2.0	14.1	24.3
Father of the infant lives with the mother			
Yes	11.3	22.1	25.0
No	11.3	24.6	26.7
Poverty level			
< 50%	7.2	24.7	25.7
50 - 100%	16.7	22.5	25.2
100% or more	7.9	15.8	18.3
Highest grade completed by the mother	*		
9th grade or less	3.3	18.3	30.2
10th or 11th grades	11.8	27.5	29.3
12th grade	13.1	23.0	24.6
More than high school	13.1	25.2	19.7
HEALTH-RELATED CHARACTERISTICS			
Birthweight			
Low birthweight	23.5	37.6	29.4
Normal birthweight	10.8	22.3	26.0
Overweight	7.3	27.2	15.7
N[1]	478	674	746

Notes:

1 Among the mothers who were formula feeding and who were interviewed at that month only.

* Chi-square statistic testing the group differences for this month is significant at p< 05

** Chi-square statistic testing the group differences for this month is significant at p<.01

Figure VI.5. (Data and Detail) Percentage of mothers who report adding other foods in the formula at Months 1, 3 and 6, among those who think that the amount of formula given by WIC is more than enough, the right amount, or not enough.

		Amount of Formula Given by WIC		
	Total	More Than Enough	The Right Amount	Not Enough
Month 1	10.8	11.9	4.2	17.5
N[1]	359	221	86	52
Month 3	22.4	21.1	19.6	25.6
N[1]	583	134	208	241
Month 6	25.1	31.3	24.1	23.7
N[1]	656	112	216	328

Note:
1. Among the mothers who receive formula vouchers from WIC.

Table VI.6. (Detail) Percentage distribution of formula-feeding WIC mothers, by brand name of formula.

	Interview Month						
Brand Name	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7
Similac	41.8	38.7	35.5	35.2	33.4	32.8	31.4
Enfamil	23.8	23.3	22.5	20.9	22.4	22.3	22.4
SMA	11.8	8.5	12.5	11.6	10.9	10.5	10.3
Isomil	9.9	10.8	10.0	11.2	11.1	11.2	12.0
Prosobee	6.5	7.0	7.6	7.4	8.6	9.2	9.3
Nursoy	1.6	2.9	3.0	3.8	3.9	4.0	3.7
Good Start	2.4	3.1	3.4	3.5	3.4	3.6	4.0
Nutramigen	0.2	2.0	2.2	2.7	2.6	2.6	2.3
Other	1.9	3.7	3.2	3.6	3.6	3.7	4.6
N[1]	478	604	674	730	747	746	759

Note:
1 Formula-feeding mothers interviewed at that month only

Figure VII.1 (Data). Percentage of breastfeeding WIC mothers who report experiencing nursing problems in Months 1,3, and 5.

Month	No Nursing Problems	Problems with Breasts/ Feeding but None with the Milk	Problems with the Milk but None with Breasts/ Feeding	Problems with Breasts/ Feeding and Milk	N
Month 1	30.5	33.2	14.2	22.1	198
Month 3	55.3	17.6	15.3	11.8	162
Month 5	71.3	12.4	12.3	4.0	143

Table VIII.1. (Detail) Median age of the infant (in days) when specific supplemental foods are initiated by selected socio-demographic characteristics of the mother.

Socio-Demographic Characteristics	Median Age of Initiation							
	Cereals	Fruits	Vegetables	Meats	Starchy Foods	Dairy Foods	High Protein Foods Other than Meats	Sweet/ Snack Foods[1]
Total[2]	106	129	141	190	198	266	269	257
Race/Ethnicity								
White	89	117	137	192	197	262	274	265
African American	101	140	148	184	200	268	268	209
Hispanic	129	132	144	190	197	271	208	197
Other	142	147	147	200	209	270	268	208
Age								
14 - 19	101	120	137	190	186	266	271	209
20 - 25	106	128	139	188	199	264	269	262
26 or older	110	133	142	194	201	269	266	227
Birth order of the infant								
First born	101	123	135	187	197	264	271	211
Second born	101	132	141	197	200	268	269	268
Third born or younger	111	133	144	191	200	267	267	210
Immigrant status								
Born in the U.S.	92	128	139	189	198	264	270	260
Born elsewhere	136	135	148	199	199	274	208	202
Father of the infant lives with the mother								
Yes	103	127	137	194	197	262	271	261
No	107	131	143	186	199	269	267	213
Poverty level[3]								
< 50%	113	135	147	189	200	267	269	260
50 - 100%	94	129	138	191	201	263	267	260
100% or more	102	116	127	178	198	262	265	209
Highest grade completed by the mother								
9th grade or less	118	136	142	203	187	269	267	201
10th or 11th grades	106	133	140	190	197	264	266	207
12th grade	102	124	140	185	198	266	271	267
More than high school	106	132	141	193	206	266	267	262
N	745	803	835	856	827	835	844	829

Notes:

1 Includes sweets (e.g. honey, candy, cookies), snack foods (e.g. crackers, chips) and any other solids not mentioned before

2 Median ages estimated for all infants, regardless of maternal characteristics.

3 Poverty level measures the income of the respondent's family relative to the federal poverty level for a family of that size.

Figure VIII.5. (Data) Percentages of mothers initiating cereals, fruits, vegetables, and meats as the first, second, third, or fourth supplemental food.

	Order of Initiation[1]				N
	First	Second	Third	Fourth	
Cereals	83.4	11.2	4.4	1.0	706
Fruits	29.3	57.5	12.3	0.9	702
Vegetables	14.9	49.8	34.0	1.3	699
Meats	2.9	17.7	40.7	38.7	676

Note:

1. If two supplemental solid food types were initiated concurrently, both were given the same rank order.

Table VIII.6. (Detail) Median age[1] of the infant at the time of initiation of fruit juices and sweet drinks, by selected socio-demographic characteristics of the mother.

Socio-Demographic Characteristics	Median Age at Initiation of Fruit Juice	Median Age at Initiation of Sweet Drinks[2]
Total[3]	141	261
Race/Ethnicity		
White	140	241
African American	145	264
Hispanic	136	142
Other	142	364
Age		
14 - 19	120	206
20 - 25	142	260
26 or older	142	265
Birth order of the infant		
First born	117	209
Second born	143	265
Third born or younger	142	241
Immigrant status		
Born in the U.S.	141	263
Born elsewhere	140	142
Father of the infant lives with the mother		
Yes	142	269
No	138	207
Poverty level		
< 50%	143	241
50 - 100%	141	263
100% or more	143	164
Highest grade completed by the mother		
9th grade or less	134	149
10th or 11th grades	140	202
12th grade	141	268
More than high school	142	272
N	747	806

Notes:
1 Age, in days, when 50% of the infants had received these drinks.
2 Sweet drinks include sugar water, fruit flavored drinks such as Kool-Aid, sodas, tea and coffee.
3 Median ages estimated for all infants, regardless of maternal characteristics.

Table IX.2. (Detail), Figure IX.1. (Data) and Figure IX.2. (Data) Methods of feeding supplemental foods at interview months when data were elicited, by maternal race/ethnicity.

	Total	White	African American	Hispanic	Other	N
PERCENT FEEDING SUPPLEMENTAL FOODS USING A SPOON[1]						
Month 2*	18.4	27.8	10.4	7.2	5.1	614
Month 4**	59.9	71.3	46.9	51.9	28.8	741
Month 6	93.5	96.2	86.8	97.7	78.0	775
Month 9	98.6	99.8	97.0	99.1	91.4	796
PERCENT FEEDING SUPPLEMENTAL FOODS USING AN INFANT FEEDER[2]						
Month 2*	19.7	21.8	25.4	10.0	16.5	690
Month 4**	35.3	36.7	49.3	18.5	26.5	817
Month 6**	43.2	42.5	60.9	27.3	32.8	833
Month 9**	47.2	44.3	66.8	35.1	39.5	840
Month 12**	48.3	44.8	67.2	37.1	44.2	839
PERCENT DRINKING FROM A CUP WITH ASSISTANCE						
Month 5	23.4	26.8	25.9	12.6	19.4	819
Month 6	44.9	47.5	47.2	37.3	37.6	818
Month 7	68.3	70.4	69.6	64.4	56.1	832
Month 9	87.2	90.4	87.2	81.3	77.3	829
Month 12	93.3	95.4	93.7	89.5	84.0	832
PERCENT DRINKING FROM A SELF-HELD CUP						
Month 7	32.8	34.8	34.3	21.8	48.7	827
Month 9	69.5	69.9	70.6	68.2	66.2	825
Month 12	91.2	90.8	91.6	93.0	86.0	828
PERCENT SELF-FEEDING [3,4]						
Month 6	42.9	43.1	43.6	43.9	32.9	758
Month 9	88.6	88.1	92.6	84.8	89.7	786
Month 12	98.3	99.0	98.8	95.9	98.5	796

Notes

1 These data are available for formula-feeding infants only
2 Includes all mothers who used an infant feeder any time prior to that interview.
3 Includes infants who were receiving supplemental foods only
4 Defined by picking up foods and putting them in the mouth
* Chi-square statistic testing the association between maternal race/ethnicity is significant at $p<.05$.
** Chi-square statistic testing the association between maternal race/ethnicity is significant at $p<.01$

Table IX.3. (Detail) and Figure IX.3. (Data) Percentages of WIC mothers who adopt supplemental food feeding practices that are generally not recommended.

