Study Unit 4

Integrated Management of Acute Malnutrition

Integrated Management of Acute Malnutrition Outline

- Definition of Malnutrition
- Causes of Malnutrition
- Types of Malnutrition
- Management of Malnutrition in different Nutrition Program

Study Unit Duration

This Study Unit requires a minimum of 8 hours' formal study time.

You may spend an additional 2-3 hours on revision.

Introduction

This chapter covers an overview of Malnutrition, the definition and causes of Malnutrition, and the management of Malnutrition in deferent nutrition programs.

Learning Outcomes of Study Unit 4

At the end of this study course You shall should be able to:

4.1 Explain and give a clear definition of Nutrition and the different constituents of a good balanced diet.
4.2 Identify the causes of Malnutrition
4.3 Define the different types of Malnutrition
4.4 Demonstrate the use of Anthropometric Measurement Technique
4.5 Discuss the principles and objective of IMAM
4.6 Describe the different phases in SAM treatment Protocol

4.1 Introduction to Malnutrition

Human Nutrition is the study of how any component of food affects the human body. Nutrition may be defined as the collection of mechanisms through which a living creature obtains resources from its environment and utilizes them to support its essential functions. (Helen M. Barker, 2002)

Proper Nutrition should comprise various essential components to meet the body's protein, carbohydrate, vitamin, and mineral requirements. As a result, enough water, meat, fish, poultry, fruits and vegetables, milk and milk products, grains, and legumes must be consumed.

Additionally, newborns should receive adequate nursing to maintain their health and avoid nutritional sickness. (Helen M. Barker, 2002)

Malnutrition is a major worldwide public health problem. Risk of early death is greatly increased and accounts for more than a third of all child deaths directly or indirectly. Poverty and underdevelopment are both the source and effect of this. (Helen M. Barker, 2002)

4.1.1 Nutrition situation in Africa

Food security and Nutrition continue to deteriorate across Africa, painting a very concerning picture. Hunger is increasing. According to the most recent FAO figures, between 2007 and 2009, the increase in food prices pushed an extra 24 million individuals into starvation in Sub Saharan Africa only. **(FOA, 2019)**

In Africa, 15 of the 16 countries where hunger prevalence has reached 35 per cent are located. The economic downturn and financial crisis have made it more difficult for those living in hard-hit areas to cope with increased food prices. **(FMOH., 2019)**

Many people consider the nutritional state of children under the age of five to be an indicator of severe poverty. Increasing nutrition is essential to meeting other SDG goals in education and health. This means that Africa's nutrition is a pressing issue that must be addressed immediately by the government. Several sectors will have to work together to eliminate hunger and malnutrition. For effective food and nutrition security efforts, integrating all members of society – especially those who are most at risk – is a critical component. **(FMOH., 2019)**

4.1.2 The Concept of Malnutrition

Caused of acute and chronic Malnutrition often work in concert, reinforcing each other until no one action or intervention can avoid them. On rare occasions, a single factor can be identified.

Understanding and addressing the causes of acute Malnutrition necessitates some background knowledge. It's easy to focus on the apparent symptoms, but they can't be solved unless the underlying reasons are identified and addressed as well. Only by eliminating the root causes of starvation can the problem be permanently eradicated. The UNICEF conceptual framework, as shown in Figure 4.1, will be described in more detail below. **(FMOH., 2019)**

4.2 Causes of Malnutrition

4.2.1 Immediate Causes of Malnutrition

Malnutrition is a consequence of a vicious cycle in which disease and malnutrition exacerbate each other's effects due to insufficient nutritional intake and illness. In order to help in the recovery of malnutrition, both food intake and disease must be addressed.. **(Michael Golden Yvonne Grellety, 2020)**

4.2.2 Underlying Causes of Malnutrition

Poverty is the root of all malnutrition-related problems. There are three primary causes of malnutrition:

Food: Insufficient food security in the home due to access and Availability of food.

