# CHILD HEALTH,  NUTRITION AND MORTALITY

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Child health in Sri Lanka has improved by leaps and bounds in the last few decades. However, there are dismal areas within the major leaps that have occured.

Infant Mortality rate is an indicator of many aspects of health and as well a social indicator as in the measurement of the Physical Quality of life index. Over half a century ago, infant mortality rate was 158 per 1000 live births. It came down to seventy in the fifties and to 50 in the seventies. From then on, it has declined steadily. Today, infant mortality has been brought down to less than 30.

The problem of mortality in Sri Lanka is still in the first year. It can be further stated that most of this mortality is under three months. Still further, it is neonatal mortality (under one month) that contributes the major part of this mortality.

The early reduction in infant mortality was partly linked to the conquest of malaria. Malaria has raised its ugly head again but fortunately although morbidity is high, mortality is low. This has to be attributed to the combination of good communication, the confidence of the people in western medicine, the present quest for early treatment in hospitals and the success of modern therapy and relatively low drug resistance.

Improvements in socio-economic trends and social organisation that followed independance must be the cornerstone in this march to child survival. Certainly free education has led to the liberalisation of education for women, changing their life style and aspirations. These factors have led to the acceptance of family planning and also the free health package that Sri Lankans have enjoyed, indeed even before the Alma Ata cry for primary health care.

There are differentials in the Infant Mortality Rate in different districts which could be correlated with the status of nutrition. The higher IMR rates are in the Nuwara Eliya and Kandy districts where there is the highest prevalence of acute malnutrition. Colombo records a fairly high IMR in spite of its best health facilities. But on the one hand, it includes a slum population with poor housing and sanitation. On the other hand, the Children's Hospital is the referral centre for almost the whole island and mortality is recorded where it occurs and not in relevance to the actual residence of the deceased. Thus, just as Colombo has a high mortality, the lowest in Trincomalee is not necessarily relevant to the actual health, social or economic resources in that area. There could be a slight under reporting of infant deaths in remote rural areas.

Neonatal mortality accounts for more than 60% of the Infant mortality. It is heartening to note that neonatal mortality due to tetanus was halved in one year with immunisation of mothers against tetanus in pregnancy. However perinatal mortality rate PMR (which is defined as the still birth mortality from the 28th week of gestation and through the first week of life) presupposes a level of medical technology that is presently not readily available in Sri Lanka.

For the island as a whole, under reporting of still births could certainly be widespread.

**Low Birth Weight**

It has been proposed by Petros-Barvazien and Behar 'that birth weight distribution makes a good yardstick of socio-economic development especially since it is an accurate reflection of the environmental factors that contribute to overall low birth weight (LBW) rates.'

The period of most rapid growth and development of the human life span is the intra uterine period. The foetus is not completely protected from harmful influences such as nutritional deficiencies and infections. The use of birth weight as an important health and development indicator is therefore justified.

A low birth weight baby is defined as one that weighs 2500grams or

less at birth. It may be due to the birth of a baby before 37 weeks of gestation when it is called preterm, or to intra uterine growth retardation when it is called small for dates (SFD) or Light for Gestational Age (LGA).

Sample surveys done in Colombo by the University Paediatric Unit over two decades and presently at sentinel sites in Sri Lanka by the Family Health Bureau suggest that Low Birth Weight is a public health problem. The University data relates to the distinction between preterm babies and SFD babies. There is also evidence from many developing countries that low birth weight influences neonatal mortality, contributes to high rates of morbidity and mortality in the first few years of life. It also adversely affects the potential of human development.

In Sri Lanka, from 21 — 30% of births are less than 2500 grms. Over 80% of these are Small for Dates and these reflect the adverse environmental influences viz. the health of the mother.

Our data on maternal age and parity highlight these as important variables. Mothers under twenty and over 35 tend to have small babies. Parity enchances growth up to para 3, after which the maternal resources are no longer adequate to provide a favourable environment.

There is a positive association between maternal stature and weight and the weight of babies. It appears that stunted growth is principally due to poor maternal nutrition while with further decrease in birth weight, other pathological features like maternal toxaemia and congenital abnormalities assume more prominence in aetiology, either as

direct or contributory causes.

