



National Guidelines On Integrated Management of Acute Malnutrition (IMAM)



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Objective of guideline:

- To provide a reference document to health staff to be able to screen, identify and treat children with SAM.
- To give specific guidance to the monitoring and reporting requirements of health centres and hospitals and to some extent communities

Intended User:

- Health Centre and hospital clinical staff and managers
- Policy and Decision Makers at District, Provincial and Central Level

Accompanying Materials:

- To be used alongside the Job Aids for Out Patient Department (OPD), In-Patient Department (IPD) and Community

NOTE:

1. The IMAM guidelines and accompanying job aids provides guidance for the management of Severe Acute Malnutrition (SAM) in line with WHO recommendations (2013).
2. Unless otherwise specified, all underlying illnesses and clinical conditions should be managed using approved clinical procedures/protocols
3. The IMAM guidelines shall be reviewed periodically in the light of new WHO recommendations and country experience in implementing IMAM.



Ministry of Health, 2018

The National Guideline on Integrated Management of Acute Malnutrition (IMAM) was developed by the Ministry of Health through the Support of UNICEF with funding from the European Union (EU), Mineral and Metals Group (MMG), LuxDev and USAID.

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FOREWORD

Malnutrition remains a health problem in Lao PDR despite the marginal reductions that were observed in the recently released Lao Social Indicator Survey (LSIS, 2017). Currently, 33 percent of children under five years are stunted; 21 percent are underweight and 9 percent are too thin for their height (wasted). The main causes of malnutrition include inadequate intake of safe and nutritious food as well as childhood illnesses.

Whilst acknowledging the efforts of various stakeholders in improving the nutritional status of the people of Lao PDR especially women and children, the results of LSIS II (2017) indicates that about 75,000 children less five years are at risk of Severe Acute Malnutrition (SAM) annually. Children with SAM are nine times more likely to die as compared to healthy and well-nourished children. This is unacceptable. Fortunately, there is hope. The Integrated Management of Acute Malnutrition (IMAM), which is one of the high impact and evidence based nutrition interventions, provides the opportunity of identifying and treating children with Severe Acute Malnutrition. It is one of the nutrition specific interventions in the National Nutrition Strategy and Plan of Action (2016-2020).

The National Guideline on Integrated Management of Acute Malnutrition with accompanying job aids and training materials is expected to provide guidance to health staff at all levels of service delivery; communities, health centers and hospitals on management of acute malnutrition. It incorporates the most recent World Health Organization recommendations on management of acute malnutrition. We entreat all health staff and management at all levels of service delivery to align treatment protocols with this new guidelines for effective identification and treatment of children with Severe Acute Malnutrition.

The Ministry of Health would like to thank all stakeholders for your contribution to the development of the National Guideline on Integrated Management of Acute Malnutrition. It is our expectation that lives would be saved through its successful implementation and accelerate our country's attainment of the World Health Assembly target on wasting and Sustainable Development Goals (SDG 2).

Vientiane Capital,

Minister of Health

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Vientiane Capital,

Director General of Department of
Hygiene and Health Promotion

LIST OF KEY ACRONYMS

CMV	Combined Mineral Vitamins
DP	Development Partner
EPI	Expanded Programme on Immunization
F-100	Formular 100
F-75	Formular 75
HC	Health Centre
IEC	Information, Education and Communication
IMAM	Integrated Management of Acute Malnutrition
IMNCI	Integrated Management of Newborn and Childhood Illnesses
IPD	In Patient Department
IYCF	Infant and Young Child Feeding
LWU	Lao Women's Union
MAM	Moderate Acute Malnutrition
MUAC	Mid Upper Arm Circumference
NGOs	Non Governmental Organization
OPD	Out Patient Department
RUTF	Ready To Use Therapeutic Food
SAM	Severe Acute Malnutrition
SBCC	Social Behavioural Change Communication
WASH	Water, Sanitation and Hygiene

LIST OF OUT PATIENT DEPARTMENT JOB AIDS

Job Aid_OPD 1	Components of Integrated Management of Acute Malnutrition (IMAM)
Job Aid_OPD 2	Admission Criteria
Job Aid_OPD 3	Discharge criteria
Job Aid_OPD 4	Triage scheme or decision making tool for SAM treatment
Job Aid_OPD 5	Admission Procedure for SAM in OPD
Job Aid_OPD 6	SAM admission and treatment flow chart of Children 6-59 months
Job Aid_OPD 7	Bilateral Pitting Oedema
Job Aid_OPD 8	Appetite test
Job Aid_OPD 9	Medical Complications in OPD
Job Aid_OPD 10	Referral slip from Health Centre to Hospital – duplicate format
Job Aid_OPD 11	Routine Medicines in Outpatient Management of Severe Acute Malnutrition without medical complications
Job Aid_OPD 12	Ready to Use Therapeutic Food (RUTF) quantities and message
Job Aid_OPD 13	RUTF Dosing Record
Job Aid_OPD 14	IMAM OPD Patient form
Job Aid_OPD 15	Mid-Upper Arm Circumference (MUAC)
Job Aid_OPD 16	Weigh using Electronic Scale (e.g. UNISCALE) - A
Job Aid_OPD 17	Weigh using Electronic Scale (e.g. UNISCALE) - B
Job Aid_OPD 18	Weigh using a Hanging Scale (Salter Scale)
Job Aid_OPD 19	Taking the length measurement of children less than 2 years
Job Aid_OPD 20	Taking height of children 2-5 years
Job Aid_OPD 21	WHO Child growth charts- Weight-For-Height
Job Aid_OPD 21a	WHO simplified WHZ tables for girls below 2 years
Job Aid_OPD 21b	WHO simplified WHZ tables for boys below 2 years
Job Aid_OPD 21c	WHO simplified WHZ tables for girls 2 to 5 years
Job Aid_OPD 21d	WHO simplified WHZ tables for boys 2 to 5 years
Job Aid_OPD 22	Monthly IMAM Reporting Form
Job Aid_OPD 23	Supportive Supervision Checklist at Health Centre

LIST OF INPATIENT JOB AIDS

Job Aid_IPD 1	Admission Criteria
Job Aid_IPD 2	Discharge criteria
Job Aid_IPD 3	Triage scheme or decision making tool
Job Aid_IPD 4	Medical Complications
Job Aid_IPD 5	Danger Signs for the Management of Severe Acute Malnutrition in Children under 5 in Inpatient Care
Job Aid_IPD 6	Bilateral Pitting Oedema
Job Aid_IPD 7	Therapeutic supplies used in treatment of SAM with medical complications
Job Aid_IPD 8	Therapeutic Milk feed preparation using new tins
Job Aid_IPD 9	Recipes for Local Preparations of Therapeutic Milks
Job Aid_IPD 10	F-75 Reference Tables
Job Aid_IPD 11	F-100 Reference Table
Job Aid_IPD 12	F-100-Diluted Reference Tables
Job Aid_IPD 13	RUTF for SAM Children 6-59 months in IPD
Job Aid_IPD 14	Appetite test
Job Aid_IPD 15	Routine Medicines in Inpatient Management of Severe Acute Malnutrition with medical complications
Job Aid_IPD 16	Routine Medicine Protocols and Vaccines for Children under 5 with SAM in Inpatient Care
Job Aid_IPD 17	WHO Child growth charts – Weight for height
Job Aid_IPD 17a	WHO Simplified WHZ Tables for girls below 2 years
Job Aid_IPD 17b	WHO Simplified WHZ Tables for boys below 2 years
Job Aid_IPD 17c	WHO Simplified WHZ Tables for girls 2 to 5 years
Job Aid_IPD 17d	WHO Simplified WHZ Tables for boys 2 to 5 years
Job Aid_IPD 18	Ward Schedule
Job Aid_IPD 19	INPATIENT CARE TREATMENT CARD
Job Aid_IPD 20	Monitoring Danger Signs in Inpatient Management of Severe Acute Malnutrition
Job Aid_IPD 21	Supportive Supervision Checklist at Hospital
Job Aid_IPD 22	Referral or Transfer Form

LIST OF IN COMMUNITY JOB AIDS

Job Aid_Com. A	Community mobilization and Sensitization for SAM treatment
Job Aid_Com. B	Community Sensitization meeting
Job Aid_Com. C	Roles of community volunteer
Job Aid_Com. D	Activities of the community volunteer
Job Aid_Com. E	Distribution of Ready To Use Therapeutic Food (RUTF)
Job Aid_Com. F	How to Measure Mid Upper Arm Circumference (MUAC)
Job Aid_Com. G	Home Visit form for Village Health Volunteers
Job Aid_Com. H	Community Tally/Screening tool

CHAPTER 1: INTRODUCTION

Malnutrition is a medical (pathological) state resulting from a deficiency in or excess of one or more essential nutrients. The prefix “mal” means “poor” or “bad.” The condition can result from poor or bad nutrition. Malnutrition can be either undernutrition or overnutrition.

Undernutrition, which is a form of malnutrition, results from a deficiency in one or more essential nutrients or poor absorption of nutrients in the body that are required for healthy growth and development. Undernutrition manifests in four main ways; acute malnutrition, chronic malnutrition, underweight and micronutrient deficiencies (Black et al, 2008). They sometimes occur in isolation or in combination depending on the degree of undernutrition but in most cases they overlap (Williams, 2005).

Undernutrition is identified through anthropometric (body) measurements, clinical signs and biochemical tests. These body measurements are then compared to a reference value and referred to as nutrition indices. They measure the clinical occurrence of undernutrition and are used for making a judgment or assessment.

This guideline specifically deals with the identification, treatment and management of Severe Acute Malnutrition (SAM)

1.1 What Is Acute Malnutrition?

Acute malnutrition is caused by a decrease in food consumption and/or illness resulting in bilateral pitting oedema or sudden weight loss. There are two forms of acute malnutrition:

- Severe Acute Malnutrition (SAM), is defined by the presence of bilateral pitting oedema or severe wasting. A child with SAM is highly vulnerable to disease and infection with a high mortality risk.
- Moderate Acute Malnutrition (MAM), is defined by moderate wasting. A child with MAM also has an increased mortality risk and also has the risk of progressing to SAM if not treated appropriately.

The following terms are used to describe the clinical manifestations of SAM:

- Marasmus (severe wasting)
- Kwashiorkor (bilateral pitting oedema)
- Marasmic kwashiorkor (mixed form of bilateral pitting oedema and severe wasting)

1.2 Assessing Acute Malnutrition

The World Health Organization (WHO) recommends the use of Mid-Upper Arm Circumference (MUAC) or the weight-for-height/weight-for-length status of infants and children who are 6–59 months of age for the assessment of acute malnutrition including the examination for bilateral pitting oedema (WHO, 2013). A 2009 joint United Nations statement endorsed a low mid-upper arm circumference less than 11.5 cm as a criterion for diagnosing severe acute malnutrition in children, in light of the high predictive value for mortality.

In the context of Lao PDR, *both MUAC and Weight for height measurements* shall be used to assess wasting. MUAC is used for children six months and older.

Bilateral pitting oedema is a clinical manifestation of acute malnutrition caused by an abnormal infiltration and excess accumulation of fluid in connective tissue or in a serous cavity. Bilateral pitting oedema (also called kwashiorkor) is verified when thumb pressure applied on top of both feet for three seconds leaves a pit (indentation) in the foot after the thumb is lifted.

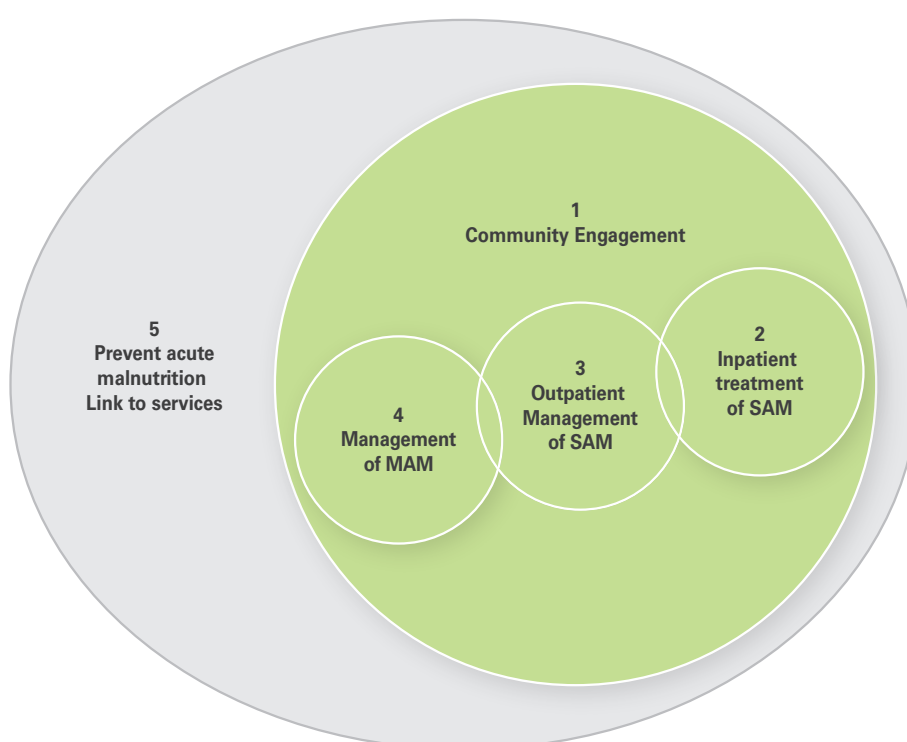
Table 1. Indicators and Clinical Signs of Acute Malnutrition With Cut-offs for SAM and MAM

	Bilateral pitting oedema	MUAC	Weight for height
SAM	Present	< 11.5 cm	W/H < -3 z-score
MAM	Not present	≥ 11.5 cm and < 12.5 cm	W/H/L ≥ -3 and < -2 Z-score

1.3 Management of Acute Malnutrition

The Integrated Management of Acute Malnutrition is one the evidence based and high impact interventions for child survival, growth and development. It has five main components that are inter-related and essential for the prevention and/or management of acute malnutrition. These include:

- a. Community Engagement:** Builds community awareness on acute malnutrition and mobilizes them for the identification of acutely malnourished children at community level on an on-going basis to enable widespread early detection and referral before the children's condition worsens as well as follow up of cases at home.
- b. Inpatient treatment:** Involves the management of Severe Acute Malnutrition (SAM) cases with medical complications at hospital level. Length of stay is usually 7 – 10 days before they are transferred to outpatient department or discharged home.
- c. Outpatient management of SAM:** Involves the management of non-complicated cases of SAM in outpatient care using Ready-to-Use Therapeutic Foods (RUTF) provided on a bi-weekly basis, along with simple routine medicines, monitoring and orientation of the child/caregiver. Children have to attend Health Centres every two weeks until they reach criteria for discharge - usually after about 2 months if they are progressing well.
- d. Management of Moderate Acute Malnutrition (MAM):** Different models are being explored to support MAM children and preventing their deterioration to SAM. For example: Treatment of MAM cases with low dose RUTF and links to social protection schemes, better IYCF support, health and hygiene promotion
- e. Prevention of acute malnutrition:** Link to services such as social protection schemes, better IYCF support, health and hygiene promotion)

Diagram 1: The Components of Integrated Management of Acute Malnutrition (IMAM)

CHAPTER 2: COMMUNITY ENGAGEMENT

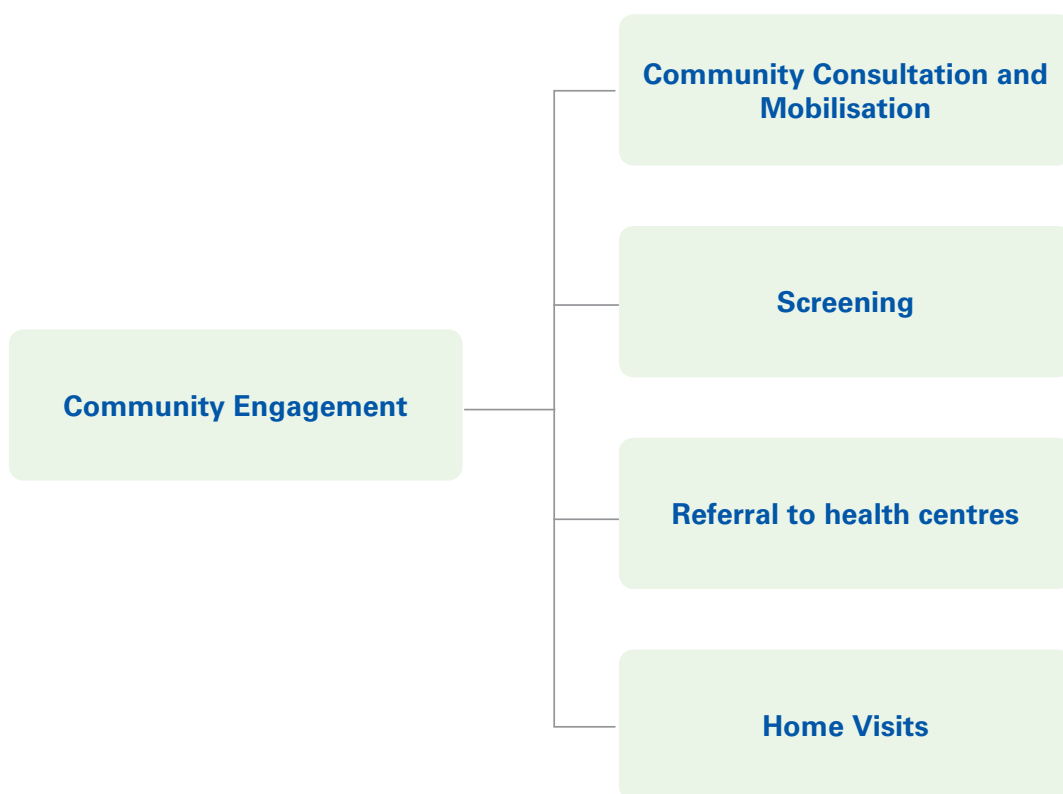
2.1 What is Community Engagement?

Builds community awareness on acute malnutrition and mobilizes them for the identification of acutely malnourished children at community level on an on-going basis to enable widespread early detection and referral before the children's condition worsens as well as follow up of cases at home.

2.2 Objectives:

- Circulate accurate information about services available to detect, refer and treat acute malnutrition
- Strengthen early case finding and referral of new acute malnutrition cases and follow up of problem cases
- Increase service access and uptake to achieve maximum coverage
- Strengthen the links between the health staff and community

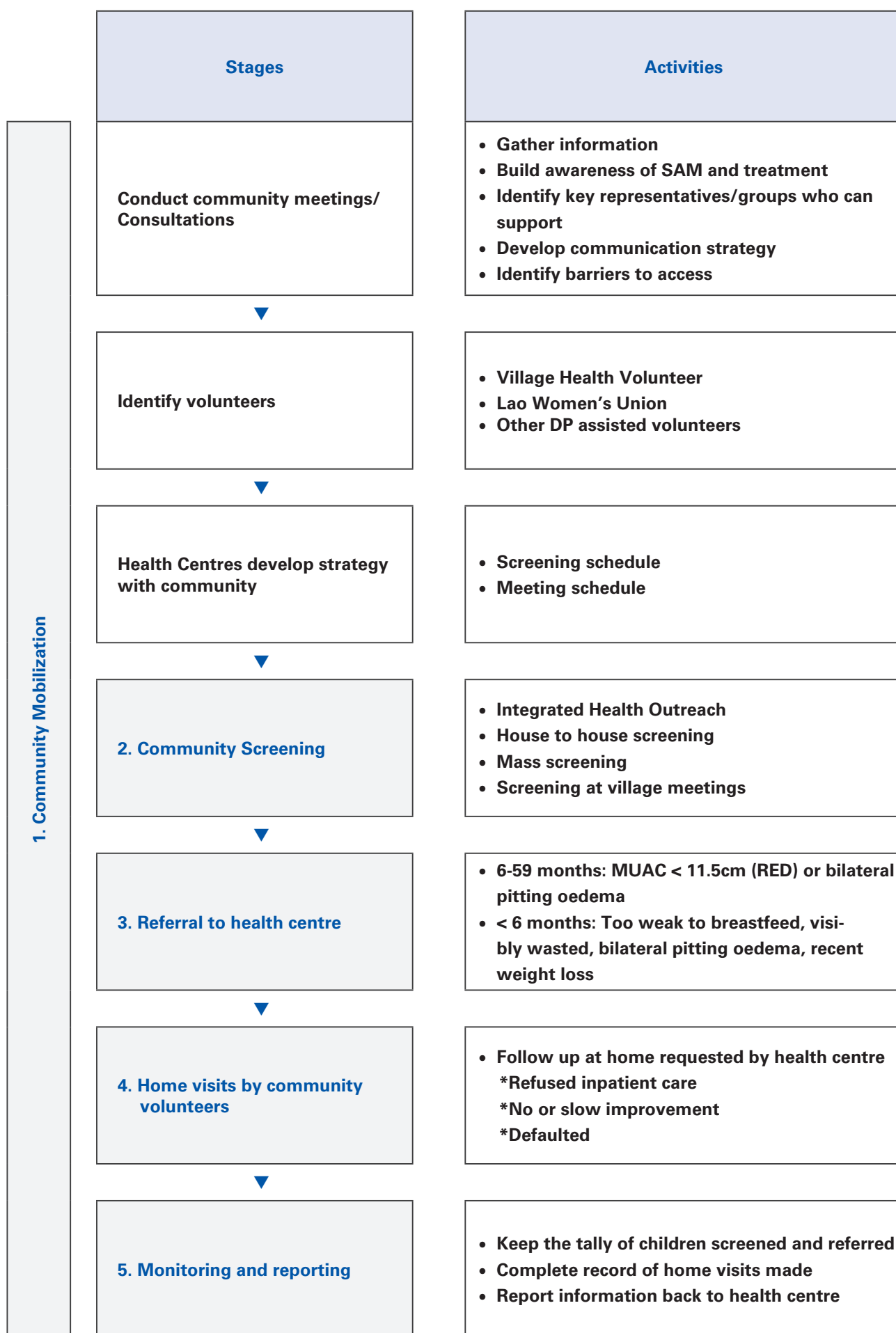
Diagram 2: Components of community engagement



2.3 Who is involved in Community Engagement?

- The Planning: Provincial and district health authorities, health centres staff, village chiefs, other local authorities such as village development committee, health centre staff etc
- The Implementation: Lao Women's Union/volunteer and NGOs/civil society in coordination with Health Centres. Health Centres should provide oversight and guidance so that the activities of the volunteer and NGOs feed into the services delivered.