Care: A lack of social and caring conditions in the home and community, especially for females and children.

• **Health**: Excessive exposure to unsafe water and sanitation facilities due to lack of access to healthcare and/or environmental health issues).

Poverty is the key factor of all forms of Malnutrition.

(Michael Golden Yvonne Grellety, 2020)

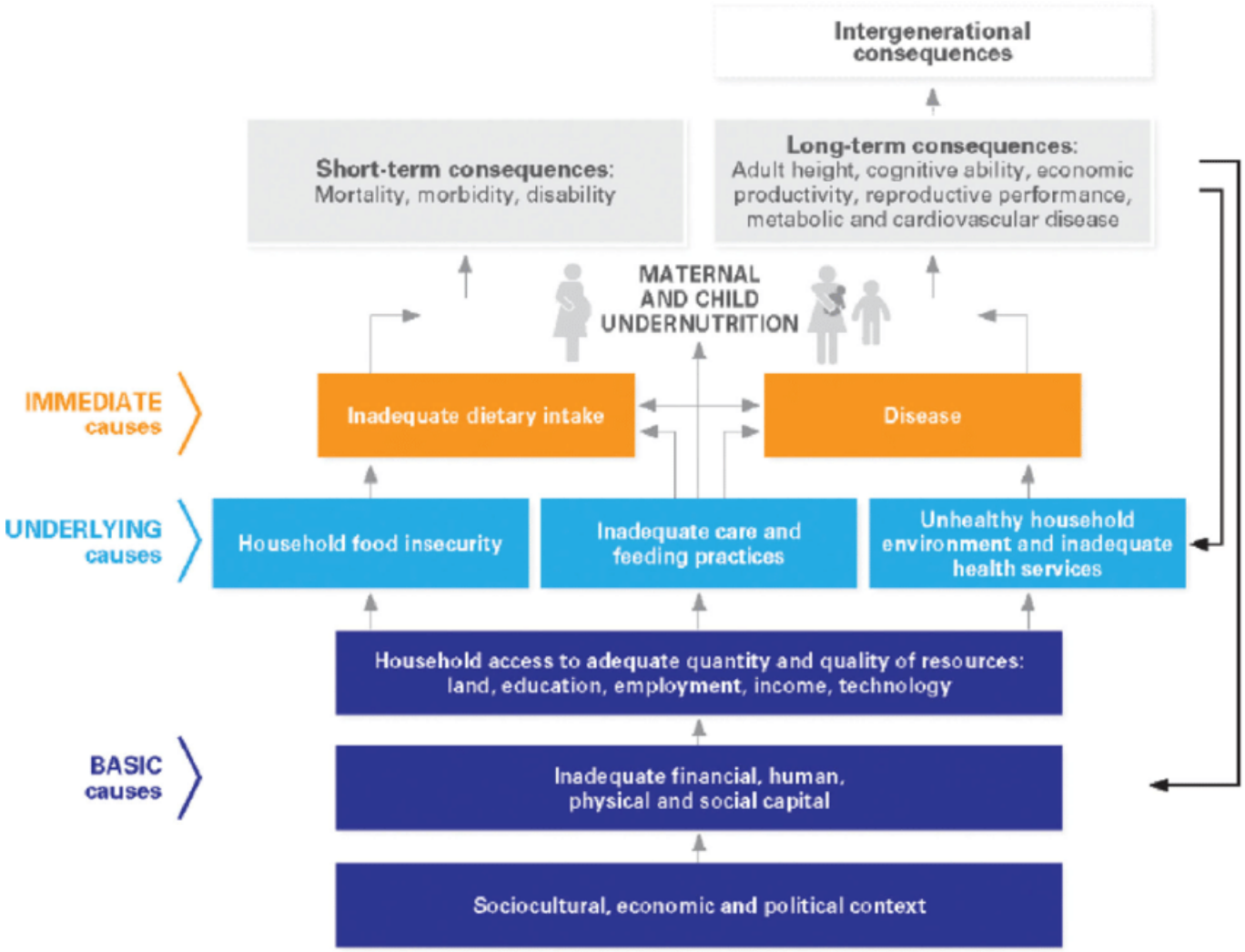

Figure 4.1: Recent conceptual framework made by UNICEF (Michael Golden Yvonne Grellety, 2020)

