

DIETARY DIVERSITY SCORE IN SEVERE ACUTE MALNUTRITION PATIENTS AT KIMBE PROVINCIAL HOSPITAL

Dr Rachael Masta

Diploma in Child Health, 2017

INTRO

- ✘ Malnutrition is an ongoing problem being faced all over our country. With the increasing numbers of children presenting to health facilities, so do our statistics for tuberculosis, HIV and other communicable diseases.
- ✘ WHO defines Severe Malnutrition - weight for height $<-3SD$ or presence of oedema of both feet or clinical signs of severe malnutrition
- ✘ The 2015 Annual Report on Child Morbidity and Mortality indicated that of the 2271 children admitted with severe malnutrition (14 Hospitals included in the study), there were a total of 428 deaths giving a case fatality rate of 18.7%.
- ✘ In 2016 , there were a total of 207 patients admitted to the Paediatric ward at Kimbe Provincial Hospital with severe malnutrition, 45 of these patients died as a result of complications, so the case fatality rate was 21.7%.

INTRO

- ✘ Dietary diversity is a qualitative measure of food consumption that reflects household access to a variety of foods.
- ✘ Studies have shown that an increase in dietary diversity is associated with socio-economic status and household food security
- ✘ Individual dietary diversity scores aim to reflect nutrient adequacy. Studies in different age groups have shown that an increase in individual dietary diversity score is related to increased nutrient adequacy of the diet
- ✘ In a study done in 2009 by Daniels et al showed that the dietary score without portion requirements reflects dietary adequacy, but when feasible, further refinement of diversity scores is desirable through the application of minimum portion requirements

AIMS

- ✗ To determine whether poor dietary, as reported by caregivers, is useful in evaluating the diets of children with severe malnutrition

OBJECTIVES

- Assess the demographic and socio-economic factors amongst children with SAM
- Take anthropometric measurements to assess nutrition status
- Take history of feeding practices and calculate daily and weekly dietary diversity scores

