Full Item Register Number [auto] **CF/RAI/NYHQ/SP/SSC/2003-00008**

Ext Ref: Doc Series/Year/Number

Record Item Title

Children and Development in the 1990s: A UNICEF sourcebook - on the occasion of the World Summit for Children (1990: 28-29 September). Part 3 of 6. Pp 89-134. Total 266 pages

Date Created / on Correspondence	*Date Registered*	*Date Closed*
29-Sep-1990	28-Dec-2001	30-Sep-1990

Primary Contact	**Rijuta Tooker (Temp Assist)**
Owner Location	**Special Session & Global Movement For Chil =**
Home Location	**Special Session & Global Movement For Chil =**
Current Location	**Special Session & Global Movement For Chil =**

Fd1: Type: IN, OUT, INTERNAL
Fd2: Sender Ref or Cross Ref
Field 3

File Container Record ID	**CF/RAF/USAA/DB01/2001-06648**
File Container Record (Title)	**Background Documents (WSC)**

N1: Number of pages	*N2: Doc Year*	*N3: Document Number*
46	0	0

Full GCG Code Plan Number
Record GCG File Plan

Da1: Date Published	*Da2: Date Received*	*Date 3*	*Priority*

Record Type **A01ed Item Spec Proj - CF/RAI/NYHQ/SP/SSC**

DOS File Name

Electronic Details **No Document**

Alt Bar code = RAMP-TRIM Record Number **CF/RAI/NYHQ/SP/SSC/2003-00008**

Notes

Print Name of Person Submit Images	**Signature of Person Submit**	*Number of images without cover*
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Child spacing

In brief

The goal: Access by all couples to information and services to prevent pregnancies that are too early, too closely spaced, too late, or too many.

Women in the developing world who have many children in quick succession place themselves and their children at enormous risk. Child bearing patterns–maternal age, birth order, and the interval between births–have an important influence upon the probability that a child will survive infancy and early childhood. Birth or child spacing has a particular significance for child survival. Studies show that when the length of time between two births in a family is less than two years, the new-born, on average, is twice as likely to die in infancy as might a child born after a longer birth-interval. This applies not only to the first year of life, but adversely affects the child's survival chances for at least the first four years of life. Babies born after a three-to-four year interval have the best chances of survival.

The problem

Among the causes of infant and child deaths, children born as a result of pregnancies categorized as "too young, too old, too frequent, or too many" constitute high risks for deaths. And for every child who dies, there are many more who are weakened or handicapped.

Child bearing patterns, such as maternal age, birth order, and the interval between births have an important influence upon the probability that a child will survive infancy and early childhood. Recent world fertility surveys have contributed an impressive amount of comparative data from developing countries which reconfirm the significance these relationships, particularly birth spacing or child spacing, have as key factors contributing to child survival. Studies have also shown that the length of time between two births in a family (the "birth interval") greatly influences survival of both children. When there is a short birth interval, both have a much greater chance of dying than do children with a longer birth interval.

When the birth interval is less than two years, the pregnancy outcome is more hazardous. Short birth intervals are associated with higher rates

of foetal, infant and child mortality, particularly high if the inter-birth period is shorter than a year. In developing countries, children who are born after a birth interval of less than two years are, on average, twice as likely to die in infancy as are children born after a longer interval. Too short an interval between births not only raises an infant's chance of dying during the first year, it adversely affects the child's survival for at least the first four years of life. Such children have a 50 per cent greater risk of dying between the ages of one and four than do children born after a longer birth interval.

It has long been known that a child who is shortly followed by another suffers the consequences of short spacing. Indeed the name of the serious nutritional disease "Kwashiorkor" originates from Ghana, where it means the sickness of a suckling child when the next one is conceived.

Data from numerous WHO collaborative studies indicate that in most communities babies had the best chance to survive infancy when they were born after a three-to-four year interval. When the birth interval is longer than five years, the chances of surviving infancy again become poorer.

It is interesting to note that these phenomena appear to hold true for families irrespective of the wealth or poverty of the family, level of maternal education, rural or urban habitat.

Impact

Thus, in some countries, the length of inter-birth interval has an enormous effect on infant mortality. According to studies in some 25 countries, reduction of infant deaths would range from 5 to 40 per cent, with an average of about 10 per cent, and deaths of children aged between one and four would be reduced by 25 per cent.

In addition to the birth interval and birth order, a third family formation factor influences child health and survival – maternal age at birth. And again, the effect is not confined to the developing countries. While the level of infant mortality in Britain has dropped sharply during the eighties, the relationship between maternal mortality and maternal age has not disappeared. Furthermore, in-depth studies in the United Kingdom have found that the effects of birth order and maternal age are apparent in every social class, although environmental factors are obviously important.

There is also some evidence that length of birth interval also has a bearing on the well-being of the children who survive. Malnutrition, for example, has been found to be more common in a number of countries among children born after short intervals. Premature termination of breastfeeding that typically occurs when conception follows in too a short time contributed to the inadequate nutrition of the weaned child. Birth spacing is therefore an essential part of maternal and child health and primary health care. There are many ways to space child births – some traditional, some modern.

Traditional and modern methods

Of the more than 42,000 women from Latin America, North Africa, and Asia who were interviewed in a WHO study, more than nine out of ten said that short birth intervals were harmful to child health. In many societies in sub-Saharan Africa, there are long-standing traditions of spacing child births for health reasons. For example, Nigerian and Togolese women say that a birth interval of more than two years is healthiest. In Zimbabwe, it is said that children born too close together "burn" each other.

People have been spacing child births for thousands of years through withdrawal, abstinence, and breastfeeding. In recent years, a great deal of attention has focussed on breastfeeding, which has the dual advantage of protecting the health of young children and delaying the return to fertility of new mothers. The relationship between lactation and postpartum amenorrhea is well known; the longer and more extensively a mother breastfeeds, the longer she is protected against pregnancy, although this protection decreases over time. WHO studies have demonstrated a clear relationship between the length of time a woman breastfeeds and birth intervals. The significant relationship between breastfeeding and child spacing needs, however, further study, and from the individual's point of view, it is not considered to be a reliable method of contraception.

Data from numerous WHO collaborative studies indicate that in most communities babies had the best chance to survive infancy when they were born after a three-to-four year interval... It is interesting to note that these phenomena appear to hold true for families irrespective of the wealth or poverty of the family, level of maternal education, rural or urban habitat.

In modern societies, various means of family planning to space child births are available. They must be made accessible and available in accordance with the religious, social, and cultural practices of the concerned society.

Much of what we know about the impact on children of spacing, timing, and number of births is based on the associations with mortality described above. We also know, however, that mortality is only the tip of the iceberg. Excessive deaths among children born into large families, among children born too close together, or among children born to teenage mothers are a clear indicator that infection and illness are also more common in these groups.

The evidence of a relationship between birth interval and child survival is thus strong and growing. In addition, a great many studies in both the developed and developing countries have shown that the total number of children in the family also significantly affect child survival and child health. For example, the proportion of births which result in low-birth-weight infants increases after the second or third birth. Low-birth-weight infants (weighing

2,500 grams or less at birth) are both more likely to die during the first year and to have more health problems than do other children if they survive.

We know thus that poor birth spacing is dangerous to children's health, and we know what to do about it. A principal challenge remains – to make appropriate services easily accessible, according to prevailing norms and cultures, to everyone who wants to use them and to make information on the relationships of high risk pregnancies that are either "too early, too late, too frequent, or too many", known to couples, so that unnecessary deaths can be prevented and children can have a greater chance of survival and of healthier lives.

Further reading

Optimum Conditions for Childbearing, by George T.F. Acsadi and Gwendolyn Johnson-Acsadi. IPPF. 1986.

Family Planning and the Health of Women and Children, Report of a Meeting of the IPPF International Medical Advisory Panel and the IPPF Programme Committee. IPPF, 26 February 1986.

Birth Spacing and Child Survival Chartbook, by Deborah Maine, Regina McNamara, Marilyn Wallace, The Center for Population and Family Health, Columbia University, New York, 1986.

Facts for Life, UNICEF 1988.

CHILD SPACING

	Total fertility rate* 1988	Contraceptive prevalence ** (%) 1980-87
LATIN AMERICA & CARIBBEAN	**3.5**	**46**
Argentina	2.9	74
Bolivia	6.0	26
Brazil	3.4	66
Chile	2.7	43
Colombia	3.5	65
Costa Rica	3.2	70
Cuba	1.7	60
Dominican Rep.	3.7	50
Ecuador	4.6	44
El Salvador	4.8	70
Guatemala	5.7	23
Guyana	2.7	31
Haiti	4.7	7
Honduras	5.5	35
Jamaica	2.8	52
Mexico	3.5	53
Nicaragua	5.5	27
Panama	3.1	58
Paraguay	4.6	45
Peru	4.4	46
Trinidad & Tobago	2.7	53
Uruguay	2.6	
Venezuela	3.7	49
MIDDLE EAST & NORTH AFRICA	**6.0**	**26**
Algeria	6.0	7
Egypt	4.8	30
Iran, Islamic Rep.	5.6	23
Iraq	6.3	
Jordan	7.2	26
Kuwait	4.8	
Lebanon	3.3	
Libyan Arab Jamahiriya	6.8	
Morocco	4.8	36
Oman	7.2	
Saudi Arabia	7.2	
Syria	6.7	20
Tunisia	4.0	41
Turkey	3.5	51
United Arab Emirates	4.8	
Yemen	7.0	1
Yemen, Dem.	6.7	
AFRICA SOUTH OF THE SAHARA	**6.4**	**5**
Angola	6.4	1
Benin	7.0	9
Botswana	6.2	28
Burkina Faso	6.5	1
Burundi	6.3	9
Cameroon	5.7	2
Central African Rep.	5.9	
Chad	5.9	1
Congo	6.0	
Côte d'Ivoire	7.4	3
Ethiopia	6.2	2
Gabon	5.0	
Ghana	6.4	10
Guinea	6.2	1
Kenya	8.1	17
Lesotho	5.8	5
Liberia	6.5	6
Madagascar	6.6	
Malawi	7.0	7
Mali	6.7	5
Mauritania	6.5	1
Mauritius	1.9	75
Mozambique	6.4	4
Namibia	6.1	
Niger	7.1	1