4.2.3 Basic Causes of Malnutrition

The critical determinants of Regional or national factors might play a role in a community's struggle with malnutrition. Among them are:

The strategies and policies that apply to a specific geographic area

These factors (human, economic, political, and cultural) impact how resources are allocated within a community.

Isolation due to distance from markets and services

There can be negative impact on mother and child health and Nutrition due to a lack of infrastructure, relocation, or violence. (Michael Golden Yvonne Grellety, 2020)

4.3 Types of Malnutrition

4.3.1 Moderate acute of malnutrition (MAM)

Mild acute Malnutrition, or MAM, is characterized by wasting

4.3.2 Severe acute Malnutrition (SAM)

severe acute Malnutrition (SAM) is characterized by a meagre body mass ratio (BMR), obvious wasting, or nutritional oedema.

4.3.3 Diagnosing acute Malnutrition

To identify acute Malnutrition, we must first determine the Patient's age and gender.

• Check for bilateral pitting edema.

Weigh yourself, measure your MUAC, and note your height/length.

Bilateral pitting edema, MUAC cut-offs or weight for height/length (WFH/L) may all be used as indicators.

a person's weight about their height is referred to as their body mass index (BMI) (Michael Golden Yvonne Grellety, 2020)

Figure 4.2: Shows a 2-year-old malnourished baby girl, before and after gaining weight.

(Michael Golden Yvonne Grellety, 2020)

4.4 Anthropometric Measurement Techniques

4.4.1 Diagnosing Bilateral Oedema

How to measure the Oedoma

1. First, the dorsum of the feet is examined for signs of edema.
2. Gently press each foot with your thumbs while counting 121, 122, 123. (approx. 3 seconds).
3. If a pit remains for a few seconds after the thumb is removed, Oedema will occur.

4. Repeat steps 4 and 5 on the backs of the lower thighs (above the knee) and hands.

Figure 4.3: Shows a technique used in diagnosing Oedema (Michael Golden Yvonne Grellety, 2020)

Table 4.1: Shows the grading of Oedema Diagnosis

Grades of Oedema	Definition
Absent	Absent
grade +	Mild: both feet/ankles: mild
grade ++	Modarate: hands, lower legs, and lower arms moderate

grade +++	severe: generalized edema to body, including hands, arms and feet or even face

(Michael Golden Yvonne Grellety, 2020)

4.4.2 Mid-Upper Arm Circumference assessment (MUAC)

This measurement measures the circumference of the upper arm at the halfway point between the shoulder and elbow tips. A significant mortality risk is associated with an MAUC less than 11.5cm (11.5cm for children 6 to 59 months).

A person's nutritional status may be assessed using the MUAC. MUAC has consistently outperformed other anthropometric measurements in predicting child mortality in various studies. Even after such a short length of time, the MUAC proved to be the most beneficial method.. **(FMOH., 2019)**

Steps of MUAC measurement:

1. To get your mother's natural arm circumference, measure the circumference of your arm (left or right)
2. As a second step, have the mother remove any clothes that would obscure the child's arm.
3. A child's elbow must be bent at a correct angle.
4. Determine the child's upper arm's middle with your hands on the child's shoulders. Mark the midway of the arm with a pen if required.
5. Align the child's arm with the tape and wrap it around the child's arm in the middle. Inspect to make sure the numbers are aligned correctly. Make sure the tape is completely flat on your skin.
6. Make sure the child's arm tape isn't too loose or too tight. Make sure that the tape is not too tight or too loose, and that it is in touch with the skin the whole way around the arm before applying it.
7. When the tape is tight and the arm is properly positioned, measure to the closest 0.1cm using a micrometer.
8. Make a note of the measurement as soon as you have it. (Michael Golden Yvonne Grellety, 2020)

