The Shameful Scourge of Severe Acute Malnutrition & its Treatment

CMAM
Association of India

About CMAM Association of India

"Community Based Management of Acute Malnutrition Association of India" is a national industry body working towards the eradication of malnutrition in all its forms especially the severe and acute malnutrition (SAM) in India. The association aims at promoting Community-based Management of Acute Malnutrition (CMAM) through nutritional and therapeutic supplements in order to eradicate acute malnutrition. To achieve these objectives, the association looks to cooperate with government bodies and institutions and other nongovernmental institutions and organizations. Four leading nutritional and therapeutic supplements manufacturers and exporters from India are the founding members of the association including Nuflower Foods & Nutrition, Soma Nutrition Labs, Hexagon Nutrition & Compact India.

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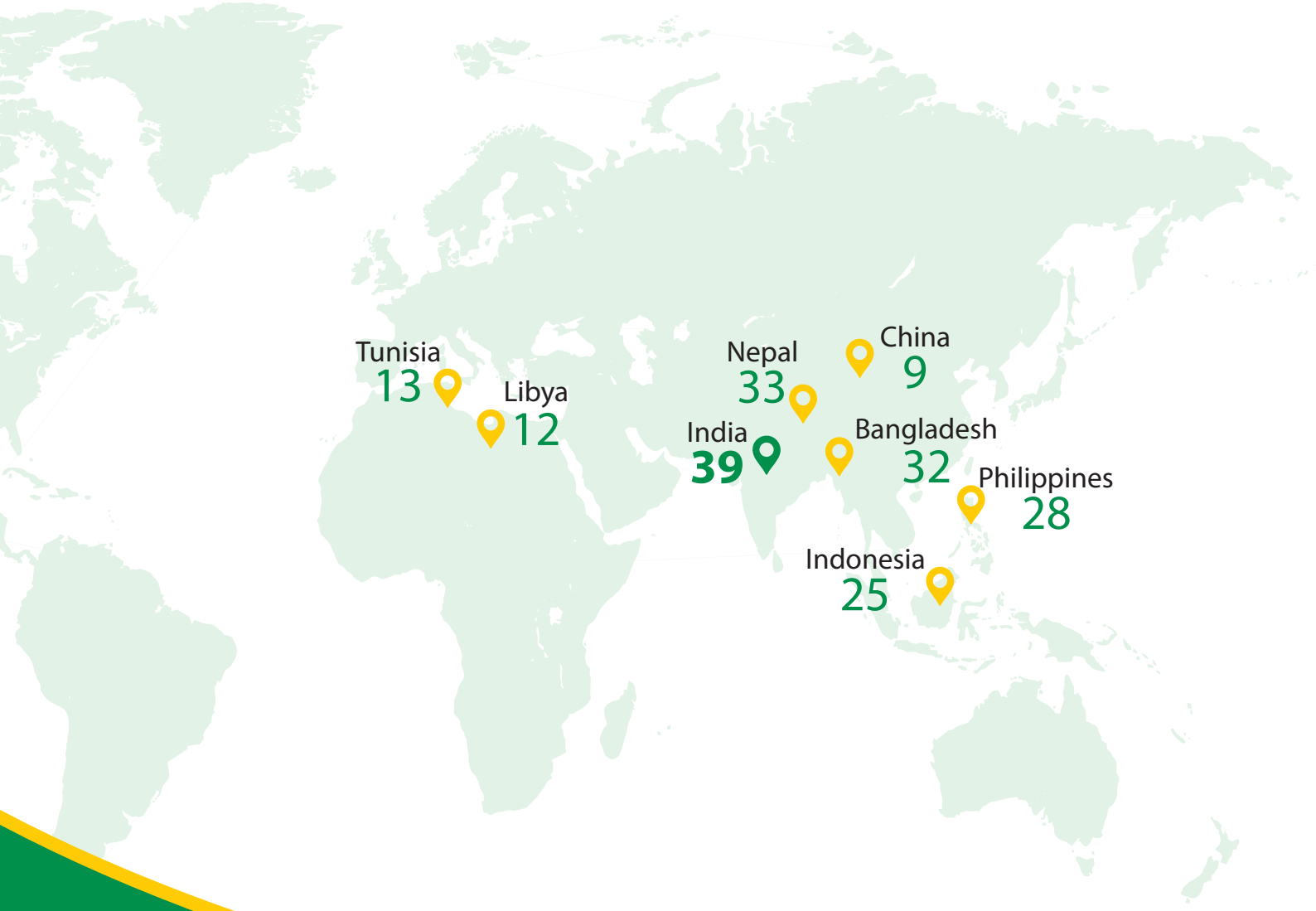
Under 5 mortality and Malnutrition