Characteristics	Feeding Supplemental Drinks by Month 5 Prior to Using a Cup[1]	N	Feeding Solids by Month 4 Prior to Using a Spoon	N	Feeding Solids by Month 4 and Have Used an Infant Feeder Sometime During the First 4 Months[2]	N
Total	77.0	508	30.7	433	39.8	466
Race/Ethnicity			*		**	
White	74.5	277	22.1	242	41.2	260
African American	74.6	99	49.6	93	58.3	95
Hispanic	85.8	106	28.1	78	22.4	88
Other	69.4	26	66.5	20	26.4	23
Age					*	
14 - 19	74.3	109	27.6	106	40.3	110
20 - 25	81.5	225	36.9	184	41.9	117
26 or older	73.1	174	25.6	143	37.1	160
Birth order of the infant					*	
First born	74.5	210	28.2	191	43.1	200
Second born	79.8	86	22.5	74	44.1	80
Third born or younger	77.7	207	37.0	163	34.4	180
Immigrant status					**	
Born in the U.S.	75.9	408	31.8	356	46.6	381
Born elsewhere	81.9	93	25.5	120	11.7	77
Father of the infant lives with the mother			**			
Yes	72.2	229	25.0	207	36.1	222
No	80.5	279	35.6	226	43.0	244
Poverty level						
< 50%	76.7	152	37.2	118	42.5	124
50 - 100%	74.6	151	27.3	132	39.6	145
100% or more	63.3	62	28.0	54	35.8	58
Highest grade completed by the mother					*	
9th grade or less	83.9	73	42.7	68	32.4	71
10th or 11th grades	75.3	102	30.6	91	52.3	95
12th grade	74.2	224	26.8	188	40.4	203
More than high school	78.9	100	29.4	78	30.7	88

Notes:
1 Among the infants who received supplemental drinks by month 5.
2 Among the infants who received supplemental solids by month 4.
* Chi-square statistic testing the group differences is significant at p<.05.
** Chi-square statistic testing the group differences is significant at p< 01

APPENDIX J

TABLES OF STANDARD ERRORS

LIST OF STANDARD ERROR TABLES

Table II.3. (Text) Standard errors of the percentage distribution of socio-demographic characteristics by maternal race and ethnicity J-3

Table II.4. (Text) Standard errors of the percentage distribution of health-related characteristics by maternal race and ethnicity J-5

Table II.5. (Text and Appendix I) Standard errors of the percentages of mothers reporting the receipt of WIC vouchers for formula and for supplemental foods J-6

Table II.6. (Text and Appendix I) Standard errors of the percentage distribution of receipt of infant feeding education from the WIC program by maternal race/ethnicity J-7

Table IV.1. (Text and Appendix I) Standard errors of breastfeeding initiation rates by socio-demographic and health-related characteristics J-8

Tables IV.4 and IV.5. (Text and Appendix I) Standard errors of the percentages of mothers agreeing with statements about perceived benefits of and barriers to breastfeeding J-10

Figure IV.5. (Data) Standard errors of percentages of only breastfeeding, breast- and formula-feeding, and only formula-feeding WIC mothers at each month of interview J-14

Table IV.6. (Text and Appendix I) Standard errors of the percentage distribution of infants by nursing diets at the time of each interview month, by socio-demographic characteristics J-15

Figure IV.6. (Data) Standard errors of the percentages of breastfeeding WIC mothers by type of breastfeeding practice at each month of interview J-17

Figure V.2. (Data) Number of days of hospital stay for WIC mothers and infants J-18

Figure V.3. (Data) Standard Errors of Percentages of WIC infants who stayed in the nursery overnight, by maternal race and ethnicity J-19

Table V.1. (Text and Appendix I) and Figure V.4. (Data) Type of first feeding received by the WIC infants in the hospital J-20

Table V.2. (Text) Percentages of mothers reporting nursing problems while in the hospital J-21

Figure V.5. (Data) Standard errors of percentage of WIC mothers who reported not receiving help from the hospital staff among those who had common nursing problems J-22

Figure V.6. (Data) Standard errors of percentages of WIC mothers who reported receiving various items in their gift packages from the hospital J-23

Table V.3. (Text) Standard errors of percentages of type of feeding at hospital discharge by type of first feeding J-24

Table VI.1. (Text and Appendix I) and Figure VI.2. (Data) Breastfeeding schedules of WIC mothers over the first 5 months of their infants' first year by maternal socio-demographic characteristics J-25

Table VI.2. (Text and Appendix I) Standard errors of the mean usual daily numbers of breastfeeds, by maternal socio-demographic characteristics J-26

Table VI.3. (Text and Appendix I) Percentage of WIC mothers who report expressing milk during the past week, by maternal socio-demographic characteristics J-27

Figure VI.3. (Data) Standard errors of percentages of breastfeeding WIC mothers expressing milk, using electric breastpumps, using manual breastpumps, and expressing milk by hand J-28

Table VI.5. (Text and Appendix) and Figure VI.4. (Data) Standard errors of percentages of WIC mothers who add other foods or liquids into the bottle with the formula by socio-demographic and health-related characteristics J-29

Figure VI.5. (Data) Standard errors of percentages of mothers who report adding other foods in the formula at Months 1, 3 and 6, among those who think that the amount of formula given by WIC is more than enough, the right amount, or not enough J-30

Table VI.6. (Detail) Standard errors of the percentage distribution of formula-feeding WIC mothers, by brand name of formula J-31

Table VII.1. (Text) Standard errors of reported nursing problems by WIC mothers at the time of the Month 1, Month 3, and Month 5 interviews J-32

Figure VII.1. (Data) Percentage of breastfeeding WIC mothers who report experiencing nursing problems in Months 1,3, and 5 ..... J-33

Figure VIII.5. (Data) Standard errors of percentages of mothers initiating cereals, fruits, vegetables, and meats as the first, second, third, or fourth supplemental food J-34

Table VIII.2. (Text) Standard errors of the percentage distribution of the order of initiation of cereal, fruits, vegetables and meats by maternal race/ethnicity J-35

Table IX.2. (Text and Appendix I), Figure IX.1. (Data) and Figure IX.2. (Data) Standard errors of methods of feeding supplemental foods at interview months when data were elicited, by maternal race and ethnicity J-36

Table IX.3. (Text and Appendix I) and Figure IX.3. (Data) Standard errors of percentages of WIC mothers who adopt supplemental food feeding practices that are generally not recommended J-37

Table X.1. (Text) Standard errors of percentages of WIC infants who receive each of the 13 groups of foods at each age J-38

Table II.3. (Text) Standard errors of the percentage distribution of socio-demographic characteristics by maternal race and ethnicity.

Characteristics	Total	Maternal Race/Ethnicity			
		White	African American	Hispanic	Other
Sex[1]					
Male	2.0	3.5	3.5	4.3	7.9
Female	2.0	3.5	3.5	4.3	7.9
Birth order[2]					
First born	1.8	2.6	3.6	3.2	4.9
Second born	1.8	1.7	3.2	3.2	9.3
Third born or higher	2.2	2.9	5.2	4.0	8.9
Age of the mother at time of birth[1]					
14-19 years	2.1	2.3	4.9	1.9	4.8
20-25 years	2.7	2.9	5.4	4.2	6.4
26 years or older	2.0	2.9	4.1	3.1	7.8
Mother born in U.S.[2]**	4.3	0.7	1.3	4.5	12.4
Maternal marital status[1]*					
Married	2.8	3.3	3.9	3.0	8.9
Separated	1.0	1.3	1.8	2.2	3.6
Divorced	1.1	1.6	1.8	2.1	3.2
Widowed	0.2	0.4	0.0	0.0	0.0
Never married	2.7	2.4	4.6	2.6	6.9
Mother is living with the father of the baby[1]*	3.2	3.1	3.4	3.7	7.4
Household size[1,3]*					
2	1.0	1.2	2.0	1.5	2.5
3	1.7	2.9	2.9	2.3	3.7
4	1.9	3.0	3.2	3.1	7.7
5	1.8	2.8	3.6	3.1	8.0
6 or more	2.7	2.2	5.3	4.1	6.7
Poverty level[1]*					
< 50%	2.6	3.5	4.6	4.1	9.6
50 - 100%	2.0	2.6	3.9	5.6	8.7
100 to 150%	1.3	2.3	1.9	2.1	5.9
150% or more	0.6	0.8	0.7	2.2	0.0
Receipt of public assistance[1,4]*					
Food Stamps, AFDC, and Medicaid	2.4	2.8	5.0	2.6	11.6
AFDC and Medicaid	0.5	0.5	1.1	1.2	0.0
AFDC and Food Stamps	0.7	1.0	0.5	1.4	2.2
Medicaid and Food Stamps	2.5	3.4	4.3	5.9	11.0
AFDC only	0.1	0.0	0.0	0.5	0.0
Medicaid only	2.4	3.2	2.6	3.5	7.0
Food stamps only	1.1	1.7	1.7	1.6	2.9
No other program	2.4	2.3	2.1	7.5	6.0
Highest grade completed by the mother[1]**					
9th grade or less	2.6	2.3	2.6	6.2	9.9
10th - 11th grade	1.6	1.9	2.7	2.2	7.0
12th grade	2.5	3.8	3.2	2.8	8.3
More than 12th grade	1.7	2.2	3.6	4.1	8.5
Mother was working while pregnant[5]	2.1	2.6	4.4	3.7	11.1
N	874	449 (51.1%)	202 (23.0%)	168 (21.2%)	55 (4.7%)

