Prevalence of Breastfeeding in the United States: The 2001 National Immunization Survey

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ABSTRACT. *Objective.* **To address key gaps in the annual monitoring of breastfeeding prevalence in the United States, 3 breastfeeding questions concerning the initiation, duration, and exclusivity of breastfeeding were added to the rotating modules of the National Immunization Survey (NIS) beginning in the third quarter of 2001. The present study examines the current prevalence of breastfeeding in the United States using NIS data from this initial quarter.**

Methods. **The NIS is a random-digit-dialing survey of households with children aged 19 to 35 months, followed by a mail survey of the eligible children's vaccination providers to validate the child's vaccination information. In the third quarter of 2001, a randomly selected subset of households interviewed in the NIS (N = 896) were asked questions about breastfeeding.**

Results. **Almost two thirds (65.1%) of children had ever been breastfed. At 6 and 12 months, 27.0% and 12.3%, respectively, were receiving some breast milk. Non-Hispanic blacks had the lowest rates of breastfeeding initiation and continuation. Exclusive breastfeeding rates were low in the United States with only 7.9% at 6 months.**

Conclusions. **Although breastfeeding initiation is near the national goal of 75%, breastfeeding continuation lags behind the national goals of 50% and 25% at 6 and 12 months, respectively. Strenuous public health efforts are needed to improve breastfeeding practices among blacks.** ***Pediatrics*** **2003;111:1198–1201;** ***breastfeeding prevalence, surveillance, National Immunization Survey.***

ABBREVIATION. NIS, National Immunization Survey.

Worldwide, breastfeeding is recognized as beneficial for both infants and mothers.[1–3] The American Academy of Pediatrics recommends breast milk as the preferred feeding for all infants, including premature and sick newborns, with rare exceptions.[1] In the United States, the goals of *Healthy People 2010* are to increase the proportion of mothers who breastfeed their infants to 75% in the early postpartum period, 50% at 6 months, and 25% at 1 year.[4]

Although several national surveys collect breastfeeding data, including the National Health and Nutrition Examination Survey, the National Health Interview Survey, and the National Survey of Family Growth, none of them meet the criteria for an ideal breastfeeding surveillance system and none monitor breastfeeding prevalence annually.[5] Therefore, the *Healthy People 2010* goals on breastfeeding were established and have been tracked with data collected by Ross Products Division of Abbott Laboratories, manufacturers of infant formula.[4] To date, most of the quoted statistics on breastfeeding rates have been derived from the Ross Laboratories Mothers Surveys, whose questionnaires are mailed to a large sample of mothers who have given birth within the past year of each survey. Unfortunately, the Ross Laboratories Mothers Surveys has a relatively low response rate (50%), and it cannot be used to estimate the exclusive breastfeeding rate.[6] In addition, use of data obtained from formula manufacturers to establish and monitor national goals on breastfeeding represents a conflict of interest.

Appropriate monitoring of the *Healthy People 2010* goals and objectives is a high priority for the US Department of Health and Human Services. In response to requests from the US Breastfeeding Committee, the Centers for Disease Control and Prevention held a breastfeeding surveillance meeting in November 1999 to review current methods for assessing this practice.[5] The attendees recommended using existing surveillance systems to improve data collection immediately. As a result, 3 questions on breastfeeding were added to the rotating modules of the National Immunization Survey (NIS) beginning from the third quarter of 2001. The present study examines breastfeeding rates in the United States using data from this quarter of NIS.

METHODS

The NIS is conducted annually by the Centers for Disease Control and Prevention to obtain national, state, and selected urban-area estimates of vaccination coverage rates for US children aged 19 to 35 months. The NIS uses random-digit dialing to survey households with age-eligible children, followed by a mail survey to the eligible children's vaccination providers to validate the vaccination information. Analyses of NIS data are limited to children whose vaccination histories receive this validation. The data concerning those children are weighted to represent the US population of 19- to 35-month-old children. Details of the weighting methodology appear elsewhere.[7,8]

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In addition to immunization data, demographic data are collected in the NIS. Respondents are asked to self-classify by race/ethnicity. In this analysis, we grouped the classification as non-Hispanic white, non-Hispanic black, Hispanic, and others.

