Improving Severe Acute Malnutrition Care

Buka General Hospital

Dr Edwinah Baleo

Introduction:

Global < 5yrs :

99 million =*underweight,*

68 million =*wasted* (8%)

(severely wasted-(3%)

(WHO/UNICEF/WB=2013)

Mortality risk =45%

- Risk- ill health, poor growth, reduced intellect and poor social capacity

- **PNG:**

-case fatality (2014)=18 %

- admission(2014)= 14.9%

Bougainville:

-case fatality (2014)= 14.9%

-admission(2014)= 12.4%

Protocol Adoption (2014):

Significant improvement in treatment outcomes –PMGH

Landi (2014)

* (WHO-UNICEF-World Bank database).

- Objective:

-Improve quality of malnutrition care- outpatient and in-patient.

- Aim:

- Assess quality nutritional care

-validate significant improvements from the implementation of the WHO/NDOH recommended treatment guideline

Treatment intervention

Staff Education:

- 2 sessions on SAM screening & 10 aspects of patient care
- Therapeutic feeding (F-75,F100,RUTF)
- Continued teachings throughout study
- Case registry introduced-OPD/OTC

Appropriate equipment/supplies:

- Necessary screening equipment provided
- Therapeutic feeds sourced (F-75,F-100, Eezee paste) –NDOH
- Constant supply made available in ward and OTC (RUTF)
- Frequent feeding schedule

Man power:

- Integrative management approach for care emphasised

(Limited capacity to expand staffing)

On-duty staff (nursing /medical) assessed patients –anthropometry, temperature, glucose, hydration monitoring and feeding

Methodology

- Study: **Point prevalence**

- Timeline :
- **Primary survey-** Feb
- First training session-March
- **First post inter. survey-** March-April
- **Second post. Inter. Survey**- May – June
- Second training session-June
- **Third post inter. Survey**-June-July

Admission criteria:

- **1.Severe (SAM)**
- **1.**WFH z-score < -3SD
- 2.MUAC < 11.5 cm (child > 6 mo, no oedema)
- 3. Presence of oedema (kwashiorkor)
- 4. WFA < -3SD or < 60% (last option)

- **2.Moderate: (MAM)**
- 1.WFH z-score < -2SD
- 2. WFA z-score < -2SD or between 60-80%
- 3. MUAC between 11.5-12.5 cm (child > 6 mo, no oedema)

OPD_ all patients <5 yrs screened
Inpatient- recruited all SAM cases

Measured outcomes…

- OPD/OTC:
  - Standard anthropometry
  - Appetite testing
  - Case recording

- In patient:
  - Compliance to treatment guideline
  - Feeding initiation
  - Post treatment weight gain

Data analysis

Analysis : Data was analysed by STATA (13.1)=95% Confidence interval

categorical statistics= Chi square test, Fishers exact test & t-test

1 case fatality.

Exclusion criteria- children older than 5 years.

- Verbal consent for inclusion was obtained from all patients in the study

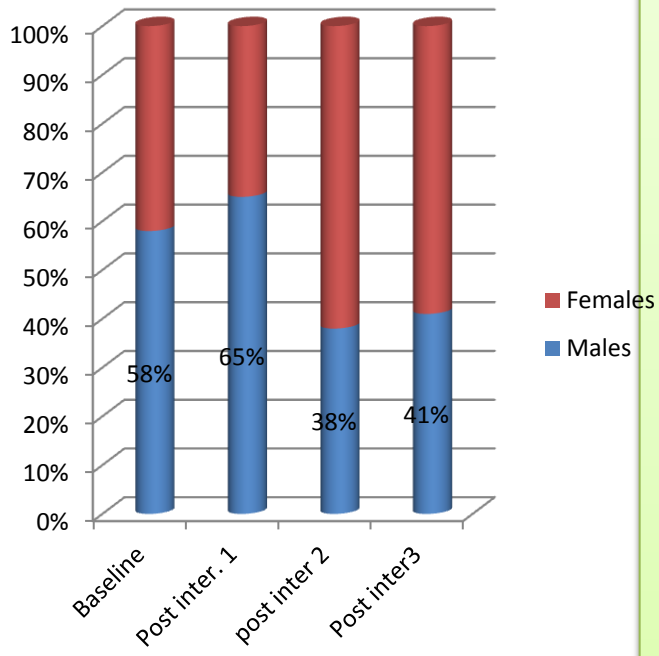
OPD

	Primary Survey	1st PI survey	2nd PI survey	3rd PI study
Total cases surveyed	50	31	21	32
Mean age (months) Median (IQR)	22.2 18 (5,38)	16.4 10 (8,24)	22.2 18 (5,38)	20.9 12 (5,36)
Std. deviation	17.32	13.47	18.83	19.02