The under 5 mortality in **India** stands at 39 per 1000 live births. Countries like **China** 9 per 1000, **Libya** 12, **Tunisia** 13, **Indonesia** 25, **Philippines** 28, **Bangladesh** 32 and **Nepal** 33 have a lower under 5 mortality than India. Malnutrition is the major cause of India's under 5 mortality numbers. It was the predominant risk factor of death in children under 5 years in India in 2017, accounting for 68.2% deaths, and the leading risk factor for health loss of all ages, responsible for 17.3% of the total disability adjusted life years (DALYs).[1]



[1] https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(19)30273-1/fulltext

Impact of Covid-19 on malnutrition and child mortality

As per the Global Nutrition Report 2020, the burden on the Health System caused by the coronavirus could potentially double the levels of hunger and malnutrition within weeks.[2] India, as per the report, is not on course to meet any of the nutrition targets laid out in the World Health Assembly 2012.[3] The study by the John Hopkins Bloomberg School of Public Health with UNICEF puts the number of additional global child mortalities at 6000 per day.[4] As per UNICEF, in India alone, 3 lakh children could die as the pandemic continues to weaken health systems and disrupt routine services.[5]

Severe Acute Malnutrition (SAM)

SAM refers to the state of wasting and chronic under nutrition of child. Children who have a weight-for-height below -3 standard deviations of the WHO Child Growth Standards median are considered affected by SAM.

As per the Comprehensive National Nutrition Survey (2016-18), conducted by the UNICEF and the MoHFW, the prevalence of severe acute malnutrition among children is 4.9%, down from 7.4% as reported by NFHS-4 (2015-16). At 4.9% incidence, India has more than 60 lakh children who suffer from SAM though Indian Academy of Pediatrics puts the number close to 80 lakh.

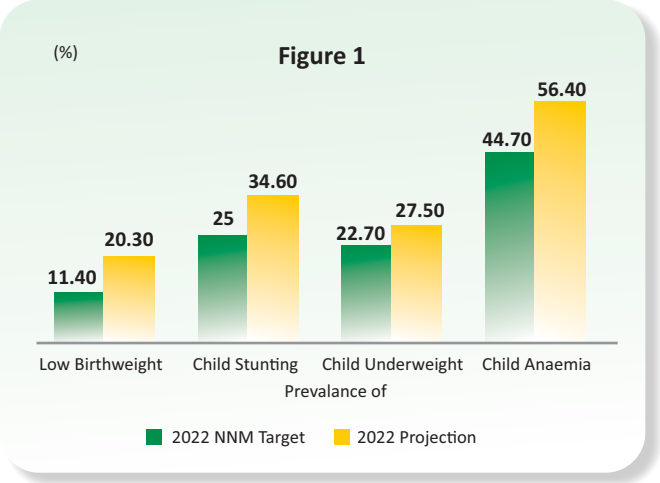
As per the WHO, communicable diseases may trigger or aggravate the incidence of SAM. Covid-19 could, potentially, increase the SAM burden in the country as these children have low immunity and thus are more vulnerable to Covid-19.

