FACTORS LEADING TO MISSED OPPORTUNITIES IN DIAGNOSIS AND MANAGEMENT OF ACUTE MALNUTRITION IN CHILDREN LESS THAN 5 YEARS AT WAKISO HEALTH CENTRE IV, WAKISO DISTRICT

BY

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A RESEARCH REPORT SUBMITTED TO SCHOOL OF FOOD TECHNOLOGY, NUTRITION AND BIOSYSTEMS IN PARTIAL FULFILLMENT FOR THE AWARD OF BACHELOR OF SCIENCE IN HUMAN NUTRITION OF MAKERERE UNIVERSITY

2018
DECLARATION.

I MUKASA SULAIMAN declare that this study is original and has no other degree award to any other university before.

Signature: ...........................................

Date: ..............................................

15th Oct. 2018
APPROVAL BY SUPERVISOR.

I, professor Muyanja Charles, this study titled “Factors leading to misdiagnosis and management of acute malnutrition at Wakiso health center” has been done under my supervision and ready for submission to the examination board with my approval.

Signature

Professor Muyanja Charles (PHD)

Date: 10th - 10 - 2018.
DEDICATION.

I dedicate this study to the staff of Wakiso Health Centre IV, Wakiso district who accepted me to conduct a research study on their daily routine operational activities and giving genuine answers to my questionnaires.
ACKNOWLEDGEMENT.

I thank the almighty God for giving me courage, provision and good health as I did my research.

I acknowledge my supervisor Professor Charles Muyanja for being patient with me and also giving me guidance during the entire process of research. May God richly bless you.


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LIST OF ABBREVIATIONS.

BMI    Body Mass Index
LMICs  Low and Middle-Income Countries
MAM    moderate acute malnutrition
MOH    Ministry of Health
SAM    Severe acute malnutrition
SPSS   Statistical Package for Social Sciences
WHO    World Health Organization
ABSTRACT.

Acute malnutrition is one of the major causes of morbidity and mortality among under-five children in Sub-Saharan Africa in general and Uganda in particular but it’s often missed as a diagnosis in most general medical set ups. To understand the causes of failure to diagnose acute malnutrition a study was carried out at Wakiso Health Center IV in Wakiso district which is located in Central Uganda and greater Kampala and a total of 121 respondents were involved in the study.

The source of data was through an administered questionnaire which was extracted out of the standard Ministry of Health Monitoring and Evaluation tool. The Nutrition Service Delivery Assessment (NSDA) of September 2015. The questionnaire was used to assess all child health care delivery points for their feasibility and ability of health workers to detect acute malnutrition. And to determine the prevalence of acute malnutrition amongst children below 5 years who receive health care at Wakiso health center IV.

Among the respondents 61% were female and 39% were male and respondents between 6 months to 5 years formed 80% while those below 6 months formed 20%. A sample screening and assessment for malnutrition was done among the respondents and 96.7% had normal nutrition status and 3.6% had acute malnutrition way above the regional average of 2.1%.

The study found out that lack of logistics and instruments used in screening and assessment on nutritional status, lack of up to date literature, incomplete physical examination and lack of training in management of acute malnutrition led to missed opportunities in diagnosis and management of acute malnutrition.

Recommendations and ways forward suggested the following. Diagnostic equipment and tools required in the management of acute malnutrition should be prioritized amongst other items when requesting for health facility supplies. Clinical staff need training in the use of some diagnostic equipment for acute malnutrition like 2 in 1 weighing scale and Z score charts.
clinical staff should ensure complete history taking from any credible source when in contact with patients so as to source out nutrition and feeding problems. The clinical staff should try to do complete physical medical-nutrition examinations when in contact with patients despite the patient turn up and flow rate so as to find out nutrition problems which may co-exist with medical problems. The health facility administration should try to found the staff with up to date literature like the current IMAM guidelines of 2016 and necessary training and continuous education in order to reduce the knowledge gap existing in the diagnosis and management of acute malnutrition. The facility administration should demonstrate a demand for a nutrition professional at the facility amongst the health center staffing. This can be done in conjunction with the District Health Officer (DHO) in conjunction with the political leadership.
CHAPTER ONE.

1.0. INTRODUCTION.

Globally acute malnutrition is the greatest single threat to life and a devastating epidemic, worldwide 25 to 35 million children less than 5 years are affected by acute malnutrition of which more than 80% of these are in developing countries (UNICEF 2015).