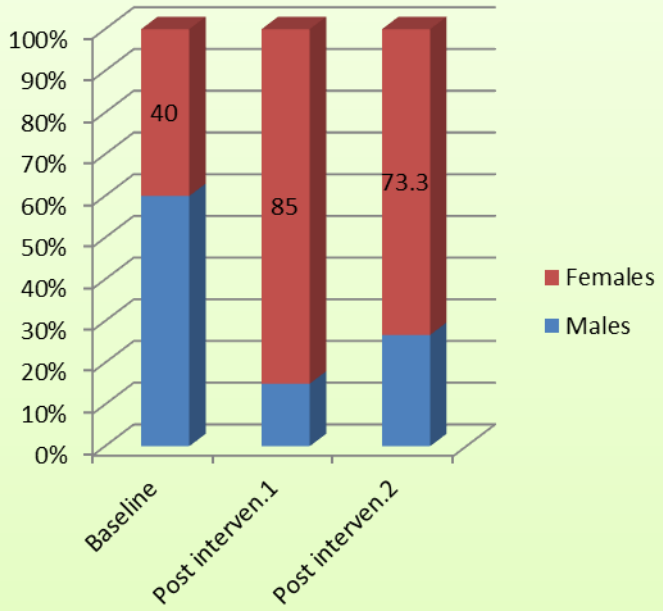
Inpatient

	Primary Survey	1st PI survey	2nd PI survey
Total Cases recruited	20 (16%)	20 (19%)	15 (13%)
Mean Age (months) (Std. deviation)	19.8 (15.7)	15.3 (9.6)	10.1 (5.3)
Median (IQR)	12 (9,30)	14 (7.5, 21)	9 (6,12)
Length of stay (Days)	9.3	11.5	10
Median (IQR)	5.5(3,8.5)	7 (5,17)	10 (7,14)

