REPUBLIC OF LEBANON
MINISTRY OF PUBLIC HEALTH

Lebanon NUTRITION SECTOR

World Health Organization Lebanon

UKaid from the British people

unicef for every child

# Lebanon national guidelines for the prevention and management of wasting and/or nutritional oedema

# Table of Contents

**CHAPTER 7:**



**CHAPTER 8:**

# ABBREVIATIONS

| | |
|---|---|
| **ANC** | Antenatal care |
| **CHW** | Community health worker |
| **GMP** | Growth monitoring and promotion |
| **IMCI** | Integrated Management of Childhood Illness |
| **IYCF** | Infant and young child feeding |
| **IV** | Intravenous |
| **kcal** | Kilocalorie |
| **MNP** | Multiple micronutrient powders |
| **MOPH** | Ministry of Public Health |
| **MUAC** | Mid-upper arm circumference |
| **ORS** | Oral rehydration solution |
| **PBW** | Pregnant and breastfeeding women |
| **PHC** | Primary health care |
| **PHCC** | Primary health care centre |
| **RUTF** | Ready-to-use therapeutic food |
| **SFF** | Specially formulated food |
| **UNHCR** | United Nations High Commissioner for Refugees |
| **UNICEF** | United Nations Children's Fund |
| **UNRWA** | United Nations Relief and Works Agency for Palestinian Refugees in the Near East |
| **WAZ** | Weight-for-age z-score |
| **WFA** | Weight-for-age |
| **WFH** | Weight-for-height |
| **WFL** | Weight-for-length |
| **WHO** | World Health Organization |
| **WHZ** | Weight-for-height z-score |
| **WLZ** | Weight-for-length z-score |

# FOREWORD

The Government of Lebanon, through the Ministry of Public Health (MOPH), recognizes the importance of preventing, screening and treating wasting and nutritional oedema and is committed to delivering the appropriate services. These guidelines are the result of a collaborative effort among experts in the field, providing essential minimum standards, comprehensive recommendations and strategies for addressing malnutrition in different health-care settings. They specifically focus on the prevention and management of wasting and nutritional oedema in children under 5 years of age, as well as in pregnant and breastfeeding women.

The guidelines provide recommendations on the screening and management of wasting and nutritional oedema in line with the 2023 WHO global guidelines on acute malnutrition and building on Lebanon's *2017 National Guidelines for the Management of Acute Malnutrition*. The guidelines have been adapted to the Lebanese context to enhance care, optimize resources and improve service delivery. They are intended to help health-care providers integrate the principles of wasting prevention and management into their practice and decision-making and further improve the quality of nutrition service delivery and health outcomes.

The MOPH, in collaboration with all partners involved, is committed to supporting the operationalization of these guidelines through building the capacity of service providers at health facility and community levels to deliver effective health and nutrition services. The MOPH is further appealing to primary health-care managers and hospital directors to support the implementation of these guidelines.

# ACKNOWLEDGEMENTS

The Ministry of Public Health (MOPH), with the support of the World Health Organization (WHO) in Lebanon and the United Nations Children's Fund (UNICEF) in Lebanon, developed these guidelines on the prevention and management of wasting and nutritional oedema to provide the minimum required standards for delivering a comprehensive set of nutrition interventions in the prevention, screening and treatment of wasting in children under 5 years of age and pregnant and breastfeeding women.

Sincere thanks go to the MOPH Primary Health Care Department, headed by Dr Randa Hamadeh, the Nutrition Department, headed by Ms Wafaa Houmani, and the Mother, Child and School Health Department, headed by Ms Pamela Zgheib, for facilitating the development and finalization of this guideline.

The MOPH acknowledges the inputs of the different organizations and experts who contributed their efforts and expertise to develop these guidelines.

***Development, editing and coordination***

- UNICEF Lebanon Country Office: Ms Ettie Higgins, Dr Amir Yarparvar and Mrs Joelle Najjar (core technical team); Ms Tamsin Walters and Mrs Rita Abi Akar, NutritionWorks (main consultants and contributors)
- UNICEF Middle East and North Africa Regional Office: Mrs Aashima Garg and Mrs Wigdan Madani
- WHO Lebanon Country Office: Dr Alissar Rady, Ms Edwina Zoghbi and Ms Yasmin Rihawi (core technical team); Dr Krystel Ouaijan and Dr Pia Kiwan (main consultants and contributors)
- WHO Eastern Mediterranean Regional Office: Dr Ayoub Al Jawaldeh and Dr Fekri Dureab

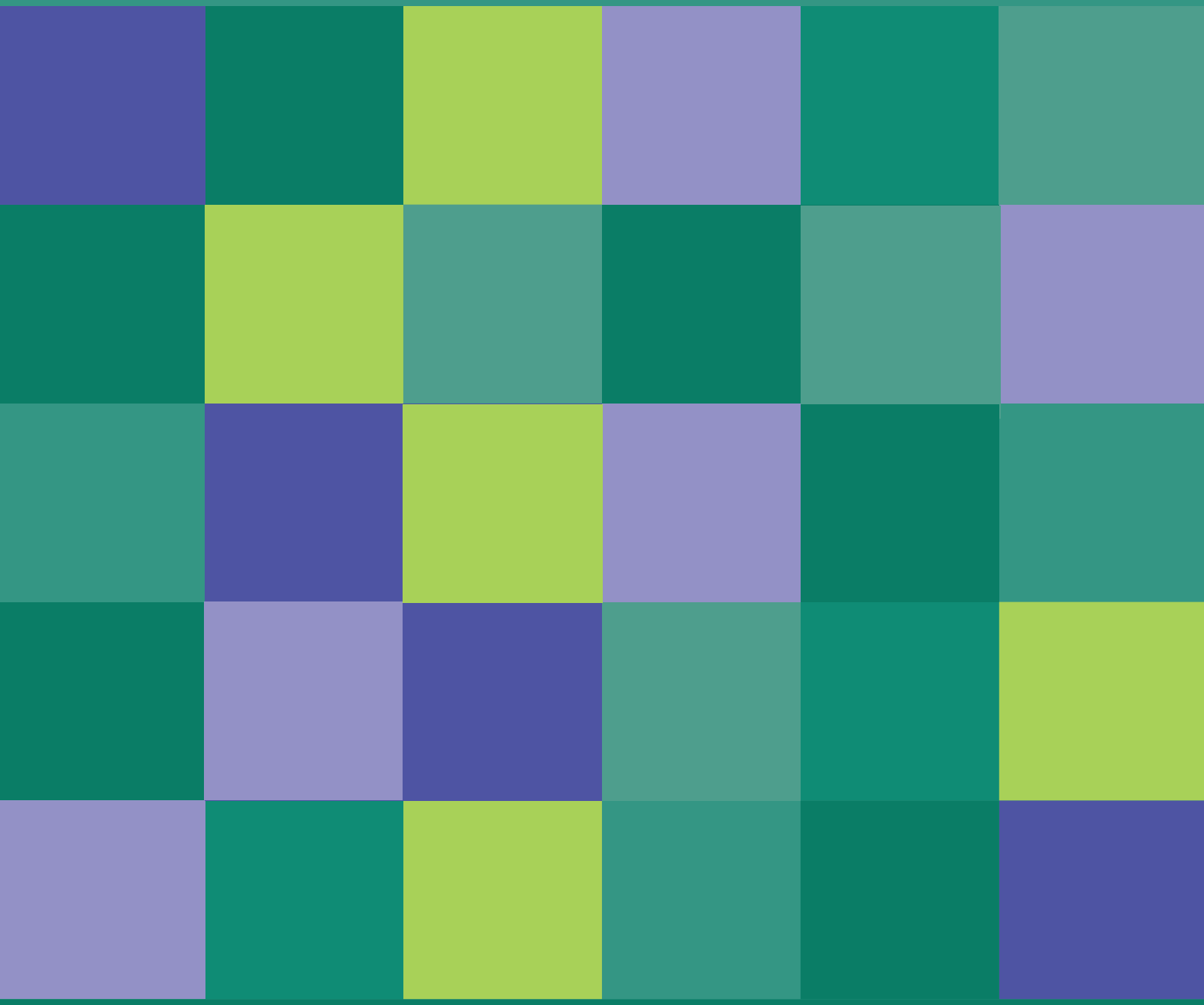
***Consultation and contribution***

Action Against Hunger (ACF), American University of Beirut (AUB), International Orthodox Christian Charities (IOCC), Lebanese Order of Dietitians, Lebanese Pediatric Society, Mercy USA, United Nations High Commissioner for Refugees (UNHCR), World Food Programme (WFP)

***Financial support***

This document was developed and printed with the financial contribution of the WHO and UNICEF Regional Offices and Country Offices in Lebanon.

# CHAPTER 1:
# INTRODUCTION



# INTRODUCTION

## 1.1 BACKGROUND

### *Country context*

Lebanon has been facing a multifaceted crisis marked by an economic collapse, political instability and widespread social unrest. This has led to soaring inflation, unemployment and a decline in essential services. The living conditions of the population have deteriorated alarmingly, leaving millions struggling to access basic necessities such as food, health care and clean water. In 2022, Lebanon was reclassified by the World Bank from an upper-middle-income country to a lower-middle-income country.[1] Lebanon's population stands at approximately 5.5 million people; the country hosts around 1.5 million Syrian refugees, 175,000 Palestinian refugees and 11,645 refugees of other nationalities. This makes it the country with the highest refugee caseload per capita globally.

### *Nutrition indicators at the national level*

The overall health system in Lebanon displays considerable resilience in the face of challenges and has maintained the population's access to health care services, prevented outbreaks, and kept maternal and child mortality at low levels.

However, the country is experiencing a growing triple burden of malnutrition (stunting combined with micronutrient deficiencies, plus obesity):

1. The prevalence of stunting among children under 5 has doubled since 2021, rising from 7 per cent to 13.9 per cent in 2023, indicating a significant increase in chronic malnutrition.
2. Younger children are more affected with wasting (6 per cent among those under 6 months).
3. Malnutrition patterns stem from restricted access to quality diets, practices and services. Approximately 60 per cent of households experience food insecurity.
4. Overweight and obesity pose a serious public health issue, affecting one-third of adolescent girls and half of non-pregnant women; prevalence increases with age, affecting almost 75 per cent of women aged 40 to 49.

The Lebanon Integrated Micronutrient, Anthropometric and Child Development (LIMA) survey revealed that most indicators for infant and young child feeding (IYCF) are suboptimal, with exclusive breastfeeding decreasing by 30 per cent since 2021. Nearly 50 per cent of children between 6 and 23 months do not meet minimum meal frequency, 74 per cent do not achieve minimum dietary diversity, and 90 per cent fall short of the minimum acceptable diet recommendation.

At the national level, MOPH recorded high numbers of new admissions in the wasting treatment programme in 2023 and 2024, exhibiting a concerning increasing trend over time. In 2023, 3,856 moderate wasting cases and 2,357 severe wasting cases among children aged 0–59 months and 2,009 wasting cases among pregnant and breastfeeding women (PBW) were identified, representing an increase of 32, 25 and 41 per cent respectively from 2022. There is concern that these numbers will rise due to the continuous deterioration of food security in the country and instability resulting from various political and economic crises at the national level and in the region.

## 1.2 PURPOSE OF THE GUIDELINES

These guidelines aim to provide recommendations to health-care providers for the prevention, screening, referral, management and follow-up of wasting and nutritional oedema in infants and children under 5 years, as well as in PBW. The recommendations are based on WHO definitions and growth standards.

The guidelines are a revision of Lebanon's *2017 Nation Guidelines for the Management of Acute Malnutrition*, updated following the release of the 2023 *WHO Guideline on the Prevention and Management of Wasting and Nutritional Oedema (Acute Malnutrition) in Infants and Children under 5 Years*.

1 https://www.worldbank.org/en/country/lebanon/overview.

The following sections have undergone revision from the Lebanon 2017 guidelines:

- Identification of infants less than 6 months at risk of poor growth and development
- Management of moderate wasting in children aged 6-59 months
- Engagement of community health workers (CHWs) in the management[2] of wasting in children aged 6-59 months
- Updating of the services that address prevention of wasting
- Identification of criteria for hospital admission for infants and children aged 0–59 months
- Emphasis on breastfeeding and maternal support in the management of wasting in infants aged less than 6 months in hospitals
- Unification on the use of specially formulated foods in the management of wasting

## 1.3 TARGET AUDIENCE OF THE GUIDELINES

These guidelines are primarily for the use of health-care providers, including health facility managers, physicians, nurses, midwives, dietitians and community health workers. The guidelines specific to the management of wasting and nutritional oedema should primarily be implemented in primary health care centres (PHCCs) and hospitals where the required levels of resources, training and supervision support are provided to deliver the service in a safe and effective manner. Follow-up post-discharge can also be carried out in the community by trained CHWs under the supervision of PHCCs. Prevention activities should be implemented in all settings, including in the community, by trained CHWs.

Non-governmental organizations (NGOs), UN agencies (and their partners), and other nutrition actors or providers of health and nutrition services should also use these guidelines when implementing programmes focused on the prevention or management of wasting and nutritional oedema in Lebanon.

## 1.4 GUIDING PRINCIPLES OF THE GUIDELINES

Management of wasting follows a child health approach, meaning that wherever a child presents themself, they should get *all* the services they need. The guiding principles of this approach are shown in Figure 1 and include six elements:

1. **Child health approach** – Putting the child's health, growth and development at the forefront. It is vital to consider that children are part of a family and household and that the impacts on their family must also be taken into consideration. These guidelines advocate for services to meet the child's needs wherever they are in the health system, with appropriate, cohesive and timely care given throughout the care pathway.

2. **Gender equity** – Globally, women are predominantly the primary caregivers of malnourished children. The promotion of gender equity is therefore central to the prevention and management of wasting. This means recognizing and taking into account power structures, gender norms, gender violence, access to and ownership of resources, and experiences with health and nutrition services.

3. **Caring for the mother/caregiver–infant pair** – Mothers/caregivers and infants are interdependent. Evidence-informed care that meets the needs of both the mothers/caregivers and their infants is vital and recognizes that the health and well-being of one is intimately linked to the health and well-being of the other.

