



# Severe Acute Malnutrition (SAM) in Children of India

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**Abstract:** India has the maximum number of the malnourished children in the world. Among 1 in 3 are malnourished in India according to the 2011 census. These children if not treated properly develop various disabilities. According to a survey 36 percent children under the age of 5 years are underweight. The Government has setup Aanganwadis which leaving other activities also perform the check-up of these types of children and refer them to Nutritional Rehabilitation Centres for proper nourishment and Treatment. Regardless of these many schemes there is a problem of low bed occupancy in NRCs which require a proper online referral management system.

**Keywords:** Malnourished Children, Aanganwadis, NRCs, Underweight.

## 1. INTRODUCTION

Malnutrition results from a poor diet or inability to soak up nutrient. Malnutrition may be a condition which may be simply known in kid but five years older by distinguishing some standards like Middle upper Arm Circumference (MUAC), Weight, oedema and Height. Oedema may be a condition characterized by Associate in nursing more than watery fluid collection within the cavities or tissues of the body. Diseases like Anemia and malnutrition conjointly contribute to malnutrition. Signs of malnutrition in kids embrace lack of appetite, fatigue and irritability, inability to concentrate, continuously feeling cold, loss of fat and body tissue and better risk of obtaining sick pretty simply and taking longer than expected to heal.

Severe Acute malnutrition (SAM) is outlined by terribly low weight for height (Z-score below -3 Mount Rushmore State of the median United Nations agency kid growth standards), or a mid-upper arm circumference <115 mm/<11.5cm, or by the presence of two-footed nutritionary O.

### Work in Aanganwadis

The Aanganwadi programme was launched under ICDS. The Integrated child Development Services (ICDS) was launched on 2 Oct, 1975 with 33 projects all over the country. Within the state of Old Delhi, initial ICDS project was launched in Jama Masjid, a milestone project. The Govt. of India has

sanctioned 95 projects for the territory of Old Delhi since 1975-76 with 11150 Anganwadi Centres.

Objectives of this scheme are as under:-

- To refine and upgrade the nutrition and health status of children within the age range of 0-6 years.
- To lay the basis for social, physical and psychological development of the children.
- It lessens the cases of carnage, lethality, withdrawing the school and diseases which leads to deficiency.
- To obtain productive coordination and implementations among the departments to encourage development of child.
- To enrich the knowledge of mother to visit once the health center and fulfill the nutritional demand of the children through appropriate nutrition and care.

The Aanganwadicentre typically provides basic medical facilities in the communities of India. These basic activities include advising regarding contraceptive and reserve of education about nutrition and supplementation we can give. They also motivate families for family planning, educating parents related to their child growth and development. They also perform quick surveys of all families and conduct preschool activities and education.

Anganwadi workers need to take care of the kids below 5 years at anganwadi, prepares alimantal food for the kids in step with the menu given to them. Apart from this in the anganwadi health check also being done for the kids by the Doctor's from the respective Primary Health Centres (PHCs). Once in an exceedingly month the anganwadi employee needs to take the kids for the health check up.

Based on the regular checkups of the child these aanganwadi workers refer the child to the Nutrition Rehabilitation Centres on the basis of the condition of the child. This checkup involves checking up of the Oedema, height, weight and MUAC (Middle Upper Arm Circumference) of the child.

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These Aaganwadi workers take the help of the PHCs when needed to detect malnutrition and other factors in the villages. They also go to homes in villages to take checkup of kids and create awareness about this and other health precautions in the parents and family.

### **Nutrition RehabilitationCentres (NRC)**

Nutrition Rehabilitation Center (NRC) is a center which is established by joint efforts by Department of women and child development and Department of Health. It is units in wellness where children having acute malnutrition are admitted and diagnosed .Children are given entry according to the admission criteria being designed and dispensed with medical and nutritional remedial care .Once they are dispensed from the NRC we have to make sure kids to be on the same nutritional programme until or unless he/she accomplishes the discharge criteria being outlined for the program.