Gender distribution-OPD

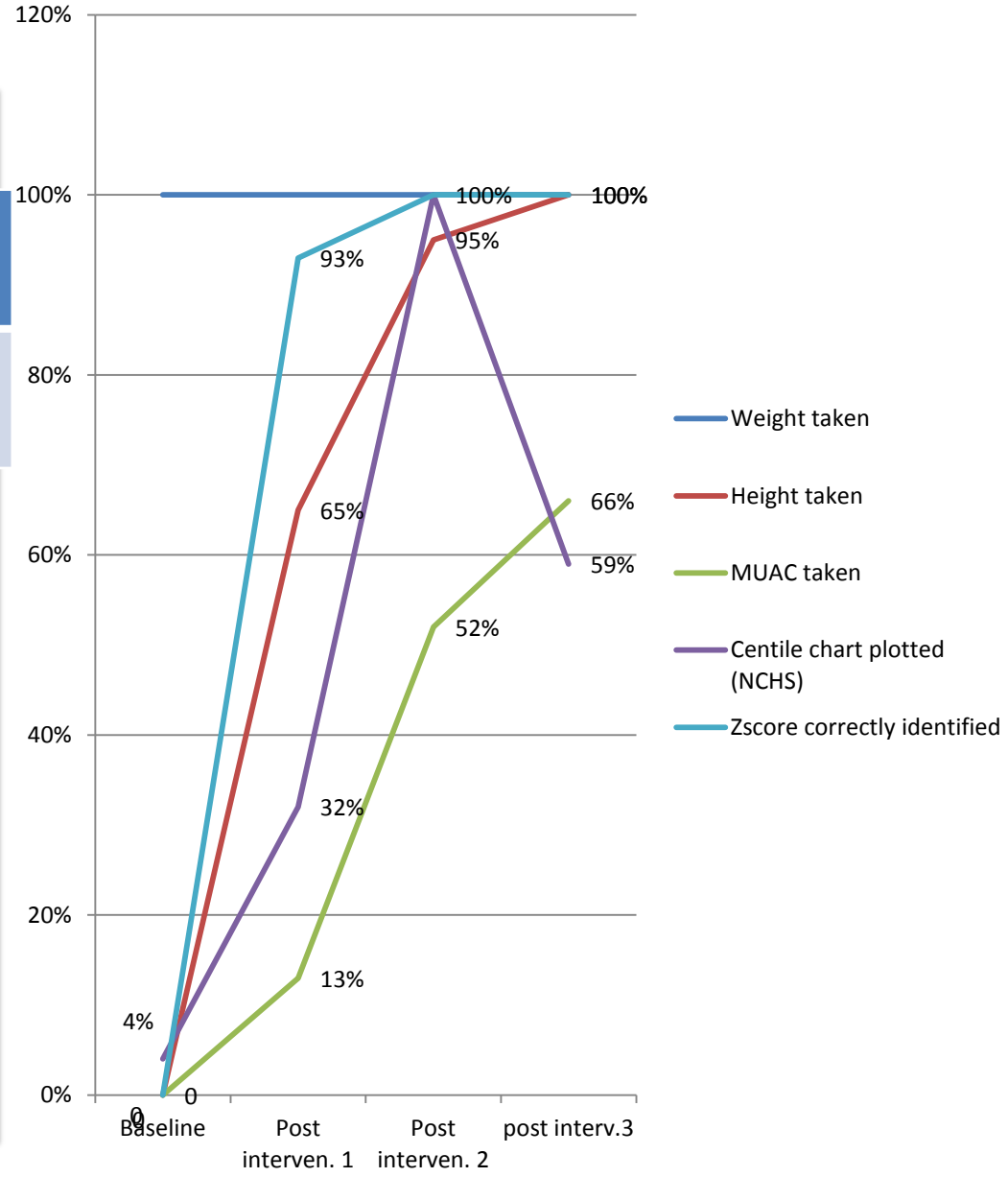


- **Gender distribution-in-patient**



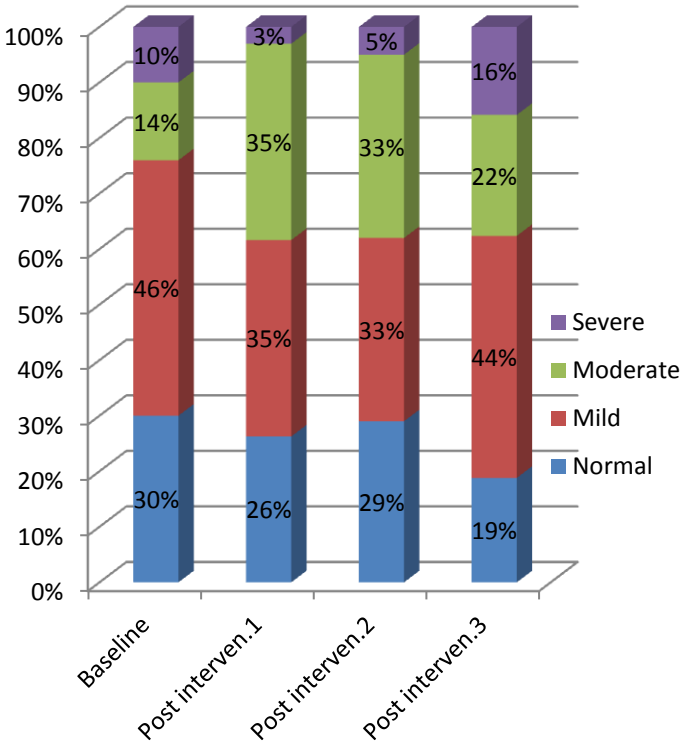