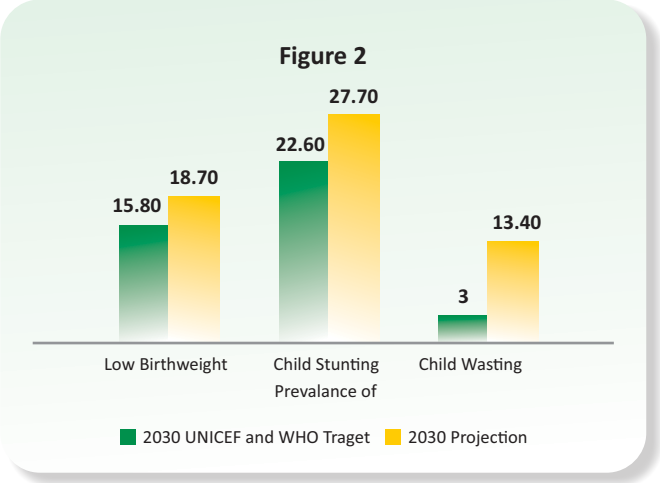
[2] https://globalnutritionreport.org/reports/2020-global-nutrition-report/2020-global-nutrition-report-context-covid-19/
[3] https://globalnutritionreport.org/resources/nutrition-profiles/asia/southern-asia/india/#profile
[4] https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30229-1/fulltext
[5] https://www.news18.com/news/buzz/over-4-lakh-children-may-die-in-south-asia-in-next-6-months-india-to-be-worst-hit-warns-unicef-2616853.html

Prevention of SAM

A holistic approach ensuring access to healthy diets, behavioral change of families, empowerment of women and removal of inequalities is required to prevent SAM and all forms of malnutrition. The POSHAN Abhiyan is a wonderful initiative focused on many of these approaches. But, as per a study funded by the MoHFW and the Bill and Melinda Gates Foundation, if POSHAN program continues at the same pace, India will not achieve its own nutrition targets of 2022 or the UNICEF and WHO targets of 2030.[6] (Figure 1 and 2)

But while these preventive measures are being executed, even at the lowest average case fatality[7] suggested of 3%, about 1.8-2.4lakh children could die due to SAM. To put that in perspective, annually, TB causes the death of about 60,000 u-15 children[8] and HIV causes the death 69,000 people (not just children).[9]





[6] https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(19)30273-1/fulltext

[7] https://www.ncbi.nlm.nih.gov/pubmed/31613883

[8] https://www.hindustantimes.com/mumbai-news/tb-killed-60-000-children-below-15-in-india-highest-in-the-world/story-3GesR3SFoqfjIFI3o1b8AL.html

[9] https://www.thehindubusinessline.com/news/over-69000-hiv-aids-related-deaths-estimated-in-india-last-year/article24954663.ece

Treatment of SAM

At present the only treatment protocol in India for SAM children is to admit the complicated cases for facility-based care. But there are only about 1200 Nutritional Rehabilitation Centers – and at around 7800 cases per center - these are not enough to treat so many sick children.

The fact of the matter is that **90% of SAM cases need not go to facility based care and can be treated in the community through community-based management (CMAM) programs** using Ready-to-use Therapeutic Food (RUTF),[10] which is the universally accepted treatment protocol recommended by UNICEF & WHO for uncomplicated SAM children.

CMAM is a treatment protocol wherein the care givers of the child are trained in proper nutritional habits, hygiene and breast feeding practices. The child is provided emergency nutritional supplement in the form of RUTF for 8-12 weeks and medicines to treat any illnesses like diarrhea and edema which are found in many SAM children.

CMAM programs using emergency RUTF have been **successful in saving lives of SAM children in various countries in Africa and Asia** and in **independent pilot projects in various Indian states like Rajasthan, Gujarat, Bihar, MP and Jharkhand.**

In Rajasthan, a recovery rate of 70.4% was recorded and mortality rate was brought down to 0.1% under the state POSHAN program using RUTF. However, the final guidelines on CMAM are still pending.

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Ready-to-Use Therapeutic Food (RUTF)

RUTF are energy-dense, micronutrient enhanced pastes which typically have peanuts (or corn or chickpea etc.), oil, sugar, milk powder, and vitamin and mineral supplements.

It is an emergency treatment intervention, like ORS, which does not interfere with the holistic efforts made towards prevention of SAM.