Diagram 3: Stages of Community Engagement



2.4 Community Consultation and Mobilisation

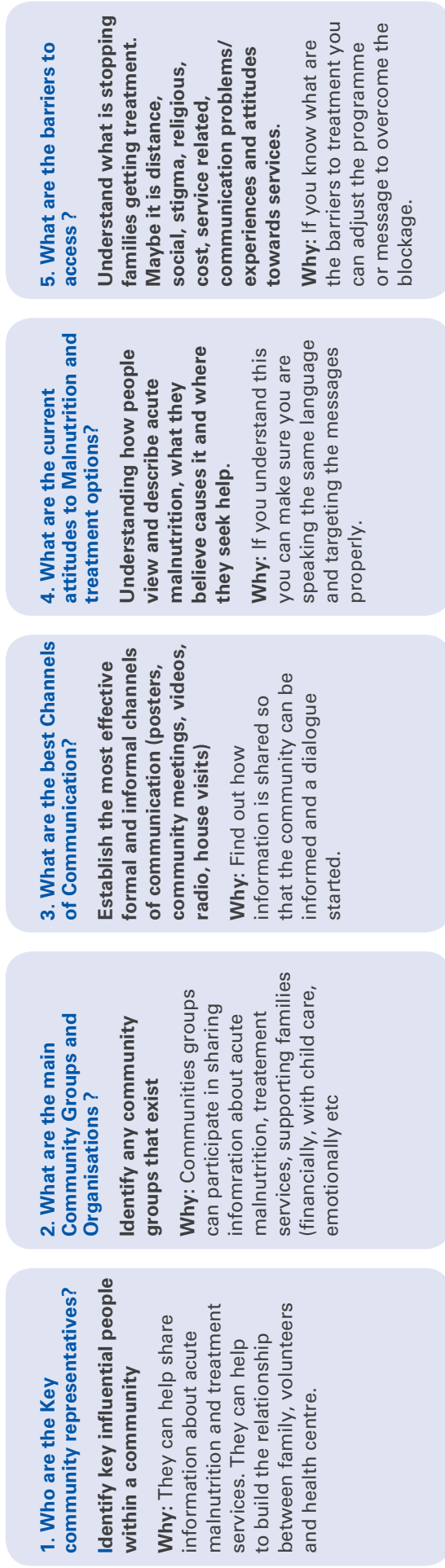
Community consultation/meetings is an essential step in community engagement activities.

The outcomes of the community consultations will inform all of the activities at the community level

Use the information you have from these discussions to improve:

- a. who you communicate with (individuals, groups etc)
- b. how you communicate (meetings, posters, radio etc),
- c. what you communicate (key messages which are targeted based on what you know)

Diagram 4: Factors to consider during community meetings and consultations



Action:

Health Centre staff carry out community consultations
Health Centre staff meetings hold regular meetings to discuss malnutrition and treatment services available
Development Partners could play a role to support community activities in coordination with the Health Centres

Case Study – Attapeu

Step 1: Training of the health centre staff at the district level facilitated by the staff from the Attapeu Provincial Health Office and the District Health Offices

Step 2: At each of the Health Centres staff hold meetings with village representatives, Lao Women's union and Village Chiefs to discuss SAM, the treatment available and the role that the community can play in identifying and supporting SAM children.

Step 3:

Community Consultation:

Health Centre staff call a village meeting during the integrated outreach visit; making sure to include mothers and fathers as well as the village leaders, Village Lao women's Union and traditional health carers, etc. The Health Staff also made sure that they had some separate conversations with key informants in small groups or one to one, to make sure they are getting accurate information.

Objective of the Meetings:

- Discuss the 5 areas outlined above (Who are the key community representatives, main community groups, best way to communicate, current attitudes to malnutrition and barriers to access.
- Identify Volunteers or Key people who can carry out the screening and follow up activities

During the community meetings the village may find out that:

- Families don't want to send their children for further screening and treatment because they think they will end up in hospital
- They are also worried it will be a waste of time and there is nothing wrong with their child
- Parents and guardians received most of their information about available government services from Village Chief or the Lao Women's Union.
- During the planting and harvesting season (August and September) their children seem much thinner and often complain of being hungry.

Follow Up Action:

- Build a strong understanding with the village chief and encourage him to support the process. Ask for help in identifying volunteers from the Lao Women's Union who can do the activities.
- Share information about what will happen at the health centre. Example;
 1. Child will be re-screened with MUAC and weight and other physical examination done
 2. Children who are found to be malnourished will get treatment with special food medicine and you can return home the same day. You must then bring your child every week for a check-up and new ration of food medicine.
 3. Only if your child is sick with extra complications will they need to go to hospital – that is rare but they will be able to return home for most of their treatment
 4. If your child is not malnourished, then they will get a health check-up and vaccinations updated and return home
- Make sure that the volunteers / NGOs include LWU when sharing information
- Include all health centre staff in reviewing the findings and key messages – share with other health centres.

2.5 Identifying Volunteers

Who are the Village Volunteers?

- Key representatives in the community
- Village Lao Women's Union
- Village Health Volunteers
- Mothers of children who have previously had SAM

Activities of the Volunteers:

- Communicate with the community about acute malnutrition and treatment services available at the health facility
- Screen children for acute malnutrition:
 - Those who are vulnerable and appear to be sick or look malnourished
 - If the mother/guardian has requested
 - If the health centre staff has requested
 - At mass screenings possibly after discussion with the village leaders or health centre
- Follow up children who have received treatment or at the request of the health centre.
- Keep a tally of the number of children screened and attend coordination meetings with health staff

Health Centre staff responsibilities in supporting the volunteers:

Support the village volunteers to carry out the community activities

- Provide guidance to improve quality of assessments, referral and community mobilization
- Provide Supportive Supervision Tools for Volunteers.
- Support visits to community groups or home visits to ensure information is being communicated accurately and provide additional information.

Ensure volunteers have access to adequate supplies

- MUAC tapes, Community Tally Sheets, Referral Forms, photo booklet/community job aid
- Up to date information about outpatient treatment at health facilities to ensure appropriate referrals

Review the community tally sheets and interpret the results

- Ensure timely reporting of numbers to enable on-going monitoring of the number of cases
- Identify any bottlenecks to the effective referral and admission of SAM cases found at the community

2.6 Screening (Active Case Finding)

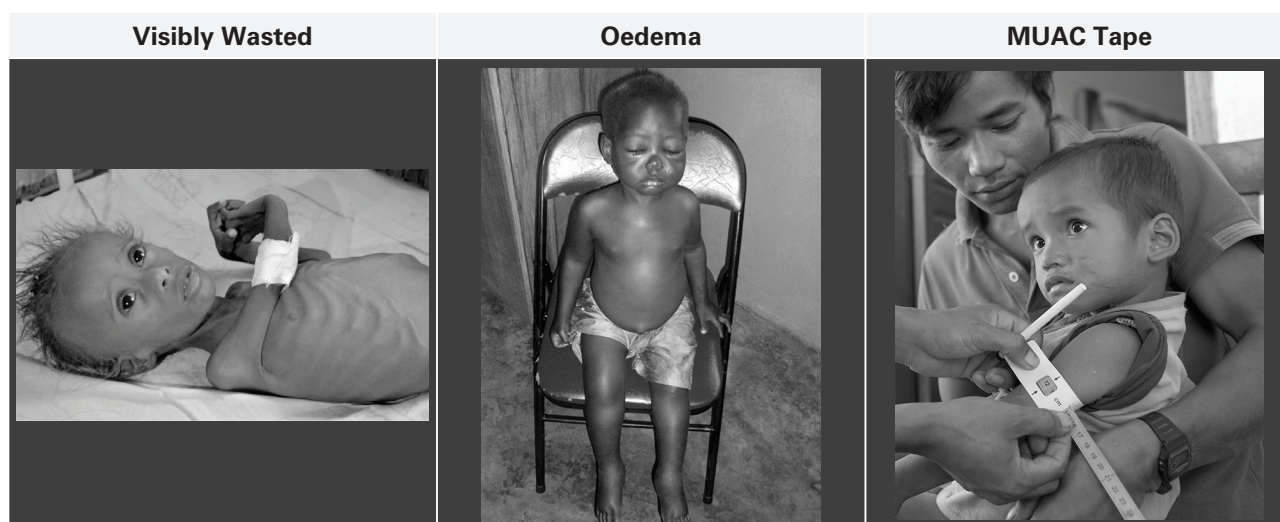
The health centre shall support the communities in developing strategies for identifying and referring children with Severe Acute Malnutrition (SAM).

Table 2. Community Screening

Screened by:	Village Health Volunteers, Lao Women's Union, NGOs
Where:	Village
When:	Integrated Health Outreach, Quarterly Mass Screenings as part of the Service Delivery Package, ad hoc screenings, house to house visits
How Often:	Quarterly – During Integrated Outreach (Most likely option) Monthly – House to House Visits of children U5 Weekly – Children at risk
Tools:	MUAC tape and Observation
< 6 months	Observation, oedema and listening to carers description
6 – 59 months	MUAC and Oedema

The schedule for how often volunteers should carry out screening should be discussed with the health centre staff. Health centre staff can conduct supervision visits during outreach. During these visits they can support the volunteers and ensure:

- Screening takes place and vulnerable children are screened at home.
- There is good use of the MUAC tape
- Oedema is properly checked
- Correct information and support is given
- SAM children are referred appropriately



Action:
Job Aid_Com. 5: How to measure MUAC

2.7 Referring a child

Use the table below to assess whether a child needs to be referred to the health centre.

Table 3. Referring a child from the community to a health facility

< 6 months	The infant is not feeding properly (too weak to breastfeed) OR Visible wasting (very thin child) OR Presence of bilateral pitting oedema OR Recent weight loss or failure to gain weight (observation from growth monitoring)
6-59 months	MUAC <11.5 cm (Red) OR W/H < -3 z-scores OR Bilateral pitting oedema

Explain to the family what will happen at the health centre:

- The child will be measured again by a health professional using MUAC tape, weight and height/length taken with other physical assessment.
- If they are found to be malnourished without complications they can be treated as an outpatient and will be able to come home the same day with some medicine food to help recover.
- If they are not malnourished, then they will receive a health check and vaccinations will be updated.
- Only in very rare cases will they have to go to the hospital if the child is found to be very sick
- The treatment the child receives will be free

When a volunteer finds a child 0-59m that meets any of the referral criteria in table 2, complete the form below and inform the family to take the child to the nearest health centre for a further screening by a health staff. (If possible the volunteer shall accompany the family to the health centre)

Action:

Job Aid_Com 4e: Community referral form

Diagram 5: Community referral form

Ministry of Health	
	
COMMUNITY REFERRAL CARD	
Health Centre Name:	
Village Name:	
Name of Child:	Reason for referral:
Age of Child (Months):	MUAC <11.5 ☐
Name of Parents/Carer:	Oedema ☐
Volunteers Name:	Visible wasting ☐
Tel:	Not feeding (<6m) ☐
Date of Referral:	

Key Messages to give to caretakers:

1. Referring child for further screening because they are under 11.5cm (in the red)
2. The health centre will do further screening and if the child meets criteria for SAM, then appropriate treatment will be given.
3. Unless the child meets criteria for SAM with medical complications and fails the appetite, reassure them that most likely they can get treatment as an outpatient and stay at home
4. Further checks at the health centre may show that they are not malnourished in which case they will get a full health check and up to date vaccinations; receive some health and nutrition information
5. If they are being referred, it is best to follow up and go to the health centre so the child can receive treatment.

2.8 Home Visit by Volunteer

Objective of the home visit: To support families, understand and try to solve any problems related to not responding to treatment or attending follow up appointments.

Diagram 6: Home visit scheme



Steps for Follow Up at Home

- Understand the condition of the child, reasons for behaviour and complete the Home Visit Form
- If necessary provide information to the family relating to the availability of treatment and the need for treatment in order to recover.
- If necessary accompany the child and family to the health centre for further treatment.
- If there are financial constraints discuss with the family, village leader or community groups to identify possible help
- Feedback the information collected during the home visit to the health centre.

Action:

- Volunteer visits the home of the SAM child
- Checks MUAC and situation of the child
- Provide encouragement to visit the health centre
- Complete Home Visit Form (Job Aid_Com. 6)
- Communicate findings with Health Centre

2.9 Roles and Responsibilities of key community stakeholders

1. This is a list of the different tasks that need to be assigned and some guidance as to who could take responsibility.
2. Discuss this during the district level planning and training

Table 4. Community - Roles and Responsibilities

Activities	Volunteer	Health Centre Staff	Partner/NGO	Local Authority
Community engagement	X	X		X
Consultations & Sensitization	X	X		
Training of Village Volunteers		X		
Referral to HC	X		X	
Active Case Finding (mass screenings, routine or ad hoc)	X	X		
Home Visit	X	X		
Management of data and information		X		X
Provision of Supplies		X		
Coordination Meetings	X	X	X	X

Tips:

1. Include the community engagement, consultations and monitoring in the micro planning at health centre and district level
2. Make sure training of health centre staff and volunteers is followed up with regular refresher training and on the job support and mentoring.
3. When health centre staff carry out routine outreach activities make sure they speak with volunteers, check the quality of the MUAC measurements and discuss any problems with referrals or community engagement
4. Health Centre Staff should request community tally sheets regularly and use the information to know whether screening activities are taking place. If cases are being found and referred but not attending the health centre – find out why and act accordingly.

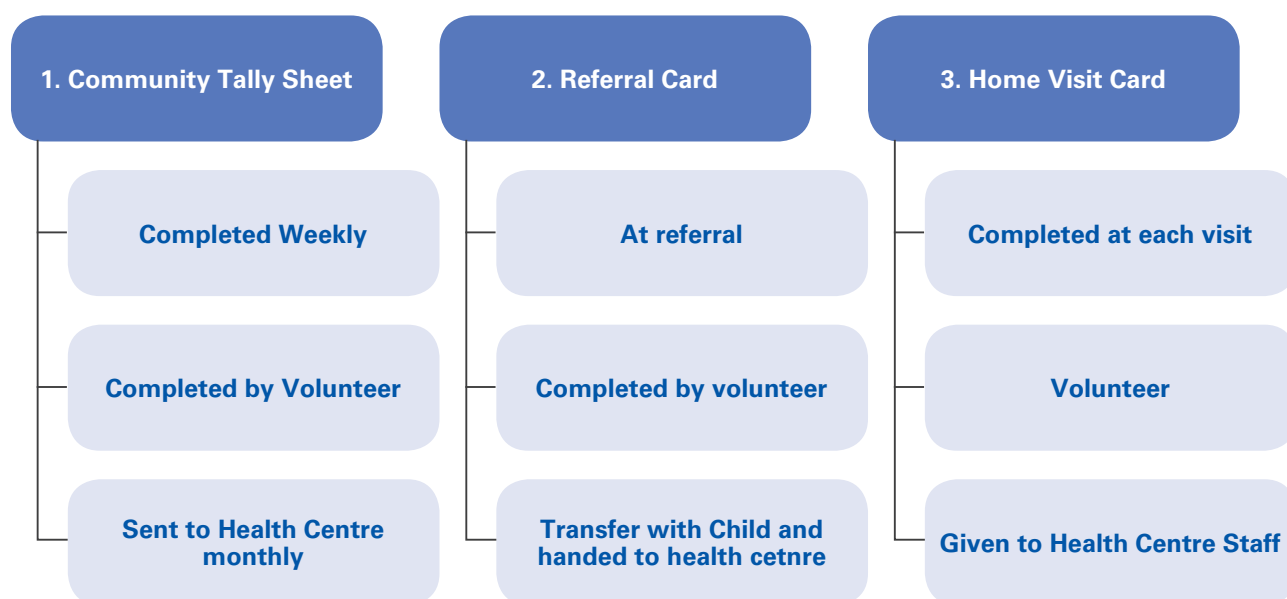
Action:

- During the planning phase each health centre or district team should discuss the different roles and responsibilities and establish who will carry out the different activities.
- Job Aid_Com 4: Activities of Community Health Volunteer

2.10 Monitoring and Reporting

- **Community Tally/Screening Sheet** (Job Aid_Com 7) Completed by Volunteer to record the number of children measured using MUAC, number with MUAC <11.5cm, number referred to health centre for further assessment and number counselled on IYCF.
- **Referral Card** (Job Aid_Com 4e) to be completed by the volunteer and given to caretaker to take with the child to give to the health centre.
- **Home Visit Form** (Job Aid_Com 6) completed by the volunteer to guide the home visit and to provide the health centre with information about the case.

Diagram 7: Monitoring and reporting scheme



2.11 Tools and Supplies

Table 5. Tools and supplies required for activities at the community

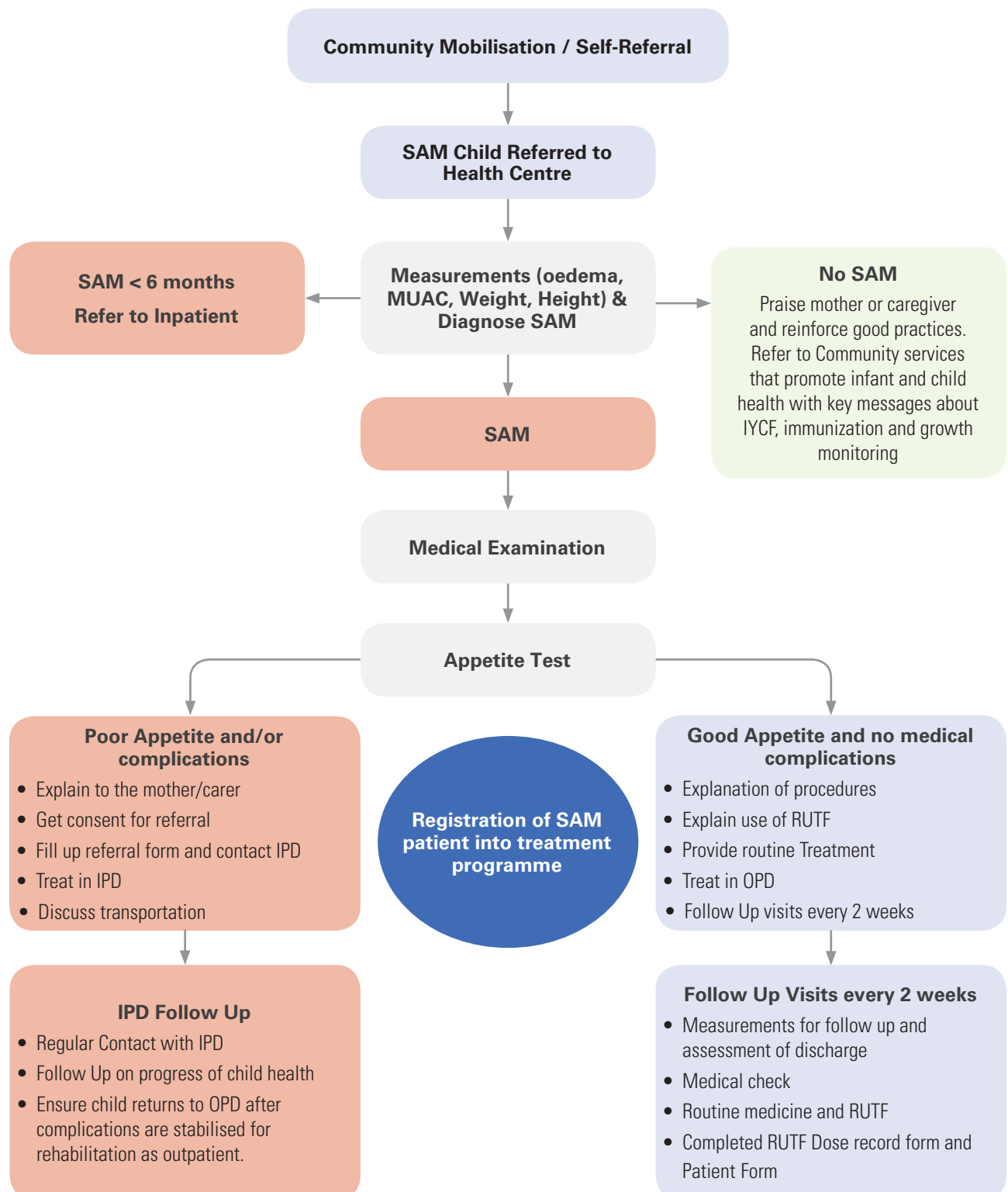
COMMUNITY ENGAGEMENT		
Diagnostic tool	Supplies	Other Supplies
MUAC tapes	Referral Slips Home Visit Card Key Messages & IEC Materials, SAM photo booklet/community job aid	Note book Pencils/Pens Community tally sheet

All supplies needed by the Volunteer to be supplied by the health centre

CHAPTER 3: OUTPATIENT TREATMENT OF SAM AT THE HEALTH CENTRE

All children with severe acute malnutrition (SAM) without medical complications are treated in Out Patient Department.