Anthropometry -OPD

	WT	HT	MUAC	WFA (%)	ZS
P value	<0.00	<0.00	<0.00	<0.00	<0.00

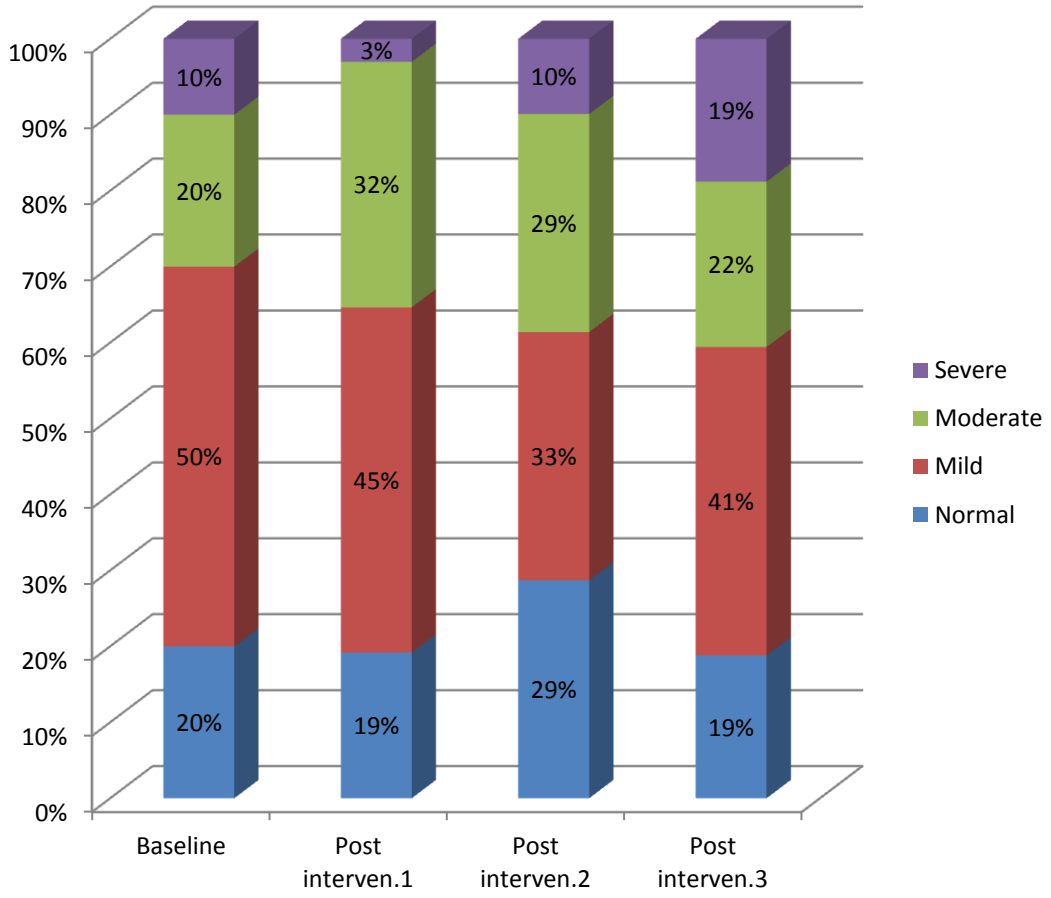


Frequency –Nutritional state (OPD)

