Community based management of severe malnutrition- SAM and SUW in U5 children of tribal area, Melghat, Central India

Dr Vibhawari Dani
M.D.(Paediatrics); DCH
'MAHAN' Melghat, India

Malnutrition in U5 Children

- Prevalence of malnutrition in children remains alarmingly high in India……. but it has been
- ***particularly much higher in tribal populations.***

- There is very high prevalence of severe malnutrition in Melghat tribal region. (CEGH 2012)

  SAM- 7.1%,

  SUW- 18.7%,

  Severe stunting- 34.4%,

Major contributing factors

- Faulty child feeding practices,
- Poor hygiene and sanitation.
- Infectious diseases like ARI, Diarrhea, Malaria,
- Micronutrient deficiencies

Melghat : tribal region :Central India

- Heavy burden of malnutrition.
- Inadequate medical facilities and
- poor health seeking behavior by tribal. …..So…
- Hosp. services have limited coverage and impact.
- No specific program for SMC in U5C in Melghat

- So, .. Community based management of severe malnutrition is explored as alternative.

Study area

- Melghat is a difficult-to-reach, hilly, forest area in Maharashtra (Central India)

- Population of 3,00,000 scattered over
  320 villages spread over
  4000 sq Kms.
  85% population is tribal,

Study design

- A community based prospective trial with one-stage cluster sampling method was conducted in tribal Melghat for 3 months : August-October 2012

- Six months follow-up was done.

Sample size

- Sampling frame was all SMCs in 6-60 months of age group from 320 villages.
- The study area constituted 14 randomly selected villages of Melghat.
- Sample size constituted randomly selected 145 SMCs in 6-60 months of age group from usual resident population of these 14 villages.

Methods

- Study was implemented through, tribal, local, semiliterate married women as……..
  Village Health Worker.

- VHWs were trained for:
  1. Anthropometry.
  2. Feeding MAHAN-RUTF with micronutrients
  3. Treatment of fever, diarrhea, ARI, malaria, de-worming, etc.
  4. BCC by health education of parents

Methods : WHO guidelines

- All SMC were screened for appetite test.
- Screening for medical complications like fever, diarrhea, ARI, malaria, UTI, otitis media, tuberculosis, edema, etc was done .
- SMC with serious illness were referred to hospital.
- However those not willing to go to hospital were managed by VHWs after taking high risk written consent.

WHO guidelines followed- MAHAN-RUTF & Vit-Min mix

- MAHAN-RUTF is prepared by local tribal women in the form of 6 palatable dishes

- Each 100 gm packet of MAHAN-RUTF provided
  500 to 550 calories and
  15-17 gm of proteins

- MAHAN VITMIN mix : Micronutrient supplementation with vitamins and minerals done as per WHO guidelines.

100 Gm	Proteins Gm	Calories	Fats Gm
Khichadi Moong+Rice+Oil	17	507	42
Chikki Groundnut+Til+Daliya+Oil	14	508	27
Chivda Poha+Daliya+Murmura+Oil	15	524	33
Mix-Upma Jowar+Chanadal+ groundnut+Oil	15	495	29
Sago+groundnut+0il	14	498	28

RUTF + Micronutrients feeding …

- According to weight, a specified amount of feed was given so that all children received
  4 to 6 gm proteins/kg/day and
  175 kcal/kg/day with gradual escalation.

