

Falling Between Two Stools: Operational Inconsistencies between ICDS and NRHM in the Management of Severe Malnutrition

V PRASAD, *D SINHA AND **S SRIDHAR

From the Public Health Resource Network, *Independent Public Health Researcher, **Pediatrician and Consultant Public Health, New Delhi, India.

Correspondence to: Dr Vandana Prasad, Community Pediatrician and National Convenor, Public Health Resource Network, 5A Jungi House, Shapur Jat, New Delhi 110 049. chauhkat@yahoo.com

There has been a welcome interest in the issue of malnutrition by policy makers as well as technical experts in the recent years. The current public health systems for management of malnutrition, the ICDS and NRHM, have attempted to evolve approaches to the management of severe malnutrition. This paper makes a fresh analysis of data from well-accepted existing sources, indicating that 36-44% of all children with Severe Acute Malnutrition (SAM) are likely to be missed by current criteria of screening and referral; simultaneously, a large proportion of children selected for referral to Nutritional rehabilitation centres are likely not to have SAM. The paper also highlights other areas of inconsistencies between the ICDS and the NRHM in the continuum of care required for the prevention and proper management of severe malnutrition. Thus, the paper identifies areas that need further exploration to achieve a seamless and effective program for tackling severe malnutrition.

In the recent past, there has been a welcome, if late, development of interest in technical issues related to the management of malnutrition, especially through public programs such as the National Rural Health Mission (NRHM) and the Integrated Child Development Services (ICDS)¹. However, management of severe malnutrition continues to be a huge gap area in public policy in the country. Apart from issues related to actual implementation such as poor coverage and quality of care, there are significant programmatic gaps and confusions that are confounding efforts to tackle severe malnutrition effectively as a public health problem as well as treatment of individual children. This is specially exacerbated by the inconsistencies between the approaches of the two primary agencies (ICDS and NRHM) leading to considerable lack of clarity on the ground on criteria for screening and identification, treatment protocols, and the role of different agencies for these activities as well as for rehabilitation and follow up.

The focus of the interventions under the NRHM has primarily been on the treatment of Severe Acute Malnutrition (SAM) through Nutrition Rehabilitation Centers (NRCs). According to the WHO, Severe Acute Malnutrition (SAM) is defined by a very low weight for height (below $-3Z$ scores of the median WHO growth standards), by visible severe wasting, or by the presence of nutritional edema [1]. SAM children have a mortality

¹ This is also reflected in the recent special issue on the management of severe acute malnutrition (SAM) in the professional journal 'Indian Paediatrics'. See *Indian Paediatrics*, Volume 47, August 2010.

risk that is substantially higher than that of normally nourished children². The median under-five case-fatality rate for SAM typically ranges from 30% to 50% [2]. NFHS 3 data for India shows that 6.4% children under five years of age have a weight-for-height Z-score (WHZ) which is less than $-3SD$ i.e. about 8 million children in India are at any time severely acutely malnourished.

Traditionally, within India and internationally, SAM has been treated in institutional (hospital-based) settings with the use of therapeutic foods using the F-100 formula. Until recent interventions by some health departments, there was no special, large-scale public program for the identification and management of SAM in India. Under the NRHM, different states have now set up Nutrition Rehabilitation Centers (NRCs) for treatment of SAM [3]. Although there are no central guidelines for the management of SAM, the broad programmatic interventions being adopted in most states are more or less similar and throw up many issues for discussion.

The ICDS, through the anganwadi centers and anganwadi workers (AWWs) is currently responsible for

² It should be noted that while such a classification based on a predetermined cut-off is intended for use in public health programs to identify proportions of severely wasted children and monitor this level as an indicator of success of the whole program, the clinical approach to managing such children would necessarily need to begin with symptoms such as acute weight loss in individual children, where a physician may not need to wait for the child to dip below a population norm before acting to remedy the situation. This was the principle of individual growth monitoring and promotion, which has proven so difficult to practice in the ICDS program.

regular growth monitoring of all children under six, identification of children who are malnourished and to also provide follow up care (including referrals). In states/districts where there is an NRC program, the AWW is supposed to refer children who are severely underweight as per WHO standards for weight for age, to the NRC.

