Symposium: Accomplishments in Child Nutrition during the 20th Century

The Resurgence of Breastfeeding at the End of the Second Millennium[1,2]

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There have been dramatic changes in how infants were fed during the 20th century. Almost universal at the turn of the century, breastfeeding declined until midcentury, after which it once again became the norm. Until recent years, the health benefits of breastfeeding were not emphasized, and synthetic formulations were popular. Only of late have health professionals become involved in the promotion of breastfeeding as a return to traditional values and the "natural" vs. the "artificial" way to feed infants. The same century also witnessed unprecedented cultural, social and technological changes, involving the roles of women, their income and education, and their childbirth practices. The purpose of this review is to describe the changes in breastfeeding rates and provide insight into the reasons for its resurgence in recent years. Understanding the factors that have contributed to the increase in breastfeeding may help identify strategies for further improvement in the breastfeeding rates in the United States.

Recent breastfeeding rates

More than two thirds of mothers breastfed in the early 1900s (Hirschman and Butler 1981). However, both the incidence and duration of breastfeeding declined in successive cohorts, beginning in the first decades of the 1900s (Hirschman and Butler 1981). Initiation rates in the 1911–1915 cohort were nearly 70% of women, and nearly 50% in the 1926–1930 cohort; however, in the 1946–1950 cohort, only 25% initiation rates were noted (Hirschman and Butler 1981). Initiation of breastfeeding reached its nadir in 1972, when only 22% of women breastfed (Eckhardt and Hendershot 1984).

By 1975, however, breastfeeding initiation began to increase, from 33.4% in that year to 54% in 1980, and subsequently to 59.7% in 1984 (Martinez and Krieger 1985). There was a dip in breastfeeding initiation rates in the late 1980s, followed by a return in the mid-1990s to the high levels observed in the early 1980s (Ryan 1997). Thus, after a dramatic increase in the 1970s, breastfeeding rates remained relatively static from the early 1980s to 1995. As of 1995, 60% of new mothers initiated breastfeeding, with 20% still breastfeeding at 6 mo (Ryan 1997). Unpublished data indicated that in 1997, 62.4% of mothers initiated breastfeeding, and 26% continued to 6 mo; newly reported was a 14.5% breastfeeding rate at 12 mo (personal communication, Ross Mothers' Survey).

Correlates of the changes in breastfeeding rates

In the 1980s, there was a 13% decline in breastfeeding initiation rates and a 24% decline in breastfeeding at 6 mo (**Fig. 1**). The national breastfeeding rates mask a great deal of variability in rates related to maternal characteristics such as ethnic background, level of income and years of education. These declines in breastfeeding rates were most noticeable in the following circumstances: *1*) family income was <$15,000; *2*) maternal education was only through grade school; *3*) maternal age was <25 y; *4*) mothers were unemployed; *5*) mothers were African-American women; *6*) mothers participated in the WIC (Special Supplemental Nutrition Program for Women, Infants, and Children) program; and *7*) families resided in the south-central United States (Ryan 1997). It is important to note that there is substantial variability of breastfeeding by region and within each ethnic group. For example, in the early 1980s, breastfeeding initiation rates ranged from 27% of Mexican-American women in Texas to 49% of Hispanics in Arizona (Wright et al. 1988).

Between 1971 and 1995, increases in breastfeeding initiation occurred in all groups for which data are available. In contrast, the increase that occurred between 1984 to 1995 involved those groups that have been less likely to practice breastfeeding, i.e., low income women, WIC participants and those with the least education. Breastfeeding also increased between 1984 and 1995 among both African-Americans (from 33.3 to 37%), and Hispanics (from 53.8 to 61.0%), with little

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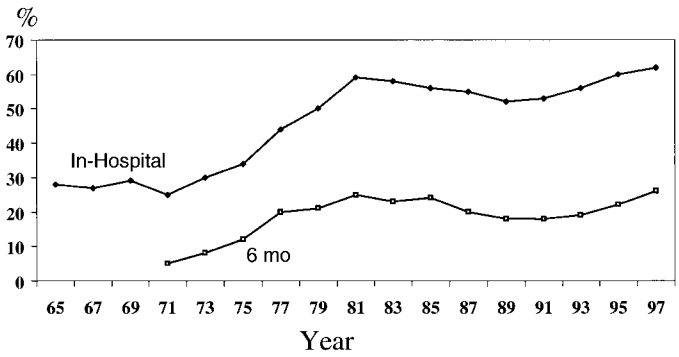

FIGURE 1 U. S. breastfeeding rates of initiation (in hospital) and breastfeeding duration (6 mo) from 1965 to 1997. Data from Ross Mothers' Survey, Ross Laboratories, Columbus, OH.

change in breastfeeding initiation among Caucasians (from 65.0 to 64.3%).