There are more than 17.6 million children in sub-Saharan Africa who suffer from acute malnutrition and of these more than 1 million will die every year and the worst affected parts are west, central and East Africa where Uganda is located (UNICEF 2015). This greatly contributes to the death of children below 5 years of which the average for sub-Saharan Africa is 55/1000 live births, and hence measures should be taken to adequately manage it.

In Uganda the overall prevalence of acute malnutrition is 5% on average with moderate acute malnutrition contributing 4% and severe acute malnutrition in both forms i.e. oedematous and non-oedematous contributing 1%, Regional variations occur where by Karamoja and West Nile the prevalence is 10% and south central and greater Kampala where Wakiso district is located the prevalence is 1.4 and 1.8 respectively (UDHS 2016).

In Wakiso town council, which is served by Wakiso Health Centre IV following a survey, acute malnutrition constitutes 8% of all childhood illnesses diagnosed (UNAIDS Report 2016). But out of these only 40% of acute malnutrition cases are diagnosed, managed and reported according to the Uganda demographic and health survey report 2016. There by creating a large number of missed opportunities for diagnosis and management of acute malnutrition.

A missed opportunity in health care “where management of acute malnutrition falls” is defined as any contact with a health service provider that did not result into an eligible child or individual receiving a needed service (WHO 2015).

The research study was carried out to help to find out the factors leading to a high number of missed opportunities in diagnosis and management of acute malnutrition and hope to find solutions for the factors identified so to ease on the morbidity and mortality associated with acute malnutrition.
1.1. **PROBLEM STATEMENT.**

Acute malnutrition is one of the leading causes of death among children below 5 years in Uganda and accounts for 10% of infant mortality rate in Uganda. It usually develops following a period of an acute childhood illness or after a prolonged period of poor nutrition At Wakiso health center IV in Wakiso district. Children are examined and treated for medical ailments but less often assessed and screened for acute malnutrition thereby leading to missed opportunities in the diagnosis and management of acute malnutrition. This has led to increased morbidity and mortality associated with acute malnutrition.

1.2. **JUSTIFICATION.**

Children under 5 years are prone to malnutrition since they have high growth and energy demands and highly susceptible to diseases which can affect their nutrition status making them prone to acute malnutrition (Infant and early childhood feeding P45-46). Thus all measures should be taken to assess and screen for acute malnutrition for every sick child who gets contact with a health worker.

In most general medical set ups children are not assessed and screened for acute malnutrition, after a visit to the main 4 health Centre IVs in Wakiso district a number of children present with acute malnutrition following acute childhood illness like measles, bacterial pneumonia and diarrheal diseases but are often discharged with no diagnosis or measures to prevent acute malnutrition and hence resulting into missed opportunities to prevent or manage SAM in the children (Kasolo et al 2013).

In Wakiso town council, which is served by Wakiso health Centre IV following a survey, acute malnutrition constitutes 8% of all childhood illnesses diagnosed (UNAIDS Report 2015). But out of these only 68% of acute malnutrition cases are diagnosed, managed and reported according to the Uganda demographic and health survey report 2016.

This leaves a gap of 32% of children with acute malnutrition but it is not diagnosed, managed or reported thus leading to a high number of missed opportunities in the diagnosis and management of acute malnutrition and of particular interest Wakiso health Centre IV.

As the problem is stated above the research study focused on finding out the various factors leading to missed opportunities to diagnose and manage children less than 5 years who present with signs and symptoms of acute malnutrition or are at risk of acute malnutrition at Wakiso health center IV.
1.3. **OBJECTIVES.**

1.3.1. **GENERAL OBJECTIVE.**

To determine the causes of failure of health workers at Wakiso health center IV to diagnose and manage acute malnutrition in children less than 5 years at Wakiso health center IV, Wakiso district.

1.3.2. **SPECIFIC OBJECTIVES.**

- To determine the prevalence of acute malnutrition (SAM and MAM) amongst children less than 5 years who receive in and outpatient services as diagnosed by health workers at Wakiso Health Centre IV, Wakiso district.
- To assess the knowledge and technical abilities of health workers at Wakiso health center IV, Wakiso district in the management of acute malnutrition in children less than 5 years in relation to IMAM guidelines 2016.
- To assess procedures, tools and instruments used by health workers to diagnose acute malnutrition in children less than 5 years at Wakiso health center IV, Wakiso district in relation to IMAM guidelines 2016.

1.4. **HYPOTHESIS.**

1. The incidence of acute malnutrition amongst children less than 5 years who receive in and outpatient services at Wakiso Health Centre IV in Wakiso District is low.