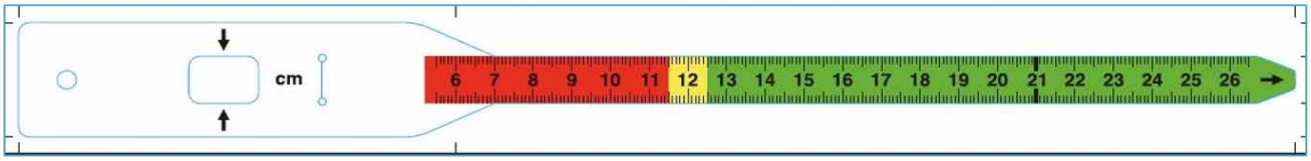

Figure 4.4: Shows the Mid-Upper Arm Circumference tape

(RED or MUAC is < 115 mm: SAM

(YELLOW or MUAC ≥ 115 and < 125 mm: MAM

(GREEN or MUAC os ≥ 125 mm: Normal

Figure 4.5: Shows how the Mid-Upper Arm Circumference is used (Michael Golden Yvonne Grellety, 2020)

NUTRITION SCREENING TALLY SHEET using MUAC

DISTRICT................HC.................VILLAGE/OTP................. Month......................

From ______/_____/_______ to ______/______/______ **Function** ***Signature***

____

Put a cross to the "o" within the different categories, according to the MUAC

	MUAC <115mm	MUAC≥ 115&<125mm	MUAC≥ 125mm	Oedema
6months & more	ooooo	ooooo ooooo	ooooo ooooo ooooo	ooooo
	ooooo	ooooo ooooo	ooooo ooooo ooooo	ooooo
	ooooo	ooooo ooooo	ooooo ooooo ooooo	ooooo
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	ooooo	ooooo ooooo	ooooo ooooo ooooo	ooooo
	ooooo	ooooo ooooo	ooooo ooooo ooooo	ooooo
Total				

Figure 4.6: Shows a Nutrition Screening tally sheet using MUAC (Michael Golden Yvonne Grellety, 2020)

4.4.3 Taking a child's weight

A 25 kg hanging sprint scale with a 0.100 kg weight range is used to weigh the youngsters. The scale must be zeroed out before each weighing.

Steps of taking weight of the child.

1. The first step is to remove the child's whole clothes and weigh him or her. If it's possible, give women their own space.
2. Second, zero out the weighing scale (i.e. make sure the arrow is on zero after placing the empty basin or the weighing pants).
3. Adjust the weighing scale so that it is level with your eyes.
4. Place the child in a basin or weighing pants with care.
5. Find out whether the child understands anything.
6. The child's weight should be noted. The trajectory of the arrow must be consistent.
7. E.g., 6.6 kg, record the kilogram weight to the nearest hundredth kilogram, for example. (Michael Golden Yvonne Grellety, 2020)

Photo on right: Source: Guidelines for the management of the severely malnourished: version January 2007 by Pr. Michael Golden and Yvonne Grellety, ACF. Photos on left courtesy of ACF Liberia

Figure 4.7: Shows how the weight of a malnourished Child is measured (Michael Golden Yvonne Grellety, 2020)

4.5 Management of Acute Malnutrition in integrated approach (IMAM)

In order to address acute malnutrition, this program is a thorough one. It's a vital concept in the fight against malnutrition since it's a diet designed exclusively for infants and toddlers aged six to 59 months.