RUTF is preferred over augmented home food as the former is a packaged, scientific & standardized formula which has all nutritional supplements needed for SAM children, is easy to transport, store and monitor, has a longer shelf life and has a much better success rate in treating SAM. The formulation is based on the guidelines prescribed by UNICEF and WHO.[11]

Budget of CMAM

India needs a CMAM program using RUTF under the POSHAN Abhiyan albeit with a separate budgetary allocation. The budget for feeding malnourished children comes under the Supplementary Nutrition Programme (SNP) under the ICDS.

Under SNP, children are to be **given hot cooked meals for 300 days based on their malnutrition levels.** Cost per day for feeding a SAM child is pegged at Rs 12.[12] That means the total money spent on a SAM child would come up to Rs 3600. Instead If the SNP for SAM children is replaced with RUTF, **the cost per child would be approximately Rs 3500 - Rs 3750 (@ 150 packets per child @ Rs 25 per packet administered over 2-3 months).**

A successful CMAM program will also reduce the burden on facility-based treatment and bring down the costs as most cases will be dealt with at the community level without any complications. Moreover, the reduced period of treatment, is likely to lessen opportunistic infections.

[11] https://www.unicef.org/publications/files/Community_Based_Management_of_Sever_Acute__Malnutirtion.pdf
[12] https://accountabilityindia.in/sites/default/files/pdf_files/ICDS%202019-20.pdf

Present Scenario

The National Technical Board on Nutrition under the NITI Aayog has been mandated in 2017 to formulate CMAM guidelines to the states for implementation of the program by the MoWCD. The same has been examined and finalized.[13] It is believed that RUTF might not be a part of the consideration set as the NTBN was not keen on its use.[14] A direction to the states on how to implement CMAM, without a proven emergency nutritional intervention, might not be sufficiently robust to meet the challenge.

FAQs

1. Is the use of RUTF proven in treatment of SAM?

UNICEF is of the opinion that RUTF is proven in saving children's lives, even in chronic settings of SAM. On an average the recovery rate of CMAM programs using RUTF is more than 75%. In Rajasthan 70.4% SAM children who had been enlisted in the programme recovered. And only 0.1% died.[15] Other smaller studies in India have shown that mortality rates under CMAM programmes were only 0.4%[16] and 1.1%.[17]

2. Does RUTF create aversion for home prepared food in children?

CMAM programs encourage home prepared meals being offered to children. RUTF is to be administered only for 8-12 weeks and does not create long term taste preferences.

[13] https://niti.gov.in/national-technical-board-nutrition-ntbn
[14] http://niti.gov.in/writereaddata/files/Minutes%20of%20the%20first%20meeting%20of%20the%20SSC%20-NTBN%20%282%29.pdf
[15] https://www.expresshealthcare.in/blogs/will-covid-19-increase-the-death-rate-among-severe-acute-malnourished-children-a-context-of-humanitarian-emergency-india/419023/
[16] https://www.ncbi.nlm.nih.gov/pubmed/24067666
[17] https://www.ncbi.nlm.nih.gov/pubmed/25833981

FAQs

3. Does RUTF divert attention from SAM prevention activities including behaviour change of caregivers?

A holistic approach ensuring access to healthy diets, behavioral change of families, empowerment of women and removal of inequalities is required to prevent SAM and all forms of malnutrition. But when prevention fails, treatment protocols under CMAM using RUTF need to kick in. Treatment protocols are meant to complement the prevention efforts and to save lives of children and must be undertaken together.

4. Are the gains made from RUTF sustainable?

CMAM programs include behavior change programs for caregivers, so that once the child is discharged from the program, the child is under proper care at home. Such behavior change programs will ensure that the gains made from CMAM programs using RUTF are sustained by the families at home. The fact that there are many relapses at present point to the fact that caregiver orientation and access to healthy diets are not available for most families. This is the problem sought to be addressed by CMAM programs using RUTF.