Diagram 8: Triage of SAM cases



3.1 Admission Criteria for Severe Acute Malnutrition

Table 6. Admission Criteria for Severe Acute Malnutrition

	INPATIENT TREATMENT AT HOSPITAL SAM with Complications	OUTPATIENT TREATMENT AT HEALTH CENTRE SAM without complications
< 6 months	The infant is too weak or feeble to suckle effectively (irrespective of his/her nutritional status) OR The infant is not gaining weight at home (by serial measurement of weight during growth monitoring i.e. no change in weight for age) OR Presence of bilateral oedema	0-6months should not be treated as an outpatient. Always refer to inpatient for counselling support and further examination
6-59 months	Presence of bilateral pitting oedema +++ Presence of bilateral pitting oedema + and ++ OR MUAC < 11.5 cm OR W/H < -3 z-scores AND No Appetite and/or medical complications	Presence of bilateral pitting oedema + and ++ OR MUAC < 11.5 cm OR W/H < -3 z-scores AND Appetite and no medical complications

3.2 Anthropometric measurements

MUAC

- Use the MUAC tape to measure the Mid Upper Arm Circumference (Job Aid_OPD 15)

Weight

- Taking weight using the electronic scale (Job Aid_OPD 16)
- Taking weight using the electronic scale (Job Aid_OPD 17)
- Taking weight using the hanging/Salter (Job Aid_OPD 18)

Height

- Taking length measurement of children less than 2 years using the height board (Job Aid_OPD 19)
- Taking height of children 2 – 5 years using the height board (Job Aid_OPD 20)

Oedema

- Check for Bilateral oedema (Job Aid_OPD 7)
- If there is oedema, Grade it using mild (+), moderate (++) or severe (+++)

Grades of bilateral pitting oedema	Definition
Absent	Absent
Grade +	Mild: Both feet/ankles
Grade ++	Moderate: Both feet, plus lower legs, hands or lower arms
Grade +++	Severe: Generalised bilateral pitting oedema, including both feet, legs, arms and face

Register the SAM Patient

Complete the OPD Patient form (Job Aid_14) for each SAM patient.

- Enter personal details of the child and parents/caregivers, including contact telephone number.
- Assign a Patient Number registration number using the format below:

Code of province/Code of district/Code of Hospital or Health Centre/Patient number/Year

Example: VTC/01/05/001/17

- Indicate category of referral (self/community volunteer / IOR / HC / district hospital / provincial hospital).
- Write down anthropometric information on the OPD Card.
- Identify the admission category (MUAC, oedema or any other anthropometric assessment).

Enter the same information into the Facility Registration Book.

3.3 Medical Assessment

- Take medical history using the patient form as a guide and conduct a physical/medical examination as per the IMCI assessment.
- Record the findings on the Patient Form

Medical History

Ask questions on the following and complete the Patient Form (column Admissions):

- Frequency of stools / episodes of diarrhoea
- Episodes of vomiting
- Duration of fever
- Duration of cough
- Urine
- Breastfeeding status

Medical Examination

- Conduct physical/medical examination
- Measure body temperature
- Measure respiratory rate
- Check for chest retraction
- Check for alertness
- Check for dehydration (sunken eyes, recent history of vomiting and diarrhoea, skin pinch not reliable in SAM)
- Check eyes including conjunctiva, ears, lymph nodes, skin, mouth and extremities

If SAM and medical complications are identified refer for in-patient treatment

3.4 Appetite Test

Why do the Appetite Test?

1. Children who are malnourished and are affected by common infant and childhood illnesses often show no clinical signs of infection. A loss of appetite can demonstrate an underlying complication.
2. Poor appetite means that the child has a significant infection or metabolic abnormality and are at risk of death.
3. A child with poor appetite is unlikely to eat RUTF needed to recover at home and further deteriorate.

STEP 1: Find somewhere quiet where the mother and child can sit undisturbed.

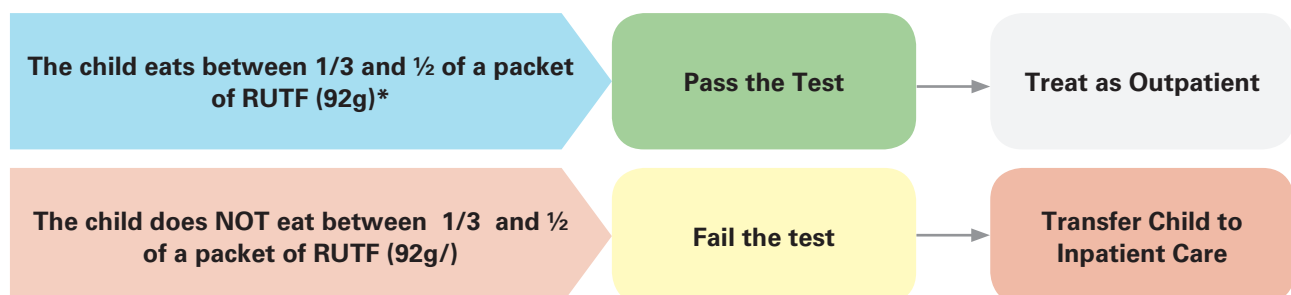
STEP 2: Explain what the appetite test is and why it is important.

STEP 3: Advise the carer to:

- Wash hands before giving the RUTF
- Sit with the child in lap and gently offer the RUTF
- Encourage the child to eat the RUTF without forced feeding
- Offer plenty of clean water to drink from a cup when child is eating RUTF

STEP 4: Observe the child eating the RUTF during 30 minutes and decide if the child passes or fails the test

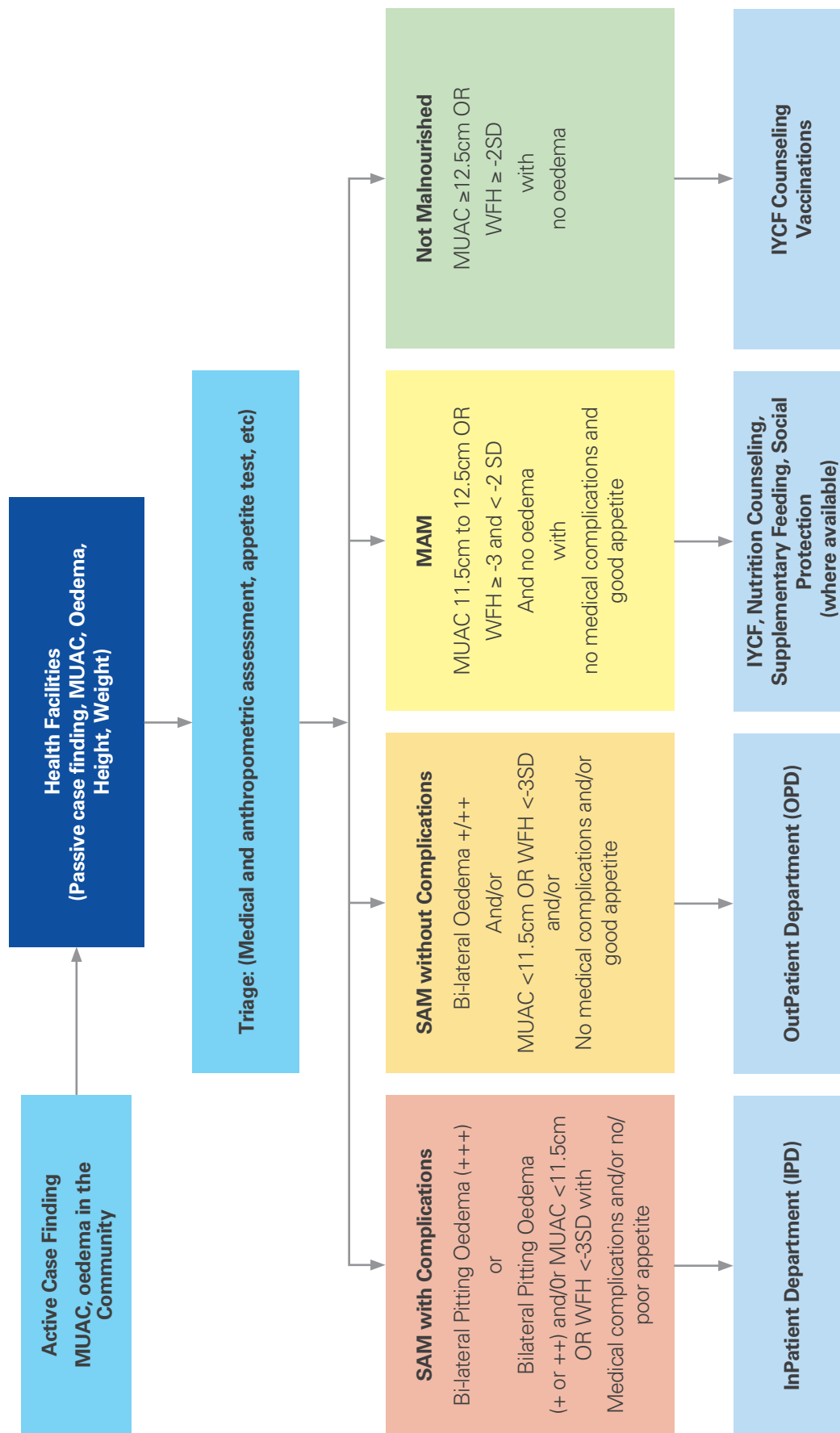
Diagram 9: Appetite Test



Resources:

- Job aid_OPD 14– Patient Form
- Job aid_OPD 9 – Medical Complications in OPD

Diagram 10: Decision making tool of SAM treatment



3.5 Referring SAM cases with complications

- Explain to the parents/caregivers the reason for transfer to IPD
- Complete Patient Form, and indicate as a Referral (R) to IPD
- Issue a referral card and give to the parents/caregivers (Job Aid_OPD 10)
 - Assign a health worker to check that the child has gone to IPD – keep contact details of health worker so necessary follow up can be done. If the caregiver refuses to go to IPD then explain the possible consequences.
 - Contact the referral hospital to inform them about the referral
 - Ensure parents/caregivers understand to return to OPD after discharge from IPD
 - For subsequent steps on management of SAM with medical complications refer to IPD

Referral Card (Job Aid_OPD 10)

Two versions should be filled out. One given to the caregiver to give to staff at hospital and one to be kept at health centre to facilitate follow up.

Name of Child:		Patient Record:	
Date of birth:		Age of child:	____ / ____ (months/years)
Date of referral / transfer:		Sex of child:	
Caregiver's Name:	1 _____; 2 _____		
Caregiver's or other contact cell phone number:			
Weight (kg):			
MUAC (cm):		Bilateral Pitting Oedema (Circle one)	None + ++ +++
Refer/Transfer from (Name of Village/Health Center/Hospital)			
Referral/Transfer to (Name of Village/Health Center/Hospital)			
Referred/Transferred by (Name of Health Worker)		Contact Number:	_____
Reason for Referral			
Treatment Given at Health Centre	Comments		

Resources:

- Job Aid_OPD 10– Referral Card
- Job Aid_OPD 14 – Patient Form

3.6 SAM treatment at Health Centre

STEP 1: Give routine medicines as per protocol

STEP 2: Provide RUTF ration based on body weight

STEP 3: Arrange the next follow up appointment for 2 weeks' time

3.6.1 Routine Medicines

- Reminder deworming is given to > 12 month-old on the 2nd appointment (week 3) but only if child has not received deworming in the last month
- Do not give additional iron, vitamin A supplements, zinc or ORS to SAM children who are prescribed and eating RUTF
- Check for malaria according to National Protocol. Give antimalarial if necessary as per IMCI booklet.
- Check vaccination record and refer to EPI if any vaccinations are required, and note on the Patient Form

Table 7. Outpatient routine medicines

COMMUNITY ENGAGEMENT				
Name of Product	When	Age/Weight	Prescription	Dose
Amoxycillin*	At admission	6-59 months	0-45mg/kg/dose 2 times per day	40-45mg/kg twice per day for 5 days
Albendazole	1st follow up visit (on week 3)	< 1 year	DO NOT GIVE	None
		12-23 months	250 mg	Single dose on second visit
		24-59 months	500 mg	
Measles Vaccination	If over 9 months with no vaccination record give at 4th visit	From 9 months		Give 2nd dose 1 month later

Refer SAM children with dehydration to inpatient - Do not give ORS to SAM child with dehydration.

- ORS should not be given to a child with SAM because it can cause sodium overload and heart failure. RESOMAL should be given to children with SAM and dehydration: ReSoMaL has lower sodium and higher potassium than standard ORS.
- Do not give systematic antibiotics to children transferred to the OPD from inpatient or have been transferred from another OPD after having already received a course of antibiotics.
- Children who do not have SAM should not routinely receive antibiotics unless they show signs of clinical infection.

Action:

- Complete the Patient Form and make a note of any additional medicines prescribed.

Resources:

- Job aid_OPD 11: Routine Medicines
- Job aid_OPD 12: RUTF Amount

3.6.2 RUTF Dosage

The benefits of RUTF are that:

- Each pack has a standard food value
- No cooking is needed
- It does not need to be diluted with water
- It can be stored for up to six months at room temperature
- You simply open the packet or pack and feed the food directly to children
- It can be eaten at home

Provide the RUTF ration/dose according to the weight of the child and give RUTF dose card to parents/ carer

- Provide key messages on the IMAM program, on RUTF, about the expected duration of treatment, and the importance of follow up appointments.

Table 8. RUTF Dosage for outpatient treatment

Class of Weight (kg)	RUTF sachets (92g)		
	Sachets per day	Sachets per week	Sachets per 2 weeks
3.0 -3.4	1 ¼	8	16
3.5 -3.9	1 ½	11	22
4.0 – 4.9	2	14	28
5.0 -6.9	2½	18	36
7.0 -8.4	3	21	42
8.5 – 9.4	3 ½	25	50
9.5 – 10.4	4	28	54
10.5 – 11.9	4 ½	32	64
≥12kg	5	35	70

Action:

- Tell the Caregiver when the next appointment (every 2 weeks) is and issue a RUTF Dosing Record.

Resources:

- Job aid_OPD 13 – RUTF Dosing Record

3.6.3 Follow-up Appointments

Table 9. Outpatient follow up checks

	Frequency
MUAC is taken	Every visit
Weight and oedema check	Every visit
Appetite test is done	When poor appetite is suspected
The IMCI clinical signs (temperature, stool,vomiting, etc)	Every visit

Follow Up Health Assessment using the Patient Form:

- Take the following measurements:
 - MUAC
 - Weight
 - Height
- Take medical history and conduct physical examination (Use the patient form for the IMNCI Check)
- Refer child to other health services for examination/treatment if required
- Check for oedema: Any child with oedema (+++) or medical complications should be transferred to IPD.
- Perform appetite test.
- With breastfed children, encourage breastfeeding before consuming RUTF.
- Assess the child's nutritional and health status:
 - Has weight and MUAC increased? MUAC and weight should change in the same direction (both should increase or decrease). If MUAC and weight change in opposite directions, then check the measurements. Ensure that the child was weighed naked (or only wearing light pants).
 - How many packets of RUTF did the child eat? Does this correlate with the appetite? If the appetite is good but weight gain is poor and few sachets eaten, this might mean parents/ caregivers is not feeding the child appropriately. Conduct home visit to investigate why child's weight has not increased when child has good appetite. Ask the Community Volunteers to follow up.

Transfer any patient being treated in the Outpatient to the Inpatient if they develop any of the followings:

- Failure of the appetite test (see failure to respond procedure)
- Increase/development of oedema
- Development of recurring diarrhoea sufficient to lead to weight loss
- Fulfilling any of the criteria of "failure to respond to treatment":

Weight loss for 2 consecutive weighing

Showing any of the signs of complication as listed under "Referral Criteria for Inpatient Care" section.

Static weight for 2 consecutive weighing

Major illness or death of the main caregiver and if the substitute caregiver is incapable or unwilling to look after the malnourished child or if they request transfer to in-patient care.

They can return for treatment as OPD once their complications have been addressed – see Inpatient Handbook for transfer to Outpatient protocol

Follow Up Actions:

Provide new RUTF Ration

- Provide the RUTF ration according to the weight of the child and update the quantity on the Patient Form and Ration Card.
- Ask the parents/caregiver whether they have any RUTF left. How many? Adjust the number of new sachets to give accordingly.

Issue Deworming if required

- Give tablet on the 2nd appointment if child has not received deworming in the last month.

Referral to other health services

- Ensure that recommended referrals to other health services (e.g. EPI, IMCI) have been carried out as per recommendation at OPD admission and follow up appointments.

Provide IYCF counselling

- If child's weight has adequately increased (child has reached MAM) and reinforce key messages on IMAM and RUTF. Promote breastfeeding until the age of 2.
- Refer to IYCF Guidelines
- Use IYCF counselling package and flipcharts

Inform parents/caregiver of next appointment

- Write the date on ration card of the next time the parent/caregiver should bring the child. Remind importance of doing so until completion of treatment.

3.7 Follow Up on Defaulters and Transferred patients

Identify and follow-up on absentee or drop out children (defaulter):

- Check register/patient forms to identify any absent children – this should be done every 2 weeks.
- Notify the Community Volunteer about any absent children and ask for tracing of absentee/defaulter.
- The Community volunteer to visit the home of the absent child and encourage parents/caregiver to bring the child to the OPD. Identify any possible reasons for non-attendance and report to HC health workers.

3.8 Transferring the child to nearest OPD

If it is identified that the child can be referred to another health facility (with IMAM services available) located closer to his/her home then transfer to another OPD.

1. Complete Patient Form, and indicate as a transfer (T) to OPD
2. Complete the Referral Slip (or issue one) and give to the parents/caregivers

Follow-up on children who have been transferred:

- If a child has been transferred to IPD, or to a different OPD in another hospital or health centre, follow up with the health worker or Community Volunteer that facilitated the transfer to ensure the child actually reached the referral destination.
- If a child was transferred from IPD, or from another OPD contact the health worker in-charge to confirm the case has reached the health facility.

Ask Community Volunteer to follow up on transfer and referral especially if the child does not return to OPD after condition has stabilized in the IPD.

3.9 Volunteer Role in Follow Up

Request a volunteer to carry out a home visit if:

- Child's weight decreased but has good appetite
- Child's weight is static or has inadequate weight gain but has good appetite
- Non-respondent
- Defaulter
- Parents refused treatment

Volunteer Actions:

- Speak to family and ask the reason for defaulter or refusal for treatment
- Look for symptoms of childhood illnesses
- Observe whether RUTF is being given appropriately
- Encourage return to treatment.
- Reinforce key messages that child needs treatment if they are to recover.
- Speak to the wider community to support the family access treatment

Feedback findings to the health centre to follow up.