2. Health workers have sufficient knowledge and diagnostic equipment to diagnose and manage acute malnutrition in children less than 5 years at Wakiso Health Centre IV, Wakiso District.

3. Health workers at Wakiso Health Centre IV use correct tools and instruments to diagnose acute malnutrition in children less than 5 years at Wakiso Health Centre IV, Wakiso district.
CHAPTER TWO.

2.0. LITERATURE REVIEW.

This topic deals with the information available in accordance with the study topic and objectives.

2.1. ACUTE MALNUTRITION.

Acute malnutrition is a broad term currently used to categorize/specify nutrient deficient states which include Moderate acute malnutrition, severe acute malnutrition oedematous and non oedematous (Scheinfeld et al., 2014). Acute malnutrition is defined in individuals with the following nutrition indicators, in children less than 6 months weight for length greater than or equal to -3 z-score and less than -2 z-score (≥ -3SD and <-2SD) this is diagnostic of moderate acute malnutrition. And values of less than -3z-score (<-3SD) are diagnostic of severe acute malnutrition with or without oedema (MOH, IMAM Guidelines, 2016).

For children 6 months to 5 years acute malnutrition is defined by weight for length/height greater than or equal to-3 z-score and less than -2 z-score (≥ 3 SD and <-2SD) with no oedema and a MUAC range of greater or equal to 11.5cm and less than 12.5cm (≥11.5cm and <12.5) this is diagnostic of moderate acute malnutrition. And values of less than -3 z-score (<-3SD) with a MUAC value of less than 11.5cm (<11.5cm) is diagnostic of severe acute malnutrition with or without Oedema (MOH, IMAM Guidelines, 2016).

Acute malnutrition can present with or without complication(s) but in most cases it’s associated with both medical and nutritional complications. Any patient presenting with a complication as a result of acute malnutrition should receive in-patient therapeutic care until the individual stabilizes (WHO, 2017).

Complications of acute malnutrition include severe anemia, severe wasting, lack of appetite, hypothermia, hypoglycemia, severe diarrhea, dermatosis Oedema, severe dehydration, lethargy, shock, coma and death. Presence of any of these complication(s) is diagnostic of severe acute malnutrition (MOH, IMAM Guidelines, 2016). But these complications aren’t limited or specific to acute malnutrition but are common clinical findings in other medical conditions, but any of the above complications warranty a screening and assessment for acute malnutrition (UCG, 2016).
2.2. ACUTE MALNUTRITION AS A BURDEN.

Worldwide acute malnutrition is the most lethal form of malnutrition directly or indirectly causing at least 7.5 million deaths and of these at least 60% are from developing countries mainly in Africa (Caulfield et al., 2004). Whereby Uganda is amongst the developing countries with a high prevalence of acute Malnutrition of averagely 5% in 2017 thereby being a big health concern.

In 2010, World Health Organization (WHO) estimated that malnourished children were 182 million (32%) or that’s to say approximately 3 in every 10 children in developing countries (Uganda inclusive). In addition an estimated 150 million children under 5 years of age are malnourished when measured in terms of weight for age. The same report indicated that Eastern Europe and Eastern Africa about half of the children have growth retardation due to acute malnutrition (WHO/Nutrition for health and development NHD, 2010).

Malnutrition directly and indirectly contributes 10% to child mortality in Uganda and acute malnutrition is one of the single greatest contributors to this percentage and child mortality in the country although it’s rarely listed as a direct cause (UHSSIP 2010/11-15).

2.2. MISSED OPPORTUNITIES IN HEALTH CARE.

In health care, missed opportunities occur during visits for immunization, growth monitoring, nutrition assessments and curative services. In all settings eliminating missed opportunities has the potential to improve quality of life, reduce morbidity and mortality and improve on quality of service provision (Johnson et al., 2015).

A missed opportunity in health care ‘’where management of acute malnutrition falls’’ is defined as any contact with a health service provider that did not result into an eligible child or individual receiving a needed service (WHO 2015). This may be a great contributor to the child and infant mortality rate which stood at 131 deaths 1000 live birth in 2017 for Uganda and the highest in the East African region (WHO 2018)

Most health centers in Uganda are understaffed and underequipped. Diagnosis and treatment of disease depends on the index of suspicion and knowledge of a health worker (health center and hospital census report 2014). This leads to service providers being overstretched and working beyond their technical capabilities. Conditions such as acute malnutrition, severe malaria, diarrheal diseases, bacterial pneumonia, measles, and specific nutrition deficiencies have
overlapping clinical signs and complications (UCG, 2014). Therefore can easily be missed out in diagnosis and treatment of disease. Thus leading to missed opportunities in health care and of particular interest for the research project is acute malnutrition in children less than 5 years at Wakiso Health Centre IV, Wakiso district.
CHAPTER THREE

3.0. METHODOLOGY.

This section deals with the methods used in the research study in order to meet the study objectives. Also included is the study area, study population, study design, sampling method and sample size.

