DIETETIC WARD PLACEMENT REPORT

St. Paul Hospital

FEBRUARY 1, 2020

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ID: GSR/3607/11

Advisor's Signature

Dr. Zelalem Debebe

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ACKNOWLEDGMENT

I would like to thank Dr. Zelalem Debebe (MD,RD), our teacher and advisor to have facilitated this opportunity to work at St. Paul Hospital and for her overall guidance and constructive comments. I also would like to thank the clinical nutrition department at the hospital in guiding us in our work and giving us support when needed. Finally, I would like to thank Addis Ababa University science faculty and St. Paul Hospital as institutions in general for giving me this opportunity.

ABSTRACT

Saint Paul Hospital was built and founded by Emperor Haile Silassie in 1968 G.C. The medical school was opened in 2007 G.C ('St. Paul's Hospital, Ethiopia', 2018). giving the hospital its current name, Saint Paul's Hospital Millennium Medical College (SPHMMC). The hospital is capable of hosting more than 700 patients in the inpatient units and sees an average of 1200 emergency and outpatients daily (*About – Saint Paul's Millennium Medical College*, n.d.).

This is a report entailing the dietetic ward placement at St. Paul Hospital starting from December 2019 until March 2020 G.C. In general the work done during this placement mainly includes; individual patient nutritional assessment for patients admitted in the wards, giving nutritional advice, ordering meals from the kitchen as well as preparing menus for patients to take home during discharge and providing follow up nutritional care during their stay at the ward as well as a nutritional assessment of all patients in surgical ward. The work done are described in detail in the document.

LIST OF TABLES

LIST OF ANNEX

ACRONYM

BMI – Body Mass Index

BP – Blood Pressure

CKD – Chronic Kidney Disease

GFR – Glomerular Filtration Rate

HAART – Highly Active Anti-Retroviral Therapy

HIV – Human Immunodeficiency Virus

Ht. – Height

ICU – Intensive Care Unit

LOS – Length of Stay

MRN – Medical Record Number

MUAC – Mid Upper Arm Circumference

MUST – Malnutrition Universal Screening Tool

NG – Naso Gastric

NRS – Nutritional Risk Screening

NSAID – Non-Steroidal Anti-Inflammatory Drugs

PEM – Protein Energy Malnutrition

PICU – Pediatric Intensive Care Unit

PR – Pulse Rate

PUD – Peptic Ulcer Disease

RR – Respiratory Rate

RVI – Retro Viral Infections

SAM – Severe Acute Malnutrition

SPHMMC – Saint Paul Hospital Millennium Medical College

UFH – Un-Fractionated Heparin

Wt. - Weight

1. BACKGROUND

Saint Paul Hospital was built and founded by Emperor Haile Silassie in 1968 G.C. The medical school was opened in 2007 G.C ('St. Paul's Hospital, Ethiopia', 2018). giving the hospital its current name, Saint Paul's Hospital Millennium Medical College (SPHMMC). The hospital is capable of hosting more than 700 patients in the inpatient units and sees an average of 1200 emergency and outpatients daily (*About – Saint Paul's Millennium Medical College*, n.d.).

2. INTRODUCTION

This is a report entailing the dietetic ward placement at St. Paul Hospital starting from December 2019 until March 2020 G.C. After being given relevant information on what was expected to be fulfilled by this ward placement from my instructor , I started the ward placement on December 2019 G.C. In general the work done during this placement are as follows

- Individual patient nutritional assessment for patients admitted in the wards, giving nutritional advice, ordering meals from the kitchen as well as preparing menus for patients to take home during discharge and providing follow up nutritional care during their stay at the ward
- Nutritional assessment of all patients in surgical ward
- Developing forms which assist in the assesment and follow up of nutritional care
- Preparing different brochures containing nutritional advice on various topics
- Preparing a proposal with my colleague which was submitted to the paediatric department of St. Paul in order to help in the improvement of the nutritional care.

3. HOSPITAL ACTIVITIES

3.1 INDIVIDUAL PATIENT NUTRITIONAL ASSESSMENT

Based on the request of the head of the surgical ward, we were asked to assess patients in the septic room of the surgical ward where I first started working. After working in the surgical ward for the first six weeks, I also started visiting patients in the internal medicine ward (including the dialysis unit).

During the placement, I have seen a total of thirty-five patients from both surgical and internal medicine wards (16 from surgical ward and 19 from internal medicine ward). The patients were aged between 18 and 60 years. Twenty patients were male and fifteen patients were female. Among the patients being followed, eight patients were referred to me for nutritional assessment and care by the nurses in the ward, six were assessed based on nutritional support inquired by their attendants and the rest were found during the general nutritional assessment done in the wards.

Out of the total patients seen, 4 patients passed away due to complication of illness, 11 were discharged, and the rest of the patients were being followed until we stopped working in the hospital due to the pandemic. The patients where assessed for their nutritional status mainly based

on their MUAC measurements. Where feasible, weight and height were also measured. A 24 hour diet history was taken for all patients and preferences for foods where discussed. After this orders were written and given to the head nurses on the wards for transfer to the kitchen. Orders where then followed if they were coming from the kitchen. For patients who can bring food from home menus were prepared and printed and given to their attendants.

The following cases can be seen as examples to show how I was working with the patients

3.1.1 CASE PRESENTATION 1

This was a 55-year-old female patient seen on her 12th day of admission in the medical ward with a diagnosis of right sided hemiparesis secondary to toxoplasmosis. The patient was diagnosed as having HIV 2 months back and was on HAART (ABC+3TC+DTG). She came from Kotebe Kara, Addis Ababa and was living with her son and grandson, working as a janitor at a health center. She has a history of drinking 2 pints of local whisky daily. She has no known allergy history. Currently she is taking Cotrimoxazole 1920mg PO BID, Pyridoxine 50mg PO/day, RHZE 4 tab/day, UFH 5000 IU SC BID and Fluconazole 200mg PO/day.

Vital signs:

BP – 100/80 mmHg PR – 87’ RR – 20’ Temp – ATT SPO_2 – 91% off O_2

Anthropometric measurements:

MUAC – 24.4cm Wt. – 62kg (estimated)

Relevant investigation details:

Hgb – 11g/dL

Nutrition intake history:

The patient was on NG tube feeding of gruel made with water 100ml every hour with an intake of 2,400ml of Gruel and 480ml of water for the past 24 hours which provides her with approximately 1,440 kcal/day.

Nutritional status: Malnourished

Patients having HIV/TB are at great risk of being malnourished (Blaauw et al., 2019). HIV affects the nutritional status of a patient by increasing energy requirements and reducing intake of food (Hailemariam et al., 2013). The patient was being fed with gruel that provided requirements less than her daily requirement since she was admitted to the hospital further exacerbating the problem. We can also see that her haemoglobin level is low.

Daily energy requirement: 2,000 kcal

Daily protein requirement: 49.6 gm

Daily fluid requirement: 2,000ml

After food preferences were discussed with the patient, the carer was counselled on how to improve the quality of the gruel by adding various ingredients like milk, peanut butter and sugar. Her attendant was then told to give her 250ml of gruel every 3 hours giving 20ml of water before the feed and 30ml after the feeding has commenced. The following recipe of gruel was given to the patients attendant as they said that they can prepare the gruel at home.

ለአልጋ ቁጥር፡ 5

- የተሻሻለ የአጥሚት አሠራር
  - ለ1 ሊትር አጥሚት
    - 6 የሾርባ ማንኪያ የአጥሚት እህል (መካከለኛ ውፍረት እንዲኖረው ያህል)
    - ግማሽ (2 ብርጭቆ) ወተትና ግማሽ ሊትር ውሃ
    - 3 ድርብብ የሾርባ ማንኪያ ስኳር
    - 1 የሾርባ ማንኪያ ዘይት ወይም 1 የሾርባ ማንኪያ የልውዝ ቂቤ (በምርጫ)
    - ጨው (እጅግ በጣም ትንሽ)
- ተጨማሪ የአሰራር አማራጮች
  - ሙሉ በሙሉ በወተት መስራት ወይም
  - ሙሉ በሙሉ በውሃ በወፍራሙ ከተዘጋጀ በኋላ 1 የሾርባ ማንኪያ ማር መጨመር
- በቀን የሚሰጠው አጠቃላይ መጠን 2 ሊትር ይሆናል
  - ይህንንም በየሶስት ሰዓቱ 250 ሚ.ሊ. (5 ሲሪንጅ) መስጠት
- በያንዳንዱ የመመገቢያ ወቅት (በየሶስት ሰዓቱ)
  - በመጀምሪያ 20 ሚ.ሊ. ውሃ ከአጥሚት በኋላ ደግሞ 30 ሚ.ሊ. ውሃ መስጠት ያስፈልጋል

3.1.2 CASE PRESENTATION 2

This was a 17-year-old female patient on her 10th day of admission in the medical ward with a diagnosis of Stage 1 RVI plus oesophageal candidiasis, pancytopenia and neutropenic fever. The patient was diagnosed as having HIV 9 months back and is currently on HAART (TDF+3TC+EFV). She reported loss of appetite for the past six months with a weight loss of 14 kg during this time. She came from Arada, Addis Ababa and was living with her mother and sister. She had no known allergy history. She was taking Vancomycin 1gm IV BID, Ceftizidime 1gm IV TID, FeSo4 325 mg PO TID and Cynocobalamine 1mg in addition to the HAART treatment.

