

The Economic Benefits of Breastfeeding

Jon P. Weimer

In 1990, the U.S. Surgeon General proposed a goal for the Nation: increase the proportion of mothers who breastfeed their babies in the early postpartum period to 75 percent by 2000. The goal also sought an increase in the proportion of mothers who continue breastfeeding until their babies are 5-6 months old to at least 50 percent. According to the latest data, about 64 percent of women giving birth in a hospital breastfeed, and approximately 29 percent still breastfeed at 6 months. A recent study by USDA's Economic Research Service (ERS) found that a minimum of \$3.6 billion could be saved if the prevalence of exclusive breastfeeding increased from current levels to those recommended by the U.S. Surgeon General. This \$3.6 billion is based on reduced incidences of only three childhood illnesses and reflects savings in terms of medical expenditures, wages lost by parents attending to an ill child, and the prevention of premature deaths.

Breastfeeding generally refers to a mother feeding an infant at her breast but may refer also to feeding breastmilk from a bottle. However administered, it is widely believed to be the most beneficial method of

feeding for the health and well-being of most infants. (Breastfeeding is not recommended for all mothers, such as those who use illegal drugs, receive chemotherapy, or test HIV-positive.) Public health experts, such as the American Academy of Pediatrics (AAP), the American Dietetic Association (ADA), and the U.S. Surgeon General, endorse breastfeeding as the preferred infant-feeding method in most cases. The AAP recommends that infants be breastfed throughout their first year of life. USDA, which oversees the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), actively promotes breastfeeding, both inside and outside of WIC.

Breastfeeding Trends Have Fluctuated

Until around 1950, almost all U.S. newborns were nursed. In the last 50 years, however, infant feeding has changed markedly. After World War II, with the development and large-scale manufacture of infant formula, formula feeding became the standard. The percentage of infants being breastfed fell by half between 1946 and 1956; by 1967, only 25 percent of American infants were being breastfed at the time of hospital discharge. The percentage of newborns being breastfed then fluctuated over the next 30 years: it rose to 62 percent in 1982, declined

approximately 16 percent from 1982 to 1990, and increased to 64 percent by 1998 (fig. 1). The prevalence of breastfeeding for 6-month-old infants paralleled that of newborns, although at a considerably lower level. In 1998, about 29 percent of 6-month-old infants were being breastfed.

Mothers may refrain from breastfeeding for a number of reasons: aggressive formula product marketing, lack of support from family and friends, insufficient knowledge



Breastfeeding protects children against a number of acute or chronic diseases and improves their general health, growth, and development.

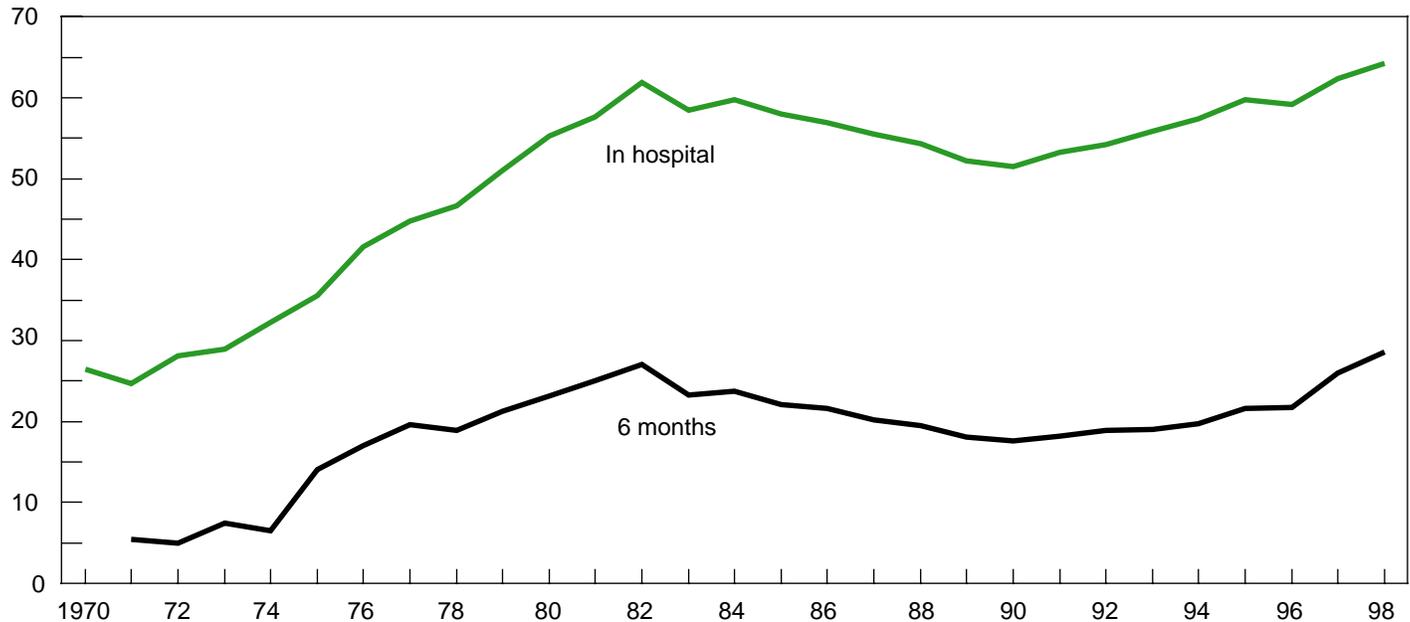
Credit: Ken Hammond, USDA.