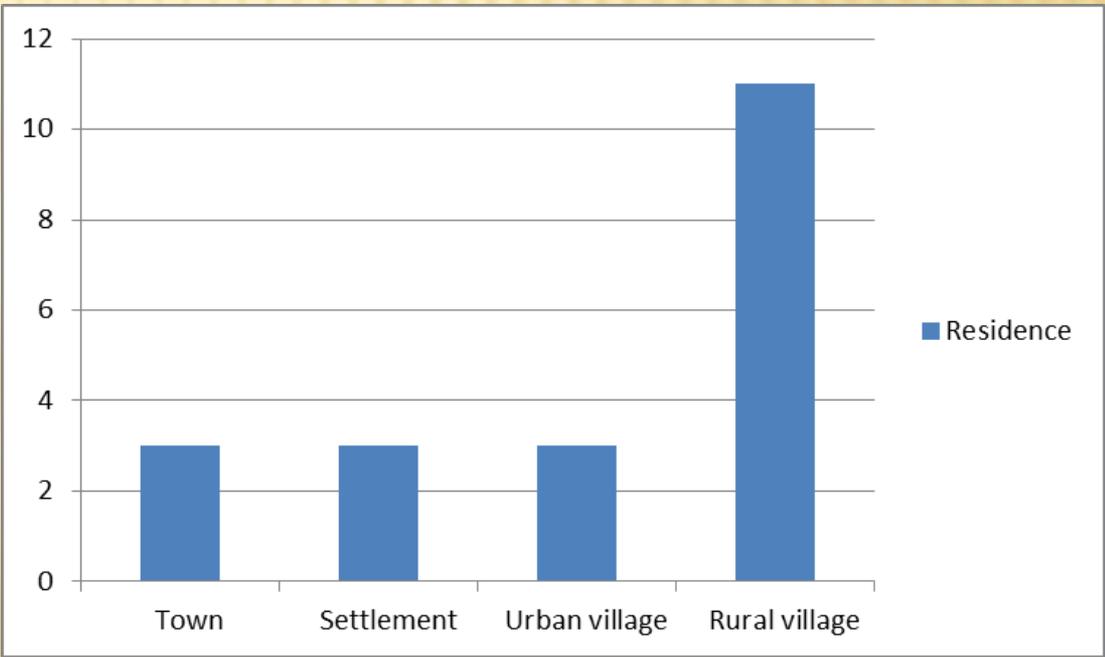
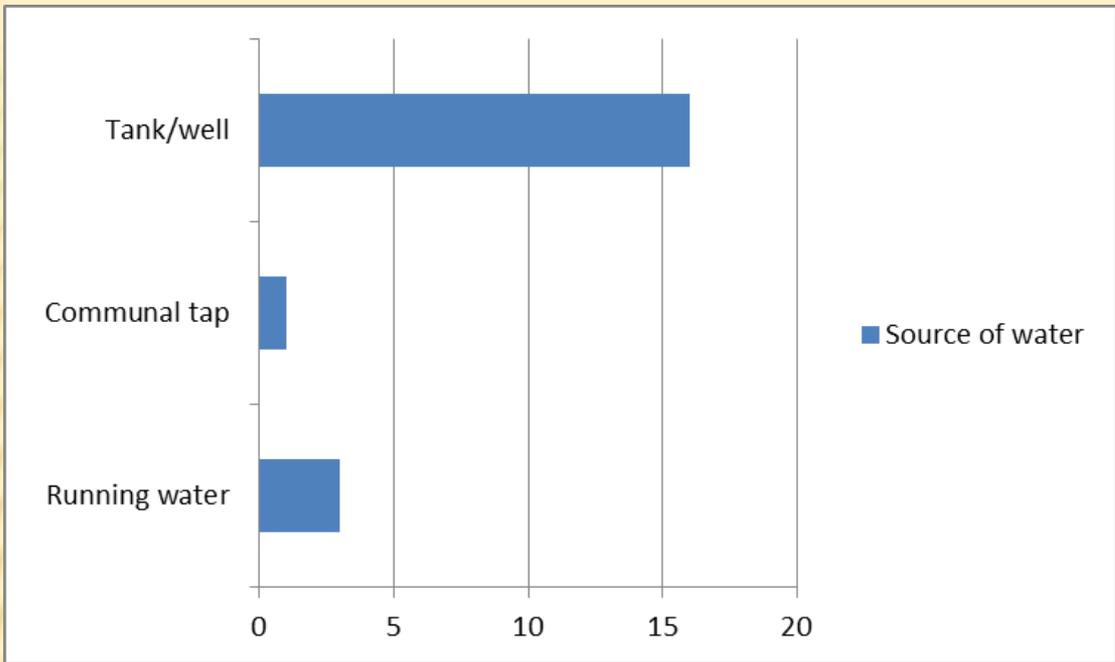
METHODS

- ✘ Prospective observational study using questionnaire
- ✘ Setting: Paediatric Ward, Kimbe Provincial Hospital
- i. Inclusion criteria - Any child between 6 months and 5 years of age with a Weight for Height/Length $<-3SD$ and or MUAC $< 11.5\text{cm}$ according to WHO standard charts
- ii. Exclusion criteria -
 - children $<6\text{months}$ and $>5\text{years}$
 - parents or guardians did not give written consent
- i. Questionnaire containing both open ended and closed questions
- ii. Anthropometric measurements