Weight for Age



Weight for height

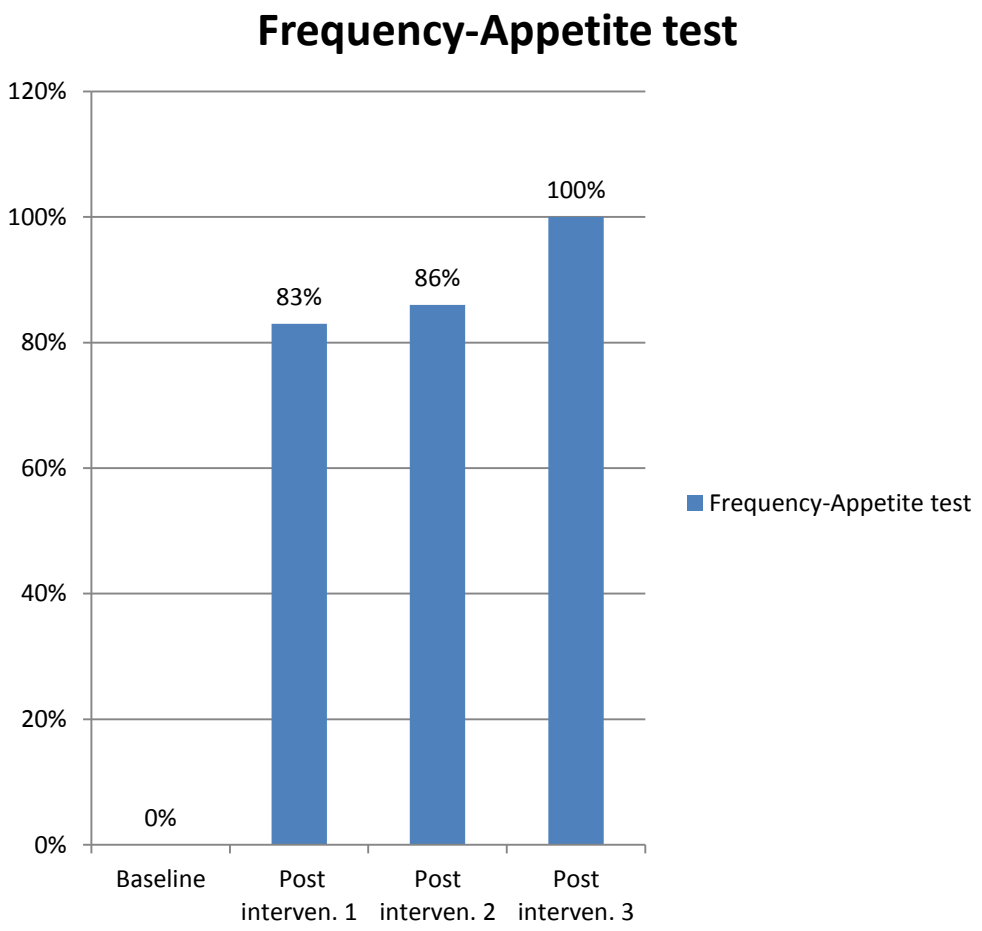


Frequency of Nutritional state -MUAC

Total	Primary Survey	1st PI survey	2nd PI survey	3rd PI survey
Normal (>12.5 cm)	40 (80%)	30 (97 %)	18 (86%)	26 (81%)
Moderate (11.5 to ≤ 12.5 cm)	8 (16%)	1 (3 %)	3 (14%)	3 (9%
Severe (<11.5 cm)	2 (4%)	0	0	3 (9%)

OTC-Frequency of case registry

	Primary	1st post intervention survey	2nd post intervention	3rd post intervention surveys
# of cases recorded in registry	0	3	10	0