5. What is the impact of malnutrition, and specifically SAM, on children?

Adequate nutrition is required for physical, cognitive and overall growth of the child. India's under-5 mortality rate is 39 per 1000 live births. This is worse than China (9 per 1000), Libya (12), Tunisia (13), Indonesia (25), Philippines (28), Bangladesh (32) and Nepal (33). Malnutrition is the major cause of India's under 5 mortality numbers. It was the predominant risk factor of death in children under 5 years in India in 2017, accounting for 68.2% deaths, and the leading risk factor for health loss of all ages, responsible for 17.3% of the total disability adjusted life years (DALYs).[18] There are various case fatality rates reported by different experts on SAM. While the WHO estimates mortality rates to be around 10-20%,[19] some experts in India believe that it is much lower. But, even at the lowest average case fatality suggested, at 3%, about 1.7 lakh children are at risk of death in India.

[18]https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(19)30273-1/fulltext
[19]https://www.ncbi.nlm.nih.gov/pubmed/31613883

FAQs

6. Do SAM children recovered through CMAM programs using RUTF relapse into SAM again?

Relapses are caused due to lack of nutrition in the home prepared food. If the child received the same food as she used to prior to the CMAM program, then she could relapse into SAM. But CMAM programs ensure that caregivers are oriented on preparing nutritious food, ensuring sanitation and giving medicines when required. This will ensure that once the child is discharged from the CMAM program after recovering, the child would not relapse into SAM as the caregivers will ensure that the child received nutritious food in sanitized conditions. Further cognitive and over all growth till age 5 is critical.

7. Is RUTF expensive and does it divert resources and efforts away from sustained inter-generational movements?

The feeding of malnourished children is budgeted through the Supplementary Nutrition Program (SNP) under the ICDS. As per the SNP, the budget for a feeding a SAM child is Rs 12 per day. A child is to receive hot cooked meals costing Rs 12 for 300 days. This means that the cost for feeding the child comes up to Rs 3600.

Instead if the child is provided RUTF (@ 150 packets per child costing Rs 25 per packet over 2-3 months) the total cost of feeding the child would be Rs 3500 – Rs 3750. It will also reduce administrative cost as the RUTF is fed at home for 2-3 months whereas hot cooked meals will have to be given in Anganwadi centers or delivered to home for 300 days.

In any case, RUTF is a medical treatment like ORS which is essential to prevent mortality. RUTF is also the cheapest option available as it prevents need for facility-based treatment of SAM children which would be more expensive.

In an NRC, the cost of treatment of a child is about Rs 4500 for 2 weeks. This cost does not include capital costs, costs of medicines and human resources and cost of stay beyond 14 days. In most cases the child will be required to stay for longer than 2 weeks.

FAQs

About 10% of SAM children develop complications and need NRC treatment. That means out of 60 lakhs, about 6 lakh children need to be treated in NRCs. Every 10 bedded NRC can admit 20 children in a month if the children do not stay for longer than 2 months. And there are about 1200 NRCs in the country. As per this, at present, the country has the capacity to only treat about 2.9 lakh children. That means there is also a need to double the number of NRCs in the country.

8. Does feeding children RUTF have any side effects on them?

RUTF formulations are as per nutrition guidelines mentioned by WHO and UNICEF after much deliberation. They include multiple vitamins and minerals besides core therapeutic food. RUTF is only to be administered for 8-12 weeks and does not contain any substance which would be harmful to the child in the long term.

9. Breastmilk is important for the growth of the child. Does RUTF seek replacement of breastmilk?

Food augmentation is required in children beyond 6 months along with breastmilk. CMAM programs encourage children below 2 years of age to be offered breastmilk before they are offered the RUTF feed. Each packet of RUTF contains this information.

10. Do children and families complete the CMAM programs or are their high default rates?

As per pilot studies in India and the ground situation in Africa and Asia, the default rates in CMAM programs are very low. Counselling and training of caregivers will bring down the rates further.

The greatest advantage of CMAM programs using RUTF is that the child and caregivers are required to go to the local facility only once a week unlike in facility-based treatments where they have to be admitted for weeks leading to loss of wage for caregivers, which in turn leads to high default rates.

11. Can RUTF be manufactured by SHGs and Women's Groups in keeping with Supreme Court directives on other ICDS procurements?

RUTF is like ORS – it is a specially prepared treatment, which cannot be prepared in community kitchens or by small SHGs. They require technical factory based manufacturing to ensure that quality standards are met.

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