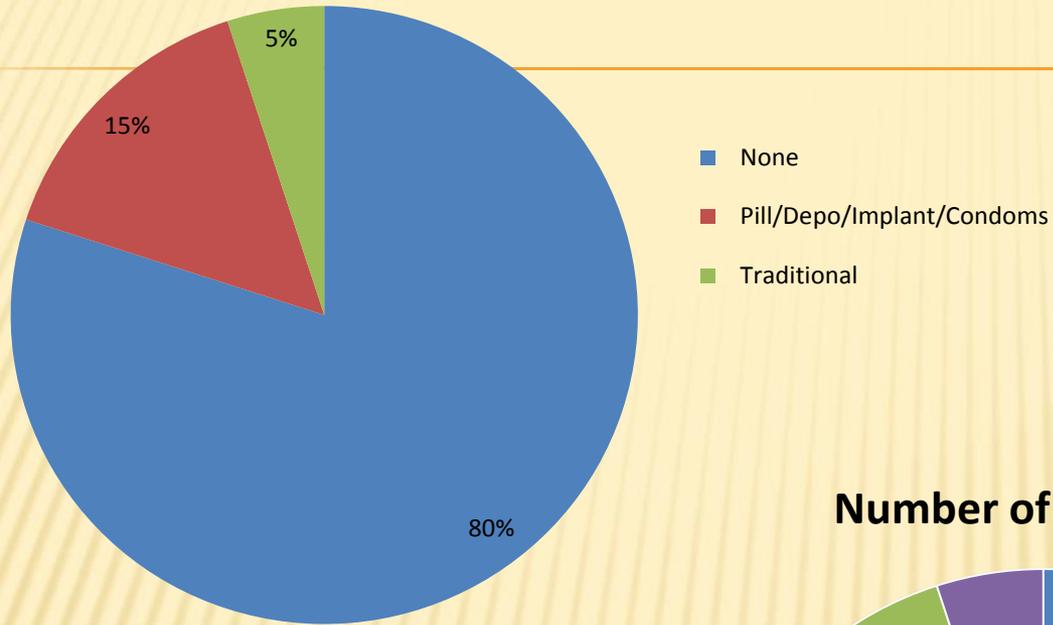
QUESTIONS AND FILTERS	CODING CATEGORIES	Daily score	Weekly score
A. Any bread, rice, noodles, biscuits, cookies or any food made from wheat? Any white potato, cassava, yam, taro?	A __		
A. Any pumpkin, carrot, or sweet potato? Any ripe mango, pawpaw?	B..... __		
A. Any tomato, onion, eggplant? Any pineapple, oranges, cucumber?	C..... __		
A. Any meat, chicken, fish, seafood?	D..... __		
A. Any eggs?	E..... __		
A. Any beans, nuts, peanuts, okari?	F..... __		
A. Any milk, cheese, cream, butter?	G..... __		
H. Any food cooked in oil/fat/coconut cream?	H..... __		
	TOTAL SCORE		

RESULTS

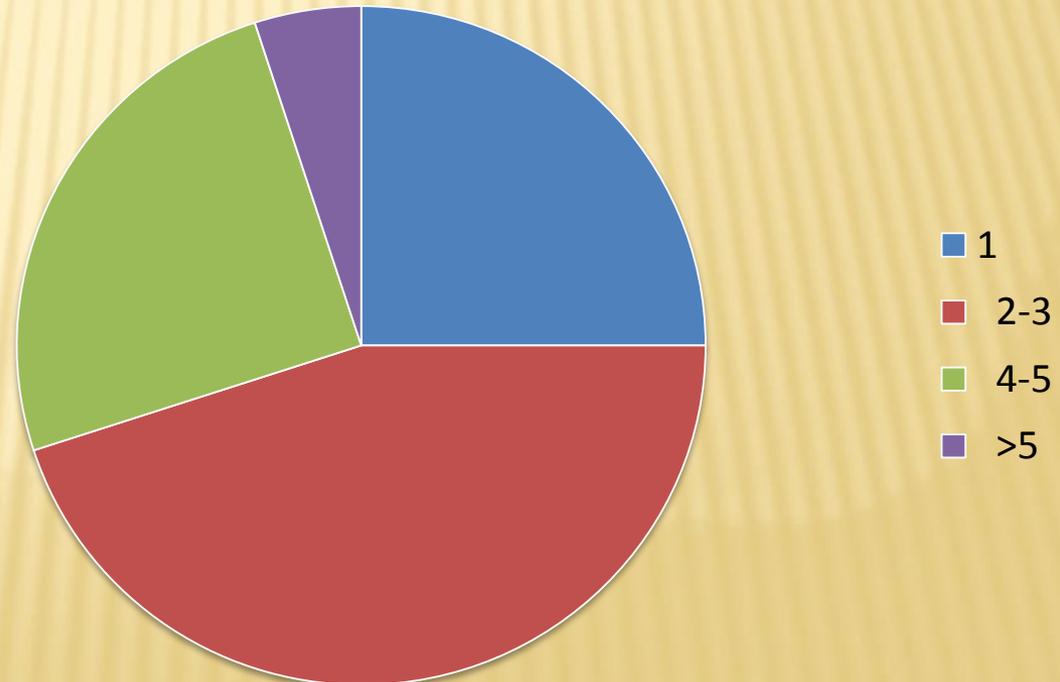
- ✘ A total of 20 patients were recruited for this study
- ✘ Male 9 (45%) Female 11 (55%)
- ✘ Age; Mean age 14.95 months (SD 7months)
- ✘ All patients had Severe Acute Malnutrition