Nutritional composition of Ideal RUTF as per WHO, UNICEF	
Nutritional content	**Amount**
Moisture content.	2.5% maximum
Energy	520-550 kcal/100 gm.
Proteins	10%-20% of total energy.
Lipids	45% to 60% of total enery.
Sodium	290 mg/100 g maximum
Potassium	290 mg/100 g maximum
Calcium	300-600 mg/100 g
Phosphorus (excluding Phytates)	300-600 mg/100 g
Magnesium	80-140 mg/100 g
Iron	10-14 mg/100 g
Zinc	11-14 mg/100 g
Copper	1.4 -1.8 mg/100 g
Selenium.	20-40 ugm
Iodine	70-140 ugm/100 gm
Vitamin A	0.8-1.1 mg/100gm
Vitamin D	15-20 ugm/100gm
Vitamin E	20 mg/100 g minimum
Vitamin K	15-30 ugm/100gm
Vitamin B1	0.5 mg/100 g minimum
Vitamin B2	1.6 mg/100 g minimum
Vitamin C	50 mg/100 g minimum
Vitamin B6	0.6 mg/100 g minimum
Vitamin B12	1.6 ug/100 g minimum
Folic acid	200ug/100 g minimum
Niacin	5mg/100 g minimum
Pantothenic acid	3mg/100 g minimum
Biotin	60ug/100 g minimum
n-6 fatty acids	3% to 10% of total energy
n-3 fatty acids	0.3% to 2.5 % of total energy

Management of Infections in SMCs..

- The trained VHWs provided the treatment of infectious diseases like fever, diarrhea, ARI, otitis media, malaria, deworming, etc. with Paracetamol, Norfloxacin, half strength ORS, Amoxicillin, Chloroquine, and Albendazole in appropriate doses

BCC….

- BCC of parents done by health education regarding …
- hand washing, nail cutting,
- hygiene and nutrition ……. through
- counseling, flipcharts, audio-visual film screening, practical demonstrations and street play.
- Supervision by Medical supervisors – ANM
- And BCC supervisors



Nutrition demonstration education

(Mrs. Pendharkar (Nutrition Expert) and team)









VHW at work….

- Anthropometry of enrolled children was weekly monitored till 12 weeks.
- Cross-checked by medical supervisors.

VHWs recording wt….





Sukarai received Jamshetji Tata National Virtual Academy fellowship for Rural Prosperity.

background characteristics n= 145

- SAM 49 (33.8%) acute malnutrition
- SUW 123 (84.8%) acute-on-chronic
- IAP gr III-IV 46 (31.7%).

- Male and female distribution is almost equal in all categories.

background characteristics n= 145

- SAM in > 2/3rd children in 6-24 months age gp.
- SUW in 2/3rd children in 24-60 months age gp.
- LBW in - 35.5% SAM children
- 46 % SUW children.
- Vast majority of these were Full Term LBW -i.e IUGR. Thus malnutrition began at birth.
- Complicated SMC were 9 (6.2%) who refused to avail the hospital facility.

