



## Screening For Risk Of Malnutrition Amongst Hospitalised Paediatric Patients At UKM Medical Centre

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# PRESENTATION OUTLINES

- Introduction
- Methodology
- Results
- Discussion
- Conclusion

# INTRODUCTION

- Screening for risk of malnutrition is important in a growing child
- Nutrition screening tools in children are readily available and well established
- However, in Malaysia screening tool in children is not well-practised
- We aimed to determine risk of malnutrition amongst paediatric in-patients at UKM Medical Centre (UKMMC) using the STRONGkids screening tool (SST) and assess its user-friendliness.

# METHODOLOGY

- This was a single centre cross-sectional study involving paediatric patients over a period of 6 months
- Demographic data and time taken to complete the SST were recorded
- Prevalence of low, medium and high-risk group for malnutrition was determined; association of these risk and types of admission as well as outcomes of hospital stay were investigated
- No intervention was done for all risk groups

# SCREENING TOOL FOR RISK ON NUTRITIONAL STATUS AND GROWTH (STRONGKIDS)

**STRONG<sub>kids</sub>:** Nutritional risk screening tool for children aged month – 18 years on admission to the hospital.

<b>Screening risk of malnutrition</b> Asses following items < 24h after admission and once a week thereafter	<b>Score</b> <b>→ points</b>	
1. Is there an underlying illness with risk for malnutrition ( <i>see list</i> ) or expected major surgery?	No	Yes → 2
2. Is the patient in a poor nutritional status judged with subjective clinical assessment: loss of subcutaneous fat and/or loss of muscle mass and/or hollow face?	No	Yes → 1
3. Is one of the following items present? <ul style="list-style-type: none"> <li>▪ Excessive diarrhoea (≥5 per day) and/ or vomiting (&gt; 3 times/ day) during the last 1-3 days</li> <li>▪ Reduced food intake during the last 1-3 days</li> <li>▪ Pre-existing nutritional intervention (e.g. ONS or tube feeding)</li> <li>▪ Inability to consume adequate nutritional intake because of pain</li> </ul>	No	Yes → 1
4. Is there weight loss (all ages) and/or no increase in weight/height (infants < 1year) during the last few week-months?	No	Yes → 1

*Maximum total score: 5 points*

## Diseases with risk of malnutrition (item 1)

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>▪ Psychiatric eating disorder</li><li>▪ Burns</li><li>▪ Bronchopulmonary dysplasia (up to age 2 years)</li><li>▪ Celiac disease (active)</li><li>▪ Cystic fibrosis</li><li>▪ Dysmaturity/prematurity (until corrected age 6 months)</li><li>▪ Cardiac disease, chronic</li><li>▪ Infectious disease</li><li>▪ Inflammatory bowel disease</li><li>▪ Cancer</li></ul> | <ul style="list-style-type: none"><li>▪ Liver disease, chronic</li><li>▪ Kidney disease, chronic</li><li>▪ Pancreatitis</li><li>▪ Short bowel syndrome</li><li>▪ Muscle disease</li><li>▪ Metabolic disease</li><li>▪ Trauma</li><li>▪ Mental handicap/retardation</li><li>▪ Expected major surgery</li><li>▪ Not specified (classified by doctor)</li></ul> |
|---|--|

<b>Risk of malnutrition and need for intervention</b>		
<b>Score</b>	<b>Risk</b>	<b>Intervention and follow-up</b>
4-5 points	<b>High risk</b>	<ul style="list-style-type: none"> <li>• Consult doctor and dietician for full diagnosis and individual nutritional advice and follow-up.</li> <li>• Check weight twice a week and evaluate nutritional advice</li> <li>• Evaluate the nutritional risk weekly</li> </ul>
1-3 points	<b>Medium risk</b>	<ul style="list-style-type: none"> <li>• Consider nutritional intervention</li> <li>• Check weight twice a week</li> <li>• Evaluate the nutritional risk weekly</li> </ul>
0 points	<b>Low risk</b>	<ul style="list-style-type: none"> <li>• No nutritional intervention necessary</li> <li>• Check weight regularly (according to hospital policy)</li> <li>• Evaluate the nutritional risk weekly</li> </ul>

**Reference:**

Hulst JM, Zwart H, Hop WC, Joosten KF. Dutch national survey to test the STRONGkids nutritional risk screening tool in hospitalized children. *Clin Nutr.* 2010;29(1532-1983; 0261-5614; 1):106-111.

# RESULTS

- A total of 220 patients aged between 1 month old to 15 years old were recruited in this study with average age was 5 years old
- 88 (40%) patients were admitted to medical ward and 132 (60%) patients were admitted to surgical ward