3.1. STUDY AREA.
The study was conducted at Wakiso health center IV in Wakiso district. It’s located in Wakiso town and it’s one of the 4 main health sub-districts that make up Wakiso district’s health center demography and offering both in and out-patient services for Child health care integrated with other services of general health care and its catchment population is 100,000 to 500,000 people (MOH,Uganda 2015).

3.2. STUDY DESIGN.
The study adopted a descriptive cross sectional study design in which a standard questionnaire i.e. extracted out of the Ministry of Health “Nutrition service deliver assessment tool of September 2015”. The questionnaire was used to determine the availability of tools and instruments used to assess nutrition status and diagnose acute malnutrition as stated in the specific objectives.

And also assess the knowledge and capability of health workers at Wakiso health center IV to diagnose and manage acute malnutrition with its complications in relation to the current IMAM Guidelines of 2016.

3.3. TARGET POPULATION.
The study target population was children below 5 years of both gender and of any affiliation and had turned up to seek health care at Wakiso Health center IV with guardians consent and willing to participate in the study.

3.4. SAMPLING.
The study adopted a simple random sampling method since its effective for a large population and resource effective and requires less technique. This was done to meet the objective of determining the prevalence of acute malnutrition amongst children below 5 years who seek medical care at Wakiso health center IV.
3.5. SAMPLE FRAME.

The study sample frame was all children below 5 years. And it’s estimated for any given population children below 5 years form 20%.

3.6. SAMPLE SIZE.

The adopted the formula below to determine sample size; (Johnson 1992).

\[ n = t^2 \frac{(p \times q)}{d^2} \]

Where. \( n \) – Sample size.

\( t \) – Error risk corresponding to 5% confidence interval

\( p \) – Prevalence of malnutrition expressed as a fraction of 1.

\( q \) – This is a value of (1 – p) to reflect number of individuals not having malnutrition.

\( d \) – Value of absolute precision.

For my research project \( t = 1.66 \) for a 5% confidence interval.

\[ P = 0.150 \]
\[ q = 0.850 \]
\[ d = 5\% \text{ which is equal to } 0.03 \]

\[ n = 1.66^2 \frac{(0.150 \times 0.850)}{0.03^2} \]
\[ = 3.84 \times 0.2275 / 0.0009 \]
\[ = 540 \text{ children.} \]

Due to financial constraints and the study time frame the sample size was reduced to 121 participants.

3.7. STUDY UNITS.

The study units were the Inpatient wards, postnatal clinic, Outpatient clinic and Immunization clinic these are selected as study units because there are the main points were children under my target population are often cared for.
3.8. DATA COLLECTION TOOLS.

3.8.1. NUTRITION STATUS ASSESSMENT TOOLS.
The study adopted standard tools used for assessment of nutrition status. That’s to say the MUAC tape for measuring Mid-upper arm circumference, Weighing scale for measuring weight, height/length boards for measuring height/length and standard Z-score charts for determining Z-scores. And all results were eligibly recorded.

3.8.2 HEALTH WORKERS AND LOGISTICS ASSESSMENT.
The study adopted a standard questionnaire that was extracted out of the Ministry of Health, Nutrition Service Delivery Assessment tool of September 2015 and purposely designed and suited to fit the study. This was used to assess the knowledge and abilities of Clinical staff at Wakiso Health Centre IV to diagnose and manage acute malnutrition and its complications in relation to IMAM guidelines of 2016.

The questionnaire was further used to determine/asses the availability of logistics and instruments used in diagnosis and management of acute malnutrition and its complications such MUAC tape, 2 in 1 weighing scale, length/height boards, standardized recording charts and formula feeds. The questionnaire was further used to assess the ability of clinical staff to use the available tools and interpretation of results/findings. Results were legibly summarized and recorded.

3.8.3. DATA ANALYSIS.
The data that was collected was summarized and cleaned, computed and analyzed using SPSS (version 16). Data was then entered and run in frequencies and variables cross tabulated for purposes of estimating descriptive and inferential trends and for the latter, chi square tests were used and also P-values were estimated. A probability value (P-value) of less than 0.05 was considered to be statistically significant at 95% confidence interval.