Family PLanning



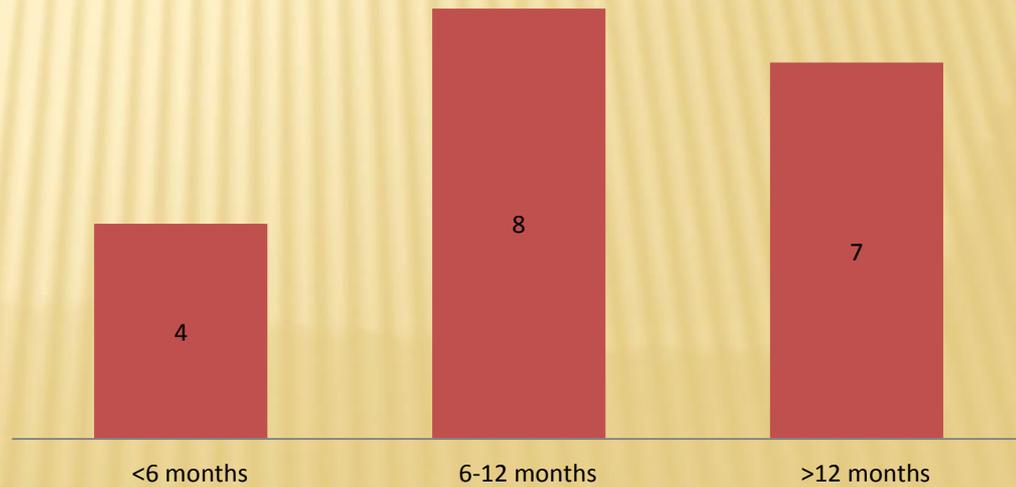
Number of children in family



Age at introduction of complimentary feeds

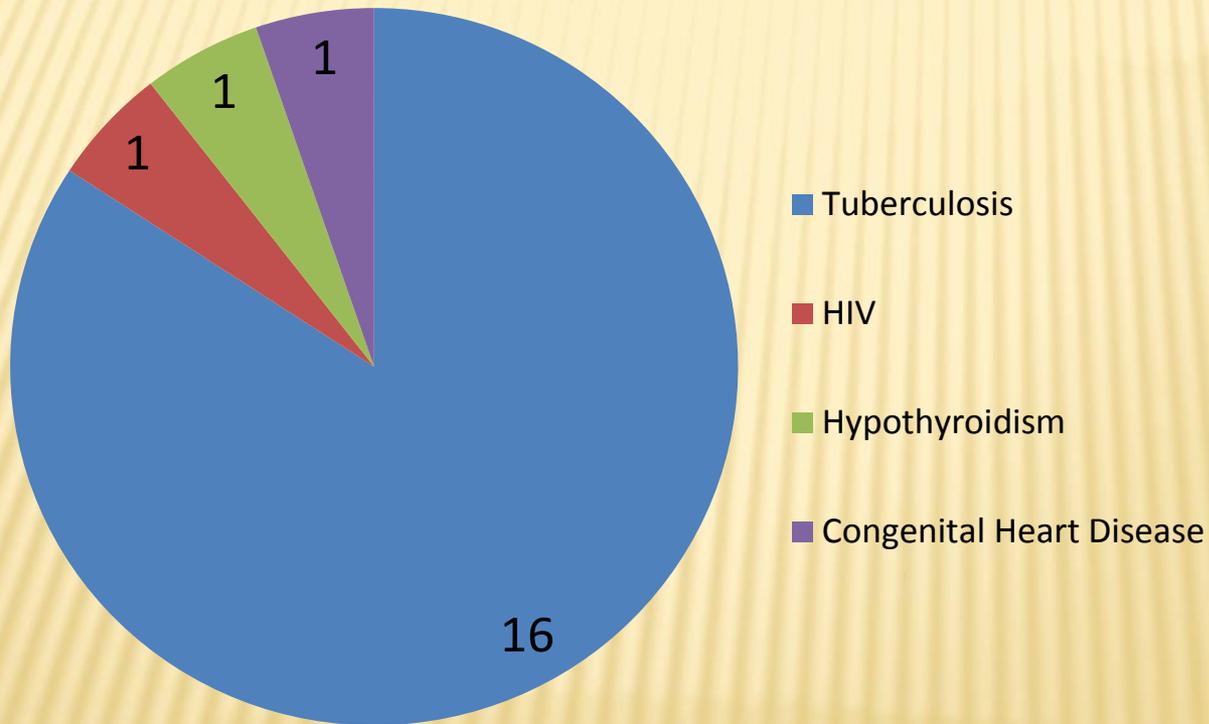


Age of weaning



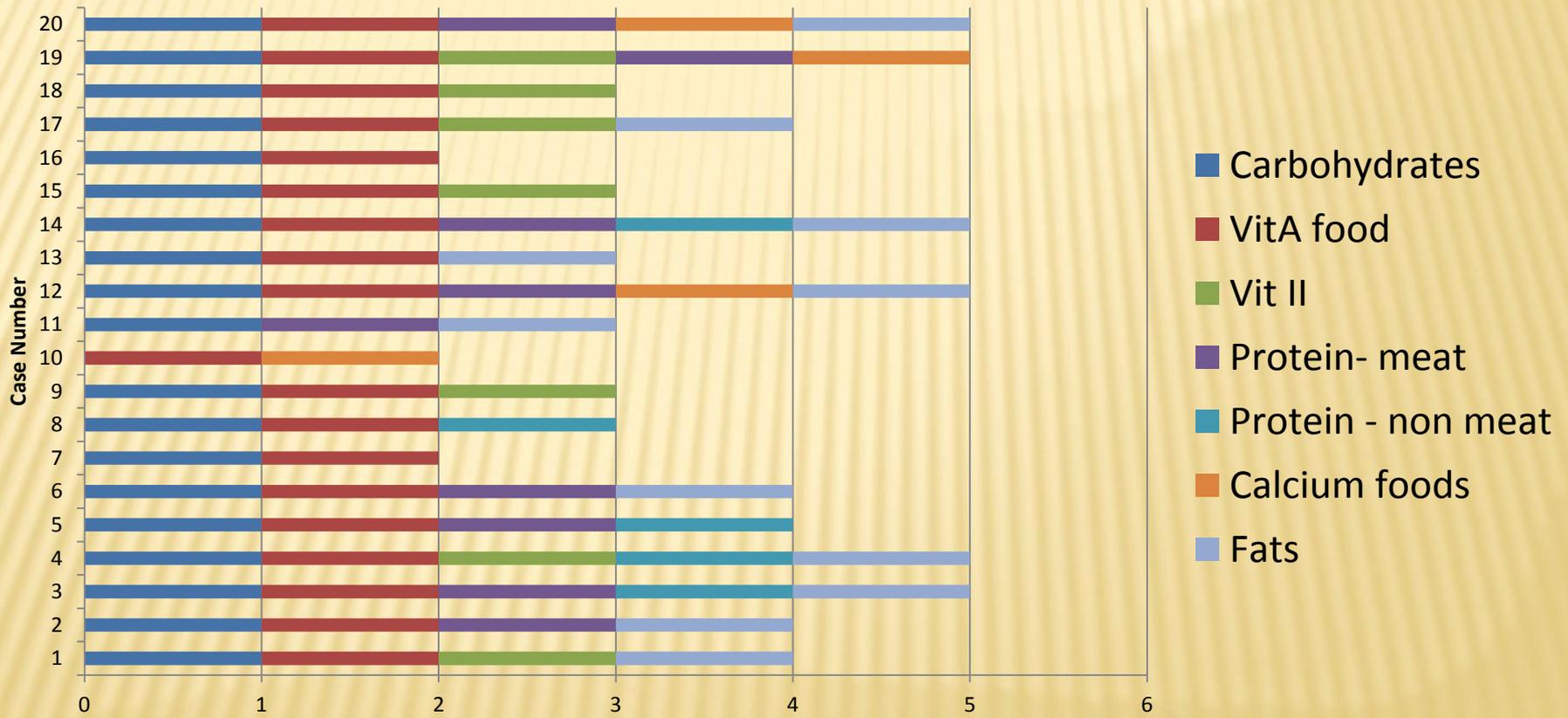
RESULTS

Underlying Conditions



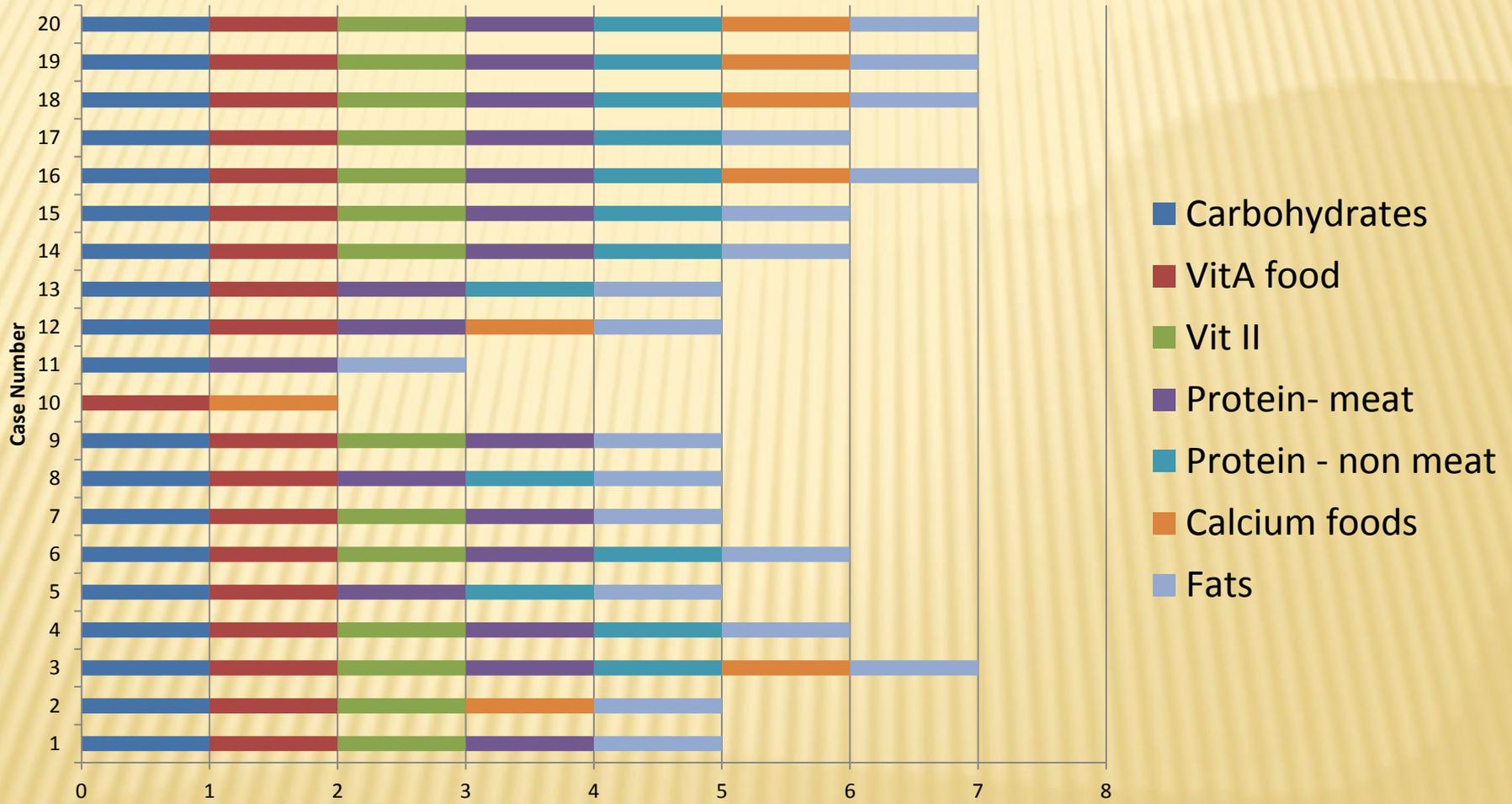
RESULTS

Daily Dietary Score



-
- ✘ Median parent reported diversity score for a typical day was 4 out of a possible 7 (IQR 3-5)

Weekly Diversity Score



Food Group	Number of children reported to have eaten on a typical day (%)	Number of children reported to have eaten in a typical week (%)
Carbohydrates	19 (95)	19 (95)
Vitamin A containing food	18 (90)	19 (95)
Vitamins B	7 (35)	14 (70)
Protein – meat	9 (45)	19 (95)
Protein – non meat	5 (25)	12 (60)
Calcium containing food	3 (15)	8 (40)
Fat	11 (55)	19 (95)

DISCUSSION

