

# **Role of health care delivery in promoting early and exclusive breastfeeding and related economic gains**

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## Introduction:

Breastfeeding is widely believed to be the most beneficial method of feeding for the health and well being of most infants. There is an increasing belief now that breastfeeding is also a valuable natural resource, which promotes health, helps prevent infant and childhood disease, and saves health care costs.

## Breastfeeding Trends and child health status in south Asia:

Infant and Young Child Nutrition and Child survival, Child growth and Child development go hand in hand. Early and exclusive breastfeeding have now been recognized as the most effective interventions for child survival. However, countries of south Asia are standing very precariously on these two important indicators. For example, according to the NFHS-2, in India, **initiation of breastfeeding within one hour** was done in only **15.8 percent of infants**, which reaches 37.1 percent within the first 24-hours; only 55.2 percent of children of 0-3 months and **27.3 percent of 4-6 months** were **exclusively breastfed**. A systemic assessment at national level in the countries of south Asia revealed that the initiation of breastfeeding within one hour is achieved in 15-75% babies. The exclusive breastfeeding rates in the region ranges between 10 –68% in various countries. Under nutrition contribute significantly to the dismal state of child health in south Asia, with 19-48% under 5 children being moderate to severely underweight. When we talk about the economics of breastfeeding, this is implicit to include these startling facts into the consideration.

## Status of Child Health and Development in South Asia (Source-State of the world's children-2006, UNICEF)

| Country           | Population           | Annual No. of Births | U 5MR     | IMR *     | NMR**     | Underweight Children under 5 -% (moderate and severe) | Exclusive Breastfeeding < 6 mo. (%) <sup>Ψ</sup> |
|-------------------|----------------------|----------------------|-----------|-----------|-----------|---|--|
| Afghanistan       | 28,574,000           | 1,395,000            | 257       | 165       | 121       | 39  | NA   |
| Bangladesh        | 139,215,000          | 3,738,000            | 77        | 46        | 36        | 48  | 46   |
| Bhutan            | 2,116,000            | 64,000               | 80        | 70        | 38        | 19  | NA   |
| India             | 1,087,124,000        | 26,000,000           | 85        | 63        | 43        | 47  | 46.9   |
| Maldives          | 321,000              | 10,000               | 46        | 55        | 37        | 30  | 10   |
| Nepal             | 26,591,000           | 786,000              | 76        | 61        | 40        | 48  | 68   |
| Pakistan          | 154,794,000          | 4,729,000            | 101       | 81        | 49        | 38  | 50   |
| Sri Lanka         | 20,570,000           | 330,000              | 14        | 13        | 11        | 29  | 58 (0-4 mo)                                      |
| <b>South Asia</b> | <b>1,459,305,000</b> | <b>37,052,000</b>    | <b>92</b> | <b>66</b> | <b>--</b> | <b>46</b>   | <b>-</b>   |

\* Human Development Indicators 2003, UNDP, \*\* World health report 2005, <sup>Ψ</sup> WBTi report cart

## Breastfeeding Health Advantages

The Lancet series on child survival has emphatically demonstrated that exclusive breastfeeding is the single most effective intervention to prevent childhood deaths. These observations have recently been substantiated by the Lancet series on neonatal health.

A 2006 study from Ghana indicates that promotion of early initiation of breastfeeding has the potential to make a major contribution towards child survival; 22% of neonatal deaths could be saved if breastfeeding were started within the first hour after birth, and 16% if all infants were breastfed from day one. Further extrapolation from the study, based on the data from 60 countries, for all countries combined, estimated that neonatal mortality could be reduced by 24% if 99% of infants initiated breastfeeding on day 1 of life and by 31% if 99% of initiation was within the first hour. Numbers of lives saved were estimated to be 867,000 and 1,117,000 in these two cases.

A study from Latin America, using Attributable fraction analysis of national data on infant mortality and breast feeding, concludes 55% of infant deaths from diarrhoeal disease and acute respiratory infections in Latin America are preventable by exclusive breast feeding among infants aged 0-3 months and partial breast feeding throughout the remainder of infancy. Among infants aged 0-3 months, 66% of deaths from these causes are preventable by exclusive breastfeeding; among infants aged 4-11 months, 32% of such deaths are preventable by partial breastfeeding. 13.9% of infant deaths from all causes are preventable by these breastfeeding patterns. The annual number of preventable deaths is about 52 000 for the region.

## Economic Benefits

Breastmilk can be viewed like any other food commodity in many respects. Its value can be considered in purely monetary terms and the cost of supplementary food for the lactating mother compared with the cost of artificial feeding for infants. Such a view, however, fails to do justice to the true economic value of human milk.

Its economics can be regarded more broadly as the way in which people allocate their resources towards achieving a certain quality of life. A number of valuable non-monetary contributions made by human milk emerge, which may or may not be quantifiable such as reduction in sickness, lower mortality, better nutrition, reduced incidence of allergic illness, improved psychosocial bonding of mother and child, and overall better health of the infant and young child. Breastfeeding has also been related to possible enhancement of cognitive development. There are advantages for the mother; breastfeeding reduces the incidence of post-partum bleeding, leads to faster uterine involution, reduces the risk of breast cancer and ovarian cancer, delays resumption of ovulation and increases child spacing, improves bone mineralization after birth in women with reduction in hip fractures in post menopausal period and finally, it is likely that all the benefits of human milk are not presently known.