Not only restorative care, special attention is given specially on timely, appropriateand tolerable feeding for kids and also enhancing the knowledge of mothers and custodian for complete age caring being accepted by them and practice for feeding. Not only are these attempts made to build their competence through encouraging them so that they are able to identify the health and nutrition issues in their children.

The Referred children from the NRC are brought here and they are admitted and given proper care and nutrition in the presence of the mother. The recommended admission period varies from 2 to 6 weeks. The child is then discharged after he/she is fit in terms of the standards set by the government.

### **I. What is SAM?**

If there would be a severe malnutrition it leads to disastrous epidemic. Worldwide, some fifty-five million kids below the age of 5 suffer from severe malnutrition, and nineteenmillions of those suffer from the foremost serious kind-severe acute

malnutrition. Every year 3.1 million kids die of malnutrition which is really a big figure.



### **Objectives of SAM a facility-based management**

- To provide wellness program and to decrease the rate of transience among the children having severe and acute malnutrition specially those bearing medical complications.
- To rise substantial and cognitive growth among children with severe acute malnutrition (SAM).
- To boost the potential of feeding mothers and substitute care takers for providing relevant caring and feeding exercises for infants and children which are in growing stage.
- To ascertain the communal reasons that leads to the children falling under severe acute malnutrition.

### **Services provided at thefacility**

- Observing children and giving them 24 hour care.
- Remedial measures given for medical problems.
- Giving corrective feeding.
- Delivering audio visual incentive and teaching psychic care andnurturing.
- Evaluating socially the family to discover and inscribing the contributingfactors.
- Guiding and directing on appropriate feeding, care and wellbeing.
- Finding out and investigating the children discharged from the centre.
- Manifestation and exercising by performing on the preparation of energy thick child foods using restrictedly available, ethically acceptable and inexpensive and modest fooditems.

## 2. PROBLEMS FACED BY NRCS

The main issue faced by these centers include the lower bed occupancy rate which is just over 50 percent. This is also due to the poor referral management system which will be solved by this mobile application. This problem also exist due to the fact that many Aanganwadis tend to skip the fact that MUAC and other standards need to be followed strictly to identify the SAM children. These complications even exist at the Community health centers also known as CHC.



After the discharge of a particular child there is a standard set by the government that about 4 follow-ups are necessary to be done to check after care of the child at his/her home. The

follow-ups are to be scheduled in about a difference of approximately 15 days, due to poor follow-ups system NRC centers are unable to manage this follow-up system properly. Moreover, even if a child is not given nutrition properly at home and his/her follow-ups are not done, then the proper measures taken to treat him/her are in vain as the child may fall ill again.

Due to the poor offline system, these centers or any authorized Govt. body is not even to able to track past records properly as there is no system that keeps the past records properly.



### • Admission & DischargeCriteria

<i>For the children's below 6 months of age</i>	
<ul style="list-style-type: none"> <li>• <b>Criteria for Admission</b></li> <li>• Breastfeeding Problem: the infant is too weak to suck</li> <li>• The mother has not enoughmilk</li> <li>• Bilateral pittingoedema</li> <li>• W/H or W/L &lt;-3 Z score (WHO-2005standards)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>DischargeCriteria</b></li> <li>• Child is gaining weight on breast milk alone, regardless of current weight orW/H%.</li> <li>• Any kind of medicalComplications absent.</li> <li>• Absence of Bilateral Oedema for at least past 10 days.</li> </ul>
<ul style="list-style-type: none"> <li>• For children &lt;6 months of age suffering from severe acute malnutrition, prominence is laid on assisting and supporting breastfeeding through counseling and redeeming of lactation in mothers having lactation failure using supplementary suckling technique (SST).</li> </ul>	
<i>Children between age 6 months upto 60 months</i>	
<ul style="list-style-type: none"> <li>• <b>Admission Criteria</b></li> <li>• W/H or W/L &lt;-3 Z score (WHO-2005standards)</li> <li>• MUAC&lt;11.5cm</li> <li>• Presence of bilateraloedema</li> </ul>	<ul style="list-style-type: none"> <li>• <b>DischargeCriteria</b></li> <li>• 15%WeightgainfromAdmissionWeightorweighton the day free ofOedema.</li> <li>• Absence of Bilateral Oedema for at least 10days.</li> <li>• MedicalComplications is not there.</li> </ul>