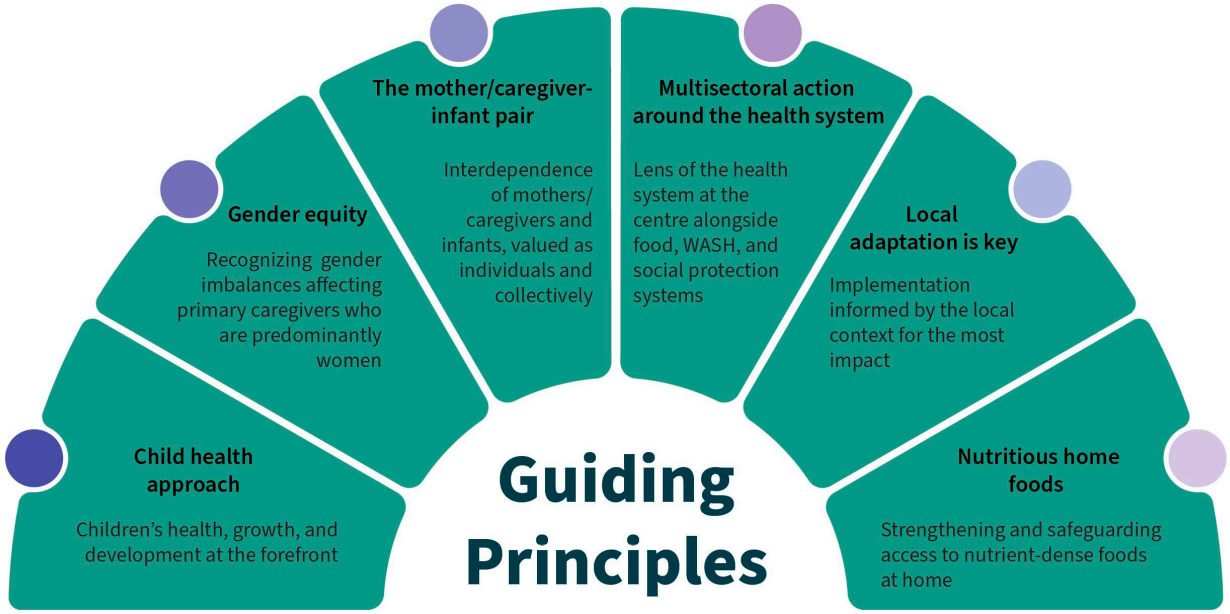
4. **Multisectoral action around the health system** – The health system needs to be central to where children and their families access services for the prevention and management of wasting. Effective referral and the utilization of community platforms are also key to the success of this approach. However, the prevention and management of wasting must involve other systems besides the health system, such as the food, water and sanitation, and social protection systems, for true and sustainable impact.

5. **Local adaptation** – Implementation of these guidelines should be informed by the local context, including the prevalence and incidence of wasting and other childhood illnesses; the values and preferences of families and health workers; the equity, acceptability and feasibility of interventions; the availability of resources; and the anticipated cost-effectiveness. Special consideration should be given to humanitarian crises and the importance of reviewing any adaptations made as crises evolve and/or stabilize.

2 With the condition that they are adequately trained and receive ongoing supervision and support.

6. **Nutritious home foods** – Emphasizing the importance of access to diverse, locally available and nutrient-dense foods that constitute a healthy diet is integral to prevention of wasting, management of moderate wasting and recovery from severe wasting. Access to these nutrient-dense foods at home needs to be strengthened in many contexts and safeguarded in others to ensure both health and environmental sustainability.

**Figure 1: Guiding principles of the guidelines**



# CHAPTER 2:

# OVERVIEW OF WASTING AND NUTRITIONAL OEDEMA AND AVAILABLE SERVICES IN LEBANON

# OVERVIEW OF WASTING AND NUTRITIONAL OEDEMA AND AVAILABLE SERVICES IN LEBANON

This chapter provides a brief overview of the factors contributing to the development of wasting and/or nutritional oedema and their physiological consequences. It also outlines the structure of service provision for the prevention and management of wasting and/or nutritional oedema in Lebanon and the key elements to maintain a quality service. The classification of wasting and the recommendations for treatment are based on the physiology of malnutrition.

The term malnutrition addresses three broad groups of conditions:

- Undernutrition, which includes wasting and nutritional oedema, stunting, and underweight
- Micronutrient-related malnutrition, which includes micronutrient deficiencies or micronutrient excess
- Overweight, obesity and diet-related noncommunicable diseases

These guidelines address the prevention and management of wasting and nutritional oedema as one form of undernutrition.

## 2.1 DETERMINANTS OF MATERNAL AND CHILD NUTRITION

The UNICEF 2020 conceptual framework of the determinants of maternal and child nutrition illustrates the factors that contribute to good nutrition and should be supported, including through services and advice given by health professionals to families and caregivers of infants, children, and pregnant and breastfeeding women, to prevent malnutrition (Figure 2).

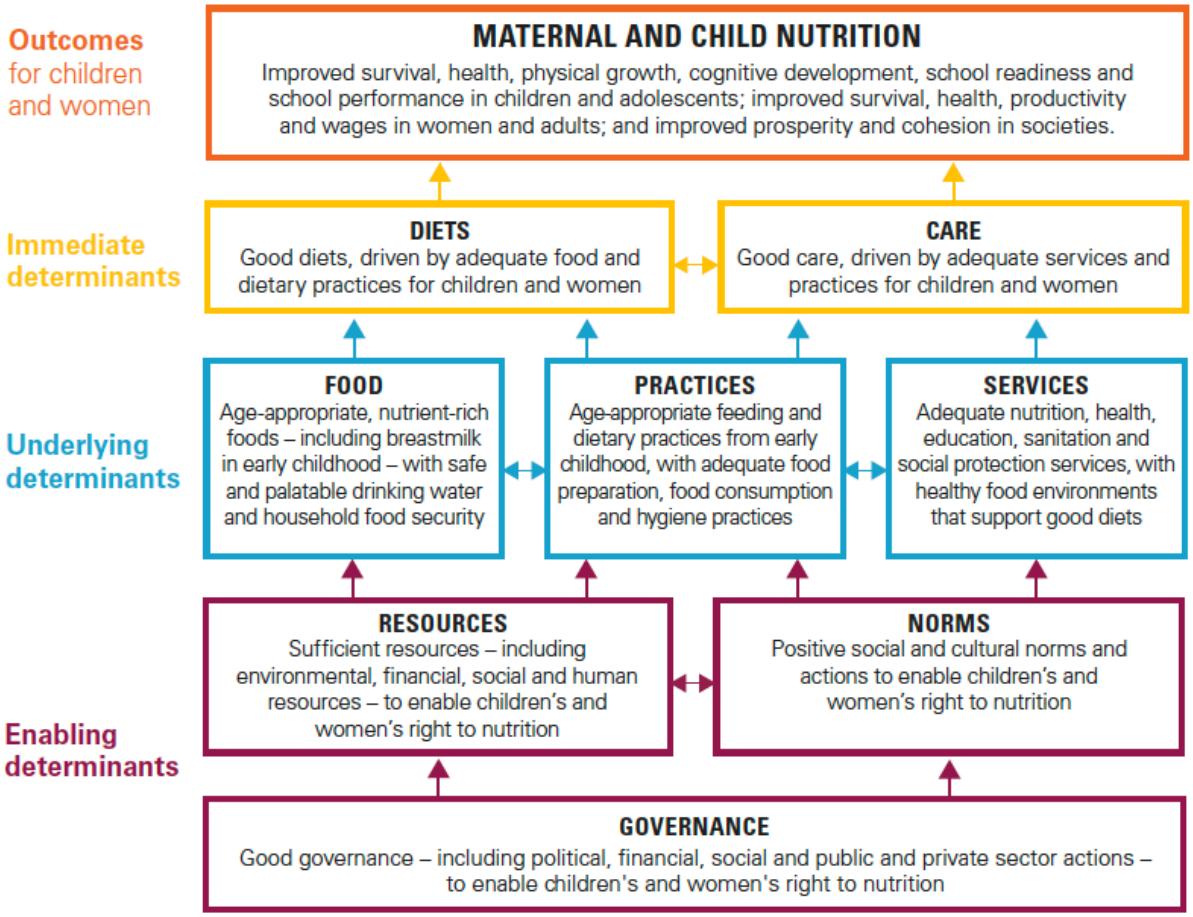
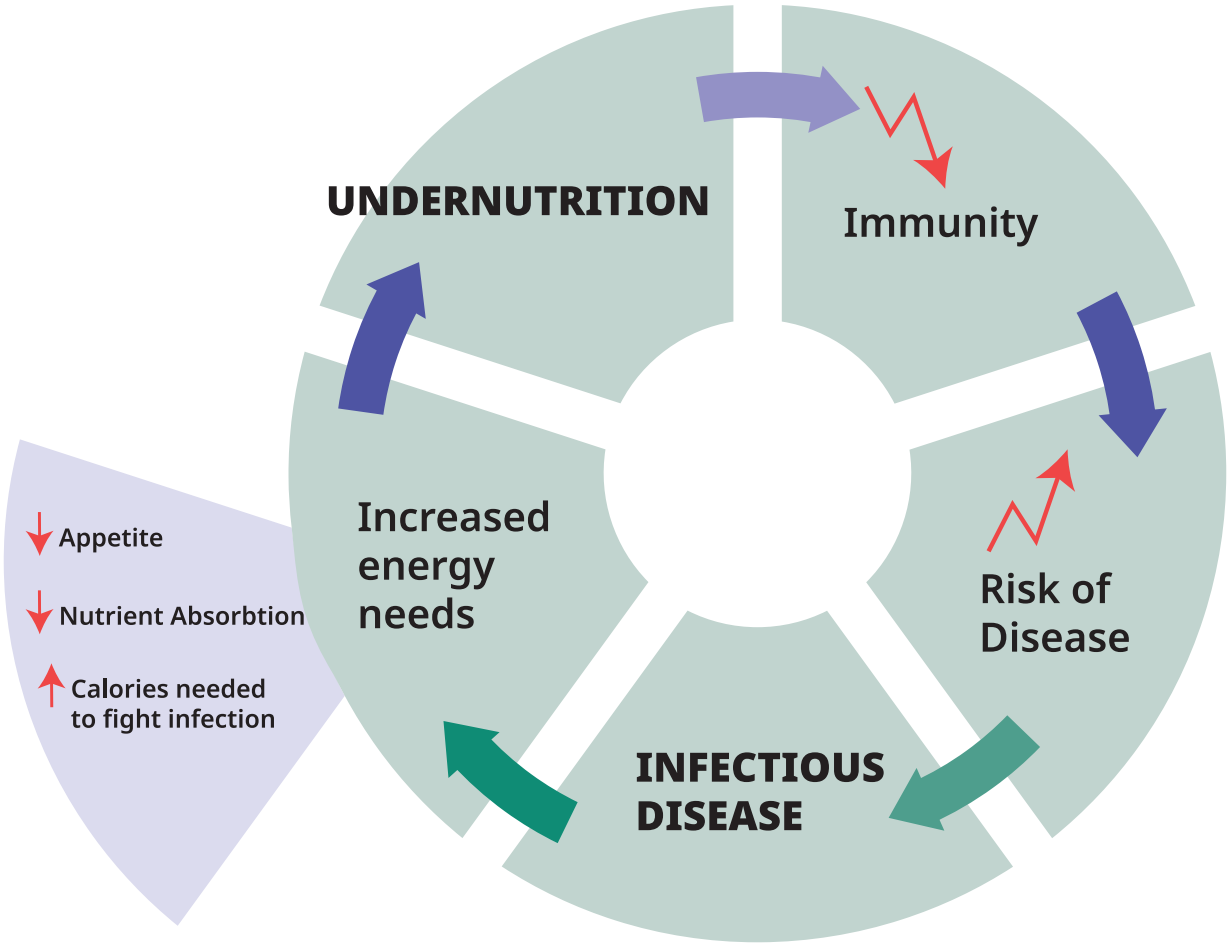



**Figure 2: UNICEF conceptual framework on the determinants of maternal and child nutrition (2020)**

The immediate causes of wasting and nutritional oedema are disease or dietary intake that is inadequate in quality, quantity and/or frequency to maintain healthy growth and development. These two factors interact: inadequate dietary intake may make disease worse, while at the same time disease can adversely affect the intake and absorption of nutrients by the body, creating a vicious malnutrition–infection cycle (Figure 3).

**Figure 3: The malnutrition–infection cycle**




The inadequacy of the diet and the development of disease may occur due to **underlying factors** such as inadequate access to, availability of or utilization of food; inadequate care for women and children; lack of access to health services; or living in an unclean environment.

The political, financial, social, cultural and environmental conditions that relate to these challenges and need to be in place to act as **enablers** of good nutrition for children and women are categorized in the conceptual framework in three groups: committed resources, cultural and gender norms, and governance.

When one or more of these elements is not in place to ensure good nutrition, undernutrition of children and PBW may ensue. The consequences of undernutrition include the following:

- Increased morbidity and mortality in children
- Impaired cognitive, motor, social and emotional development in children
- Impaired school performance and learning capacity in children
- Reduced adult stature (height)
- Impaired work capacity and productivity
- Increased risk of developing non-communicable diseases in adult life

## 2.2 DEFINITIONS OF WASTING AND NUTRITIONAL OEDEMA

These guidelines will use the terms wasting and/or nutritional oedema (with the subgroups of severe wasting and/or nutritional oedema and moderate wasting). This terminology replaces the terms ‘severe acute malnutrition’ (SAM) and ‘moderate acute malnutrition’ (MAM).

**Wasting in children aged 6-59 months** is classified as 'moderate' or 'severe' based on the child's anthropometric status, the presence or absence of oedema, and their clinical condition (Table 1).

**Table 1: Classification of wasting in children aged 6-59 months**

| SEVERE WASTING | MODERATE WASTING |
|---|---|
| • WHZ (weight-for-height z-score) or WLZ (weight-for-length z-score) <-3 and/or<br>• MUAC (mid-upper arm circumference) <11.5 cm and/or<br>• Presence of nutritional oedema (also a standalone criterion)* | • WHZ or WLZ <-2 and/or<br>• MUAC ≥11.5 and <12.5 cm |

* Nutritional oedema is identified by the presence of bilateral pitting oedema, which starts in the feet and can progress up to the legs and the rest of the body, including the face. Nutritional oedema is always bilateral (on both sides of the body) and is always seen in the feet first.

**In pregnant and breastfeeding women (PBW),** a mid-upper arm circumference (MUAC) of <23 cm is used to classify wasting.

For infants, the emphasis in these guidelines is to support them **before** they become wasted or develop nutritional oedema. Therefore, **criteria are used for identifying infants less than 6 months old who are at risk of poor growth and development**, categorized into four groups:

1. Infants with poor birth outcomes – low birth weight, small for gestational age, pre-term
2. Infants with poor anthropometry based on a single measure – MUAC <11.0 from 6 weeks of age to 6 months or WAZ (weight-for-age z-score) <-2 or WLZ (weight-for-length z-score) <-2 or nutritional oedema
3. Infants with poor growth based on sequential measures – stagnant indicators or weight loss/MUAC reduction
4. Infants with known risk factors, including feeding concerns, maternal risk (physical or mental health problems affecting caring practices), or a history of hospitalization

## 2.3 OVERVIEW OF SERVICES FOR THE PREVENTION AND MANAGEMENT OF WASTING IN LEBANON

At the primary health care (PHC) level, the Ministry of Public Health PHC Network is accessible to the entire population through nearly 300 PHC centres, which provide PHC services that include health assessments and consultations, immunization, malnutrition screening and management, health promotion, and referral. The malnutrition program has been integrated within PHC since 2015.