Vital signs:

BP – 100/60 mmHg PR – 113 bpm RR – 20' Temp – 34.7°C (Low)

SPO_2 – 98% off O_2

Anthropometric measurements:

MUAC – 19.9 cm (Underweight) Wt. – 32kg Ht. – 155cm

BMI – 14.6 kg/m^2 (Underweight)

Relevant investigation details:

WBC – 1.2x10^9/L (Very low: normal is b/n 4.5-11x10^9/L)

Hgb – 3.5g/dL (Very low: normal is b/n 12.1-15.1g/dL)

Diet history:

The patient reported loss of appetite for the past six months with a weight loss of 14 kg during this time. She felt pain in her mouth when swallowing (which was her main concern) and this contributed to her appetite loss. When looking at her 24-hour diet history, she ate the following foods: ½ a plate of scrambled eggs without bread, milk 150ml, 1 hand sized papaya, 100ml of packed mango juice and 1 cup of pasta soup. In addition to the above foods, she took 300ml of gruel and 1 liter of water. When doing the analysis for the above foods, I found that it provides her with 674.2 Kcal of energy, 23.3g of protein, 26.2g of fat.

Nutritional status: Severely malnourished

The patient has reported loss of appetite for the past six months and still has poor appetite which could further worsen her malnutrition. The anthropometric measurements as well as biochemical markers are on the very low side further contributing to her severe malnutrition.

Daily energy requirement: Based on 35 Kcal/ kg, the patient requires 1,120 kcal

Daily protein requirement: 38.4gm

Daily fluid requirement: 2,000ml

As we can see above the patient is not eating asper her daily requirement. She is only getting around 60% of her energy and protein requirements.

After food preferences were discussed with the patient, she was counselled on foods to improve her anaemia. The patient was discharged two days after we started following her after a written information and a menu (both attached below) were provided.

የደም ማነስን ለማስተካከል የሚረዳ አመጋገብ እና ጠቃሚ የጤና ምክሮች

- ትንሽ ትንሽ ቶሎ ቶሎ ይመገቡ፡፡
- በተቻለ መጠን በእያንዳንዱ ምግብ ሰዓት እንደ ሎሚ ብርቱካን ወዘተ ያሉ በቫይታሚን ሲ የበለጸጉ ፍራፍሬዎችን ወይም አትክልቶችን ማካተት ልማድ ያድርጉ፡፡

- ከምግብ ጋር ወይም ከምግብ በኋላ ወዲያው ሻይ ወይም ቡና መጠጣት ልማድ አያድርጉ፡፡ እነዚህን መጠቀም ሲያስፈልግዎ ከ ግማሽ እስከ አንድ ሰዓት ጊዜ ይስጡ፡፡

የደም ማነስን ለማስተካከል ልናዘወትራቸው የሚገቡ የምግብ ዓይነቶች የሚከተሉት ናቸው

- ስጋ - ቀይ የበሬ ስጋ እንዲሁም የዶሮ እና የዓሳ ስጋን ማዘውተር ይጠቅማል

- እንቁላል- በተለይ አስኳሉ የደም ማነስን ለማስተካከል ስለሚረዳ ማዘውተር ይመከራል
- ወተት እና እንደ እርጎ እና አይብ የመሳሰሉ የወተት ተዋጽዖዎችን ማዘውተር ጠቃሚ ነው
- የጥራጥሬ ዝርያዎች እንደ ባቄላ፣ ቦሎቄ እና ሽምብራን በተቻለ መጠን ማዘውተር እጅግ ጠቃሚ ነው፡፡

- እነዚህን የምግብ ዝርያዎች በሾርባ፣ በፓስታ ስን እንዲሁም በንፍሮ መልክ መጠቀም ይቻላል፡፡
- አረንጓዴ አትክልቶች ምሳሌ የሃበሻ ጎመን፣ ቆስጣ፣ ፎሶሊያ፣ ብሮኮሊ ወ.ዘ.ተ
- አንዳንድ የቅባት እህሎችም የደም ማነስን ለማስተካከል ይረዳሉ፡፡ ምሳሌ፡- ለውዝ፣ ተልባ

- እንደ ዘቢብ እና ቴምር ያሉ ደረቅ ፍራፍሬዎችም ስለሚረዱ በምግቦች ውስጥ ወይም በየመሃል እንደ መክሰስ መጠቀም ይቻላል፡፡

Eman Zeki (I.Dietitian)

የቁርስ አማራጮች

የአጃ ቅንጬ በቆስጣ/ በነመን

- 1 የቡና ስኒ ያህል የአጃ ቅንጭ ቀቅሎ ማዘጋጀት
- 1 ራስ ሽንኩርት በደቃቁ የተከተፈ ከ1 የሻይ ማንኪያ ዘይት ጋር መጥበስ
- ከዚያም 3 ወይም 4 ቅጠል ቆስጣ በደቃቁ ከትፎ ከሽንኩርቱ ጋር ለብ ለብ ማድረግ ***(ቆስጣው ሙክክ ብሎ መብሰል የለበትም)***
- የተቀቀለውን ቅንጬ ከአትክልቱ ጋር አዋህዶ ለጣዕም ጥቂት ጨው ጨምሮ መመገብ

የቆርቆሮ አጃ/ ኦትስ በወተት እና በዘቢብ

- 1 የውሃ ብርጭቆ ወተት ውስጥ 4 የሾርባ ማንኪያ የቆርቆሮ አጃ (ኦትስ) ጨምሮ ማብሰል
- በደንብ ከፈላ በኋላ 2 የሾርባ ማንኪያ ዘቢብ ጨምሮ ለስለስ እንዲል ለ1 ደቂቃ ያህል ማቆየት እና መመገብ ***(ተጨማሪ ማጣፈጫ አያስፈልገውም)***

ድብልቅ አትክልት ከዳቦ ጋር

- የተገኙትን አትክልቶች በአንድ ላይ በማብሰል ብቻውን ወይም ከዳቦ ጋር መመገብ
- በተቻለ መጠን **አረንጓዴ አትክልቶችን** *(የሃበሻ ነመን፣ ቆስጣ፣ ፎሶልያ፣ ብሮኮሊ፣ ጥቅል ነመን፣ ወዘተ)* ዘወትር ማካተት
- አትክልቶች ሲበስሉ በተቻለ መጠን በጥቂት ውሃ እና ለአጭር ደቂቃ ብቻ ማብሰል (ሙክክ ማድረግና በቅባት መጥበስ አያስፈልግም)
- ጥቂት የሎሚ ጭማቂ ጨምሮ መጠቀም እጅግ ጠቃሚ ነው

እንቁላል ፍርፍር/ እንቁላል ፍርፍር በተፈጨ ስጋ

- እንቁላል የደም መጠንን ለማስተካከል በጣም ስለሚረዳ ማዘውተር ጠቃሚ ነው
- የቅባት መጠን ሳይበዛ ማዘጋጀት አስፈላጊ ነው (ለ2-3 እንቁላል 1 የሻይ ማንኪያ ዘይት)
- ስጋን ጨምሮ ማብሰል ወይም እንቁላሉ ከበሰለ በኋላ የተከተፈ ቲማቲም በጥቂቱ አብሮ በማብሰለል መመገብ ጠቃሚ ነው

የተቀቀለ እንቁላል ከአትክልት ጋር

- እንቁላልን በሌላ አማራጭ ለመመገብ ይረዳል
- የተገኘውን አትክልት ከ 1 የሾርባ ማንኪያ ዘይት ጋር ወይም በጥቂት ውሃ በማብሰል ተቀቅሎ ጎረድ ጎረድ ከተደረገ እንቁላል ጋር አዋህዶ ለጣዕም ጥቂት ጨው በመጨመር መመገብ

የመክሰስ አማራጮች

ጭማቂ በወተት/ በተልባ

- የተገኘውን ፍራፍሬ (ምሳሌ፡- ማንጎ፣ ፓፓያ፣ ሙዝ፣ አቮካዶ ወዘተ) በወተት/ በውሃ ፈጭቶ መጠቀም
- የተፈጨ የተልባ ዱቄትን ጨምሮ መጠቀም የተሻለ ያደርገዋል (ለ1 ብርጭቆ 1 የሻይ ማንኪያ)

የብርቱካን ጭማቂ

- የብርቱካን ጭማቂን በተቻለ መጠን ማዘውተር እጅግ ጠቃሚ ነው፡፡ በተለይ ከምግብ ጋር ወይም ከምግብ በኋላ መጠጣት በምግብ ውስጥ ያለውን የማዕድን መጠን ሰውነታችን በአግባቡ እንዲጠቀም ይረዳዋል፡፡

ተጨማሪ የጭማቂ አማራጭ

- ወተት - 1 የውሃ ብርጭቆ
- ሙዝ - 1 (ሌላ አይነት ፍራፍሬም ሊሆን ይችላል)
- ቴምር - 5 ፍሬው የወጣለት
- አትስ(የቆርቆሮ አጃ) - 2 የሾርባ ማንኪያ
- የለውዝ ቅቤ - 1 የሻይ ማንኪያ