Once the child is referred to the NRC, he/she is screened for SAM by weight for height/length, MUAC and presence of edema. Those children referred by the AWW who fit the entry criteria (*i.e.* are SAM) are admitted into the NRC. The rest are sent back, occasionally with treatment for any current illness, but little more. Further, analysis of NFHS and other data sets reveals that this approach leads to two further kinds of errors: firstly, it misses identifying a substantial proportion of SAM; secondly, the number of severely underweight children who would potentially be referred to referral centers only to be sent back as non-SAM is substantial. Further, this approach self-evidently fails to refer cases of recent acute weight loss that are not yet below the cut-off to qualify as severely underweight.

As seen in **Table I**, using anthropometric data from NFHS-3 and also comparable data collected by CARE as part of the Integrated Nutrition and Health Program (INHP data), simply relying on weight for age measures for identification of children for referral to NRCs would leave out a substantial proportion of SAM children (36% to 44%) since they fall in the moderate or normal weight-for-age categories. Thus, screening for severely underweight children is simply not a sensitive enough test for identifying SAM.

Conversely, among those who do get referred to the NRC for treatment, most (58% to 75%) are not SAM and hence do not fit the entry criteria for admission to NRCs. Thus, the specificity of the severe underweight cut-off in identifying SAM is very poor. These children need additional attention, but not in the form of referral to NRC. At the AWC, they are currently offered “double rations”, but little more. Because of the lack of consistency between the referral criteria of the AWW (weight for age) and the entry criteria for the NRC (SAM or nutritional edema), many children are needlessly referred to and sent back from the NRC. This could create a poor impression for the AWW at the village level demotivating her as well as parents towards referrals.

There are also gaps in the current exit criteria for NRCs, leading to a waste of resources. As per WHO and IAP guidelines, a child is considered fit for discharge from the NRC only once the weight for length /height is more than -1 SD (approximately 90% of NCHS median

weight for height) [4-6]. However, the children who are admitted at the NRC are usually kept for a fixed period of 14 days for nutritional rehabilitation, medical treatment and nutritional counseling unless the physician decides to extend their stay at the facility. Effectively the child is sent back from an investment of Rs 50 per day for food plus drugs, to whatever the household can manage plus food worth Rs 6 per child per day from the AWC. This ‘conveyor belt’ approach of discharge after 14 days, in the absence of community based management of malnutrition, may seriously compromise the investment that has been made during the 14 days of admission. Past international experience exists to show NRCs have a limited role precisely for this reason [7]. NRCs are just one link in a chain of well conceived comprehensive strategies for prevention and cure that are likely to lead to success.

There are also problems with the entry criteria. In current practice, it is seen that the entry criteria for NRCs do not include an appetite test and all children who are SAM are automatically admitted. However, not all SAM children require institution-based treatment. Malnourished but well children who have an appetite need not be treated in NRCs but can be managed through community based programs. Recent studies [8-9] show that RUTF can be used in community settings as an effective instrument to treat SAM. It is estimated that 80% of SAM children can be treated in the community [10]. So even amongst those children who are SAM and do get referred to the NRC, most in fact can be managed in the community itself. In turn, such an approach would free up scarce institutional resources for more intensive care for sick SAM children, who need such care.

A community based program for management of SAM children in India seems to be a task that can be led by the ICDS, since an anganwadi centre is present in every village. The AWW can be trained to identify children who are SAM affected, and further to screen children who require to be referred to the NRC and those who can be managed in the community. A strategy combining therapeutic food, nutrition counseling, regular monitoring and community mobilization can then be adopted (through the AWWs) for the community based management of SAM affected children. Thus, there is an urgent need to bring the ICDS program for malnutrition into coherence with the NRC program for malnutrition. Protocols for community-based management need to be developed as well as recipes and production arrangements for locally produced therapeutic foods.