### • **Impacts of Malnutrition on the Grownups**

Below are listed some of the major problems that the grownups with history of Severely Acute Malnutrition may experience

- **Cachexia:** Cachexia will produce serious weight- loss, reducing of muscle mass and bones. This additionally creates the skin to return to be dry and inelastic. Cachexia will enhance the danger of stress, ulcers similarly as hipfractures.
- **Organ Failure:** Malnutrition may likewise produce swelling, anemia, jaundice, liver, urinary organ and heart disease. This may cause respiratory disease, intestinal flu similarly as urinary system infections.
- **Affects Brain Development:** Malnutrition will bring about apathy, anxiety, introversion, self- neglect and conjointly damage. This also impedes brain development in afflicted children once as compared to varied alternative children of a similar age.
- **Concerns related to reproduction:** Malnutrition will scale back fertility in an individual. If this can be present while pregnant, it may trigger diabetes mellitus, heart drawback, and inferior growth similarly as stroke in the child at a later stage of life.
- **Low Immunity:** Malnutrition can also effect of an individual to fight diseases. The person with low immunity can easily fall for prevalent diseases and is not able to heal easily. This is a major problem in individuals who have a history of malnutrition.
- **Stunting:** Stunting in youngsters is that the long results of malnutrition on children. This might stop the regular growth of children likewise as limit their elevation and conjointly weight. Stunted development is irreversible if the child is chronically starved and may prevent his regular height, weight likewise as mind development. This is very horrible outcome of a child with history of malnutrition.
- **Solution for the poor offlinesystem**

The Problems that these two units face can be fixed by using a Mobile Application that tracks every activity of the child from initiation at the Aaganawadi to referral, admission, discharge and follow-ups at the NRC.

This Mobile Application “**POSHAN**” is a one stop solution for all the needs of the two parties Aaganwadi and the Nutrition Rehabilitation Centres. Through this application we aim to ease the hectic offline task of the two parties by providing a fast-online referralsystem.

- Through this application any Aaganwadi can register itself and check for any child’s malnourishment by entering the required values. If the child is found malnourished a referral can be created. The referral requires a valid Aadhaar number of the parent which prevents spams to certain extent. Some Machine Learning algorithms can also be applied in the future to prevent spams.
- The referral created can be sent to the closest NRC which is listed in the application according to the distance measured between the particular NRC and Aaganwadi.
- The Aaganwadi can also update already created referrals which are not sent.
- The NRC can also register itself on the application. It has to provide occupied beds and vacant beds which can be updated later.
- The registration of the NRC and Aaganwadi are verified by the details and documents provided by both during registration.
- The NRC can see new referrals in their panel and admit them. The NRC can discharge the child through the application after the admission period is over and the child is healthy. The bed count of NRC is automatically updated during these actions. The admission period can also be extended through the app itself.
- After Discharge follow-ups are scheduled through the app automatically with difference of 15 days. The follow-ups which are upcoming are shown in order in the follow-up list. These follow-ups can be extended. Default follow-ups are 4.
- On follow-ups and discharge the child health data is taken for progress reports.
- Child’s data and progress can be seen in past records after discharge.
- Old Data is maintained in the database for records and statistics purposes. Past records of the same can be seen by the respective NRC in their dashboard.

### 3. CONCLUSION

Malnutrition is still a major problem in today’s society. This prevalent issue can be tackled by introducing some new schemes and awareness in the today’s era. Existing schemes can prove to be helpful if taken online like this Aaganwadi and NRC scheme. By using the new tech innovations and these type of online applications, we can make the malnourished children of today a healthy youth of tomorrow.

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