Starting from the third quarter of 2001, approximately 13.2% of households interviewed in the NIS (N = 896) were randomly selected to answer breastfeeding questions pertaining to the topic of "Day Care Arrangements/Breastfeeding Practices/WIC Participation," 1 of the 3 topics added to the core questionnaire (referred to as a rotating topical module). Additional quarters of breastfeeding data are being gathered but were not available at this writing. Data concerning the initiation, duration, and exclusivity of breastfeeding were collected from the recall of survey respondents.

We calculated the percentage of children who were ever breastfed, exclusively breastfed at ages 0 to 6 months, and receiving breast milk to any extent at ages 0 to 12 months. All of the data are presented as a percentage among all children who participated in this study. In this study, breastfeeding initiation rate was represented as a proportion of mothers who reported ever breastfeeding their children, whereas the rate of exclusive breastfeeding in the early postpartum period was estimated as a proportion of infants who were not fed something other than breast milk or water before 7 days. We estimated the continuation of breastfeeding month by month up to 6 months for exclusive breastfeeding and up to 12 months for any breastfeeding. All calculations were performed using SUDAAN, Version 7.5.[9] The variance estimates are expressed through 95% confidence intervals.

RESULTS

The current study included a total of 727 children with complete information on ever breastfeeding, breastfeeding duration, and adequate immunization data. The sample size for exclusive breastfeeding is slightly smaller (709) because of missing data on age at introduction of supplements to breast milk. Overall, almost two thirds (65.1%; 95% confidence interval: 59.5%–70.7%) of children had ever been breastfed. Results at 6 and 12 months for continued breastfeeding were 27.0% (21.7%–32.3%) and 12.3% (8.9%–15.7%), respectively. At 7 days, 59.3% (53.7%–64.9%) of children were exclusively breastfed; at 6 months, this figure was 7.9% (5.0%–10.8%). As shown in Fig 1, non-Hispanic blacks had the lowest rates of both initiation and continuation of breastfeeding.

As revealed in Fig 2, exclusive breastfeeding and any breastfeeding rates declined almost in parallel for the first 3 months of life. The largest monthly drop in any breastfeeding (15 percentage points) occurred between 2 and 3 months, whereas the largest drop in exclusive breastfeeding was between 3 and 4 months (13 percentage points).

DISCUSSION

This analysis shows that although considerable progress toward the goal of 75% for breastfeeding initiation has been made, breastfeeding prevalence at 6 and 12 months still lags behind the *Healthy People 2010* goals for breastfeeding continuation (short by 23 and 13 percentage points at 6 and 12 months, respectively). Although the national objectives do not include a goal for exclusive breastfeeding, both the World Health Organization and the American Academy of Pediatrics recommend exclusive breastfeeding for the first 6 months.[1,10] In contrast, we found that only approximately 60% of US infants are exclusively breastfed in the early postpartum period and just 8% are exclusively breastfed by 6 months. In addition, this study found that non-Hispanic blacks have the lowest rates of breastfeeding initiation and continuation, which is consistent with previous findings about racial and ethnic disparities.[11–14]

The similarity in patterns of decline in partial and exclusive breastfeeding over the first 3 months suggests that the factors associated with exclusive breastfeeding might be similar to those associated with any breastfeeding in early life.[15] Special attention needs to be paid to the sharp decline in any breastfeeding between 2 and 3 months. For many women, this is the period when they return to work or school and need additional environmental and social support to continue breastfeeding. It has been reported that lack of lactation support in the workplace is a major barrier for maintaining breastfeeding.[16,17] Therefore, work site facilities and policies that allow mothers to continue to provide breast milk for their infants after their return to work is an essential component for improving breastfeeding duration. The sharp decline in exclusive breastfeeding between 3 and 4 months might be explained by multiple reasons. In addition to the social, cultural, and environmental constraints identified previously,[18] it might include the beliefs that mothers cannot provide sufficient nutrition to their infants beyond