3.8.4. ETHICAL CONSIDERATIONS.
Formal permission with a letter from the School of Food Technology, Nutrition and Bio-engineering, Makerere University was sought from the Health center In-charge for a clearance to carry out the study at the health center, orientation and introduction to the different cadres of health workers at the facility at the different study units. An informed consent was sought from
parents or guardians of children before conducting any assessments, investigations or giving out a questionnaire.
CHAPTER FOUR

4.0. STUDY FINDING.

This chapter deals with the results and discussion of the findings of my research study.

4.1. Respondents’ Demographics.

Table 4.1; Demographic Characteristics of Respondents.

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>74</td>
<td>61</td>
</tr>
<tr>
<td>Female</td>
<td>47</td>
<td>39</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-6 months</td>
<td>14</td>
<td>11.6</td>
</tr>
<tr>
<td>6-12 months</td>
<td>34</td>
<td>28</td>
</tr>
<tr>
<td>12 month – 1 year</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>2 years to 5 years</td>
<td>42</td>
<td>35</td>
</tr>
<tr>
<td><strong>n=120.</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In table 4.1. It was observed after sampling, the sample population contained more females at (61%) than males (39%). And most of my respondents were above 6 months of age at (80%) and those below 6 months of age (20%) and hence the study results were more reflective of individuals between 6 to 59 months.

4.2. Nutritional Status.

The MUAC of the respondents was used to determine their nutrition status and screen for acute malnutrition. This was done in addition to measuring of body weight in kg per respondent under the study and body length in (cm) for respondents below 12 months and body height in (cm) for respondents above 12 months. The resultant values of weight for length and weight for height were computed to get Z scores, these were referenced to a Z score chart to get Z score values for each respondent.
Table 4.1; Anthropometric measurements of the Respondents.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;12.5</td>
<td>116</td>
<td>96.4</td>
</tr>
<tr>
<td>11.5 – 12.5</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>&lt;11.5</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Z scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; -3</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>≥</td>
<td>117</td>
<td>97.5</td>
</tr>
</tbody>
</table>

(n=120)

In table 4.2. It was observed that after MUAC screening the majority of respondents (96.4%) had good nutrition status and (1.2%) had moderate acute malnutrition and (2.4%) had severe acute malnutrition therefore in total 3.6% of my respondents had acute malnutrition. But conversely there was no case of acute malnutrition that was reported under the HMIS by the health facility, probably the large number of children with good nutrition status covered up those with acute malnutrition.

4.3. Results after administering the Monitoring and Evaluation questionnaire.

This is done by inquiry and observation with assistance from the department heads/in-charges and respondent staff willing to participate in the study

Table 4.3; Table Instruments used to assess nutrition status.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Availability</th>
<th>Ability to use the equipment/instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighing scale</td>
<td>Yes</td>
<td>yes</td>
</tr>
<tr>
<td>MUAC tape</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Thermometers</td>
<td>Yes</td>
<td>yes</td>
</tr>
<tr>
<td>Length/height board</td>
<td>No</td>
<td>yes</td>
</tr>
<tr>
<td>Z-score charts</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>IMAM guideline 2016 booklet</td>
<td>No</td>
<td>Not available</td>
</tr>
</tbody>
</table>

In table 4.3. It was observed that the facility lacked key equipment required for assessment of nutrition status and diagnosis of acute malnutrition. And thus most children/individuals who had
contact with health workers never underwent a nutrition status screening. Though it was established that the health workers knew how to use all the equipment required since they require less technique.

4.4. HISTORY TAKING.
This data was established as noted from the treatment forms and treatment books of respondents in addition to the medical history and presenting complaints.

![Pie chart showing relevant history taken by clinicians.](image)

Figure 4.4. A pie chart showing respondents relevant history as taken by clinicians.

It was noted that in addition to the medical history, clinicians took breast feeding history and weaning history for children at a magnitude of (80) % of all respondents and out of all respondents. Immunization history, family history, nutrition history was taken for approximately 6% of all respondents and nutrient supplementation was the least taken at 3%.