•

Notes:

1. Measured at the time of birth screener.
2. Measured at the time of prenatal interview or the first contact with the mother.
3. Household size includes the focal infant.
4. These percentages are somewhat different from those reported in the WIC participant characteristics report of 1994 (Abt Associates, 1995). This is probably due to a recent better cross-referral system instituted for the provision of WIC services to Medicaid recipients. This program change resulted in higher proportions of Medicaid receiving WIC participants in the recent years.
5. Measured at the time of Month 1 interview or the first postnatal interview.

* Chi-square statistic testing the association with maternal race/ethnicity is significant at $p < .05$.

** Chi-square statistic testing the association with maternal race/ethnicity is significant at $p < .01$.

Table II.4. (Text) Standard errors of the percentage distribution of health-related characteristics by maternal race and ethnicity.

Health-Related Characteristics	Total	Maternal Race/Ethnicity			
		White	African American	Hispanic	Other
Timing of the first prenatal visit[1]					
0 - 3 months	1.7	2.2	4.3	4.7	4.8
4 - 6 months	1.6	2.1	4.5	3.4	4.7
7 - 9 months	0.4	0.4	0.5	1.6	0.7
Percentage of mothers who smoked[1]**	2.7	3.5	2.9	1.8	4.5
Health problems during pregnancy[2]					
Had diabetes	1.2	1.2	3.1	2.3	2.8
Had swelling	2.8	4.1	3.7	5.2	8.0
Was hospitalized during pregnancy	1.2	1.7	2.2	2.1	5.5
No health problems	2.7	4.0	4.1	5.1	8.4
Birthweight[2]**					
5 lbs., 8 ozs. or less	0.9	1.4	1.9	0.7	4.1
5 lbs., 9 ozs. - 9 lbs., 14 ozs.	1.3	2.1	2.1	2.0	4.4
More than 9 lbs., 14 ozs.	0.7	1.1	0.6	1.4	3.0
Number of days mother stayed in hospital, postpartum[3]					
0 or 1	3.1	5.1	3.9	5.5	6.3
2	2.5	4.1	4.7	4.8	6.6
3	1.7	2.3	3.4	3.6	5.6
4 or more	0.9	1.2	2.4	1.6	4.0
N	874	449	202	168	55

Notes:

1. Measured at the time of prenatal interview or the first contact with the mother
2. Measured at the time of the Month 1 interview or the first postnatal interview
3. Measured at the time of the birth screener

** Chi-square statistic testing the association with maternal race/ethnicity is significant at $p<.01$.

Table II.5. (Text and Appendix I) Standard errors of the percentages of mothers reporting the receipt of WIC vouchers for formula and for supplemental foods.

	N	Total	Maternal Race/Ethnicity			
			White	African American	Hispanic	Other
Used WIC vouchers to buy formula for the infant						
Month 1	576	3.4	4.0	4.3	8.4	6.8
Month 2	690	2.6	3.6	4.8	4.6	6.2
Month 3	755	2.5	3.2	4.5	5.0	6.5
Month 4	805	2.6	3.2	4.0	5.6	4.9
Month 5	819	2.8	3.2	5.5	5.8	6.7
Month 6	814	2.5	3.0	5.1	5.2	6.3
Month 7	827	2.4	2.7	5.3	4.2	5.1
Month 9	824	2.1	2.1	4.9	2.7	6.3
Month 12	824	2.3	3.1	5.4	4.0	5.7
Used WIC vouchers to buy supplemental food items for the infant						
Month 1	577	1.2	0.7	1.4	3.7	5.1
Month 2	690	1.1	1.6	0.6	2.5	4.2
Month 3	755	1.6	1.7	3.1	2.5	1.8
Month 4	805	2.8	4.2	4.5	4.3	5.4
Month 5	819	4.6	6.7	6.6	6.8	7.6
Month 6	814	4.0	5.2	7.4	4.6	8.2
Month 7	827	2.4	2.7	5.8	3.3	5.5
Month 9	824	2.1	2.2	4.7	2.4	4.5
Month 12	823	2.3	3.1	4.6	3.7	9.7

Table II.6. (Text and Appendix I) Standard errors of the percentage distribution of receipt of infant feeding education from the WIC program by maternal race/ethnicity.

	N	Total	Maternal Race/Ethnicity			
			White	African American	Hispanic	Other
RECEIPT OF INFORMATION ABOUT BREASTFEEDING PRENATALLY[1]						
Received information on benefits of breastfeeding[1]	541	2.7	3.5	5.1	3.6	12.1
Received information on how to breastfeed[1]	541	3.3	4.6	5.7	3.9	13.3
Received information on maternal diet while breastfeeding	538	2.8	3.5	4.9	5.5	19.0
RECEIPT OF INFORMATION ABOUT BREASTFEEDING POSTNATALLY[2]						
Received information on benefits of breastfeeding[1]	838	2.9	3.7	5.5	4.3	14.8
Received information on how to breastfeed[1]	837	2.8	3.7	5.0	4.8	13.3
Received information on maternal diet while breastfeeding	833	2.9	3.2	5.6	5.2	13.6
PERCEPTION ABOUT WIC INFANT FEEDING RECOMMENDATION						
WIC's infant feeding recommendation is thought to be:						
Breastfeeding only	824	3.2	4.1	4.6	4.8	8.9
Bottle feeding only		0.8	0.4	1.6	0.6	8.2
Both are OK		2.9	4.1	4.3	4.7	6.5
RECEIPT OF OTHER INFORMATION/ADVICE						
Maternal report on receipt of information about the special WIC food package for breastfeeding women[2]*	831	2.4	3.1	2.8	4.7	7.2
Maternal report that WIC program staff told mother to breastfeed[3]	837	3.8	4.9	4.8	4.0	8.6
RECEIPT OF INFORMATION ABOUT FORMULA FEEDING						
Received information on how to formula feed*	837	2.2	2.9	3.7	3.7	6.4
Received information on how to prepare formula	761	2.3	3.5	4.6	5.9	9.9
RECEIPT OF INFORMATION ABOUT FEEDING OF SUPPLEMENTAL FOODS						
Received information on when to begin giving cereal and other foods	838	2.6	3.3	4.1	5.2	8.6
RECEIPT OF COUNSELLING ON INFANT FEEDING						
Discussed methods she is currently using to feed the infant with WIC staff						
Month 1	542	2.8	4.0	6.1	4.0	7.9
Month 2	663	2.6	4.1	4.3	3.2	5.7
Month 4	794	2.5	3.6	4.4	6.4	8.3
Month 6	802	2.8	4.5	3.4	4.0	4.2
Month 9	812	2.6	3.7	4.0	4.6	6.4
Month 12	805	2.4	2.6	4.4	4.5	7.7

Notes:

1. The question was phrased as, "Before the child was born, did you receive any of the following information or advice from the WIC office? benefits of breastfeeding; how to breastfeed; mother's diet while breastfeeding..."
2. The question was phrased as, "Since the child was born, have you received any of the following information or advice from the WIC office? benefits of breastfeeding; how to breastfeed; mother's diet while breastfeeding..."

* Chi-square statistic testing the association with maternal race/ethnicity is significant at $p<.05$.

** Chi-square statistic testing the association with maternal race/ethnicity is significant at $p<.01$.

Table IV.1. (Text and Appendix I) Standard errors of breastfeeding initiation rates by socio-demographic and health-related characteristics.