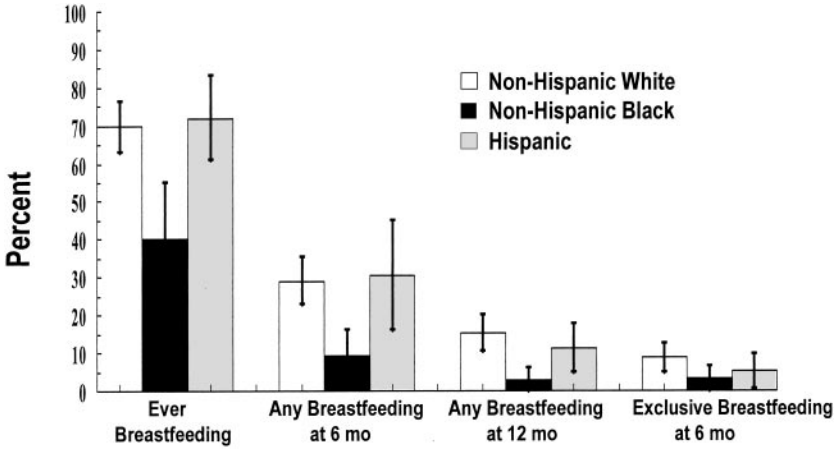

Fig 1. Racial/ethnic disparities in breastfeeding (mean and 95% confidence interval), NIS, July–September 2001.

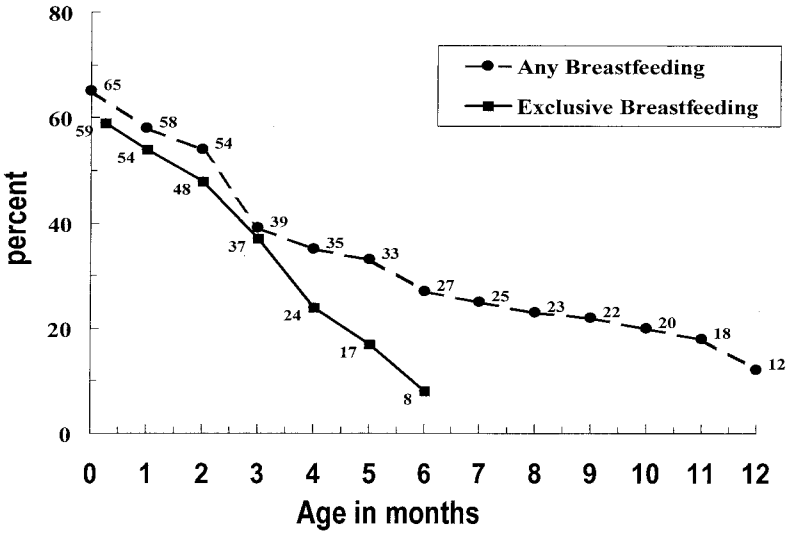

Fig 2. Any and exclusive breastfeeding by age, NIS, July–September 2001.

this age.[19] A previous study found that 31% of US adults believe that infants ought to be fed cereal or infant food by 3 months.[20] If mothers are told by their family and friends that their infants should be fed solid foods in the first few months, then they will find it difficult to avoid feeding their infants solids until 6 months of age, despite their pediatrician's recommendation to breastfeed exclusively.

This study has 2 major limitations. First, although the strict definition of exclusive breastfeeding specifies that no other liquids or solids except breast milk are given to the infant,[21] this study allows water feeding for exclusive breastfeeding. Second, given the relatively small sample size available in only 1 quarter's data, we were not able to conduct stratified analysis to explore further the racial and ethnic disparities in breastfeeding practices.

We compared our results with the third National Health and Nutrition Examination Survey 1988–1994 in which the same breastfeeding questions were used but different sampling designs were applied.[15] The breastfeeding initiation has increased from 54% to 65% over the past decade, and continuation of any breastfeeding seems to have increased from 22% to 27% at 6 months and from 9% to 12% at 12 months (these last 2 trends were not statistically significant).

CONCLUSIONS

Although the national goal for breastfeeding initiation has nearly been reached, the gap in achieving the goals for continuation of breastfeeding remains large. The health care system has an important role to play in the promotion and support of breastfeeding. Maternity care and newborn facilities should follow practices that are conducive to proper lactation, and all health care providers who interact with women or infants should be knowledgeable and skillful in counseling women about breastfeeding and lactation and in providing medical care to breastfeeding mothers.[22] Additional research is needed to identify the social, cultural, economic, and psychological barriers to breastfeeding that all women face, especially black women.

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