4.5.1 IMAM program objectives are:

1 To avert severe Malnutrition.

2 To avert the onset of SAM in instances of intermediate acute Malnutrition.

3 To develop connections with other programs/services in order to avoid future relapse.

4 To save the lives of people suffering from acute Malnutrition. (Michael Golden Yvonne Grellety, 2020)

4.5.2 The Standards of IMAM Program

The IMAM curriculum is founded on four fundamental principles:

1. Ease of access and wide-ranging coverage
2. Many community workers can follow up with outpatients in their homes because of decentralized service delivery units/facilities that are easier to reach and more accessible.
3. Timeliness
4. It's essential to provide comprehensive care and begin aggressive case-finding before malnutrition prevalence rises.
5. The purpose of IMAM's mission is to treat acute malnutrition to prevent the development of more serious medical conditions.
6. 6. Sectors are integrated.
7. Health and nutrition education, promotion of breastfeeding and good hygiene, food security and protection, etc. are all examples of integration.
8. Capacity building

9. We may expand on current structures and stakeholders by cooperating, educating, and giving ongoing help.. (Michael Golden Yvonne Grellety, 2020)

4.5.3 The core of the IMAM program includes four distinct but integrated components/services

i. Mobilization and sensitization of the community.
ii. TSFP - Targeted Supplementary Feeding Program
iii. Outpatient Therapeutic Program - OTP.
iv. Stabilization Center - SC (Inpatient care). (Michael Golden Yvonne Grellety, 2020)

4.5.4 Outpatient management (OTP)

As long as the patient has an appetite and no medical difficulties, they may be treated as outpatients in the community, at health institutions, and by mobile clinics. The patient goes to the OTP once a week to check progress and get therapeutic meals and drugs. a)

Every day at home, the caretaker treats the kid as directed by OTP professionals.

The goal of outpatient malnutrition management is to:

• Expand therapy options.

• Building adequate facilities in or near other communities.

The community component identifies, refers to, and monitors malnourished children in the community. Good community engagement can assist identify children at risk of malnutrition and decrease the need for SC transfers. (Michael Golden Yvonne Grellety, 2020)

OTP Chart

SAM/Scope Number……Registration Number…… Admission date……

OTP code …… OTP name ……District……

Reason of Admission MUAC ……mm W/H……Z-score OR Oedema Yes □ No □

Patient Name……	Breast feeding Yes □ No □	Special Problem……
Caretaker Name……	Twins Yes □ No □	……
Age (mo)…… Sex …….	Parents alive Yes □ No □ If No, precise……	Update Immunisation Yes □ No□
Address……		Immunisation card Yes □ No□
……		Measles 1……
Phone #	Health of caretaker……	2……

Admission Information

Before beginning treatment (circle the answer) Referral BY: Spontaneous / Active screening / HC /……(circle answer) *During the treatment or begining of treatment* * TRANSFER- IN: Yes □ No □ if Yes, SC/ Other OTP / District hospital (circle the answer) Name of…… Registration N0 …… Date of IMAM admission…… Date of transfer TO OTP……	TYPE of ADMISSION □ New admission □ Transfer-IN* □ Relapse □ Readmission after defaulting <2months

Examination	Education given		
Circle the answer	Theme	Date	Signature
Condition of Patient: Normal / Sick / Very sick	Causes of malnutrition		
Handicap: Yes □ No □ If yes, ……	Diarrhoea, fever, ARI		
Respiration: Normal / Fast	Infection (skin, eyes, ear)		
Eyes: Normal / Vitamin A deficit / photophobia	Play & stimulation		
Skin lesions: Yes □ No □	Nutrition – child care		
Oedema (0, +, ++, +++)……	Hygiene		

Home Visit (HV)

DATE	REASON(S)	DATE HV	CONCLUSION

****Transfer-TO-IPF during treatment in OTP**

DATE	REASON(S)	WHERE	RESULT (RETURN-DATE/NOT RETURN/DEATH)

Discharge

Date of discharge ……/……/……..