	Total fertility rate* 1988	Contraceptive prevalence ** (%) 1980-87
AFRICA SOUTH OF THE SAHARA (continued)		
Nigeria	7.0	5
Rwanda	8.3	10
Senegal	6.4	12
Sierra Leone	6.5	
Somalia	6.6	
South Africa	4.4	48
Sudan	6.4	5
Tanzania	7.1	1
Togo	6.1	
Uganda	6.9	1
Zaire	6.1	1
Zambia	7.2	1
Zimbabwe	5.8	38
ASIA	**4.2**	**47**
Afghanistan	6.9	
Bangladesh	5.5	22
Bhutan	5.5	
China	2.4	74
Hong Kong	1.7	72
India	4.3	34
Indonesia	3.2	48
Kampuchea	4.7	
Korea, Dem.	3.6	
Korea, Rep.	2.0	70
Laos	5.7	
Malaysia	3.5	51
Mongolia	5.4	
Myanmar	4.0	5
Nepal	5.9	14
Pakistan	6.4	8
Papua New Guinea	5.7	4
Philippines	4.3	45
Singapore	1.6	74
Sri Lanka	2.6	62
Thailand	2.5	66
Viet Nam	4.0	20
INDUSTRIAL COUNTRIES	**1.7**	**73**
Albania	3.0	
Australia	1.8	71
Austria	1.5	71
Belgium	1.5	81
Bulgaria	1.9	76
Canada	1.6	73
Czechoslovakia	2.0	95
Denmark	1.5	63
Finland	1.6	80
France	1.8	79
Germany, Dem.	1.7	
Germany, Fed.	1.4	78
Greece	1.7	
Hungary	1.7	73
Ireland	2.5	
Israel	2.9	
Italy	1.4	78
Japan	1.7	64
Netherlands	1.4	76
New Zealand	1.9	70
Norway	1.7	71
Poland	2.2	75
Portugal	1.7	66
Romania	2.1	58
Spain	1.7	59
Sweden	1.6	78
Switzerland	1.6	71
United Kingdom	1.8	83
USSR	2.4	
USA	1.8	68
Yugoslavia	1.9	55

Source: The State of the World's Children 1990, Tables 5 and 7. (For explanations and qualifications to specific figures, see notes there.)

* The number of children that would be born per woman, if she were to live to the end of her child-bearing years and bear children at each age in accordance with prevailing age-specific fertility rates.

** Percentage of married women age 15-49 using contraception.

Figures for country groupings are median values.

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Acquired immunodeficiency syndrome (AIDS) in children

In brief

Hundreds of thousands of children are born with human immunodeficiency virus (HIV, the AIDS virus) in developing countries each year as infected mothers unknowingly pass the infection on to their unborn children. A growing number of babies are also born HIV-infected in industrial countries. Sadly, most of these children become seriously ill with AIDS before their first birthday and die before their fifth birthday, the age when most healthy children are entering school. Tens of thousands of other children, particularly in Africa and the Caribbean, are orphaned as AIDS kills one or both of their parents.

In the few years since AIDS was first identified as a new disease, programmes have been initiated in nearly every country to prevent and treat HIV infection and AIDS. These programmes attempt to prevent the spread of HIV through education and ensuring safety of the blood supply; provide services for adults and children already affected; and research new vaccines and treatment drugs.

Developing nations already besieged by social and economic problems will find it particularly daunting to meet the challenges posed by HIV infection and AIDS. Global commitment is essential if programmes to prevent and treat AIDS that are currently operating—and the new ones needed—are to succeed.

Many countries in both the industrialized and developing world have been severely affected by the AIDS pandemic and have witnessed the resulting illness and death of large numbers of adults in their most productive years. AIDS, first identified in the early 1980s, is now a leading cause of death among women aged 15 to 45 in major cities in the Americas, Western Europe, and sub-Saharan Africa.

Many countries, particularly in parts of Africa and the Caribbean, have also seen large numbers of AIDS deaths among children under age five.

Children there are infected because of a number of factors: widespread heterosexual transmission of HIV among adults results in large numbers of HIV-infected women of reproductive age; a perinatal (mother-to-child) transmission rate of at least 30 per cent; and the lack of co-ordinated health services to assure the minimal use of blood transfusions and that blood that is transfused is first screened for HIV.

Magnitude of the problem

Epidemiologists agree that the numbers of reported cases of AIDS grossly underestimate the true situation, especially in developing countries where constraints to HIV testing and case reporting are particularly acute. Most HIV-infected adults progress to AIDS within ten years, and 25 per cent to 40 per cent of HIV-infected women transmit the infection to their offspring.

AIDS-related adult deaths result in large numbers of orphans...a recent UNICEF study of 10 AIDS-affected countries in Central and East Africa projects that, by the year 2000, there will be between 3 and 5 million AIDS orphans.

WHO estimates that as many as 1.5 million African women are infected with HIV. In Central and East Africa, infection rates among pregnant urban women have risen dramatically in the past five years, reaching 20 per cent to 25 per cent in some cities. So far, rates in most rural areas remain below 2 per cent, but given the large per cent of Africans residing in rural areas, the impact is nevertheless significant. In the Caribbean, over 10 per cent of all reported AIDS cases are occurring in children. One urban slum reports over 10 per cent of women of reproductive age are already HIV-infected.

AIDS is also a growing threat in Asia, where self-injecting intravenous drug abuse and prostitution account for much of the HIV transmission. In one Southeast Asian nation, over 50 per cent of intravenous drug users have been infected with HIV in the past three years. Young women in Asia who practice prostitution before marriage risk infecting themselves and their future families.

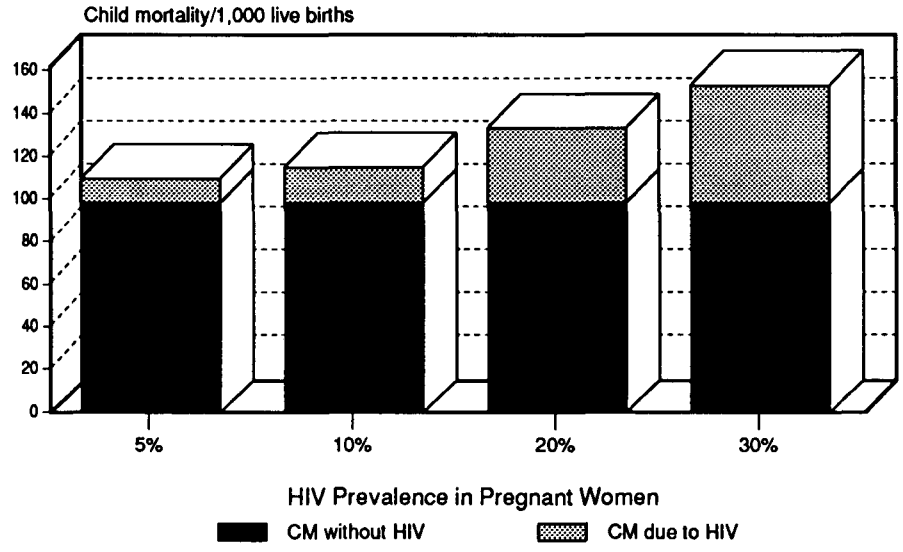
The widespread cost to children

Children progress from HIV infection to AIDS much faster than adults. Symptoms of AIDS-related illness in children often appear as early as six months of age, and closely resemble common child health problems. But symptoms related to HIV infection do not respond to standard treatments. The intense needs of HIV-infected children for health care are already challenging over-burdened and under-financed maternal and child health services.

HIV-infection and AIDS are very real dangers for adolescents also. Since the interval between HIV infection and the appearance of AIDS in adults is long,

many young adults with AIDS probably became infected during adolescence. Homeless adolescents are at especially high risk of HIV infection due to lack of AIDS-prevention education, and patterns of high-risk sexual behavior.

Projected increase in child mortality due to HIV/AIDS



Source: WHO/Global Programme on AIDS

Impact of AIDS on mortality of children

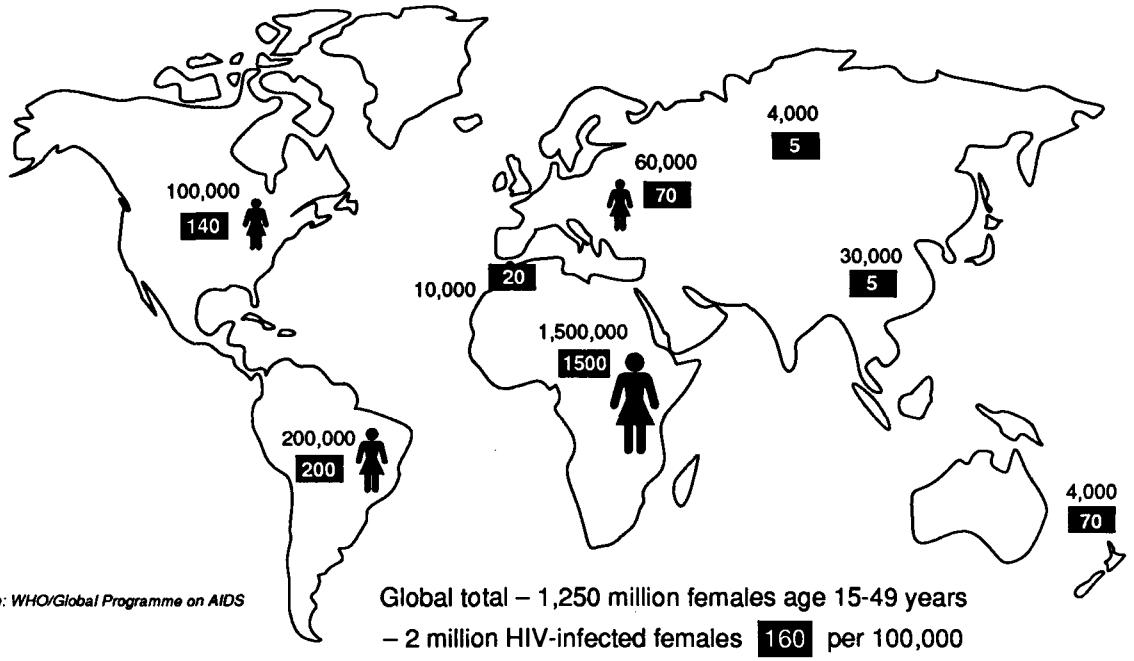
WHO estimates that 80 per cent of all children who are born with HIV infection in developing countries will die from AIDS-related illness before the age of five.

