

Facility Based Management of Severe Acute Malnutrition in India : Do we have enough capacity?

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Abstract:

Introduction : Recent India health report on nutrition reveals that India has made some progress in reducing the burden of severe acute malnutrition (SAM) over a period of 8 years from 6.4% to 4.6%. However, 11 out of 29 states still have a high prevalence of >5%. **Objective :** Given the high prevalence of severe wasting in India, it was of interest to undertake situational analysis of India's capacity to treat severe acute malnutrition through facility based management program. **Methods :** Using prevalence of severe wasting, total population of under 5 children and total number of nutrition rehabilitation centers (NRCs) in different states, capacity to treat severely wasted children was estimated. **Results :** NRC capacity analysis revealed that there is huge mismatch between the demand (SAM case load) and the services (NRCs). Total number of NRCs in India is 896, with case load of 1,069 SAM children per NRC. Total number of NRCs in various states ranged from 1 (Jammu & Kashmir, Arunachal Pradesh and Nagaland) to 316 (Madhya Pradesh). Number of children to be treated per NRC was highest in Tamil Nadu (30,042) and lowest in Chhattisgarh (207). Total years required to treat the given load ranged from 1 year (Chhattisgarh and Madhya Pradesh) to 125 years (Tamil Nadu). **Conclusion :** There is an urgent need for planning and setting up additional NRCs with respect to SAM case load.

Key words : Nutrition rehabilitation center, Wasting, Children, Capacity

Introduction :

Recent India health report on nutrition reveals that India has made some progress in reducing the burden of severe acute malnutrition (SAM) over a period of 8 years (6.4%, NFHS 2005-06 to 4.6%-RSOC 2013-14).^[1] However, 11 out of 29 states still have a high prevalence (>5%). Prevalence of SAM within country ranges from 1.4 (Sikkim) to 7.1 (Arunachal Pradesh).^[1] Severe morbidity and mortality due to SAM is very well documented, severely wasted children carry a nine times higher risk of dying than normal children and 7.8% of deaths of children are attributed to severe wasting.^[2,3] Currently, management of SAM in India is largely dependent on facility based centers (Nutrition Rehabilitation centers-NRCs) and various studies have shown that NRCs are effective in reducing the mortality rates.^[4-6] Given the high prevalence of severe wasting in India, it was of interest to undertake situational analysis of India's capacity to treat SAM through facility based management.

Method :

Using prevalence of severe wasting, total population of children and total number of NRCs in different states, capacity to treat severely wasted children was estimated.^[1,7,8] The total load of children per NRC in each state was calculated using total number of NRCs in states and total number of children (with medical complication) needing facility based management (based on recommendations by WHO and UNICEF, which states that only 15% of total SAM children need facility based care, rest 85% can be managed in the community).^[2] Based on case load, total time required in terms of years to treat these many children in each state was calculated. Assuming that all NRCs have 10 beds and the facility based management for one child is minimum 14 days; hence, in a month 20 children can be treated in one NRC. This comes to treating a maximum of 240 children in a year. Finally, total time (years) required was computed by dividing the total number of children per NRC with 240.