Characteristics	Breastfeeding Initiation Rate	N
Total	3.2	874
SOCIO-DEMOGRAPHIC CHARACTERISTICS		
Race/Ethnicity**		
White	3.2	449
African American	4.8	202
Hispanic	3.4	168
Other	12.4	55
Age*		
14 - 19	5.3	201
20 - 25	4.5	382
26 or older	3.3	291
Birth order of the infant		
First born	3.8	349
Second born	5.9	164
Third born or younger	4.0	348
Immigrant status*		
Born in the U.S.	3.1	703
Born elsewhere	2.8	152
Marital status*		
Married	4.0	376
Post married	5.1	102
Never married	4.3	376
Father of the infant lives with the mother		
Yes	4.3	380
No	3.9	494
Household size (including the infant)		
2	6.4	45
3	3.8	225
4	3.4	236
5	5.4	143
6 or more	7.1	203
Poverty level		
< 50%	3.7	298
50 - 100%	5.5	244
100% or more	6.3	98
Highest grade completed by the mother*		
9th grade or less	7.9	137
10th or 11th grades	5.2	186
12th grade	3.0	366
More than high school	4.3	168
Mother was working while pregnant		
Yes	3.1	339
No	4.1	496
HEALTH-RELATED CHARACTERISTICS		
Experienced health problems during pregnancy		
Yes	3.3	473
No	3.9	363
Timing of first prenatal visit		
0 - 3 months	3.5	717
4 months or later	4.5	141

Characteristics	Breastfeeding Initiation Rate	N
Birthweight**		
Low birthweight	5.3	64
Normal birthweight	3.2	783
Overweight	6.6	26
Number of days in hospital postpartum*		
0 or 1	3.8	326
2	3.7	320
3	6.3	134
4 or more	6.1	78

Notes:

1. Divorced, separated, or widowed.
2. Low birthweight indicates 5 lbs 8 oz or less, normal birthweight indicates 5 lbs 9 oz to 9 lbs14 oz, and high birthweight indicates heavier than 9 lbs 14 oz.

* Chi-square statistic testing the group differences is significant at $p<.05$.

** Chi-square statistic testing the group differences is significant at $p<.01$.

Tables IV.4 and IV.5. (Text and Appendix I) Standard errors of the percentages of mothers agreeing with statements about perceived benefits of and barriers to breastfeeding.

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
Breastfeeding is easier than bottle feeding.[1,3]		*					
Agree	2.9	3.3	5.1	3.4	9.9	2.5	2.9
Not sure	1.2	2.1	2.2	2.8	3.5	2.2	0.7
Disagree	2.8	3.6	5.2	2.4	7.7	3.1	2.8
Breastfeeding takes too much time.[3]						*	
Agree	2.7	3.7	3.9	4.6	5.5	3.6	3.4
Not sure	1.2	2.0	1.8	1.4	2.1	2.4	0.7
Disagree	2.6	3.5	4.1	5.0	5.4	3.0	3.4
Breastfeeding would tie you down.[3]						*	
Agree	2.6	3.4	5.3	3.2	5.5	3.6	3.1
Not sure	0.8	1.1	2.4	1.4	1.2	1.8	0.4
Disagree	2.5	3.3	5.4	4.2	5.2	3.1	3.1
Breastfeeding means no one else can feed your baby.[1,3]		*				*	
Agree	2.8	2.8	4.5	5.8	9.9	4.5	3.4
Not sure	1.0	1.3	2.0	0.8	0.8	1.5	0.7
Disagree	2.6	2.7	4.2	5.6	9.6	4.1	3.3
Your breasts are too small to breastfeed.[3]						*	
Agree	1.7	1.3	2.2	5.0	5.5	2.0	2.4
Not sure	1.0	1.7	1.4	0.4	0.0	2.1	0.2
Disagree	1.9	2.2	2.6	5.0	5.5	2.6	2.4
Women who breastfeed have a hard time finding the right kind of clothes to wear.[3]						*	
Agree	2.4	3.0	4.7	4.5	5.4	3.7	2.2
Not sure	1.1	1.6	2.4	1.6	3.4	2.6	0.8
Disagree	2.5	2.9	4.2	4.8	7.8	3.4	2.3
Breastfeeding means you can't go back to school or work.						*	
Agree	1.4	1.8	2.1	3.4	7.6	2.2	1.9
Not sure	0.7	0.8	1.7	1.1	1.7	1.3	0.5
Disagree	1.5	1.8	2.1	3.9	7.5	2.6	2.1
You would not want to breastfeed in public.[2,3]							
Agree	2.3	3.3	3.1	4.5	10.0	3.0	2.7
Not sure	0.5	0.7	1.1	1.2	0.0	1.1	0.3
Disagree	2.3	3.3	3.2	3.7	10.0	2.7	2.8

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
You would be afraid that breastmilk would leak onto your clothes.[2,3]							
Agree	2.6	3.5	4.1	4.1	5.8	3.9	3.1
Not sure	0.4	0.6	1.2	0.7	1.7	0.8	0.4
Disagree	2.6	3.3	3.9	4.3	5.7	3.6	3.1
With bottle feeding, the mother knows that the baby is getting enough to eat.							
Agree	1.7	2.2	3.1	5.0	4.8	2.8	2.7
Not sure	0.9	1.1	2.2	2.1	0.8	1.6	0.7
Disagree	1.5	2.3	2.2	3.5	4.6	2.4	2.8
Breastfeeding helps women lose weight.[3]							
Agree	3.1	3.6	4.5	4.6	11.2	4.4	2.5
Not sure	2.0	2.5	3.8	4.7	7.7	3.1	2.0
Disagree	2.3	2.4	5.4	2.4	6.8	3.9	2.0
Breastfed babies are healthier than bottlefed babies.[1,3]							
Agree	2.9	3.3	5.0	3.6	13.2	3.4	2.9
Not sure	1.3	1.8	3.1	1.9	6.5	2.2	1.2
Disagree	2.4	3.1	4.0	2.4	7.5	3.5	2.4
You have enough breastmilk to feed the baby.[3]							
Agree	2.2	2.5	3.2	6.8	9.6	3.0	3.1
Not sure	1.6	2.6	2.5	2.8	6.3	3.2	0.9
Disagree	2.3	2.6	3.2	7.8	6.2	2.3	3.3
Breastmilk alone gives a new baby all he/she needs to eat.[2,3]							
Agree	2.7	2.7	4.6	2.2	9.9	3.7	2.4
Not sure	1.5	2.5	2.6	2.7	3.7	2.8	1.0
Disagree	2.3	2.2	4.4	2.2	11.0	3.2	2.3
Breastfeeding helps protect the baby from diseases.[2,3]							
Agree	2.5	2.9	3.8	2.5	11.4	3.8	1.2
Not sure	1.3	1.6	3.6	1.7	3.0	2.3	0.8
Disagree	1.8	2.0	3.7	1.5	11.8	3.2	0.9
Breastfeeding brings a mother closer to her baby.[2,3]							
Agree	1.9	3.0	3.5	2.6	4.4	4.2	1.3
Not sure	0.8	1.0	1.4	2.2	0.0	1.8	0.4
Disagree	1.9	3.0	3.3	1.6	4.4	3.7	1.2

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
A man feels left out if a women breastfeeds.[3]							
Agree	2.3	3.3	3.3	4.8	8.2	2.7	3.0
Not sure	1.9	2.5	3.1	5.3	4.4	2.8	2.3
Disagree	1.8	2.7	3.1	3.7	9.2	2.7	2.2
Breastfeeding interferes with peoples' sex lives.[3]							
Agree	1.6	2.7	2.3	2.7	4.7	1.5	2.6
Not sure	1.7	2.7	2.8	2.4	3.3	2.8	1.4
Disagree	2.3	3.9	3.2	2.5	6.3	3.0	2.6
Women who breast feed should not take birth control pills.[4]							
Agree	2.2	3.0	4.2	4.9	7.0	3.0	3.3
Not sure	1.5	2.1	3.6	3.8	6.4	2.8	2.0
Disagree	1.8	2.5	2.8	4.7	7.6	1.6	2.6
You know a lot about breastfeeding.[1,3]							
Agree	2.5	2.3	4.6	2.9	12.5	3.1	3.2
Not sure	1.5	2.2	2.5	2.5	1.4	2.8	1.1
Disagree	3.1	2.5	5.4	3.8	12.9	4.3	3.1
Breastfeeding will make your breasts sag.[1,3]							
Agree	2.5	1.8	3.7	5.3	4.8	2.6	3.5
Not sure	2.2	3.1	2.4	2.4	8.4	3.4	1.7
Disagree	2.9	3.2	4.5	4.7	9.8	3.6	3.3
Bottle feeding is more expensive than breastfeeding.							
Agree	1.2	1.3	2.0	2.4	4.4	1.8	1.4
Not sure	0.5	0.5	1.0	1.5	3.7	1.0	0.5
Disagree	1.2	1.1	1.7	2.4	0.8	1.5	1.3
Breast pumps are easy to use.[2,3]							
Agree	2.7	3.3	3.4	2.4	7.3	3.0	2.8
Not sure	2.6	3.5	3.9	3.1	8.4	3.2	1.8
Disagree	1.9	2.5	3.2	2.3	9.6	1.7	2.9
Any woman who wants to can breastfeed.[2,4]							
Agree	1.8	2.8	4.2	1.8	6.7	3.0	2.4
Not sure	0.5	0.8	1.5	0.5	1.9	1.0	0.5
Disagree	1.9	2.9	3.9	1.8	6.3	2.9	2.3
Women who breastfeed shouldn't smoke.							
Agree	1.3	1.1	3.2	2.0	6.1	2.6	0.9
Not sure	0.8	0.9	1.7	2.2	1.9	1.4	0.6
Disagree	1.1	1.1	1.9	1.0	6.3	1.7	1.1