In a country with an under-five mortality rate (U5MR) of 100 per 1,000 live births, where 5 per cent of pregnant women are HIV infected, the U5MR can be expected to increase to 109 per 1,000 live births due to AIDS. If 10, 20, or 30 per cent of women are HIV-infected in this country, U5MR can be expected to rise in a decade to 118, 135, and over 150 per 1,000 live births due to AIDS, respectively (see graph above).

Clearly, in developing countries that are seriously affected by AIDS, the disease will seriously impair the potential for reducing infant and child mortality.

WHO estimates that more than 1,500,000 African women are already infected with HIV (see map on following page). Because the vast majority of HIV-infected infants are infected perinatally, preventing HIV infection in women is the key to reducing HIV infection in infants.

Estimated HIV-infected females



Source: WHO/Global Programme on AIDS

Global total – 1,250 million females age 15-49 years
– 2 million HIV-infected females 160 per 100,000

Impact of AIDS on family structure

Diagnosis of HIV infection or AIDS in an infant is often the first indication that one or both parents are infected with HIV. When an infected parent falls ill with AIDS, the fabric of the family is strained economically (due to loss of income and costs of treatment) and psychologically. The impact is often exacerbated by discrimination resulting from the stigma associated with AIDS.

In many countries, AIDS-related adult deaths result in large numbers of orphans (most of whom are *not* themselves HIV-infected). In one seriously affected district of Uganda, nearly 30,000 AIDS orphans have already been enumerated. A recent UNICEF study of 10 AIDS-affected countries in Central and East Africa projects that, by the year 2000, there will be between 3 and 5 million AIDS orphans. Such large numbers of orphans will strain the ability of the existing extended family system to adopt them, and will require new forms of long-term child care.

The high price of ignorance

The costs of AIDS to families, communities, and national economies are already extremely high; however, the costs which will result if massive aids prevention programmes are not undertaken will certainly be higher. AIDS resource mobilization meetings, organized by WHO, have raised

funds from governments and foreign donors for AIDS control activities in developing countries. Unfortunately, present programme needs far exceed available resources. In terms of treatment, for example, the cost of providing AZT (the newly developed aids treatment drug) to one AIDS patient for a year is several thousand times the per capita health budget of most African countries.

Research: a critical need

In addition to expanding AIDS prevention strategies, the ultimate solution to AIDS control lies in developing effective treatment and a vaccine against HIV. In addition, technology designed for adults has to be adapted to the needs of children, and must be made as widely available and affordable as possible, especially in developing countries. Until these goals are realized, prevention must take the major role.

Present and future strategies

National and international AIDS control programmes, non-governmental and voluntary organizations, and public and private concerns have launched important efforts in AIDS prevention, education, and research worldwide. These multisectoral endeavors form the Global AIDS Strategy. WHO is the lead agency for AIDS in the United Nations system, and UNICEF and other parts of the United Nations system are playing an important role in supporting these efforts.

Actions required to lessen the impact of AIDS on women and children fall into three main categories:

- Preventing HIV infection in adults through education about preventing sexual transmission and transmission through contaminated blood supplies, needles, syringes, and other skin-piercing equipment.
- Addressing the health, economic, social, and psychological needs of women and children already HIV-infected or suffering from AIDS.
- Researching the epidemiology of the disease and new strategies for diagnosis, treatment, and vaccine development.

As stated in the Declaration of the International Conference on the Implications of AIDS for Mothers and Children, held in Paris on 27-30 November 1989, the following efforts must be accelerated and intensified:

- ensuring recognition of the problem of HIV infection and AIDS, particularly as it affects women and children;
- supporting AIDS prevention including innovative, multifaceted health education programmes;

- providing women and children suffering from AIDS with necessary health and social services;
- preventing discrimination against people with HIV infection and aids;
- ensuring adequate and safe blood collection and transfusion services;
- making drug abuse prevention and treatment programmes available;
- supporting appropriate research on HIV infection and aids in women and children.

By endorsing and promoting such global responses, the World Summit on Children would declare its commitment to stopping the spread of HIV infection and AIDS throughout the world.

Further reading

"Mother-to-Infant Transmission of HIV: An Increasing Global Problem," by James Chin, Gopal Sankaran, and Jonathan M.Mann, in *Maternal and Child Care in Developing Countries*, E. Kessel, A.K. Awan, eds. Ott Publishers, Switzerland. 1989.

"Impact of HIV/AIDS on African Children," by Elizabeth A. Preble, *Social Science & Medicine*, Vol.31, No.6.

PART THREE:

Nutrition

Introduction

Malnutrition in its various forms—protein-energy malnutrition, nutritional anaemia, vitamin A deficiency, and iodine deficiency disorders (IDD)—contributes to about one third of the deaths of young children throughout the world. Because of its magnitude, its catastrophic impact on the survival and development of children and women, and the fact that it often results from crises that are international in character, malnutrition is one of the most pressing global problems today.

Freedom from hunger and malnutrition is a basic human right, and continued malnutrition into the next century is unacceptable. Extensive experience has shown, however, that the best way to address malnutrition problems is to find appropriate and feasible solutions at all levels—household, community, national, and international. The impact of these actions is then monitored to improve the next round of activities.

Nutrition should not be seen as a "sector," but as an outcome of processes in several sectors. Improved nutrition requires simultaneous efforts to ensure adequate household food security, control of diseases and sanitation, and adequate maternal and child care. None of those conditions is sufficient in isolation.

Societies fall short of meeting those three conditions for various underlying economic, social, political, or ideological reasons. Nutrition programmes must therefore address both the immediate and the underlying causes of malnutrition through a mix of short-term and long-term actions. For example, a project involving the mass distribution of vitamin A capsules could be used to promote income-generating projects for women that would have a long-term impact on family nutrition. Promoting breastfeeding at a global level could improve infant nutrition dramatically in the near future while ensuring a lasting impact on the health and survival of generations to come.

Growth monitoring is the best method of making malnutrition visible and measurable. Encouraging families and communities to keep records of children's height and weight can prompt local actions as well as provide governments with nutrition surveillance information to be used in designing wider strategies and policies.

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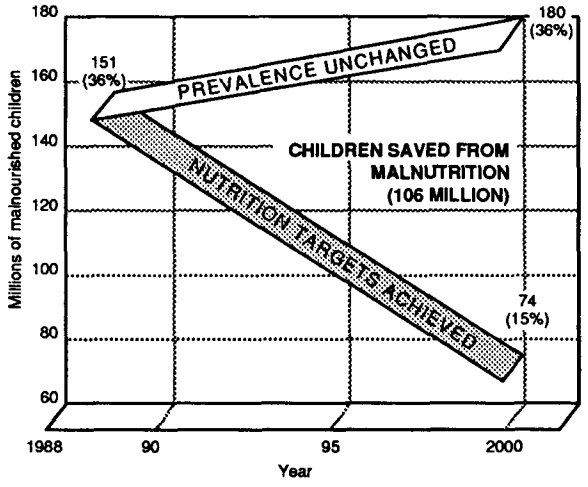
Reduction of malnutrition and low birth weight

In brief

The Goals: Reduction in severe and moderate malnutrition among under-five children by half of the 1990 levels. Reduction of the rate of low birth weight (less than 2.5 kg) to less than 10 per cent of annual births.

Malnutrition contributes to about one third of the more than 14 million young child deaths that occur worldwide each year. And, when girls and women suffer from disease and inadequate diet, their babies are born jeopardized by low birth weight, followed by growth faltering, resulting in wasting and stunting. Each year some 20 million infants–of which 95 per cent are in developing countries–are born weighing less than 2.5 kilograms. And, about 36 per cent of young children in those countries are underweight, and therefore run greater risk of disease, starvation, and death, in addition to diminished learning and work capacities in the future.

Prevalence of malnutrition* in children under five, developing world (excluding China)



The total under-five population of the developing world is projected to rise from 420 million in 1988 to an estimated 500 million in the year 2000.

* Malnutrition = more than 2 standard deviations below the desirable weight-for-age.

Source: The State of the World's Children, 1990. Figure 10.

Malnutrition caused by inadequate dietary intake and disease is a serious threat to children's health and development in many parts of the world today. While South Asia has the highest percentage of malnourished children, Africa has the highest percentage of *severely* malnourished. In some countries, especially in Africa and Latin America, malnutrition has increased during the last few years, probably as a result of the present economic crisis or the structural adjustments being undertaken in response to it.

Recent reports estimate that in the developing world, excluding China, 150 million children under five are underweight and more than 20 million are severely underweight. Although these figures indicate the current severity of the problem, the existence of many more millions of stunted adults reveals that the problem of undernutrition has existed for many years.

Malnutrition threatens a child's development in many ways. Children often compensate for reduced energy by reduced activity. For a small child, that means cutting back on crawling, running, throwing, and other activities necessary for its development. For a school-aged child, food deprivation lowers attention and learning capacity. If undernutrition remains unremedied over a long period of time the affected children can suffer starvation and death.

Less obvious, but equally important, is the damage done by malnutrition to the child's immune system. Weakened by protein-energy deprivation, the child's immune system is less able to resist parasitic invasion and infectious disease. Malnourished children get sick more easily and run a greater risk of dying of a particular disease than do children who are well-nourished.

Children who are malnourished are also likely to suffer from micronutrient-deficiency diseases such as anaemia and vitamin A deficiency. Thus, the achievement of the goal of halving malnutrition will also contribute a great deal to achieving the goals set for reducing other dietary deficiencies.