### *Prevention services*

Growth monitoring and promotion (GMP) is a preventive and promotive activity integral to the integrated management of childhood illnesses (IMCI) service. Its purpose is to promote healthy growth and detect faltering growth in a child before any observable sign or symptom of malnutrition becomes evident. GMP takes place in all PHCCs at every contact with every child under 5 years. The promotion element includes provision of nutritional and infant and young child feeding counselling. Prevention activities for pregnant women are delivered through routine antenatal care (ANC).

### *Screening and treatment services*

The early identification and treatment of wasting is composed of five main components:

1. Screening and referral services in the community or PHCC
2. Outpatient treatment of moderate wasting at the PHCC
3. Outpatient treatment of uncomplicated severe wasting at the PHCC
4. Inpatient treatment of severe wasting at the hospital
5. Follow-up and post-discharge care

Early detection through GMP and other screening opportunities followed by prompt treatment is essential to prevent the development of complications that, left untreated, may lead to morbidity and eventually mortality. The early detection of wasting is achieved through the integration of systematic screening into routine service delivery at all PHCCs for every child, pregnant woman and breastfeeding woman with a child aged less than 6 months, at every visit. In the community, the role of CHWs is critical for screening and early diagnosis. CHWs

can ensure the cultural appropriateness of messages and improve acceptability, access and referral to PHCCs. Public awareness campaigns for wasting are another means to improve service uptake and early case finding.

The majority of PHCCs offer screening services only ('screening PHCCs'), while others provide services to screen and treat wasting ('treatment PHCCs'). PHCCs that are only equipped for screening should refer their cases to treatment PHCCs in the region using a referral form provided to the caregiver, as well as through the MOPH electronic system. "screening PHCC" staff should also call ahead to inform the "treatment PHCC" to expect the referred cases. It is important to follow up and ensure that those referred reach the treatment PHCC.

At the hospital level, designated hospitals act as referral centres for infants and children with wasting who cannot be treated at the PHCC level due to the development of complications requiring specialized care. Standard referral forms and systems are used. It is essential to maintain the continuity of care and ensure strong referral mechanisms and follow-up between the different health facilities.

Follow-up and post-discharge care following treatment for wasting is delivered through PHCCs and/or through household visits by community health workers or malnutrition frontline workers. Referral mechanisms therefore need to continue after treatment to ensure infants and children receive follow-up visits to avoid relapse and to help support good nutrition practices at home. Regular and accurate monitoring and recording of data on each child and PBW in the MOPH software system is critical, as is a thorough understanding of and adherence to protocols by health-care staff to ensure timely and appropriate care.

# CHAPTER 3:

# PREVENTION OF WASTING

# PREVENTION OF WASTING

Prevention of wasting and nutritional oedema requires a package of interventions to be implemented together. Children are at their most vulnerable during the period of rapid growth and development in the first 1,000 days following conception (during pregnancy and up to 2 years of age). Good nutrition during these first 1,000 days is vital for children's growth and development and the health of the mother.

A systems approach – prioritizing key actions across food, health, water, sanitation and hygiene, and social protection systems as a package of interventions – is essential to prevent child wasting and protect the most vulnerable children.[3] Multisector coordination among all partners should be ensured at subnational and national levels to optimize the overlap of existing sectoral interventions and maximize the provision of services that address the basic, underlying and immediate causes of undernutrition and wasting.

These guidelines focus on actions delivered through the health system. Interventions should include ensuring access to healthy diets and health services as appropriate. At the PHCC level, this entails regular growth assessment and monitoring, counselling on IYCF, and support to mothers' health and nutrition (e.g. breastfeeding, complementary feeding, and maternal health and nutrition, especially focused on helping families use locally available nutrient-dense foods for a healthy diet). Counselling should address maternal and family needs and involve psychosocial elements of care to ensure healthy growth and development.

## 3.1 MAINTAINING MATERNAL NUTRITION

Maternal nutrition is essential for the healthy development of the fetus and infant. Eating an appropriate varied diet during pregnancy with attention to the use of foods rich in iron and folate may reduce the risk of iron deficiency and anemia during pregnancy, thereby positively affecting the health of the mother and fetal development. Guidance on eating a varied diet for adults is available in the *Lebanon Food-Based Dietary Guidelines*.[4]

The key recommendations include the following:

- Maintaining a healthy body weight and focusing on nutrient-dense foods to meet caloric needs. The additional energy needs during the second and third trimesters of pregnancy are around 300–390 kilocalories (kcal) per day;[5] [6] the additional energy costs of exclusively breastfeeding an infant under 6 months of age are estimated to be around 630–650 kcal/day.[7]
- Consuming a variety of nutritious foods daily from the different food groups, including: whole grain cereals, fruits and vegetables, legumes, milk and dairy, lean meat and poultry, fish, nuts and seeds.
- Limiting the consumption of added sugars, high-salt foods and solid fats.
- Drinking adequate amounts of safe and clean water.
- The use of iodized salt within the household should be promoted to prevent iodine deficiency.

### *Iron and folic acid supplementation*

There is good evidence that the provision of universal iron and folic acid supplementation for pregnant women has positive effects on anaemia, iron deficiency and low birth weight. Multiple micronutrient supplements (MMS), which contain a total of 15 vitamins and 30 milligrams (mg) of iron per supplement, may further reduce the risk of low birth weight and small size for gestational age compared with iron and folic acid supplementation alone. These are the related recommendations:

- One of these supplements (but not both) should be administered to pregnant women throughout the duration of pregnancy through ANC according to ANC protocol.
- To achieve high supplementation coverage, it is recommended that PBW be supplemented during their ANC and postnatal care visits.
- The distribution of supplements beyond PHCCs is warranted to reach PBW in rural areas and informal tent settlements through community platforms. In cases of crisis and displacement, multiple micronutrient supplements can be provided within collective shelters and in hard-to-reach areas, targeting affected PBW.

Supplementation programs should be accompanied by promotional activities and behaviour change communication interventions to ensure high compliance.

3 United Nations Global Action Plan on Child Wasting. 2021. https://www.childwasting.org

4 American University of Beirut, *The Food-Based Dietary Guideline Manual for Promoting Healthy Eating in the Lebanese Adult Population (Lebanon Food-Based Dietary Guidelines)*, Beirut, 2013, https://www.aub.edu.lb/fafs/nfsc/Documents/FBDG%20English%20Version.pdf.

5 Hytten, F. E., 'Nutrition', in *Clinical Physiology in Obstetrics*, edited by F. Hytten and G. Chamberlain, Blackwell Scientific Publications, Oxford, 1980, pp. 163–192.

6 Most, J., S. Dervis, F. Haman et al., 'Energy Intake Requirements in Pregnancy', *Nutrients*, vol. 11(8), 1812, 2019, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6723706/.

7 van Raaij, J., C. M. Schonk, S. H. Vermaat-Miedema et al., 'Energy Cost of Lactation, and Energy Balances of Well-Nourished Dutch Lactating Women: Reappraisal of the extra energy requirements of lactation', *The American Journal of Clinical Nutrition*, vol. 53, 612–619, 1991, https://ajcn.nutrition.org/article/S0002-9165(23)17151-6/abstract.

## 3.2 **GROWTH MONITORING AND PROMOTION**

Growth monitoring and promotion (GMP) is a service that should be conducted for every child aged 0–59 months each time they visit the PHCC and at each community visit. It refers to the process of tracking child growth by regularly measuring the child and comparing his or her growth (i.e. height and/or weight) to the WHO child growth standards.[8] The assessment of child growth is then linked to tailored nutrition counselling, with referral to other services as necessary. These actions support children's optimal growth through increased caregiver awareness of child growth trends, improved caring practices and increased use of other services. GMP contacts also provide an important opportunity for health workers to deliver other essential nutrition, child health and development services. The GMP activity is dual purpose: to **measure** and chart the weight of children (and/or height and MUAC), and to use this information on physical growth to **counsel** parents in order to **motivate** actions that improve growth.[6]

**The following steps should be followed during GMP:**[7]

1. Take a genuine interest in the child (look at him/her, smile, call him/her by name) to help him/her trust and feel safe with you. This is reassuring for the parent/caregiver too.
2. Observe how the child and parent/caregiver are interacting, and look for signs of what may require more attention.
3. Explain to the parent/caregiver why you are taking measurements and that you need their help to do them correctly. Guide them to help you to take the weight, height and MUAC measurements.
4. Plot the weight and height measurements on the height-for-age, weight-for-age and weight-for-height growth charts. Show the charts to the parent/caregiver and explain to them how the child is growing. Link this conversation to the child's feeding, care, protection and stimulation.
5. Compliment the parent/caregiver for the behaviours they are putting into practice to promote healthy growth and development.
6. When discussing possible causes of poor growth, engage the parent/caregiver fully in the conversation and let them identify some potential causes themselves.
7. Listen to the parent/caregiver with empathy, and encourage them to take the action that is within their means.
8. Work together with the parent/caregiver in defining feasible steps to help improve the child's growth and development.
9. Limit your advice to two or three actions for improved care and feeding that are most important and feasible.
10. Ask checking questions to ensure that the parent/caregiver understands the recommendations and then set a general goal for improved growth for the child's next visit.

**Growth charts** must be plotted at every child's visit to the PHCC, in accordance with MOPH packages of care at PHC. This is to be done in the child's health record booklet, as well as in the software for the ministry's reporting system.

Guidance on plotting weight and height on a growth chart and interpreting the data is provided in Annex 1.

***Key actions to consider:***

- **A healthy child who is growing well should gain weight every month**. If a child is not gaining weight or is losing weight, there is a problem. The child should be assessed for wasting, feeding challenges and medical issues and referred for further attention immediately.
- The flat (stagnant) child's growth line means there is no gain in weight or length/height. For children in age groups where the growth rate is fast, as shown by steep growth curves (e.g. during the first six months), even one month of stagnation in growth represents a possible problem.
- A sharp incline in the growth line may indicate a problem except if the child has been severely undernourished, in which case a rapid gain in height might indicate 'catch up growth':[9]

If the coverage of growth assessment is poor, then actions such as community mobilization, reminders and follow-ups to increase children's access to growth monitoring services could be explored.

### *Children with faltering growth but who are above the criteria for wasting*

During growth monitoring it may be found that the measurements of MUAC, WFH or WFL of some children are close to the criteria for treatment of wasting (e.g. a MUAC of 12.6 cm), but do not yet meet the criteria. Any child with borderline measurements or with a low weight-for-age z-score (WAZ) or a low height-for-age z-score (HAZ) should undergo the following:

8 https://www.who.int/childgrowth/training/en/.
9 https://applications.emro.who.int/imemrf/Professional_Med_J_Q/Professional_Med_J_Q_2014_21_2_232_239.pdf.

- The child should be examined by a physician for underlying medical conditions.
- The child should have a full growth check, including weight-for-age and height-for-age.
- The caregiver should receive counselling on IYCF practices.
- The caregiver should receive a psychosocial assessment.
- The child should attend the PHCC monthly for routine growth checks.
- The child's immunization status should be checked and updated.

Any child with an illness requiring medical treatment (e.g. fever, cough, diarrhea or vomiting) should be referred for medical treatment and reassessed for their nutritional status within one to two weeks to make sure there is no deterioration into wasting.

## 3.3 **COUNSELLING ON INFANT AND YOUNG CHILD FEEDING**

IYCF counselling must be provided as part of routine care for mothers/caregivers of all infants and young children. In order for this counselling to have the most benefit for the prevention of wasting and for other child health and nutrition outcomes, personnel carrying out the counselling should have comprehensive training and be supervised regularly, with dedicated resources and time within health system strategic planning for this intervention.

**IYCF counselling should encompass key messages on the following:**

- Early initiation of breastfeeding within one hour of birth
- Exclusive breastfeeding (only breast milk) for the first six months of life
- Continued breastfeeding until 2 years of age and beyond
- Introduction of safe and age-appropriate complementary foods from 6 months of age that meet recommended minimum meal frequency and dietary diversity requirements
- Support for nurturing care through responsive feeding (see Annex 2)

**Optimal IYCF also seeks to protect the non-breastfed child by doing the following:**

- Seeking safer alternatives to artificial feeding, e.g. wet nursing, relactation, using breast milk from breast milk banks
- Minimizing risks of artificial feeding, e.g. cup feeding
- Bottle-feeding and the use of infant formula should be discouraged unless recommended by trained medical staff (i.e. for medical reasons). When an alternative to breastfeeding is either medically indicated or preferred (and feasible) by the caregiver, counselling should be given on the correct/safe preparation of breast milk substitutes and milk feeding frequency.

Counselling for caregivers on optimal IYCF practices and nurturing care is an important and cost-effective measure to prevent infant and child malnutrition. **IYCF counselling should not be considered as a stand-alone intervention, but should be promoted along with psychosocial assessment and counselling, promotion of good hygiene practices, and childhood immunization.** In addition, it is important to emphasize a healthy, varied diet for both the caregiver and children over 6 months (exclusive breastfeeding for 0–6 months) to prevent micronutrient deficiencies.

### *Multiple micronutrient powder supplementation*

Multiple micronutrient powders (MNPs) should not be given to infants and children aged 6–23 months for the specific purpose of preventing wasting and/or nutritional oedema. However, MNPs are recommended for infants and children in populations where anaemia is a public health problem. MNPs can be provided through community-based programs that engage caregivers of children who are 6–23 months old as a preventive strategy according to the national MNP standard operating procedures.[10] This should be delivered with behaviour change communication and with messaging on infant and young child feeding, including breastfeeding and complementary feeding.

## 3.4 **PSYCHOSOCIAL CARE**

The mother-infant relationship is vital for the health and development of the child. When this is compromised, it may be both a cause and consequence of malnutrition. Mothers need support to protect this relationship. In addition, stimulation during and after treatment of malnutrition improves the recovery and development of severely malnourished children well into adolescence compared to non-stimulated children.

10 As per the MNP standard operating procedures.

Contextual factors that may precipitate postnatal depression include poverty, endemic infections, micronutrient deficiencies, recent arrival in urban/unfamiliar environments, breakdown of the family unit and other social or support groups, and resource constraints.