Maternal Attitudes and Beliefs	Total	Race/Ethnicity				Breastfeeding Status	
		White	African American	Hispanic	Other	Did not Breastfeed	Initiated Breast-feeding
Breastfeeding is painful.[1,3]							
Agree	2.2	2.8	3.6	4.9	7.6	3.1	3.0
Not sure	1.8	2.9	2.8	1.7	0.0	2.4	0.4
Disagree	2.3	3.4	3.3	5.0	7.6	2.8	2.9
There is too much pressure on women to breastfeed.[3]							
Agree	1.8	2.8	3.7	3.8	9.3	2.1	2.6
Not sure	1.1	1.6	1.6	2.1	2.7	2.1	1.1
Disagree	2.2	3.6	4.4	2.7	9.7	2.4	2.4
Breastfeeding will protect your baby against ear infections.[2,3]							
Agree	2.8	2.9	3.9	4.0	11.0	3.5	2.5
Not sure	2.6	3.7	4.3	4.5	4.7	4.0	2.1
Disagree	2.0	3.0	3.8	2.5	12.1	3.1	1.9
Breastfeeding will protect your baby against diarrhea.[2,3]							
Agree	3.4	2.6	3.1	5.1	11.4	3.1	4.0
Not sure	2.5	3.5	4.0	4.5	5.3	3.8	2.6
Disagree	2.3	2.9	3.9	3.4	12.7	3.3	2.6
Only poor women breastfeed.							
Agree	0.9	0.5	0.6	4.3	3.4	1.0	1.4
Not sure	0.9	0.9	1.9	1.4	2.4	1.5	0.8
Disagree	1.2	1.1	2.0	4.8	5.9	1.7	1.7

Notes:

1. Chi-square statistic testing the association with maternal race/ethnicity is significant at p< 01
2. Chi-square statistic testing the association with maternal race/ethnicity is significant at p< 05.
3. Chi-square statistic testing the association with maternal breastfeeding status is significant at p<.01
4. Chi-square statistic testing the association with maternal breastfeeding status is significant at p<.05

Figure IV.5. (Data) Standard errors of percentages of only breastfeeding, breast- and formula-feeding, and only formula-feeding WIC mothers at each month of interview.

Interview Month	Nursing Diet				N[1]
	Only Breastfed	Breast and Formula Fed	Only Formula Fed	Neither Breast or Formula Fed	
Month 1	1.9	2.4	2.5	0.8	577
Month 2	1.5	1.9	2.2	0.6	690
Month 3	1.5	1.7	1.9	0.5	755
Month 4	1.5	1.5	1.8	0.4	805
Month 5	1.4	1.3	1.7	0.5	819
Month 6	1.2	1.0	1.6	0.5	814
Month 7	1.0	1.1	1.8	0.6	827
Month 9	1.8	1.2	1.9	1.0	824
Month 12	0.8	0.7	2.4	2.2	824

Note:
1. Includes all infants whose mothers were interviewed that month.

Table IV.6. (Text and Appendix I) Standard errors of the percentage distribution of infants by nursing diets at the time of each interview month, by socio-demographic characteristics.

Characteristics	Nursing Diet: Only Breastfed	Breast and Formula Fed	Only Formula Fed	Neither Breast or Formula Fed	N[1]
MONTH 1					
Race/Ethnicity*					
White	2.6	2.3	3.5	1.2	295
African American	1.7	3.2	3.7	0.5	125
Hispanic	4.2	6.7	6.6	1.0	125
Other	9.4	5.8	11.6	0.0	32
Age					
14 - 19	3.1	2.7	4.8	0.5	135
20 - 25	2.3	3.7	4.0	1.1	247
26 or older	2.9	3.7	3.8	1.1	195
Highest grade completed by the mother*					
9th grade or less	3.6	6.5	6.4	2.1	90
10th or 11th grades	2.1	4.1	4.7	0.0	112
12th grade	2.5	3.6	3.0	1.0	242
More than high school	4.1	3.9	5.0	0.6	122
MONTH 2					
Race/Ethnicity*					
White	2.2	1.9	3.1	0.5	359
African American	1.9	2.4	3.0	0.4	152
Hispanic	4.0	5.8	6.6	1.5	139
Other	5.5	10.1	10.0	0.0	40
Age					
14 - 19	2.6	2.0	3.4	0.8	153
20 - 25	1.9	2.7	3.5	0.5	332
26 or older	2.3	2.9	3.1	0.8	248
Highest grade completed by the mother*					
9th grade or less	3.3	4.3	5.5	2.3	111
10th or 11th grades	1.3	2.8	3.1	0.4	140
12th grade	1.9	1.9	3.0	0.3	296
More than high school	4.6	3.7	4.1	0.6	130
MONTH 3					
Race/Ethnicity*					
White	1.9	1.6	2.8	0.5	392
African American	1.6	1.6	2.3	0.4	167
Hispanic	4.8	4.9	3.6	0.8	154
Other	4.6	6.7	7.8	0.0	42
Age					
14 - 19	1.9	1.6	2.8	0.7	175
20 - 25	2.0	2.5	3.2	0.5	332
26 or older	2.6	2.6	2.8	0.4	248

Characteristics	Nursing Diet				N[1]
	Only Breastfed	Breast and Formula Fed	Only Formula Fed	Neither Breast or Formula Fed	
Highest grade completed by the mother**					
9th grade or less	3.7	3.4	4.6	1.6	121
10th or 11th grades	1.3	2.5	3.0	0.4	152
12th grade	1.8	1.9	2.3	0.2	323
More than high school	3.1	2.4	3.4	0.5	145
MONTH 4					
Race/Ethnicity**					
White	2.1	1.5	2.8	0.4	423
African American	1.2	1.8	2.1	0.3	182
Hispanic	4.3	3.8	5.0	0.8	150
Other	4.2	6.4	7.3	0.0	50
Age*					
14 - 19	1.8	1.4	2.4	0.3	183
20 - 25	1.7	2.3	2.7	0.4	354
26 or older	2.6	2.9	2.8	0.6	268
Highest grade completed by the mother*					
9th grade or less	3.6	3.8	4.9	1.1	124
10th or 11th grades	1.2	2.2	2.7	0.3	164
12th grade	1.5	1.4	2.1	0.4	345
More than high school	3.7	3.7	4.2	0.5	155

Notes:

1. Includes all infants whose mothers were interviewed that month.

* Chi-square statistic testing the group differences is significant at $p<.05$.

** Chi-square statistic testing the group differences is significant at $p<.01$.

Figure IV.6. (Data) Standard errors of the percentages of breastfeeding WIC mothers by type of breastfeeding practice at each month of interview.

Interview Month	Breastfeeding Practice			N[4]
	Exclusive or Predominant Breastfeeding	Breastfeeding with Formula or Milk[2]	Complementary Breastfeeding[3]	
Month 1	4.8	5.0	2.7	195
Month 2	4.8	5.9	4.2	175
Month 3	4.6	6.4	4.2	158
Month 4	3.5	3.1	4.5	158
Month 5	2.7	1.4	3.3	138
Month 6	2.0	0.6	2.1	124
Month 7	2.6	0.3	2.5	111
Month 9	0.0	0.0	0.0	88

Notes:
1 Breastmilk alone or breastmilk and other drinks but no milk or formula.
2 Breastmilk and formula or milk; diet may include other drinks but no solids
3 Breastmilk and supplementary solids with or without formula or milk
4 Includes all breastfeeding mothers who were interviewed that month.

[4] Includes all breastfeeding mothers who were interviewed that month.

Figure V.2. (Data) Number of days of hospital stay for WIC mothers and infants.

Number of Days	Mothers (Standard Error of Percentage)	Infants (Standard Error of Percentage)
0	1.1	1.1
1	2.8	2.5
2	2.5	2.4
3	1.7	1.5
4	0.8	0.6
5	0.5	0.8
6	0.3	0.3
7	0.2	0.4
8	0.2	0.3
9	0.0	0.2
10	0.2	0.4
11	0.1	0.4
12 or more	0.1	0.3
N	858	873

Figure V.3. (Data) Standard Errors of Percentages of WIC infants who stayed in the nursery overnight, by maternal race and ethnicity.*

	Standard Error of the Percentage that Stayed in the Nursery Overnight	N
Total	2.8	824
White	4.6	421
African American	3.9	195
Hispanic	4.3	160
Other	8.8	48

* Chi-square statistic testing the race/ethnicity differences is significant at $p<.05$.

