

## PERSPECTIVE

**Management of SAM Children in India: Current Strategies**

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**ABSTRACT**

Management of children with Severe Acute Malnutrition (SAM) is being given a high priority in India. This intervention is being implemented for bringing reduction in under five mortality. Children with SAM are 9 times higher risk of mortality as compared to optimally nourished children. There are two strategies for management of Children with SAM namely i) Facility based and ii) Community Based. More than 90% of children can be treated through community based management. The progress of facility based management has been satisfactory in India. However, the programme of community based intervention is slow due to lack of scientific data on impact of indigenous RUTF available in the country. The scientific evidence is being generated through sponsored research studies so that evidence based management of SAM children can be developed.

**KEY WORDS**

Severe Acute Malnutrition (SAM)

**INTRODUCTION**

Malnutrition occurs when the quantity of one or more macronutrients available to body tissues is inadequate to sustain optimal bodily functions (1), and this is usually accompanied by numerous micronutrient deficiencies. Malnutrition is a broad concept that includes a variety of clinical conditions such as kwashiorkor, marasmus, marasmic kwashiorkor, wasting or stunting, and micronutrient deficiencies. For the purpose of this communication, the term malnutrition only refers to under-nutrition. Macronutrient malnutrition is the focus of this review, so it includes all of the above conditions, which could also be accompanied by different degrees of micronutrient deficiencies.

Malnutrition commonly affects infants and young children, pregnant and lactating women, and elderly people. More than 77 million children are born every year in the 36 countries with the highest burden of

malnutrition (21 of these countries are in Africa, 13 in Asia and two in Latin America) (2). Short-term consequences of malnutrition include mortality and morbidity, for example, pneumonia, diarrhoea, fatigue and impaired thermos-regulation. In the long term, malnutrition in children may affect adult size, intellectual ability, economic productivity and reproductive performance, and increase the risk of metabolic disorders and cardiovascular disease (3). Severe malnutrition - often referred to as severe acute malnutrition (SAM) - is defined as a WHZ of more than three SDs below the mean, or a mid-upper arm circumference (MUAC) of less than 115 mm, or the presence of nutritional oedema. MAM or SAM without bilateral pitting oedema is termed marasmus. In the presence of bilateral pitting oedema, the term kwashiorkor is used (1,4).

**1.1 SAM SITUATION IN INDIA**

Globally, 26 million children under 5 years suffer from severe acute malnutrition (SAM) and of these over 8.1 million children are in India. The children suffering from SAM have low weight-for-height. They are too thin and indicate occurrence of acute under nutrition in them. The SAM amongst children is associated with a failure to receive adequate nutrition in recent past or due to seasonal variations in food supply or due to recent episodes of illness (5). According to National Family Health Survey-III, conducted during 2005-2006 in India, 6.8% of children below 60 months of age, were suffering from SAM (acute variety of severe under-nutrition i.e. weight-for-height less than  $-3SD$ ). With the current estimated total population of India as 1100 million, it is expected that there would be about 132 million "under five children" (about 12% of the total population in the country). Of these 132 million children, it is expected that 6.8% i.e. 8.97 million children, will be suffering from SAM (6). Severe acute malnutrition (SAM) is recognized as a major killer of children under five years of age. Mortality rates in SAM children are nine times higher than those in well-nourished children. Severe acute malnutrition kills children directly by significantly increasing the case fatality rate in those suffering from common childhood illnesses such as diarrhea and pneumonia. WHO and UNICEF recommend the following two major approaches to the treatment of SAM (also referred to as the integrated management of SAM) (i) Hospital-based approach for clinical management using the WHO protocol and (ii) Home based approach, an integrated public health response to acute malnutrition without medical complications, with the use of ready-to-use therapeutic food or medical nutrition therapy (5).

## **2. NATIONAL INITIATIVE FOR MANAGEMENT (MM) OF CHILDREN WITH SAM**

### **2.1 FACILITY BASED MM OF CHILDREN WITH SAM**

Presently in India, the caring of children with SAM is undertaken in the Nutrition Rehabilitation Centres (NRCs); but these NRCs are very few in number and hence majority of SAM children never get admitted and receive any kind of treatment. Of children admitted to the NRCs, majority of SAM children without medical complications. In India, the means to do better and to reach out to larger numbers of

SAM children exists. Therefore, at the national level, efforts are underway to identify the measures that need to be taken to ensure timely and quality care for children with SAM. The national guidelines for Identification and MM of Children with Severe Under Nutrition and their MM at the facility are being implemented in the country. These were adapted from WHO/ UNICEF Guidelines for MM of SAM children.