Postnatal depression has a negative impact on infant malnutrition and child development:

- Caregiver depression leads to fewer interactions and less stimulation of the infant or child.
- The infant or child has less access to health and nutrition services.
- Depression is an underlying factor in low birth weight and prematurity, which leads to several complications, including suckling problems.
- Breastfeeding is more difficult, thus tends to stop sooner.

Conversely, low birth weight, difficulty suckling and infant crying are all risk factors for maternal depression. Non-responsive feeding practices and a lack of emotional stimulation may lead directly to malnutrition, which in turn lowers the esteem of the caregiver, creating a vicious cycle.

Older children may show behavioural problems, which may be related to a lack of attachment to the caregiver and/or a lack of emotional stimulation. Health-care providers should be observant of behavioural problems and recognize this as an indication that psychosocial assessment of the caregiver and child may be needed.

Assessment of psychosocial issues and counselling are an important part of antenatal and postnatal check-ups and should be carried out routinely as a preventive measure. To assess for depression and anxiety, health-care providers can start with a broad interview that assesses the mental status of the woman. They can also use screening tools such as the Patient Health Questionnaire 2; a positive answer on either question will warrant further screening via the Edinburgh Postpartum Depression Scale or the Patient Health Questionnaire 9. The national *Maternal Mental Health Guidelines for Healthcare Providers* should be used.[11] These contain the relevant tools (Appendix A in the mental health guidelines).

Health-care staff should be trained in basic psychosocial skills and psychosocial support at all screening and treatment PHCCs. All health-care providers in contact with caregivers of infants and children with wasting should be trained to recognize potential psychosocial issues. Where possible, a designated member of staff should be specialized in psychosocial support to ensure that skilled intervention occurs during treatment and that linkage to other services is made after discharge.

The following are examples of specific interventions by health-care providers to promote the psychosocial well-being of mothers/caregivers:

- Showing a positive attitude towards the caregivers of infants and children with wasting
- Avoiding any blame or accusations of negligence on the part of the caregiver
- Supporting breastfeeding during periods when the infant or child is breastfeeding and encouraging mothers to continue lactation even if the infant or child is separated
- Encouraging the practice of self-care and relaxation sessions for caregivers
- Avoiding the promotion of breast milk substitutes

## 3.5 **USE OF SPECIALLY FORMULATED FOODS**

In periods of high food insecurity, specially formulated foods (SFFs) may be considered for the prevention of wasting and nutritional oedema for a limited duration for infants and children aged 6–23 months, while continuing to enable access to adequate home diets for the whole family. SFFs for the prevention of wasting and nutritional oedema usually comprise small-quantity lipid-based nutrient supplements (SQ-LNS) with an energy amount of 100 to 120 kcal per day.[12]

### *Implementation considerations on the use of SFFs*

- A targeted approach to supplementation can be considered, in which a specific subset of children or households within a certain population or geographic location is prioritized for supplementation intervention.
- SFFs should be delivered with behaviour change communication and with messaging on infant and young child feeding, including breastfeeding and complementary feeding. Importantly, SFFs should not replace breastfeeding and nutrient-dense home foods.
- Screening and referral for wasting and nutritional oedema should be done alongside delivery of preventive interventions as part of a continuum of care.

11 https://www.moph.gov.lb/userfiles/files/Programs%26Projects/MentalHealthProgram/Maternal-Mental-Health-Guidelines-for-Healthcare-Providers.pdf

12 Reference to the standard operating procedures.

## 3.6 **INTEGRATED PREVENTIVE ACTION AT THE PHCC LEVEL AND REFERRAL FOR ADDITIONAL SUPPORT**

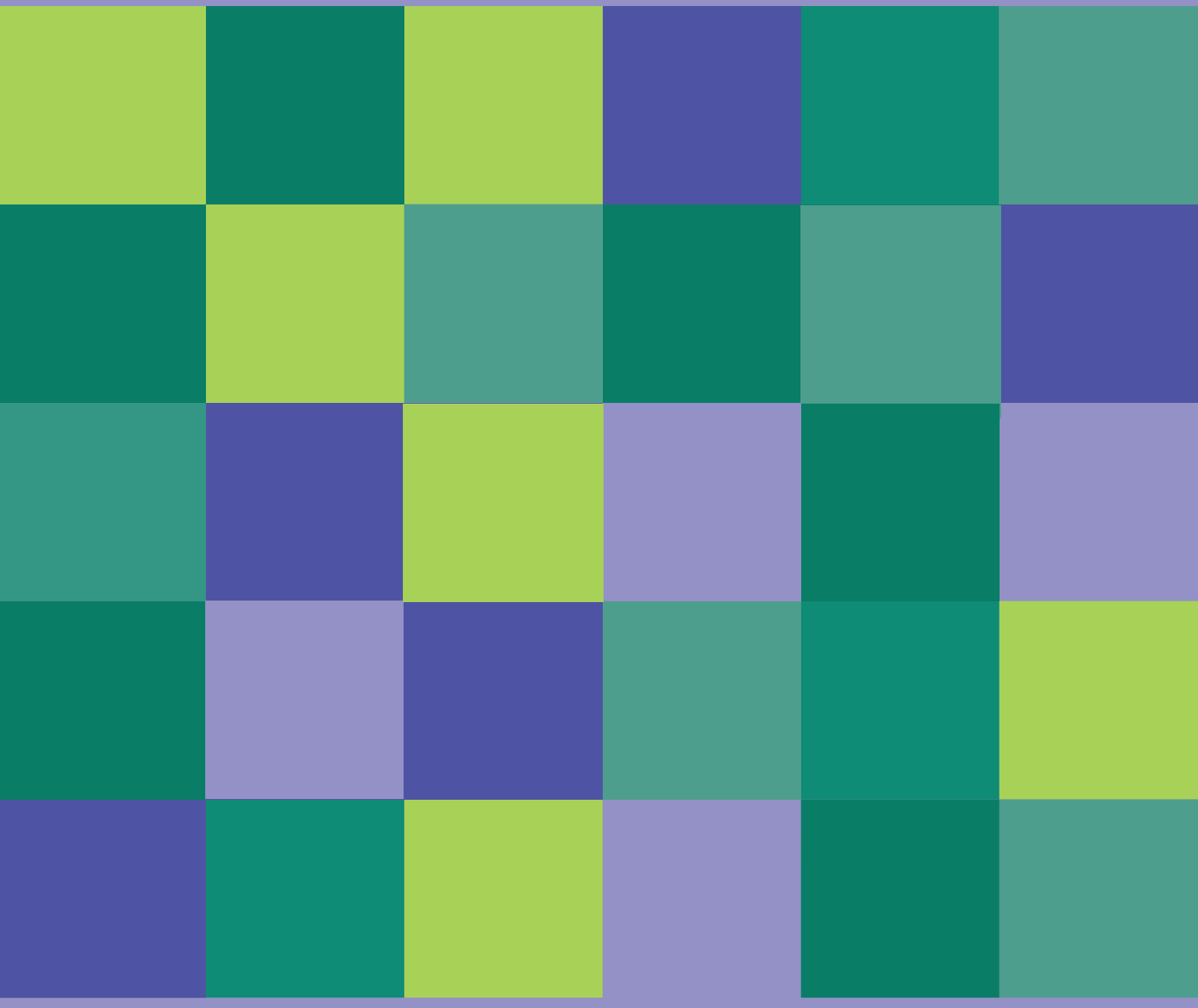
Preventive interventions should ideally be implemented through a multisectoral and multisystem approach, including food, health, safe water, sanitation and hygiene, and social protection systems. Within the PHCC setting, health-care providers should provide counselling on additional preventive actions, including the following:

- All aspects of sanitation and hygiene to prevent malnutrition, including:
    - Access to clean water and handwashing
    - Food preparation – washing hands prior to food preparation and using clean utensils; ensuring food is cooked thoroughly (especially fresh foods)
    - Safe food storage and preparation for the prevention of food-borne communicable disease
    - Hygienic disposal of the excreta of children, away from the house and any sources of drinking water
    - The *National Nutrition Strategy and Action Plan 2021–2026*[13] should be consulted for further guidance on nutrition-sensitive water, sanitation and hygiene (WASH) approaches and reference materials.
- The importance of immunizations and access to health and medical services
- Guidance on using locally available nutrient-rich foods for a balanced diet and to boost specific micronutrient intakes

The implementation of additional multisectoral interventions should ensure the targeting of children living in households and communities that are most vulnerable. This targeting may be based on socioeconomic status, household food insecurity or other risk factors as appropriate. Health staff should be informed about the available social support, as well as services supplied by social protection (e.g. the Nutrition Cash Plus Program), food security and/or livelihood support programs, where these exist, so that they can make appropriate referrals. Establishing linkages with relevant sectors for the prioritization and implementation of activities as part of wasting prevention is essential.

13 https://faolex.fao.org/docs/pdf/leb216967E.pdf

# CHAPTER 4:
# SCREENING AND REFERRAL



# SCREENING AND REFERRAL

Pregnant and breastfeeding women and children under 5 should be screened as early as possible to ensure they have access to appropriate and timely treatment. Early identification and treatment of wasting means the malnutrition is easier to treat, the development of complications is much less likely, and treatment is more cost-effective.

The primary point of contact for screening services is the PHCC. Every child younger than 5 years and every PBW with an infant under 6 months should be screened at every visit to any PHCC. Screening for wasting should also be integrated, whenever possible, into outreach activities conducted by the PHCC and community health workers.

Early identification and maximizing access to services require the following:

- Raising awareness of wasting among the public and health-care professionals (causes, signs and symptoms, risk of complications, etc.). All health-care professionals should receive in-service training on the prevention, screening and referral of wasting, as well as follow-up and post-discharge care.
- Raising public awareness about screening for wasting being available at all PHCCs through public health information campaigns and PHC outreach activities.
- Maximizing the integration of screening into PHC outreach activities – e.g. medical mobile units, vaccination clinics, ANC and family planning clinics.
- Maximizing opportunities for self-screening and referral. Training mothers of children at risk could enable them to screen their children more frequently. Other community-based individuals and organizations can also be considered: staff of social development centres, staff of refugee support agencies (UNHCR, UNRWA, etc.), religious centres, etc.
- Raising public awareness about treatment being available at select treatment PHCCs.

## 4.1 SCREENING FOR WASTING AT ALL PHCCs

**Health-care providers should conduct screening for wasting systematically on every visit to the health facility by an infant or child less than 5 years or a PBW**. This includes all screening and treatment PHCCs.

### 4.1.1 *Screening infants less than 6 months*

The main aim of screening infants less than 6 months is to identify those who are not growing well before they meet criteria for wasting and/or nutritional oedema. These infants are referred to as 'infants at risk of poor growth and development'.

Mothers/caregivers and their infants under 6 months of age at risk of poor growth and development should receive regular care and monitoring. A joint assessment should be made, where the infant should be assessed for adequate growth and feeding, and the mother should receive a MUAC examination and be assessed for psychosocial concerns and infant care and feeding issues. The immediate goal is the early detection of any acute medical or psychological problems, as well as preventing infants from becoming severely underweight or severely wasted. The longer-term goal of this regular care and monitoring is to enable these infants to grow and develop in a healthy way that can lead to them achieving their full potential, while simultaneously supporting their mothers/caregivers in improving their own health and well-being.

Criteria for identifying at-risk infants are categorized into four groups:

- Infants with poor birth outcomes – low birth weight, small for gestational age, pre-term
- Infants with poor anthropometry based on a single measure – MUAC <11.0 from 6 weeks of age to 6 months or WAZ <-2 or WLZ <-2 or nutritional oedema
- Infants with poor growth based on sequential measures – stagnant indicators or weight loss/MUAC reduction
- Infants with known risk factors, including feeding concerns, maternal risk (physical or mental health problems affecting caring practices) or a history of hospitalization

It is critical to acknowledge and care for the mother/caregiver and infant as an **inter-dependent pair** for both to survive and thrive. Therefore, when screening an infant under 6 months the mother should always be screened as well (see PBW protocol in Section 4.1.3 below).

Screening and assessment of infants less than 6 months includes the following steps:

1. Measuring MUAC. An infant aged 6 weeks or more and less than 6 months with a MUAC <11.0 cm should be referred to the PHCC for further assessment. See Annex 1 for how to measure MUAC.
2. Checking for nutritional oedema. This is always an indication of severe wasting (see Annex 1 for the method).
3. Measuring weight-for-length.
4. Assessing the medical status of the infant and the psychosocial status of the mother –
    - Any serious clinical condition or complication requiring hospital care
    - Any recent weight loss
    - Any failure to gain weight since the last measurement
    - Any medical or social issues requiring more detailed assessment or intensive support (e.g. disability, depression of the caregiver or other social circumstance)
    - Any poor birth outcome: low birth weight, small gestational age or pre-term
5. Assessing breastfeeding. Proper attachment, positioning and effective suckling should be observed for up to 20 minutes.
6. Recording all the measurements in the child health book/card.
7. Screening the mother. The MUAC of the breastfeeding caregiver must be checked (see the protocol in Section 4.1.3. and Annex 3).

Infants less than 6 months at risk of poor growth and development are identified based on the criteria in Table 2 according to four categories.

**Table 2:. Criteria for identifying infants less than 6 months of age at risk of poor growth and development**

| CATEGORY | CRITERIA FOR IDENTIFYING INFANTS LESS THAN 6 MONTHS AT RISK OF POOR GROWTH AND DEVELOPMENT |
|---|---|
| Infants with poor growth based on sequential measures | No weight gain or weight loss from one measurement to the next[1] |
| Infants with poor anthropometry based on a single measure | • WAZ <-2 or<br>• WLZ <-2 or<br>• Nutritional oedema; or<br>• MUAC <11.0 cm for infants between 6 weeks and 6 months of age |
| Infants with known risk factors for poor growth and development | • Infant feeding concerns; or<br>• Maternal risk (physical or mental health problems affecting caring practices); or<br>• History of hospitalization |
| Infants at risk due to poor birth outcomes | • Preterm birth; or<br>• Low birth weight; or<br>• Small for gestational age |

Infants identified as at risk should be referred for in-depth assessment for decisions on follow-up actions or treatment. Comprehensive assessments of breastfeeding are also important, and subsequent support is key for the health and well-being of these infants and their mothers/caregivers.

### 4.1.2 *Screening infants and children aged 6-59 months*

The main aim of screening infants and children aged 6-59 months is to identify and refer those with wasting early on for appropriate interventions and treatment. Screening for wasting includes the following steps:

1. Measuring MUAC
2. Checking for bilateral pitting oedema
3. Measuring weight-for-length/height
4. Recording all the measurements in the child health book/card

Each of the measures is an independent criterion for further assessment and admission to outpatient or inpatient treatment. A child who meets the wasting criteria by either MUAC or weight-for-height/length should be referred to a treatment PHCC. The classification is listed in Table 3.