Cured □ Defaulter Confirmed □ cause……
Defaulter Unconfirmed □ Dead □ cause……
Transfer-TO…… □ cause……(to complete in **)
Non Responder □ cause…… Medical referral □ TO ……
Follow up in TSFC

Figure 4.8: Shows the format used at OTP (Michael Golden Yvonne Grellety, 2020)

4.5.5 Patient's admission

Admission of patients with SAM to either ITP/SC or OTP is guided as illustrated in Table 4.2 below.

Table 4.2 Shows Conditions for Inpatient and Outpatient Care Admission

Admission for inpatient care if:	**Admission for outpatient care if:**
• Oedema + + + grade following by medical complications: ✓ Hypoglycemia. (Low blood sugar <3mmol/l). ✓ Hypothermia 35.50C in ractal or < 35° C in axillary. ✓ Fever caused by Infections. ✓ Dehydration. ✓ Shock. ✓ anemia (<4g/dl). ✓ heart failure. ✓ Skin infection ✓ Corneal ulceration. ✓ Lack of appitate. ✓ Vomiting ✓ Convulsion ✓ Lethargic ✓ Coma ✓ In able to breast feeding. ✓ High fever (> 39° C axillary and 38.5° C for rectal).	Oedema + and + +. Severe wasting MUAC < 11.5 cm. < -3 Z-score **And** • passed Appetite. • without medical complication/s. •

(Michael Golden Yvonne Grellety, 2020)

4.5.6 Admission Procedure to ITP/SC

The admission process to ITP/SC follows the following steps:

STEP 1: Triage

• Inform the mother/caretaker about the admission procedure and guide how to gently manage the Patient.

• Conduct triage in order to expedite the treatment of severely sick patients. Triage refers to the process of categorizing patients according to the severity of their sickness and their need for urgent care.

• To treat hypoglycemia, provide 50ml of sugar water.

• Identify instances referred by the community, other ITP/SC, TSFP, and OTP contacts, and other sources of information. (Michael Golden Yvonne Grellety, 2020)

STEP 2: Reexamine to ensure to refer the case

When determining the patient's age, use the patient's child health card or information received from the patient's mother/caregiver.
Examine for oedema.
Measure MUAC in toddlers 6 months and older, as well as in patients who are unable to stand.
Take the child's weight.
Take a length measurement of children aged two years (less than 87.0cm) or a height measurement of children above two years (greater than 87.0cm).
Recognize and classify acute malnutrition. (Michael Golden Yvonne Grellety, 2020)

STEP 3: Clinical Assessment

The assessment process involves the following steps:

• Compiling a complete medical history, including current and previous diseases, medicines, and other relevant details.)

• considering dietary history/feeding behaviours in terms of range, quantity, frequency, and preparation.

• Sanitation methods and whether feeding is active or passive.

• Physical examinations (both general and systemic).

• Managing fundamental pertinent analyses for example, HB Maliara or stoolor malaria, stool analysis, urinalysis).

X-ray for chast and tuberculosis screening Admission should not be delayed because of the lack of these studies.

• All patients should be tested for HIV and counseled in accordance with Provider Initiated Testing and Counseling.

• Medical and nutritional evaluation data are kept on file during inpatient care therapy.

• Cardiac or Intensive Care Pathway (CCP). (FMOH., 2019)

Step 4: SC admission process

Make a note of the child's specifics in the ITP/SC registration book, together with any other relevant documentation, such as the inpatient treatment card or CCP.

• Cardiac or Intensive Care Pathway (CCP).

History sheet for severe complicated malnutrition/Failure to respond - page 1

SAM/Scope N°.....**Caretaker's name**.....**Patient name**.....**Age**.....*d/m/y* **Sex**.....

Date of examination:...../...../..... **Examiner's name**..... **Status:**.....

Who is giving the history? *Patient/mother/ father/ sister/ grandmother/ aunt/ other*.....

Is this person the main **caretaker** for the patient at home? *Yes/ No*If not, who is the **caretaker**?.....