The Facility based care is being implemented through a network of 262 NRCs. The admission criteria is W/H less than  $-3Z$  score or MUAC  $<115\text{mm}$ , or oedema. The appetite test for all children is undertaken. The children are admitted for 14-21 days. They are given locally made F-75 and F-100. The children are discharged after regaining good appetite and body weight. After the discharge, registration of child to ICDS scheme is undertaken and follow up of Children is done through home visit

### **2.2 COMMUNITY BASED MM OF CHILDREN WITH SAM**

CMAM has many advantages as the children are reduced to exposure to hospital acquired infections and receives continuity of care after discharge. It also benefits families by increasing the time available to mothers to spend with family and reduces the risk of possible neglect of siblings. Also, the mothers are able to look after other family responsibilities simultaneously. Treating children with SAM in hospitals is not always desirable or practical in rural settings, and home treatment may be better. Home treatment can be food prepared by the carer, such as flour porridge, or commercially manufactured food such as ready-to-use therapeutic food (RUTF). Home based management of SAM children through medical nutrition therapy has many more advantages since children have reduced exposure to hospital-acquired infections and receive continuity of care after discharge. It also benefits by increasing the time available to mothers to spend with family and reduces the risk of possible neglect of siblings. Additionally, mothers are able to look after other family responsibilities simultaneously and can receive training on better feeding and care practices in their own settings (6).

All SAM children do not require hospital admission except those suffering from complications. Home-Based Management (HBM) with Ready-to-Use

Therapeutic Food (RUTF) has been found to be associated with better outcomes than standard therapy in hospital (5). With the emergence of home based management approach for SAM children, today there is improved capacity to cost-effectively address the problem of SAM in developing countries, including India. It has been observed that between 60 and 90% of SAM cases, identified through active case finding in community are without medical complications, and there is adequate evidence that such SAM children can be successfully managed at the home level. Experiences show that with an integrated management of SAM, case fatality rates can be reduced to less than 5 percent (5).

The draft National Guidelines for Community Based MM of SAM have been Developed in April 2012 which have strong component of management of SAM children within the frame work of Public Health Interventions which are currently being implemented in the country.

#### **4. MAJOR CONCERNS IN INDIA ON USE OF COMMERCIAL RUTF IN MM OF CHILDREN WITH SAM**

Presently, in India we do not have a RUTF which meets the requisite criteria like it should be i) caloric dense , high in proteins, vitamins and minerals ii) Simple to deliver , to administer, and easy to use iv) Fast acting, v) affordable and acceptable cost, vi) Should not require for trained staff to administer ( parents can deliver it to a child ) vi) Culturally acceptable , vii) Packed in single-serve packets (each packet may contain fixed amount of calories 400-500 calories) viii) Requires little preparation before use ix) , Adequate shelf life and stability x) Can be stored in varied climatic conditions and temperature and xi ) resistance to bacterial contamination.. We need to conduct the efficacy and effectiveness of local by using standard protocol to find it's suitability for HBM management of SAM children (6).

RUTF is not an accepted Strategy of the Government of India neither under RCH nor Under ICDS programme per the Government of India. Evidence on Impact of Indigenously Developed Nutritional Therapies is lacking and hence this evidence is being generated by undertaking Trials to Compare Different Indigenous Nutritional Interventions in the community for Management of SAM Children (8).

#### **5. THE ISSUE USE OF COMMERCIAL VS LOCAL RUTF (INDIGENOUS RUTF)**

A comparison of weight gains with different foods shows that locally made LRUTF or even feeding from the modified family pot has similar or sometimes even better weight gains. Foods developed by several state / voluntary organizations undertaking management of Malnutrition in Children in the Community has documented that locally made LRUTF or even feeding from the modified family pot has similar or sometimes even better weight Gains (9-15). These findings need further Testing and Evaluation, for their efficacy, before they can be introduced as a Indigenous RUTF in the national guidelines

#### **6. CHALLENGES/LESSONS FOR OTHER DEVELOPING COUNTRIES**

Government of India was in dispute with UNICEF over its use of RUTF in India (7). Apparently without authority from the national government in New Delhi, UNICEF imported a large quantity of RUTF for use in two Indian states that apparently requested it. The national government stated that these imports were un-authorized. As a result, UNICEF moved their supplies of RUTF to other countries. In the press, there was criticism of India 'for letting children die who could have benefited from this imported RUTF'. However, for decades good Indian hospitals have successfully treated severe acute malnutrition with local foods, comparable to the sugar, casein, oil and milk which have been commonly used in Africa. Also, India has the foods and scientific expertise to make its own good complementary foods, whether commercial or made in the community or at home (16).

#### **THE WAY FORWARD**

Presently in India, there is no energy dense food available which can be given to SAM Children for CMAM. What Indian children should eat – products produced indigenously, or from corporate driven bodies from abroad. Large, global and national food corporations that see children's hunger and malnourishment as a source of profits may try to influence government policy towards providing their products based on imported technology. Children's hunger can be converted into corporate profits in many ways. What is needed is to evaluate local RUTF

for by carefully planned and conducted multi-centric efficacy and effectiveness trials. If the results are positive, these must be utilized in MM of children with SAM. A recently published Cochrane review concludes that “the current evidence is limited; either RUTF or standard diet such as flour porridge can be used to treat severely malnourished children at home. Decisions should be based on availability, cost and practicality” (4). It would therefore be prudent to adhere to the Government of India’s stated position in the parliament of not utilizing commercial RUTF for community treatment of severe malnutrition.

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