

Breastfeeding Patterns among New York State Mothers (excluding New York City), 1993-1994

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Highlights

- A little more than half (52.5%) of the New York State mothers (excluding New York City) breastfed after discharge from the hospital. The *Healthy People 2000* objective calls for increasing the proportion of mothers who breastfeed in the early postpartum period to at least 75 percent.
- At least 11.6 percent of New York State mothers (excluding New York City) breastfed into the fifth month. This number could be as high as 36.3 percent, however, due to the timing of the questionnaire response, only a subsample of women were able to be determined to have breastfed their infants into the fifth month. The *Healthy People 2000* objective calls for increasing the proportion of women who breastfeed into the fifth or sixth month to 50 percent.
- Among mothers who did not breastfeed, the three reasons most often reported were "I didn't want to," "I was planning to return to work/school" and "I tried but my baby didn't breastfeed very well."
- Mothers with at least some college were 2.1 times more likely to breastfeed than mothers with fewer than 12 years of education, and 1.7 times more likely to breastfeed than high school graduates.
- Postpartum smoking status was strongly associated with breastfeeding prevalence. Mothers who reported smoking postpartum were significantly less likely to breastfeed (34.9%) than mothers who did not smoke after delivery (58.7%).
- One out of six mothers (16.1%) reported that a health care professional did not discuss breastfeeding with them during pregnancy.

Introduction

The decision of a mother to breastfeed her newborn is an important one. Proven benefits provided to the newborn include a complete diet, prevention of infectious diseases, increased effectiveness of immunizations, lower rates of morbidity including ear infections, lower rates of hospital admissions and the benefits of bonding between mother and child. Breastfeeding also provides benefits to the mother: hastening postpartum recovery, economic savings, possible protection against developing breast cancer, as well as the benefits of bonding.⁽¹⁻⁴⁾

The recognized benefits of breastfeeding for the mother and infant prompted the establishment of goals to increase the incidence of breastfeeding nationwide. *Healthy People 2000* established an

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PRAMS is an ongoing population-based survey of maternal behaviors and services utilized during pregnancy of New York women with a recent delivery (excluding New York City). A stratified systematic sampling approach is used to select approximately 200 new mothers each month from the state's live birth registry to participate in the survey. Sampled women who had a live birth in the last two to six months are mailed up to three questionnaires to solicit a response. Telephone interviews are attempted for nonrespondents.



objective to increase the proportion of women who breastfeed in the early postpartum period to 75 percent and to maintain a 50 percent level of breastfeeding into the fifth month. (5)

In spite of acknowledged benefits, many women still choose not to breastfeed, although the proportion of women choosing to breastfeed has increased nationally in recent years. (5-6) Data from the New York Pregnancy Risk Assessment Monitoring System (PRAMS), implemented in 1993, was used to evaluate breastfeeding patterns among New York mothers (excluding New York City). Analysis was directed at defining the prevalence of breastfeeding, identifying women least likely to breastfeed, identifying factors that may inhibit breastfeeding, evaluating characteristics of women who continued to breastfeed beyond the early postpartum period and comparing results to the national year 2000 goals for breastfeeding. Data-based recommendations related to achieving the *Healthy People 2000* objectives for increased levels of breastfeeding are highlighted.

Methods

PRAMS is an ongoing population-based survey of New York mothers (excluding New York City). A stratified systematic sampling approach is used to select approximately 200 new mothers each month from the state's live birth registry to participate in the survey. Sampled women who had a live birth in the last two to six months are mailed up to three questionnaires to solicit a response. Telephone interviews are attempted for nonrespondents. Data for this report reflect live births occurring between April 1993 and December 1994. The overall response rate was 73 percent (2,473 mothers out of 3,374). The average age of the infant when mothers completed the survey was five months. Analysis weights were applied to adjust for selection probability and nonresponse.