- ✘ The highest Daily Dietary Diversity Score was 5 out of 7 (median 4) meaning all participants lacked an essential food group in their everyday nutrient intake.
- ✘ 95% of participants had some form of carbohydrate in their daily diet, 90% had Vitamin A containing food, 35% had other Vitamin containing food, 45% had a meat form of protein or eggs, and only 25% had a non-meat form of protein. 20% of patients surveyed had a calcium containing food daily and 55% had a form of fat consumed daily.
- ✘ Method – parents report and potential for bias
- ✘ Compared to the Daily Dietary Diversity Score, the Weekly Score was much higher, with several participants scoring 7.

DISCUSSION

- ✘ Daily and weekly analysis showed similar patterns of food consumption in this group of patients, carbohydrate or root based diets are more commonly complemented with Vitamin A containing foods like pumpkins, sweet potato and fruits. Consumption of protein (both meat and non-meat) was not as common, and intake of calcium containing products was the least scoring food group. Fats on the other hand were consumed fairly commonly.
- ✘ Also noted is the presence of an Underlying condition in all of the participants, Tuberculosis (80%) being the main disease. Only until we control these, will our malnutrition figures improve.
- ✘ The study by Daniels et al in 2009 revealed similar patterns, with root based diets commonly complimented with meat, fish or poultry; and less frequent consumption of fruits and dairy products.

CONCLUSION

- ✘ The Dietary diversity scores are a promising method for identifying populations at increased risk of.
- ✘ By revealing broad dietary needs (for example increased intakes of fruits and vegetables) diversity scores can inform interventions.
- ✘ A larger study sample as well as control studies would be necessary to assess the full potential of the use Dietary Diversity Score in children. Also we could include portion requirements as another quantitative method of assessment.

REFERENCES

- ✘ Papua New Guinea Department of Health. **Childhood Morbidity and Mortality Report. 2015**
- ✘ Kimbe Provincial Hospital Paediatric Annual Report 2016, 2017
- ✘ MC Daniels, LS Adair, BM Popkin and YK Truong. **Dietary diversity scores can be improved through the use of portion requirements: an analysis in young Filipino children.** European Journal of Clinical Nutrition (2009) 63, 199–208

ACKNOWLEDGMENTS

- × Dr Tarcisius Uluk
- × Prof Trevor Duke, Prof John Vince
- × Parents and children in study
- × Staff of Paediatric Unit WNBPHA