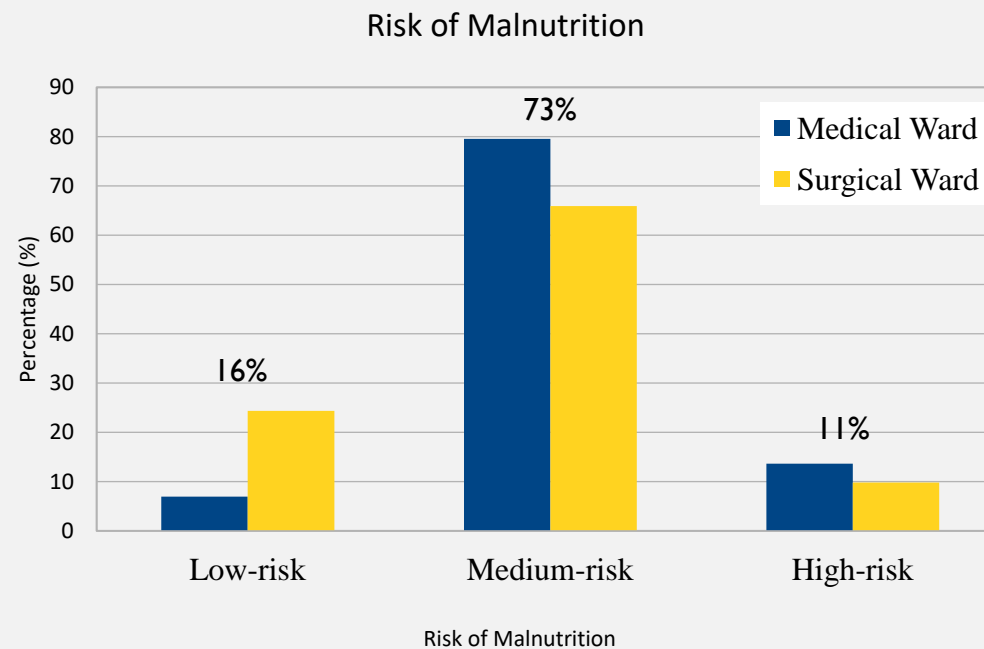
Admission	Medical ward	Surgical ward
Elective admission	29	98
Emergency admission	59	34
Total patients	88	132



# RESULTS: RISK OF MALNUTRITION

- Out of 220 patients recruited, 73% fell into medium-risk group, 16 % in low-risk and 11% was in the high-risk group

	Medical		Surgical	
	Elective	Emergency	Elective	Emergency
High risk	8	4	6	7
Medium risk	20	53	60	27
Low risk	1	2	32	0
	29	59	98	34
<b>Total</b>	<b>88</b>		<b>132</b>	



## RESULTS: RISK OF MALNUTRITION

- Medical in-patients had significantly higher risk of malnutrition (94%) compared to surgical in-patients (76%): ( $p < 0.05$ )
- Patients from the medical ward were mostly oncologic patients, whereas, patients from the surgical ward were mostly fit patient with no underlying medical problems

## RESULTS: RISK OF MALNUTRITION

- Admission for emergencies amongst the surgical in-patients showed significant higher risk for malnutrition with  $p= 0.00$
- In surgical ward, elective admissions were mostly patients with no underlying medical problem who was planned for surgery, whereas, emergency admissions were patients with acute gastrointestinal symptoms and septic arthritis

## RESULTS: RISK OF MALNUTRITION

- There is no significant difference in the medical in-patients ( $p=0.396$ )
- In medical ward, elective admissions were mostly leukemic patients, meanwhile emergency admissions were patients with acute respiratory infections

## RESULTS: HOSPITAL STAY OUTCOMES

- The range of patients' length of stays was from 1 to 45 days, with the mean of 5 days admission
- Ward-stay longer than 5 days was associated with significantly higher risk of malnutrition with ( $p < 0.05$ )

## RESULTS: HOSPITAL STAY OUTCOMES

- 10 readmissions were recorded and it was not significant with risk of malnutrition
- Zero mortality was recorded in this study

## DISCUSSION

- Nutrition screening tools are widely being used in adults and has become a routine assessment for admissions of adult patients
- In Malaysia, nutrition screening tools are rarely being used on paediatric patients, despite they are readily available online

## DISCUSSION

- This is the first study conducted in Malaysia to screen risk of malnutrition in hospitalised paediatric patients using STRONGkids screening tool
- Results from this study had allow us to determine and compare the significant difference between elective and emergency admissions in both medical and surgical wards



## DISCUSSION

- Previous study suggested that the risk of malnutrition in both medical and surgical admissions would be different
- However, the significant difference between these two had never been tested
- Result from our study showed there was a significant difference between the types of admissions to the risk of malnutrition and supported the theory

## DISCUSSION

- Only few readmissions were reported and there was no mortality presented
- Result from our study had enabled us to notify the respective doctors to take further actions on high-risk patient, subsequently to reduce the number of readmissions
- Our study had proven that nutrition screening on paediatric patients had helped early detection for risk of malnutrition and allow suitable preventive actions to be taken

## LIMITATION

- This study was done during Covid-19 pandemic, thus causing a restricted number of resource and cases
- Results from this study may not represent the ideal setting and circumstances of actual cases and hospital admissions

## LIMITATION

- There was limited literature resource and finding pertaining to this study that we could compare with
- Hence, a follow up study should be considered to strengthen the findings and establish mean of correlations

## CONCLUSION

- Risk of malnutrition was alarmingly high in both medical and surgical paediatric in-patients
- This could have serious impact on the healing as well development of the children
- Early detection should be made mandatory
- We highly recommend screening for risk of malnutrition as part of history taking in all paediatric patients and to use the STRONGkids ST for this purpose