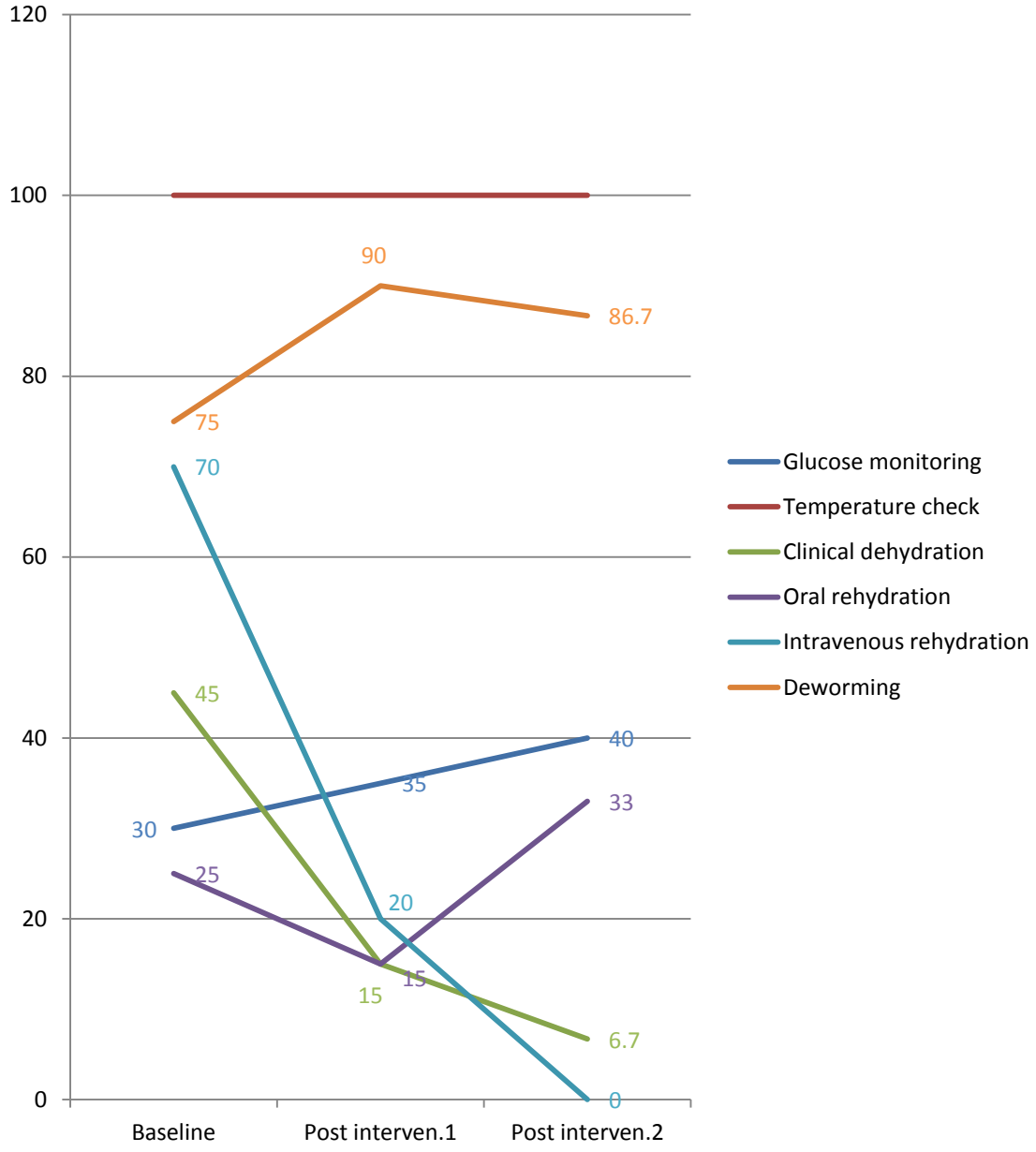
Inpatient management

blood glucose monitoring –
35% **(p value <0.5)**
40% **(p value <0.53).**

Albendazole was at 75%-90%
(p value 0.2)
86.7% **(p –value 0.3)**

Only 3 cases - tested for HIV in the post intervention era.

Due to non-availability of biochemistry tests in the laboratory, adequate electrolyte analysis could not be achieved.



Therapeutic feeding….

	Primary	1st post intervent.	2nd post interven
Cases Appropriately commenced on feeds	5 (25%)	20 (100%)	15 (100%)
Cases Feeding within 6hrs	3 (15%)	15 (75%)	14 (93%)
Cases Feeding within 24hrs	2 (10%)	5 (25%)	1(7%)
P value	na	<0.00	<0.00
Ave. No of feeds per day Median (IQR)	4 0 (0,240)	7 5.5 (4,8)	8 7 (7,8)
P value		0.00	0.005
Average vol of feeds per day (mLs /day) Median (IQR)	672 0 (0,240)	802.2 130 (130,130)	862.3 130 (130,130)
Standard deviation	250	270	234
P value	Na	<0.00	<0.00