የፍራፍሬ ድብልቅ/ የተገኘውን ፍራፍሬ

- እንደ ፓፓያ፣ ሙዝ፣ ብርቱካን፣ አቮካዶ፣ ማንጎ፣ ሃብሃብ፣ አናናስ ያሉ ፍራፍሬዎች እንደ ተገኙ እና እንደ ምርጫ በንፅህና ተከትፈውና ተደባልቀው መመገብ
- በድብልቁ ፍራፍሬ ላይ የሎሚ ጭማቂ ጨምሮ መመገብ ጠቃሚ ነው

የለውዝ እና የዘቢብ ድብልቅ

- ለውዝ እና ዘቢብ ተደባልቆ ብቻውንም ሆነ ከተለያዩ ምግቦች (እንደ እርጎ፣ ፍራፍሬ፣ ጭማቂ ወዘተ) ጋር ጨምሮ መመገብ ይቻላል

የምሳ/የእራት አማራጮች

የስጋ/ የዶሮ ሾርባ

- የበሬ ስጋ (ጮማ የሌለው) ወይም የዶሮ ስጋ (የእግር ስጋ ተመራጭ ነው) – የተከተፈ 1 የቡና ስኒ
- ሽንኩርት (ቀይ/ ባሮ) - 1 ራስ
- ዘይት - 1 የሻይ ማንኪያ
- ደቆ የተከተፈ ቆስጣ - 4-5 ቅጠል
- ካሮት - 1 አነስተኛ ደቀቅ ተደርጎ የተከተፈ
- ማጣፈጫ (ነጭ ሽንኩርት፣ ዝንጅብል፣ የሾርባ ቅጠል ወዘተ) እንደ ምርጫ ጨምሮ መጠቀም ይቻላል

የአትክልት ሾርባ

- ሽንኩርት (ቀይ/ ባሮ) - 1 ራስ
- ዘይት - 1 የሻይ ማንኪያ
- ካሮት - 1 አነስተኛ የተከተፈ
- ብሮኮሊ - የተፈለፈለ 1 እጅ
- ድንች - 1 መካከለኛ
- ፎሶሊያ - የተከተፈ 1 የቡና ስኒ
- ምስር (ክክ/ ድፍን እንደምርጫ) – 2 የሾርባ ማንኪያ
- ማጣፈጫ (ነጭ ሽንኩርት፣ ዝንጅብል፣ የሾርባ ቅጠል ወዘተ) እንደ ምርጫ ጨምሮ መጠቀም ይቻላል

የቦሎቄ / የሽምብራ ሾርባ

- ሽንኩርት (ቀይ/ ባሮ) - 1 ራስ
- ዘይት - 1 የሻይ ማንኪያ
- ቦሎቄ ወይም ሽምብራ - የተቀቀለ 1 የቡና ስኒ
- ካሮት - 1 አነስተኛ
- ድንች - 1 መካከለኛ
- ብሮኮሊ - የተፈለፈለ 1 የቡና ስኒ
- ማጣፈጫ (ነጭ ሽንኩርት፣ ዝንጅብል፣ የሾርባ ቅጠል ወዘተ) እንደ ምርጫ ጨምሮ መጠቀም ይቻላል

የምስር ሾርባ

- ምስር (ክክ/ ድፍን) – 1 የቡና ስኒ የተቀቀለ
- ሽንኩርት (ቀይ/ ባሮ) - 1 የቡና ስኒ
- ቲማቲም - 1 መካከለኛ
- ማጣፈጫ (ነጭ ሽንኩርት፣ ዝንጅብል፣ የሾርባ ቅጠል ወዘተ) እንደ ምርጫ ጨምሮ መጠቀም ይቻላል

ሩዝ በዘቢብ/ በቴምር

- ሽንኩርት - 1 ራስ
- ዘይት - 1 የሻይ ማንኪያ
- የተቀቀለ ሩዝ - 1 ጊዜ የሚበላ ያህል
- ዘቢብ/ ቴምር - 2 የሾርባ ማንኪያ

- ሽንኩርቱን በዘይት ጠበስ ከተደረገ በኋላ ዘቢቡን/ ቱምሩን ጨምሮ ለብ ለብ ካደረጉ በኋላ ከሩዝ ጋር ቀላቅሎ መመገብ

ሩዝ በአትክልት ስጎ

- ለሾርባ እንደምንጠቀመው ድብልቅ አትክልቶችን በአነስተኛ እሳት በማብሰል ከሩዝ/ ከፓስታ ወይም መኮሮኒ ጋር እንደ ምርጫ መጠቀም

ማስታወሻ

- ✓ በተቻለ መጠን በሳምንት ቢያንስ 3 ጊዜ (3 የምግብ ሰዓታትን) ስጋ እንዲካተት ያድርጉ
- ✓ ስጋን ሲመርጡ የበሬ ከሆነ ቀይ ብቻ ዶሮ ከሆነ ደግሞ የእግር ስጋ ተመራጭ ነው
- ✓ ሾርባዎችን ከበሰሉ በኋላ ፈጭቶ መጠቀም ለተሻለ አመጋገብ ሊያግዝ ይችላል
- ✓ በምግቦች ውስጥ የሎሚ ጭማቂን መጠቀም ጠቃሚ ነው

3.2 GENERAL WARD OBSERVATION

The total number of beds in the surgical ward and medical ward is 83 and 42 respectively with one nurse responsible for one room which includes 6 patients during his/ her shift. Patients in the surgical wards include pre-operative and post-operative patients in either of the three rooms (septic, urology or general surgery) with the most commonly encountered cases being intestinal obstruction, delayed wound healing, appendicitis and hernia. In the internal medicine ward diabetes, renal disease and HIV wasting syndrome was commonly seen.

In both wards, the physicians which follow the patients are medical interns and residents. The staff in both ward refer patients to the clinical nutrition department when they assume a patient has nutritional problems. Since a general nutritional assessment is not done by the ward staff as part of the initial medical assessment, they presume a patient is malnourished or requires nutritonal support by looking only at their physical appearance. All the health professionals in both wards work together for the health of the patient and staff in the wards (especially in internal medicine ward) are also eager to inform us when they think a patient requires nutritional support.

3.3 MENU PREPARED FOR PATIENTS

Different types of menus were developed and given to patient attendants when they were able to prepare the food from their home. Menus that were prepared include high protein menu, fluid diet menu, menu for anaemia and menus for renal disease which were individualized based on patient needs. The menus were thoroughly discussed with attendants for clarification and we were continuously communicating with families if the menus needed improvement. The following menu can be seen as an example that was given for patients requiring a high protein diet.

Fluid diet menus at St. Paul's Hospital

Gruel (1L)

አጥሚት (1ሊትር)

Table 1: Gruel preparation guide

Ingredients (ተዋፅዖ)	**Amount (መጠን)**	**Energy (ኃይል) (Kcal) (ካሎሪ)**	**Protein (ፕሮቲን) (g) (ግራም)**
Emmer wheat (አጃ)	35g (2 ¼ የሾርባ ማንኪያ)	133.0	4.45
Barley (ገብስ)	35g (2 ¼ የሾርባ ማንኪያ)	128.8	2.97
Brown teff (ቀይ ጤፍ)	15g (1 የሾርባ ማንኪያ)	53.26	1.35
Sorghum (ዘንጋዳ)	10g (3/4 የሾርባ ማንኪያ)	37.44	0.63
Soybean (አኩሪ አተር)	3g (1/2 የሻይ ማንኪያ)	13.38	1.08
Peanut (ለውዝ)	2g (1 የሻይ ማንኪያ)	12.26	0.61
Sugar	70g (1 የቡና ስኒ)	269.5	-
Water (ውሃ)	850 ml (ሊትር)	-	-
Total (ድምር)	1,020	**674.64**	**11.09**

- If milk is added to the gruel in a 40% proportion (400ml), the energy and protein will increase by 294.8 Kcal and 13.6g respectively making the total energy and protein provided **969.44 Kcal** & **24.69g**.

Gruel (1L)- Sugar free

አጥሚት (1ሊትር)-

Table 2: Sugar free gruel preparation

Ingredients (ተዋፅዖ)	**Amount (መጠን)**	**Energy (ኃይል) (Kcal) (ካሎሪ)**	**Protein (ፕሮቲን) (g) (ግራም)**
Emmer wheat (አጃ)	35g (2 ¼ የሾርባ ማንኪያ)	133.0	4.45
Barley (ገብስ)	35g (2 ¼ የሾርባ ማንኪያ)	128.8	2.97
Brown teff (ቀይ ጤፍ)	15g (1 የሾርባ ማንኪያ)	53.26	1.35
Sorghum (ዘንጋዳ)	10g (3/4 የሾርባ ማንኪያ)	37.44	0.63
Soybean (አኩሪ አተር)	3g (1/2 የሻይ ማንኪያ)	13.38	1.08
Peanut (ለውዝ)	2g (1 የሻይ ማንኪያ)	12.26	0.61
Water (ውሃ)	850 ml (ሊትር)	-	-
Total (ድምር)	950	**378.14**	**11.09**

- If milk is added to the gruel in a 50% proportion (500ml), the energy and protein will increase by 368.5 Kcal and 17g respectively making the total energy and protein provided **746.64 Kcal** & **28.09g**.