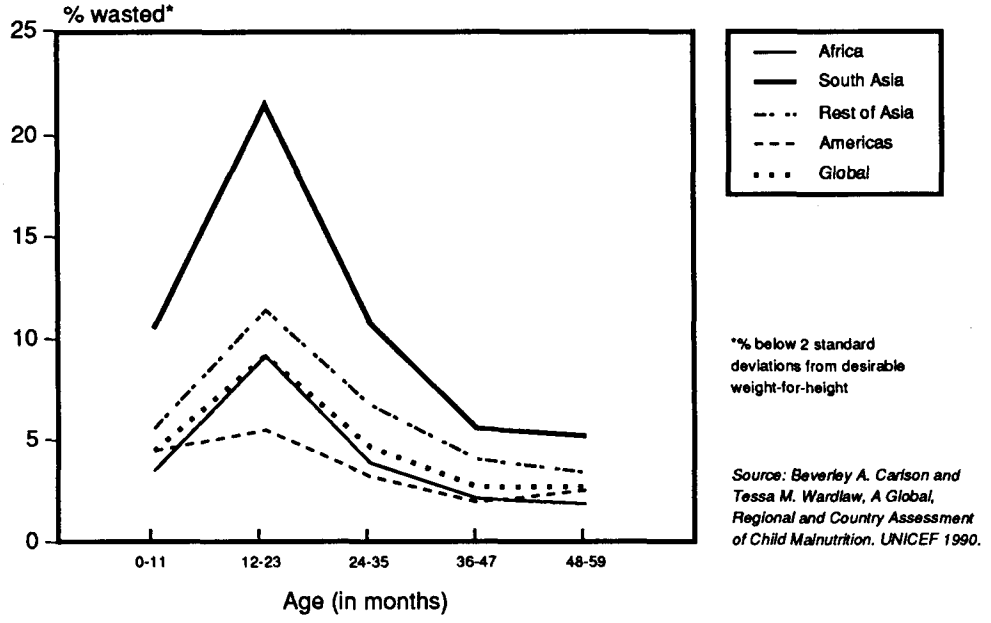
In almost all developing countries growth faltering is most common and severe in children between the ages of 6 months to 18 months. Before then, breastfeeding normally provides adequate energy and nutrients. Deterioration beginning around the end of breastfeeding results from premature weaning, inadequate supplementary feeding, and infectious disease (see graph next page).

Those immediate causes of inadequate food intake are themselves brought about by a family's unreliable food supply, lack of access to needed health services, and inappropriate weaning and infant feeding practices. All point to the need for the mother to obtain control of resources and her own time.

For a lasting solution to the problem of malnutrition, the processes leading up to those causes must be traced and addressed. Those basic

causes may be ecological, technical, social, economic, political, or ideological in nature.

Patterns of wasting by age



*% below 2 standard deviations from desirable weight-for-height

Source: Beverley A. Carlson and Tessa M. Wardlaw, A Global, Regional and Country Assessment of Child Malnutrition. UNICEF 1990.

Nutrition-oriented programmes

Although the problem of protein-energy malnutrition may seem complex, many countries are making progress in reducing its damaging effects on infants and young children. The key to success has been a combination of increased understanding of the problem and broad participation in designing interventions.

There is no one way of reducing malnutrition that can be used everywhere. The most important first step in improving any nutrition situation is to strengthen the capacity to find the cause of the problem at hand and to prepare the most relevant actions.

At that stage, information is crucial. Growth monitoring provides useful information to mothers and health workers, but can also give a government data that reflects not only the health and nutrition of the child, but also the situation of the child's family and environment. Food and nutrition surveillance at the national and subnational levels is useful both for advocacy and for designing policies and strategies.

Since malnutrition tends to begin in nearly all developing countries when breastfeeding ends, mothers should be encouraged and supported to breastfeed exclusively during a child's first four to six months of life. After that, proper supplementary feeding needs to be combined with continued

breastfeeding well into the second year. Child-feeding practices must be viewed in the context of child care as a whole and in relation to mothers' need for greater control over resources.

Defining terms

Wasting is low weight-for-height. A child is wasted if the child's weight is significantly lower than expected for a given height. Wasting is taken as an indicator of current acute malnutrition.

In stunting, height is significantly lower than expected at a given age. Stunting can indicate either chronic malnutrition or episodes of acute malnutrition in the past.

A child is underweight if the weight is lower than expected at a given age. Underweight is the most frequently available composite indicator of both wasting and stunting, but it does not differentiate between them.

Once it is learned what is causing a particular case of malnutrition, a strategy for remedying it can be drawn up and carried out. Such immediate causes as inadequate food intake and disease can be addressed through nutrition rehabilitation, supply of essential drugs, promotion of oral rehydration therapy (ORT), and programmes to distribute micronutrients and emergency food.

Where health problems are the underlying cause of malnutrition, interventions such as immunization, improved delivery of primary health care (PHC), and health education including nutrition and family planning can be employed.

In cases of insufficient food security, a strategy can include efforts to improve food production, storage, distribution, marketing, and preparation. Child-care problems including inadequate feeding practices can be addressed through child-care arrangements, child-care education, and the promotion of proper weaning and child feeding.

However, sustained improvement cannot be achieved unless the basic causes of malnutrition are removed. While broad problems such as poverty, underdevelopment, and women's workload are difficult to address, action can be taken to improve policy analysis, promote income-generating activities for women, reduce income disparities within the society in question, transfer technology, and advocate constructive change. In all cases, access to appropriate information is crucial. Governments will therefore be encouraged and supported in establishing nutrition surveillance systems.

Nutrition strategy and costs

Estimates from various successful nutrition programmes show that the external cost per beneficiary varies from $5 to $50 per year; the higher

estimates normally include the cost of programmes with direct food subsidies. These estimates do not include the support provided for the programmes from households and communities, which is often much larger and more important for children's survival and development than the external support.

With 150 million malnourished children in the world, the total estimated cost per year would be in the order of $750 million to $7.5 billion. Perhaps $2.5 billion might be used as a very rough overall estimate. In 1987, official development assistance provided $56 million (1.5 US cents per capita) for "direct nutrition" and another $1.8 billion in food aid.

The nutrition strategy to the year 2000 carries with it a number of needs in the area of research and development. For that reason, all programmes should include efforts to test hypotheses and to identify patterns. Methods must be found to ensure the early identification of disease and dietary patterns that could result in malnutrition. Likewise, simple methods are needed for determining how much food must be available in a community in order to ensure adequate dietary intake. It is essential that such methods of monitoring nutrition be simple enough for easy use by parents and health workers.

The achievement of the above goals could have implications far beyond children and malnutrition. Since the growth of children is influenced by social, economic, cultural, and ecological factors, monitoring the growth of children could provide a sensitive overall indicator of the success of a development strategy in achieving improvement in the human condition. Continued disparities between and within countries, of an indicator such as the height of children entering school, demonstrate that such development still has far to go.

Further reading

Strategy for Improved Nutrition of Children and Women in Developing Countries. A UNICEF policy review. UNICEF . New York. 1990.

Update on the Nutrition Situation: Recent Trends in Nutrition in 33 Countries. United Nations Administrative Committee on Coordination – Subcommittee on Nutrition January/February, 1989.

A Global, Regional and Country Assessment of Child Malnutrition, by Beverley A. Carlson and Tessa M. Wardlaw, UNICEF Staff Working Paper Number 7, 1990.

MALNUTRITION AND LOW BIRTH WEIGHT

	% infants with low birth weight*	% children underweight** (0-4 years) 1980-87		Daily per capita calorie supply as % of requirements
	1982-88	moderate & severe	severe	1984-86
LATIN AMERICA & CARIBBEAN	**10**	**13**	**3**	**108**
Argentina				136
Bolivia	12	15		89
Brazil	8	13	3	111
Chile	7	3		106
Colombia	15	12	2	110
Costa Rica	10	6		124
Cuba	8			135
Dominican Rep.	16	12	3	109
Ecuador	10	10		89
El Salvador	15	55	5	94
Guatemala	10	34	8	105
Guyana	11	22	4	108
Haiti	17	27	3	84
Honduras	20	21	4	92
Jamaica	8	9	2	116
Mexico	15			135
Nicaragua	15	11	1	110
Panama	8	16		107
Paraguay	7	32	1	123
Peru	9	13	2	93
Trinidad & Tobago		7		126
Uruguay	8	7	2	100
Venezuela	9	10		102
MIDDLE EAST & NORTH AFRICA	**7**	**N/A**	**N/A**	**125**
Algeria	9			112
Egypt	5	11	1	132
Iran, Islamic Rep.	5	43		138
Iraq	9			124
Jordan	5			121
Kuwait	7	6		
Lebanon				125
Libyan Arab Jamahiriya				153
Morocco		16	4	118
Oman	6			
Saudi Arabia	6			125
Syria		25	2	131
Tunisia	7			123
Turkey	8	12	1	125
United Arab Emirates	7			
Yemen		61		94
Yemen, Dem.	13	26		96
AFRICA SOUTH OF THE SAHARA	**14**	**32**	**7**	**92**
Angola	17			82
Benin	8	34		95
Botswana	8	15		96
Burkina Faso				86
Burundi	9	38	10	97
Cameroon	13	17		88
Central African Rep.	15	30	6	86
Chad	11			69
Congo	12	24	5	117
Côte d'Ivoire	14	40		110
Ethiopia		38		71
Gabon				107
Ghana	17	37		76
Guinea				77
Kenya	15			92
Lesotho	11	16	2	101
Liberia		35	4	102
Madagascar	10	33	8	106
Malawi	20	22		102
Mali	17	31	9	86
Mauritania	11	44	8	92
Mauritius	9	24	7	121
Mozambique	20	57	8	69
Namibia				
Niger	15	49		100
Nigeria	20			90
Rwanda	17	37	8	81

MALNUTRITION AND LOW BIRTH WEIGHT

	% infants with low birth weight*	% children underweight** (0-4 years) 1980-87		Daily per capita calorie supply as % of requirements
	1982-88	moderate & severe	severe	1984-86
AFRICA SOUTH OF THE SAHARA (continued)				
Senegal	11	22	6	99
Sierra Leone	17	23	3	81
Somalia				90
South Africa	12			120
Sudan		41	8	88
Tanzania	14	48	6	96
Togo	20			97
Uganda				95
Zaire	13	20	5	98
Zambia	14	28		92
Zimbabwe	15	12		89
ASIA	**9**	**38**	**N/A**	**105**
Afghanistan	20			94
Bangladesh	26	60	9	83
Bhutan				
China	5			111
Hong Kong	5			121
India	30	41	6	100
Indonesia	14	51	1	116
Kampuchea		20	3	98
Korea, Dem.				135
Korea, Rep.	6			122
Laos	39	37		104
Malaysia	10			121
Mongolia	10			116
Myanmar	16	38		119
Nepal				93
Pakistan	25	39	10	97
Papua New Guinea	25	35		96
Philippines	18	33		104
Singapore	6			124
Sri Lanka	28	38	9	110
Thailand	12	26	4	105
Viet Nam	18	52	13	105
INDUSTRIAL COUNTRIES	**6**	**N/A**	**N/A**	**130**
Albania	7			114
Australia	6			125
Austria	6			130
Belgium	5			146
Bulgaria	6			145
Canada	6			129
Czechoslovakia	6			141
Denmark	6			131
Finland	4			113
France	5			130
Germany, Dem.	6			145
Germany, Fed.	6			130
Greece	6			147
Hungary	10			135
Ireland	4			146
Israel	7			118
Italy	7			139
Japan	5			122
Netherlands				121
New Zealand	5			129
Norway	4			120
Poland	8			126
Portugal	5			128
Romania	6			127
Spain	1			137
Sweden	4			113
Switzerland	5			128
United Kingdom	7			128
USSR	6			133
USA	7			138
Yugoslavia	7			139

Source: The State of the World's Children 1990, Table 2.
(For explanations and qualifications of specific figures, see notes there.)