History of present illness

How long has the patient been ill? .....*h/ d/ wk/ mo/ yr*

What are the **complaints** - in the patient's own words - and how long has each been present?

1..... .....*h/ d/ wk/ mo/ yr*2..... .....*h/ d/ wk/ mo/ yr*

3..... .....*h/ d/ wk/ mo/ yr*

4..... .....*h/ d/ wk/ mo/ yr*

Describe the details of the complaints, how they have progressed, and the factors associated with each one

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Systematic questions(give additional details of abnormal findings above)

Appetite*hungry/ normal/ poor/ very poor* **Weight** is *decreasing/ steady/ increasing* .....*d/wk/ mo*

Swelling: *none/ feet/ legs/ face/ all over*.....*d/wk/mo* **Eyes** sunken *no/ recent/ longstanding*

Diarrhoea *N / Y* .....*h/d/wk/mo*stools per day..... *Normal/ watery/ soft/ blood/ mucus/ green/ pale*

Vomiting *N / Y*.....*h/d/wk/mo*N° per day..... Repeated episodes of Diarrhoea *N Y*

Breathing: *normal/ fast/ noisy/ difficult*for .....*h/d/wk* **Cough**: *N Y* - for.....*d/wk/mo*

Fever *N / Y* **Convulsions***N Y* **Unconsciousness***N Y*

Treatment: Patient has already seen *Dr/Clinic/Hospital/Traditional healer* .....times for this illness.

Treatment given.....

Past and social history

Past diseases: describe.....

Mother / fatherabsent*N/Y*reason..... .....*wk/mo/yr***Patient**:*twin/ fostered/ adopted/ orphan*

Gestation:*early/ normal* or.....*wk/ mo* **Birth weight**: *large/ normal/ small*or .....*Kg*

Mother'sage .....yr n°live births ..... n° Living children.....

Family eating together: n° adults..... n°children.....

Resources(food income crops livestock).....

Diet history

Breast feed alone for .....*wk/ mo* age stopped breast feeding.....*wk/mo*

Food before ill*breast/ milk/ porridge/ family plate/ fruit/ leaves/ drinks/ other*

Food since ill *breast/ milk/ porridge/ family plate/ fruit/ leaves/ drinks/ other*

Last 24h -describe

.....

Examination sheet for severe complicated malnutrition/Failure to respond - page 2 - Examination

SAM N°..... **Parent's name**..... **First name**..... **Age**.....*d/m/y* **Sex**.....

General: does the patient look: *not-ill/ ill/ very ill/ comatose*
Mood and behaviour *normal/apathetic/ inactive/ irritable/repeated movements*
Development / regression Patient can: *sit/ crawl/ stand/ walk*

Ear Nose & Throat

Eyes *normal/ conjunctivitis/ xerosis/ keratomalacia mild/ mod/ severe*
Mouth *normal/sore/red/smooth tongue/candida/herpes/angular stomatitis*
Membrane Colour: *normal/pale/jaundiced/cyanosed* **Gums** *normal/ bleeding*
Ears *normal/ discharging* **Teeth** number —/— *normal/ caries/ plaque*

Respiratory system & Chest

Breathing *normal/ noisy/ asymmetrical/ laboured/ wheeze/in drawing*
Rate **...../min or** *more /less* **than** *50/60* **Chest** *normal/ asymmetric/ pigeon/ sulcus*

Cardiovascular system & Hydration

Oedema *none/+/++/+++/uncertain* *feet/ pretibial/ hands/ face/ generalised*
Hydration *normal/ dehydrated/ shock/ uncertain* **Passing urine** N / Y
Eyes *normal/ sunken/staring* **Peripheries** *normal/ warm/ cold*
Capillary refill *quick/ slow/ very slow* .....secs Visible **veins** *full/ normal/ empty*
Pulse rate...../min *normal/ strong/ weak* **Heart sounds** *normal/ gallop/ murmur*