Bombe diet (Type 2, with milk, egg & banana)- 1 portion

ቦምቤ (ዓይነት 2፤ ወተት፣ እንቁላል፣ ሙዝ)- 1ጊዜ የሚቀርብ

Table 3: Bombe preparation guide

Ingredients (ተዋፅዖ)	**Amount (መጠን)**	**Energy (ኃይል) (Kcal) (ካሎሪ)**	**Protein (ፕሮቲን) (g) (ግራም)**
Milk (ወተት)	200ml (200 ሚሊ)	92	6.8
Banana (ሙዝ)	100g (1 መካከለኛ)	95	1.2
Boiled egg (የተቀቀለ እንቁላል)	47g (1-2)	69	5.9
Soy oil (የአኩሪ አተር ዘይት)	5ml (1 የሻይ ማንኪያ)	45	0
Total (ድምር)		**301**	**13.9**

Soup (2 portions)

ሾርባ (ለ 2 ጊዜ የሚሆን)

Table 4: Soup preparation guide

Ingredients (ተዋፅዖ)	**Amount (መጠን)**	**Energy (ኃይል) (Kcal) (ካሎሪ)**	**Protein(ፕሮቲን) (g) (ግራም)**
Onion (ቀይ ሽንኩርት፣ ደቆ የተከተፈ)	35g (1 አነስተኛ ራስ)	24.95	0.37
Oil (ዘይት)	25g (1 ½ የሾርባ ማንኪያ)	224.1	0.37
Tomato (ቲማቲም፣ የደቀቀ)	50g (1ትንሽ ወይም ½ መካከለኛ ራስ)	15.35	0.65
Carrot (ካሮት፣ የደቀቀ)	50g (1 አነስተኛ ራስ)	21.0	0.85
Potato (ድንች፣ የተከተፈ)	100g (1 አነስተኛ ራስ)	69.0	1.5
Cabbage (ጥቅል ጎመን፣ ደቆ የተከተፈ)	25g (2 የሾርባ ማነኪያ)	5.12	0.22
Lentil (ድፍን ምስር፣ የተቀቀለ)	50g (1 አነስተኛ የቡና ስኒ)	76.45	4.5
Macaroni (ማካሮኒ)	50g (1 የቡና ስኒ)	185.5	6.5
Beef (ስጋ፣ የደቀቀ)	50g (1 1/2 የቡና ስኒ)	57.4	9.9
Garlic (ነጭ ሽንኩርት፣ የደቀቀ)	10g (1 ሾርባ ማንኪያ)	13.83	0.41
Water (ውሃ)	500ml (2 የውሃ ብርጭቆ)	-	-

Total		**692.7**	**25.27**

3.4 NUTRITIONAL ASSESSMENT OF ALL PATIENTS IN SURGICAL WARD

This assessment was done in order to get a baseline data of all patients in the wards in order to identify the patients that needed urgent nutritional care. All patients in the surgical ward were assessed for their nutritional status based on their MUAC measurements. Weight and height were also measured for some patients when a weight scale and a stadiometer where available. Patients found in the surgical ward were pre-operative (n=21) and post-operative (n=37) patients. For the patients which were assessed, general information on healthy eating was provided and additional nutrtitional support was provided for those patients that required further support. The overall results are presented in the following table.

Table 5: Summary of nutritional assessment in surgical ward

No.	**Assessed parameter**	**Surgical ward**	
		Number	**Percentage**
1	Total number of beds	83	
2	Total number of patients	58	70%
3	Number of male patients	43	74%
4	Number of female patients	15	26%
5	MUAC > 23cm (for male)*	9	21%
6	MUAC < 23cm (for male)*	34	79%
7	MUAC > 22cm (for female)*	2	13%
8	MUAC < 22cm (for female)*	13	87%
9	Average length of hospital stay	14 days with a max stay of 69 days and a min of 1 day	

*(Tang et al., 2013)

The risk of malnutrition in adult surgical patients ranges from 10-50% depending on the criteria used for disease and assessment (Leandro-Merhi & de Aquino, 2014). Underlying pathologic process, inflammatory nature of surgical intervention, reduced intake due to nil per os status and delayed return of bowel function may be seen as reasons as to why surgical patients are at risk of malnutrition (Abahuje et al., 2020).

The results for this assessment show that the number of malnourished patients admitted to the surgical ward are very high (79% for male and 87% for female). This shows that the prevalence of hospital malnutrition needs to be given thought in hospitalized patients and routine anthropometric measurements be done in order to tackle this problem. We recommend that a broader research be done with a larger sample size and longer time frame in order to get a better understanding of the problem and devise solutions to reduce the risk of malnutrition in adult hospitalized patients.

3.5 DEVELOPING FORMS

I have developed several forms based on forms that were provided by our instructor, which were used during our stay in St. Paul. These forms were continuously being updated as needed during our work. The forms developed include food diary filling format (to be given for patients), pictorial diet follow up format (to be given for patients) and also a form for the general nutritional assessment of all patients. The food diary recording formats are intended to be used by patients and attendant and be collected every 3 days to evaluate intake of patients. The above forms will be found in the Appendix section of the document.

3.6 PREPARING BROCHURES

Another thing that was done was preparing brochures on healthy eating for diabetic patients, information for mothers on formula feeding and complementary feeding. The brochures were prepared in Amharic. The brochures can be seen in the Appendix section of the document.

3.7 PREPARING A PROPOSAL FOR THE PAEDIATRICS DEPARTMENT

One part of our hospital placement project was working in the paediatric department. The department contacted the clinical nutrition unit, requesting that they need our assistance so that they could provide better nutritional care to their patients.

We first did a general ward assessment so that we would have a better understanding of the problems we might face during our stay and provide solutions. The department has 48 beds; 42 beds for inpatient ward (out of which 6 beds are for SAM patients) and 6 beds for ICU. Children being treated lie between ages 0 and 18 years. We saw that there is no separate functioning kitchen where meals are prepared, rather meals are prepared in the central kitchen of the hospital together with adult patients. The food that is prepared asper the menu for the pediatric patients is also not different from that of the adults. Another problem that we encountered during our assessment is that, if patients require special diet orders (as in patients in the ICU), there is no means of preparing them at the hospital as the central kitchen doesn't handle orders which come from this department. With the above being said, the main food being provided for ICU pediatric patients is cow's milk putting the children at risk of malnutrition even after they are admitted to the hospital.

According to the nurses, 100ml/kg of milk is provided for each child every 2 hours. To see the energy requirement and how much is provided to the patient let us take one as example.

Patient ID- PICU 1 Age- 7mo Sex: Male Weight- 7.6kg Milk provided- 760ml/day

Table 6: Sample patient for application of nutritional support

Amount of nutrients provided per day by the milk given		**Daily requirements for the child (healthy)**	**Daily requirement (%)**
Energy	371 Kcal	810 Kcal	46%
Protein	26g	14g	186%
Fluid	667ml	800ml	83%
Iron	0.4mg	6.2-18.6mg (according to its bioavailability)	6.5-2.2%
Calcium	927.2mg	400mg	233%

*Illness factor for critically ill children in PICU is 1.2-1.6. (Koletzko, B. et al., 2015)

We can see from the above table that the milk being currently provided cannot meet the daily requirements for even healthy infant making the sick child even more at a higher risk of

malnutrition. It also lacks variety to include the different food groups required in order to fulfil vitamin and mineral requirements.

The department has 5 kitchen staff who are responsible for preparing F75 and F100 for SAM patients. The kitchen staff are very welcoming, cooperative and willing to work together with the clinical nutrition department. They work in a small kitchen which is equipped with a refrigerator, stove, pots and cups.

We also did a general nutrition assessment on the children attending the ward by measuring their MUAC and taking their weight and length measurement from their charts. Out of a total of 35 patients attending the pediatric ward including the ICU, 78.3% were found to be underweight out of which 21.7% were moderately underweight and 56.5% were found to be severely underweight. Child malnutrition is considered as one of the significant public health problems and is reported to account for 45% of the childhood mortality as an underlying cause. According to the Ethiopian Mini Demographic Health Survey (EMDHS), the infant mortality rate of the country is 43 deaths per 1000 live births and under 5 mortality rate is 55 deaths per 1000 live births (EDHS & CSA, 2016). Malnutrition presents to be a major public health (Tekile et al., 2019) problem in the country accounting for 51% of under 5 mortality (EDHS & CSA, 2016; Seqota Declaration 2018). As we can see the number of malnourished children in the pediatric ward is much higher than the prevalence of malnourished children reported at a national level. Therefore, devising strategies to address this problem should be thought of by the administration of the hospital. Further research with a larger sample size and longer time frame might be required to get a definitive result of the prevalence of malnutrition in children attending the hospital.

After getting the baseline data of the children we had planned to do the following during our visit three times a week:

- General nutritional assessment for children admitted to the ward and ICU
- Creating special meal plans for children according to their physical condition (nutritional status) to be prepared in the hospital or giving meal orders to family.
- Working with families having children with selective eating habits in improving conditions.
- Monitoring the growth of children by following their weight pattern and feeding habits and acting accordingly.
- Assessing breastfeeding practice of mothers and educating them on appropriate breastfeeding practices.
- Educating mothers on implementing healthy eating practices for themselves as well as their children.
- Educating mothers on appropriate timing of complementary feeding and patterns of feeding after starting it.
- Anticipate and assess the common problems faced by parents with infant and child feeding and finding solutions by working with parents.

- Including fathers in every intervention done for the health of their children.

- Unfortunately, the above plan could not be implemented due to COVID 19.