3.10 Failure to Respond

Table 10. Outpatient failure to Respond

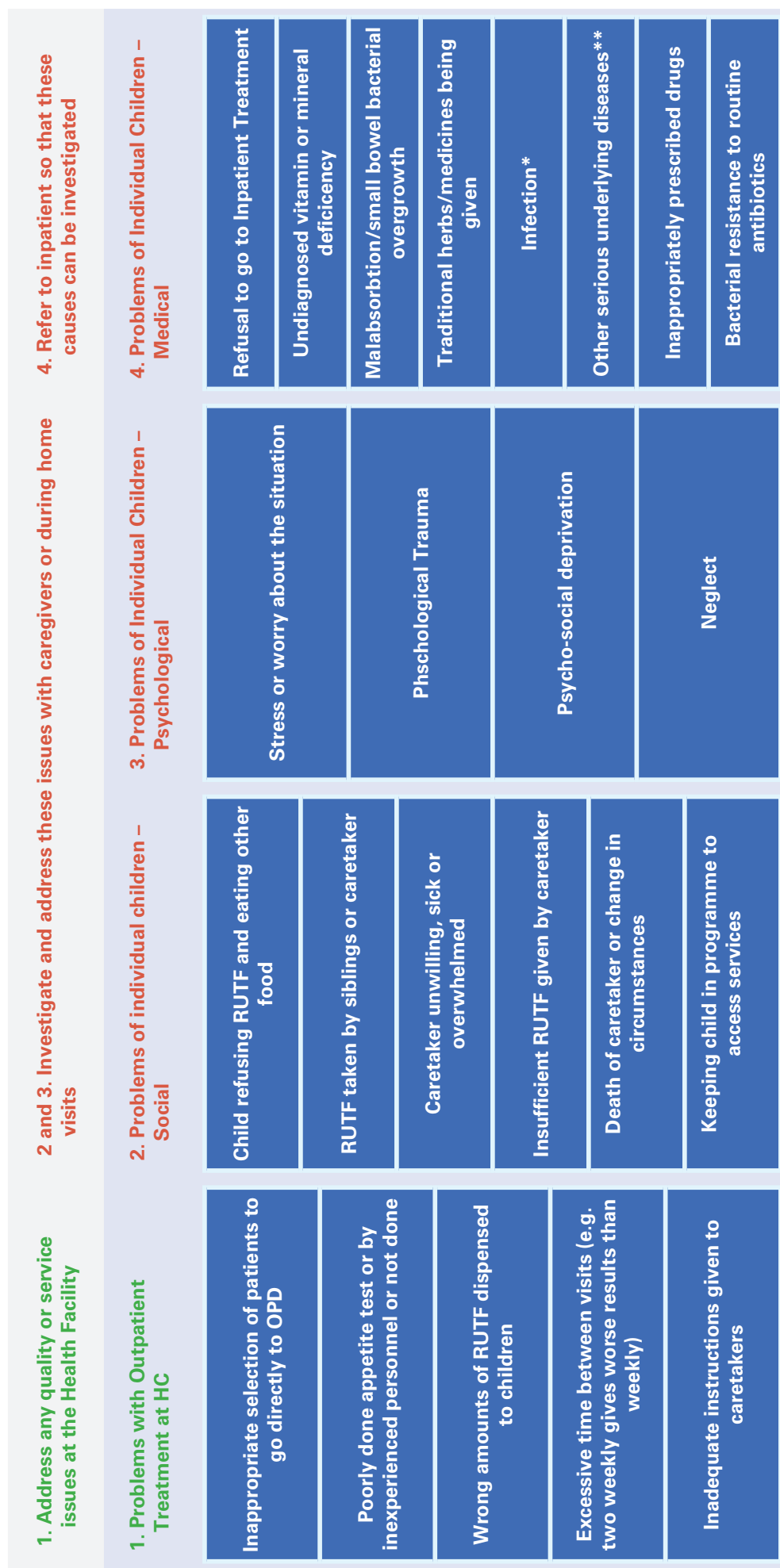
Criteria for Failure to Respond	Time after Admission
Failure to gain any weight	14 days
Weight loss since admission to programme	14 days
Failure of appetite test	At any visit
Signs of complications	At any visit
Weight loss for two successive visits	At any visit

1. Failure to respond to standard treatment can be due to social, nutritional, psychiatric or medical problems.
2. An attempt to diagnose the difficulty should first be made by Outpatient staff. Inpatient staff has less capacity to identify social problems.
3. If inadequate social circumstances are suspected as the main cause of failure in OPD, do an appetite test, then a home visit or supervised trial of feeding at the health centre (attending daily for 3 days) before transfer to the IPD.

Diagram 11: Steps to take when child fails to respond in the Outpatient Treatment:



Diagram 12: Causes of Failure to Respond



* Infection, especially: Diarrhoea, dysentery, pneumonia, tuberculosis, urinary infection, otitis media, malaria, HIV/AIDS, schistosomiasis, leishmaniasis and hepatitis/ cirrhosis

** Other serious underlying disease, for example, congenital abnormalities (e.g. Down's syndrome, congenital heart disease), neurological damage (e.g. cerebral palsy), inborn errors of metabolism, surgical problems (pyloric stenosis, Hirschsprung's disease, etc).

3.11 Exit/Discharge from Treatment

There is no minimum length of time that a child must spend in the OPD - Recovery time will be different for every child.

Exit/Discharge Criteria

- The child should be discharged using the same criteria by which they were admitted.

Table 11. Outpatient Discharge Criteria

	Criteria admitted on	Discharge Criteria
6-59 months	MUAC OR WFH	MUAC $\geq$ 12.5 cm OR W/H or L $\geq$ - 2 Z-score for 2 consecutive visits and no oedema and clinically well

Exit Categories

- Use the Exit Categories to register the patients in the registration book and patient chart
- Movement to another health facility is a Transfer* or Referral**

Table 12. Outpatient Discharge Categories

Category	Definition
Cured	The patient has reached the criteria for discharge
Defaulter	After 2 consecutive follow up visits at health centre
Dead	If the patient died during treatment in the OPD or in transit to the IPD (follow up required when referred) or within 24 hours of transfer to another health facility
Non Cured	Do not reach the cured criteria after 4 months (16 weeks) in the program; however a child should not be discharge from Outpatient Treatment if s/he still <11.5cm but should be referred for medical assessment at hospital

*Transfer to another outpatient facility: they won't return but are still in the programme

**Referral to IPD: they are expected to return

3.12 Discharge Procedure

- Explain to the mother/caregiver that the child has recovered and can exit from the program, and congratulate them.
- Provide 7 sachets of RUTF as a final ration. All children receive 7 sachets regardless of child's weight. The child should eat 1 sachet of RUTF per day for the next week, in addition to breastmilk (if breastfeeding) to help the transition to locally available complementary foods
- Fill in the patient form / registrar with the discharge details
- Parents/caregivers should be linked with any other appropriate health and nutrition or other services for which they are eligible and which support the prevention of malnutrition (risk of relapse).
- Vaccination follow up;
 - i. If the child has reached 9 months of age during treatment in OPD and has not yet received vaccination against measles, the caregiver should follow up at the EPI site to ensure the child receives the vaccination.
 - ii. Children admitted at age 6 to 8 months should get a follow-up appointment for the second measles vaccination (booster) after one month.
- The mother/caregiver should receive counselling on IYCF practices, child care practices, hygiene, food handling and preparation, and so on, in line with standard IYCF counselling and using the IYCF guidelines and counselling package.
- Contact the village volunteer to notify them of the returning child and encourage them to carry out a home visit and for the carer to share their experience with others in the community.

Diagram 14: Reporting requirements

Reporting at HC level must be done for the individual patient as well as to monitor the total number and outcomes of patients treated for SAM.

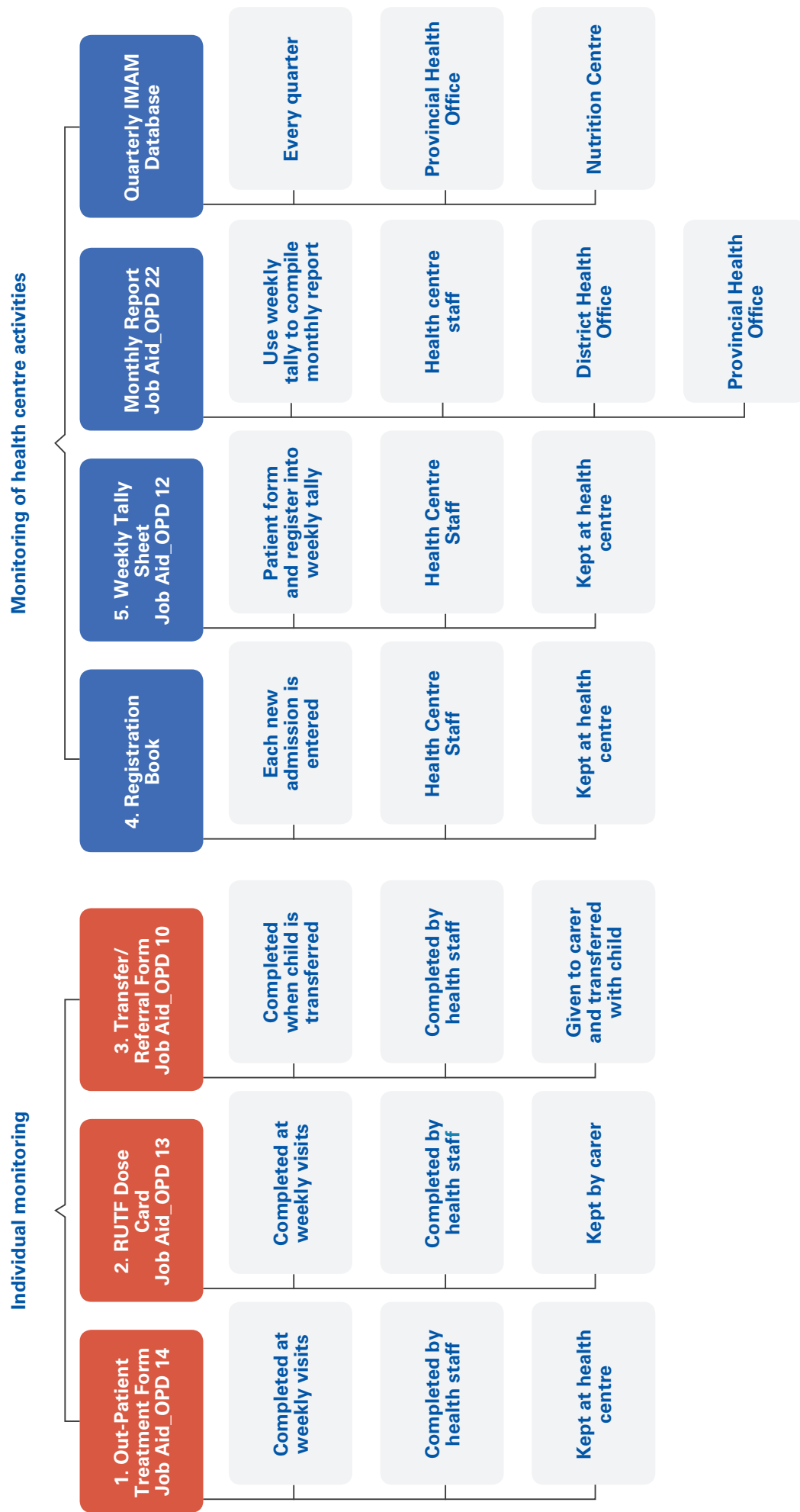


Table 13. Out patient Monthly and Quarterly Reporting

	Indicators Reported
Monthly Report (Job Aid_OPD 22)	1.Number of admissions 2.Number of children being treated 3. Children Exited or discharged (and category)
Quarterly Report (Use IMAM database)	1.Number of admissions 2.Number of children being treated 3. Children Exited (and category) 4. Performance indicators (Target for Cured, Death and Defaulter) 5. Gender disaggregated data

3.13 Performance Indicators

The monthly and quarterly reports monitor service delivery, coverage and performance.

The results of these should be discussed during regular coordination or review meetings so that improvements can be made.

The box below shows how to calculate the different performance indicators of the quarterly report.

Table 14. Outpatient Performance Indicators

Indicator	Definition
Cure rate	$\frac{\text{Number of children cured during reporting month}}{\text{Total number of children discharged during reporting month}} \times 100$
Death rate	$\frac{\text{Number of children died during reporting month}}{\text{Total number of children discharged during reporting month}} \times 100$
Defaulter rate	$\frac{\text{Number of children defaulted during reporting month}}{\text{Total number of children discharged during reporting month}} \times 100$
Non-cured/non-response rate	$\frac{\text{Number of children non-cured during the reporting month}}{\text{Total number of children discharged during the reporting month}} \times 100$

3.14 Stock Management

Stock levels of RUTF and other routine medicines should be monitored on regular basis at the health centre, District and Provincial Health Office level.

A minimum of one-month supply should be maintained at Health Centre level.

See Section Supply Forecasting and Stock Management in Chapter 7 for how to calculation supplies.

3.15 Review meetings

Regular Meetings should take place every 3 months between the provincial, district and health centre level to review the status of the SAM service, discuss the figures from the recent reports and to address any challenges.

Issues to be discussed may include:

- Coverage: Numbers of cases admitted, discharged compare to previous quarters and between districts.
- Cure, default and death rates and any increase or decrease compare to previous quarters and between districts
- Major implementation challenges
- Understanding the reasons for, defaulters and non-responders. Identify ways to mitigate these situations
- Referral mechanisms to OPD or IPD and identify ways to improve them.
- Success stories and challenges of the community component. How to improve coordination
- Monitoring and reporting
- Equipment and supplies – stock outs and storage

3.16 Tools and Supplies

Table 15. Outpatient tools and supplies

Diagnostic tools	Supplies	Office Supplies
MUAC tapes Weighing scale, Seca or Salter Scale, Yellow card/Growth chart WHO Weight-for-height charts	Sugar to make 10% sugar water solution	Management Protocols
	Clean Drinking Water	Referral /Transfer Slip
	Clean water / soap	Registration Book
	Standard Height board	Ration Card
	RUTF	List of Inpatient Facilities and other Health Centres with contact numbers
	Oral Antibiotic – Amoxicillin	Patient Form Monthly Reporting form
	De-Worming (Mebendazole)	
	Measles Vaccine (as per national guidelines)	

3.17 Supportive Supervision

Supportive Supervision is an essential part of the training and should be carried out regularly to improve the quality of the service provided.

Remember:

- Supportive Supervision is not a way to check up or punish people
- Praise someone if they are doing a good job
- Offer the help they need to improve

Purpose of Supportive Supervision:

- Builds confidence
- Provides on the job training
- Mentors junior staff members
- Highlights any problems or training needs, capacity or supply gaps early so then can be addressed.

Key principles to remember when providing supportive supervision:

- The supportive supervision visit should be pre-arranged and is not a spot check
- Observe the job performance of health and nutrition care providers
- Stay in the background during the activities and do not interfere or give feedback until all the activities are finished
- Discuss job performance with health care provider in private
- Provide feedback to the health care provider
- Praise the health care provider for what she/he is doing well to motivate her/him to continue this performance
- Work with the health care provider to identify important areas for improvement
- Show the health care provider what has worked well in her/his experience and then gives him/her practical ideas of how to improve
- Schedule a follow-up supervisory visit.

Table 16. Outpatient Supportive Supervision guidance

	Supportive Supervision at the Community	Supportive Supervision at the
Who carries it out	Health Centre Staff	District Level Health Staff (Health Promotion and Nutrition Team) Central Training Team
How	Observe the volunteer carry out their assigned tasks then discuss what was observed and whether they carried it out successfully, it needs improvement or they did it incorrectly.	Observe the health worker carry out their assigned tasks then discuss what was observed and whether they carried it out successfully, it needs improvement or they did it incorrectly.
When	During outreach visits	Quarterly
Key Indicators	Community Mobilisation Screening / MUAC Measurements Referral Home Visits	Anthropometric measurements Identification of SAM Accurate referral Triage and Appetite Test Routine Medicine and RUTF dosage Appropriate messaging and advice given Follow Up and Monitoring Visits
Tools	Supportive Supervision Check List IMAM Guidelines and Job Aids	Supportive Supervision Check List IMAM Guidelines and Job Aids

3.18 Outpatient: Roles and Responsibilities

This is a list of the different tasks that need to be assigned and some guidance as to who could take responsibility.

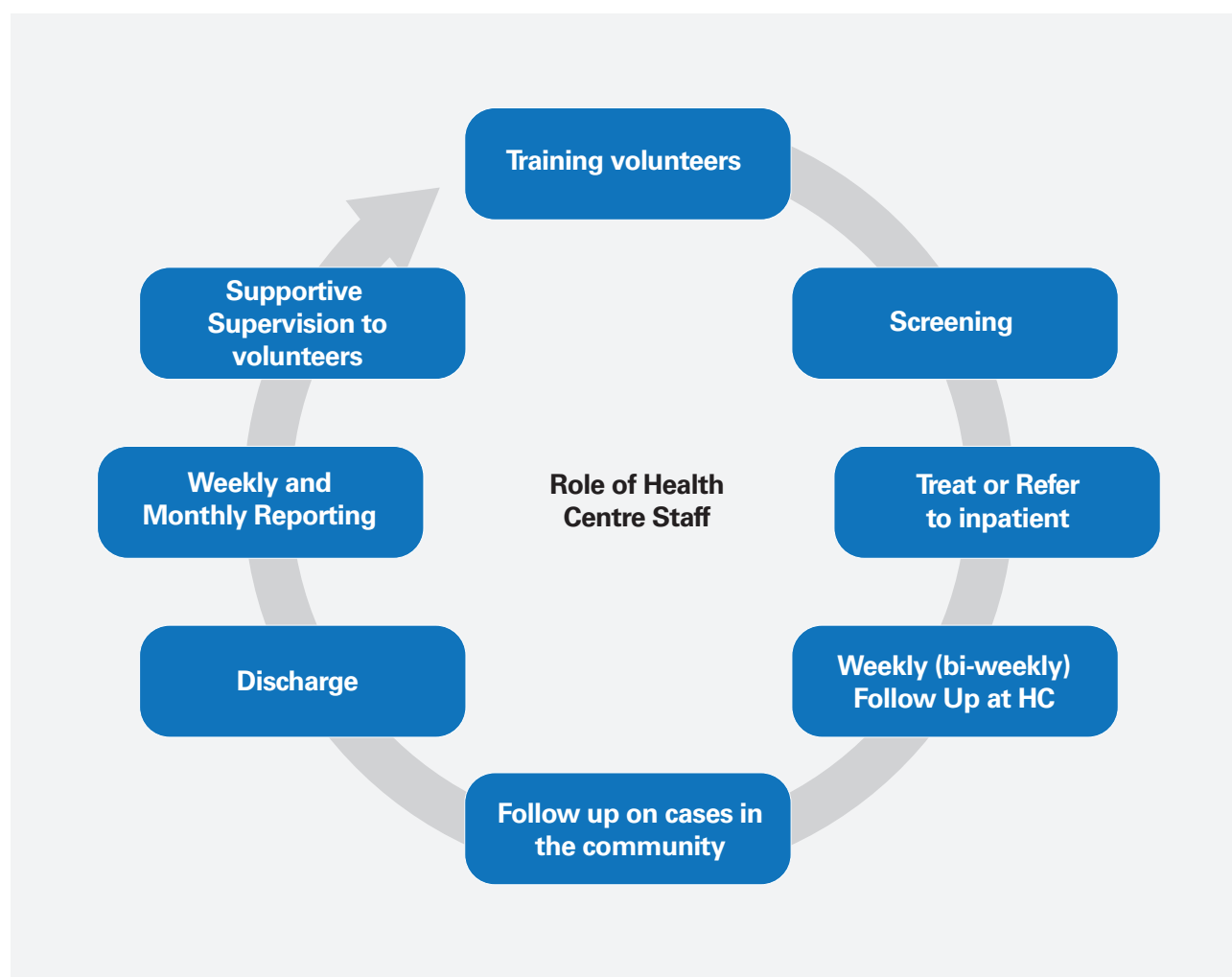
During the planning phase each health centre or district team should discuss the different roles and responsibilities and establish who will carry out the different activities.

Table 17. Outpatient - Suggested Roles and Responsibilities

Activities	Village Volunteers	Health Centre	Hospital	PHO	Civil Society
Community Screening	X				X
Screening at a Health Centre		X			
Diagnosis		X			
Registration		X			
Appetite Test		X			
Medical Assessment		X			
Medical Decision to refer or treat as outpatient		X			
Counselling (IYCF and treatment)		X			X
Giving Antibiotics, deworming and measles vaccine		X			
Ration distribution		X			
Follow Up during weekly visits (Ration, checks and Patient Card)		X			
Failure to Respond Follow Up		X			
Facility level Management of process		X			
Diagnose of Failure to Respond		X			
Communication with inpatient facility for follow up		X	X		
Coordination with other facilities		X	X	X	
Reporting Facility level monitoring and reporting		X		X	
Supply management and Forecasting		X		X	
Coordination Meetings	X	X	X	X	X
Health Centre Management Committee Meetings	X	X			
Support to the Volunteers		X			X
Supportive Supervision to the Health Centre staff				X	

Diagram 15: Suggested role of health centre staff

The core role of the health centre staff is to appropriately screen, refer and treat cases of SAM and to ensure community engagement is effective. To support volunteers to effectively communicate with their communities, identify SAM children and refer them.



Health centre staffs have an important role to play in supporting the work at the community level carried out by volunteer, and other partners.