**Table 3: Classification of wasting**

| MALNUTRITION | MUAC | WHZ/WLZ | OEDEMA |
|---|---|---|---|
| Moderate wasting | ≥11.5 cm and <12.5cm | ≥-3 and <-2 | Absent |
| Severe wasting | <11.5 cm | <-3 | Present (+, ++ or +++) |

Refer to Annex 1 (Guide to anthropometric measurements and oedema in infants and children) for step-by-step guidance on screening.

If the child has been screened at a screening PHCC or during outreach activities, any measurement that shows moderate or severe wasting indicates that the child should be referred to a treatment PHCC for further assessment and triage (see Chapter 7).

### 4.1.3 *Screening pregnant and breastfeeding women*

PBW should be screened for wasting by measuring the MUAC and checking for the presence of nutritional oedema. This should be done at every health contact point at the community or PHC level and linked to ANC/postnatal care and appropriate counselling and support. PBW identified with wasting should be referred to a treatment PHCC. Any pregnant or breastfeeding woman with an infant or child aged less than six months should be encouraged to bring the infant/child when they attend the PHCC for their next visit.

Criteria for screening:

- MUAC less than 23 cm = wasting (should be referred for in-depth assessment and management)
- MUAC between 23 and 24 cm = at risk of wasting (should be referred for in-depth assessment)
- MUAC greater than or equal to 24 cm = normal nutritional status
- Nutritional oedema: If oedema is diagnosed, she should be referred immediately to the physician for a full assessment. While oedema is common during pregnancy, it may also be a sign of preeclampsia, a serious condition that results in poor outcomes for the mother and the fetus.

Refer to Annex 3 for the measurement of MUAC in PBW.

*Weight-for-height or body mass index (BMI) measurements are not suitable for screening the PBW for wasting since changes in weight due to pregnancy can give misleading results.*

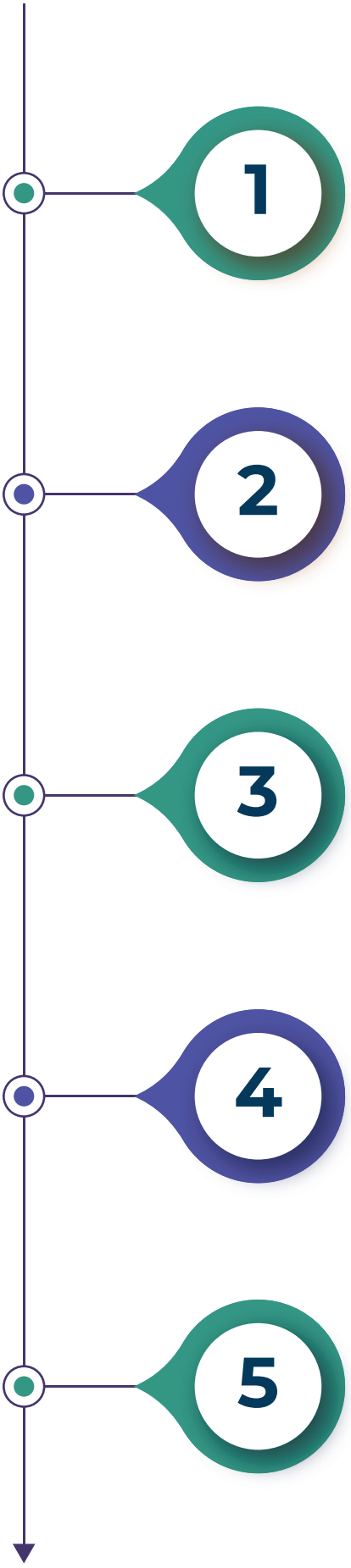
Screening is also an opportunity to support new mothers and counsel them on infant feeding, including breastfeeding, and care for their own well-being should be integrated into every consultation.

## 4.2 **REFERRAL MECHANISMS**

Following screening, infants and children identified to be at risk should be referred from either a community or screening PHCC to a treatment PHCC for in-depth assessment and decisions on appropriate treatment at the PHCC or hospital level. It is important in all cases to ensure continuity of care.

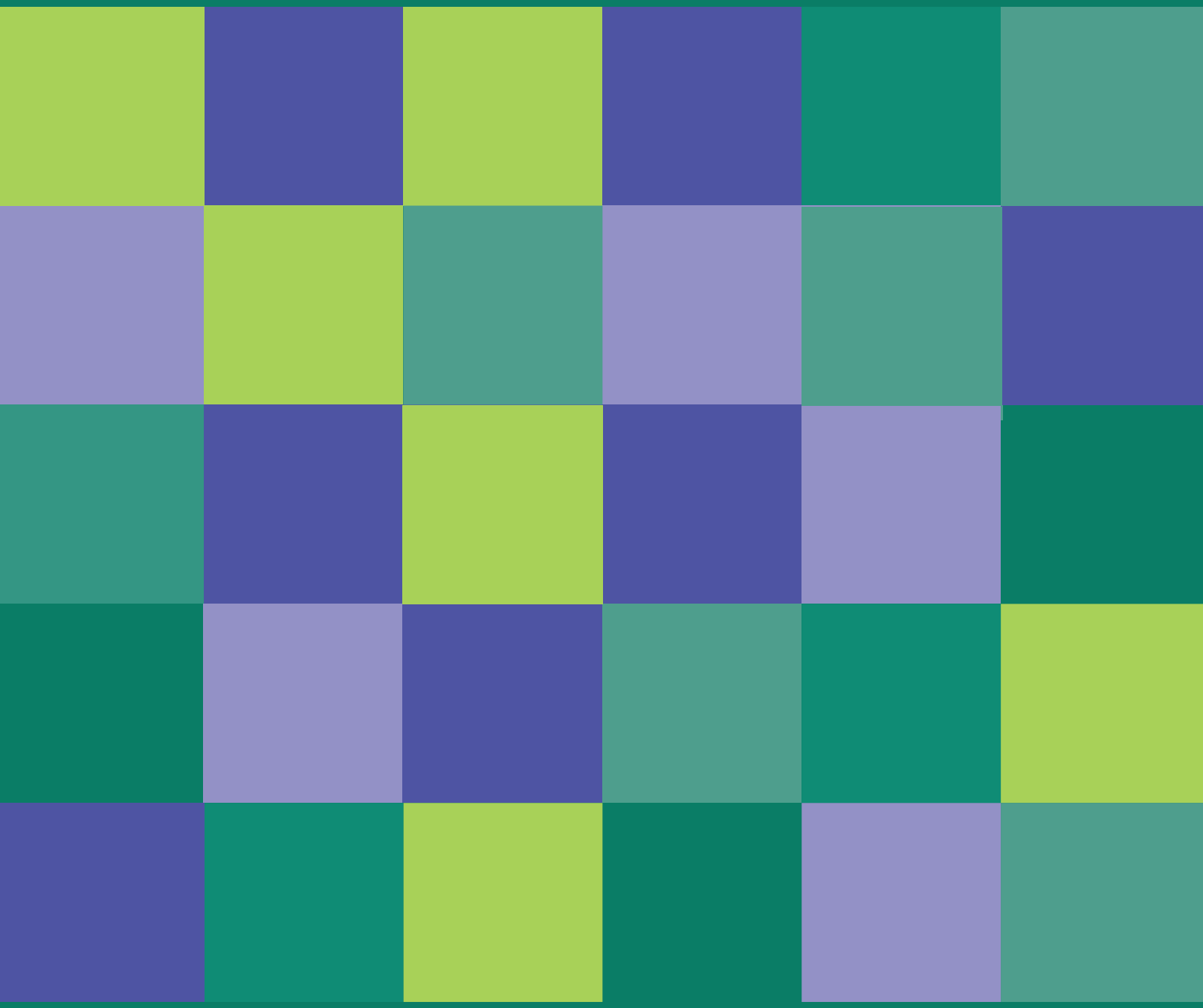
Referrals to and from each health facility should be made based on standard MOPH referral forms. Referrals should be strengthened through follow-up phone calls where possible. This may be particularly required when transferring children between PHCCs and hospitals.

The following steps should be followed:



# CHAPTER 5:

# OUTPATIENT MANAGEMENT OF INFANTS LESS THAN 6 MONTHS OF AGE AT RISK OF POOR GROWTH AND DEVELOPMENT



# OUTPATIENT MANAGEMENT OF INFANTS LESS THAN 6 MONTHS OF AGE AT RISK OF POOR GROWTH AND DEVELOPMENT

Encountering a malnourished infant or child should alert the health-care provider to potential psychosocial issues with the caregiver and/or infant or issues that need to be addressed at the same time as treatment for wasting. Comprehensive assessment ensures that appropriate support can be provided to improve the infant's and mother/caregiver's physical and mental health and well-being. Early identification of psychosocial issues through screening and early intervention is likely to lead to quicker and more positive outcomes. Early detection of infants at risk of poor growth and development also ensures that they can be managed as outpatients before they are wasted.

## 5.1 ASSESSMENT OF INFANTS AGED LESS THAN 6 MONTHS AT RISK OF POOR GROWTH AND DEVELOPMENT

An infant who shows any integrated management of childhood illness (IMCI) danger signs or acute medical problems should be referred immediately to inpatient care. These criteria are listed in Table 4.

**Table 4: Criteria for immediate referral to inpatient care for infants less than 6 months**

| CATEGORY | CRITERIA FOR ADMISSION |
|---|---|
| IMCI danger signs: one or more criteria | • Not able to drink or breastfeed<br>• Vomits everything<br>• Had convulsions recently<br>• Convulsing now<br>• Lethargic or unconscious |
| Acute medical problems or conditions under severe classification as per IMCI: one or more criteria | • Signs of possible serious bacterial infection in infants less than 2 months of age<br>• Septic shock<br>• Oxygen saturation <90%<br>• Pneumonia (with chest indrawing and/or fast breathing and, if possible to measure, oxygen saturation <94%)<br>• Dehydration (including some or severe dehydration)<br>• Severe persistent diarrhea (diarrhea for 14 days or more plus dehydration)<br>• Very severe febrile illness<br>• Very severe febrile illness – where there is no risk of malaria or with a negative rapid diagnostic test; this is treated as bacterial disease, e.g. meningitis, etc.<br>• Severe complicated measles<br>• Mastoiditis<br>• Severe anaemia (severe palmar pallor or hemoglobin levels less than 14g)<br>• Severe side effects from antiretroviral therapy (for HIV) – skin rash, difficulty breathing, severe abdominal pain, yellow eyes, fever, vomiting<br>• Open or infected skin lesions associated with nutritional oedema<br>• Other stand-alone 'priority clinical signs' not classified as danger signs: hypothermia (<35°C axillary or 35.5°C rectal) or high fever (≥38.5°C axillary or 39°C rectal) |
| Nutritional oedema | Bilateral pitting oedema of any grade |
| Recent weight loss | Two or more weight loss measurements, documented or reported by the mother/caregiver |

Adapted from World Health Organization. (2023). Guideline: Updates on the management of severe acute malnutrition in infants and children.

The following steps should be followed immediately:

- Provision of the first dose of oral antibiotics (Amoxicillin/Ampicillin, 30–50 mg per kg of body weight)
- Provision of 50 ml of 10 per cent sugar water orally if the child is conscious (1 teaspoon of sugar in 50 ml)
- Caregiver should be advised to keep the child warm with skin-to-skin contact and keep the child covered
- Transportation of the child should be arranged by ambulance, with the appropriate referral slip indicating the reasons for the transfer and the medical care given. If possible, the emergency room medical staff should be informed of the transfer.

If an infant has none of the signs listed above, an in-depth assessment should be carried out.

## 5.2 IN-DEPTH ASSESSMENT TO CONSIDER REFERRAL TO INPATIENT CARE OR OUTPATIENT MANAGEMENT

### *Step 1:*

***Checking anthropometric measurements***

If the infant has been referred from a screening PHCC, the checks for oedema and measurements of MUAC should be repeated and weight-for-age assessed. If the infant is at least 45 cm in length, then weight-for-length charts can be used to determine WFL (Annex 1).

### *Step 2:*

***Determining recent medical history***

Clinical history is obtained from the caregiver, as with older children, including any recent weight loss or failure to gain weight. The assessment should include a detailed history of infant feeding practices:

- Early initiation of breastfeeding (within 1 hour of birth)
- Any prelacteal feeding (any other food or fluid given before breastfeeding was initiated) or fluid given in addition to breastfeeding
- Amount and type of feed given if not breastfeeding
- Any recent weight loss
- Any failure to gain weight

### *Step 3:*

***Physical examination of the infant***

A full physical examination should be done, as is done for older children.

### *Step 4:*

***Assessment of breastfeeding***

Ready-to-use therapeutic food (RUTF) is not suitable for children aged less than 6 months. The infant should be assessed for the effectiveness of breastfeeding under direct observation for up to 20 minutes for the following:

- Proper attachment during breastfeeding
- Proper positioning during breastfeeding
- Effective suckling

## 5.3 ADMISSION OR ENROLMENT CRITERIA FOR INFANTS LESS THAN 6 MONTHS OF AGE WITH NO DANGER SIGNS

Findings of the in-depth assessment should be carefully analysed. Infants should be considered for inpatient or outpatient management based on clinical judgment, using the criteria in Table 5.

**Table 5: Criteria for in-depth assessment to consider referral to inpatient care for infants aged less than 6 months**

| CATEGORY | CRITERIA FOR ADMISSION TO INPATIENT CARE |
|---|---|
| Medical problems not requiring immediate inpatient care but requiring further examination, which also have a significant association with nutritional status | • Newly diagnosed medical problem with potential benefits of initial inpatient care<br>• Condition requiring an intensive observation period<br>• Investigations required that are not available in an outpatient setting<br>• Issues needing medium- or long-term care, e.g. congenital heart disease, HIV, tuberculosis, cerebral palsy or other physical disabilities |
| Anthropometric measurements: one or more criteria | • Failure to gain weight based on two consecutive measurements<br>• WAZ <-2<br>• WLZ <-2<br>• MUAC <110 mm for infants between 6 weeks and 6 months of age |
| Feeding concerns | For breastfed infants, examples include:<br>• Ineffective breastfeeding (e.g. attachment, positioning, suckling reflex) or perceived breast milk insufficiency<br><br>For non-breastfed infants, examples include:<br>• Inappropriate and unsafe use of breast milk substitutes for replacement feeding<br>• Milk refusal<br>• Other |
| Maternal-related or social issue needing more detailed assessment or intensive support | For example:<br>• Disability of infant or mother<br>• Clinical depression of the mother or caregiver<br>• Absent mother<br>• Adolescent mother<br>• Other adverse social circumstances |

Adapted from World Health Organization. (2023). Guideline: Updates on the management of severe acute malnutrition in infants and children.