4.5. CLINICAL EXAMINATION.
This was done by observation after seeking consent of examining clinician and ensuring maintainace of patient’s privacy. And my interest and focus were on the aspects of nutrition status screening during a general medical examination.
Table 4.5. A table showing the parameters of nutrition status screening as examined by clinicians at the facility.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>EXAMINED BY CLINICIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUAC</td>
<td>No</td>
</tr>
<tr>
<td>weight</td>
<td>Yes</td>
</tr>
<tr>
<td>height</td>
<td>No</td>
</tr>
<tr>
<td>Checking for Oedema</td>
<td>No</td>
</tr>
<tr>
<td>n=50</td>
<td></td>
</tr>
</tbody>
</table>

In table 4.5. It was observed that the physical examinations was general in nature but the examinations never involved nutrition status screening and assessment and the sample count was 50 and random in nature for the respondents to be observed. The sample count was maintained at 50 respondents in order not to interfere with patient flow and health facility routine activities.

This was done by observation and inquiry in addition to a questionnaire it involved checking for clinicians’ ability to accurately diagnose and classify acute malnutrition and checking for ability to diagnose and manage complications arising as a result of acute malnutrition.

Table 4.6; Clinicians and nurses ability to diagnose and manage complications of acute malnutrition.

<table>
<thead>
<tr>
<th>ABILITY TO DIAGNOSE AND MANAGE COMPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATING</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Very well</td>
</tr>
<tr>
<td>Not sure</td>
</tr>
<tr>
<td>Need training</td>
</tr>
<tr>
<td>Out of professional scope</td>
</tr>
</tbody>
</table>
The questionnaire and assessment were done to a total of 5 qualified health workers who were working in different departments of child health care and these included 3 nurses and 2 clinical officers. They were all able to manage shock, severe anemia and diarrhea very well.

They were not sure of how to manage hypothermia and oedema, they needed trainings of how to manage hypoglycemia and dehydration but they all agreed that diagnosis and management of complication as a result of acute malnutrition falls within their professional scope and abilities.

**Note;** It was established that the respondent knew the criteria of diagnosis and classification of acute malnutrition.

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Figure 4.7. Availability of formula feeds for management of acute malnutrition the above data was obtained from the logistics and supplies department. It shows that the formula feeds required for management of acute malnutrition are under supplied for all formula feeds required. And since the supply is periodical it means there particular periods of the year when there is a deficit and this may interfere with the management of acute malnutrition at the facility.
4.8. MANAGERIAL AND ADMINISTRATIVE ROLES.

- The facility had no designated nutritionist.
- The clinical staffs (nurses and clinical officers) have no regular trainings about management and treatment of acute malnutrition.
- The facility had no up to date literature about the management of acute malnutrition like the current IMAM guideline and proper treatment and documentation charts.
- There was no room for triage, i.e. sorting out patients according to their needs and priority according to state of health.
CHAPTER FIVE.

5.0. DISCUSSION OF FINDINGS.

In this study there were more female respondents at 61% than the male respondents at 39%. And this is in line with the birth order in Uganda where there are more female babies than male at a ratio of 2:1 (population and housing census 2014). Also there were more respondents between 6-59 months than those below 6 months. Children below 6 months are less prone to acute malnutrition if exclusively breast feed (IMAM guidelines 2016).

It was also established after sample screening that the prevalence rate of acute malnutrition amongst children below 5 years who seek health care at Wakiso health center IV was 2.2% way above the regional average of 1.8%. And the facility reported average of 1.2%. And this can be explained by the missed opportunities in diagnosis and management of acute malnutrition.

During the study the facility lacked major tools and equipment required to diagnose and classify acute malnutrition like MUAC tape, length/height boards and Z-score charts but health workers demonstrated ability to use the required equipment using the study available samples and hence this made it unable for health workers to prioritize nutrition status assessment and screening. These findings are simple to study by Maurice et al (2013).

It was also found out that nutrition and feeding history isn’t prioritized by clinicians/nurses during history taking when in contact with patients where by family social history, supplementation history, nutrition history was seldom taken from children care takers and this was at a magnitude of only 6% out of all respondents in such a case acute malnutrition can’t be in focus and can easily be missed out as a diagnosis.

The study also established that during general medical examinations by clinicians and nurses. Nutrition status screening and assessment where not put into context as for the correspondents observed examinations were general in nature but there was no nutrition status assessment. And this is in line with a study by (Kasolo, 2011). Thus this could account for some missed opportunities for diagnosis and management of acute malnutrition.

The study also found out that clinical staff (nurses and clinical officers) were able to theoretically interprete the diagnosis of acute malnutrition and its classification and could manage some of the complications such as shock anemia and diarrhea. But where not sure of how to diagnose and manage hypothermia and oedema and needed training of how to diagnose and manage
hypoglycemia. But they all agreed that diagnosis and management of the above complications fall within their professional scope and abilities. This is in line with a report by Ministry of Health (health worker training in Uganda, July 2009). Therefore this knowledge inconsistence in management of complications of acute malnutrition can lead to missed opportunities.