Table 18. Health centre staff oversight on volunteers

Support the Volunteers to carry out the community activities	Ensure volunteers have access to adequate supplies	Monitor progress with the community tally sheets and interpret the results
Support visits to community groups or home visits to ensure information is being communicated accurately and provide additional information. Provide guidance to improve quality of assessments, referral and community mobilization Supportive Supervision Tools for Volunteers.	MUAC tapes, Community Tally Sheets, Referral Forms, Guidelines Up to date information about outpatient treatment at health facilities to ensure appropriate referrals	Ensure timely reporting of numbers to enable on-going monitoring of the number of cases Identify any bottlenecks to the effective referral and admission of SAM cases found at the community

CHAPTER 4: INPATIENT TREATMENT OF SEVERE ACUTE MALNUTRITION

4.1 Admission Procedure

Diagnosis of Severe Acute Malnutrition:

1. Mid-upper arm circumference < 11.5 cm or
2. Weight for height (Length) < -3 z-score
3. Oedema of both feet (kwashiorkor with or without severe wasting).

Plus

Medical complication

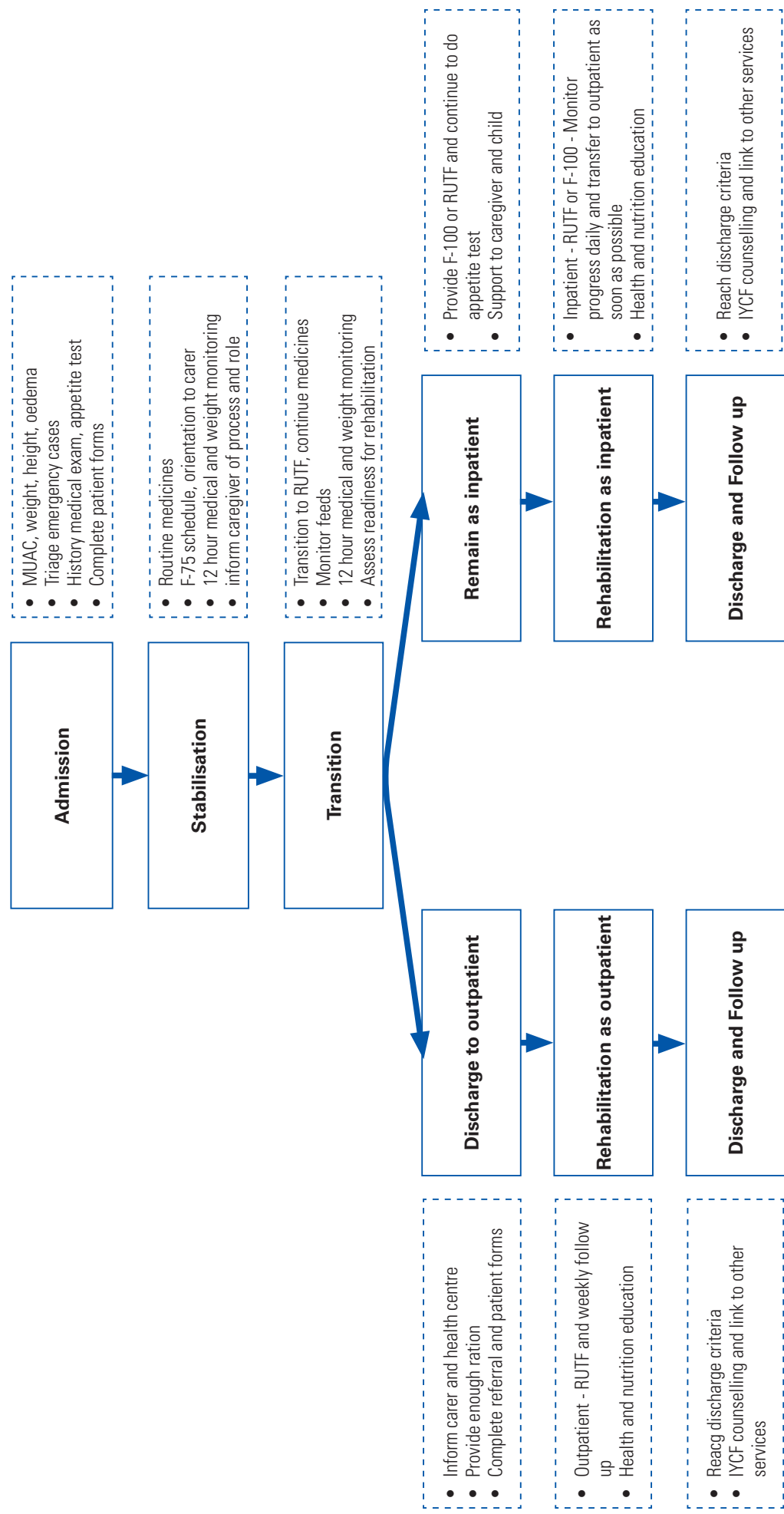
Table 19. Inpatient Admission Criteria

	Admission Criteria
< 6 months	The infant is too weak or feeble to suckle effectively (irrespective of his/her nutritional status) OR The infant is not gaining weight at home (by serial measurement of weight during growth monitoring i.e. no change in weight for age) OR Presence of bilateral oedema
6-59 months	Presence of bilateral pitting oedema +++ Presence of bilateral pitting oedema + and ++ OR MUAC < 11.5 cm OR W/H < -3 z-scores AND No Appetite and/or medical complications

Resources:

- Job aid_IPD 4– Medical Complications

Diagram 16: Reporting requirements



4.2 Medical Examination for SAM

Conduct a full medical examination and particular attention should be given to assessment of the following conditions which are closely associated with severe acute malnutrition:

4.2.1 Clinical Examination

- Severe dehydration*
- Septic shock
- Lethargic or unconscious with cold hands, slow capillary refill (>3secs) or weak (low volume), rapid pulse and low blood pressure
- Congestive heart failure
- Severe anaemia: severe palmar and conjunctival pallor
- Severe vitamin A deficiency; history of night blindness; dry conjunctiva or cornea, Bitot's spots, corneal ulceration, keratomalacia**
- Severe infected dermatitis associated with kwashiorkor
- Absent bowel sounds, gastric dilatation and intestinal splash with abdominal distension
- Mouth ulcers
- Signs of kwashiorkor:
- Hypo/hyper-pigmentation
- Desquamation
- Ulceration
- Exudative lesions (resembling severe burns) often with secondary infection (candida)
- Signs of infection:
 - Fever (armpit temperature >37.5°C) or hypothermia (armpit < 35°C)
 - Localising signs are not always found due to an impaired immune response in malnutrition but can include inflamed ear or throat; noticeable skin infection; pneumonia with chest signs

4.2.2 Clinical History

- Recent intake of food and fluids
- Loss of appetite (See Appetite Test Job Aid_IPD 14)
- Breastfeeding status
- Diarrhoea and vomiting:
 - Duration
 - Frequency
 - Type of diarrhoea (watery/bloody/mucoid)
- Chronic cough (>2 weeks) or contact with tuberculosis
- Recent contact with and signs / symptoms of measles or TB
- Known or suspected HIV infection
- Routine HIV and TB testing and counselling
- Children who are HIV infected should be managed with the same therapeutic feeding as SAM who are not HIV infected.

* Usual signs can be misleading in malnutrition so rely more on weight changes and history of food intake and diarrhoea / vomiting episodes.

**Children with vitamin A deficiency are likely to be photophobic and will keep their eyes closed. It is important to examine the eyes very gently to prevent corneal rupture.

Resources:

- Job aid_IPD 18 – In Patient Care Treatment Form

Consult the WHO Pocket Book of Hospital Care for Children

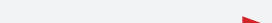
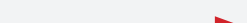
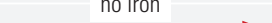
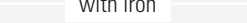
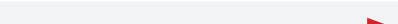
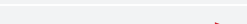
4.2.3 Laboratory tests

Based on the country's clinical protocols, the following laboratory investigations maybe conducted if indicated.

- CBC, malaria smear, BG, Electrolyte, Renal Function Tests (RFTs), Liver Function Tests (LFTs), Protein & Albumin, HIV
- Urine analysis
- Stool examination
- Chest X-ray where indicated

Take action as needed based on lab test results

Diagram 17: Scheme of Inpatient Care

		Stabilisation Phase		Rehabilitation Phase (Outpatient)
		Day 1-2	Days 3-7	Weeks 2-6
1	Treat and Prevent Hypoglycaemia			
2	Treat and Prevent Hypothermia			
3	Treat and Prevent Dehydration			
4	Correct Electrolyte imbalance			
5	Treat and Prevent infection (shock if present)			
6	Identify and treat micronutrient deficiency			
7	Start Cautious Feeding			
8	Catch Up Feeding			
9	Provide Sensory stimulation and emotional support			
10	Prepare for follow up			

Hypoglycaemia – Severely malnourished children at risk of hypoglycaemia should immediately on admission, be given a feed or if it is not available 10% glucose or sucrose. Frequent feeding is important.

Hypothermia – Hypothermia is very common in malnourished children and often indicates coexisting hypoglycaemia or serious infection.

Dehydration – can be over diagnosed and its severity overestimated in children with severe acute malnutrition because it is difficult to determine dehydration accurately from clinical signs alone. Assume that all children with watery diarrhoea or reduced urine output identified during clinical history and examination have some dehydration. It is important to note that poor circulatory volume or perfusion can co-exist with oedema.

Electrolyte Imbalance – All severely malnourished children have deficiencies of potassium and magnesium, which may take about 2 weeks to correct. Oedema is partly a result of potassium deficiency and sodium retention. Do not treat oedema with a diuretic. Excess body sodium exists even though the plasma sodium may be low. Giving high sodium loads could kill the child. Electrolyte imbalance may result in refeeding syndrome that may be caused by rapid initiation of nutritional rehabilitation (F-75/F-100/RUTF and dextrose fluids). Refeeding syndrome increases Vitamin B1 (Thiamine) turnover in the body and may cause Thiamine Deficiency.

NOTE:

In managing SAM with medical complications, reference should be made to the WHO 2016 UPDATED GUIDELINE on Paediatric emergency triage, assessment and treatment (ETAT) Care of critically ill children.

4.3 Treatment and Prevention of SAM Complications

Table 20. Treatment and Prevention

Treat and Prevent Hypothermia	
Diagnosis	
If axillary temperature is $< 35^{\circ}\text{C}$ or $\text{RT} < 35.5^{\circ}\text{C}$ or doesn't register in thermometer	
Treatment	
- Feed immediately with F-75 every 3 hours (6-8times a day) - If dehydrated, rehydrate first - Warm the child (using Kangaroo Mother Care, a blanket and hat, or lamp). - Give appropriate antibiotic	
Monitor	
- Take temperature every 2 hours / every 30 minutes if a heater is being used until it rises to 36.5°C. - Ensure child is kept covered including their head - Check for hypoglycaemia routinely whenever hypothermia is found	
Prevention	
- Feed every 2-3hours with F-75 day and night - Keep room between 25°C - 30°C to the extent possible - Keep child covered and away from draughts - Keep child dry – changing wet nappies/clothing - Avoid exposure (for bathing or a prolonged medical examination) - Have the child sleep with the mother at night for warmth - Use a heater or incandescent lamp with caution and do not use a hot water bottle or fluorescent lamp	
Treat and Prevent Hypoglycaemia	
All SAM children are at risk of hypoglycaemia. Give 10% Glucose of sucrose water (see below) within 15minutes of arrival or F-75 feed within 30-60minutes of arrival.	
Diagnosis	
- Measure blood glucose of all children with evidence of hypoglycaemia rapidly using a detrostix - If this is not possible assume SAM child is hypoglycaemic and give treatment	
Treatment	
If Blood Glucose (BG) $< 3 \text{ mmol/l}$ OR $< 54 \text{ mg/dl}$ treat: - If conscious and no seizure: 50ml of 10% glucose or sucrose solution or (1 tsp of 5 cc sugar mixed with 50 ml water) oral or NG-tube OR - If unconscious or seizure: 5ml/kg IV of 10% glucose or sucrose or by NGT if IV access not possible. - Start appropriate antibiotics	

Monitor

If initial blood glucose was low repeat measurement after 30mins.

- If BG <3mmol/litre, repeat dose of 10% glucose or oral sugar solution or/and continue F-75 (1/4 of feeding amount) every 30 minutes.
- If BG is normal, check it every 12 hours for 1 – 2 days and move to F-75 (full feeding amount) every 2 hours.
- Always check BG if child is hypothermic
- Always check BG if there is deterioration or loss of consciousness (LOC)

Prevention

- Feed every 3-hour with F-75. If diagnosed with low BG or cannot tolerate larger volumes then reduce to every 2 hours
- Always feed throughout the night
- Encourage mother to watch for any deterioration, help feed and keep child warm,
- Check on abdominal distension

Treat and Prevent Dehydration

Misdiagnosis and inappropriate treatment for dehydration is the most common cause of death in SAM children. Each case must be managed with caution and the diagnosis changes if the clinical status of the child doesn't improve with treatment. Poor circulatory volume or perfusion can co-exist with oedema. See Figure 1 – Dehydration Decision Making Tree

Diagnosis

Dehydration is difficult to diagnose in SAM cases. Dehydration diagnosis is based on clinical examination and history of fluid loss which identifies the cause of diarrhoea:

- Recent history of significant fluid loss – unusually frequent diarrhoea with sudden onset (in past few hours or days)
- Sunken eyes (previous few days only)
- History of urination; whether urine has been passed in last 6 hours and the colour.
- Visibly superficial veins on head, neck, limbs must be absent in a SAM child with dehydration
- Diagnosis of dehydration should be provisional and response to treatment be observed before a diagnosis confirmed.
- Concomitant signs of dehydration may include increased heart rate, temperature and/or reduced blood pressure.

Assess whether the child has AWD or cholera and decide treatment accordingly.

Treatment

Treatment of Dehydration without Shock

*Do not use IV for rehydration *

ORS should not be given unless Acute Watery Diarrhoea (AWD) or Cholera

- Rehydrate slowly orally or with NGT 5–10 mL/kg/h up to a maximum of 12 h
- They should receive 5 ml/kg ReSoMal every 30 min for the first 2 hr.
- Then, if the child is still dehydrated, 5–10 ml/kg/h ReSoMal should be given in alternate hours with F-75, up to a maximum of 10 h
- This rate is slower than for children who are not severely malnourished. Reassess the child at least every hour. The exact amount to give should be determined by how much the child will drink, the amount of ongoing losses in the stool, and whether the child is vomiting and has any signs of over-hydration, especially signs of heart failure.
- Give either ReSoMal or half-strength standard WHO low-osmolarity oral rehydration solution with added potassium and glucose, unless the child has cholera or profuse watery diarrhea

If you suspect the child of having cholera or have profuse watery diarrhea do not give ReSoMal. Give standard WHO low osmolarity oral rehydration solution that is normally made, i.e. not further diluted

Treatment of Dehydration without Shock

All children with severe acute malnutrition with signs of shock with lethargy or unconsciousness should be treated for septic shock. This includes especially children with signs of dehydration but no history of watery diarrhoea, children with hypothermia or hypoglycaemia, and children with both oedema and signs of dehydration;

Children with severe acute malnutrition and signs of shock or severe dehydration and who cannot be rehydrated orally or by nasogastric tube should be treated with intravenous fluids, either:

- a. half-strength Darrow's solution with 5% dextrose, or
- b. Ringer's lactate solution with 5% dextrose

If neither is available, 0.45% saline + 5% dextrose should be used

1. It is important that the child is carefully monitored every 5–10 min for signs of overhydration and signs of congestive heart failure. If signs of overhydration and congestive heart failure develop, intravenous therapy should be stopped immediately;
2. If a child with SAM presenting with shock does not improve after 1 h of intravenous therapy, a blood transfusion (10 mL/kg slowly over at least 3 h) should be given;
3. In children with severe acute malnutrition should be given blood if they present with severe anaemia, i.e. Hb <4 g/dL or <6 g/dL if with signs of respiratory distress;
4. Blood transfusions should only be given to children with severe acute malnutrition within the first 24 h of admission.

All foods and other fluids should be sopped during transfusion and for up to 3 hours afterwards.

Monitor

Figure 2 shows the algorithm for monitoring rehydration therapy. The aim of rehydration therapy is to improve the child's clinical status. The target weight gain should be no more than 5% of body weight.

- During rehydration pulse rate and respiratory rate should fall within normal range and urine start to pass as well as return of tears, a moist mouth, less sunken eyes and fontanelle and improved skin turgor are also signs that rehydration is proceeding, but many severely malnourished children will not show the changes even when fully rehydrated. Monitor Weight Gain.
- Check (every 30 minutes for first 2 hours then every hour for next 10 hours)"
- Weight gain is not too quick/excessive (maximum of 5% body weight)
- Increase pulse and respiratory rate
- Urine frequency
- Enlarging liver size on palpitations
- Frequency of stools and vomit

If you see Signs of overhydration: respiratory rate increasing by 5/min and pulse by 25/min, stop ReSoMal immediately and reassess after 1 hour.

STOP all rehydration (oral or intravenous) therapy immediately if any of the following are observed:

- The target weight for rehydration has been achieved (go to F-75)
- The visible veins become full (go to F-75)
- The development of oedema (over-hydration – go to F-75)
- The development of prominent neck veins*
- The neck veins engorge when the abdomen (liver) is pressed*.
- An increase in the liver size by more than one centimetre.*
- The development of tenderness over the liver.*
- An increase in the respiration rate by 5 breaths per minute or more*
- The development of a "grunting" respiration (this is a noise on expiration NOT inspiration)*
- The development of râles or crepitations in the lungs*
- The development of a triple rhythm*

*If these signs develop then the child has fluid overload, an over-expanded circulation and is going into heart failure.

Prevention

- If the child is breastfed, encourage to continue
- Keep feeding with regular F-75 milk
- Give ReSoMal between feeds to replace stool losses - as a guide give 50-100 ml after each watery stool. (Note: it is common for malnourished children to pass many small unformed stools: these should not be confused with profuse watery stools and do not require fluid replacement)
- Monitor closely (e.g. rapid weight loss / evolving signs of dehydrate) and commence treatment early if dehydration is diagnosed

Preparing ReSoMal

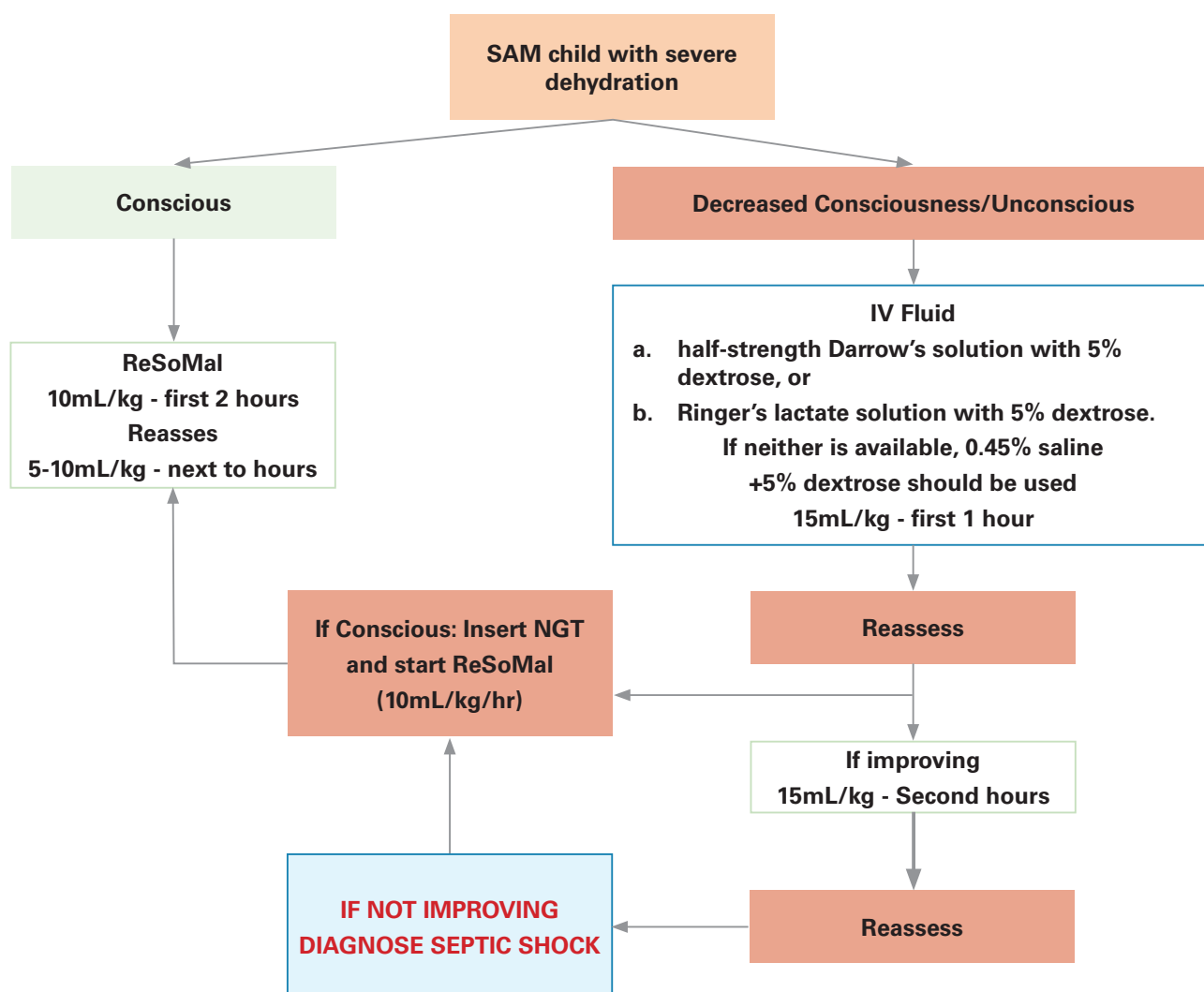
ReSoMal is an oral rehydration solution specially formulated for malnourished children. It can be prepared from a ready-to-dilute sachet (as per supplier's instructions).