* Low Birth Weight: 2,500 grammes or less.

** Underweight: moderate and severe - below minus two standard deviations from median weight for age of reference population; Severe - below minus three standard deviations from median weight for age of reference population.

Figures for country groupings are median values.

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Elimination of iodine deficiency disorders

In brief

The goal: virtual elimination of iodine deficiency disorders by the year 2000.

Lack of iodine in the soil, a common condition in mountainous and flood-prone terrain, robs the diet of all age groups of that essential element. About 1 billion people in the world are at risk of iodine deficiency disorders (IDD), 200 million to 300 million of them suffering from goitre or other obvious consequences. At least 6 million cases of idiocy (cretinism) and 20 million cases of mental retardation are attributed to iodine deficiency.

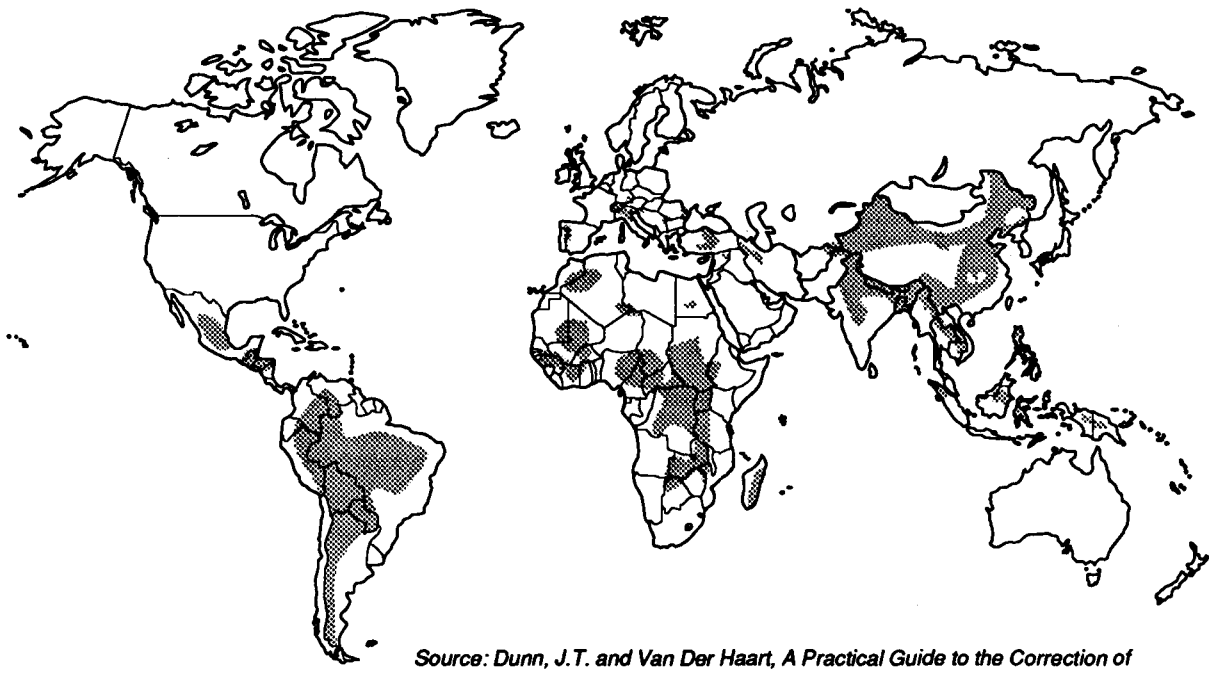
Iodine deficiency, the most common preventable cause of mental deficiency, has a major impact on child survival and development in all regions. The world could eliminate this age-old scourge.

The term iodine deficiency disorders (IDD) covers a wide range of conditions resulting from the lack of dietary iodine, an element needed for the production of hormones that regulate growth and development. While the most obvious consequences of deficiency are idiocy (cretinism) and gross swelling of the thyroid gland in the neck (goitre), insufficient iodine also lowers mental and physical capacity to varying degrees and in pregnant women can cause stillbirths and spontaneous abortions. Yet the virtual elimination of such disorders is the most feasible of the world's stated goals for children by the year 2000.

About 1 billion people of all ages are at risk of IDD. Regional estimates are as follows: Asia, 710 million; Africa, 230 million; Latin America, 60 million; Europe, 20 million to 30 million.

Of these, 200 million to 300 million have goitre or other demonstrable consequences of iodine deficiency, and at least 6 million are cretins. A total of 20 million people suffer some degree of mental retardation.

Areas of recent or continuing iodine deficiency



Source: Dunn, J.T. and Van Der Haart, A Practical Guide to the Correction of Iodine Deficiency. A joint publication of WHO, UNICEF, ICCIDD, 1990.

IDD threaten children's lives, health, and economic futures. Many of those who survive will be physically and mentally retarded. Children will exhibit apathy and lethargy, and will be less able to keep up with schoolwork. Their future economic productivity will be lowered. Allowed to persist unchecked, iodine problems lead to substandard communities and represent a serious obtacle to achieving national potential.

The underlying cause of iodine deficiency is a lack of iodine in the soil in which foods are grown. That is why deficiency disorders are found commonly in mountainous and heavily eroded areas and in places subject to frequent flooding. The shaded areas on the map above show where IDD are found. Many other locations, particularly in Africa and the Middle East, probably lack sufficient iodine in the soil, but have not yet been adequately surveyed.

Solving the problem

The long-term solution to the problem is to ensure that daily diets provide people with sufficient iodine. If populations become more affluent and if diets become more varied, including fish and foods produced in areas that are not lacking in iodine, the problem will gradually abate.

Iodine deficiency can be remedied more rapidly by adding iodine to people's existing diets. The most effective way to do this has been to add iodine to common salt, which is consumed by almost everyone. This requires the active co-operation of the salt industry.

Why has this simple solution not been more widely adopted? While a number of iodization programmes have encountered logistical and legislative obstacles, the fundamental reason they have not been pursued is that until recently, the gravity of iodine deficiency was not widely understood. Goitre was too often thought of chiefly as a cosmetic inconvenience, and many degrees of mental disability were not recognized. In addition, little attempt was made to educate officials and the public about the problem. Good intentions were not followed up, and there was no demand for services.

Establishing a system for iodizing all salt takes time. Meanwhile, iodine can be administered in oil, either by injection—with effects lasting for four or five years—or by mouth, capsule, or drops—with effects lasting for up to two years. This method immediately corrects iodine deficiency, increasing well-being and reducing goitre. Thus, it can be used to generate a demand for a more regular method, such as salt iodization.

The most obvious consequences of iodine deficiency are idiocy (cretinism) and gross swelling of the thyroid gland (goitre); insufficient iodine also lowers mental and physical capacity to varying degrees and in pregnant women can cause stillbirths and spontaneous abortions.

Administering iodine in oil may be a useful method for remote areas of a country where commercially prepared salt may not be available. Delivery would be through the primary health care (PHC) system, perhaps using the same channels that supply vaccine for immunization.

Adding iodine to the water supply is another possibility in some areas. The source—a capsule of concentrated iodine—needs to be replaced once a year.

Ways to eliminate iodine disorders

Programmes aimed at eliminating iodine deficiency should include both long-term (salt iodization) and short-term (iodized-oil administration) measures. Both approaches require efforts to inform people of the benefits of iodization and to sustain their support, in addition to whatever legislation may be needed to regulate the salt industry.

It is essential to monitor the programme to ensure that the desired level of iodine is maintained in salt production and that iodine measured in urine and thyroid hormones remains within normal levels. Unless vigilance is maintained, iodine deficiency problems may reappear.

A programme's success

How iodine programmes can contribute to national development is well illustrated by the experience of the village of Jixian in north-east China. In 1978, 65 per cent of the village's 1,313 inhabitants had goitre and 11 per cent were cretins. Because of the high rate of severe cretinism, the village became known locally as the "village of idiots."

The economic development of the village was retarded—for example, no truck driver or teacher was available. Girls from other villages did not want to marry boys from Jixian or live in the village. The intelligence of the local school children was known to be low: children aged 10 had a mental development equivalent to seven-year-olds elsewhere.

Iodized salt was introduced in 1978, and in 1979 iodized oil injections were given to children and young women. The goitre rate dropped to 4 per cent by 1986 and no cretins have been born since 1979. The people of Jixian have adopted a more positive attitude since iodization. The average income increased from 43 yuan per capita in 1981 to 550 yuan per capita in 1986. Before iodization no family had a radio, but in 1986 76 families had television sets. Between 1979 and 1986, 55 girls came from other villages to marry Jixian boys.

Cost of eliminating iodine deficiency

A salt iodization programme is particularly sustainable because the cost of treating the salt with iodine can be absorbed by the industry or passed to the consumer through a slight price increase. Where iodized oil or water treatment seems needed, a community will be willing to finance the intervention after the benefits of such a project are perceived. A national government would have to provide funds for communications and monitoring. External assistance could be especially useful in providing foreign exchange for purchasing the necessary iodine compounds.

Research is required to determine the most effective application of methods already tested. This includes operational studies of iodized oil administration, the monitoring of iodine deficiency control programmes, and better documentation of the benefits of such programmes to people who lack sufficient iodine.