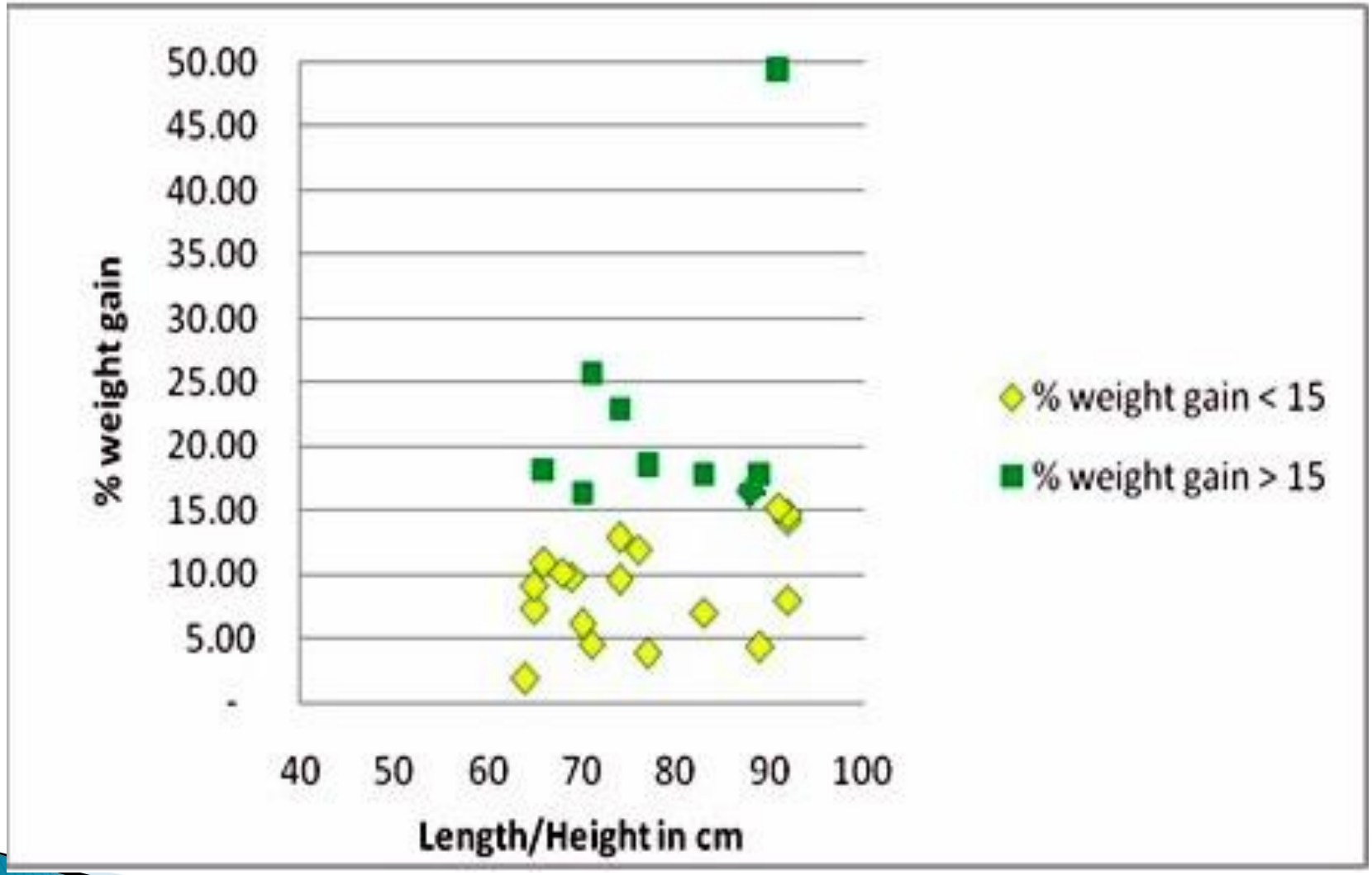
	Number	Recovered SMC		Wt gain in gm /kg /day in Recovered SMC
		No.	%	
At the end of 8 week – (*n=130*)				
SAM*	49	27	55.1	2.6
SUW**	115	18	15.6	2.5
Grade III-IV	56	24	42.8	2.5
Dropouts	14			
Died	1			