Breastfeeding reduces the risk of both under nutrition and overweight later in childhood. In disadvantaged populations, exclusive breastfeeding is associated with less growth faltering during early infancy, and continued breastfeeding through the second year of life enhances linear growth. Several meta-analyses have concluded that breastfeeding is protective against child obesity, particularly when breastfeeding continues beyond 6 months.

A 2006 systemic review has concluded that breastfeeding in infancy is associated with a reduced risk of type 2 diabetes, with marginally lower insulin concentrations in later life, and with lower blood glucose and serum insulin concentrations in infancy.

In 1999, Researchers from India calculated the value of breastmilk and breastfeeding for this country of 24.4 million annual births. Based on the national breastfeeding patterns they calculated that over the usual 2-year lactation period mothers produced an estimated total of 3944 million liters of breastmilk. If this milk were to be replaced by tinned cow's milk it would cost \$3 billion. This amount is three times more than the government spending for the departments of education, health and family welfare, and science and technology. At the household level the cost of artificially feeding an infant was 43% of the minimum wage of a skilled urban worker.

A study from USA, which looked in to health care costs of formula feeding in the First year of life came out with some very striking facts. The study determined the excess cost of health care services for three illnesses i.e. lower respiratory tract illnesses, otitis media, and gastrointestinal illness in formula-fed infants in the first year of life, after adjusting for potential confounders. There were 2033 excess office visits, 212 excess days of hospitalization, and 609 excess prescriptions for these three illnesses per 1000 never-breastfed infants compared with 1000 infants exclusively breastfed for at least 3 months. These additional health care services cost the managed care health system between \$331 and \$475 per never-breastfed infant during the first year of life.

Another study from USA estimated additional annual national health care costs, incurred for treatment of four medical conditions in infant who were not breastfed were estimated. The study concluded that, Infant diarrhea in non breastfed infants costs \$291.3 million; respiratory syncytial virus, \$225 million; insulin-dependent diabetes mellitus, from \$9.6 to \$124.8 million; and otitis media, \$660 million. Thus, these four medical diagnoses alone create just over \$1 billion of extra health care costs each year.

A study from Bangladesh described breastfeeding practices and investigated the influence of exclusive breastfeeding in early infancy on the risk of infant deaths, especially those attributable to respiratory infections (ARI) and diarrhea. It concluded that Compared with exclusive breastfeeding in the first few months of life, partial or no breastfeeding was associated with a 2.23-fold higher risk of infant deaths resulting from all causes and 2.40- and 3.94-fold higher risk of deaths attributable to ARI and diarrhea, respectively. The study concludes that in the study community when exclusive breastfeeding rates at 6 months were increased from 39 to 70 %, the reduction in the IMR was to the tune of 32% in a very short period of time. This rapid reduction in the IMR may be enhanced even further, if initiation of breastfeeding with in one hour of birth is improved, as has been demonstrated in a study from Ghana.

In India, assessment made by the national commission on macroeconomics and health in the year 2005 for core package of essential health intervention for National Rural Health Mission (NRHM) has estimated cost of treatment of common causes of infant and child mortality. This is evident that this expenditure may be reduced significantly, if proven preventive intervention like early and exclusive breastfeeding are implemented.

| <b>Core Package</b>           | <b>Approximate No. (2005)</b> | <b>Total cost for treatment<br/>US \$ millions</b> |
|-------------------------------|-------------------------------|--|
| ARI: Pneumonia                | 34,184,386                    | 105.14 (OPD)                                       |
| Diarrhea –some dehydration    | 34,184,386                    | 200.51 (OPD)                                       |
| Diarrhea - severe dehydration | 34,18439                      | 55.21 (OPD)  |
| Neonatal Sepsis               | 250,000                       | 38.04 (IPD)  |

Estimated cost of implementing programs for exclusive breastfeeding will require US \$ 5 for training of the counselor per pregnant women (BPNI Bhuj study, 2003). Expenditure on some innovative schemes, such as one being implemented in the Tamilnadu state of India, where each lactating mother receives US \$ 22 per month for 6 months, may prove cost effective, when we see the economic cost of not breastfeeding.

### Conclusions:

According to the available resources, early and exclusive breastfeeding may prove to be an important economic intervention in resource crunched developing countries of South Asia, due its' beneficial effects on following aspects of child health, child growth & development and child survival.

- Reduced infant mortality
- Reduced costs of infant and child illness
- Productivity gain from increased cognitive ability
- Reduced costs of chronic diseases
- Reduced cost of feeding

Ideally speaking, the economic argument should not come up when we are talking about something like breastfeeding, which is very basic for the survival of human race. Mother and infant dyad has the right to enjoy breastfeeding. They should be supported by all available means to achieve it optimally.

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