The virtual elimination of IDD is one of the most feasible of the world's goals for children. National leaders of countries where iodine deficiency is a problem could commit their governments to establish co-ordinating mechanisms to set national targets and to pursue them relentlessly.

Further reading

The Story of Iodine Deficiency, by Basil S. Hetzel. Oxford Medical Publications. 1989.

A Practical Guide to the Correction of Iodine Deficiency Disorders, by John T. Dunn and Frits van der Haar. ICCID (International Council for Control of Iodine Deficiency Disorders), UNICEF, WHO. 1990.

Elimination of vitamin A deficiency and resulting blindness

In brief

The Goal: The virtual elimination of blindness and other consequences of vitamin A deficiency.

About 40 million of the world's children suffer from vitamin A deficiency, the leading cause of blindness in children under five years, resulting in 350,0000 cases of blindness each year, as well as causing lesser degrees of impaired vision in many more children. However, the means to eliminate this problem at modest cost are well known.

Vitamin A deficiency, in addition to being the major cause of blindness in young children, is also a major cause of death. Of the approximately half million children becoming blind each year, 70 per cent–350,000–suffer that fate due to vitamin A deficiency. About 60 per cent of newly blind children die within one year.

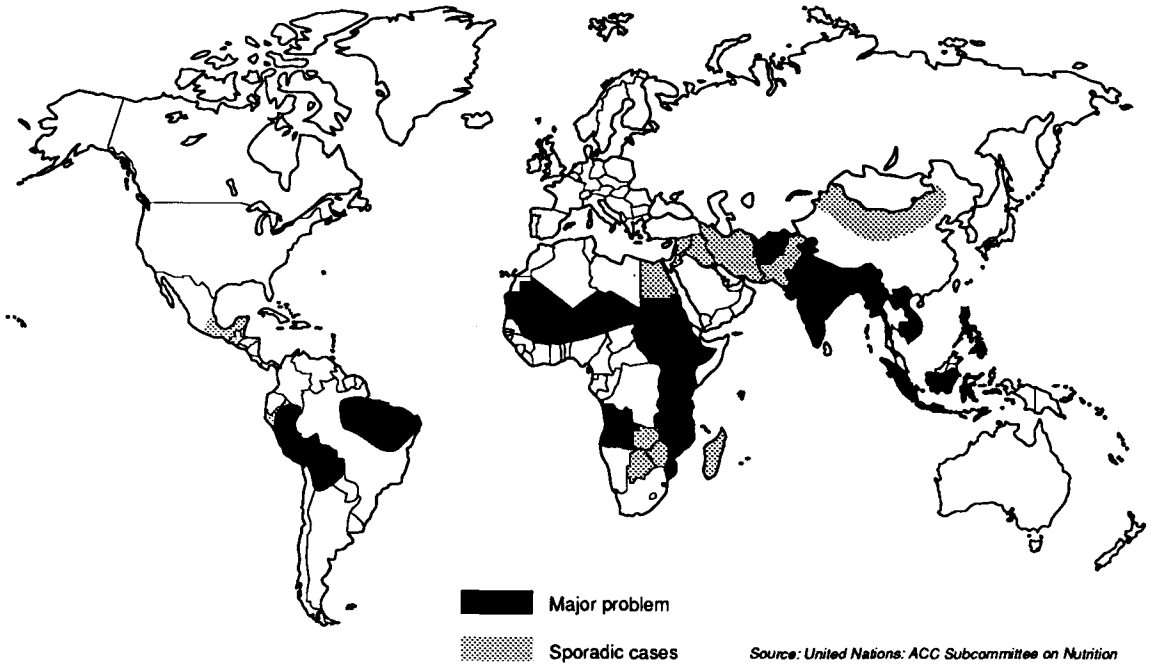
Milder degrees of deficiency that do not cause blindness nevertheless diminish the body's capacity to cope with infection and therefore contribute to child mortality. Vitamin A deficiency also retards growth.

The underlying cause of vitamin A deficiency is an inadequate store of this micronutrient in the body, whether the result of low dietary intake, interference with its absorption or transport within the body, or excessive loss. Other dietary constituents, especially protein and fat, are involved in the absorption and transport of vitamin A, and infectious diseases, notably measles, can result in a loss of the vitamin and ultimately deficiency.

An estimated 40 million children under five years of age suffer from vitamin A deficiency, many of them afflicted with varying degrees of the eye disease called xerophthalmia.

Not only does vision loss cause much human suffering, but it means lower productivity in the home, school, and workplace, and burdens resources for special training and compensation.

The geographical distribution of xerophthalmia in 1986



A number of strategies have proven effective in combatting vitamin A deficiency. The long-term solution is to stimulate demand for foods containing vitamin A so that they are produced and consumed in adequate amounts. The vitamin is found in the compound retinol in some foods of animal origin (milk, butter, eggs, and liver, for instance) and in carotene in a variety of plant foods (yellow maize, red palm oil, carrots, cassava leaves, spinach, papaya, and mangoes, for example).

Improving the overall quality of the diet and making efforts to control infection, taking into account the community's overall needs, are also part of solving the deficiency. Fortification of foods with vitamin A, another possibility, is currently more common in developed than developing countries.

In the short-term, diet can be supplemented with vitamin A oil administered by dispenser or capsule. The nutrient is stored in the liver, so that a "high-dose" capsule provides enough for up to six months. Smaller doses can be given more frequently. Delivery must be carefully monitored, because too high a dose can be dangerous, especially to pregnant women. Programmes to combat vitamin A deficiency should ideally combine long-term and short-term measures.

Ways to reduce vitamin A disorders

Governments can act to eliminate vitamin A deficiency through a number of low-cost interventions. Since breast milk (including the initial secretion, colostrum) is such an important source of vitamin A for infants, breast-feeding should be encouraged for two years or more.

Educating people about nutrition through face-to-face counselling with health workers and through mass media campaigns could promote increased use of vitamin A foods and other dietary improvements. Small-scale vegetable gardening should be encouraged, and in some communities commonly used foods such as sugar can be fortified with vitamin A.

Not only does vision loss from vitamin A deficiency cause much human suffering, but it means lower productivity in the home, school, and workplace, and burdens resources for special training and compensation.

Dietary supplements should be provided through a primary health care (PHC)network that reaches people even in remote areas. High-dose supplements should also be available for rapid treatment of vitamin A-related eye conditions, as well as for administration to children with measles, severe diarrhoea, acute lower respiratory infections, and protein-energy malnutrition. Prevention and early treatment will reduce the body's requirement of vitamin A. All programmes will require monitoring, evaluation, and training components.

Costs of eliminating vitamin A deficiency

High-dose vitamin A capsules cost about 2 US cents each. Supplying the 150 million children who may need supplementation throughout the world would cost about $6 million per year. Delivery should be through existing PHC structures including channels set up for conducting immunization programmes.

Relevant nutrition education should be included in general child-care programmes, and as part of agricultural extension activities. Thus, efforts to eliminate vitamin A deficiency need not involve much additional financial cost, apart from training, educational materials, and monitoring costs. These might add a further $6 million per year. Including the expense of gardening supplies so families can grow vitamin A-rich foods now lacking in their diets, the total would be unlikely to exceed $20 million per year.

Such programmes could be primarily funded within health and agriculture budgets, with some degree of community financing. External assistance can be used to provide supplements in the short term, training and monitoring facilities, and the establishment of garden nurseries.

Field research will be needed to develop simple ways of checking vitamin A status, preferably in combination with that of other micronutrients.

Outlook for the future

The elimination of the major cause of blindness in young children as well as the reduction of other vitamin A-related problems will enhance the creative capacity of the future generation and remove a current burden on the economy. National leaders should declare the continued existence of vitamin A deficiency unacceptable, and work to create international momentum on the part of governments and donor agencies to see the goal of eliminating vitamin A deficiency as entirely practicable.

Further reading

"Vitamin A Deficiency and Xerophthalmia: Recent Findings and Some Programme Implications," by Susan J. Eastman. *Assignment Children*, UNICEF. New York. 1987-3.

Vitamin A Supplements: A Guide to Their Use in the Treatment and Prevention of Vitamin A and Xerophthalmia, prepared by a joint WHO/UNICEF/IVACG (International Vitamin A Consultative Group) Task Force. WHO. Geneva. 1988.

Report of the National Symposium and Thirteenth IVACG Meeting, Kathmandu, 5 to 10 November 1989. IVACG . 1990.

Reduction of iron deficiency anaemia

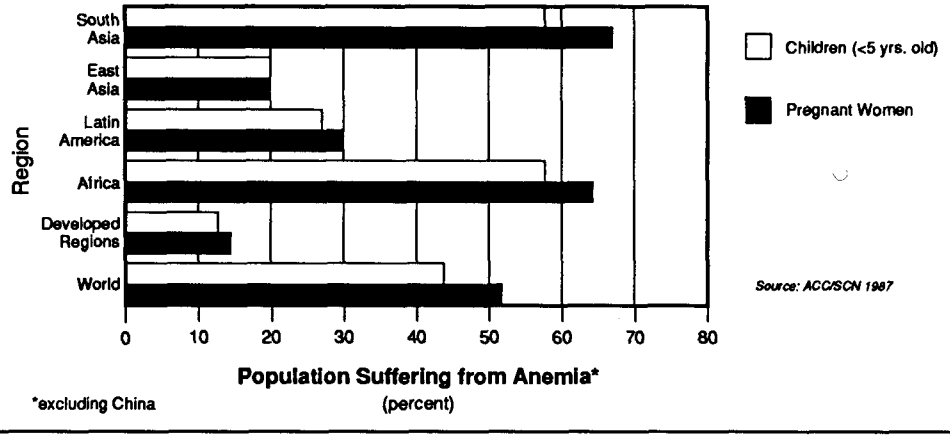
In brief

The Goal: Reduction of iron deficiency anaemia in women by one third of 1990 levels.

Iron deficiency anaemia, the most prevalent nutritional problem in the world, threatens the lives and health of pregnant women and their children, lowering physical activity, impairing learning ability, and leading to growth failure, behavioural problems, and reduced resistance to disease. An estimated 350 million women are affected worldwide.