Table V.1. (Text and Appendix I) and Figure V.4. (Data) Type of first feeding received by the WIC infants in the hospital.

Socio-Demographic Characteristics	Percentage Receiving					N
	Formula	Breastmilk	Sugar Water	Plain Water	Other	
Total	3.0	2.7	1.0	0.8	0.6	815
Race/Ethnicity						
White	4.1	3.6	1.8	0.9	0.5	419
African American	4.6	3.1	1.4	1.9	0.8	191
Hispanic	5.0	5.7	1.6	1.2	1.8	157
Other	12.5	11.5	3.8	4.2	3.8	48
Age						
14 - 19	5.1	4.2	2.4	1.7	1.5	190
20 - 25	3.6	3.4	0.8	1.2	0.7	358
26 or older	4.0	3.1	1.8	1.1	0.7	267
Birth order of the infant						
First born	3.6	3.0	1.8	1.2	1.0	326
Second born	6.7	5.4	1.9	1.8	1.4	154
Third born or younger	3.5	3.8	1.3	1.2	0.6	179
Immigrant status						
Born in the U.S.	3.4	2.9	1.2	0.9	0.5	665
Born elsewhere	4.8	5.3	1.6	1.5	1.9	133
Marital status*						
Married	4.1	3.7	1.2	1.2	0.6	349
Post married	5.2	4.5	2.4	2.3	1.9	98
Never married	3.6	3.0	1.5	1.2	0.8	350
Father of the infant lives with the mother*						
Yes	4.0	3.7	1.3	1.2	0.6	362
No	3.1	2.5	1.2	1.0	0.9	453
Poverty level						
< 50%	3.8	3.4	1.3	1.5	0.9	276
50 - 100%	4.5	4.1	1.6	1.2	0.6	224
100% or more	7.4	7.3	2.3	2.3	1.0	92
Highest grade completed by the mother						
9th grade or less	3.5	4.4	0.6	2.4	1.8	122
10th or 11th grades	5.1	4.8	2.1	1.2	0.9	171
12th grade	3.7	2.8	1.8	1.1	1.1	353
More than high school	4.1	4.9	1.9	1.5	1.0	154
Birthweight						
Low birthweight[1]	5.9	4.5	3.4	3.0	3.2	60
Normal birthweight[2]	3.1	2.8	1.0	0.8	0.6	730
Overweight[3]	11.5	11.7	7.3	0.0	3.1	24
Number of days in the hospital postpartum*						
0 or 1	4.9	4.9	1.8	1.1	1.0	305
2	3.3	2.4	1.4	1.6	0.8	296
3	4.3	3.4	1.7	1.9	0.9	127
4 or more	5.6	4.0	2.2	1.8	1.9	72

Notes:

1. Less than 5 lbs., 9 oz.
2. Between 5 lbs., 9 oz. and 9 lbs., 14 oz.
3. 9 lbs., 15 oz. or heavier.

* Chi-square statistic for the subtable is significant at $p < .05$.

Table V.2. (Text) Percentages of mothers reporting nursing problems while in the hospital.

Problem	Standard Error of Percentage
Reported Problems with the Breast and Feeding	
Sore nipples	3.3
Breasts were too full	1.6
Inverted nipples	1.2
Baby choked	0.9
Reported Problems with Breastmilk	
Not enough milk	2.2
Milk came in late	2.4
N	458

Figure V.5. (Data) Standard errors of percentage of WIC mothers who reported not receiving help from the hospital staff among those who had common nursing problems.

	Standard Error of Percentage not Receiving Help	N[1]
Sore nipples	3.8	203
Breasts were too full	4.3	119
Milk came in late	3.5	105
Not enough milk	3.5	172

Note:
1. Number of mothers who reported experiencing the nursing problem.

Figure V.6. (Data) Standard errors of percentages of WIC mothers who reported receiving various items in their gift packages from the hospital.

Gift Item	Received	Did not Receive	No Gift Pack	N
Formula	2.3	1.3	1.4	816
Bottle	3.2	3.3	1.4	822
Breast pump	2.0	3.1	1.4	819
Sugar water	2.1	2.7	1.4	820
Toy	3.1	3.0	1.4	815
Pacifier	3.0	2.9	1.4	820
Formula or bottle or sugar water or pacifier	1.5	0.5	1.4	821

Table V.3. (Text) Standard errors of percentages of type of feeding at hospital discharge by type of first feeding.

	Type of Feeding at Hospital Discharge			
Type of First Feeding	Breastfeeding	Breast -and Formula Feeding	Formula Feeding	N
Breastfeeding	4.2	1.1	4.1	251
Formula	1.7	3.9	3.6	448
Other	5.1	5.8	2.7	103
Total	2.7	3.3	3.0	823

Table VI.1. (Text and Appendix I) and Figure VI.2. (Data) Breastfeeding schedules of WIC mothers over the first 5 months of their infants' first year by maternal socio-demographic characteristics.

Socio-Demographic Characteristics	Interview Months: Month 1			Month 2			Month 3			Month 4			Month 5		
	Standard Error of Percent on Schedule	Standard Error of Percent When Cried or Seemed Hungry	Standard Error of Percent Both	Standard Error of Percent on Schedule	Standard Error of Percent When Cried or Seemed Hungry	Standard Error of Percent Both	Standard Error of Percent on Schedule	Standard Error of Percent When Cried or Seemed Hungry	Standard Error of Percent Both	Standard Error of Percent on Schedule	Standard Error of Percent When Cried or Seemed Hungry	Standard Error of Percent Both	Standard Error of Percent on Schedule	Standard Error of Percent When Cried or Seemed Hungry	Standard Error of Percent Both
Total	3.6	4.1	1.9	3.5	3.2	2.4	4.5	4.3	2.8	3.7	5.1	4.4	3.7	4.5	3.3
Race/Ethnicity															
White	3.7	5.0	4.0	5.2	4.5	3.4	3.2	3.4	3.1				3.3	5.0	4.0
African American	9.4	11.1	5.5	8.3	14.2	11.1	7.3	14.4	14.8	8.6	8.6	0.0	4.3	16.6	16.3
Hispanic	7.3	8.5	2.2	5.6	5.0	4.1	9.1	7.9	3.5	3.6	8.0	7.9	8.0	7.3	4.2
Other	10.3	10.6	2.6	9.4	9.4	0.0	10.3	14.7	13.9	6.4	7.4	5.3	8.1	12.3	6.5
Age															
14 - 19	6.9	7.6	4.4	7.4	8.4	6.5	7.8	12.3	10.5	8.6	8.6	0.0	5.2	8.4	8.5
20 - 25	5.9	7.1	2.6	4.5	4.8	3.4	7.1	7.0	4.1	3.6	8.0	7.9	4.4	6.1	4.8
26 or older	4.3	5.4	4.2	5.4	5.0	3.5	4.7	4.6	4.0	6.4	7.4	5.3	4.7	6.3	6.0
Birth order of the infant															
First born	4.5	5.9	5.5	4.7	4.7	4.0	5.1	5.8	4.4	5.4	7.0	6.8	5.4	5.3	3.2
Second born	13.1	12.1	4.5	9.9	9.9	5.4	20.6	19.2	5.0	9.3	11.0	6.9	11.6	12.5	5.1
Third born or younger	3.6	5.0	3.5	4.1	4.4	3.8	4.0	4.8	4.3	3.1	7.9	6.7	3.7	7.0	6.0
Immigrant status															
Born in the U.S.	3.3	3.9	2.7	4.1	4.2	3.4	3.6	5.3	5.0	3.6	4.9	4.7	3.3	4.8	4.5
Born elsewhere	6.9	7.9	2.8	5.3	5.1	3.6	9.4	9.3	3.4	8.5	10.4	7.1	7.7	8.3	5.3
Father of the infant lives with the mother															
Yes	3.4	3.8	3.2	4.4	4.2	3.3	2.9	4.2	3.6	4.8	5.6	3.7	3.8	4.9	3.6
No	6.5	7.2	2.9	5.7	5.1	2.9	8.2	7.2	3.6	4.1	7.4	6.3	6.4	7.2	4.5
Poverty level															
< 50%	6.8	9.7	4.4	8.5	8.3	5.7	10.7	10.3	5.7	5.6	7.5	8.1	6.6	11.0	8.7
50 - 100%	6.5	7.4	3.8	6.5	6.7	3.4	5.8	7.6	6.2	5.6	8.0	6.9	8.0	6.8	5.5
100% or more	9.9	12.2	6.3	8.5	8.0	6.7	8.9	8.8	5.2	8.7	14.1	6.6	6.1	12.0	5.8
Highest grade															
9th grade or less	7.3	6.3	3.4	5.8	7.1	6.5	8.5	9.6	8.0	3.7	9.3	7.5	7.6	10.7	9.7
10th - 11th grades	11.1	13.5	6.5	10.5	11.4	6.1	8.3	8.9	5.1	8.8	11.5	7.1	6.3	10.3	8.0
12th grade	5.8	7.4	4.4	6.3	6.4	4.8	8.0	8.8	6.0	5.2	8.6	8.4	5.9	8.0	7.5
> high school	4.9	5.0	3.2	5.3	6.1	2.6	5.8	6.2	3.3	4.1	6.3	4.8	4.7	7.5	6.0
N[1]	198			185			163			165			143		