Figure 1. PRAMS Questions Relating to Breastfeeding

38. For how many weeks or months did you breastfeed your baby before feeding him or her any other milk, formula or food? Check all that apply.	____Weeks or ____ Months <input type="checkbox"/> I didn't breastfeed <input type="checkbox"/> I breastfed less than 1 week <input type="checkbox"/> I'm still breastfeeding and have started some formula or food, too (put number of weeks or months you fed breast milk only, then Go to Question 40) <input type="checkbox"/> I'm still breastfeeding and haven't fed my baby any other milk, formula, or food yet — >Go to Question 40
39. Did any of these things stop you from breastfeeding? Check all that apply.	<input type="checkbox"/> I didn't want to <input type="checkbox"/> I was planning to go to work or school <input type="checkbox"/> I tried but my baby didn't breastfeed very well <input type="checkbox"/> My baby was not with me <input type="checkbox"/> I think it's better for my baby to be bottle fed <input type="checkbox"/> I was taking medicine <input type="checkbox"/> I felt it was the right time to stop <input type="checkbox"/> Other — >Please tell us:
58. Did a doctor, nurse, or other health worker talk to you about breastfeeding your baby. Circle Y (Yes) if someone talked with you about it or circle N (No) if they did not.	N Y

Three questions on the survey address breastfeeding (Figure 1). The first question determines whether the mother ever breastfed her infant, and, if so, for how long. The second question identifies factors that prevented the woman from initiating breastfeeding or contributed to her decision to discontinue breastfeeding. The third question asks whether the mother was given information about breastfeeding during her pregnancy.

Mothers who breastfed for less than one week or who indicated not breastfeeding were collapsed into the not breastfeeding category. This limited the women classified as breastfeeding to those who breastfed their infants for at least one week.



Breastfeeding prevalences include women who supplemented breast milk with other infant foods. The full duration of breastfeeding cannot be determined from the breastfeeding question for those mothers who were still breastfeeding at the time they completed the questionnaire. Minimum length of breastfeeding was defined as the age of the infant at the time the mother completed the survey. Duration of breastfeeding into the second month or longer was restricted to represent those infants who were at least two months old at the time the mother completed the survey. The age of the infant was determined from the date the mother reported she filled out the survey and the infant's date of birth as recorded on the birth certificate.

Data on maternal behaviors and experiences come from the PRAMS questionnaire and pertain to events 12 months before delivery, unless stated otherwise. Demographic data come from the birth certificate, except family income which is determined from PRAMS.

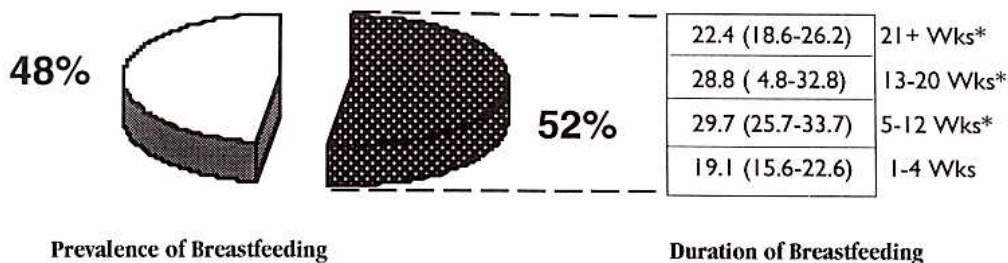
Statewide (excluding New York City) prevalence and standard errors were calculated with Survey Data Analysis (SUDAAN) software.⁽⁷⁾ Analysis of variance and the Chi-square statistic were used to test for differences between proportions.

Prevalence and Continuation of Breastfeeding

Of the 2,290 New York State mothers (excluding New York City) answering the breastfeeding question, weighted to be representative of 240,204 women, a little more than half (52.5%) responded that they breastfed after discharge from the hospital (Figure 2). National figures indicate that 60 percent of the mothers breastfed while in the hospital in 1994. Comparison to the *Healthy People 2000* objective shows that New York falls short, as of 1993-94, with respect to increasing the proportion of mothers who breastfeed during the early post-partum period to 75 percent (Figure 3).