Identifying mothers at risk of producing low birth weight babies must be done on previous performance, parity (more than 3), presence of blood pressure and poor nutritional status of mother. Our study indicates that for well grown babies, the modal maternal weight is around 46 — 49 kilos.

Despite genetic variability the causes of low birth weight are embedded in the environment. There is association between low birth weight and crude indicators of socio-economic development such as per capita income, per capita energy consumption, percent urban newspaper circulation per 1000 population, radio and TV per 1000 population, population per physician and so on.

The existing socio economic factors during mother's preconceptional period and even during her childhood and girlhood may have an important effect on the birth weight of her babies. At least two generations would be required to eliminate this problem of low birth weight.

Serial studies in the unit do not reveal any changes in the distribution of low birth weight nor a change of the average birth weight in Sri Lanka.

It behoves health administrators to look into this problem of poor nutritional status of women and its reflection on future generations of children.

**Postnatal Mortality Due to Diarrhoea**

The most important cause of death in the older infant is gastroenteritis.

To quote the Registrar General's figures, 45% of deaths due to gastroenteritis occur in the 0 - 5 year old age group. Of these 46% occur in infancy and 54% in school children.

Studies in the University unit in Colombo, reveal that 50% of admissions for diarrhoea occur under one year. Although respiratory diseases top the admissions to this unit and gastroenterities comes second, the highest number of deaths in the unit are due to gastroenteritis.

What is also important is that only 10% of these were being breastfed at that time. Even those, were receiving water and fruit drinks in an unsatisfactory feeding bottle. 87.5% were formula fed by 3 months. Thus inappropriate bottle feeding is begun in a family that can ill afford it.

Breast feeding often fails early in the neonatal period as there is no antenatal preparation for breast feeding. Mothers are not enthused with confidence that they will be successful in lactation. On the other hand, they often leave the maternity ward with a bottle. There is urgent need to look into maternity ward practices as an important step in promoting breast feeding.

The award of three months maternity leave is a wise step to promote breast feeding. It also make breast feeding prestigious and trendy.

In a South East Asian inter-country study of perinatal mortality and morbidity, feeding difficulties have been listed as an important determinant of this. Information and investigations suggest that breast milk protects not only against bacteria and viruses that cause gastrointestinal infections but also protects against systemic infections. Therefore breastfeeding must be safe guarded.

We observed that poor sanitation and impure watersuply in the urban sector have been conducive to the occurence of diarrhoea among formula fed babies, whereas in the rural sector this problem of poor environmental sanitation is not so acute.

In Sri Lanka, children grow well up to about 4 months on breast milk alone. They need to have complementary feeding from that time. We have proposed different recipes both at home level and at commercial level from locally made foods. These are cereal and legume mixtures, and therefore rice-based with soya or green gram or cowpea. A green leaf or carrot or golden pumpkin added to this would provide the Vitamin A requirement.

Person to person education has popularised this and more mothers accept it now and do not wait until late infancy for the rice-eating ceremony as they did before. This message therefore is important and must be dispersed throughout the country to prevent faltering of growth in infancy.

The growth chart must be available at every clinic so that health workers can detect the earliest altering of growth to give advice regarding this type of feeding.

The age distribution of malnutrition is as folows:

**Prevalence of Malnutrition in Sri Lanka**

| Age in months | Acute | Chronic |
|---|---|---|
| 6 - 11 | 5 | 11.8 |
| 12 - 23 | 10.8 | 24.8 |
| 24 - 35 | 6.9 | 33.1 |
| 36 - 47 | 4.8 | 40.8 |
| 48 - 59 | 5 | 41.9 |
| 60 - 71 | 6.2 | 46.2 |
| Average Sri Lanka | 6.6 | 34.7 |

Although international workers could not justify this prevalence of

malnutrition with falling rates of infant mortality, it appears that the network of health services do support the malnourished. Hence IMR in Sri Lanka is not an indicator of the nutritional status of the community. Still the unconsciousable prevalence of malnutrition needs attention. The supplementary feeding programme has not been well targetted. There are several leakages and logistic constraints in its distribution that over two decades it has failed to be an effective nutrition intervention. It has to be revamped.