It is also important that the program for management of SAM must be placed in the framework of prevention

TABLE I PROPORTION OF CHILDREN WITH SEVERE ACUTE MALNUTRITION (SAM) BY DIFFERENT DATA SETS

<i>Parameters</i>	<i>NFHS 3 data (0-59 months)</i>	<i>NFHS 3 data (6-23 months)</i>	<i>INHP data, 2009 (6-23 months)</i>
<i>Proportion of all SAM children who are:</i>			
Severely underweight	55.6	64.1	57.1
Not severely underweight	44.4	35.9	42.9
moderately underweight	25.1	22.2	29.3
‘normal’ (not underweight)	19.3	13.7	13.6
	100.0	100.0	100.0
<i>% of all severely underweight children who are having:</i>			
Severe acute malnutrition (SAM)	25.5	37.8	42.4
Severe stunting and SAM	8.2	12.9	11.9
Severe stunting but not SAM	60.5	46.9	41.9
<i>% of all severely stunted children who are:</i>			
Not severely underweight	59.3	55.8	55.5
Not having SAM	5.3	8.8	9.9

This analysis uses WHO Child Growth Standards, 2005, and standard classification norms.

and treatment of all kinds of malnutrition. For instance, there are a large number of children who are not SAM but severely stunted and it is equally important that this problem is addressed. Stunting is an indicator of long neglected inadequate growth that should have been attended to. Stunting has significant implications on the intergenerational propagation of malnutrition with maternal stunting resulting in greater risk of IUGR and low birth weight. Studies have also linked childhood stunting with short adult stature, reduced lean body mass, less schooling, diminished intellectual functioning and reduced earnings [11-13]. A focus on SAM has no direct impact on stunting, whereas a simultaneous focus on stunting would greatly help the prevention of SAM in coming generations through reducing low birth weight.

Moreover, there are children who are ailing and in the moderate (weight for age) category but have not yet reached the criteria for entry to the NRC. In the experience of the authors [14], such children could also die before ever reaching the NRC and need urgent attention. In such a context, a percentage weight loss might be a better criterion for referral to the NRC rather than waiting for the child to reach a universal cut off in weight-for-age terms.

CONCLUSIONS

The current operational criteria for identifying children for referral, admission to and discharge from the NRC appear inadequate to meet the larger goal of managing children with SAM. They tend to leave out as many as 36% to 44% of children with SAM. Simultaneously, the

majority of children referred to NRC on the basis of weight-for-age are not SAM, while many children with SAM who can be managed at the community level are needlessly admitted to the NRC.

In addition, there is a lack of focus on other children who need attention: children with severe stunting as well as children who are showing significant growth faltering but have not yet reached cut off levels for SAM. The management of sick *versus* hungry children is not clearly distinguished, and there is no identified role or provision for community based therapeutic feeding for the latter. Finally, a protocol for the transition to normal feeding with home-available foods is yet to be spelt out.

A comprehensive policy for SAM must lay down a credible roadmap for reducing the prevalence of SAM over time, and eventually eliminating it. This will involve articulation of both curative and preventive strategies. There is a need for a proper system of identification to be put in place with appropriate protocols for follow up care and treatment based on different categories of malnutrition.

RECOMMENDATIONS

Anthropometric measurements: Measure heights and MUAC: Internationally, for easy identification of children who are SAM at the community level, the Mid-Upper Arm Circumference (MUAC) is used in large public programs. It is argued that such a strategy is not only easy to implement and affordable, but also identifies most of SAM children. Therefore, one route would be to re-introduce MUAC in India as well, through the ICDS.

However, two caveats are important here. Firstly, while MUAC is good for one-time detection, it is not so for monitoring and follow up. On the other hand, weight-for-height is good for both. Further, it is too easily assumed that measuring height/length of children is too difficult for AWWs, or is too much of an additional burden. Judicious use of height measurements do not have to be burdensome, and the little additional effort would be worthwhile to make anthropometric measurements more meaningful. We, therefore, recommend measurement of heights to be introduced in the ICDS. It would also be useful to explore criteria based on percentage weight loss rather than universal cut-offs.

NRC Criteria: The criteria for referral to an NRC need to be rectified and expanded. All sick malnourished children, including malnourished children without appetite need to be referred to a designated NRC. PHC level doctors may be more accessible than the NRC (which may only be at district level to start with), and primary screening for acute infections and infestations and treatment are feasible. AWWs should be trained to conduct appetite tests for severely malnourished children, based on which they can decide whether the child needs institutional care or can be managed in the community.

The child needs to stay at the NRC till free of illness and recovery of appetite; these can be the exit criteria, provided there is a program for community based management for severe malnutrition, including home-based therapeutic feeding and transition to home-available food.

Community-Based Management for SAM: All children with SAM who do not need to be referred to NRC need to be receiving community based management of malnutrition. This includes the children who have been discharged from NRC.