Iron deficiency anaemia occurs when the concentration of haemoglobin in the blood is less than that needed to transport oxygen to body tissues. The result is impaired development, diminished work capacity, and reduced physical performance. Some 700 million to 800 million people are affected worldwide, half of them women. Because women in their childbearing years need more iron than men, their level of anaemia tends to be much higher.

Percentage of anaemia in children and pregnant women by region, around 1980



*excluding China

There is no single cause of this problem. The insufficiency may be due to inadequate iron in the diet, reduced ability to absorb ingested iron, increased need for iron (particularly during pregnancy), or chronic blood loss such as that caused by parasites. Many women in developing countries are iron deficient as a result of diets low in iron or the nutrients necessary for its absorption, such as vitamin C. And, the more often a woman becomes pregnant and gives birth, the more susceptible she is to anaemia.

Studies have shown that the cost of iron supplementation programmes is outweighed by the resulting increased labour productivity by approximately ten to one.

The consequences of iron deficiency include lowered physical activity and endurance, leading to reduced productivity and earning capacity; reduced resistance to disease; increased illness and death in pregnant women and their children; and growth failure and behavioural problems in infants and children.

In the long term, iron deficiency anaemia can be overcome by improvements in the standard of living, including the control of malaria and parasitic infections, and a more adequate and varied diet. Since many foods contain iron, iron deficiency can be greatly reduced by general efforts to combat protein-energy malnutrition. The fortification of foods may also be part of a long-term solution. In the short term, iron tablets can be administered to those most seriously affected by the deficiency, particularly pregnant women, and key dietary changes can be promoted to facilitate iron absorption.

There is mounting evidence that the reduction of anaemia enhances women's health and productivity and ultimately improves their children's physical and mental development. Studies in Indonesia, Kenya, and Mexico have shown that the cost of iron supplementation and fortification programmes is outweighed by the resulting increased labour productivity by approximately ten to one.

Ways to reduce the deficiency

Reducing iron deficiency anaemia requires a combination of measures including large-scale distribution of iron supplements, food fortification, and the control of parasitic diseases, as well as a concerted effort to promote changes in women's diet that would improve iron absorption.

In communities where iron deficiency is prevalent, daily supplements could be administered to pregnant women for up to four months, using existing health care channels such as village midwives. Including iron tablets in all essential drug kits supplied to urban and rural health centres

is another tactic. Selected foods, such as flour, could be fortified with iron compounds at the point of manufacture. Salt could be fortified with iron as well as iodine.

Efforts to combat parasitic diseases could include improving sanitation and the water supply, and, where appropriate, encouraging people to wear shoes or sandals to prevent hookworm.

Women can be encouraged to improve their absorption of iron by consuming fruits and vegetables containing vitamin C at all meals and avoiding inhibitors of iron absorption, such as tea, with meals.

Evidence is mounting that the reduction of anaemia enhances women's health and productivity and ultimately improves their children's physical and mental development.

Cost of reducing iron deficiency

A supply of 250 iron tablets, enough for one woman over the course of a pregnancy, costs about 25 US cents. Supplies for worldwide supplementation programmes, without distribution costs, would amount to approximately $25 million per year. Food fortification costs about 30 US cents per person per year.

Further research is needed to find better forms of iron supplementation that will reduce side effects and increase participation. Ways of fortifying foods will have to be studied, and simple, inexpensive means of monitoring iron levels must be developed.

The major requirement to reach the goal of reducing anaemia in women by one third is commitment on the part of world leaders to strengthening national strategies to address the problem, particularly in pregnant women.

Further reading

Preventing and Controlling Iron Deficiency Anaemia Through Primary Health Care, by E.M. De Maeyer. WHO. Geneva. 1989.

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Breastfeeding

In brief

The Goal: Empowerment of all women exclusively to breastfeed their children for four to six months and to continue breastfeeding, with complementary food, well into the second year.

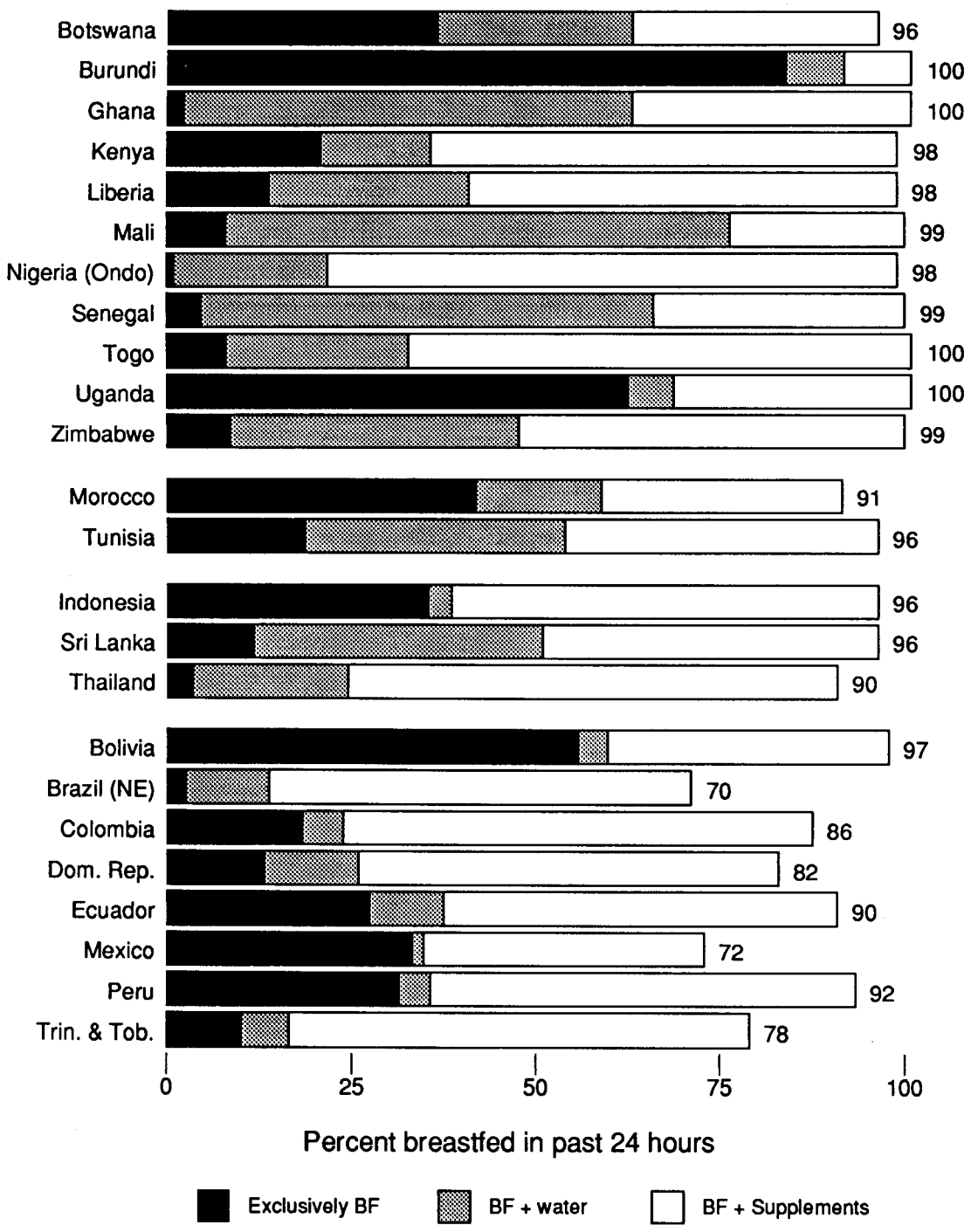
According to WHO reports, two thirds of the world's women who have given birth still breastfeed, at least to some extent. However, even where breastfeeding is common, as in most of Africa, infants are still being fed other foods and drinks in addition to breastmilk well before the recommended age of four to six months. Despite the overwhelming evidence in support of its inherent benefits, breastfeeding, as a practice, is in jeopardy. Vigorous pursuit of this goal is needed to reverse the trend.

The decline in breastfeeding is the result of a combination of social factors, practices in health care facilties, and marketing strategies for breastmilk substitutes.

Social factors include family migration to urban areas with the consequent loss of traditional support structures (offset to some extent countries by mother-to-mother support systems); the education of mothers which, in developing countries, has meant that the more educated, "modern" woman breastfeeds less and for a shorter duration; increasing numbers of women working away from the home, a problem compounded by lack of child care services; the emergence of the "feeding bottle" as a status symbol; and myths and concerns about cosmetic damage from breastfeeding.

Practices in health care facilities that discourage breastfeeding include the separation of mother and baby at birth and during confinement; routine bottle feeding of newborns and delay in introducing babies to the breast; rigid feeding schedules; poor training of health workers when it comes to helping mothers breastfeed; and the promotion of bottle feeding by the health care system through the use of formula samples, discharge packs, and formula supply deals with commercial companies.

Percent breastfed by type of feeding pattern, infants 0-4 months



Source: Demographic and Health Surveys, 1986-1989

Social and economic consequences of the problem

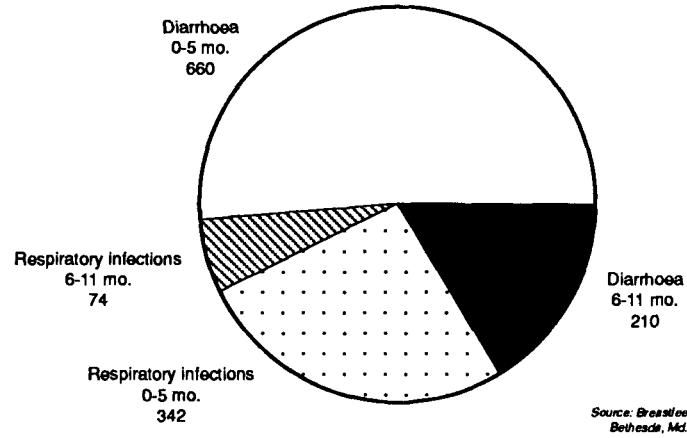
The decline in breastfeeding in the developing countries starts among educated urbanites, soon to be followed by the urban poor, before spreading outwards to the rural areas. In contrast, prevalence and duration have been increasing in such developed countries as Australia, Canada, New Zealand, Norway, Sweden, and the United States of America over the last 20 to 30 years. This suggests that the breastfeeding campaign of the 1980s has benefitted the developed countries more than the developing countries.