The greatest impact seems to have been in relation to the immunisable disorders. It is like a fairy tale for those of us who have battled for years (since the fifties) against poliomyelitis, diphtheria, tetanus, whooping cough, tuberculosis and measles. The decline of these diseases since national immunisation in our life time, with its further acceleration through the expanded programme of immunisation is a tribute not only to national workers in health services and training. The multilateral agencies such as WHO UNICEF with their dynamic leaders have played a great role in reducing death and crippling disease in the whole world.

Measles had been identified by us as one of the important infections in precipitating malnutrition. Our cry for immunisation against this disease has now prevented acute malnutrition. In fact kwashiorkor is seldom seen. But chronic undernutrition or marasmus has functional effects on growing children causing stunting and apathy reducing their physical and mental potential.

Follow up of growth curves among preschool children shows the number of acute respiratory infections that cause failure to thrive. Sleeping in a huddle in poor illventilated rooms is the background to recurrent respiratory disease. Not only the infection but also poor feeding practices during illness cause weight loss. Here again a health message of motivating children to sleep alone in corners rather than rebreathe each others' contaminated air is important. It is obvious that acute respiratory disease is the commonest infection among children (vide table) and most of this could be thus prevented until better housing is available, before the year 2000.

Diarrhoea is the other problem that assails the child when foods other than breastmilk are added to the diet. One cannot under estimate the value of the scientific formula of the century in fighting deaths due to gastroenteritis. Jeevani has been popularised for dehydration and should reduce the need for intravenous therapy. Yet, traditional recipes of home-based solutions have a great role as they are already accepted by the people. King coconut water, lime juice and rice cunjees prevent dehydration.

One must highlight the need for pure water and sanitation. There are still too many families sharing one toilet and a way-side tap or well. Shigella epidemics with the attending toxaemia cause fatality and diarrhoea still remains at the top of the list of mortality in childhood.

Personal hygiene in food handling is another message that must pervade the whole community in our fight against killing diarrhoea.

The impact of new drugs in the control of worm infestations is reflected in the low admissions for complications due to worm infections. The old drugs had many side effects which we saw in the fifties– both uncontrolled migration and

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obstruction, requiring even surgical intervention.

Whipworm infections which were chronic causing chronic diarrhoeas, prolapse of the rectum and malnutrition were problems in the past. The new durgs are effective. Thus the worm burden is less. But the prevalence in the community is still high. It reflects the lack of sanitary facilities as well as the poor health education on this topic of worms.

The pattern of disease as seen over three decades in the children's hospital is a reflection of the host of preventable disease in childhood.

**PATTERN OF DISEASES**

| | 1950 | 1967 | 1972 | 1978 |
|---|---|---|---|---|
| Respiratory diseases | 613 | 1252 | 1684 | 2388 |
| Gastrointestinal disorders | 510 | 600 | 765 | 647 |
| Intestinal Parasites | 1332 | 434 | 529 | 273 |
| Nutritional disorders | 683 | 217 | 165 | 147 |
| Nervous disorders | 159 | 399 | 336 | 325 |
| Total admissions | 2168 | 374 | 4002 | 4219 |

1950 — C. C. de Silva, O. C. Raffel & Priyani Soysa
1967 — S. Nallainathan and Priyani Soysa
1972 — N Wamasuriya and Priyani Soysa
1978 — Marguerite Uphoff

This table as well as declining IMR demonstrate the effectiveness of the curative services. It appears that the correct health messages have not yet reached the people, preventing many diseases.

The basic problems are those of poverty, lack of resources such as good housing, access to food, water and sanitary facilities. Until these are universally available in this land of ours, attention to deeper problems of childhood, inherited and malignant, will be second in priority. Children themselves cannot mobilise the funds for priorities for child care so that they can face the challenges of tomorrow unmaimed, unhampered by physical, mental and social handicaps but with their fullpotential for adulthood. Now we speak on behalf of those in the world of tomorrow. ■