There was an under supply of formula feeds required in the management of acute malnutrition and its complications and since the supply is periodical it means there particular periods of the year when there is a deficit and this may interfere with the management of acute malnutrition at the facility leading to rationing and missed opportunities. These findings are in line with Aheebwa et al (2010).

The study lastly found out that the facility had no designated nutritionist and scheduled trainings for clinical staff about the current IMAM guidelines and the current literature required in the management of acute malnutrition and its complications this was adding a burden of multi-tasking to other professional cadres available thus leading to missed opportunities this is in line with a report of Advocacy for nutrition (2016).
5.1. CONCLUSION.

The purpose of this study was to determine the factors leading to missed opportunities in the diagnosis and management of acute malnutrition in children less than 5 year at Wakiso health center IV.

It was established that at the time of the study the prevalence of acute malnutrition amongst children less than 5 years who seek health care at Wakiso health center IV was at 2.2% against the reported 1.3% by the facility and this was above the regional average of 1.8%. This clearly demonstrated the availability of missed opportunities in the diagnosis of acute malnutrition at the facility.

The study found out the following factors as the main causes of missed opportunities for diagnosis of acute malnutrition at Wakiso health center IV.

(i) Lack of diagnostic equipment.
(ii) Inability to use some of diagnostic equipment like Z score charts.
(iii) Poor history taking.
(iv) Incomplete physical examination.
(v) Inconsistent knowledge in diagnosis and management of acute malnutrition lack of up to date literature and training.
(vi) Inadequate supply of therapeutics used in the management of acute malnutrition.
(vii) Lack of nutrition professionals at the facility.
5.2. RECOMMENDATIONS.

The following recommendations are suggested after the study in order to curd the problem.

- Diagnostic equipment and tools required in the management of acute malnutrition should be prioritized amongst other items when requesting for health facility supplies.
- Clinical staff needs training in the use of some diagnostic equipment for acute malnutrition like 2 in 1 weighing scale and Z score charts.
- The clinical staff should ensure complete history taking from any credible source when in contact with patients so as to source out nutrition and feeding problems.
- The clinical staff should try to do complete physical medical-nutrition examinations when in contact with patients despite the patient turn up and flow rate so as to find out nutrition problems which may co-exist with medical problems.
- The health facility administration should try to found the staff with up to date literature like the current IMAM guidelines of 2016 and necessary training and continuous education in order to reduce the knowledge gap existing in the diagnosis and management of acute malnutrition.
- The facility administration should demonstrate a demand for a nutrition professional at the facility amongst the health center staffing. This can be done in conjunction with the District Health Officer (DHO) in conjunction with the political leadership.
REFERENCES.


Appendix I

STUDY QUESTIONNAIRE.

I …………………………………………………a student of Makerere University conducting a research study about factors that lead to missed opportunities in diagnosis and management of acute malnutrition in children less than 5 years at Wakiso health center IV, Wakiso district. The purpose of this research is purely academic.

I am requesting for your consent and co-operation during the research study and also answer a few questions.
Appendix II.

STUDY QUESTIONNAIRE.

This was the main tool for use in assessing the ability of health workers to diagnose and manage malnutrition, availability of assessment and diagnostic tools used in acute malnutrition. And the research study units were the Outpatients department, immunization unit, inpatient wards and postnatal clinic. (It’s based on the Ministry of Health, Nutrition Service Delivery assessment tool for health Centre IV, III and II, September 2015).

1.0 Demographic data. (to tick one)

(a) Sex of respondent.

(i) Male.   
(ii) Female.

(b) Age of respondent.

(i) 0 – 6 months.   
(ii) 6 months to 1 year. 
(iii) 1 year to 2 years.

(iv) 2 – 3 years.   
(v) 3 – 4 years.   
(vi) 4 – 5 years.

(c) Next of kin of respondent.

(i) Mother.   
(ii) Father.   
(iii) Guardian.

1.1. TRIAGE/ASSESSMENT.

(a) Is there a designated area for screening or assessing for children with danger signs?

(i) Yes

(ii) No.

(b) Is there a designated qualified staff at the triage area? (Tick appropriately)

(i) Yes.   
(ii) No.

(c) Is there a standardized flow chart followed by patients/staff according their needs priorities?