Note:

1. Breastfeeding mothers who were interviewed at that month only.

Table VI.2. (Text and Appendix I) Standard errors of the mean usual daily numbers of breastfeeds, by maternal socio-demographic characteristics.[1]

Socio-Demographic Characteristics	Interview Months				
	Month 1	Month 2	Month 3	Month 4	Month 5
Total	.40	.29	.33	.27	.26
Race/Ethnicity					
White	.34	.41	.42	.45	.39
African American	.73	.56	.49	.62	.71
Hispanic	.76	.41	.65	.35	.35
Other	.58	.68	.78	.69	.90
Age					
14 - 19	.62	.72	.42	.35	.51
20 - 25	.52	.39	.45	.32	.34
26 or older	.43	.37	.50	.44	.46
Birth order of the infant					
First born	.49	.48	.31	.45	.45
Second born	.73	.71	.89	.76	.57
Third born or younger	.38	.24	.39	.37	.39
Immigrant status		*			
Born in the U.S.	.33	.35	.32	.36	.34
Born elsewhere	.69	.36	.57	.34	.36
Father of the infant lives with the mother	**	*			
Yes	.41	.40	.32	.32	.29
No	.45	.31	.51	.38	.46
Poverty level	*	**			
< 50%	.52	.31	.77	.53	.67
50 - 100%	.40	.41	.55	.40	.45
100% or more	.63	.56	.59	.64	.40
Highest grade completed by the mother					
9th grade or less	.68	.44	.80	.46	.61
10th or 11th grades	.44	.64	.47	.68	.55
12th grade	.60	.40	.55	.52	.51
More than high school	.50	.44	.49	.45	.46
N[2]	196	186	163	165	143

Notes:
1 Numbers presented are means
2 Breastfeeding mothers who were interviewed at that month only.
* F-statistic comparing the means for this month is significant at $p<.05$
** F-statistic comparing the means for this month is significant at $p<.01$

Table VI.3. (Text and Appendix I) Percentage of WIC mothers who report expressing milk during the past week, by maternal socio-demographic characteristics.

Characteristics	Interview Months		
	Month 1	Month 2	Month 3
Total	4.4	4.9	4.5
Race and ethnicity			
White	6.8	4.3	4.9
African American	8.1	11.5	13.7
Hispanic	6.0	6.4	5.2
Other	11.1	9.6	8.5
Age			
14 - 19	7.7	12.8	7.8
20 - 25	7.2	6.4	6.5
26 or older	5.7	5.6	5.1
Birth order of the infant	*		*
First born	5.6	8.4	6.7
Second born	7.9	11.2	9.1
Third born or younger	6.0	5.3	5.1
Immigrant status	*	*	*
Born in the U.S.	5.2	4.4	5.1
Born elsewhere	5.5	6.4	4.2
Father of the infant lives with the mother			*
Yes	6.4	4.5	5.1
No	4.6	6.9	4.3
Poverty level			
< 50%	5.9	7.0	5.6
50 - 100%	6.3	7.5	6.4
100% or more	11.5	10.3	10.3
Highest grade completed by the mother			
9th grade or less	8.1	10.1	6.2
10th or 11th grades	12.4	8.9	8.8
12th grade	5.8	6.7	5.8
More than high school	7.4	8.1	8.8
N[1]	198	186	163

Note:
1. Among the mothers who were breastfeeding and who were interviewed at that month only.

Figure VI.3. (Data) Standard errors of percentages of breastfeeding WIC mothers expressing milk, using electric breastpumps, using manual breastpumps, and expressing milk by hand.

	Standard Error of Percentage	N[1]
Expressing milk	4.4	198
Using electric breastpump	5.5	74
Using manual breastpump	7.5	74
Expressing by hand	5.1	74

Note:
1. Among breastfeeding mothers in Month 1.

Table VI.5. (Text and Appendix) and Figure VI.4. (Data) Standard errors of percentages of WIC mothers who add other foods or liquids into the bottle with the formula by socio-demographic and health-related characteristics.

Characteristics	Interview Months		
	Month 1	Month 3	Month 6
Total	1.9	1.8	2.3
SOCIO-DEMOGRAPHIC CHARACTERISTICS			
Race/Ethnicity	*	**	**
White	2.5	1.8	2.6
African American	4.1	3.9	4.5
Hispanic	3.0	4.9	5.1
Other	4.4	4.1	6.6
Age		*	*
14 - 19	3.4	3.9	5.1
20 - 25	2.5	2.4	2.4
26 or older	2.4	2.9	2.6
Birth order of the infant			
First born	3.0	3.2	3.8
Second born	2.7	3.6	3.7
Third born or younger	2.3	3.0	2.7
Immigrant status	*	**	
Born in the U.S.	2.2	1.7	2.6
Born elsewhere	1.3	4.1	4.8
Father of the infant lives with the mother			
Yes	2.4	2.2	3.0
No	2.7	2.3	2.9
Poverty level			
< 50%	2.0	3.7	3.0
50 - 100%	3.8	2.7	4.0
100% or more	3.2	4.4	5.2
Highest grade completed by the mother	*	*	
9th grade or less	1.7	4.5	4.9
10th or 11th grades	4.1	3.2	4.5
12th grade	2.8	3.1	2.7
More than high school	3.9	3.9	3.6
HEALTH-RELATED CHARACTERISTICS			
Birthweight			
Low birthweight	10.5	8.8	6.5
Normal birthweight	1.9	1.9	2.4
Overweight	7.7	13.5	8.4
N[1]	478	674	746

Notes:

1 Among the mothers who were formula feeding and who were interviewed at that month only

* Chi-square statistic testing the group differences for this month is significant at p< 05

** Chi-square statistic testing the group differences for this month is significant at p< 01.

Figure VI.5. (Data) Standard errors of percentages of mothers who report adding other foods in the formula at Months 1, 3 and 6, among those who think that the amount of formula given by WIC is more than enough, the right amount, or not enough.

		Amount of Formula Given by WIC		
	Total	More Than Enough	The Right Amount	Not Enough
Month 1	2.3	3.5	2.2	5.2
N[1]	359	221	86	52
Month 3	1.9	3.3	2.7	2.7
N[1]	583	134	208	241
Month 6	2.4	4.4	3.5	3.8
N[1]	656	112	216	328

Note:
1. Among the mothers who receive formula vouchers from WIC.

Table VI.6. (Detail) Standard errors of the percentage distribution of formula-feeding WIC mothers, by brand name of formula.

	Interview Month								
Brand Name	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 9	Month 12
Similac	5.3	5.4	5.8	5.4	5.3	5.0	4.9	4.7	4.2
Enfamil	4.3	5.0	4.6	4.0	4.2	4.3	4.4	4.0	4.3
SMA	3.4	2.9	3.9	3.6	3.2	3.2	3.4	3.0	2.6
Isomil	2.4	2.1	1.9	2.1	2.1	2.2	2.1	2.3	2.5
Prosobee	1.6	1.7	1.7	1.7	1.8	1.9	2.0	2.1	2.3
Nursoy	0.8	1.6	1.2	1.5	1.5	1.6	1.2	1.2	2.1
Good Start	1.2	1.5	1.8	1.7	1.7	1.8	1.9	2.0	1.5
Nutramigen	0.2	0.5	0.5	0.8	0.8	0.8	0.8	0.7	0.6
Other	0.7	1.2	1.0	0.9	1.0	0.9	1.0	0.9	1.3
N[1]		604	674	730	747	746	759	747	475

Note:
1. Formula-feeding mothers interviewed at that month only.

Table VII.1. (Text) Standard errors of reported nursing problems by WIC mothers at the time of the Month 1, Month 3, and Month 5 interviews.

Nursing Problems	Interview Months		
	Month 1	Month 3	Month 5
Problems with breasts or feeding	3.7	3.4	3.6
Sore nipples	2.8	2.0	2.5
Infant chokes while breastfeeding	3.7	2.9	2.6
Cracked nipples	2.8	1.4	1.4
Breasts are too full	2.6	2.0	1.2
Breast infection	1.1	1.3	0.0
Problems with milk	5.4	5.4	3.0
Milk is not enough for the infant	5.5	5.3	2.8
Something is wrong with the milk	3.0	2.0	1.2
N[1]	198	163	143

Note:
1. Breastfeeding mothers who were interviewed at that month only.

Figure VII.1. (Data) Percentage of breastfeeding WIC mothers who report experiencing nursing problems in Months 1,3, and 5.