For the developing countries as a whole, breastfeeding, as an issue, continues to be a matter of life and death. According to a 1989 WHO estimate, the overall risk of death from *all* causes for nonbreastfed infants is approximately double that for infants who have been exclusively breastfed. It has also been estimated that improved breastfeeding practices could avert around 1.3 million infant deaths each year from diarrhoea and acute respiratory infections (ARI).

Impact of breastfeeding on annual infant deaths

(estimates in thousands)

Deaths averted, by cause of death



Source: Breastfeeding Saves Lives Bethesda, Md. CPCM, 1990

The victims of the decline in breastfeeding are the infants, who pay with their lives or with pain through frequent infections triggered by inappropriate or unhygenic use of formula substitutes, and their mothers, whose more frequent pregnancies, in the absence of the birth-spacing effects of sustained breastfeeding, impact negatively on their health and social and economic well-being. This aspect of breastfeeding is particularly

crucial for the millions without access to family planning services or those who, for religious and cultural reasons, are unable or unwilling to use them.

Health considerations aside, an ongoing decline in breastfeeding carries with it some serious economic consequences. Breastmilk substitutes are expensive and replacing breastmilk with adequate amounts of formula to feed an infant can be unaffordable. A 1978 study in Indonesia calculated the cost of the extra food needed to produce sufficient human milk to feed an infant at about $1.62 per month, whereas the cost of sufficient infant formula for one month's feeding ranged from $16.87 to $56.25, depending on the brand. The 40 kilograms needed in Nigeria in 1990 to adequately feed an infant through its first year costs more than two-and-a-half times the annual minimum wage.

In countries where contraceptive use is not a regular practice, breastfeeding is a major factor in achieving birth intervals of up to 30 months. In the absence of breastfeeding, or a further decline in the practice, costs related to increased fertility and/or increased demand on family planning services would also jump.

Demand would also grow in the developing countries for curative health services to cope with the increased case-load of the more obvious infections such as diarrhoea, ARI and parasitic infections. Gains made in the last decade through other programmes tackling these problems would be jeopardized.

The overall risk of death from *all* causes for nonbreastfed infants is approximately double that for infants who have been exclusively breastfed.

Programme interventions

An environment of awareness and support must be created to enable women to breastfeed their infants exclusively from birth for at least the first four months of life (preferably for six months) and then continue breastfeeding for two years or longer with nutritionally adequate complementary foods.

Women must get more social support to enable them to fulfil their productive and reproductive roles. Child care, including the time needed to breastfeed, should be fully compensated as an acknowledged contribution to social and economic development. With this "recognition," such "benefits" as adequate maternity leave and workplace child care facilities would no longer be a matter of debate or considered "too costly."

Health care services, particularly maternity care, need to be remodelled to encourage rather than dissuade mothers from breastfeeding. Health education and training should be reviewed at all levels, and a system should be set up to equip every health worker with the lactation knowledge and breastfeeding management skills essential to support women and families.

The promotion of artificial feeding, particularly bottle feeding, should cease. This includes the promotion of formula, other baby foods, sugar water and vitamin drinks, and artificial feeding utensils. Making a product available for the few who require it is not the same as promoting its widespread use through the media, infiltration of the health care system, and other promotion tactics. In short, the promotion of breastfeeding should be left to the experts in breastfeeding, not manufacturers and distributors of baby foods.

Infant feeding practices are difficult to change, especially when the benefits are not immediately apparent to the mother and require continuous adherence. Social, cultural, and economic factors play a major role in shaping these practices. As a result, efforts aimed exclusively at changing the behaviour of individual mothers may be relatively futile. Informing mothers about the benefits of breastfeeding and appropriate weaning is not likely to produce major improvements on its own. The processes that lead to behavioural change must also be addressed.

The evidence shows that, with concerted effort, the negative trends can be reversed. Where breastfeeding has been consciously promoted in recent years, there have been improvements in feeding practices. If nothing else, promotion activities can stabilize the practice of breastfeeding and halt its decline. The most important promotion activities include:

- Improving hospital practices along the lines of the WHO/UNICEF joint statement on the special role of maternity services in protecting, promoting, and supporting breastfeeding, which includes a ten-step guide to successful breastfeeding, now the basis for country-level action initiatives by health workers and policy makers;

- Furthering developing country application of the demonstrably successful mother-support groups in developed countries by expanding similar activities in developing countries. These would boost counselling and community training skills in support of the strategy to promote growth and proper infant feeding practices, including breastfeeding;

- Stepping up breastfeeding promotional activities, which have proved very effective yet remain grossly underutilized, through the media;

- Regulating marketing practices through adopting legally enforceable national codes based on the International Code of Marketing of Breast Milk Substitutes, adopted by the 1981 World Health Assembly and now adopted in one form or another by more than 100 countries;

- Enforcing stricter control of the availability of supplies of formula in maternity wards and hospitals to improve rates of successful initiation of breastfeeding and ensuring that feeding bottles, teats, and pacifiers should no longer be acceptable in health care facilities, particularly in maternity wards, paediatric wards, "ORT corners," and baby clinics.

Some of the costs

Financial resources are needed to establish a lactation management and education and training system for health workers. Appropriate feeding and child-care practices must be promoted through the media. Where legislation covering adequate maternity leave, access to child-care services at the workplace, job security for mothers, etc., is implemented, labour costs will inevitably rise.

Opprotunities for the world

Developing countries cannot afford to go through the cycle experienced by developed countries, where breastfeeding, having virtually disappeared as a practice, has had to be relearned. Heads of State should declare as unacceptable an environment that makes it impracticable for mothers to choose to breastfeed. They should commit themselves to support the changes necessary to ensure that by the year 2000 all women are empowered to exclusively breastfeed their children for four to six months and thereafter to continue breastfeeding, augmented by appropriate complementary foods, up to the second year of life or beyond.

Further reading

Breastfeeding: The Passport to Life. Naomi Baumslag, ed. NGO Committee on UNICEF. New York. 1989.

"Protecting, Promoting, and Supporting Breastfeeding: The Special Role of Maternity Services." WHO. Geneva. 1989.

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PERCENTAGE OF MOTHERS EITHER WHOLLY OR PARTLY BREASTFEEDING, 1980-87

	3 MONTHS	6 MONTHS	12 MONTHS
LATIN AMERICA & CARIBBEAN	**62**	**53**	**36**
Argentina	66	36	14
Bolivia			
Brazil	66	58	34
Chile	23	18	17
Colombia	80	55	36
Costa Rica	61	38	22
Cuba			
Dominican Rep.			
Ecuador	86	74	48
El Salvador	85	77	55
Guatemala		84	74
Guyana	62	38	22
Haiti		98	88
Honduras	48	28	24
Jamaica	95	82	43
Mexico	62	52	36
Nicaragua			71
Panama	62	53	53
Paraguay	80	77	49
Peru	80	67	37
Trinidad & Tobago	59	50	14
Uruguay	50	43	
Venezuela	50	40	30
MIDDLE EAST & NORTH AFRICA	**80**	**71**	**51**
Algeria			
Egypt	90	87	81
Iran, Islamic Rep.			
Iraq			
Jordan	80	70	50
Kuwait	47	32	12
Lebanon	50	40	15
Libyan Arab Jamahiriya			
Morocco	92	89	76
Oman	73	50	20
Saudi Arabia		91	52
Syria	88	72	41
Tunisia	95	92	71
Turkey	99	91	51
United Arab Emirates			
Yemen	73	67	29
Yemen, Dem.	80	60	55
AFRICA SOUTH OF THE SAHARA	**96**	**92**	**78**
Angola			
Benin	90	90	76
Botswana	96	93	73
Burkina Faso	98	98	97
Burundi		95	90
Cameroon	92	90	77
Central African Rep.			
Chad			
Congo	98	98	95
Côte d'Ivoire	87	84	78
Ethiopia		97	95
Gabon			
Ghana	91	90	72
Guinea	100	70	40
Kenya	86	82	67
Lesotho		87	
Liberia	96	92	70
Madagascar	95	95	85
Malawi			96
Mali	96		82
Mauritania	91	86	67
Mauritius	79	55	40
Mozambique	99	96	
Namibia		98	82
Niger	65	30	15
Nigeria	98	80	60
Rwanda	97	97	74

PERCENTAGE OF MOTHERS EITHER WHOLLY OR PARTLY BREASTFEEDING, 1980-87

	3 MONTHS	6 MONTHS	12 MONTHS
AFRICA SOUTH OF THE SAHARA (continued)			
Senegal	94	94	82
Sierra Leone	96	94	83
Somalia			
South Africa			
Sudan			
Tanzania	91	86	72
Togo	100	90	70
Uganda		99	90
Zaire	85	70	20
Zambia	100	100	86
Zimbabwe			93
	98	96	84
ASIA	N/A	N/A	N/A
Afghanistan			
Bangladesh	91	86	82
Bhutan			
China			
Hong Kong	70	60	
India			
Indonesia			
Kampuchea	98	97	83
Korea, Dem.	100	93	
Korea, Rep.			
Laos	58	40	27
Malaysia		99	93
Mongolia	88		
Myanmar			
Nepal			
Pakistan	92	92	82
Papua New Guinea		92	70
Philippines			
Singapore	79	70	53
Sri Lanka			
Thailand	94	92	81
Viet Nam	83	79	68
INDUSTRIAL COUNTRIES	N/A	N/A	N/A
Albania			
Australia			
Austria	56	40	10
Belgium	41		
Bulgaria			
Canada			
Czechoslovakia	53	30	
Denmark			
Finland			
France		7	
Germany, Dem.			
Germany, Fed.			
Greece			
Hungary			
Ireland	86		
Israel			
Italy			
Japan			
Netherlands	72	52	
New Zealand	33		
Norway			
Poland			
Portugal	32	25	
Romania	29	12	7
Spain			
Sweden			
Switzerland	47	23	
United Kingdom			
USSR	26	22	
USA			
Yugoslavia	33	24	

Source: The State of the World's Children 1990, Table 2.
(For explanations and qualifications of specific figures, see notes there.)
Figures for country groupings are median values.

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PART FOUR:

Water and sanitation

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