(i) Yes.   
(ii) No.
2.0 INSTRUMENTS AND LOGISTICS FOR ASSESSMENT.

(a) Are the following equipment available at the assessment unit or available for use by health personnel? (To be physically observed).

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Weighing scale. (2in1 weighing scale)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) MUAC tape.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii) Z-score charts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv) Thermometers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(v) length/height boards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vi) Child health cards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(v) IMAM guidelines 2016 booklet.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: ........................................................................................................
....................................................................................................................

2.1. Do the health workers know how to use the above equipment in (2.0a) above? (To be physically observed).

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Weighing scale.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) MUAC tape.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iii) Z-scores chart.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(iv) Thermometers.</td>
<td></td>
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<td>(v) length/height boards.</td>
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<tr>
<td>(vi) Child health cards.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: ........................................................................................................
3.0. HISTORY TAKING.

(a) Is the following history part of the comprehensive history taken by corresponding responsible staff i.e. (nurse, clinician and nutritionist?) To be observed from clinical records.

Respondent……………………………………..Cadre…………………….Contact……………

(i) Nutrition/feeding history.  
(ii) Family social history.  
(iii) Immunization history.  
(iv) Nutrient supplementation history.  
(v) Breast feeding history.

Comments;…………………………………………………………………………………………

4.0. CLINICAL EXAMINATION/

(a) Do the responsible/corresponding staff know the anthropometric measurements for assessment and diagnosis of acute malnutrition and there reference ranges.

Respondent……………………………………..Cadre…………………….Contact……………

(i) MUAC.  
(ii) Weight for height.  
(ii) Height for age.  
(iv) Body mass index.

Comments;…………………………………………………………………………………………

(b) Can the responsible/corresponding staff examine for complications and danger signs as a result of malnutrition.

(i) Hypoglycemia.  
(ii) Hypothermia.  
(iii) Severe dehydration.
(iv) Oedema
(v) Dermatosis
(vi) Lethargy
(vii) Severe anemia
(viii) Shock.
Comments;...........................................................................................................
......................................................................................................................

5.0. LOGISTICS AND CLINICAL AIDS USED IN CLINICAL EXAMINATION.

(a) Are there pictorials of children presenting with SAM as an illustration of Acute malnutrition presentation to care givers and health workers at the? (to be physically observed).

YES
NO

(i) Outpatient department.

(ii) In patient wards.

(iii) Child care clinics.

(iv) Health diet education charts.
Comments;...........................................................................................................
......................................................................................................................

6.0 DIAGNOSIS AND TREATMENT.

(a) Can the corresponding staff(s) accurately diagnose and classify SAM and MAM according to current IMAM guidelines 2016.

Respondent…………………………Cadre…………………………contact………………

(i) Yes
(ii) No.

(b) Are children who present with acute illnesses such as measles, bacterial pneumonia and diarrheal diseases screened for malnutrition? (To be physically observed and also check in clinical notes).

(i) YES
(ii) NO.
(c) Do the corresponding staff(s) know the management of the following complications of SAM and there management guidelines?

Respondent…………………………….Cadre……………………….contact………………………….

(i) Hypoglycemia.  
(ii) Severe dehydration.  
(iii) Shock.  
(iv) Severe diarrhea.  
(v) Severe anemia.  
(vi) Oedema.  
(vii) Hypothermia.  
(vii) Severe Wasting

YES  NO

(c) Does the facility have appropriate documentation charts required for management and treatment of SAM and MAM such as weight, temperature and feeds charts? (To be physically observed).

(i) YES.  (ii) NO.

(d) Do corresponding staff(s) carry out proper documentation of their treatment follow ups and interventions which are essential in management of SAM and MAM? (To be physically observed).

(i) YES  
(ii) NO.

Comments………………………………………………………………………………………………………………..

(e) Are the following formula feeds available at the facility?

(i) F- 75  

YES  NO
(ii) F- 100

(iii) ReSoMal.

(iv) RUTF.

(v) Formula feeds preparation guidelines.

Comments;……………………………………………………………………………………………………

………………………………………………………………………………………………………………

7.0. MANAGERIAL AND ADMINISTRATIVE ROLES.

(a) Is there a special designated staff/nutritionist to manage cases of protein energy malnutrition at the facility?

(i) YES  

(ii) NO.  

(b) Do the clinical staff i.e. (nurses and clinicians) have regular trainings or reminders in the management of acute malnutrition? (For inquiry to the facility in charge).

(i) YES  

(ii) NO.  