

EDITORIAL

First 1000 Days Fixed Deposit –Towards Healthy Life*Pramila Menon**Department of Genetics, Immunology, Biochemistry & Nutrition, Maharashtra University of Health Sciences, Regional Centre, Pune-411027(Maharashtra) India*

We are at the end of year 2015, last year of Millennium Development Goals (MDGs); we must look back and reflect. Are we on the right track? To plan post 2015 agenda it is necessary to brainstorm and review the progress in respect to maternal and child health nutrition. The 1993 National Nutrition Policy of the Ministry of Women and Child Development, Government of India has brought out some major nutrition issues like undernutrition, deficiencies of iron, iodine, and vitamin A, prevalence of low birth weight, urbanization, and nutrition problems related to natural calamities and disasters. These issues do affect infant and young child feeding practices.

Undernutrition is still a leading cause of death of young children in the developing world including India. Even if the deaths are prevented, the consequences of undernutrition are particularly severe and often irreversible among surviving malnourished children. Apart from being life threatening, undernutrition can weaken the child's immune system and make him susceptible to common communicable diseases like pneumonia, diarrhoea and malaria. It can result in lifelong cognitive and physical deficits and chronic health problems.

Undernutrition starts during intrauterine period. Inadequate availability of nutrients, energy, proteins, fatty acids and micronutrients during gestation and infancy affects the structural and functional development of brain impairing neuro-developmental processes. Nutrients are

required for creation of new neurons, growth of axons and dendrites, formation of synapses and covering of axons with myelin for acceleration of speed of nerve impulses travelling from one cell to another. Good nutrition during pregnancy and early childhood is important for brain functioning throughout childhood and adulthood [1]. Foetal malnutrition results in stunting lower cognitive performance and future risk of metabolic syndrome, diabetes and hypertension in adult life. This is attributable to the foetal programming [2]. Nutritional status of mother has profound effect on the birth weight of the baby. Her adequate weight gain during pregnancy is known to be associated with higher weight gain by the baby. If mother prepares herself by taking good balanced nutrition in pre-pregnancy period she can deliver healthy baby. Pregnant mothers should take one extra meal a day to get extra calories. She should eat all different types of fruits, vegetables, milk, dairy products, and eggs to get adequate proteins and vitamins. Adequate sleep and nutrition is important for her baby. She should gain 8-10 kg weight during pregnancy. A woman's nutritional status during pregnancy especially low BMI and anaemia have negative impact on fetal growth and development. Maternal undernutrition leads to intrauterine growth restriction (IUGR) of the baby, and pre-term delivery. In low-income populations, several key nutrients are lacking in the diet due dominant staple foods which have low nutrient density and poor mineral bioavailability.

After birth, a child's ability for growth depends on Infant and Young Child Feeding (IYCF) practices for their care and food security as well as exposure to disease [3]. Exclusive breastfeeding up to six months of age and breastfeeding up to 12 months, with complementary feeding starting at six months are important interventions to prevent about one-fifth of under-five mortality in developing countries. The 2008 Lancet Nutrition Series also stressed on the significance of optimal IYCF for child survival. Globally, breastfeeding and complementary feeding or IYCF, have been among the highest priority interventions which can impact on reducing child mortality as per Lancet series 2003, 2008, 2013[4-6]. The State of Maharashtra has made a significant progress in institutional deliveries which are more than 90%, but breastfeeding is only 71% as per DLHS-4-2014 [7].

Breastfeeding initiated within the first hour of birth and exclusive breastfeeding for six months lower morbidity from gastrointestinal and allergic diseases, which in turn can prevent growth faltering due to such illnesses. After six months of age, to meet all of the child's nutritional requirements, breast milk needs to be complemented by other foods [8, 9]. Evidence supports that intelligence is better among those subjects who have been breastfed as infants [10].

First 1000 days is the period during pregnancy (270 days) and a child's first two years of life (730 days) which are considered a "**critical window of opportunity**" for prevention of growth faltering. Recent anthropometric data from low-income countries confirms that the levels of under-nutrition increase markedly from 3 to 18-24 months of age [11]. Right nutrition during this 1000 days window can have profound beneficial

effects on the health of the baby. Meeting needs of nutrient during the first 1000 days is very much crucial to reduce stunting.

Considerable stunting occurs due to prenatal and postnatal malnutrition. It is observed that increase in mother's Body Mass Index (BMI) is associated with a significant decrease in child mortality, underweight, stunting, wasting and anemia [12]. Poor dietary intake in adolescent girl makes her malnourished mother who delivers Low Birth Weight (LBW) female baby who in turn delivers another LBW baby and this cycle continues. To break this intergenerational cycle we must have life cycle approach. To stop stunting, following interventions across Life Cycle will work. The first window of opportunity after birth is IYCF. By improving breast feeding and complementary feeding practices we can achieve good height at 2 years which can indirectly increase adult height and growth potential. During adolescence there is a second growth spurt where we must focus on optimum height gain. All newly-weds before entering pregnancy should be well informed about the right age of conception, nutrition and all pregnancy should be planned. Monitoring of weight gain during pregnancy is very important for good birth outcome.