If no ReSoMal is available it can be prepared with one sachet of WHO low-osmolality oral rehydration solution plus 2 L of water with an added 50 g sugar and 40 mL of electrolyte/mineral solution or one level scoop of combined minerals and vitamins (CMV);

Resomal composition (WHO 1999 manual)

Component	Concentration (mmol/l)
Glucose	125
Sodium	45
Potassium	40
Chloride	70
Citrate	7
Magnesium	3
Zinc	0.3
Copper	0.045
Osmolarity	300

Diagram 18: Treatment of Dehydration



4.4 Treatment of Nutritional Complications

Table 21. Inpatient Treatment of common complications

Condition	Signs/Symptoms	Treatment
Vitamin A deficiency	Corneal clouding, ulceration or Bitot's spot:	- A high dose (50,000IU, 100,000IU or 200,000IU, depending on age) of vitamin should be given to all children with SAM and eye signs of vitamin A deficiency on day 1, with a second and a third dose on day 2 and day 15 (or at discharge from the programme), irrespective of the type of therapeutic food they are receiving - Tetracycline eye drops (1%) 1 drop every 2–3 hours for 7–10 days - Atropine eye drops (1%) 1 drop for 3–5 days - Cover with eye pads that have been soaked in SN.
Measles	SAM with recent measles	A high dose (50,000IU, 100,000IU or 200 000IU, depending on age) of vitamin should be given to all children with SAM and recent measles on day 1, with a second and a third dose on day 2 and day 15 (or at discharge from the programme), irrespective of the type of therapeutic food they are receiving
Dermatosis	- Hypo- or hyperpigmentation - Desquamation - Ulceration - Exudation lesions often with secondary infections, including Candida	- Hygiene (bathe the child) - Wipe with Permanganate 1% - Apply Zinc oxide qid x 2 weeks - Gauze dressing for raw area - Omit nappies to keep the perineum dry - If candidiasis, use oral Nystatine 100 000 UI qid or Miconazol cream apply qid for 2 weeks
Parasitic Worms	No clinical evidence but area of high prevalence	WHO recommends: Wait until the rehabilitation phase. If there is evidence of work infestation: Albendazole single dose Mebendazole 100mg twice a day for 3 days. In areas of high prevalence: Give mebendazole 7 days after admission
Vitamin B1 (Thiamine Deficiency)	Psychomotor impairment and seizures	50-100 mg IV thiamine or 100 mg oral thiamine during the first 3 days of refeeding syndrome. - For breastfed infants under 6 months of age, maternal supplementation is recommended.

*This is a context specific recommendation taking into consideration the relatively high prevalence of Thiamine deficiency among children with SAM in Lao PDR.

4.5 Routine Antibiotics

Common antibiotics administered include;

- Amoxicillin
- Amoxicillin-clavulanic acid
- Gentamicin
- Ceftriaxone or cefotaxime
- Ciprofloxacin

Note: See Job Aid_IPD 15

4.6 Stabilisation – Start Cautious Feeding

- This aim is to provide just enough energy and protein to maintain basic physiological processes and stabilize the child, reducing short-term risk of death.
- Weight gain is not expected during stabilisation.
- If a child has oedematous SAM, he/she should lose weight as the oedema decreases.
- Start feeding with F-75 immediately when the child is admitted.
- Stabilisation can be expected to last between 1-3 days. Use the reference table (Job Aid_IPD 9) to establish amount, dependant on how frequently the feeds are given and weight of the child.
- Feed F-75 starting with every 2-3 hours, day & night
- Feed F-75 every 30 min for 2 hours if child has hypoglycaemia or is unable to tolerate large volumes
- Gradually increase feed size and reduce frequency to every 3 and then 4 hours (check against final tables)
- F-75 should be fed by cup & spoon at the correct position to avoid aspiration. Do not use a feeding bottle
- Breastfed children should be breastfed every 2-3 hours, day & night. Breastfeed every time before F-75 is given
- If child is < 2 years and has stopped Breastfeeding, help mother re-lactate (see Under 6month section)

During stabilization phase, diarrhoea should gradually diminish and children with oedema should lose body fluid. This usually takes 1-2 days but if severe can take up to 2 weeks.

F-75 contain all the micronutrients that are needed to aid recovery unless the child shows signs of eye signs of clinical A deficiency or a recent episode of measles.

Use the Ward Schedule (Job Aid_IPD 18) to manage and monitor the feeds for each patient.

Use Job Aid_IPD 5 for key danger signs to monitor throughout the inpatient treatment.

Table 22. Inpatient Daily Monitoring

In case of severe dehydration, septic shock or severe anaemia	Signs of over-hydration and heart failure (fast breathing, respiratory distress, a rapid pulse, engorgement, cold hands and feet and cyanosis of the fingertips and under the tongue) should be checked every 10 minutes
Every Feed	• Quantity of F-75 or F-100 or RUTF the child takes • Amount and frequency of vomiting • Frequency of breastfeeding
Every 4 Hours	• Body Temperature • Respiratory rate / chest drawing in • Heart Rate/ Pulse
Once Daily	• Weight • Weight gain • Oedema • Frequency and Type of stools • Dehydration • Cough • Liver size • Extremities • Palmar Pallor

4.7 Managing feed preparation and ward schedule

F-75 Preparation (Tin)

See Job Aid_IPD 8 for instructions on preparation

F-100 Preparation (Tin)

See Job Aid_IPD 8 for instructions on preparation

Use the Ward Schedule Job Aid_IPD 17 to plan the amounts for each feed.

4.8 Transition Phase

Once the child has stabilised, sepsis is managed, they have an appetite and reduced oedema they can transition from F-75 to RUTF or F-100 if RUTF not available/acceptable.

Criteria to move to Transition Phase

1. Appetite returning: finishing stabilization-phase milk (F-75) easily
2. Clinically improving and danger signs resolved: e.g. no serious medical problems such as vomiting, watery diarrhoea, dehydration, NG feeding, respiratory distress, or any complication, which requires IV infusion. Treatment for complications might be on going but danger signs resolved
3. Oedema subsiding: in oedematous malnutrition, as evidenced by clinically examination and weight loss.

This transition to RUTF should take 2-3 days to avoid Re-Feeding Syndrome.

A child with diarrhoea but who is ready to transition to the rehabilitation stage can still be given RUTF.

Recommended intake of RUTF during transition is 100-135 kcal/kg/day for 2-3days.

Table 23. Amount recommended at the start of transition

Weight of Child	Number of feeds in 24 hours	Amount of RUTF at each feed	Amount to be eaten over 24 hours
< 5kg	5 - 6	1/ 4 packet	1¼ - 1½ packets
>5kg	6	1/3 packet	1¾ - 2 packets

- Increase slowly of the coming days the amount of RUTF until the desired amount is being consumed. Do not force the child to eat.
- Child should drink water or breastmilk freely
- If the child doesn't take prescribed amount of RUTF then top up with F-75 – the time taken to eat both RUTF and F-75 should be no more than one hour
- Once the full transition ration has been taken for 24hours, increase the amount of RUTF appropriate for the daily ration in Table 24.

The child should then transfer to Out Patient when consuming 75% of the outpatient ration (table below).

Monitor significant changes in pulse and respiration during transition

(See Risks of Refeeding Syndrome)

Monitor significant changes and signs that the child is not adapting well to the transition:

- Rapid increase in size of liver
- Signs of fluid overload
- Tense abdominal distension
- Any significant refeeding diarrhoea involving weight loss
- Any complications arising which necessitates IV fluids
- Increasing oedema or oedema developing

Table 24. Rehabilitation phase RUTF dosage table

Class of Weight (kg)	RUTF sachets (92g)		
	Sachets per day	Sachets per week	Sachets per 2 weeks
3.0 -3.4	1 ¼	8	16
3.5 -3.9	1 ½	11	22
4.0 – 4.9	2	14	28
5.0 -6.9	2½	18	36
7.0 -8.4	3	21	42
8.5 – 9.4	3 ½	25	50
9.5 – 10.4	4	28	54
10.5 – 11.9	4 ½	32	64
≥12kg	5	35	70

If RUTF is not available or acceptable to the child, transition from F-75 to F-100

150ml/kg/day minimum — 220ml/kg/day maximum (see Job Aid_IPD 10)

Children who have been admitted with complicated severe acute malnutrition and are achieving rapid weight gain on F-100 should be changed to ready-to-use therapeutic food and observed to ensure that they accept the diet before being transferred to outpatient.

If the child fails the appetite test then revert to Transition feeding and try again the following day 90% of the RUTF ration is eaten.

Re-feeding Syndrome:

Rapid increase of energy intake can risk overloading the absorptive capacity of the intestine and precipitate osmotic diarrhoea.

Moving from F-75 to F-100 or RUTF should happen slowly to avoid this.

The condition may occur when malnourished children develop any of the following shortly after rapid and large amounts of food are eaten. Symptoms may include; Acute weakness or floppiness

- Lethargy
- Delirium
- Neurological symptoms
- Acidosis
- Muscle necrosis
- Liver and pancreatic failure
- Cardiac failure
- Sudden death

Treatment:

In stabilisation Phase

- Reduce the diet to 50% of the recommended intake until all signs and symptoms disappear and then gradually increase the amount given
- Check to make sure that there is sufficient potassium and magnesium in the diet. If the diet is not based on cow's milk (or the mother is also giving cereals/pulses etc) additional phosphorus should be given to prevent refeeding syndrome.

In transition phase:

- Return to Phase 1 of treatment with F-75
- Assess the child for heart failure (Use WHO 2013 Pocket Book of Hospital Care for Children)

4.9 Rehabilitation Phase

The rehabilitation phase can take place at home with the SAM child receiving treatment as an outpatient with RUTF.

Table 25. Exit criteria from stabilisation as inpatient to rehabilitation as outpatient

	Exit criteria from Inpatient to outpatient
< 6 months	See SAM in Under 6 month section
6 – 59 months	No bilateral pitting oedema AND No medical complications Good Appetite AND Clinically well and alert

Next Steps:

- Inform caregiver of process and importance of continuing treatment at health centre
- Make sure the carer is willing and able to continue treatment at home (if not, consider longer inpatient stay as needed. e.g. if carer also ill or not coping)
- Complete Referral Form including weight, oedema and MUAC (Job Aid_IPD 21)
- Complete Patient Form (Job Aid_IPD 19)
- Notify the Health Centre that they are retuning
- Provide enough RUTF ration until next outpatient appointment and any continued treatment (antibiotics)
- Transfer the patient to the Health Centre/OPD for outpatient treatment

Information to give to the carer

- Provide the carer with written detail of which health centre to visit and when
- Importance of continuing the treatment
- Key messages on hygiene, nutrition, IYCF
- Return to health centre if the child's condition deteriorates
- Danger signs to look out for:
 - Loss of appetite and unable to eat/drink
 - Early signs of nutritional oedema
 - IMCI Danger signs (e.g. vomiting everything; unconsciousness; pneumonia with chest in drawing; severe dehydration)
 - Frequent watery stools; stools with blood; diarrhoea lasting more than 4 days

Follow Up Visits at the Health Centre:

- Medical Check
- Weight and MUAC
- Next ration of RUTF

The child may be discharged from all treatment including outpatient care when;

- MUAC $\geq$ 12.5cm/WFH $>-3SD$ and no oedema for at least 2 continuous visits

4.10 Exit Categories

Transfer (Stabilized and transfer for outpatient treatment)	Appetite returned: eats at least 75% of the RUTF ration for at least 24 hours AND Clinically stable: alert, no danger signs; no significant medical problems needing inpatient care /investigation AND Bilateral pitting oedema improving
Defaulter (absconder)	Leaves hospital prior to transfer to outpatient for rehabilitation Absconds from treatment for 48 hours
Died	Dies while in inpatient treatment
Non-Response	No improvement in appetite or oedema after 4 consecutive days of stabilization Still oedematous or not transferred to the rehabilitation phase feeds after 10 days of treatment Has not reached discharge criteria after 4 months in rehabilitation
Referred	Not yet stabilized but referred to another inpatient center (e.g. for more intensive medical treatment which cannot be provided at current centre; if family moves)
Discharge Cured	Cured by meeting the discharge criteria (6-59months) This should be an exceptional situation. Most children should reach discharge criteria when being treated as outpatients

4.11 Failure to respond

If the child is showing signs of failure to respond (see examples below) investigate underlying causes:

- Failure to regain appetite by day 4 after admission
- Failure to start to lose oedema by day 4 after admission
- Oedema still present at day 10 after admission
- Failure to stabilise by day 10

Table 27. Possible reasons for patient's failure to respond - Factors which should be considered

Facility Level	Individual Level
• Failure to apply the protocol appropriately • Poor environment for malnourished children • Excessively intimidating, strict or cross staff • Failure to treat the children in a separate dedicated area • Failure to complete the multi-chart correctly (or use of traditional hospital records only) • Insufficient staff (particularly at night) • Poorly trained staff – excessive staff turnover or untrained senior medical staff • Inaccurate weighing machines (of failure to take and plot the weight change routinely) • F-75 not prepared or given correctly	• A severe medical complication • Drug toxicity (see section on drugs) • Insufficient food given - criteria for NGT not applied • Food taken by siblings or caretaker • Sharing of caretaker's food • Malabsorption Psychological trauma • Rumination (and other types of severe psychosocial deprivation) • Infection, especially: viral, bacteria resistant to the antibiotics being used, fungal, diarrhoea, dysentery, pneumonia, TB, urinary infection/ Otitis media, malaria, HIV/AIDS, Schistosomiasis/ Leishmaniasis, Hepatitis/ cirrhosis • Other serious underlying disease: congenital abnormalities (e.g. Down's syndrome), neurological damage (e.g. cerebral palsy), inborn errors of metabolism

When a child deteriorates after having progressed satisfactorily initially, it is usually due to:

- Electrolyte imbalance with movement of sodium from the cells and an expansion of the circulation to give fluid overload or due to the refeeding syndrome.
- Inappropriate dosage of drugs, or use of drugs not recommended in the severely malnourished child.
- An acute infection that has been contracted in the centre from another patient (called a "nosocomial" infection) or from a visitor/ sibling/ household member.
- Sometimes as the immune and inflammatory system recovers there appears to be "reactivation" of an existing infection during recovery
- A limiting nutrient in the body that has been "consumed" by the rapid growth and is not being supplied in adequate amounts by the diet. This is uncommon with modern diets commercially produced (F-100 and RUTF) but may well occur when they are made in the facility or where untried recipes are introduced or sharing of the mother's food.

CHAPTER 5: MANAGEMENT OF SAM IN CHILDREN UNDER 6 MONTHS

5.1 Admission

Infants who are less than 6 months of age with severe acute malnutrition and any of the following complicating factors should be admitted for inpatient care:

- Any serious clinical condition or medical complication as outlined for infants who are 6 months of age or older with severe acute malnutrition;
- Recent weight loss or failure to gain weight;
- Ineffective feeding (attachment, positioning and suckling) directly observed for 15–20 min, ideally in a supervised separated area;
- Any bilateral pitting oedema;
- Any medical or social issue needing more detailed assessment or intensive support (e.g. disability, depression of the caregiver, or other adverse social circumstances)

Priorities of treatment are:

- Improved or re-established breastfeeding and increasing milk supply;
- Temporary or longer-term therapeutic feeding; and
- Nutrition, psychological and medical care for mothers

SAM in infants under 6 months requires specific care. There are two different protocols based on whether the infant

- Has the option to be breastfed
- There is no option to be breastfed

When the infant arrives at the hospital a rapid assessment should take place to assess which protocol should be followed and what type of support the child and mother need.

If possible, *observe* a feed and *listen* carefully to the mothers breastfeeding experience to be able to help her best.

Check	Action
IMCI Danger Signs Weight Oedema Growth Card for detail of weight change	Action as per IMCI guidelines Check weight, length and oedema and proceed with Feeding assessment
Ask	
How old is your baby? Are you breastfeeding your child? Is baby eating anything else? Is the baby able to suckle? Have you had any breastfeeding difficulties If you have stopped breastfeeding – why and when? What do you feed your child?	This section only applies to U6m If no ask the reasons why and encourage relactation Counsel on EBF If no support with SST If yes provide support and counseling If no ask the reasons why and encourage relactation Provide optimal IYCF information
Observe	
Good position – mouth wide open, lower lip turned down, chin touching breast, more areola visible above than below the mouth Infant Cheeks round not sucking in Slow suckles sometimes pausing	If not good position provide support and counseling in line with IYCF guidance

For infants who refuse inpatient care and are not complicated cases:

- Provide a course of broad-spectrum oral antibiotic, such as amoxicillin, in an appropriately weight adjusted dose (WHO 2013)
- Intensive counselling from the health centre staff to support exclusive breastfeeding including overcoming breastfeeding challenges, optimal IYCF practices and good maternal nutrition (Refer to National IYCF Guidelines)
- Monitor weekly weight gain of the infant to observe changes;
- If the infant does not gain weight, or loses weight while the mother or caregiver is receiving support for breastfeeding, then he or she should be referred to inpatient
- Assessment of the physical and mental health status of mothers or caregivers should be promoted and relevant treatment or support provided

Increasing milk supply or re-lactation can be done!

- With one to one support and guidance breastmilk production can be improved.
- If the baby is still breastfeeding, the baby is still young, or the mother only recently stopped breastfeeding, the mother will be able to re-lactate more quickly.
- Re-lactation usually takes 3-5 days.
- It is accomplished by putting the baby to the mother's breast every 2-3 hours, day and night. Frequent suckling stimulates the mother's breast milk production.
- However, re-lactation can be done at any time, even in a woman who has not breastfed for months or even years.

Re-lactation is easier to support while the mother is in the hospital with her infant or young child since health workers can help the mother and monitor progress 24 hours a day.

Remind the mother and other family members not use bottles or pacifiers while the child is in the hospital & not to use them once they return home.

Why do Supplementary suckling? See page 70 for detailed description on how to carry out SS.