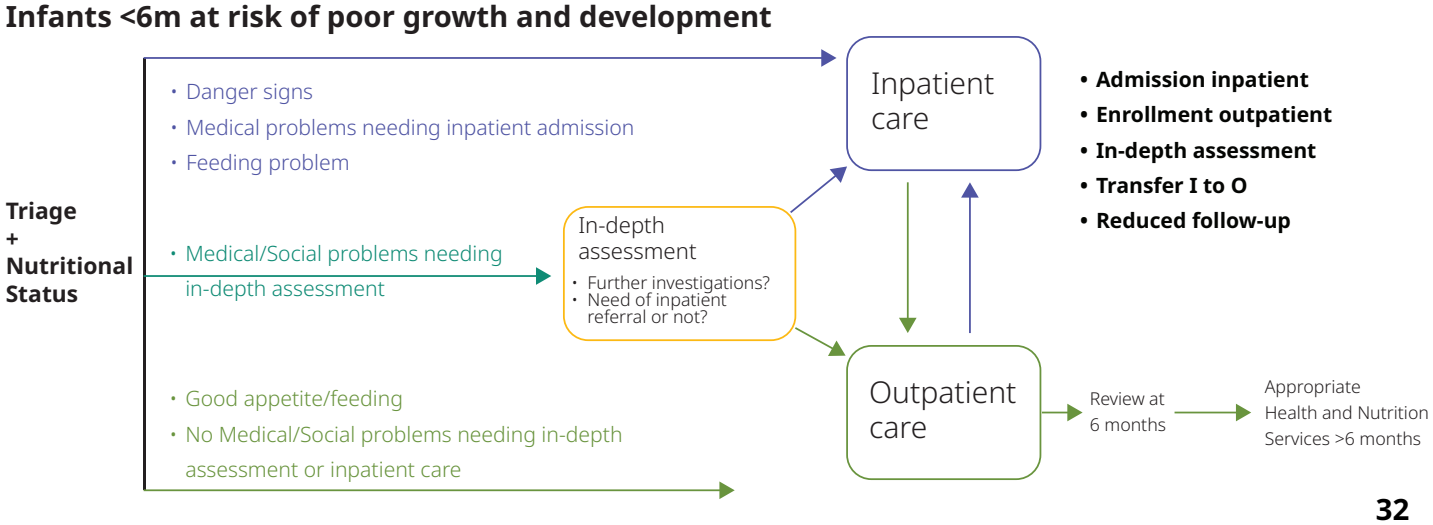
Infants can be considered for treatment at the outpatient level if safety, resources and adequate support are available – for example, infants with feeding problems that can be managed in outpatient care, diarrhoea with no dehydration and respiratory infections with no signs of respiratory distress. If not, a referral process to inpatient care should be initiated.

Infants less than 6 months of age at risk of poor growth and development who have all of the following characteristics should be enrolled and managed as outpatients:

- No danger signs or none of the criteria for inpatient admission are met
- Criteria are not met for in-depth assessment, as mentioned in Table 4, or criteria are met but an in-depth assessment has been completed and has determined that no inpatient admission is needed

Figure 4 describes a decision tree algorithm for infants less than 6 months.

**Figure 4: Decision tree for triage of infants aged less than 6 months**



## 5.4 MANAGEMENT OF INFANTS AGED LESS THAN 6 MONTHS AT THE OUTPATIENT LEVEL

Wasting in infants is often linked with risk factors such as low birth weight, persistent diarrhea, recurring infections or feeding problems.

Mothers/caregivers and their infants aged less than 6 months at risk of poor growth and development should receive **regular care and monitoring by health professionals.** Treatment of infants at PHCCs focuses on comprehensive assessment of the mother/caregiver-infant pair and counselling for improving breastfeeding practices or seeking alternatives that are safer than artificial feeding, such as wet nursing, relactation or using breast milk from breast milk banks. If these alternatives are not possible or applicable and the infant cannot be breastfed, it is necessary to provide support to the caregiver to assess and improve the use of breast milk substitutes. The treatment should be provided by health-care providers appropriately trained in IYCF assessment and counselling. BP-5 compact food, RUTF and other nutritional products used to treat wasting at PHCCs are not suitable for infants aged less than 6 months.

The infant is given a medical check-up and any required medicines or immunizations in the same manner as any other normally nourished infant.

### *Step 1:*
### *Establishment of and support for exclusive breastfeeding*

All feeding approaches for infants who are less than 6 months of age should prioritize establishing effective breastfeeding by the mother or caregiver. If the infant is breastfed, breastfeeding should be continued and prioritized. If the infant is not breastfed, support should be given to the mother/caregiver to relactate. Possibilities of wet nursing can be explored.

The mother should be given all the support to exclusively breastfeed, including addressing the mother's breastfeeding challenges that were identified during the assessment. Counselling should be provided on the following:

- Appropriate exclusive breastfeeding practices
- Any problems with positioning, attachment or suckling
- Active responsiveness to the infant
- Handwashing and the safe disposal of excreta
- Psychosocial issues, as required
- Maternal nutrition

Counselling should be provided at regular follow-ups with consistent frequency until stable breastfeeding practices have been established and all challenges have been addressed.

*Considerations for non-breastfed infants*

Decisions about whether an infant aged less than 6 months requires infant formula and cannot breastfeed must be made after a comprehensive assessment, primarily by an IYCF specialist. Patients are referred to the IYCF hotline where a specialist is in charge of conducting a thorough assessment. If the infant is not breastfed, the mother/caregiver should be offered support to exclusively breastfeed:

- Counsel the caregiver on exclusive breastfeeding.
- Encourage relactation and exclusive breastfeeding.
- Explore possibilities of wet nursing.

If these are not feasible, then do the following:

- Assess appropriate conditions and practices for providing infant formula (see Box 1).
- Discourage the use of bottles and teats, instead ensuring the use **of a cup** for feeding; provide instructions on safe water and handling techniques.
- Give counselling on maternal nutrition.
- Give counselling on handwashing and the safe disposal of excreta.
- Give counselling on psychosocial issues, as required.

**Box 1: Assessment of primary conditions for providing infant formula feeding**

**Mothers or caregivers should only give infant formula when specific conditions are met and following an assessment by the IYCF specialist:**

- The mother/caregiver or family can reliably provide a sufficient supply of infant formula and can exclusively provide it for the first six months.
- Safe water and sanitation are ensured at the household level and in the community, for proper and clean preparation of formula.
- The family is supportive of this practice.
- The caregiver can access health care that offers comprehensive child health services.

***Considerations for supplementary milk***

Decisions about whether an infant less than 6 months of age at risk of poor growth and development needs supplementary milk in addition to breastfeeding must be based on a comprehensive assessment of the medical and nutritional/feeding needs of the infant, as well as the physical and mental health of the mother/caregiver. The national *Maternal Mental Health Guidelines for Healthcare Providers* should be used to guide the maternal assessment.

## *Step 2:*
### *Support for mothers/caregivers of infants less than 6 months of age*

Comprehensive assessment and support for mothers/caregivers of infants less than 6 months are essential for optimizing both maternal and infant health. This involves a multifaceted approach that includes the following:

- Physical health evaluation: regular health check-ups and nutritional assessments to identify any deficiencies
- Mental health screening: early detection of postpartum depression, anxiety and other mental health challenges that may affect caregiving abilities
- Food security: screening for food insecurity and household poverty to initiate appropriate referrals

Effective referral links should be established to deliver appropriate medical and mental health support and care to mothers/caregivers. Social protection programs should also be considered.

## *Step 3:*
### *Monitoring and discharge criteria for infants less than 6 months at outpatient level*

Weekly follow-up and monitoring is recommended for infants less than 6 months and their caregivers. Each visit to the PHCC should include the following:

- Checking for bilateral pitting oedema of the feet
- Measuring weight
- Assessing weight gain (consider 5 g/kg per day or 35 g/kg per week as a guide, but the critical element is a positive trajectory)
- Assessing feeding progress:
    - If breastfeeding, assessing positioning and attachment while breastfeeding and effectiveness of suckling
    - If using generic infant formula, assessing whether it is of an appropriate type and assessing or observing preparation practices, particularly hygiene and the accuracy of the dilution/quantity provided
- Reinforcing key messages on IYCF, maternal nutrition and hygiene practices
- Assessing the progress of any psychosocial issues of the mother/caregiver
- *Every four weeks*: measuring length and calculating WLZ (*MUAC measurements are not used as monitoring criteria in infants less than 6 months).*

Infants less than 6 months of age can have a reduced frequency of outpatient visits when they:

- are breastfeeding effectively or feeding well with replacement feeds, **and**
- have sustained weight gain for at least two consecutive weekly visits.

These infants should still have ongoing follow-up for routine immunization and breastfeeding counselling support for mothers.

**If the infant**

- has failed to gain weight in the previous week,
- has lost any weight in the previous week, or
- has developed any medical problems requiring hospital care or IMCI danger signs

**then transfer the infant to hospital and do the following:**

- Give the first dose of oral antibiotics.
- Give the infant breast milk if the child is conscious or sugar water if not breastfeeding – 50 ml of 10 per cent sugar water orally (1 teaspoon of sugar in 50 ml).
- Advise the caregiver to keep the infant warm with skin-to-skin contact and keep the child covered.
- Arrange transport by ambulance. Do not send the child by public transport.
- Complete the appropriate referral slip, indicating reasons for the transfer and the medical care given.
- If possible, telephone the emergency room medical staff and tell them of the transfer.
- Ensure that the contact details of the caregiver have been noted down for follow-up later.
- Record the transfer in the register and treatment record.

### *Assessment at 6 months*

Once an infant reaches 6 months of age, assess to determine if they need ongoing follow-up or referral to services for infants and children 6 months of age and older or whether it is safe to discharge them.

Assess WFH and MUAC measurements and follow the screening criteria for children aged 6-59 months. If the infant meets the criteria for moderate or severe wasting, enrol them in the appropriate program.

If there are medical or feeding concerns at this point, the infant should be referred to the physician for a full medical check-up. If there is a failure to respond, the physician should consider the following actions:

- Conducting a detailed recent history (checking the accuracy of previous record keeping)
- Conducting a full medical and nutritional examination and a review of previous medical and nutritional therapies (using appropriately calibrated equipment)
- Undertaking a chest X-ray and laboratory investigations as needed
- Reviewing prescribed and unprescribed medicines, food or food additives (e.g. salt)
- Reviewing the care environment (safe water and handling techniques)
- Reviewing the appropriate use of measurement equipment and/or recalibrating the equipment
- Referral to a specialist pediatric service for specific and complex conditions

**If the infant has met discharge criteria:**

- Congratulate the caregiver.
- Record the outcome in the register and treatment record.

### *Follow-up and post-discharge care*

After discharge as cured, the infant and mother/caregiver should be followed up on an intermittent basis to ensure the infant does not suffer a relapse in the future. The following should be ensured:

- The infant is enrolled in a regular growth monitoring program to ensure appropriate care and follow-up.
- The mother or caregiver should receive guidance on introducing age-appropriate complementary foods for the infant at six months, while continuing breastfeeding when possible, in accordance with national guidelines.
- The infant should receive all necessary immunizations, ensuring they are fully up to date upon discharge, and the caregiver should adhere to the childhood immunization schedule.
- The mother or caregiver and infant should be referred to continue health and social support services as needed.

# CHAPTER 6:

# MANAGEMENT OF WASTING IN PREGNANT AND BREASTFEEDING WOMEN

# MANAGEMENT OF WASTING IN PREGNANT AND BREASTFEEDING WOMEN

Pregnant and breastfeeding women with an infant aged less than 6 months should be screened and managed for wasting. Wasting can be particularly concerning during pregnancy and breastfeeding as it can affect both the health of the mother and the development of the infant. Proper screening and management include assessing nutritional status, providing appropriate dietary and supplementary interventions, and ensuring access to health-care services that can support the overall well-being of PBW.

**Table 6: Criteria for enrolment in treatment for pregnant and breastfeeding women**

| CATEGORY | CRITERIA |
|---|---|
| Pregnant<br>- on presentation to the health facility or<br>- the pregnancy is diagnosed by the midwife or physician<br><br>Breastfeeding mother<br>- With infant aged <6 months | MUAC <23.0 cm |

## 6.1 ASSESSMENT OF PREGNANT AND BREASTFEEDING WOMEN

Once a PBW has been referred from the community or a screening centre to a treatment centre, MUAC measurement should be reassessed (Annex 3).

*The pregnant woman should undergo routine antenatal examinations according to the schedule of the health package or PHCC routine.*

An in-depth assessment should also be conducted that includes the following:

- Complete medical assessment by the physician to identify any underlying cause of wasting
- Assessment for presence of oedema (which may also be a sign of preeclampsia)
- Pregnancy confirmation by a physician or midwife, including the pregnancy trimester
- Breastfeeding status of the mother and assessment of breastfeeding practices
- Psychosocial assessment to check for any issues such as depression (including postnatal depression), lack of emotional attachment to the infant, etc.
  Checking the nutritional status of the infant if the woman is breastfeeding or has an infant aged less than 6 months (the caregiver can also be asked to bring the infant for screening during the next visit)

## 6.2 MANAGEMENT OF WASTING IN PREGNANT AND BREASTFEEDING WOMEN AT OUTPATIENT LEVEL

The aim of treating wasting in PBW is to improve maternal nutritional status. The benefit is not only for the caregiver, but also for the fetus or breastfeeding infant. PBW identified with wasting (MUAC less than 23 cm) should receive treatment, with a focus on balanced energy and protein supplementation (use of ready-to-use supplementary food), in addition to counselling on a nutritious diet.

***Use of ready-to-use supplementary food***

- Supplement an additional 500 calories to the diet by providing one sachet of RUSF (92 grams) or two bars of BP-5 per day.
- Provide counselling on appropriate options and quantities of nutritious food.

***Use of micronutrient supplementation***

- While the PBW is receiving RUSF, they should not receive any additional micronutrient supplementation. The RUSF provides all micronutrients in appropriate amounts.
- Vitamin A may be provided four weeks after delivery, but not when receiving RUSF. Vitamin A should not be given routinely to pregnant women.

### *Use of routine medications*

Mebendazole is provided routinely to pregnant women during the second trimester of pregnancy: 500 mg is prescribed orally per day.

The PBW with wasting should return for a follow-up every two weeks, where MUAC should be reassessed, along with any progress on other issues identified during the assessment (breastfeeding challenges, psychosocial issues, etc.). In addition, key messages on IYCF practices, use of RUSF, hygiene and maternal nutrition can be reinforced and discussed.