This new evidence in management of malnutrition and stunting is going to transform the policy on IYCF. We must change the attitude of health professionals and individual mothers to achieve good results in breastfeeding practices. It is important to integrate IYCF module with Facility-based Severe Acute Malnutrition (FSAM) and Community Based Management of Acute Malnutrition (CMAM) to control malnutrition.

If we invest in first 1000 days of a baby, the baby will become a healthy individual who will contribute to the society and nation which will in turn help in the progress of GDP of India. Better understanding of Type II nutrients as well as, pre- and post-natal stunting is needed. The dissemination of this knowledge is required to change the mindset of policy makers. Because a considerable proportion of stunting occurs before birth, we should give importance to both pregnancy and the postnatal period i.e. first 1000 days. We should try to reach the mothers in the critical hour after the delivery to help them initiate breast feeding because breast feeding within first hour of birth has the potential to reduce 20% of the total 2.8 million new born deaths. The best way to help mothers is to try breast crawl i.e. keep baby on mother's chest between her breasts immediately after birth which helps the baby to crawl towards breast and start breast feeding immediately even before placenta comes out. Baby is very active in this stage and starts sucking at the breast quickly. This also helps the uterus to contract so that placenta comes out and chances of bleeding after delivery are reduced. To improve breast feeding practices we need to change the attitude of not only mothers but also health professionals. It is sad that India needs to be taught about breast feeding which has been its tradition. We should try to identify and remove one by one the major barriers of early and exclusive breast feeding as experienced by mothers through counselling. Sometimes the new mothers want to breast feed but the external environment doesn't allow them, so they should be helped and encouraged to bring the necessary change to enable the mothers to fulfil their aspirations.

After delivery the baby must be given exclusive

breast feeding i.e. only breast feeding for first six months and not even water. If baby is gaining 300-500g per month, baby is sleeping well and passing urine 6-7 times a day that means baby is healthy. After six months mother can start soft homemade food like kheer, idlies, dal rice, banana, chikoo etc for baby which should be prepared in clean pot and served with clean hands. Mothers should start complementary food with a small quantity and one type of food per day. Baby should be fed in happy atmosphere with good interaction so that feeding becomes enjoyable. Breast feeding can be continued till two years along with homemade complementary food. After one year baby should start eating what family eats. Babies should be fed even when they are sick. They require more energy when they are ill. Nutrition of mothers plays an important role to eradicate malnutrition of small children.

Global Alliance for Improved Nutrition (GAIN) is an international organization launched at the United Nations (UN) in 2002 to tackle the human suffering caused by malnutrition. Its vision is "World without Malnutrition". GAIN acts as catalyst to build alliances between Governments, business and civil societies to find and deliver solutions to the complex problem of malnutrition. The World Food Programme and Govt of India with support from GAIN have set up a model for producing supplementary food.

A state policy on IYCF is an important prerequisite to successful strategic planning and implementation. Successful IYCF interventions through political commitment and effective communication can bring about behavioural and social change. A comprehensive policy will ensure optimal attention to an action on infant and young child nutrition at various levels.

Improvement in child feeding practices (breastfeeding, complementary feeding, feeding during illness and hygiene) and ensuring household food security, together with disease prevention and control programmes could be considered as the most effective interventions that can significantly reduce stunting and acute malnutrition during the first two years of life.

Let us step forward and understand the importance of **FIRST 1000 days**. Although *ending hunger in the world is difficult, because it is a lengthy process and cannot be done single handed, it is worth remembering a famous quote:*

“A journey of thousand miles starts with a single step”

The Way of Lao-tzu-Chinese Philosopher.

References

- Rosales FJ, Reznick JS, Zeisel SH. Understanding the role of nutrition in the brain and behavioral development of toddlers and preschool children: identifying and addressing methodological barriers. *Nutr Neurosci* 2009; 12(5):190-202.
- Dover GJ. The Barker hypothesis: how pediatricians will diagnose and prevent common adult-onset diseases. *Trans Am Clin Climatol Assoc* 2009; 120:199-207.
- Kramer MS, Kakuma R. The optimal duration of exclusive breastfeeding: a systematic review. *Advances in Experimental Medicine and Biology* 2004; 554:63-77.
- Jones G et al. How many child deaths can we prevent this year? (Child Survival Series). *The Lancet* 2003, Vol. 362.
- Black R et al. Maternal and child under nutrition: global and regional exposures and health consequences. (Maternal and Child Under nutrition Series 1). *The Lancet* 2008.
- Black et al. Maternal and Child Under nutrition and overweight in low-income & middle -income countries. *The Lancet* 2013;382(9890):427-51.
- DLHS-4-2014. Available from <https://nrhmis.nic.in/SitePages/DLHS-4.aspx>
- Infant and young child feeding: programming guide. UNICEF, 2012.
- WHO/UNICEF Global strategy for infant and young child feeding, 2003.
- Horta, B et al. Evidence on the long-term effects of breastfeeding: systematic review and Meta-analyses. WHO 2007.
- Victora C et al. Worldwide Timing of Growth Faltering: Revisiting Implications for Interventions. *Pediatrics* 2010; 125: e473-e480.
- Mason JB et al. Improvement in woman body mass index (BMI) reduces LBW (1980-2000s), Food and nutrition. *Bulletin* 2012; 33 (Suppl 2).

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