- i. This technique provides the infant with supplementary nutrition support whilst stimulating increased milk production
- ii. The aim is to increase breastmilk production. The child is NOT expected to gain weight at this stage. The amount given is to ensure that the child does not become more malnourished whilst breast-milk output is increasing
- iii. Often another mother who has successfully fed her baby with SS technique is the best person to teach others

Improving breastfeeding or re-starting breastfeeding through SS is the safest option:

- Using infant formula where it is difficult to ensure clean water and hygienic preparation can risk the infant becoming sick and relapsing.
- Reassuring mothers of the sufficiency of their breastmilk will help increase production and avoid myths that formula is needed to recover.
- Once the child is discharged it might be unaffordable to use infant formula and it carries more risk

5.2 Admission and Discharge Criteria

Table 28. Under 6 months Admission and Discharge

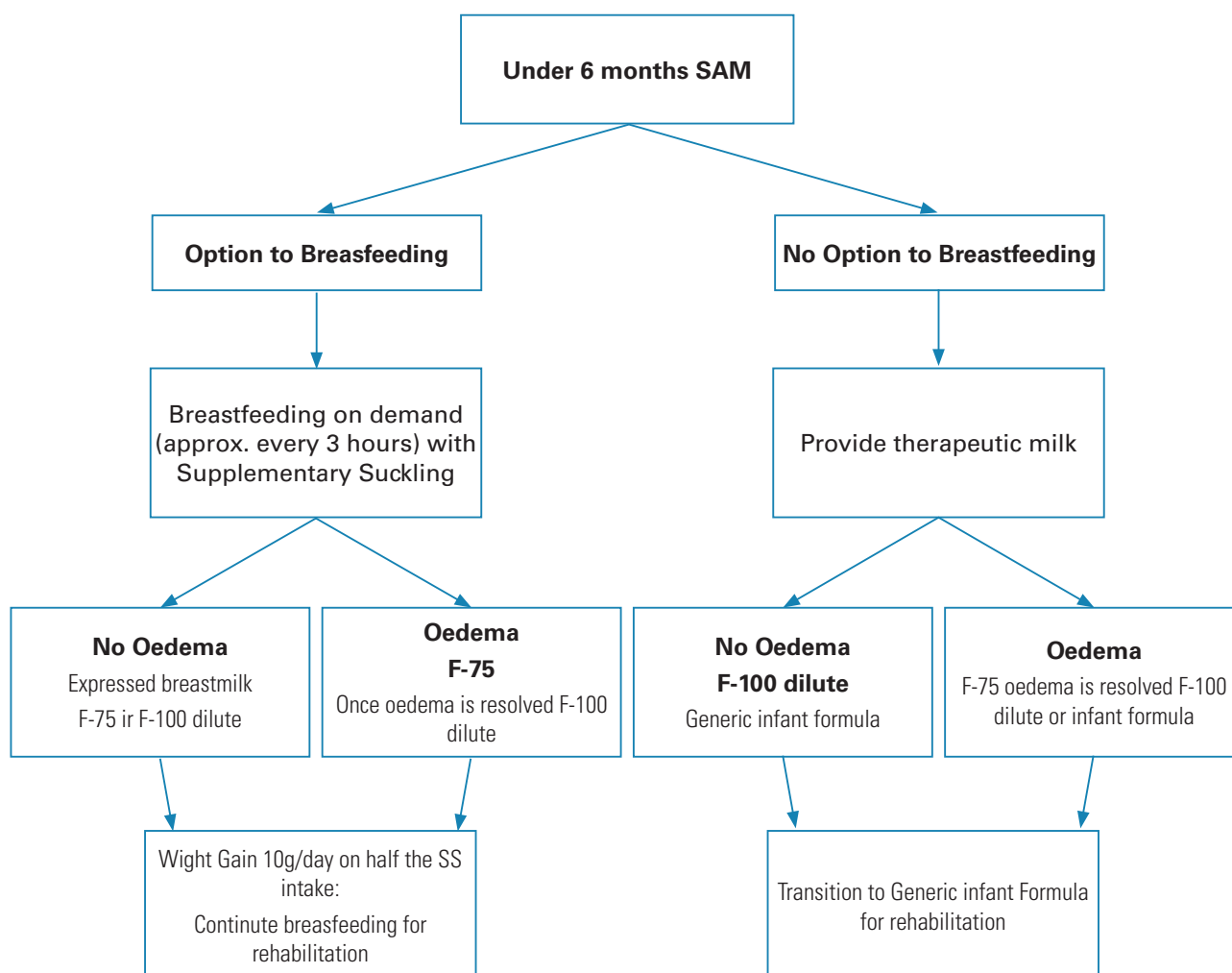
	Breastfed infant/without available breastfeeding options after discharge
Admission	Weight-for-length less than -3 Z-score OR Any pitting oedema AND The infant is too weak or feeble to suckle effectively - ineffective feeding (attachment, positioning and suckling) directly observed for 15–20 min, ideally in a supervised separated area (irrespective of his/her weight for age (W/A) or other anthropometry) OR Any serious clinical condition or medical complication as outlined for infants who are 6 months of age or older with severe acute malnutrition; OR Recent weight loss or failure to gain weight (by serial measurement of weight during growth monitoring) OR Any serious medical or social issue needing more detailed assessment or intensive support (e.g. disability, depression of the caregiver, or other adverse social circumstances)
After inpatient Treatment refer for Outpatient Care at health center	Counseling and support for optimal infant and young child feeding Weight gain of the infant should be monitored weekly to observe changes If the infant does not gain weight, or loses weight while the mother or caregiver is receiving support for breastfeeding, refer to inpatient care; Assessment of the physical and mental health status of mothers or caregivers should be promoted and relevant treatment or support provided All clinical conditions or medical complications, including oedema, are resolved, AND The infant has good appetite, is clinically well and alert

Treatment

Antibiotics: Provide a course of broad-spectrum oral antibiotic, such as amoxicillin, in an appropriately weight adjusted dose

Appropriate treatment: for TB, HIV, other conditions

Diagram 19: U6 Month Decision Making Tree



5.3 SAM Treatment for under 6 months with option to breastfeed

Amounts of Milk Given

F-100 Dilute given using the supplementary suckling technique.

Give F-75 in place of F-100 dilute only in children who have oedema. When the oedema has resolved and the infant is suckling strongly change to F-100 dilute or infant formula.

How: Ask the mother to breast-feed on demand or to offer breastfeeding every 2 to 3 hours for at least 20 minutes (or when breasts have been emptied by the child), more often if the infant cries or seems to want more.

Use the supplementary suckling technique to give F-100 dilute during breastfeeding.

Table 29. F-100 Dilute / F-75 Amounts to be given to SAM under 6months

Weight (kg)	MI per feeds (8 feeds / day F-75 / F-100 dilute*)
≤1.2Kg	25ml per feed
1.3 - 1.5kg	30
1.6 - 1.7	35
1.8 - 2.1	40
2.2 - 2.4	45
2.5 - 2.7	50
2.8 - 2.9	55
3.0 - 3.4	60
3.5 - 3.9	65
4.0 - 4.4	70

*Dilute F-100 - Put one small packet of F-100 (packet size) into 670ml of water instead of 500ml

*Dilute F-100Tins – Add 30% extra water. EG: In a child weighing 4 Kg needs 70ml of F-100dilute

3 scoops + 50ml of water = 57ml of F-100

Add 30ml extra water = Add 15ml extra water

Undiluted F-100 should not be given at any time due to the high renal solute load and risk of hypernatraemic dehydration*

To start with, give the infant the full amount of diluted F-100 for his/her weight using the supplementary suckling

Encourage the mother when the infant is gaining weight and tell her, that “the recovery is due to her own breast milk”.

DO NOT increase the amount given as the infant starts to regain strength, suckle more strongly and gain weight.

Diagram 19: Decision making tool in IPC

Situation of Child		Course of Action
If the child loses weight over 3 consecutive days yet seems hungry and is taking all his F-100 dilute	→	Add 5ml to each feed.
If the child grows at a consistent pace with the same quantity of milk;	→	Tell the mother that the quantity of breast milk is increasing and she is “responsible” for recovery.
When a baby is gaining weight at 20g per day for 2 consecutive days (whatever her/his weight)	→	Decrease the quantity of SS-milk given at each feed to one half of the maintenance intake.
If, on half the SS-intake, the weight gain is maintained at 10g per day (whatever her/his weight)	→	Then stop supplement suckling completely. Tell the mother that she is doing this all by herself.
If the weight gain is not maintained when the SS-milk intake is cut in half	→	Then change the amount given to 75% of the maintenance amount for 2 days and then reduce it again if weight gain is maintained.

5.4 Supplementary Suckling

For more information on <http://files.ennonline.net/attachments/144/module-2-v1-1-complete-english.pdf> (page 65)

Supplementary suckling is used for feeding infants and helping mothers to re-lactate if they have stopped breastfeeding.

- Diluted F-100 /F-75 or Expressed Milk is put in a cup and the mother holds it.
- Put the end of a n°8 NG tube in the cup. If the tube is too thick, have the mother pinch the tube (as shown in the picture) to slow down the flow of milk from the cup or bottle. Encourage the baby to suck harder.
- The tip of the tube is put on the breast at the nipple and the infant is offered the breast in the normal way so that the infant attaches properly. Sometimes at the beginning the mothers find it better to attach the tube to the breast with some tape.
- When the infant suckles on the breast, with the tube in his mouth, the milk from the cup is sucked up through the tube and taken by the infant. It is like taking a drink through a straw.
- Initially someone can help the mother by holding the cup and the tube in place. Once it becomes familiar the mother can do it alone.
- First place the cup should be placed at about 5 to 10cm below the level of the nipple so the milk does not flow too quickly and distress the infant. And the weak infant does not have to suckle excessively to take the milk.
- As the infant becomes stronger the cup should be lowered progressively to about 30cm below the breast.
- It may take one or two days for the infant to get used of the tube and the taste of the mixture of milks, but it is important to persevere. By far the best person to show the mother the technique is another mother who is using the technique successfully. Once one mother is using the SS technique successfully the other mothers find it quite easy to copy her.
- The mother should be relaxed. Excessive instructions about the correct positioning or attachment positions often inhibit the mothers and make her think the technique is much more difficult than it is.
- Ensure there is a quiet place to be able to do this away from other children and distractions
- If the therapeutic milk is changed (e.g. F-75 to Diluted F-100) the infant may take a few days to become used to the new taste. It is preferable to continue with the same supplementary diet throughout the treatment.
- Wash the tube with clean water (using a syringe). Spin rapidly to remove the water in the lumen. If convenient the tube is then left exposed to direct sunlight.



5.5 Expressing milk by hand

- Step 1:** Wash your hands thoroughly and clean the container in boiling water to sterilise it
- Step 2:** Sit comfortably and hold the container near your breast.
- Step 3:** Put your thumb on the breast above the nipple and areola, and your first finger on the breast below the nipple and areola, opposite the thumb. Support the breast with your other fingers.
- Step 4:** Press your thumb and first finger slightly inwards towards the chest wall. Avoid pressing too far because that can block the milk ducts.
- Step 5:** Press your breast behind the nipple and areola between her finger and thumb. Press on the lactiferous sinuses beneath the areola (see above). Sometimes in a lactating breast it is possible to feel the sinuses. They are like pods or peanuts. If she can feel them, she can press on them.
- Step 6:** Press and release, press and release. This should not hurt - if it hurts, the technique is wrong. At first no milk may come, but after pressing a few times, milk starts to drip out. It may flow in streams if the oxytocin reflex is active.
- Step 7:** Press the areola in the same way from the sides, to make sure that milk is expressed from all segments of the breast. Avoid rubbing or sliding her fingers along the skin. The movement of the fingers should be more like rolling. Avoid pinching the nipple itself. Pinching or pulling the nipple cannot express the milk.
- Step 8:** Express one breast for at least 3 - 5 minutes until the flow slows; then express the other side; and then repeat both sides. Change hands to prevent from getting tired.
- Step 9:** Store breastmilk in a container which has been sterilised in boiling water. Store in a cool place for 6-8 hours or up to 72 hours in a Fridge.

Use cup feeding not a bottle

- Cups are easy to clean with soap and water if boiling is not possible.
- A cup does not interfere with suckling at the breast
- Less risk of diarrhoea

How to cup feed:

- Wash your hands with clean water and soap
- Wash the cup with boiling water and soap before putting the liquid feed (F-75 or other) in it
- Place 1 feed into the cup.
- Hold the baby sitting upright or semi-upright on your lap. Put a clean cloth or bib under the baby's chin to keep the baby clean or hold a saucer under the cup to catch any spills.
- Hold the cup of liquid feed to the baby's lips at a slight incline, so the baby can drink in little sips. Do not pour the feed into the baby's mouth to help the baby or to have the baby drink more quickly.
- When the baby has had enough to drink, the baby will close his/her mouth and not take any more. If the baby has not taken enough, move up the time of the next feeding.
- After an hour, throw away any liquid feed the baby did not consume



5.6 SAM Treatment for under 6 months with no option to breastfeed

Table 30. 30 Under 6 months with no option to breastfeed

	Inpatient <6months Admission and Discharge Criteria With no option to breastfeed
Admission	Any pitting oedema Any serious clinical condition or medical complication as outlined for infants who are 6 months of age or older with severe acute malnutrition; OR Recent weight loss or failure to gain weight (by serial measurement of weight during growth monitoring i.e. change in weight for age) OR Any serious medical or social issue needing more detailed assessment or intensive support (e.g. disability, depression of the caregiver, or other adverse social circumstances)
Discharge	All clinical conditions or medical complications, including oedema, are resolved, and The infant has good appetite, is clinically well and alert

Step 1: Prepare F-100 dilute (or F-75 if they have oedema) according to body weight

Step 2: Transition from Acute Phase to Transition when the complications have resolved (same as for >6months) and there is no sign of oedema.

Step 3: During the Recovery Phase the infant should transition on to milk from the milk bank or generic infant formula.

Step 4: Make sure you discuss the appropriate use of breastmilk substitutes with the carers (see below Use of breast milk substitutes)

Table 31. Therapeutic milk for Under 6month (F-100 dilute)

Weight (kg)	Acute Phase Diluted F-100* or Infant Formula (8 feeds a day)	Transition Phase Diluted F-100* or Infant Formula (8 feeds a day)	Recovery Phase ml of Diluted F-100 / infant formula per feed (6 feeds/day)
≤ 1.5	30	40	60 ml
1.6 – 1.8	35	45	70
1.9 – 2.1	40	55	80
2.2 - 2.4	45	60	90
2.5 - 2.7	50	65	100
2.8 – 2.9	55	75	110
3.0-3.4	60	80	120
3.5 – 3.9	65	85	130
4.0 – 4.4	70	95	140

* Children less than 6 months with oedema should be on F-75 and not on F-100 dilute.

Discharge and Follow Up

- It is essential that the child has access to generic infant formula until the age of 6 months when complementary feeding is introduced
- Instruction must be given the carers on how to safely prepare infant formula
- Access to adequate water source
- Need access to cooking and feeding equipment
- Caretakers should be discouraged from over diluting infant formula or using powdered milk which is not infant formula.
- These infants should be followed up by the health centre and community volunteer.
- IYCF counselling with messaging on age-appropriate complementary feeding at weaning must be provided

Transition Phase

- If the infant has been taking F-75 during the acute phase then this is changed to infant formula or F-100 diluted during the transition Phase

5.7 Safe use of breast milk substitutes

Children who are discharged with no option of breastfeeding should be prescribed commercial infant formula. Below are the essential messages, which should be given to the carers. The caregiver should demonstrate knowledge and appropriate practices before discharge:

- Infant Formula must be made with hot water (at least 70 degrees) to avoid bacteria growth. Bring the water to a rolling boil for at least 2 minutes. If possible prepare the water for the whole day and keep covered until used.
- Keep the formula in a sealed container
- Prepare according to manufacturer instructions
- Wash hands before preparing and feeding
- Only prepare one feed at a time. Use within one hour.
- Use a cup to feed – infants learn quickly how to do this. Do not use bottles to feed as they are hard to keep clean and carry risk of infection.
- Discuss the cost of the formula the average amount required is 3.5kg per child per month
- Refer to health facility if the caregiver is struggling to obtain the formula.

AFASS

Health Workers should assess whether the following conditions are formula milks are to be given safely to infants:

ACCEPTABLE: The mother or caregiver perceives no problem in replacement feeding. Potential problems may be cultural, social, or due to fear or stigmatisation

FEASIBLE: The family has adequate time, knowledge, skills, resources and support to correctly prepare the formula milk and feed the infant up to 12 times in 24 hours

AFFORDABLE: The mother and family can afford to pay the cost of the replacement feed without risking the health or nutrition status of the family.

SUSTAINABLE: Availability of continuous supply of all ingredients needed for up to one year of age.

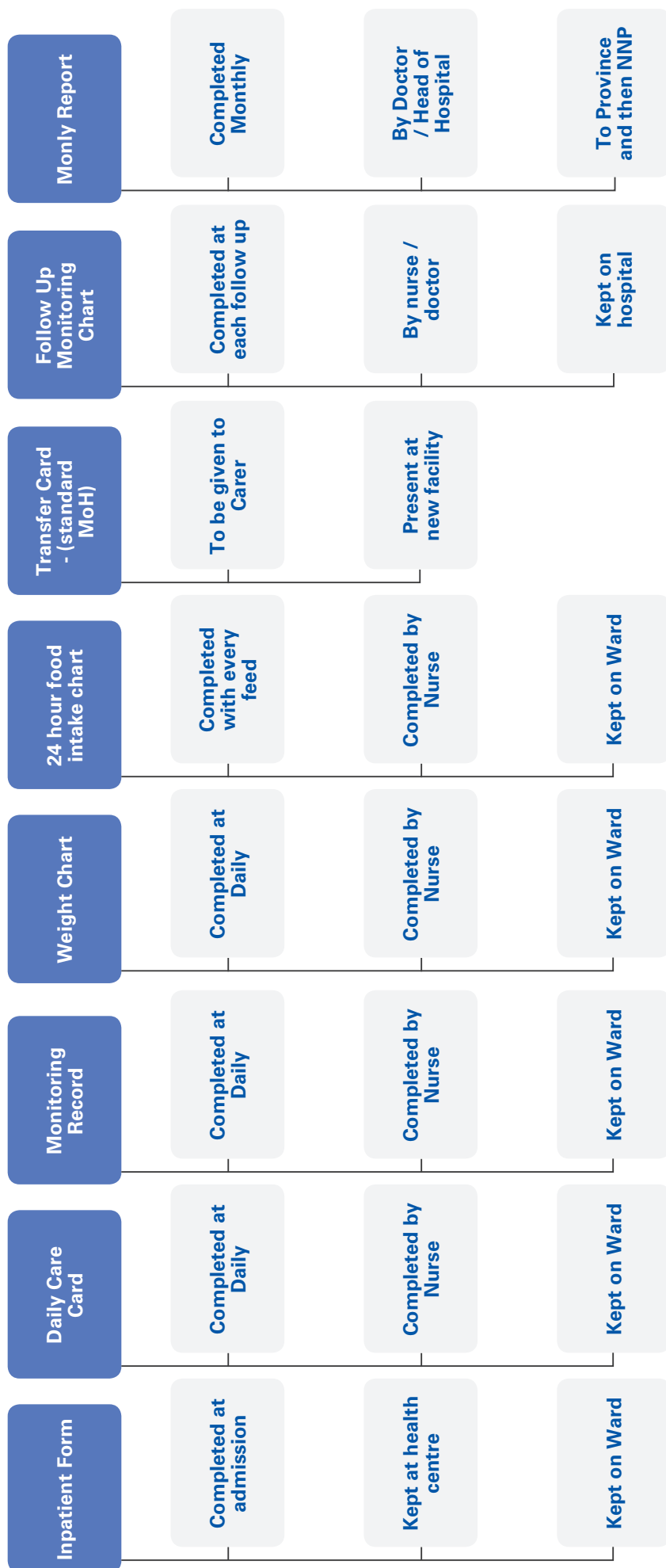
SAFE: Replacement milk feed is correctly and hygienically prepared and stored by cup

5.8 Management of HIV-infected children with SAM

1. Test all children with SAM for HIV where HIV prevalence is more than 1% to determine HIV status and need for ARV treatment.
2. Start SAM treatment on admission and start ARV drugs as soon as possible once the child has stabilised and transitioned to rehabilitation phase – this would be indicated by return of appetite and resolution of severe oedema - to diminish the risk of serious side effects from the ARV drugs.
3. In children with HIV who are not responding to SAM treatment – start ARV after 2 weeks of SAM treatment with F-75 and identify other possible causes for failure to respond.
4. HIV-infected children with severe acute malnutrition should be given the same antiretroviral drug treatment regimens, in the same doses, as children with HIV who do not have severe acute malnutrition.
5. Children with severe acute malnutrition who are HIV infected should be managed with the same therapeutic feeding approaches as children with severe acute malnutrition who are not HIV infected.
6. If in HIV infected children persistent diarrhoea does not improve with standard management, carbohydrates intolerance or other infective causes of diarrhoea common in immuno-compromised individuals should be investigated as they require different management such as modification of fluid intake or antibiotics.
7. HIV-infected children with severe acute malnutrition should receive a high dose of vitamin A on admission (50, 000 IU to 200, 000 IU depending on age) and zinc for management of diarrhoea, as indicated for other children with severe acute malnutrition, unless they are already receiving F-75, F-100 or ready-to-use therapeutic food, which contain adequate vitamin A and zinc if they are fortified following the WHO.
8. HIV-infected children are likely to have HIV-infected parents; additional support needs to be available, as the parent will suffer recurrent illness. During these illnesses the parent might not be able to care for the malnourished child. Community mobilization and support, as well as local NGOs, can be invaluable in these circumstances. Similarly, children with acute malnutrition living in child-headed households after parents have died from HIV/Aids need extra attention.

HIV infected children with severe acute malnutrition who are started on antiretroviral drug treatment should be monitored closely (inpatient and outpatient) in the first 6–8 weeks following initiation of antiretroviral therapy, to identify early metabolic complications and opportunistic infections.

5.9 Inpatient Monitoring and Reporting



5.10 Inpatient Tools and Supplies

Table 32. Tools and Supplies for inpatient treatment of SAM

Diagnostic tools	Medical Supplies	Other Supplies
MUAC tapes Weighing scale 100g and also 10g precision plus baby scale Height/Length board W/H chart Thermometer	Sugar for Sugar solution	Files/Binders IEC materials for nutrition, IYCF and health education Calculator Print outs of all patient forms Protocols/Guidelines: IYCF Malaria HIV/AIDS TB IMCI Bed Nets
	F-75, F-100, RUTF	
	Drugs: Oral Amoxicillin-IV/IM Benzyl Penicillin- Oral Ampicillin- IV/IM Gentamicin – IV/IM Cefotaxime or Ceftriaxone – IV/IM	
	ReSoMal	
	Vitamin A	
	Measles Vaccine	
	Routine Malaria drugs [see Treatment Protocol and Malaria Guidelines]	
	Anti Fungal cream	
	Tetracycline and Atropine	
	Dressings/Tape	
	Ng tubes ch 5 -8	
	Examination tools (stethoscope, oroscope etc)	
	Milk preparation: Thermometer, kettle, cups, spoons	

5.11 Supportive Supervision

Supportive Supervision is an essential part of the training and should be carried out regularly to improve the quality of the service provided. Purpose of Supportive Supervision:

- Builds confidence
- Provides on the job training
- Mentors junior staff members
- Highlights any problems or training, capacity or supply gaps early so then can be addressed

Table 30. 30 Under 6 months with no option to breastfeed

	Supportive Supervision at the Hospital
Who carries it out	Central level Training Team / Nutrition Centre Senior Paediatricians
How	Observe the clinical staff carry out their assigned tasks then discuss what was observed and whether they carried it out successfully, it needs improvement or they did it incorrectly
When	Quarterly
Key Indicators	Anthropometric measurements and accurate medical assessment Routine Medicine and therapeutic feed dosage calculation Effective use of supplementary suckling technique Effective transition to RUTF and transfer to outpatient Appropriate messaging and advice given Monitoring and reporting carried out
Tools	Supportive Supervision Check List (Job Aid 42) IMAM Guidelines and Job Aids

5.12 Inpatient: Roles and Responsibilities

This is a list of the different tasks that need to be assigned and some guidance as to who could take responsibility.