** (paired t test: t = 7.85, df = 129, p < 0.001)*

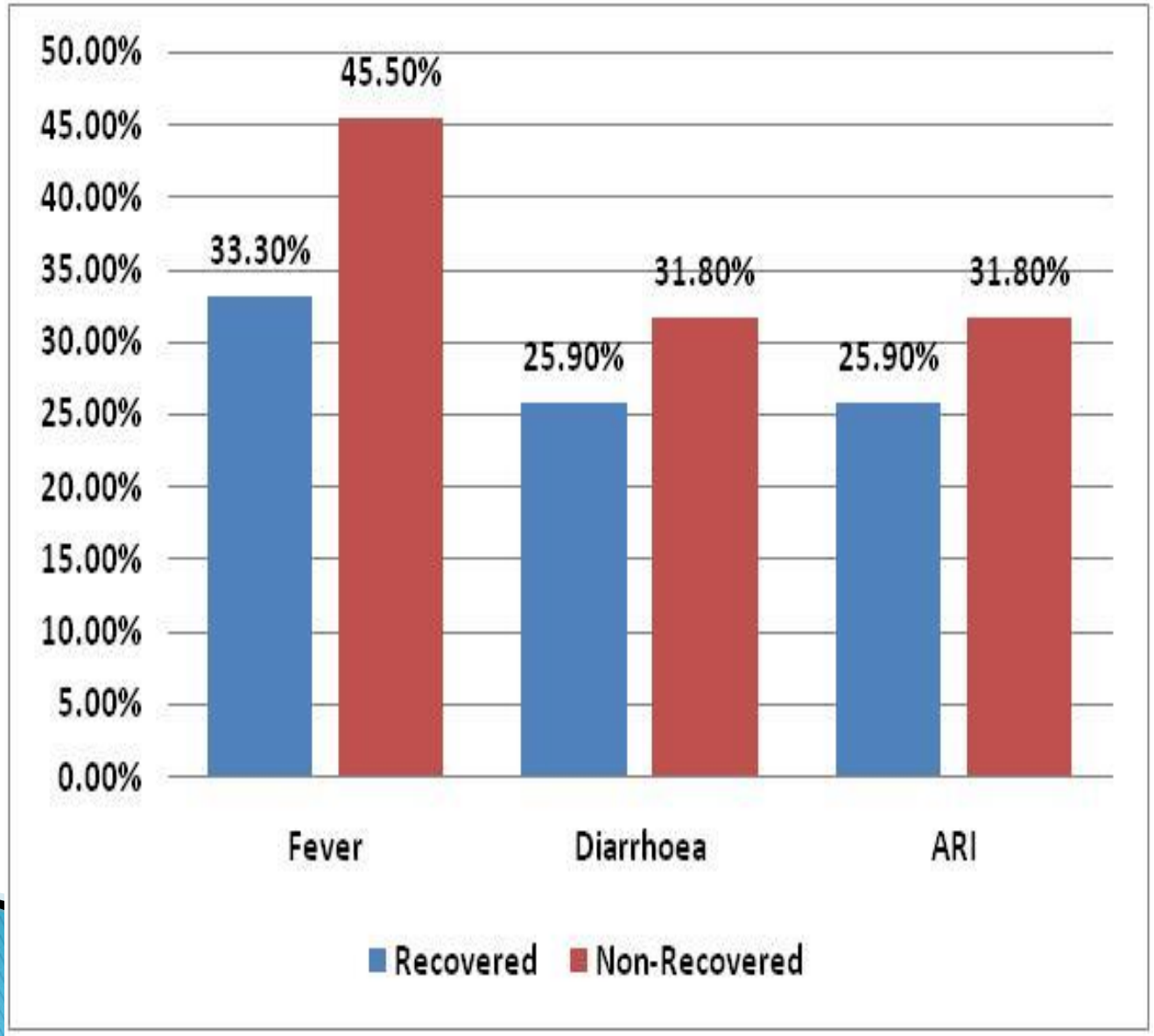
***(paired t test: t = 4.13, df = 129, p < 0.001)*

	Number	Recovered SMC		Wt gain in gm /kg /day in recovered children
		No.	%	
At the end of 10 week – (*n=125*)				
SAM*	48	23	47.9	2.3
SUW**	110	18	16.3	1.9
Grade III–IV	53	18	33.9	1.9
Dropouts	5			
Died	0			
** (paired t test: t = 6.58, df = 118, p < 0.001)* ***(paired t test: t = 3.25, df = 118, p < 0.001)*				
At the end of 12 week – (*n=99*)				
SAM	41	18	43.9	2.2
SUW	85	11	12.9	1.5
Grade III, IV	46	17	36.9	1.6
Dropouts	26			
Died				

% wt gain in recovered SAM after 8 weeks.



Episodes of fever, Diarrhea and ARI in SAM children



Rate of relapse in recovered SMCs

Recovered Children	Relapse at the end of 6 month	
	No.	%
SAM (n=27)	1	3.03
SUW (n=18)	2	11.1
IAP Gr. III-IV (n=24)	5	20.8







Lakshmi

before RUTF ..... After





Lakshmi after 2 years of RUTF therapy





Nut



- Pou