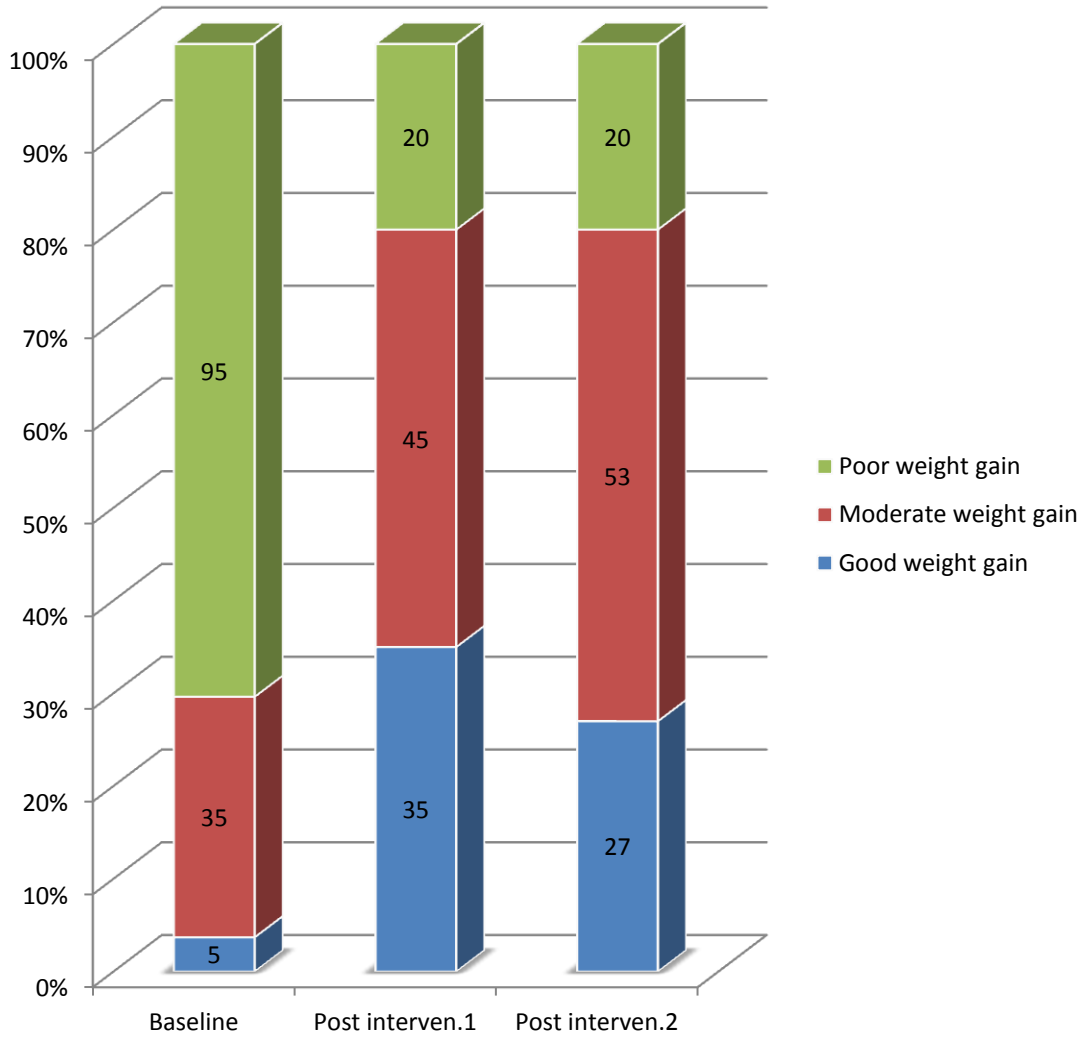
Inward weight gain outcomes…

Baseline-an average weight gain of 8.2g/kg/day.

1st post intervention survey-mean of 10.3kg,**(p-value <0.00).**

The final survey -(p- value 0.00)

Mean weight in this study period was 9kg.



Discussion:

- **Prior to the intervention: nutritional assessment deficient .(tempt & weight)**
- **Significant improvements in malnutrition anthropometry (HT/MUAC/Z-score)**
- **Anthropometry enables better assessment of nutritional risk amongst OPD <5 yrs attendances**
- **OPD - adapted well to the usage of appetite testing**
- **Inpatient Mx of SAM also showed improvements.**
- **- therapeutic feeding (p value 0.01)**
- **-feeding initiation (p value <0.00)**
- **-regular feeds (p value 0.005)**
- **-Improved weight gains (p- value of <0.00)**
- **Hazardous effects of potential fluid overload avoided by improved rehydration (oral)**

- Adherence in the area of temperature, glucose and deworming -trivial improvements (p-value 0.2-0.5).
- **Observed decreased case fatality rate**
- **14.9% vs 2% >5 months now**
- Areas for improvement included HIV screening and proper data management .
- Sufficient electrolytes in therapeutic feeds despite lack of biochemistry studies
- Ward space limitation –Nutrition ward
- Ongoing technical supervision required

*Global Nutrition Report .''Actions and Accountability to accelerate worlds progress on nutrition".

Conclusion

- Intervention:-Significant improvements in severe acute malnutrition care-BGH
- Sustained implementation required for improvement of current statistics .
- Recommendation for review of data entry at OPD possibly by adoption of integrated registry by NDOH (instead of separate entries)
- Adoption should be encouraged in other centres

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