3.8 CHALLENGES FACED

The main challenges that I have faced during my work were:

- Menu orders were not being provided in the amounts given to the kitchen especially when fluid diets like gruel and bombe are ordered for patients on NG tube. To tackle this problem to the best of our efforts, we were communicating with the kitchen and also the administrative head informing them of the importance of following the amounts which are ordered as they are prepared tailored to a patient's individual needs
- Orders were also not being sent to the kitchen by the head nurses. For this I had started posting new orders on the boards in the nurses' room so that it can easily catch the eye of the head nurses reminding them of new orders
- Bombe was not provided for all patients in a consistent manner with the reason being unavailability of banana.
- Patients were being discharged early hindering the provision of nutritional support for those patients greatly requiring it
    - For example, one of my patients on NG tube feeding was discharged because the doctors said that keeping a patient at the hospital only for the sake of oxygen support was a waste of hospital resources

3.9 LESSONS LEARNT AND EXPERIENCES GAINED

During my stay at St. Paul hospital, I gained a lot of experience on how to approach patients with various medical conditions. Most patients don't know the work of a dietician but they are very eager to cooperate with us in order to improve their eating habits and their health. I have experienced how satisfying it is when you see a patient's improvement just by changing his eating habits. I gained skills on how to communicate with patients and counsel them on their eating habits.

Another lesson I learnt was a dietician's work requires communication and working with other health care professionals as well. In order to improve a patient's health, a common understanding among different health care professionals should be reached especially if it is food related. Related to this, kitchen staff should also be on board in order to improve the food service of a hospital to patients. All in all, I gained valuable experiences during my placement at St. Paul.

3.10 HYPOTHETICAL CASE STUDIES FROM HOME

After the pandemic hit our country and forced us to stay home, I worked on three hypothetical cases sent from our instructor (Irritable Bowel Syndrome, renal disease and weight loss). While working on these cases and questions were answered by assessing the patients based on the

information that was provided. Menus were also prepared based on the patients' requirements. We presented these hypothetical cases and discussed on them via Zoom®. One example of a case presented online can be seen below.

Case study 1

General information

Age: 82 Sex: F

- ❖ Reason for referral: neighbors report the patient as recently becoming forgetful and generally not coping

Anthropometric assessment

Wt.: 43.5kg Ht.: 152cm BMI: 18.9 kg/m^2

Biochemical assessment

Albumin: 30 g/l (35-45)
Calcium: 1.91 mmol/l (2.25-2.65)
Creatinine clearance: 4 ml/min
Bicarbonate: 15 mmol/l (22-32)
Creatinine: 4.86 mg/dl (0.45-1.47)

Clinical assessment

- Modest wt. loss
- Poor appetite
- GFR value less than 15 ml/min
  - ❖ GFR = $\frac{(140 - \text{age in yrs}) \times \text{wt. in kg}}{72 \times \text{CrCL}} \times 0.85$ (if female)
  - ❖ GFR = 6.13 ml/min **(ESRF)**

Dietary assessment

- Pint (570ml) of whole milk every other day
  - ❖ Energy: 380kcal
  - ❖ Protein: 20gm
  - ❖ Potassium: 806mg
  - ❖ Phosphorus: 512mg
  - ❖ Calcium: 690mg

Environmental, behavioral and social assessment

- Recently become forgetful as reported by her neighbors

- Lives alone with an estranged daughter-in-law who takes her shopping to a market out of town once every week
- Walks to a local mini market to get a pint of whole milk every other day
- No income except for her state pension

Answers to the questions

When looking at the clinical data, we can see that the patient has lost her appetite recently which has also caused a modest weight loss. Her memory loss can also be seen as a contributing factor to her weight loss as she may forget whether she has eaten or not, what time she has eaten as well as the type of food she has eaten. Memory loss can also be an indication of advancing CKD which requires dialysis or kidney transplantation. Her GFR value also indicates that she is in ESRF and we should first discuss with the patient the options of dialysis, kidney transplant or conservative management.

For the dietary assessment of the patient, using current methods of dietary assessment like the weighed food record method may be appropriate as this method:

- Requires no retrieval from memory
- Records current intake of the patient
- Patient used to live alone but is now in a rehabilitation center

➢ **Daily requirements**

- **Energy requirements:** 30 kcal/kg/day = 1,305 kcal/day
- **Protein requirements:** 0.8 gm/kg/day = 34.8 gm/day with 50% being HBV proteins
- Dietary intakes of potassium and phosphorus should not be restricted as the patient is already on the end stage and her serum levels are not that much elevated.
    - ❖ Priority should be given to improving her weight and as foods rich in protein also contain significant amounts of potassium and phosphorus

During discharge the following will be discussed with the patient:

- Long term dietetic management approaches are to be discussed with the patient assuming the patient is allowed to go home.
- Would be best if she had a caretaker live with her in order to follow up on her diet
- Menu could be provided based on the patient's preferences
- Caretaker should understand well why the patient's diet differs from a healthy diet
- In general, using approaches that combine treatment of symptoms with ways in which the patient can enjoy food may be appropriate.

The risk of malnutrition in this patient is likely due to the following reasons

- The risk of malnutrition in this patient's case is likely as the patient is an elderly patient and also has memory loss.
- Her loss of appetite could also contribute to developing PEM
- Protein and energy intakes also fall largely once GFR starts to fall below 25 ml/min.
- Uraemia is also common during this stage which may cause nausea, lethargy and taste changes further contributing to a decline in appetite
- The patient's BMI also shows that she is at risk for being undernourished if her loss of appetite continues
- Patients who are undernourished at the start of dialysis have a higher mortality rate as compared to patients who are well nourished

In order to say this patient is at risk of malnutrition we can use two common malnutrition screening tools: MUST (Appendix 5.7) and NRS screening tools.

According to the MUST tool (Blackpool Teaching Hospitals NHS Foundation Trust, n.d.) this patient:

- Has a BMI is between 18.5 & 20 (Score=1)
- Has modest weight loss (Score=1)
- Is acutely ill (Score=2)
  - ❖ So, when the above is added it gives us an overall score of **4** which puts this at a high risk of malnutrition

According to the NRS tool (Jens Kondrup, n.d.) this patient:

- Has a BMI less than 20.5 kg/m^2
- Weight loss within 3 months
- Reduced dietary intake within the past week
  - ❖ All add up to a score of 2
- Has a chronic illness (Score=1)
- Is greater than or equal to 70 years of age (Score=1)
  - ❖ So, when the above is added it gives us an overall score of **4** which puts this at a high risk of malnutrition

Strategies that could be implemented to avoid malnutrition in this patient could be:

- Discussing with the patient on foods she may enjoy in order to improve her appetite
- Having her caretaker give her meals at regular and uniform meal times
- Discuss with her caring physician on ways to reduce her urea levels so as to prevent uraemic symptoms from developing which may further decrease her appetite

4. CASE PRESENTATION

4.1 INTRODUCTION

Peptic Ulcer Disease (PUD) is defined as a breakdown or erosion of the mucosal lining of the stomach or duodenum (Joan Gandy, 2014). Ulcers affecting the duodenum are more common than those affecting the stomach (gastric) and esophagus (Rolfes et al., 2020). The most common causes of PUD are Helicobacter pylori infection, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) use and in rare cases disorders causing excessive acid secretion like Zollinger–Ellison syndrome (Rolfes et al., 2020). The most common symptom that patients with PUD experience is epigastric pain. With gastric ulcers the pain typically occurs 1-2 hours after a meal and is worsened by ingesting food, whereas in duodenal ulcers, it occurs 2-4 hours after a meal and may be relieved by taking anti-acids or food (Carroll Lutz & Nancy Litch, 2015). Other symptoms may also include dyspepsia like symptoms such as bloating, belching, heartburn, nausea and reflux (Proctor & Deans, 2014). Diagnosis is usually made by endoscopic examination of the upper gastrointestinal tract (Proctor & Deans, 2014).

There are 4 major complications of PUD: bleeding, perforation, penetration and obstruction (Milosavljevic et al., 2011). Out of these bleeding is the most common complication (Carroll Lutz & Nancy Litch, 2015; Proctor & Deans, 2014) and occurs in about 15-20% of ulcer cases (Rolfes et al., 2020). Treatment of PUD usually focusses on the eradication of H.pylori infection by using medications to reduce gastric acid secretion (Joan Gandy, 2014). Discontinuation of medications like NSAIDs and Asprin that irritate the gastric mucosa and delay healing is also helpful (Rolfes et al., 2020). Surgery is usually indicated for the management of PUD complications such as bleeding, perforation and outflow obstruction (Proctor & Deans, 2014).

Nutritional care in patients with peptic ulcers involves encouraging dietary and lifestyle practices in order to minimize symptoms (Rolfes et al., 2020). Managing stress, eating meals regularly and slowly are some of the practices that one can implement in order to promote quick healing and recovery of the ulcer (Joan Gandy, 2014). Patients should also be advised to avoid food items that increase gastric secretion or irritate the gastrointestinal lining such as alcohol, coffee, chocolate and pepper (Rolfes et al., 2020).

4.2 CASE PRESENTATION

The patient was an 18-year-old male on his 35th day of hospital admission upon assessment with a diagnosis of general peritonitis secondary to anastomotic leak. He came from Benshangul Gumuz, Assosa. He was living with his mother, father, 2 sisters and brother and was a 10th grade student. The patient already had an ex-lap for perforated PUD and a re-lap for post op collection prior to coming to St. Paul. He had no history of using alcohol, chat or tobacco. He also had no known allergy history. The patient had significant amount (around 6 soaked bed sheets in 24 hours) of yellowish fluid leaking from the peritoneum through the wound site. We were asked by the head

of the surgical department to follow him as he was severely malnourished and required nutritional support.