### *Failure to respond to treatment*

Action protocols should be followed promptly if a PBW has no weight gain, the MUAC is decreasing or there is evidence of clinical deterioration. These protocols include the following:

- Checking for emerging medical complications
- Checking for uncorrected nutritional deficiencies

If nutritional deficiency is suspected, the health worker should do the following:

- Ensure the nutritional product is being used correctly at home, and reinforce key messages for using RUSF.
- Check what family foods are being eaten in addition to the RUSF.
- Ensure PBW with disabilities are receiving appropriate support and have adequate opportunity to eat the full ration of RUSF.
- Ensure pregnant women are receiving and consuming iron and folic acid supplements.

*Checking for problems in the home environment*
A number of social factors may contribute to failure to respond to treatment. Take the following actions:

- Ensure the RUSF is not being shared with other children/adults.
- Ensure the RUSF is being correctly stored when not in use (covered in a cool place).
- Ensure the RUSF is not being cooked in any way or directly mixed with family foods or water.
- Ensure the PBW has had a psychosocial assessment to assess her mental health and is being supported appropriately for any issues; refer to additional services as necessary.

Interview the PBW sensitively to assess other possible problems (e.g. gender-based violence or challenges within the family, household or work environment), and refer to other health-care professionals/services as necessary.

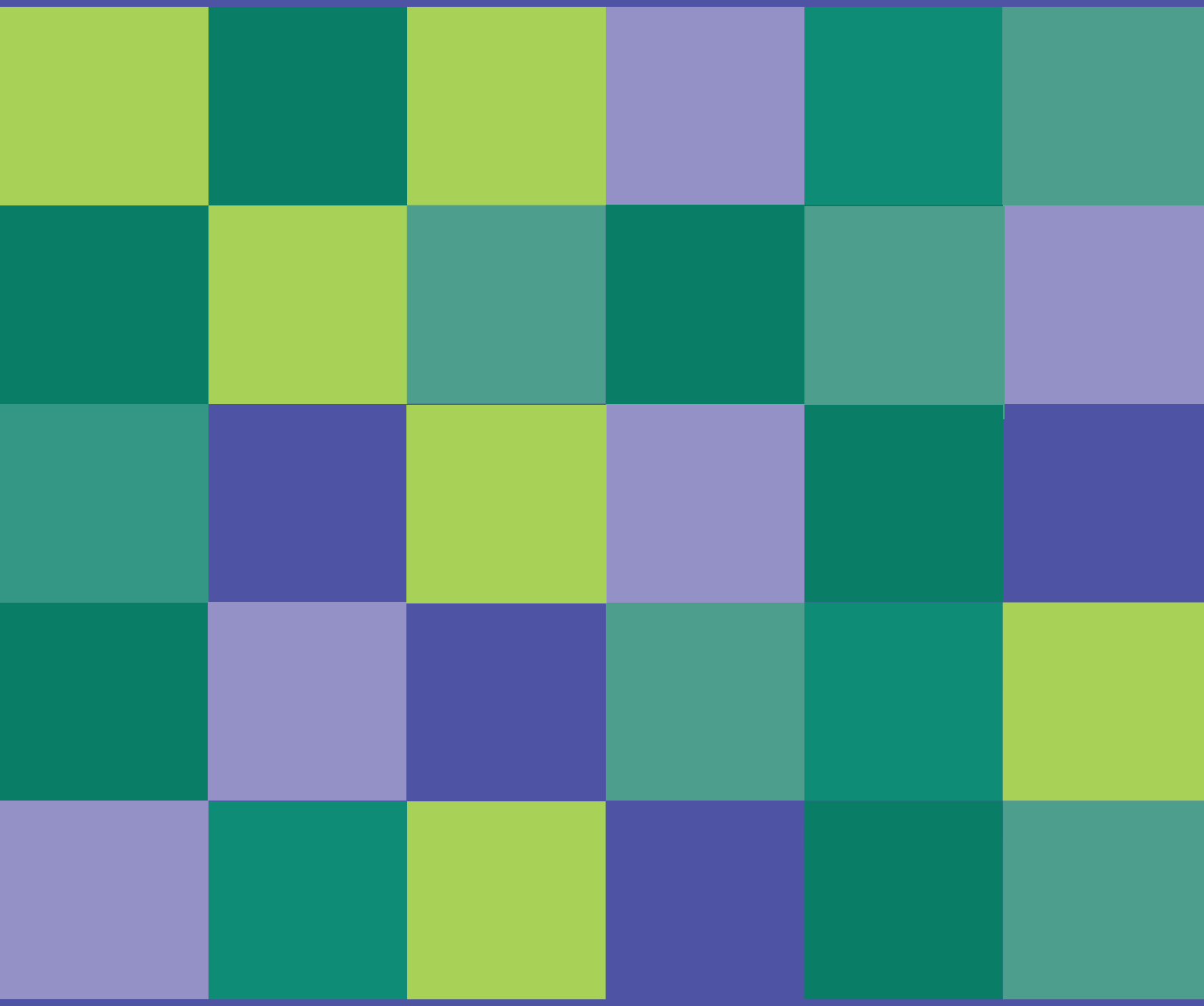
If the above-mentioned avenues have been explored but have not addressed the failure to respond to treatment, the PBW may need to undergo further medical assessment to identify other underlying reasons. Transfer her to a hospital for a full clinical assessment.

## 6.3 **DISCHARGE FROM TREATMENT**

- The criteria for discharge of a PBW are a MUAC measurement greater than 23 cm or her infant reaching 6 months.
- After discharge, the PBW and infant should be followed up on an intermittent basis to ensure the following:
    - She is attending the regular schedule of antenatal and postnatal check-ups.
    - She is receiving counselling on healthy eating practices during pregnancy and lactation.
    - The infant is enrolled in regular growth monitoring.
    - There is referral for continued counselling on IYCF practices, including continued breastfeeding and the introduction of age-appropriate complementary feeding practices for children up to 2 years of age.
    - There is referral of the PBW for any continuing health, psychosocial or disability support, as needed.

# CHAPTER 7:

# OUTPATIENT MANAGEMENT OF WASTING AND/OR NUTRITIONAL OEDEMA IN INFANTS AND CHILDREN AGED 6-59 MONTHS



# OUTPATIENT MANAGEMENT OF WASTING AND/OR NUTRITIONAL OEDEMA IN INFANTS AND CHILDREN AGED 6-59 MONTHS

Infants and children aged 6-59 months must be screened as soon as they enter a health facility or have contact with a health worker. Screening may also take place in the community. The triage and diagnosis, including a complete assessment for treatment, occurs only in PHCCs identified as treatment centres to ensure that children with moderate and severe wasting and/or nutritional oedema receive prompt and appropriate interventions.

## 7.1 ASSESSMENT OF INFANTS AND CHILDREN AGED 6-59 MONTHS

An in-depth assessment should be carried out by a designated health-care provider in the PHCC for infants and children 6-59 months of age. It includes the following steps.

### *Step 1:*
***Anthropometric measurements***

The health-care provider should repeat the anthropometric measurements of MUAC and WFH/L and should check for oedema if these were previously made in a screening PHCC or in the community. The wasting should be classified and the results recorded on the patient's treatment record. Refer to Chapter 4 for details of screening and classification of wasting. If wasting is confirmed, proceed to Step 2; otherwise assess the need for other medical or psychosocial interventions.

### *Step 2:*
***Medical history of the child***

Taking the medical history helps to identify the immediate and/or underlying causes of the wasting. It is an important step since this will guide further treatment and counselling to promote cure and prevent relapse. The health worker should ask:

- Why the caregiver brought the child to the PHCC
- About the usual diet of the child before illness occurred
- What recent changes have occurred in the child's diet or feeding practices
- How long the child has been thin or had swollen feet
- If there has been any recent vomiting and how frequent
- About urine frequency and color
- If there has been any diarrhea (frequency, color and consistency)
- About other issues such as social problems, living conditions or depression
- About the caregiver's coping mechanisms if child has physical or mental disabilities

### *Step 3:*
***Physical examination of the child***

The appropriate triage of cases depends on a full physical assessment to determine the clinical condition of the child. The assessment follows the normal physical assessment for acute illness given to any child and should include examination of the following:

- Neurological status
- Respiration rate and breath sounds
- Pulse rate / heart rate
- Temperature (oral or rectal)
- Hands and feet for signs of adequate circulation or possible sepsis
- The conjunctivae and palms for signs of anemia
- Eyes for 'sunken' appearance
- The severity of dehydration, if present (skin pinch is unreliable in wasted children)
- Eyes, ears, nose and throat for signs of infection
- Mouth for sores, thrush or physical deformities

- Lymph nodes
- Physical or mental disabilities (including current coping mechanisms)
- Skin changes

There is also a need to determine if there are any illnesses requiring immediate transfer to hospital. *If medical complications requiring hospitalization are present, the appetite test (Step 4) is not necessary and should not delay transfer.*

IMCI danger signs requiring transfer to hospital include the following:

- Respiration rate >50 per minute (6 to 12 months) or >40 per minute (1–5 years)
- Difficulty breathing
- Fever >39.0 degrees Celsius (rectal temperature)
- Hypothermia <35.5 degrees Celsius (rectal temperature)
- Severe anemia (very pale palmar pallor, oropharynx, nail beds, conjunctivae)
- Unconscious, reduced level of consciousness, fitting, convulsions
- Persistent vomiting (unable to keep down any food or fluids)
- Extensive infection requiring IV (intravenous) or IM (intramuscular) antibiotics
- Severe dehydration

For children with moderate wasting, the next step, performing the appetite test, should be skipped.

## *Step 4:*
### *Performing the appetite test for children with severe wasting*

The health-care provider should perform the appetite test (Annex 4). The appetite test is a clinical indicator, which must be determined by direct observation and not from reports given by the caregiver. If the child cannot eat the RUTF that is required for nutritional recovery, they cannot be treated at the PHCC and must be referred to hospital.

If the child eats the RUTF readily, encourage the caregiver to give the child at least two to three mouthfuls (approximately three teaspoons in total). Give the child sips of clean water between mouthfuls. *If the child eats three teaspoons of RUTF under observation, then the child has 'passed' the appetite test.*

If the child does not readily eat the RUTF or refuses completely, the caregiver should sit in a quiet corner and gently encourage the child to eat the RUTF for a period of up to one hour. *If the child fails to eat at least three teaspoons of RUTF, then they have 'failed' the appetite test.*

## *Step 5:*
### *Triage of children aged 6-59 months*

The child must be triaged to receive the appropriate treatment according to the severity of the wasting.

1. Infants and children 6-59 months old with moderate wasting can be enrolled in outpatient care at the PHCC.
2. Infants and children 6-59 months old with severe wasting and/or nutritional oedema who have any of the following characteristics should be referred and admitted for inpatient care:
    i. One or more IMCI danger signs
    ii. Acute medical problems
    iii. Severe nutritional oedema 3+ (+++)
    iv. Poor appetite (failed the appetite test)

In case of referral to inpatient care, the following steps should be followed immediately:

- Provision of the first dose of oral antibiotics (Amoxicillin/Ampicillin, 50 mg per kg of body weight).

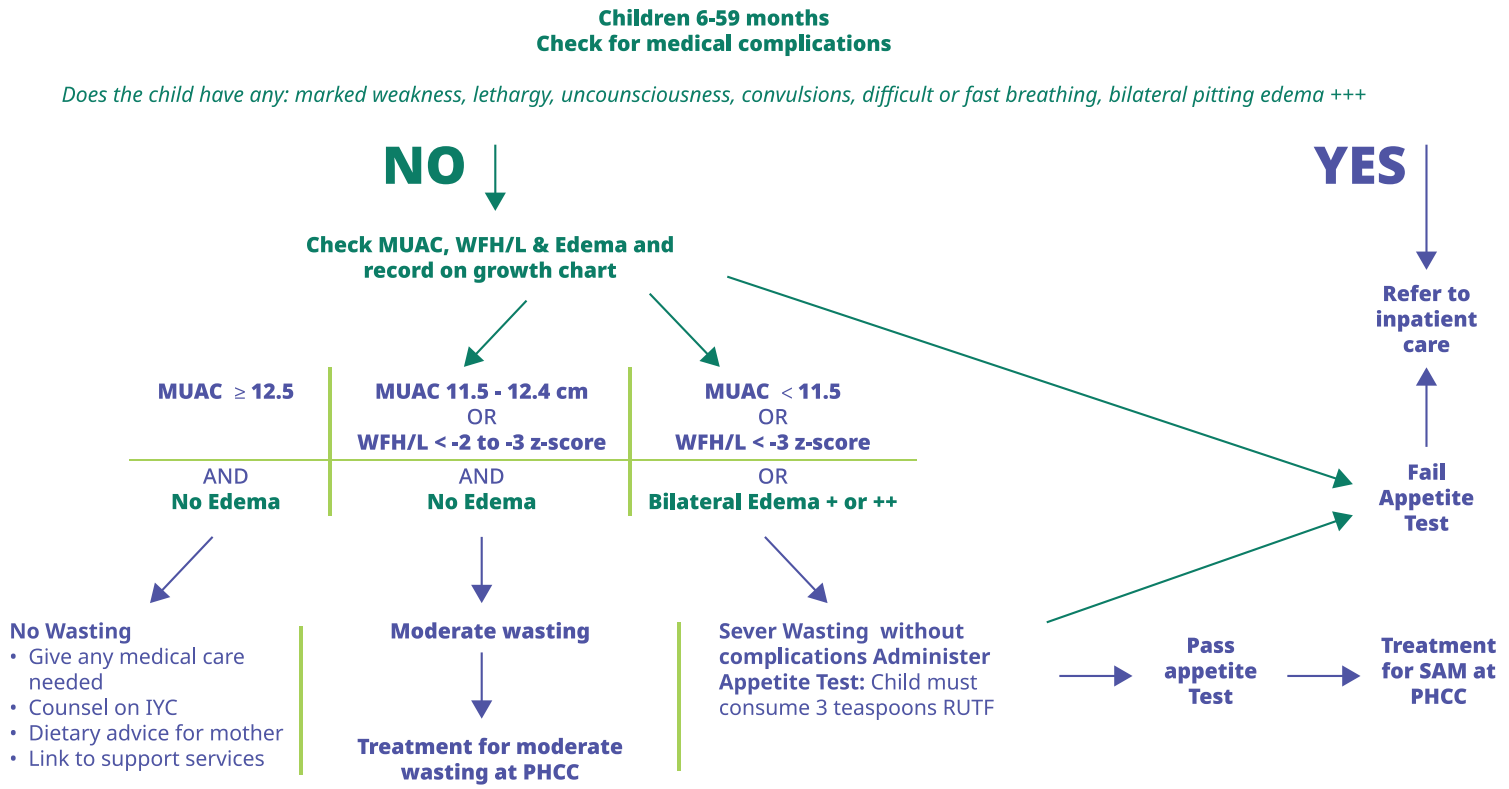
- Provision of 50 ml of 10 per cent sugar water orally if child is conscious (1 teaspoon of sugar in 50 ml).
- Caregiver should be advised to keep the child warm with skin-to-skin contact and keep the child covered.
- Transportation of the child should be arranged by ambulance, with the appropriate referral slip indicating reasons for the transfer and the medical care given. If possible, the emergency room medical staff should be informed of the transfer.