Community based management for SAM should include intensive breast feeding and nutritional counseling, monitoring through home visits by ASHA/second anganwadi worker on a weekly basis, weekly growth monitoring with referral to PHC/NRC whenever the child meets the criteria above. Special calorie dense supplementary food needs to be provided which can be organized in a decentralized way through the expertise of a nutrition specialist placed at district level. Production needs to be local, culturally acceptable, safe and decentralized, preferably to village level. Micronutrient supplementation is important and should be organized through the health system at district level.

Severely stunted children should continue to receive

extra food supplementation and intense effort needs to be made to rule out underlying chronic illness through referral to the PHC. Simultaneously, the general food security of the family needs to be investigated; and action taken, through the Village Health Nutrition and Sanitation Committee and the Panchayats, for implementation of relevant food security schemes for the household.

While laying out a strategy the roles of each agency – PHC, NRC, AWWs, ASHAs etc. must be clearly defined.

In summary, a comprehensive strategy needs to be developed that covers all categories of malnutrition as well as prevention, promotion and treatment. This requires the elements of maternal and child care, maternity protection, nutrition counseling, community mobilization for nutrition, good quality supplementary nutrition, community based management of severe acute malnutrition (including therapeutic feeding), NRC-level care, and high quality pediatric services. A consistent and logical operational approach that brings convergence and coordination between the two essential services of ICDS and NRHM would go a long way in achieving this. We believe this is entirely possible within the resources of this country.

Acknowledgments: The authors would like to acknowledge CARE-India and USAID for access to the raw data of INHP analyzed in this study.

Funding: None; *Competing interests:* None stated.

REFERENCES

1. World Health Organization and UNICEF. WHO Child Growth Standards and the Identification of Severe Acute Malnutrition in Infants and Children. A Joint Statement. 2009.
2. World Health Organization. Severe Acute Malnutrition. Available from: <http://www.who.int/nutrition/topics/malnutrition/en/index.html>. Accessed on August 31, 2011.
3. Government of India. Annual Report 2010-11. Department of Health and Family Welfare, Ministry of Health and Family Welfare; 2011.
4. Bhatnagar S, Lodha R, Choudhury P, Sachdev HPS, Shah N, Narayan S, *et al.* IAP Guidelines on Hospital Based Management of Severely Malnourished Children. *Indian Pediatr.* 2007;44:443-61.
5. World Health Organization. Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers. Geneva: World Health Organization; 1999.
6. World Health Organization. Guidelines for the Inpatient Treatment of Severely Malnourished Children. Geneva: World Health Organization; 2003.
7. Bengoa JM. Nutritional Rehabilitation. *In:* Beaton GH and Bengoa JM, editors. *Nutrition in Preventive*

- Medicine. Geneva: World Health Organization; 1976.
8. Collins S, Dent N, Binns P, Bahwere P, Sadler K, Hallam A. The management of severe acute malnutrition in children. *Lancet*. 2006;368:1992-2000.
 9. Working Group for Children under Six. How should India approach the management of severe acute malnutrition? A Position Paper. *Social Medicine*. 2009;4:40-4.
 10. World Health Organization, WFP, United Nations System Standing Committee on Nutrition and UNICEF. Community-based Management of Severe Acute Malnutrition: A Joint Statement Available from: http://www.who.int/nutrition/publications/severemalnutrition/978-92-806-41479_eng.pdf. Accessed on August 3, 2011.
 11. Victora CG, Adair L, Fall C, Hallal PC, Martorell R, Richter L, *et al.* Maternal and child undernutrition: Consequences for adult health and human capital. *Lancet*. 2008; 371:340-57.
 12. World Bank. Repositioning Nutrition as Central to Development: A Strategy for Large Scale Action. Washington DC: The International Bank for Reconstruction and Development/The World Bank; 2006.
 13. Alive and Thrive. Why Stunting Matters. Insight, A&T Technical Brief. Issue 2. Available at <http://aliveandthrive.org/resources/technical-briefs-and-papers>. Accessed on August 31, 2011.
 14. Action Aid and National Commission for Protection of Child Rights. Report. Public Hearings by National Commission for the Protection of Child Rights regarding Malnutrition, Hunger and Death among children in Madhya Pradesh, 2009 and 2010.
-