The increase in breastfeeding in the 1970s occurred largely among well-educated Caucasian women. However, because birth rates were lower in Caucasian women than in African-Americans in the latter half of the 20th century, the national increase cannot be attributed to an increased birth rate among well-educated women (Eckhardt and Hendershot 1984, U.S. Census Bureau 1999). In contrast, the recent increase has been greatest among African-Americans and women using the WIC program. Because the birth rate in the 1980s to 1990 was higher in these groups, national demographic trends may account for some of the increase in breastfeeding initiation in the last three decades (U.S. Census Bureau 1999).

Maternal employment and breastfeeding practices

The decline in breastfeeding before the 1970s is often attributed to the difficulty of combining breastfeeding with maternal employment (Hirschman and Butler 1981). The data do show that employment is associated with recent breastfeeding practices, but the relationship has changed over time. Unemployed women were more likely to initiate breastfeeding in the early 1980s compared with women with full-time work, but by 1989, this difference had disappeared. Women who worked full-time were still more likely to terminate breastfeeding before 6 mo than women who worked at home. In contrast, part-time employment has been consistently associated with higher rates of initiation through the 1990s, and is associated with only modest declines in duration of breastfeeding.

In fact, the recent increase in breastfeeding initiation coincides with a dramatic increase in the percentage of married women in the work force with a child <1 y of age (from 29.2% in 1975 to 58.8% in 1994 for Caucasian women) (U.S. Department of Labor 1995). Thus, although employment may have been a barrier to breastfeeding initiation in earlier decades, it no longer affects breastfeeding initiation, suggesting that other changes may have affected feeding practices among employed women.

Changes in birthing practices

An important social change that influenced infant feeding practices originated in the management of childbirth. The early part of the century witnessed an increase in hospital births, during which the use of anesthesia/analgesia and centralized nurseries became the norm (Pitcock and Clark 1992). In the 1960s, the "natural childbirth movement," a companion to the rising women's movement, began to question how childbirth was typically conducted in the United States. The movement voiced a rejection of the medical model of birth and considered childbirth a natural part of the life cycle. It stressed a greater control of the birth by the woman and her family. The movement altered such standard elements of delivery as the practitioner, the setting and the attendants, and fostered greater family participation in the birth through childbirth education classes, which included emphasis on breastfeeding.

Certain practices, reminiscent of those later recommended by the Baby Friendly Hospital Initiative, had particular relevance to breastfeeding (Kyenkya-Isabirye 1992). For example, pain and fear were to be reduced through psychological rather than medical means. Thus, the "twilight sleep" of scopolamine and morphine gave way to unmedicated delivery, or birth with nonsystemic anesthesia, such as an epidural, which allowed the mother to be sufficiently alert to hold, breastfeed and bond with her infant (Pitcock and Clark 1992). Strict schedules, which regulated feeding intervals and duration of nursing, were increasingly replaced in the late 1960s by more infant-directed nursing (Millard 1990). Maternal infant contact, including rooming-in, was encouraged, and organizations such as La Leche League emerged to help support the breastfeeding mother. Finally, skin-to-skin contact and immediate breastfeeding, often before the umbilical cord was cut, were encouraged (O'Connor 1993).

Several analyses suggest that some of the early resurgence in breastfeeding was linked to the adoption of these practices. The prepared childbirth movement typically involved middle-class, well-educated, Caucasian women, the same group of women among whom the earliest increases in breastfeeding rates occurred (O'Connor 1993). The proportion of women attending a birth preparation class and being given information about breastfeeding by medical personnel increased significantly between the 1960s and 1970s, whereas the proportion of women first holding their infant >6 h after birth ("delayed contact") and receiving anesthesia during delivery declined significantly (Starbird 1991). Virtually all of these variables were significantly associated with breastfeeding initiation in the expected direction, and the effect of each variable increased in the later years of the study. These data suggest that increased societal interest in more natural childbirth, including childbirth education classes and early maternal-child contact, may be responsible for much of the upward pressure on breastfeeding rates in the 1970s.