He underwent two surgical procedures after coming to St. Paul, the first for closure of the leak site and again because there was a leak from suture site. He was taking the following medications before he was discharged: Ciprofloxacin 500mg PO BID, Diclofenac 75mg IM PRN, Multivitamin 1 tab PO BID and Un-Fractionated Heparin 5000 IU SC BID.

Vital signs:

BP – 80/60 mmHg (Low) PR – 111 bpm (High) RR – 20'
Temp - ATT

Anthropometric measurements:

At the start of nutritional care (70 days before discharge) the patient's weight was 32kg and his MUAC was 12cm. After 21 days of nutritional support (before his first surgery) his MUAC was measured to be 17cm. 13 days after this his MUAC was measured again, and was found to be 14cm. On discharge his MUAC was measured to be 16.5cm.

Biochemical assessment (Relevant investigation details):

Hgb – 12.1g/dL

Clinical assessment (Physical appearance):

At the first visit the patient would not let his mother clean him up and was in a depressed state. Otherwise, he was ambulatory and used to walk around the ward. After this he was counselled to shower and clean up, get a haircut and trim his nails in addition to eating well to help boost his mood, improve intake and speed up recovery.

Diet history:

The patient has no loss of appetite but feels as if there is no point in eating because of his discharge from his previous abdominal surgery site as he thought what he was eating was not being used by his body. When assessing the 24-hour diet history, he took 1 plate of scrambled eggs with 1 bread, 1 cup (250 ml) of bombe juice, 1 bowl (250 ml) kikil with half an injera, an orange, 100 gm minced meat with half an injera and half a litre of water throughout the day. I found that this meal provides the patient with approximately 1,956 kcal of energy and 109.6g of protein.

Functional assessment:

After his two surgical procedures he could not sit on a chair unsupported and move his legs on his own. Upon discharge the patient has now shown massive improvement as he could walk unassisted and sit on a chair without support.

Nutritional status during diagnosis: Severely malnourished

The patient's long hospital stay, abnormal vital signs, severely low MUAC measurement could be seen as evidences that led to the patient being diagnosed as severely malnourished. The fact that the patient was in a depressed state during the initial assessment also could have contributed to his poor nutritional status.

Daily requirements

Daily energy requirement: The normal average adult requirement (2,000 kcal) was multiplied by a factor of 1.8 for hospitalized patients with sepsis which gives 3,600 kcal (Joan Gandy, 2014).

Daily protein requirement: 48gm based on a requirement of 1.5 g/kg/day for surgical patients (Joan Gandy, 2014).

Daily fluid requirement: 2,200ml based on 35 ml/kg/day (manual) plus 1000 ml accounting for the leak from the peritoneum (Joan Gandy, 2014).

Provided nutritional support

After food preferences were discussed with the patient, the patient was counselled on the importance of eating well for the healing of his wound site. He was also advised to clean up, cut his hair and nails. The patient was also advised to go out in the sun in the morning for 15 – 20 minutes. The following food was then ordered from the kitchen to provide the daily required amount of energy:

- Scrambled eggs (3) + 1 tablespoon oil + 1 tomato + 1 bread
- Minced meat with potato and carrots + half an injera
- 500 ml of Bombe juice
- 500 ml milk
- Lentil wot with injera + 1 boiled egg
- In addition to the above foods his attendant (his mother) is also feeding him yoghurt, oranges and bananas as snacks

❖ The above meal provides around 3,000 kcals of energy and 120.4g of protein.

The patient was eating well until he went in for his first surgery after which he was advised to only drink fluids like tea, gruel or milk. He was only drinking 3 cups of tea, ½ cup of gruel and 1 cup of milk throughout the day for about 10 days (that was when his MUAC measurement dropped to 14cm) after which he returned to his previous feeding pattern. I took a 24-hour diet history of 1 day as a sample and found that he ate the following meals throughout the day:

- **Breakfast**: Scrambled eggs with bread – half a plate
- **Snack**: Bombay - 1 cup
- **Lunch**: Minced meat (Tibs) – ½ plate with ¼ of an injera and ½ a bread

- Lentil wot with meat – ½ a plate
- **Snack**: Mashed avocado (1 piece) with 1 tbsp sugar
- **Dinner**: ½ slice of cream cake
- In addition to the above he drinks 3 cups (750 ml) of Ensure® nutritious drink, 500 ml milk and 1 sachet of plumpy nut.
- From this meal he will get around 3,700 kcals.

On discussion with his mother, she told me that the Ensure® nutritious drink was very expensive (1200 birr for the 850gm can and 800 birr for 400gm can). After asking the patient whether he would like the ingredients listed below, I then gave her two recipes of drinks that she could prepare on his bedside without needing a lot of resources and also providing him with high amount of calories as Ensure®. The recipe for the drinks is as follows:

Drink 1 (Barley juice):

- 2 tbsp (30gm) beso (barley) flour
- 1 tbsp (30gm) peanut butter
- 1 cup (250ml) milk
- 1 tbsp (15gm) sugar

Drink 2 (Flaxseed juice) – not to be taken more than 3 times in a week:

- 3 tbsp (45gm) ground flaxseed
- 1 cup (250ml) milk
- 1 tbsp (15gm) sugar

The following table shows the comparison between 850gm of Ensure® and an equivalent amount of barley and flaxseed juice.

Table 7: Comparison of Ensure, Flaxseed juice & Barley juice

Factor for comparison	**Ensure®**	**Barley (Beso) juice**	**Flaxseed (Telba) juice**
Cost	1,400 birr for 850gm	123.25 birr for 850gm	110.50 birr for 850gm
Amount of serving per 1000gm	19 servings	33 servings	22 servings
Carbohydrate content (gm)/serving	51	50.4	41.9
Protein content (gm)/ serving	13	19.4	17.9
Energy provided (kcal)/ serving	350	459.8	451.5

The patient was discharged on 26/6/12 E.C. after 105 days of admission. Upon discharge he was given a menu (attached below) with recipes of different foods to choose from while at home.

<u>የምግብ አማራጮች</u>

1. ዳቦ (2 ቁርጥ/ 1 ክብ ዳቦ) ከ 1 የሾርባ ማንኪያ ማርማላት/ የለውዝ ቅቤ ጋር
   (ሁለቱንም በአንድ ጊዜ መጠቀም ይቻላል)
   - ❖ በቁርስ ሰዓት ወይም በምግብ መሃል እንደ መክሰስ ለመመገብ የሚሆን

2. ዳቦ በድብልቅ ፍራፍሬ እና አትክልት
   ዳቦ (2 ቁርጥ/ 1 ክብ ዳቦ) እንደ አመቺነቱ ከተገኘው የፍራፍሬ እና የአትክልት ድብልቅ ጋር (የአትክልት ድብልቁ 3-4 የሾርባ ማንኪያ)
   - ❖ በምግብ መሃል እንደ መክሰስ ለመመገብ የሚሆን

3. ቅንጬ ከአትክልት ጋር
   የተገኘውን የቅንጬ እህል (1የቡና ስኒ የሚሆን) ተቀቅሎ ከተዘጋጀ በኋላ አንድ አነስተኛ ሽንኩርት በዘይት (1 የሻይ ማንኪያ) ጠበስ በማድረግ ማዋሃድ
   - ✓ እንደ አመቺነቱ ሌሎች አትክልቶችን መጨመር ይቻላል
   - ❖ በቁርስ ሰዓት ወይም በምግብ መሃል እንደ መክሰስ ለመመገብ የሚሆን

4. በሶ በወተት
   የበሶውን ዱቄት በውሃና በወተት (እኩል እኩል ወይም እንደአመቺነቱ) ከመጠነኛ ስኳር ጋር በመበጥበጥ ለመጠጣት የሚሆን (ምሳሌ፡- ለ1 ብርጭቆ 1 የሻይ ማንኪያ ስኳር)
   - ❖ በምግብ መሃል እንደ መክሰስ ወይም ሌሊት የረሃብ ስሜት ሲኖር ለመመገብ የሚሆን

5. አጥሚት በወተት
   - ያለውን እህል በመጠቀም አጥሚቱን ወፈር አድርጎ ማብሰል፤ ከዚያም ስኳር ከተጨመረ በኋላ ወተቱን ጨምሮ በማዋሃድ ወደሚፈለገው የውፍረት ደረጃ ማስተካከል፡፡
   - ወተቱ የዱቄት ከሆነ አጥሚቱን በሚፈለገው ውፍረት መጠን (መቅጠን የለበትም) አዘጋጅቶ የዱቄት ወተቱን ጨምሮ በማዋሃድ መመገብ ይቻላል፡፡