A number of demographic characteristics were examined to describe women most likely to initiate breastfeeding. Mothers who were 20 years of age or older, white, continued their education beyond high school, did not receive assistance from the Supplemental Food Program for Women Infants and Children (WIC) and who were nonsmokers were significantly more likely to initiate breastfeeding. Other factors related to a mother's decision to initiate breastfeeding included level of income, location where prenatal care was received

Figure 2. Prevalence and Duration of Breastfeeding among New York State Mothers (excluding New York City) PRAMS (1993-1994)



* May be an underestimate. Numbers represent minimum duration of breastfeeding.



Table 1. Selected Characteristics of New York State Mothers (excluding New York City) by Breastfeeding Prevalence

Characteristic	n	Breastfed ^a (95% CI)
Overall (n = 2,290)	1,153	52.5 (49.31-55.7)
Age [†]		
Under 20	74	23.6 (12.6-34.6)
20-34	884	53.6 (50.0-57.2)
35 and up	193	62.2 (54.4-70.0)
Race [†]		
White	977	54.3 (50.9-57.7)
Non-White	119	39.1 (30.2-48.0)
Education ^{††}		
Less than 12 years	103	30.9 (21.7-40.1)
12 years	301	38.9 (33.6-44.2)
13 years and up	712	66.5 (62.4-70.6)
Income Level [†]		
Under \$16,000	194	42.9 (35.4-50.5)
\$16,000-\$39,999	346	59.5 (53.7-65.3)
\$40,000 and up	492	58.8 (54.0-63.6)
Unknown	121	32.8 (24.0-41.6)
WIC Participant [†]		
Yes	261	41.3 (34.9-47.7)
No	851	57.6 (53.9-61.3)
Health Professional discussed breastfeeding		
Yes	942	54.5 (50.9-58.1)
No	171	44.7 (37.2-52.2)
Prenatal Care Location [†]		
Private MD/HMO	904	58.4 (54.8-62.0)
Hospital Clinic	131	35.5 (26.6-44.4)
Other	55	36.8 (23.5-50.1)
Postpartum Smoking ^{††}		
Smoker	215	34.9 (28.6-41.2)
Nonsmoker	903	58.7 (55.0-62.4)

^a Percentages based on weighted sample size

[†] $P < 0.10$ ^{††} $P < 0.05$

and whether a health professional had discussed breastfeeding (Table 1).

Comparison to the *Healthy People 2000* objective shows New York is far behind in reaching the year 2000 objective of 50 percent of women continuing to breastfeed into the fifth or sixth month (Figure 3) of the infant's life. Among mothers who responded, 10 percent quit within the first month, and at least 30.4 percent continued into the first, second, third or fourth months. Responses indicated that at least 11.6 percent of the mothers who initiated breastfeeding continued into the fifth month or longer (Figure 2). However, some portion

of the women who were interviewed in the second, third or fourth months, who indicated they were still breastfeeding, may have continued to breastfeed at 21+ weeks. Therefore, these figures may be an underestimate because they represent minimum duration of breastfeeding, not exact durations. Approximately 36 percent of mothers responded they were still breastfeeding at the time of the interview, and if all had chosen to continue to breastfeed into the fifth month, this figure (36.3%) would represent the maximum possible percentage of women breastfeeding at five months postpartum.

Age, race and postpartum smoking status were factors related to duration of breastfeeding. Mothers who were 20 years of age or older, white or who did not smoke postpartum tended to breastfeed longer (Table 2).

Characteristics of Nonbreastfeeders

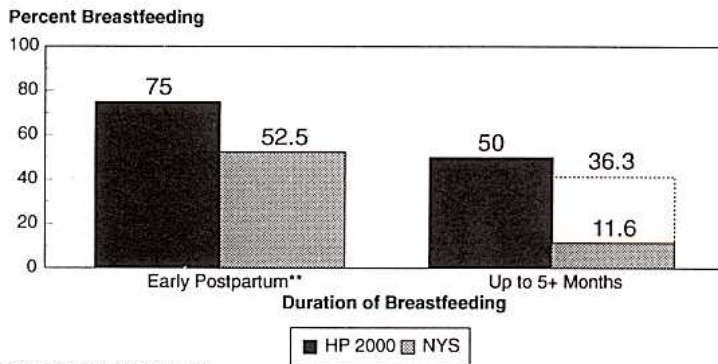
Nearly one-half (47.5%) of the mothers responding reported either not breastfeeding at all or that they breastfed for less than one week. Table 1 shows selected characteristics of these women. Women least likely to breastfeed were teenagers, nonwhite, smokers, less educated or those of low socioeconomic status.