During the planning phase each hospital should discuss the different roles and responsibilities and establish who will carry out the different activities.

Table 34. Inpatient - Suggested Roles and Responsibilities

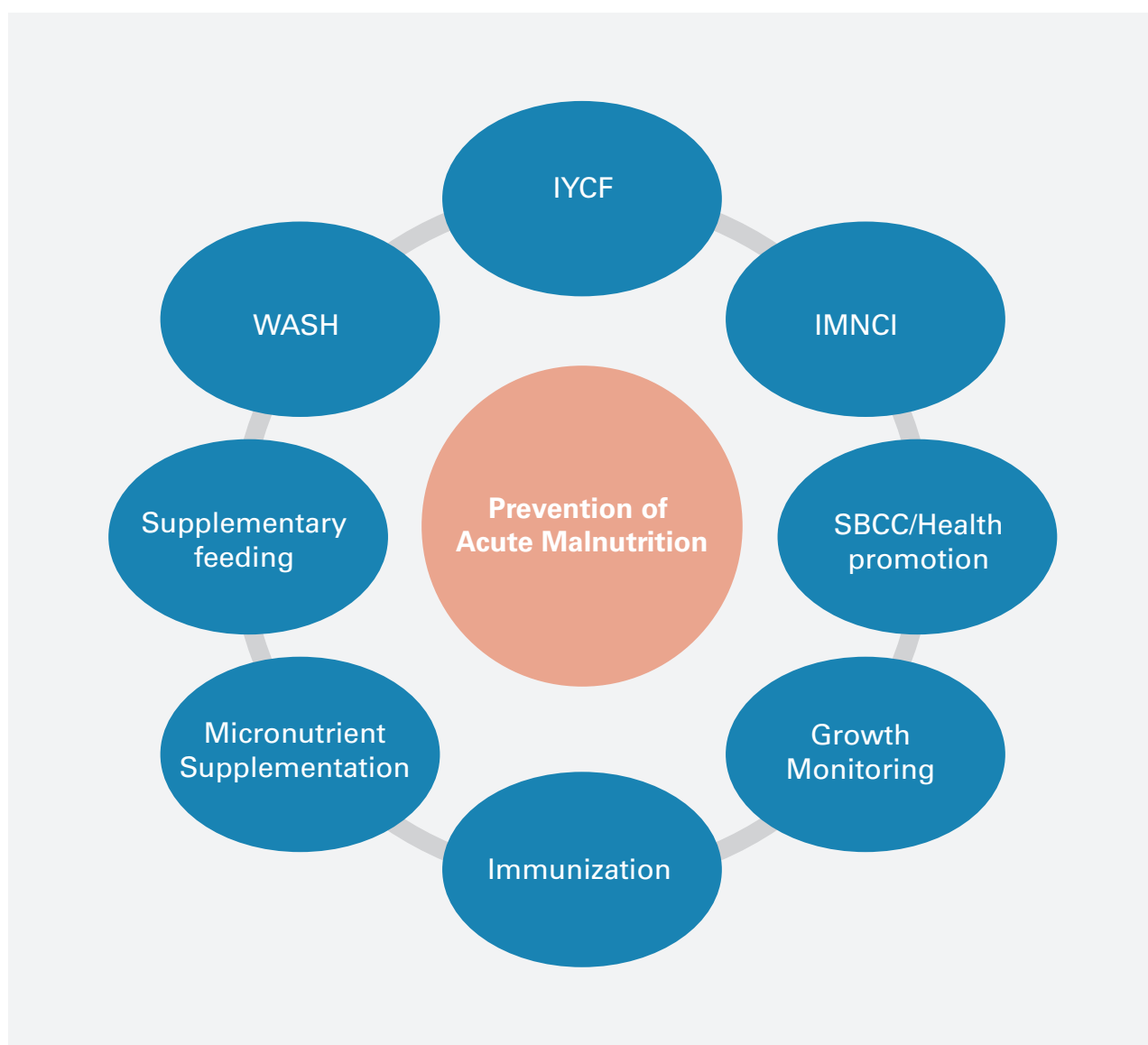
	Paediatrician	Resident Nutritionist	Nurse	Administration
Admission examination	✓	✓		
Admission complete forms		✓	✓	
Acute Phase – calculate diet		✓	✓	
Prepare F75		✓	✓	
IYCF Support		✓	✓	
Administer F-75		✓	✓	
Supplementary Suckling Support		✓	✓	
Nasal Gastric Feedings	✓	✓	✓	
Medical Assessment and Treatment	✓			
Patient Monitoring		✓	✓	
Asses transfer from acute to transition phase	✓	✓		
Calculate F100 / RUTF ration		✓		
Counsel on use of RUTF		✓	✓	
Prepare F100		✓	✓	
Administer F100		✓	✓	
Monitoring	✓	✓	✓	
Discharge	✓			
Management of Storage Supplies		✓		✓
Coordination meetings	✓	✓	✓	✓

CHAPTER 6: PREVENTION OF ACUTE MALNUTRITION THROUGH LINKAGES WITH OTHER INTERVENTIONS

6.1 Introduction

As part of broader sphere of prevention of acute malnutrition, linkages with other health and nutrition specific as well as nutrition sensitive interventions is very essential. This is due to the fact that acute malnutrition is not only caused by inadequate dietary intake but other essential elements such as lack of optimal health care, immunizations, good hygiene, sanitation etc.

Diagram 20: Concept of convergence of nutrition specific and sensitive intervention in SAM prevention.



6.2 Suggested linkages

Within the context of Lao PDR, the following linkages will be explored at the various levels of service delivery;

- a. **Infant and Young Child Feeding (IYCF):** Appropriate feeding of infants and young children increases their chances of survival. It also promotes optimal growth and development, especially in the critical 1000 days window from conception to two years of age. When caregivers follow the IYCF protocol, the likelihood of their children developing acute malnutrition is significantly reduced. For children recovering from SAM, Nutrition Counseling is an integral part of SAM treatment. Caregivers should be re-assured that recovery is possible. Counseling enhances treatment compliance and may prevent relapse. IYCF package is a good entry point. The following messages should be reinforced during counseling;
 - Practice good hygiene- Hand washing with soap at critical times
 - Exclusively breastfeed infants 0-6months
 - Continue breastfeeding with appropriate complementary feeding of infants and young children from 6 up to 24 months
 - Practice frequent and responsive feeding
 - Identify locally available foods suitable for children 6 to 24 months
- b. **Integrated Management of New-born and Childhood Illnesses (IMNCI):** At the community level, prevention and management of severe acute malnutrition shall be linked to IMNCI to ensure that children with SAM are detected earlier and referred to various service delivery points before the conditions worsen.
- c. **Social Behavioural Change Communication (SBCC)/Health Promotion:** Communities with high SAM burden and vulnerable to acute malnutrition shall be targeted with health promotion and other SBCC messages. Caregivers will be targeted with messages that promote optimal nutrition, care practices and early health seeking behaviour for sick children including immunization.
- d. **Growth Monitoring:** For early detection of growth faltering that often leads to SAM, caregivers will be encourage to regularly send their children for weighing.
- e. **Immunization:** Timely vaccination of children builds their immunity against common childhood illnesses ensuring their protection and survival. Infection/illnesses could result in loss of appetite leading to malnutrition. As part of the IMAM programme, caregivers will be sensitized to avail their children for routine immunizations as part of the EPI schedule.
- f. **Micronutrient Supplementation:** Micronutrients are essential for child growth and development as well as boosting the immunity of children. Routine supplements such as Vitamin A is administered to children every 6 months. Deworming is also carried out periodically as part of anaemia control and prevention. As part of the IMAM programme, caregivers will be sensitized on benefits of micronutrients and the need to avail their children for such services.
- g. **Supplementary Feeding:** Where available, targeted supplementary feeding shall be promoted as a stop-gap measure to hunger among at risk populations.
- h. **WASH:** Optimal WASH behaviours and practices such as hand washing with soap, stopping open defaecation, improved household and community sanitation contributes significantly to reducing the incidence of diseases especially among children. As part of the IMAM programme, improved hygiene and sanitation shall be promoted.

CHAPTER 7: PLAY AND STIMULATION IN MANAGEMENT OF SAM

7.1 Introduction

Play and stimulation are very critical in the growth and development of children. It helps children discover and master their environment as well as create a feeling of comfort and re-assurance. It helps children develop their senses, express themselves and to cope with anxiety.

In therapeutic care, play and stimulation helps in the physical and emotional well being of children. It facilitates their recovery by minimizing the impact of unpleasant experiences by turning them into positive encounters.

Severely malnourished children have delayed mental and behavioural development, which, if not treated, can become the most serious long-term result of malnutrition. Emotional and physical stimulation through play programmes that start during rehabilitation and continue after discharge can substantially reduce the risk of permanent mental retardation and emotional impairment.

WHO recommends play and stimulation as part of nutritional rehabilitation of children with SAM who are mostly lethargic, withdrawn and easily irritated. It reduces the stress of treatment and unfamiliar environment whilst enhancing rehabilitation and return of appetite.

7.2 Types of play and stimulation

- **Diversional/recreational play:** commonly used for personal enjoyment, to combat boredom, and to facilitate normalization
- **Developmentally supportive play:** supports any and all aspects of the child's development especially neuro-motor development
- **Therapeutic play:** facilitates expression, coping and mastery of the healthcare experience and achievement of healthcare goals.

7.3 Benefit of play and stimulation in therapeutic rehabilitation

- Play in the hospital ensures a type of connection with the familiar, friendly environment of home.
- Helps to create a continuity of everyday life.
- Provides a way out of all negative feelings and disappointment that may possibly accompany a child upon hospital admission or nutrition rehabilitation, while that may be 'transformed' through play
- Reduces distress and anxiety, while developing respect for other people's views and feelings.
- Helps children maintain their self-esteem and confidence, and, thus, feel that they may have control of the entire situation.
- Encourages the participation of parents and other family members. Thus, children achieve a stronger feeling of normality and continuation of their past life, while alleviating parents' anxiety.

- Facilitates communication among children. Play is an excellent means of communication and development of social relationships and mutual assistance.
- Reduces regression, i.e., return to previous stages of development. Such regression among children may be shown by behaviours such as continuous crying, continuous search for parental care, outbursts of anger, and aggression. Play gives a way out of repressed desires, anxiety, and fear, and allows children express themselves in a more creative and pleasant way.

7.4 Tips for play and stimulation with children

a. Infant (< 12 months)

- Listening to music such as lullabies
- Providing familiar toys and objects from home such as stuffed animals, music, blankets and rattles
- Creating a visually stimulating environment during an inpatient stay with mirrors, mobiles and brightly colored crib toys
- Offering rattles, rings and keys
- Placing toys to encourage kicking, rolling and crawling

b. Toddler (12-23 months)

- Providing familiar toys and objects such as stuffed animals, movies, music and blankets
- Listening to favourite music
- Watching favourite movies or cartoons
- Scribbling with crayons and paper
- Stacking blocks games
- Reading books with adults
- Painting

c. Preschool (24-59 months)

- Playing with familiar toys and objects such as blankets, pillows, stuffed animals, dolls, movies, music and clothes
- Listening to favorite music
- Watching favorite movies or cartoons
- Playing board games
- Drawing with crayons and paper
- Reading with an adult
- Counting objects
- Building with blocks
- Participating in group activities with peers
- Playing with puppets and dolls, and playing house

d. School-age

- Playing with familiar toys and objects such as blankets, pillows, stuffed animals, dolls, movies, music and clothes
- Listening to favourite music
- Watching favourite movies or cartoons
- Playing board games and card games
- Playing video games
- Reading
- Putting together puzzles
- Doing arts and crafts
- Participating in group activities with peers

7.5 Play and stimulation in IPD

- Paediatric wards should be as child friendly as possible with fanciful paintings and drawings. The atmosphere in the ward should be relaxed, cheerful and welcoming.
- Hospital management should make conscious effort to provide play and stimulation items for the children's/paediatric wards
- Children with SAM should be treated with special care and attention to minimize the unpleasant experience they might be going through
- Children with SAM may draw attention from other patients and caregivers due to their condition. Efforts should be made to prevent others from scolding or ridiculing them
- Clinical staff should be gentle, smile and play with kids when administering services. Immediately after any unpleasant procedure the child should be held and comforted.
- The caretaker should be with her child in hospital to feed, hold, comfort and play with her child.
- After the initial phase of treatment, the child should spend prolonged periods with other children on large play mats, and with the caretaker or a play guide.
- Play and stimulation items should be regularly cleaned and possibly disinfected regularly
- Playing spaces and floors should also be disinfected regularly to minimize the risk of cross-infection
- One person, usually a nurse or volunteer, should be responsible for developing a curriculum of play activities and for leading the play sessions. Caretakers can be trained to supervise play sessions.

7.6 Play and Stimulation in OPD

- Children with SAM without medical complications could benefit from play and stimulation at home and in their communities.
- Parents/caregivers should be encouraged to play indoor and/or outdoor games with their children.
- Parents/caregivers should encourage play with other children at home and in their neighbourhood without any restriction. Physical activities promote the development of essential motor skills and may also enhance growth during rehabilitation.

CHAPTER 8: SUPPLY FORECASTING AND STOCK MANAGEMENT

8.1 How to Forecasting Caseload

Forecasting supplies is an essential part of ensuring that SAM cases can be treated in a timely way at both the health centre and the hospital level.

Rural Health Centres, District and Provincial Health Offices are responsible for:

1. Forecast caseloads of SAM
2. Supply Requests
3. Stock Management

Central and Province level will support the initial forecasting procedures to ensure adequate accurate estimates are made enable regular stock supplies, avoiding stock outs and supplies, which are not used.

	Supply	Stock Management
Health Centre	Provide screening data	Compile all Province Supply Request
		
District HO	Forecast caseload and supply demand. Make a Supply Request	Receipt of supplies, manage storage and distribute to health centres on a quarterly basis
		
Province HO	Compile all District Supply Requests	Receipt of supplies and Distribute to District immediately
		
Nutrition Centre	Compile all Province Supply Requests, purchase and manage	Receipt of supplies and Distribute to Province

8.2 How to Forecast Caseload

The number of SAM cases requiring outpatient treatment and inpatient treatment needs to be calculated using the prevalence of SAM in each area/Province.

Once the caseload figure / number of expected SAM cases has been calculated the number of supplies required can be worked out using table 36.

The caseload is for a 1-year period.

Table 35. IMAM Caseload Calculations

Calculation for Caseload of Outpatient treatment of SAM non complicated	Calculation for Caseload of Inpatient treatment of SAM with complicated
Calculation for Caseload of Outpatient treatment of SAM non complicated: SAM Burden = {(Prevalent Cases (A)+Incident Cases (B))} (A) Prevalent Cases = Present cases A = (% of 6-59mths) X (Area population) X (%SAM Prevalence) (B) Incident Cases = Future cases B= Prevalent cases (A) X Incidence correction factor * Incidence correction factor =1.6 SAM Caseload (C) = SAM Burden X National Coverage Target for SAM (T) * A National Coverage Target of 50% is recommended Example - Attapeu Province Total Population 185,000 Children 6-59 months = 13% SAM Prevalence = 1.4% National Target = 50% 1. Target Children = 185,000 X 13% =24,050 2. Prevalent cases = 24,050 X 1.4% = 336.7 = 337 3. Incident cases = 337 X 1.6 = 539.2 = 540 4. SAM Burden = 337 + 540 = 877 5. SAM Caseload = 877 X 50% = 438.5 = 439	Calculation for Caseload of Inpatient treatment of SAM with complicated: During the start up of the programme there may be a larger number of cases which require stabilization in Inpatient care Once the programme is established fewer cases are expected to require inpatient care and therefore the number of SAM cases requiring inpatient treatment will reduce Usually, 10 – 15% of SAM children may require inpatient care.

Key Consideration:

- Use same reference populations across country/provinces/districts
- Use same reference population distribution and targets
- Use same reference SAM prevalence rate across country/provinces/districts
- In the absence of data for lower levels, use next level data

Table 36. IMAM Supply Calculations**Required information:**

- Target population or caseload
- Quantity required for individual treatment
- Buffer stock—usually a percentage of actual requirement (%)

Supply	Quantity	Calculating Requirements
RUTF 92g Sachet 150 pers carton	136 sachets/child	Total Required = Caseload X Quantity required/ individual X Buffer
F-75 400g Tin 24 per carton	1200g/child	
F-100 400g Tin 24 per carton	456g/child	
ReSoMal 42g Sachet (1litre) 100 per carton	8.4g/child	

Additional items need for in patient treatment such as second and third line antibiotics, saline solution and NSG as well as vaccines and routine supplementation are not included here as they are included on the regular hospital supply and stock management.

8.3 Stock Management

Appropriate supplies for SAM treatment should be kept at health centre, district and hospital level. A buffer of 3 months should be kept at rural health centres.

The Divisional Health Office is responsible for ensuring adequate supplies are available and have not expired ready for distribution to the health centres.

RUTF Storage Conditions

1. Products should be stored in clean, dry and cool conditions away from direct sunlight, well ventilated and sheltered from the rain. Metal cupboards are suggested as an appropriate storage solution at health centres. The room should be less than $<40^{\circ}$
2. The room should be regularly cleaned/disinfected.
3. Protected from rodents, and insects.
4. Do not stack RUTF higher than 2.4 metres
5. Secure – under lock and key.
6. Easily accessible in any season
7. Food commodities are separated from the non-food items.
8. Food products are put on wood-pallets 30cm from the wall.
9. Split bags are separated from the others.
10. Goods received and distributed are recorded.

Expiry Date

1. The shelf life of RUTF and therapeutic milk is 24 months. It is indicated on the label as Best Before Date. Always check the best before date and do not use after the date has passed. The product shelf life can be affected by the storage conditions.
2. High humidity and high temperatures accelerate the degradation processes of vitamins. Therefore, it is important to comply with instructions provided by the manufacturers when storing nutritional products. Sufficiently big to store enough (3 month at district level) stock.

A. List of essential reference materials

1. ACF Guidelines For the integrated management of severe acute malnutrition in and outpatient treatment 2011
2. C-MAMI tool, ENN 2015
3. CMAM Forum, How do we Estimate Case Load for SAM and MAM in children aged 6-59months in a given time period, Mark Myatt, June 2012
4. Collins et al (2006). Management of severe acute malnutrition in children. The Lancet. 2006; 368: 1992-2000.
5. CORTASAM (2018): A statement from the Council of Research & Technical Advice on Acute Malnutrition (CORTASAM)
6. Golden and Gellerty, Protocol Integrated Management of Acute Malnutrition, Version 6.6.2,
7. National Guidelines on the Management of SAM for children under 5, Philippines, 2015
8. WHO. Guideline: Updates on the management of severe acute malnutrition in infants and children Geneva: World Health Organization; 2013
9. WHO. MUAC: Utilization of mid-upper arm circumference versus weight-for-height in nutritional rehabilitation programmes: a systematic review of evidence. World Health Organization; 2013
10. WHO. Updated guideline: paediatric emergency triage, assessment and treatment. Geneva: World Health Organization; 2016.
11. Khara, T., & Dolan, C. (2014). Technical Briefing Paper: Associations between Wasting and Stunting, policy, programming and research implications. Emergency Nutrition Network (ENN) June 2014
12. Philippines SAM Manual of Operation 2016

B. List of accompanying IMAM materials

1. Job Aid for treatment of SAM in Out-Patient Department (Job Aid_OPD)
2. Job Aid for treatment of SAM in In-Patient Department (Job Aid_IPD)
3. Job Aid for IMAM Community Mobilization, Screening and Referral (Job Aid_Community)
4. Wall or Look Up Tables for OPD
5. Wall or Look Up Tables for IPD
6. IMAM Photo booklet
7. Training Slides for Out Patient Department
8. Training Slides for Community Volunteers
9. Facilitators Guide for Out Patient Department Training

C. List of IMAM look up tables

1. Poster 1: F-75 Reference Table
2. Poster2: F-100 Diluted Reference Table
3. Poster 3: F-100 Reference Table
4. Poster 4: IMAM Decision Making Tool
5. Poster 5: RUTF Look Up Table



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