6. ሾርባ (በአትክልት እና በስጋ)
   - ሽንኩርት (ቀይ ወይም ባሮ)- 1 መካከለኛ
   - ዘይት (ፈሳሽ)- 2 የሾርባ ማንኪያ
   - ስጋ (የዶሮ/ የበግ/ የፍየል/ የበሬ/ የዓሳ እንደአመቺነቱ በማቀያር መጠቀም)- ተከትፎ 1 ሞላ ያለ የቡና ስኒ የሚሆን
   - ካሮት (በዝኩኒ ወይም በሌላ አትክልት መተካት ይቻላል)- 1 መካከለኛ
   - ድንች- 1 ተለቅ ያለ
   - መኮሮኒ (ወይም ለለውጥ ሩዝ)- በጥሬው በ 1 የቡና ስኒ ሙሉ የሚሆን
   - ጥቂት ጨው
   - ውሃ- ግማሽ ሊትር (2 የውሃ ብርጭቆ)

   - ✓ መጠኖችን በመጠበቅ የአትክልት እና የስጋ አይነቶችን በማቀያየር መጠቀም ይቻላል፡፡

- ✓ ከተጠቀሱት ውጪ ማጣፈጫዎችን እንደፍላጎት መጨመር ይቻላል፡፡ ለምሳሌ፡- ነጭ ሽንኩርት፣ ዝንጅብል፣ የሾርባ ቅጠል ወ.ዘ.ተ
  - ❖ በምሳ ወይም በእራት ሰዓት ለመመገብ የሚሆን፤ ይሄ መጠን ለ 2 ጊዜ ለመመገብ መሆን ይችላል፡፡

7. የአትክልት ሾርባ በምስር/ በቦሎቄ/ በሽምብራ

   - ሽንኩርት- 1 መካከለኛ
   - ዘይት- 2 የሾርባ ማንኪያ
   - ምስር ወይም ቦሎቄ ወይም ሽምብራ- በጥሬው 1 የቡና ስኒ የሚሆን የራሰ ወይም የተቀቀለ
   - ካሮት- 1 ተለቅ ያለ ራስ
   - ድንች- 1 ተለቅ ያለ ራስ
   - መኮሮኒ- በጥሬው 1 የቡና ስኒ የሚሆን
   - የአበባ ጎመን ወይም ብሮኮሊ (ከተገኘ)- ተፈልፍሎ 1 የቡና ስኒ የሚሆን
   - ጨው- ጥቂት ለጣዕም ያህል
   - ውሃ- ግማሽ ሊትር በመጨመር የሚዘጋጅ

- ✓ ከተጠቀሱት ውጪ ማጣፈጫዎችን እንደፍላጎት መጨመር ይቻላል፡፡ ለምሳሌ፡- ነጭ ሽንኩርት፣ ዝንጅብል፣ የሾርባ ቅጠል ወ.ዘ.ተ
- ✓ በምሳ ወይም በእራት ሰዓት ለመመገብ የሚሆን፤ ይሄ መጠን ለ 2 ጊዜ ለመመገብ መሆን ይችላል፡፡

8. ስጎ በቲማቲም እና በስጋ (ከመኮሮኒ/ ከፓስታ/ ከሩዝ ጋር መብላት የሚቻል)

   - ሽንኩርት- 1 መካከለኛ
   - ቲማቲም- 1 ተለቅ ያለ
   - ዘይት- 1 የሾርባ ማንኪያ
   - ስጋ (የተገኘውን አይነት)- ተከትፎ 1 የቡና ስኒ የሚሆን
   - ካሮት (የተፈጨ)- 1 የቡና ስኒ የሚሆን
   - ጨው- ጥቂት ለጣዕም ያህል
   - ማጣፈጫ- እንደ አስፈላጊነቱ

- ✓ በምሳ ወይም በእራት ሰዓት ለመመገብ የሚሆን፤ ይሄ መጠን ለ 2 ጊዜ ለመመገብ መሆን ይችላል፡፡

9. ስጎ በአትክልት (ከመኮሮኒ/ ከፓስታ/ ከሩዝ ጋር መብላት የሚቻል)

   - ሽንኩርት- 1 መካከለኛ
   - ዘይት- 1 የሾርባ ማንኪያ
   - ካሮት- 1 መለስተኛ
   - ዝኩኒ- 1 አነስተኛ (ተመጣጣኝ)
   - ጥቅል ጎመን- በደቃቁ ተከትፎ 1 የቡና ስኒ የሚሆን
   - ድንች- 1 ተለቅ ያለ
   - ጨው- ጥቂት ለጣዕም ያህል
   - ማጣፈጫ- እንደ አስፈላጊነቱ

   ሽንኩርት- (ቀይ ወይም ባሮ)- 1 መካከለኛ
   ዘይት- 1 የሾርባ ማንኪያ
   ካሮት- 1 መለስተኛ
   ብሮኮሊ- ተፈልፍሎ 1 እጅ ሚሆን
   ቆስጣ- 4-5 ዘለላ
   ቦሎቄ/አተር/ሽምብራ/ባቄላ- 1 የቡና ስኒ የተቀቀለ

- ✓ በምሳ ወይም በእራት ሰዓት ለመመገብ የሚሆን፤ ይሄ መጠን ለ 2 ጊዜ ለመመገብ መሆን ይችላል፡፡

❖ በተጨማሪም ንፅህናቸው ተጠብቆ በትኩሱ የተዘጋጁ የፍራፍሬ ጭማቂዎችን እንዲሁም እርጎ በተገኘ ጊዜ መውሰድ ጠቃሚ ነው።።

10. ጭማቂ (1)

- 1 የውሃ ብርጪቆ ወተት
- 1 ተለቅ ያለ አቮካዶ
- 5 ፍሬ ፍሬው የወጣለት ቴምር
- 1 መካከለኛ ሙዝ (1/4 ፓፓያ/ 2 ማንጎ)
- 1 የቡና ስኒ የቆርቆሮ አጃ በአንድ ላይ በመፍጨት የሚዘጋጅ

11. ጭማቂ (2)

- 1 የውሃ ብርጭቆ ወተት
- 2 የተቀቀለ እንቁላል
- 1 የሾርባ ማንኪያ የለውዝ ቅቤ
- 1 ሙዝ
- 1 የቡና ስኒ የቆርቆሮ አጃ በአንድ ላይ በመፍጨት የሚዘጋጅ

❖ **ይህ ጭማቂ ከተዘጋጀ በኋላ ወዲያው መጠቀም ያስፈልጋል!**

➢ በተጨማሪም በሶ ጁስ እና ተልባ ጁስ በወተት ወይም በውሃ አድርጎ መጠቀም ይቻላል።።

5. ANNEX

5.1 FOOD DIARY FORMAT

ለህመምተኛ የሚሰጥ ምግብ መከታተያ

ስም፡ _____ አድሜ፡_____ ፆታ፡ _____ ክፍል፡ _____ የአልጋ ቁጥር፡ _____

ቀን	ሰዓት	የምግብ ዓይነት (ከምግቡ ጋር የተጠጣ ነገር ካለም አብሮ ይፃፍ)	መጠን	ከቤት (1) ከሆስፒታል (2)
	ቁርስ			
	የጧት መክሰስ			
	ምሳ			
	የከሰዓት መክሰስ			
	እራት			

5.2 NUTRITIONAL ASSESSMENT OF IN-PATIENTS ADMITTED IN DIFFERENT WARDS AT ST. PAUL'S HOSPITAL

No.	Ward	Age (yrs)	Sex	MRN	Bed No.	Medical diagnosis	LOS (d)	Wt. (kg.)	Ht. (cm)	BMI (kg/m^2)	MUAC (cm)	Nutritional status

5.3 PICTORIAL FOOD DIARY

ስዕላዊ የምግብ መመዝገቢያ

ቀን …… የታካሚው ስም …… ክፍል …….. የአልጋ ቁጥር ……

ቁርስ መክሰስ ምሳ መክሰስ እራት





…….. …….. …….. …….. ……





…….. …….. …….. …….. ……..










…….. …….. …….. …….. ……..

5.4 DIABETES FACT SHEET

የአካል ብቃት እንቅስቃሴን ማሳደግ

- አንድ ሰው በሳምንት ቢያንስ ለ150 ደቂቃ ያህል ቀለል ያለ የአካል ብቃት እንቅስቃሴ ማድረግ ቢችል ይመከራል
- ቀለል ያለ እንቅስቃሴ ፈጠን ያለ የእግር ጉዞ፣ ገመድ ዝላይ፣ ሩጫ፣ ደረጃ መውጣትና መውረድ እና መሳሰሉትን ሊያካትት ይችላል::

ምግብን በተገቢው ጊዜ እና በመጠኑ መመገብ

- የረሀብ ስሜት ላይሰማንና ጊዜውን ጠብቆ መመገብ አስፈላጊ ነው
- በቀን ውስጥ በመጠኑ ቢሆን እስከ 6 ጊዜ ቢመገብ ጥሩ ነው ማለትም ቁርስ፣ ምሳ፣ እራትና በጥጭማሪም 3 መክሰሶች

የተመገቡትን ምግብ በማስታወሻ ቀፎ መያዝ

- በየእለቱ የተመገቡትን ምግብ በማስታወሻ ቀፎ መያዝ በሰም ውስጥ ያለ የስኳር መጠን ከፍ እንዲል ወይም እንዲቀንስ ያደረገውን የምግብ ዓይነት ለመረዳት ይጠቅመናል

ጥያቄዎች

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ምንጭ– Feeding from a bottle, Center of Disease Control and Prevention (CDC), 2020

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ጤናማ የአመጋገብ ዘይቤ ለስከኪር ህሙማን

5.5 FORMULA FEEDING FACT SHEET

ለልጅዎ ምን ያህል ወተት በሰጡት ይለቃቀዋል?