Mothers less than 20 years of age were half as likely to breastfeed as mothers 20-34 years old, and were 60 percent less likely to breastfeed than mothers 35 years and older. These differences were significant. Mothers with more than a high school education were 2.1 times more likely to breastfeed than mothers with less than 12 years of education and 1.7 times more likely to breastfeed than high school graduates. Age was not found to be a confounder by educational attainment for breastfeeding prevalence (data not shown).

Mothers who reported a total family income of greater than \$16,000 were 1.4 times more likely to breastfeed. Women enrolled in WIC were significantly less likely to breastfeed (41.3%) than women not enrolled in WIC (57.6%).



Figure 3. Comparison of NYS to the HP 2000* Objective for Breastfeeding



* HP 2000 1995-1996 Review

** Early postpartum is defined as a minimum of one week for NYS data and as in-hospital for HP 2000.

One out of six mothers (16.1%) reported that a health care professional did not discuss breastfeeding with them during pregnancy. Women not reporting counseling about breastfeeding were less likely to breastfeed than women who reported receiving information about breastfeeding during their pregnancy, although this finding was not statistically significant. In addition, mothers receiving prenatal care at a hospital clinic or health department clinic were 38 percent less likely to breastfeed than those receiving their care from a private doctor or HMO. However, source of prenatal care was unrelated to whether mothers received information about breastfeeding during their pregnancy (data not shown).

Postpartum smoking status was strongly associated with breastfeeding prevalence. Mothers who reported smoking postpartum were significantly less likely to breastfeed (34.9%) than mothers who did not smoke after delivery (58.7%).

Barriers to Breastfeeding

Mothers were asked to check all reasons that kept them from breastfeeding (Figure 1). Among mothers who did not breastfeed or who breastfed less than one week, the three reasons most often

Table 2. Breastfeeding Duration by Maternal Characteristics for Women who Breastfed^a

Characteristic	<1 month (95%CI)	1-3months (95%CI)	4+months (95%CI)
Overall	19.1 (15.6-22.5)	29.7 (25.7-33.7)	51.2 (46.7-55.7)
Age			
< 20	32.9 (7.6-58.2)	28.9 (8.12-49.7)	38.2 (10.2-66.2)
20-34	19.3 (15.5-23.1)	31.1 (26.5-35.7)	49.5 (44.5-54.5)
35+	14.9 (7.1-22.7)	22.2 (13.7-30.7)	62.9 (52.7-73.1)
Race			
White	19.1 (15.5-22.7)	28.9 (24.7-33.1)	51.9 (47.2-56.6)
Non-White	17.9 (7.6-28.2)	39.1 (24.1-54.1)	42.9 (27.3-58.5)
Education			
<12 years	20.1 (6.4-33.8)	37.6 (19.7-55.5)	42.3 (23.1-61.5)
12 years	14.8 (8.8-20.8)	32.7 (24.5-40.9)	52.5 (43.6-61.4)
12+ years	20.7 (16.3-25.1)	27.6 (22.8-32.4)	51.6 (46.3-56.9)
Income			
<\$16,000	16.1 (7.8-24.4)	33.8 (22.9-44.7)	50.0 (37.8-62.2)
\$16,000- <\$40,000	14.2 (9.2-19.2)	29.3 (22.2-36.4)	56.5 (48.9-64.1)
\$40,000 and up	23.1 (17.4-28.8)	29.5 (23.6-35.4)	47.4 (40.9-53.9)
Unknown	23.1 (10.4-35.8)	23.3 (9.9-36.7)	53.5 (36.8-70.2)
WIC Participant			
Yes	21.9 (13.9-29.9)	24.2 (15.9-32.5)	53.8 (43.6-63.9)
No	18.1 (14.2-21.9)	31.6 (26.9-36.3)	50.3 (45.2-55.4)
Smoke Postpartum			
Yes	22.9 (12.9-32.9)	40.7 (29.6-51.8)	36.4 (25.0-47.8)
No	18.6 (14.9-22.3)	26.7 (22.4-31.0)	54.7 (49.8-59.6)
Health Professional Discussed Breastfeeding			
Yes	19.6 (15.8-23.4)	29.6 (25.2-34.0)	50.8 (45.9-55.7)
No	16.0 (7.6-24.5)	26.9 (16.2-37.6)	57.0 (45.1-68.9)