Table 1: NRC capacity to treat complicated SAM children in India

S. No.	State	Severe Wasting (%)	Total Under 5 Children	Total SAM Children	Total SAM Children needing facility based treatment	Total NRCs	Total SAM (MC#) Children Per NRC	Total Time required to treat (years)
0	India	4.6	138861008	6387606	958141	896‡	1069	4
NORTH								
1	Delhi	4.6	1704152	78391	11759	11	1069	4
2	Haryana	2.7	2882509	77828	11674	2	5837	24
3	Himachal Pradesh	3.9	662663	25844	3877	4	969	4
4	Jammu & Kashmir	2.5	1718020	42951	6443	1	6443	27
5	Punjab	3.2	2612299	83594	1253	-	-	
6	Rajasthan	2.9	9008858	261257	39189	40	980	4
7	Uttarakhand	2.6	1142931	29716	4457	2	2229	9
CENTRAL								
8	Chhattisgarh	2.4	3104853	74516	11177	54	207	1
9	Madhya Pradesh	5.4	9142292	493684	74053	316	234	1
10	Uttar Pradesh	2.9	25640761	743582	111537	25	4461	19
EAST								
11	Bihar	3.9	15837132	617648	92647	38	2438	10
12	Jharkhand	3.7	4512458	166961	25044	68	368	2
13	Odisha	4.9	4481140	219576	32936	43	766	3
14	West Bengal	3.9	9012951	351505	52726	31	1701	7
NORTH EAST								
15	Arunachal Pradesh	7.1	177268	12586	1888	1	1888	8
16	Assam	2.7	3937549	106314	15947	16	997	4
17	Manipur*	2.4	315761	7578	1137	-	-	-
18	Meghalaya	5.2	487355	25342	3801	5	760	3.
19	Mizoram*	6.2	145088	8995	1349	-	-	-
20	Nagaland	4.8	242896	11659	1749	1	1749	7
21	Sikkim*	1.4	52896	741	111	-	-	-
22	Tripura*	7	391786	27425	4114	-	-	-
WEST								
23	Goa*	4.9	123331	6043	902	-	-	-
24	Gujarat	6.7	6.7	6645698	445262	66789	127	5262
25	Maharashtra	6.3	11372408	716462	107469	15	7165	30
SOUTH								
26	Andhra Pradesh	6	7725898	463554	69533	30	2318	10
27	Karnataka	6.3	6134041	386445	57967	60	966	4
28	Kerala	5.4	2965778	160152	24023	3	8008	33
29	Tamil Nadu	6.3	6358182	400565	60085	2	30042	125

*Data analysis for Punjab, Manipur, Mizoram, Sikkim, Tripura and Goa was not done as data on no. of NRCs was not available for these states; #MC-medically complicated; ‡Including 1 NRC in Chandigarh (Union Territory)

Results :

The capacity for management of complicated SAM cases at individual state level is presented in Table 1. Total number of NRCs in India is 896, with case load of 1,069 SAM children per NRC. Total number of NRCs in various states ranged from 1 (Jammu & Kashmir, Arunachal Pradesh and Nagaland) to 316 (Madhya Pradesh). Number of children to be treated per NRC was highest in Tamil Nadu (30,042) and lowest in Chhattisgarh (207). Total years required to treat the given load ranged from 1 (Chhattisgarh and Madhya Pradesh) to 125 years (Tamil Nadu). Kerala (33), Maharashtra (30), Jammu & Kashmir (27), Haryana (27) and Uttar Pradesh (19) are other states that will require more than 10 years to tackle the present load with present number of facilities.

Discussion :

NRCs were first launched in Madhya Pradesh under National Rural Health Mission. Following the NRC model of Madhya Pradesh, many other states have also set up similar network of rehabilitative centers for severely wasted children having medical complication. The National Rural Health Mission (NRHM), Ministry of Health and Family Welfare facilitates the states in setting up the NRCs. Facility based capacity analysis revealed that there is huge mismatch between the demand (SAM case load) and the services (NRCs). Total SAM caseload in India is approximately 3 times higher than the capacity (240 children/ NRC/ year). There are total 896 NRCs in India, with 1,069 SAM case load per NRC.

Madhya Pradesh is the only state where despite having a high prevalence of severe wasting, the total time (years) required to treat SAM was found to be less. This is due to the prompt response of the government of Madhya Pradesh in setting up required number of NRCs. This analysis emphasises the need for setting up NRCs based on current population of under 5 children and prevalence rates of severe wasting amongst them. For example, Tamil Nadu has less number of NRCs as per the population of under 5 children and severe wasting prevalence rate amongst them, hence total number of years required to treat SAM children is high.

Various studies on effectiveness of NRC model on child survival rates have shown that NRCs are providing life saving care to SAM children.^[4-6] Collins and colleagues stated that low capacity to treat SAM

limits treatment and due to low capacity for facility based management of complicated cases, case fatality rates can go up to 20-30%.^[9] In order to minimize case fatality rates in high priority states (having high SAM prevalence), we need to ensure that we have a balance between the SAM case load and number of centres to treat the given load.

Conclusion :

We conclude that India has low capacity to treat complicated SAM children. There is an urgent need for planning and setting up additional NRCs with respect to SAM case load in states like- Tamil Nadu, Kerala, Maharashtra, Jammu & Kashmir, Haryana, Uttar Pradesh, Bihar and Andhra Pradesh. Children in these states have a higher risk of mortality as compared to children in other states. This analysis would be helpful for state governments to effectively plan and set up additional NRCs in their respective state in order to minimize the gap between the demand and the services.

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