- ሁሉም ልጆች አመጋገባቸው ይለያያል ስለዚህም አንድ ልጅ ምን ያህል መጥባት እንዳለበት አንድረሱ ሁልጊ ይወሰናል

- ከታች ያለው ሰንጠረዥ አንድ ገና የተወለደ ህፃን ልጅ እስከ ፣ አመት በአማካኝ ምን ያህል ወተት መጥባት እንዳለበት በምሳሌነት ያሳየናል

እድሜ	በ1 ጊዜ መመገብ ያለበት መጠን (ሚሊ)	በ24ሰዓት ውስጥ ልጁት ጊዜ መመገብ አለበት
0-1 ወር	60-90	6-8
1 ወር	120	6
2 ወር	120	6-7
2-4 ወር	120-180	5
4-6 ወር	180-240	5
6-12 ወር	240	2-3 ጊዜ ከተጨማሪ ምግብ ጋር

ማስታወሻ

ምንጭ:- Feeding from a bottle, Center of Disease Control and Prevention (CDC), 2020

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ለህጻናት የጣሳ ወተት አመጋገብ

- በተለያየ ምክንያት ለልጅዎ የእናት ጡት ወተት መመገብ ማቆም ካልቻሉ ወይም በሀኪም ከተከለከሉ ለህፃናት በአሰሜያቸው ተዘጋጅተው የሚሰጥ የጣሳ ወተት መመገብ ይችላሉ

- ጡት ማጥባት ለህፃኑ ልጅ አስፈላጊውን ምግብ ከመስጠት በተጨማሪ ለእናትና ልጅ ልዩ የመቀራረቢያ ጊዜ ሊሆን ይችላል

5.6 COMPLEMENTARY FEEDING FACT SHEET

- **ለልጄ የሚሰጣ ምን መስጠት አችላለው?**
  - ውሀን አፍልቶ ማቀዝቅዝ ወይም ማጣራት
  - ወተትን ማፍላት
  - ጭማቂ የሚሰረት ፍራፍሬዎችን በደምብ ማጠብ
  - መጠጦች ምግብን መተካት የልባቸውም
  - ከምግብ ጋር ከምስጠት ይልቅ ከምግብ በኋላ መስጠት ይመከራል
  - ሻይ ህጻኑ ምግብ ከማበላው 2 ሰዓት ብፊት ወይም ከበላ በኋላ 2 ሰዓት ጠብቀው ይስጡ
- **ልጄን ምን ያህል ላበላው?**
  - መጀመሪያ ምግብ ሲጀምሩ በቀን 1 ወይም 2 የሻይ ማንኪያ በቂ ነው
  - ቀስ እያሉ ምጠኑንም አይነቱንም መጨምር ይችላሉ
  - ከ6-7 ወር ባለው ጊዜ ውስጥ ህጻኑ በቀን ተጨማሪ 3 ምግብ መብላት ይኖርበታል
  - ህጻኑ 9 ወር ሲሞላው የተላያዩ ቤተሰብ ሚመገባቸውን ምግቦች መብላት ይኖርበታል
  - ህጻኑ 1 ዓመት ሲሞላው በቀን ተጨማሪ 5 ምግብ (ቁርስ፣ ምሳ፣ እራትና ተጨማሪ 2 መክሰስ) መብላት ይኖርበታል
  - ለልጄ መጀመሪያ ምግቦችን እየፈጩ ይስጡ ከዚያም እየቆራረጡ ማበላት ይችላሉ

- **ለልጄ ምግብ ሲያዘጋጅ ንጽህናውን በጠበቀ መልኩ መሆን አለበት**
  - የእርሶንም ሆነ የልጅን እጅ በደምብ መታጠቦን አይዘንጉ
  - ምግቡ እንደተዘጋጀ ወዲያውኑ ያቅርቡ
  - ምግብን ከዳን ባልው ስሆን ያስቀምጡ
  - አጥሚትን በጠሙ ባይሰጡ ይመከራል ምክንያቱም ጠሙ ለማጠብ አስቸጋሪ ስልሚሆን በደምብ ላይጸዳ ይችላል
- **በሁሙም ጊዜ**
  - ለልጄ ይሚሰጡትን የፈሳሽ መጠን ይጨምሩ
  - ጡትም በተደጋጋሚ ያጥቡ
  - የተላያዩ ለስለስ ያሉና ልጅዎ የሚወዳቸውን ምግቦች እንዲበላ ያበረታቱ
  - ልጄ ከተሻለው በኋላ ከወትሮው በይበልጥ ምግቦችን እንዲወስድ ያበረታቱ

- Guiding principles for complementary feeding of the breastfed child, WHO, 2003
- Guiding principles for feeding non-breastfed children 6 -24 months of age, WHO, 2005
- Complementary feeding: family foods for breastfed children, WHO, 2000

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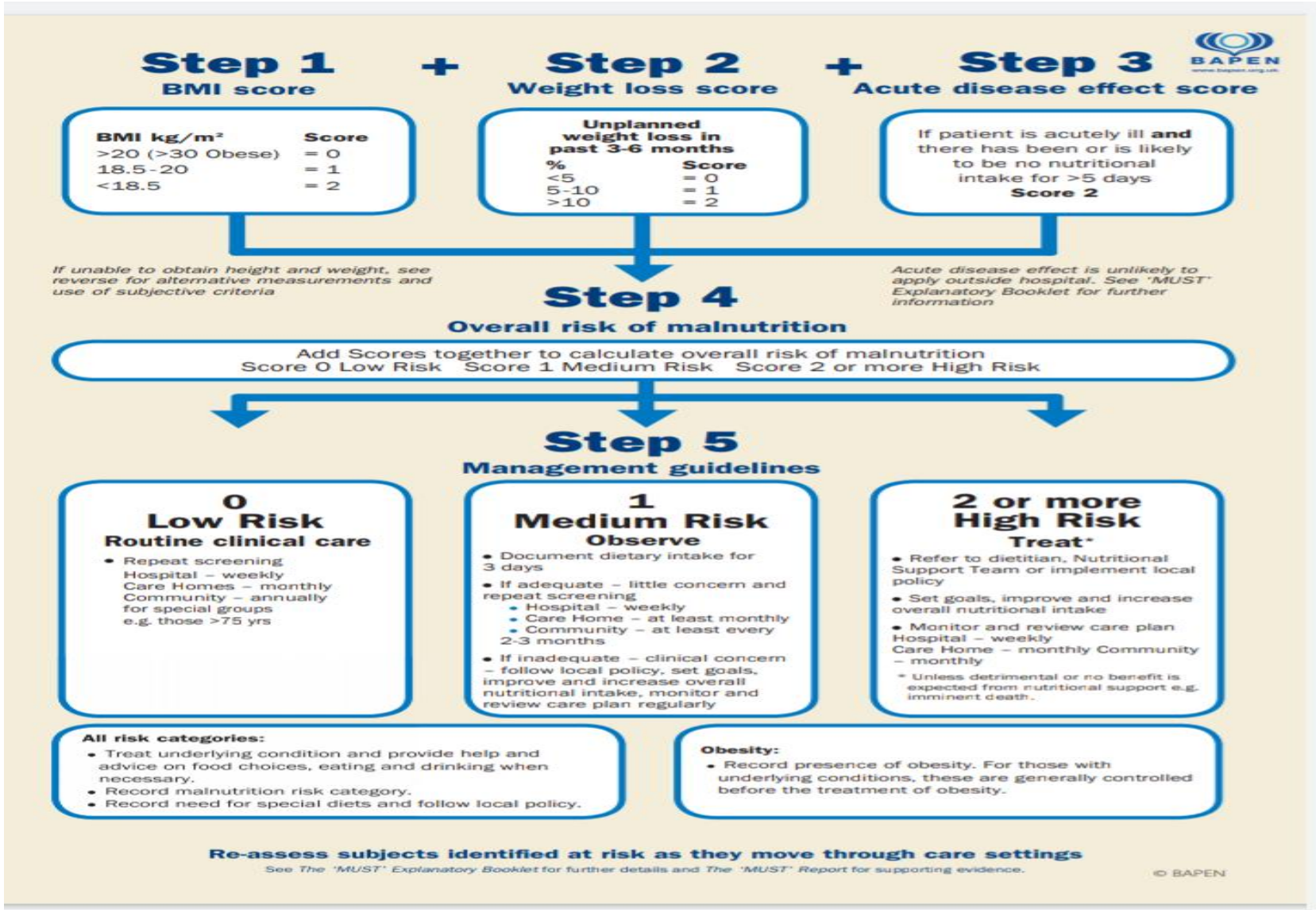
ከ6-24 ወር ለሆኑ ህጻናት ከጡት ወተት በተጨማሪ የአመጋገብ ሁኔታ

- የእናት ጡት ወተት ህጻኑ እንድ አመት እስኪሞላው ድረስ ዋና ምግብ መሆን ይኖርበታል ከዚያም ልጁ ሁለት አመት እስኪሞላው ጡት መጥባቱን መቀጠል ይኖርበታል
- ህጻናት 6 ወር ከሞላቸው በኋላ የእናት ጡት ወተት በቂ አይደለም ስልሚታሰብ ተጨማሪ ምግብ መጀመር ይኖርባቸዋል

5.7 MUST SCREENING TOOL



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