^a among mothers who breastfed at least one week (n = 1,153)

reported were "I didn't want to," "I was planning to return to work/school" and "I tried but my baby didn't breastfeed very well" (Figure 4). In contrast, the three reasons most often reported among mothers who discontinued breastfeeding were "Other," "I was planning to return to work/school" and "I thought it was the right time to stop" (data not shown). Other reasons included "It was too difficult," "I didn't produce enough milk" or "I smoke."

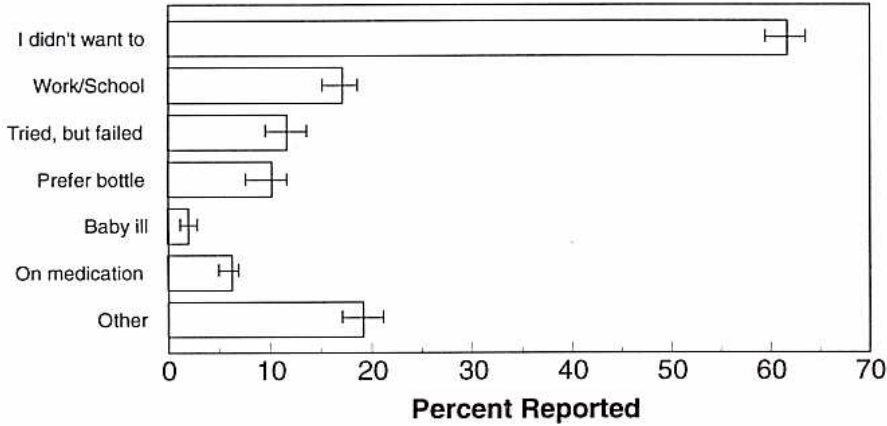
Hospital Length of Stay

Mothers who stayed in the hospital for longer lengths of time or mothers who left the hospital without their infant were less likely to breastfeed, although this finding was not statistically significant (Figure 5). Infant intensive care status at delivery



Figure 4. Reasons Reported for Not Breastfeeding*, 1993-1994

Reasons for Not Breastfeeding



* Includes women who breastfed for less than one week
Note: Bars show 95% confidence interval

was unrelated to breastfeeding prevalence by hospital length of stay (data not shown). Examination of the reasons for not breastfeeding by hospital length of stay showed that mothers who breastfed only in the hospital were increasingly more likely to report that they “tried unsuccessfully” or “I was taking medication” (data not shown).

Limitations

Small sample size was a limitation of this analysis. Prevalence estimates depend on the actual unweighted number of respondents in a category. Therefore, differences that appeared meaningful were not statistically significant at the .05 level. However, differences are apparent and future years of additional data should aid in clarifying these relationships. Additionally, small numbers would not allow a comparison of low socioeconomic status, which may further explain the differences in breastfeeding prevalence that were observed for source of prenatal care. Also, the difference in breastfeeding prevalence observed for WIC status could not be further explained by age and socio-

economic status because of small numbers. Ideally, women who discontinued breastfeeding after leaving the hospital should be compared to those who continued to breastfeed, but small numbers prevented such a comparison.