Increased knowledge of the benefits of breastfeeding by health professionals

Increased knowledge among health care professionals about the benefits of breastfeeding might also have influenced infant feeding practices (Schanler et al. 1999). Although information on the composition of human milk and benefits of breastfeeding increased dramatically in the last several decades (**Table 1**), there is little evidence that these advances significantly influenced pediatric practice. Although 92% of pediatricians surveyed in the 1980s advocated breastfeeding, in 1995, only 65% of practicing pediatricians advocated exclusive breastfeeding for mo 1 (Lawrence 1982, Schanler et al. 1999). The literature suggests that many physicians are ill-prepared by their medical education to assist women in making informed feeding choices, that they have substantial knowledge deficits with regard to clinical management and that they rely on personal experience with regard to lactation management (Freed et al. 1995, Schanler et al. 1999). In addition, much of the breastfeeding literature provided through pediatric and

TABLE 1

Number of citations in Index Medicus on "breastfeeding" and "human milk" by decade[1]

Decade	Breastfeeding	Human milk
1960–1969	408	415
1970–1979	2212	1978
1980–1989	4498	3825
1990–1999	6269	3491

[1] Adapted from Wright (2001).

obstetric offices is donated by formula companies (Howard et al. 1994). These materials usually contain formula samples, discount coupons and vouchers for free cases of infant formula, "gifts" that are associated with a shorter duration of breastfeeding (Dungy et al. 1992, Howard et al. 1994, Wright et al. 1996). Given that significant educational needs in breastfeeding management remain, it seems unlikely that improved pediatric practices have contributed to the resurgence of breastfeeding (Schanler et al. 1999).

Fortunately, new programs designed to provide postgraduate education about evidence-based breastfeeding to practicing physicians may lead to greater knowledge, and thus increased professional support for breastfeeding in the future (Naylor et al. 1994, Schanler et al. 1999). To promote research in the field, a multidisciplinary research organization, The International Society for Research in Human Milk and Lactation, was formed in 1988 to bring together the range of researchers in the field. In early 2000, the American Academy of Pediatrics formed a Provisional Section on Breastfeeding after working with a Task Force on Breastfeeding since 1994. In the same interval, the multispecialty physician organization dedicated to promoting breastfeeding, The Academy of Breastfeeding Medicine, was formed.

Thus, taking all these events into consideration, in the last decade a consensus has emerged among health professionals that exclusive breastfeeding for ~6 mo should be universally recommended as the best strategy for infant nutrition and health (American Academy of Pediatrics and Work Group on Breastfeeding 1997).

Successful breastfeeding interventions

There have been numerous successful efforts to encourage breastfeeding in the last decade, ranging from changes in hospital practices to the use of social supports, as well as educational efforts oriented toward both health care providers and mothers. Although many of these programs have addressed individual populations, and thus would have no measurable effect on national rates, others, particularly those conducted through the WIC program, may have had a national effect. Many of these recent studies are designed to address the specific concerns and issues that have been identified as relevant to the population in question, rather than generically trying to "educate," or enhance the awareness of women about breastfeeding (Wright et al. 1997). As such, these programs attempt to change the culture of infant feeding within a particular context.

The demographics of the population showing the greatest decline in breastfeeding rates were similar to the population served by the WIC program. The magnitude of the numbers of children involved is enormous. In 1989, WIC enrolled 1,256,000 children, 31% of the U.S. infant population, of whom 70% were <3 mo of age. In 1995, the WIC enrollment reached 1,819,000 children, 47% of the U.S. infant population, 85% of whom were <3 mo old (Ryan 1997). The WIC program provides food packages for low income women, as well as an opportunity for breastfeeding education of new mothers. Because it spans pregnancy and the postnatal period, the WIC program is in a good position to offer counseling to women on breastfeeding because it serves a population in which education and breastfeeding promotion are most needed.

In part because it was criticized for the provision of free formula (which implicitly discourages breastfeeding), programmatic changes supportive of breastfeeding were made in the early 1990s (John 1993). These changes included increasing the amount of food provided to mothers who were breastfeeding exclusively (relative to women who were breast- and bottle feeding), thereby providing a modest incentive for exclusive breastfeeding. In addition, funds were provided for breastfeeding promotion, which resulted in a range of programs at individual WIC clinics, including education of staff, breastfeeding education and discussion with the clients, and the use of peer counselors (Caulfield et al. 1998, Michaels 1993, Schafer et al. 1998, Schwartz et al. 1995). It is possible that these efforts account for some of the increase in breastfeeding among low income women and WIC participants in the last two decades, and, given the large number of women served by WIC, may have contributed to national increases in breastfeeding initiation.

Public measures that affected breastfeeding resurgence

A number of public health statements and policies have focused attention nationally and internationally on the benefits of breastfeeding, and the behaviors that support (or interfere with) breastfeeding. In the 1970s, there was a major international effort to limit the marketing of infant formula in less-developed countries, work that culminated in 1981 in the International Code of Marketing of Breast-milk Substitutes.