The author, now retired, was an agricultural economist with the Food and Rural Economics Division, Economic Research Service, USDA. Inquiries related to this article should be directed to Elizabeth Frazao at 202-694-5455 or efrazao@ers.usda.gov. Frazao is an agricultural economist with the same organization.

Figure 1

Breastfeeding in the United States Has Rebounded From Low Rates in the 1970s

Percent of infants being breastfed



Note: The percentage of infants breastfed at 6 months was not measured in 1970.

Source: Ross Laboratories Mothers' Survey, Ross Products Division, Abbott Laboratories, 1998.

among medical professionals about breastfeeding techniques and challenges, maternity hospital practices (short maternal stays, for example), religious beliefs, cultural attitudes, and lack of public acceptance.

Employment, however, may be the leading cause of women's reluctance to breastfeed. Increased formula feeding parallels the rapid increase in the number of working women. Breastfeeding and working outside the home are commonly believed to be incompatible. A woman who works outside the home must have a place and time to nurse her baby or express and store her milk for bottle feeding. Many workplaces seem not to support breastfeeding or extraction of breastmilk in the workplace, inhibiting breastfeeding after women return to work. Increased participation of women in the labor force is frequently cited for the low rates of breastfeeding.

Breastfeeding Provides Health Advantages

In their endorsement of breastfeeding, the AAP and ADA cite studies that show breastfeeding improves infants' general health, growth, and development and protects against a number of acute or chronic diseases. In a 1997 policy statement, the AAP reported that research in the United States, Canada, Europe, and other developed countries indicates that breastfeeding decreases the incidence and/or severity of diarrhea, lower respiratory infection, otitis media, bacterial meningitis, botulism, urinary tract infection, and necrotizing enterocolitis. Other studies show that breastfeeding may protect against sudden infant death syndrome, insulin-dependent diabetes mellitus, Crohn's disease, ulcerative colitis, lymphoma, allergic diseases, and other chronic digestive diseases.

These health benefits from breastfeeding can, in some instances, be translated into economic benefits in terms of medical costs and wages lost by parents (primarily mothers) attending to an ill child. Many women return to work before a child is 1 year old. When these women miss work, it often is because their infants are ill. As breastfed infants have been shown to be less likely to catch common infectious illnesses than formula-fed infants, it is possible that mothers who breastfeed will miss fewer days from work to care for a sick child than mothers who formula feed. Another economic benefit to a family is reduced formula purchases for a child's first year after birth.

Earlier Studies Limited in Scope

Relatively few studies have assessed the economic benefits of breastfeeding. Some studies have

looked at the economic effect of breastfeeding within the context of a State-specific WIC program, with net savings expressed in terms of reduced overall Medicaid expenditures for infants, reduced formula purchases, or decreased infant morbidity and health care costs associated with a specific illness. For example, a 1997 study looked at whether breastfeeding of infants enrolled in Colorado's WIC program was associated with reduced Medicaid expenditures and WIC expenditures on infant formula. Compared with formula feeding, breastfeeding was found to result in a net benefit of \$478 during the first 6 months of the infant's life—\$102 in Medicaid savings and \$376 in WIC savings. The WIC savings decreased to \$59 after considering the rebate given to USDA by the formula manufacturer.

Other studies have analyzed the economic advantages of breastfeeding outside the WIC program. Generally, these studies used data from specific locales (for example, clinics or local hospitals) and concentrated on cost savings for individual families. For example, a 1997 pilot study looked at infants born to mothers in a health maintenance organization (HMO) in North Carolina. The study compared medical costs for the first 12 months for infants breastfed for at least 6 months and for infants formula-fed since birth. The study found that breastfed infants had fewer inpatient admissions and their total medical costs averaged \$200 less than those of formula-fed infants.