PRAMS collects self-reported data on maternal behaviors, and mothers are ideally sampled two to four months after delivery. Recall bias is always a concern in studies that rely on self-reported data. Recall bias may be lessened on questions regarding breastfeeding choice because mothers would only be required to recall breastfeeding practices that occurred in the recent past. However, recall on receipt of information on breastfeeding and other covariates, such as smoking, is subject to bias. It is not believed, however, that women who breastfed would recall this information differently from women who did not breastfeed.

The hospital is often the sole source of information or instruction about breastfeeding. To promote breastfeeding instruction, New York State requires a lactation coordinator at each hospital with new-



born nurseries. However, the role hospitals play in influencing breastfeeding could not be clearly assessed because of the design of the questions within this survey. A new question to address this more clearly has been added to the survey questionnaire. This question addresses events in the hospital that may influence the decision to breastfeed. These include whether postpartum women received information about breastfeeding and about how to breastfeed, whether their infant was fed only breast milk in the hospital, and whether their baby stayed in the same room with them in the hospital. Sampling that began in January 1996 will include this added information.

Recommendations

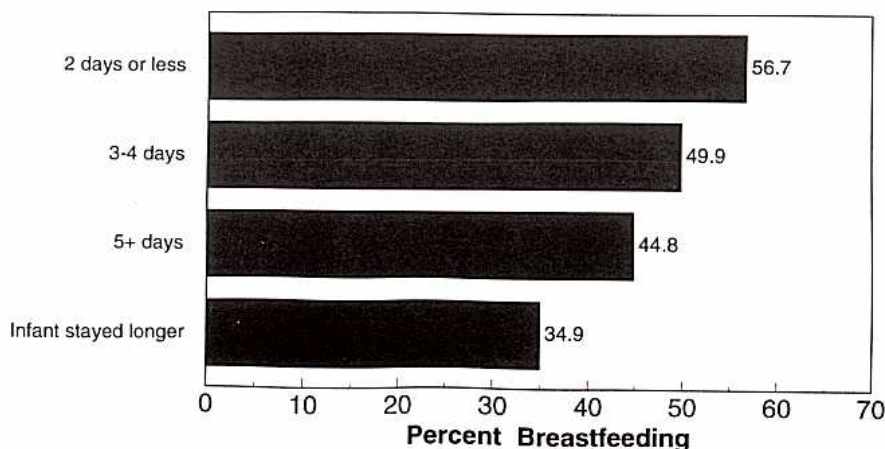
In New York State (excluding New York City), breastfeeding prevalence and duration for the years 1993-1994 falls short of the year 2000 objectives. More educational programs that address breastfeeding are needed in order to increase levels of breastfeeding. Ideally, breastfeeding educational

efforts should be tailored to the needs of specific subgroups of women, e.g., teenagers and working mothers. The following recommendations are offered to assist in achieving this goal.

- Personal preference, "I didn't want to," was the most common reason for not breastfeeding. More should be done to promote breastfeeding and to educate mothers about the benefits of breastfeeding, including techniques that will reduce discomfort and inconvenience.
- Health care professionals should be made aware of the finding that one out of six mothers reported no discussion of breastfeeding by health care personnel. Educational efforts should be directed at physicians to promote and support breastfeeding so that *all* mothers receive information about breastfeeding during pregnancy regardless of their past breastfeeding decision.
- Going back to work and/or school influences whether mothers will breastfeed and whether

Figure 5. Hospital Length of Stay for Mother and Newborn by Percent Breastfeeding, 1993-1994

Matched Length of Stay for Mother and Newborn





they will continue to breastfeed into the fifth month. Efforts should be directed at schools and businesses to encourage the maintenance of breastfeeding, e.g., provision of facilities for pumping and storage of breast milk. In addition, the content of educational messages should include practical aspects, such as how to go to work or school and still breastfeed.

- Approximately 10 to 12 percent of the women responding reported trying to breastfeed but failing. Follow-up by hospitals or home visits may aid in identifying women who need additional assistance in getting their newborns to breastfeed.
- Mothers were more likely to report that they “tried unsuccessfully” the longer they stayed in the hospital. Lactation coordinators at each hospital should be made aware of these findings so that they may tailor their efforts to address women experiencing difficulties in breastfeeding.

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