Month	No Nursing Problems	Problems with Breasts/ Feeding but None with the Milk	Problems with the Milk but None with Breasts/ Feeding	Problems with Breasts/ Feeding and Milk	N
Month 1	4.4	3.9	3.6	3.2	198
Month 3	4.9	3.1	2.9	1.8	162
Month 5	4.1	3.1	2.9	1.8	143

Figure VIII.5. (Data) Standard errors of percentages of mothers initiating cereals, fruits, vegetables, and meats as the first, second, third, or fourth supplemental food.

	Order of Initiation[1]				
	First	Second	Third	Fourth	N
Cereals	2.0	1.7	0.8	0.4	706
Fruits	2.6	2.3	1.7	0.4	702
Vegetables	1.9	1.9	2.2	0.6	699
Meats	0.8	1.9	2.3	2.6	676

Note:

1. If two supplemental food types were initiated concurrently, both were given the same rank order.

Table VIII.2. (Text) Standard errors of the percentage distribution of the order of initiation of cereal, fruits, vegetables and meats by maternal race/ethnicity.

Characteristics	Percentage Initiating in the Following Order				N
	First	Second	Third	Fourth	
CEREAL					
White*	1.8	1.8	0.7	0.4	352
African American	1.7	1.7	0.5	0.0	159
Hispanic	3.7	3.6	2.3	1.3	147
Other	11.9	8.5	5.5	0.0	48
FRUITS					
White*	3.2	3.1	2.5	0.3	353
African American	2.9	3.3	3.5	0.4	155
Hispanic	4.9	3.7	1.7	1.4	147
Other	7.6	8.7	3.7	0.0	47
VEGETABLES					
White*	2.5	2.9	3.6	0.2	352
African American	2.6	4.0	4.0	1.8	154
Hispanic	2.3	3.8	1.9	1.2	146
Other	13.2	7.6	10.9	2.8	47
MEATS					
White*	0.2	2.0	2.9	3.1	352
African American	1.4	4.8	5.6	3.8	159
Hispanic	2.8	2.4	3.5	3.7	147
Other	8.6	7.9	8.2	9.0	48

Note:

1. The number of cases reflects the number of WIC-IFPS mothers for whom the order of initiation of that supplemental food can be determined.

* Chi-square statistic testing race and ethnicity differences in the order of initiation is significant at $p < .05$.

Table IX.2. (Text and Appendix I), Figure IX.1. (Data) and Figure IX.2. (Data) Standard errors of methods of feeding supplemental foods at interview months when data were elicited, by maternal race and ethnicity.

	Total	White	African American	Hispanic	Other	N
PERCENT USING A SPOON PRIOR TO THE INTERVIEW (AMONG FORMULA FEEDING INFANTS ONLY)						
Month 2*	2.9	4.5	3.3	3.2	4.0	614
Month 4**	3.7	4.2	4.6	6.6	9.1	741
Month 6	1.7	1.0	3.9	1.2	5.8	775
Month 9	0.8	0.2	1.8	0.6	6.7	796
PERCENT USING AN INFANT FEEDER PRIOR TO THE INTERVIEW						
Month 2*	1.9	2.3	4.4	3.0	8.1	690
Month 4**	2.7	2.9	4.5	5.6	11.5	817
Month 6**	2.8	2.9	4.1	4.9	14.1	833
Month 9**	2.7	2.9	3.8	5.2	12.0	840
Month 12**	2.6	2.9	3.7	5.2	12.4	839
PERCENT USING A CUP PRIOR TO THE INTERVIEW						
Month 5	1.9	2.4	3.0	3.5	7.1	819
Month 6	2.1	2.7	3.3	2.3	8.6	818
Month 7	1.9	2.6	3.0	4.3	8.3	832
Month 9	1.3	1.3	2.1	3.2	8.2	829
Month 12	1.0	1.2	1.8	2.5	6.0	832
PERCENT USING A SELF-HELD CUP PRIOR TO THE INTERVIEW						
Month 7	2.2	2.7	2.6	2.8	13.0	827
Month 9	2.5	3.1	4.8	3.0	9.0	825
Month 12	1.1	1.3	2.1	2.3	5.8	828
PERCENT SELF-FEEDING PRIOR TO THE INTERVIEW (AMONG THE INFANTS EATING SOLIDS)						
Month 6	2.5	3.2	4.8	5.7	10.2	758
Month 9	1.3	1.7	1.1	4.6	4.9	786
Month 12	0.4	0.4	0.7	1.4	1.4	796

Notes

1 These data are available for formula-feeding infants only.
2 Includes all mothers who used an infant feeder any time prior to that interview.
3 Includes infants who were receiving supplemental foods only.
4 Defined by picking up foods and putting them in the mouth.
* Chi-square statistic testing the association between maternal race/ethnicity is significant at $p<.05$.
** Chi-square statistic testing the association between maternal race/ethnicity is significant at $p<.01$.

Table IX.3. (Text and Appendix I) and Figure IX.3. (Data) Standard errors of percentages of WIC mothers who adopt supplemental food feeding practices that are generally not recommended.

Socio-Demographic Characteristics	Percent Drinking Supplemental Drinks by Month 5 who Were not Using a Cup[1]	N	Percent Eating Solids by Month 4 who Were not Using a Spoon	N	Percent Eating Solids by Month 4 Using an Infant Feeder[2]	N
Total	2.6	508	4.4	433	3.0	466
Race/Ethnicity			*		**	
White	4.2	277	4.7	242	4.2	260
African American	4.6	99	4.9	93	6.9	95
Hispanic	4.0	106	9.7	78	7.7	88
Other	14.3	26	13.9	20	12.4	23
Age					*	
14 - 19	4.2	109	6.2	106	6.1	110
20 - 25	2.2	225	5.4	184	3.9	117
26 or older	4.5	174	5.3	143	4.4	160
Birth order of the infant					*	
First born	3.6	210	4.5	191	5.0	200
Second born	4.6	86	5.9	74	5.3	80
Third born or younger	2.7	207	5.7	163	3.9	180
Immigrant status					**	
Born in the U.S.	2.9	408	4.6	356	3.6	381
Born elsewhere	4.4	93	10.0	120	3.6	77
Father of the infant lives with the mother			**			
Yes	4.4	229	3.9	207	4.2	222
No	2.3	279	5.6	226	3.7	244
Poverty level						
< 50%	4.2	152	7.7	118	5.6	124
50 - 100%	4.8	151	5.1	132	4.8	145
100% or more	6.1	62	6.3	54	7.0	58
Highest grade completed by the mother					*	
9th grade or less	5.1	73	9.0	68	5.3	71
10th or 11th grades	4.4	102	5.2	91	5.8	95
12th grade	4.7	224	4.8	188	4.1	203
More than high school	4.9	100	6.1	78	4.9	88

Notes:
1. Among the infants who received supplemental drinks by month 5.
2. Among the infants who received supplemental solids by month 4.

* Chi-square statistic testing the group differences is significant at $p<.05$.
** Chi-square statistic testing the group differences is significant at $p<.01$.

Table X.1. (Text) Standard errors of percentages of WIC infants who receive each of the 13 groups of foods at each age.[1]

Foods Fed	Age of the Infant in Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Breastmilk	2.2	1.8	1.7	1.6	1.7	1.4	1.5	1.5	1.5	1.5	1.3	0.7
Formula	1.8	1.3	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.6	2.1	2.2
Fruit juice[2]	1.2	1.4	2.2	2.6	2.4	1.9	1.0	0.9	0.3	0.2	0.2	0.1
Milk[2]	0.2	0.4	0.6	1.0	1.1	1.2	1.5	1.6	2.5	2.5	2.6	2.2
Sweet drinks[2]	1.9	2.5	2.5	2.4	2.5	2.3	2.0	2.2	1.9	1.9	1.9	1.7
Cereal[2]	1.3	2.1	3.0	2.5	1.3	0.9	0.5	0.4	0.2	0.2	0.2	0.1
Fruits[2]	0.6	1.1	1.9	3.0	2.9	1.7	1.0	0.8	0.3	0.3	0.2	0.2
Vegetables[2]	0.3	1.0	1.4	2.4	2.6	1.6	1.1	1.0	0.4	0.4	0.3	0.2
Meats[2]	0.1	0.4	0.7	0.8	1.6	2.3	2.0	1.7	1.3	1.1	1.0	0.4
Starchy foods[2]	0.0	0.2	0.7	1.0	1.6	2.4	1.9	2.0	1.2	1.3	1.3	0.4
Dairy foods[2]	0.2	0.2	0.4	0.9	1.1	1.4	2.0	2.1	2.0	2.3	2.3	1.2
High protein foods[2]	0.1	0.1	0.4	0.7	1.3	2.1	2.5	2.5	2.6	2.5	2.4	1.4
Sweet foods[2]	1.4	1.6	1.9	2.3	2.2	2.4	2.7	2.8	2.5	2.6	2.5	1.5

Note:
1. The ages are actual ages and they are not dependent upon the timing of the interview.
2. Infants who have initiated supplemental foods prior to the corresponding age are assumed to be receiving those foods at any subsequent age.