Gastro-Intestinal

Stool *not seen/ normal/ soft/ watery/ green/ pale/ mucus/ blood*
Abdomen: *normal/ distended/tender/ visible peristalsis /ascites*
Bowel sounds: *normal/ active/ quiet/ absent* **Splash** N / Y
Liver .....cm below costal margin *normal/ firm/hard/smooth/irregular*
Spleen *not felt/ felt/ large - normal/ firm/ hard - tender/ painless*

Nervous system

Tone *normal/ stiff/ floppy*
Meninges *normal /stiff neck /Brudzinski /fontanelle bulging*
Reflexes *normal/ symmetrical/ asymmetrical/increased/ decreased/ absent*

Skin Hair Bone Lymph Nodes

Skin change *none/mild/mod/severe peeling/ raw / ulcers infection/ cuts/ bruises*
Perineum *normal/rash/raw /candida* **Purpura** N / Y
Hair *black/ brown/ red/ blond* *normal/easily plucked/ balding*
Scabies *none/ local/generalised* **Eyelash** *normal/ long*
Lymph nodes *none/ groin/ axilla/ neck Tender/ painless Soft/ firm/ hard/ fixed*
Ribs' ends *normal/ swollen/ displaced* **Gynecomastia** N / Y

Describe abnormalities below and draw on diagram

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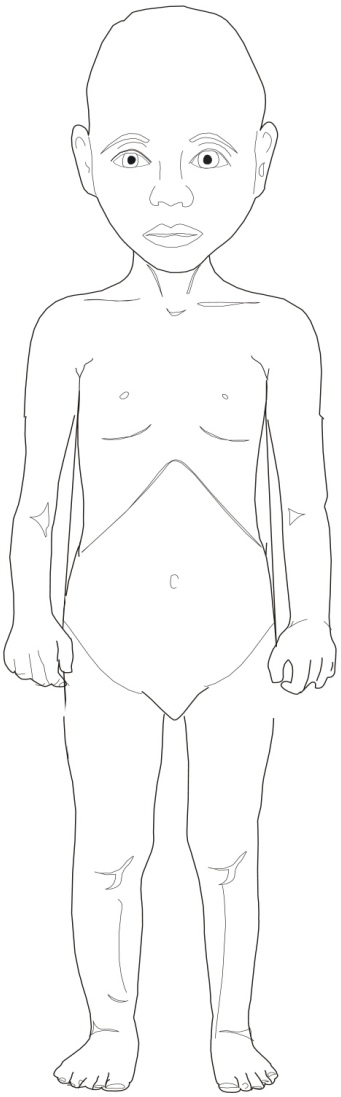

Diagnoses 1: **2:** **3:**

Figure 4.9: Shows the formats used at ITP (Michael Golden Yvonne Grellety, 2020)

4.6 Treatment of SAM with Medical Complications

Stabilization, Transition, and rehabilitation are the three phases of medical therapy and nutrition rehabilitation, as defined by a modified WHO SAM treatment protocol.

4.6.1 Stabilization Phase

Once the child's medical state is stabilized, the edema subsides, and/or the medical issue resolves, the child is discharged to outpatient care to continue the nutritional therapy. The youngster should remain in stabilization for one to seven days.

The Ten Steps of General Routine Care

The process of successful in patient management of Patient with SAM involves the following steps:

Step 1: treat and avoid hypoglycemia.

Step 2: treat and prevent hypothermia.

Step 3: treat and avoid dehydration.

Step 4: ensure electrolyte imbalances.

Step 5: treat and prevent infections.

Step 6: ensure micronutrient deficiencies.

Step 7: feed carefully

Step 8: Ensure the weight is increasing.

Step 9: Give a stimulating environment as well as emotional assistance.

Step 10: Get yourself ready for follow-up treatment once you've finished getting well.

(Michael Golden Yvonne Grellety, 2020)

References

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