The 1989, a U.S. Surgeon General's Workshop provided a reaffirmation of the benefits of breastfeeding by bringing together experts in the field of human milk and lactation. The Surgeon General at that time, C. Everett Koop, M.D., encouraged women to breastfeed, stating that "breastfeeding benefits society through stronger family bonds, women's fulfillment of their aspirations for motherhood, and increased self-esteem" (Obermeyer and Castle 1997). This was viewed in a positive way by international agencies because, commensurate with increasing urban populations and related economic pressures, traditional practices tend to be forsaken (Obermeyer and Castle 1997).

Thus, in 1991, the recommendations of WHO and UNICEF representatives culminated in the Innocenti Declaration on the Protection, Promotion, and Support of Breastfeeding, which defined optimal infant feeding as exclusive breastfeeding from birth through 4–6 mo, continued breastfeeding into the second year, and the introduction of appropriate weaning foods at 6 mo (Cadwell 1999, Obermeyer and Castle 1997). This endorsement of exclusive breastfeeding grew out of a large body of research documenting the nutritional and immunologic properties of human milk, the dangers of early supplementation, the protection afforded by breastfeeding and the relationships between bottle feeding and infant morbidity (Obermeyer and Castle 1997).

To continue to increase breastfeeding rates, attention must be focused on the employment status of women. The decision

regarding when to breastfeed may be hindered by the reality of the workplace. Assistance to breastfeeding mothers has been negligible in the workplace, with the possible exception of the 1993 enactment of the Family and Medical Leave Act. This legislation provides the right to 12 wk of unpaid leave, and job reinstatement for a range of medical and family reasons. Unfortunately, many employees are not covered by the act (including those in small workplaces, part-time workers and those lacking a year's service), and many women cannot afford unpaid leave. Healthy People 2000 made numerous recommendations for enabling employed women to breastfeed (including provision by employers of extended maternity leave, part-time employment, facilities for pumping milk or breastfeeding, and on-site child care) (U.S. Department of Health and Human Services 1990). However, existing data suggest that adoption of these recommendations by individual employers has been modest at best (Hamilton 1998). Nevertheless, this type of legislation holds the promise of assisting employed women to extend the duration of breastfeeding.

There may be further improvement in breastfeeding rates because of the increasing numbers of women entering the medical field. In a recent survey of physicians, those who breastfed their own infants had a more positive attitude toward breastfeeding (Schanler et al. 1999). It can be reasoned that as we train more female pediatric practitioners, breastfeeding knowledge will be increased and breastfeeding rates will rise. In 1995, 61% of pediatric residents were female, compared with 57% in 1991 and 30% in 1975 (American Board of Pediatrics: www.abp.org/STATS/WRKFRC/Cpgms.htm).

SUMMARY

This paper has described several explanations for the increase in breastfeeding initiation that occurred in the previous 20 y, the end of the second millennium. Demographic trends, particularly among African-American women, coupled with the resurgence of breastfeeding in these groups, may have contributed to the increase in breastfeeding during the 1990s, but likely played a minimal role in the earlier, more dramatic increase. The decline of breastfeeding in the earlier part of the century may be attributable in part to maternal employment, but the resurgence in breastfeeding occurred during a period of unprecedented influx of new mothers into the labor force. There is no evidence that health-care providers are providing more support for breastfeeding, and most of the international and national policies postdated the resurgence in breastfeeding, although they may have influenced the upswing in the 1990s. A more plausible explanation of the resurgence of breastfeeding in all major segments of society is the pervasive influence of the natural childbirth movement of the 1960s and 1970s, with its effects on the standard management of childbirth. In addition, the increase of breastfeeding among low income women may be attributable in part to programmatic changes in the provision of supplemental food through the WIC program and targeting of breastfeeding promotion efforts to the specific concerns of these women.

Although there has been an increase in breastfeeding compared with earlier decades, it is important to recall the great disparity between the recommended rates and those achieved by American women (American Academy of Pediatrics Work Group on Breastfeeding 1997). Thus, efforts to increase breastfeeding initiation and duration should continue, particularly for the groups of individuals who are at greatest risk of illness, such as minority and low income infants. We suggest that the strategies likely to have a lasting effect on future breastfeeding rates will be societal pressures that affect existing breast-feeding barriers. Such pressures may come from health maintenance organizations, insurance companies and the federal government, which are likely to recognize increasingly the institutional costs of failing to facilitate breast-feeding (Ball and Wright 1999). The provision of flexible work hours and paid maternity leave, either by government or "family-friendly" workplaces, could make a difference in the ability of employed women to feed their infants optimally.

Thus, we have to agree with the comment that "while it is 'known' that breastfeeding is better, our society is not structured to facilitate that choice" (Retsinas 1987). Our efforts to improve breastfeeding rates have to make visible the wider cultural context in which infant feeding choices are made, and alter those components that make it difficult for American women to feed their infants optimally.

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