ERS Examines Economic Benefits

Prior studies have tended to focus on the economic effects of breastfeeding at specific sites, such as local HMOs or State WIC clinics, and from an individual family's perspective. ERS expanded this analysis by measuring the reduced costs to

society as a whole from the prevention of childhood illnesses and premature deaths. We looked at three childhood diseases that commonly afflict children under 2 years of age—otitis media, gastroenteritis, and necrotizing enterocolitis. Otitis media is an inflammation of the ear and is the most frequently reported diagnosis for children under the age of 2. Gastroenteritis refers to vomiting or diarrhea as a discrete illness for a 24-hour period. Necrotizing enterocolitis is a gastrointestinal tract disease and the leading cause of emergency surgical treatment in newborns. Necrotizing enterocolitis is a cause of neonatal death, particularly among premature infants.

While breastfed infants suffer bouts of otitis media and gastroenteritis, research indicates that they do so less frequently than formula-fed infants. According to a published study, the incidence of otitis media at 6 months for exclusively breastfed infants is 25 percent, compared with 53 percent for formula-fed infants. Similarly, published data indicate that the incidence of gastroenteritis in the first year for exclusively breastfed infants is 14 percent, compared with 31 percent for formula-fed babies. We applied these illness incidence rates to the 3.9 million U.S. births in 1998 to calculate the number of cases of otitis media and gastroenteritis at the current breastfeeding levels of 29 percent at 6 months and at the U.S. Surgeon General's recommendation of 50 percent at 6 months.

Over 90 percent of necrotizing enterocolitis cases affect premature infants, generally within 10 days of birth. Incidence approaches 12 percent of all premature infants weighing less than 3 ½ pounds at birth. According to a published report, the incidence of necrotizing enterocolitis in low-birthweight infants that were exclusively breastfed was 1 percent, compared with 7 percent for formula-fed infants. In 1997, 291,000 low-birthweight infants were born

in the United States. Using this figure, we applied the two incidence rates for necrotizing enterocolitis to calculate the number of cases at the current breastfeeding prevalence rate at hospital discharge of 64 percent and at the U.S. Surgeon General's recommendation of 75 percent.

Data for both direct and indirect costs were derived from published reports and U.S. Government sources. Direct costs relate to expenditures on physician, clinic, hospital, and procedural fees, while indirect costs relate to time and wages lost by parents attending to an ill child. For necrotizing enterocolitis, which results in death within the first year for between 15 and 25 percent of cases, we estimated the cost of those deaths using a traditional economic approach to valuing premature deaths.

Our analysis indicated that a minimum of \$3.6 billion would be saved if the prevalence of exclusive breastfeeding increased from current levels to those recommended by the U.S. Surgeon General (table 1). This figure reflects approximately \$3.1 billion attributable to preventing premature deaths from necrotizing enterocolitis and an additional \$0.5 billion in annual savings for the three illnesses from reduced medical expenditures and indirect costs such as forgone earnings of parents.

The \$3.6 billion underestimates the potential economic benefits likely from breastfeeding because it reflects the savings in treating only three childhood illnesses. The estimated savings also exclude the cost of purchasing over-the-counter medications for otitis media and gastroenteritis symptoms, physician charges for treatment of necrotizing enterocolitis, and savings due to reduced long-term morbidity. Breastfeeding reduces the incidence rates of several chronic illnesses with associated costs that could accrue over several years and, in some cases, over a lifetime. Otitis

Table 1

Increased Rates of Exclusive Breastfeeding Lower Costs of Illnesses

Rate	Cost of illnesses		
	Otitis media ¹	Gastroenteritis ¹	Necrotizing enterocolitis ²
	<i>Million dollars</i>		
Prevalence of exclusive breastfeeding for 6 months:			
29 percent ³	2,786.5	72.6	NA
50 percent ⁴	2,421.4	62.7	NA
Prevalence of breastfeeding at hospital discharge:			
64 percent ³	NA	NA	15,704.0
75 percent ⁴	NA	NA	12,424.9
Savings from increased breastfeeding	365.1	9.9	3,279.1

NA = Not available.

¹Excludes costs related to over-the-counter medications and long-term sequelae.

²Excludes costs related to physician charges and long-term sequelae. Using the labor market approach to valuing a premature death, we used \$8.3 million as the value of an infant's premature death.

³Current rate.

⁴U.S. Surgeon General's recommended rate. Source: USDA's Economic Research Service.

media, for example, if recurrent or not promptly treated, may lead to hearing loss, tinnitus, and brain abscess. However, our study looked at benefits or costs that could be assessed by the end of the first or second years of life when morbidity rates for toddlers breastfed during infancy can best be compared with those of formula-fed children.

Further research on health and economic benefits and costs of breastfeeding is needed. Ideally, large-scale studies should be conducted for the entire range of child-related illnesses, focusing on differences in rates of hospitalization, duration of hospitalization, health service use, and medical costs between breastfed and formula-fed infants. Such studies could provide employers, insurance companies, health care providers, and Federal

health policymakers with further incentives to encourage breastfeeding and provide better support and care for breastfeeding mothers.

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