3. Infants and children 6-59 months old with severe wasting and/or nutritional oedema who do not meet any of the criteria above but who have any of the following characteristics should undergo an in-depth assessment to inform the decision on **possible referral** to inpatient care:
   i. Medical problems that do not need immediate inpatient care, but do need further examination and investigation (for example, bloody diarrhea; hypoglycemia; HIV-related complications)
   ii. Medical problems needing medium- or long-term follow-up care and with a significant association with nutritional status (for example, congenital heart disease, cerebral palsy or other disability, HIV, tuberculosis)
   iii. Failure to gain weight or improve clinically in outpatient care
   iv. Previous episode(s) of severe wasting and/or nutritional oedema

4. Infants and children 6-59 months old with severe wasting and/or nutritional oedema who have all of the following characteristics should be enrolled and managed as outpatients:
   i. Good appetite (passed the appetite test)
   ii. No danger signs or any of the acute medical problems
   iii. Not meeting the criteria for needing an in-depth assessment or where an assessment has been completed and no inpatient admission is needed (for example, diarrhea with no dehydration, respiratory infections with no signs of respiratory distress, malaria)

Figure 5 describes an algorithm to assist in determining the correct treatment based on the findings from Steps 1 to 4 above.

**Figure 5: Decision tree for triage of children aged 6-59 months**



## 7.2 MANAGEMENT OF MODERATE WASTING IN INFANTS AND CHILDREN AGED 6-59 MONTHS

In high-risk contexts (where there is a recent or ongoing humanitarian crisis – Integrated Food Security Phase Classification 3 or higher), all children 6-59 months of age with moderate wasting should be provided with RUTF, along with counselling and home foods for them and their families. At treatment PHCCs, health workers should confirm the moderate wasting criteria by checking the MUAC and/or WFH/L.

Box 2 describes the high-risk moderate wasting protocol that may be activated by MOPH in specific situations.

**Box 2: Activation and use of high-risk moderate wasting criteria in Lebanon**

If food security improves at the national level, MOPH will activate a targeted program under which children identified with moderate wasting will be assessed for high risk. In such contexts, only high-risk moderately wasted children will be eligible to receive RUTF. Other moderately wasted children will be supported with counselling on nutrient-dense diets.

Under these conditions, infants and children aged 6-59 months with moderate wasting will be classified with high-risk moderate wasting when any of the following factors are identified at initial assessment or have developed during treatment:

- MUAC of 11.5–11.9 cm
- Failing to recover from moderate wasting after receiving other interventions (e.g. counselling alone)
- History of severe wasting
- Co-morbidity (medical problems needing medium- or long-term follow-up care and with a significant association with nutritional status such as HIV and tuberculosis or a physical or mental disability)
- Social factors affecting severely personal circumstances – for example, if the mother has died or if there is poor maternal health and well-being.

Counselling and support must be provided to the caregivers of children with moderate wasting who do not qualify as high risk to ensure they receive appropriate care and nutrition at home. They should be supported by the PHCC and/or CHWs with close monitoring.

Micronutrient supplements, including vitamin A, iron and zinc (or multiple micronutrient powders), should be given to children who do not receive RUTF.

Management of all children with moderate wasting should include counselling on a nutrient-dense diet for the child to fully meet their extra needs for recovery of weight and height and for improved survival, health and development. Nutrient-dense foods are foods high in nutrients relative to their caloric content; that is, they have a relatively high content of vitamins, minerals, essential amino acids and healthy fats. Examples of nutrient-dense foods include animal source foods, beans, nuts, and many fruits and vegetables. Emphasis should be on adequate locally available diets and affordable available foods typically consumed by the child.

### *Provision of ready-to-use therapeutic food*

RUTF is an energy-dense peanut-based paste (500 kcal per 92 g sachet) that contains macronutrients and micronutrients to supplement a child's diet. The composition of RUTF is available in Annex 5. Given as a supplement, it is intended that RUTF should provide 40 to 60 per cent of the total daily energy requirements needed to achieve anthropometric recovery, which are estimated to be around 100–130 kcal per kg (of body weight) per day. RUTF is given as a take-home ration to supplement the child's home diet.

If RUTF is not available or if the child does not like the taste, an alternative supplementary food such as BP-100 can be used. If the caregiver reports problems feeding the child with the supplementary food during follow-up visits, the health-care worker should assess how the product is being used and whether other family foods are being given appropriately.

Table 7 indicates the amount of RUTF to be given to children aged 6-59 months with moderate wasting.

**Table 7: Amount of RUTF product to provide for management of moderate wasting in children aged 6-59 months**

| WEIGHT OF CHILD (KG) | FOR MODERATE WASTING CHILDREN AGED 6-59 MONTHS | | |
|---|---|---|---|
| | PACKETS PER DAY | PACKETS PER ONE-WEEK SUPPLY | PACKETS PER FOUR-WEEK SUPPLY |
| **3.5 to 6.9** | 0.5 | 4 | 14 |
| **7 to 13.9** | 1 | 7 | 28 |
| **>14** | 1.5 | 11 | 42 |

Before starting the RUTF regimen, the caregiver should be asked whether the child has a peanut allergy or a trial should be done for a peanut allergy. A 30 g portion of RUTF may be offered to the child, who is then observed for an hour for any symptoms such as rashes or shortness of breath. Feeding can proceed if the allergy test is passed successfully. If an allergy is detected, a cereal-based blend can be considered, such as BP-100, with amounts prescribed to reach 100–130 kcal per kg. Two bars of BP-100 are equivalent to one sachet of RUTF.

### *Micronutrient supplementation, oral rehydration solution and antibiotic use*

- *Antibiotic use:* Infants and children with moderate wasting should not routinely receive antibiotics unless they show signs of clinical infection.
- *Supplementation:* Micronutrient supplements (including micronutrient powder) should not be provided when the child is receiving RUTF.
- *Hydration:* In infants and children aged 6-59 months with moderate wasting who are dehydrated but not in shock, low-osmolarity oral rehydration solution (ORS) should be administered at a dose of 50–100 ml in spoons for infants and children from 6 to 24 months of age, and 100–200 ml in sips from cups for children above 24 months of age after each loose stool. The maximum amount of ORS per day is 500 ml for children from 6 to 24 months of age and 1,000 ml for children from 24-59 months of age.

### *Nutrition counselling for mothers/caregivers of children with moderate wasting*

The mother/caregiver should be given counselling regarding age-appropriate complementary feeding practices (see Annex 6). This should include attention to general hygiene practices and proper food preparation. In addition, the caregiver should be given dietary advice to ensure the caregiver and the rest of the family are aware of good dietary practices.

### *Monitoring criteria for children aged 6-59 months with moderate wasting at outpatient level*

The child should be monitored while on treatment through returning to the PHCC every month for a check-up to ensure they are gaining weight and to investigate any possible causes if there is a lack of progress. Unless there is a reported illness, the child is not gaining weight or the child has deteriorated, it is not necessary for the child to see the physician at every visit. If the child is absent from a scheduled follow-up visit, the health-care provider should contact the caregiver by phone or through a home visit, if possible, to encourage them to return to the PHCC as soon as possible to collect supplies of RUTF and continue the treatment of the child.

At each follow-up visit at the PHCC, the health-care provider should reassess the child for the following:

- Any illnesses or feeding problems since the previous visit
- Anthropometric measurements: MUAC, weight, height, WFH/WFL – using the most recent measurements of weight and height
- Nutritional oedema (bilateral pitting oedema of the feet)

The child should be referred to see the physician for further assessment if there is:

- No weight gain on three consecutive weighings
- Weight loss on two consecutive weighings
- Development of oedema
- Development of any clinical illnesses
- Failure to reach discharge criteria within three months

The health-care provider should also reassess:

- If the supplementary food is being dispensed and used appropriately
- If the caregiver is following age-appropriate complementary feeding practices
- If the caregiver is following good hygiene practices

If the child has deteriorated and now fulfils the criteria for severe wasting (MUAC <11.5 or WFH/L <-3 z-scores), they should be recorded as a discharge from moderate wasting treatment as 'transfer to another service' (see section on 'other discharge criteria'). The child should then be recorded as a 'new admission' as a case of severe wasting. As long as there are no complications, the child may continue to be treated at the PHCC using the protocols for the management of severe wasting.

### *Assessing the child for discharge as cured*

At each visit the child should be assessed for discharge. Table 8 gives the criteria for discharge as cured.

**Table 8: Criteria for discharge as cured**

| AGE | CRITERIA |
|---|---|
| 6-59 months | MUAC >12.5 cm<br>***and***<br>WFH or WFL >-2 z-scores<br>***and***<br>oedema is absent<br>***and***<br>child is clinically well for two consecutive visits |

### *Other discharge criteria*

If the child does not reach cure, they may be discharged for other reasons. Other categories of discharge are defined in Table 10 of the next section.

### *Follow-up after discharge*

Mothers/caregivers of infants and children treated for wasting should be provided with interventions after their children exit from nutritional treatment. These could include counselling and education (on IYCF practices, recognition of common childhood illnesses and appropriate health-seeking behaviours); support to provide responsive care; and safe water, sanitation and hygiene interventions to improve overall child health and prevent relapse to wasting. Further follow-up actions are discussed in the next section.

## 7.3 **OUTPATIENT MANAGEMENT OF SEVERE WASTING IN INFANTS AND CHILDREN AGED 6-59 MONTHS**

A child with severe wasting has an abnormal physiology. Often the deterioration in physiological systems and organ function is not visible, and illness or disease may not be symptomatic in the same way as well- nourished children. In this group, antibiotics are given routinely along with the nutrition therapy. In addition, the physician or health worker should examine the child to identify any underlying medical or psychosocial causes for the wasting.

Prior to admission, the health worker should repeat the measurements taken at the screening PHCC or in the community to confirm that the child meets the criteria.

**Table 9: Criteria for treatment of severe wasting at PHCC**

| AGE | CRITERIA |
|---|---|
| 6-59 months | MUAC <11.5 cm<br>or<br>WFH or WFL <-3 z-scores<br>or<br>oedema + or ++<br>and<br>no medical complications<br>and<br>passes appetite test for RUTF |

### *Antibiotic use, oral rehydration solution and micronutrient supplementation*

Antibiotic use: All children with severe wasting receive routine antibiotics on enrolment for treatment as outpatients.

Table 10 details the prescription of routine antibiotics.

**Table 10: Routine antibiotics for children aged 6-59 months with severe wasting managed at outpatient level**

| ANTIBIOTIC | AGE OR WEIGHT | DOSE | ADMINISTRATION |
|---|---|---|---|
| **Amoxicillin** | Less than 12 months (4 to 10 kg) | 250 mg | 1 dose on enrolment to treatment, then twice per day for 5 days |
| | 12-36 months (10 to 14 kg) | 500 mg | |
| | 36-59 months (14 to 19 kg) | 750 mg | |

The first dose of antibiotics should be given to the child by the health-care provider while demonstrating to the caregiver how to administer the antibiotics correctly. The caregiver should be counselled on the importance of complying with treatment and completing the course of antibiotics, even if the child appears to be well.

- ***Hydration:*** If the child is dehydrated but not in shock, the preferred rehydration fluid is rehydration solution for malnutrition; 30ml of solution should be given per every episode of watery diarrhea. If not available, low-osmolarity oral rehydration the solution can be used with the same amounts prescribed for children with moderate wasting and dehydration.
- ***Supplementation:*** RUTF contains all the micronutrients required for the child; therefore, children taking RUTF should not receive any additional micronutrient supplementation until after the full RUTF treatment course is completed.

### *Dietary management*

Children with severe wasting are treated with RUTF in outpatient care. RUTF is specially formulated with all of the nutrients required for rapid physiological recovery and weight gain to enable a child to recover from severe wasting even if no other foods are eaten. RUTF should be given in a quantity that will provide 150 to 185 kcal per kg per day until anthropometric recovery and resolution of nutritional oedema.

The recommended amounts of RUTF to be given are as follows:

| WEIGHT OF INFANT OR CHILD (KG) | SACHETS OF RUTF PER DAY (92 G, 500 KCAL) |
|---|---|
| 3.0–3.4 | 1.25 |
| 3.5–3.9 | 1.5 |
| 4.0–4.9 | 1.75 |
| 5.0–5.9 | 2 |
| 6.0–6.9 | 2.5 |
| 7.0–7.9 | 3 |
| 8.0–8.9 | 3.5 |
| 9.0–9.9 | 4 |
| 10.0–11.9 | 4.5 |
| ≥12.0 | 5 |

If RUTF is not available, the child does not like the taste, or an allergy is detected, a cereal-based blend can be considered, such as BP-100, with amounts prescribed to reach 150-185 kcal per kg. Two bars of BP-100 are equivalent to one sachet of RUTF.

If the child's weight increases during recovery, the amount of RUTF given increases according to weight.

In special situations, such as emergencies requiring mobile units and floating nurses, and following a decision made collaboratively between MOPH and the Nutrition Cluster, a simplified approach could be adopted (one sachet per day for moderate wasting and two sachets per day for severe wasting) to facilitate treatment by health-care providers.

In the first few weeks, the child may have a small appetite and may be satisfied with eating only RUTF. As the child recovers, they may wish to eat other family foods in addition to the RUTF. Family food should be offered only after RUTF has been consumed.

The caregiver should be given counselling regarding the proper preparation and use of RUTF and age-appropriate complementary feeding practices (Annex 5 and 6). This should include attention to general hygiene practices and proper food preparation. In addition, the caregiver should be given dietary advice to ensure the caregiver and the rest of the family are aware of good dietary practices.

### *Monitoring criteria for infants and children aged 6-59 months with severe wasting at outpatient level*

The child with severe wasting should return to the PHCC on a biweekly basis for a check-up, to ensure that s/he is gaining weight and to investigate the reason for any lack of progress.

At each follow-up visit at the PHCC, the health-care provider should reassess the child for the following:

- Any illnesses or feeding problems since the previous visit
- Anthropometric measurements: MUAC, weight, height,[14] WFH/WFL (using the most recent measurements of weight and height)
- Nutritional oedema (bilateral pitting oedema of the feet)
- If the supplementary food is being dispensed and used appropriately and if complementary feeding practices are being followed

If the child is not progressing well or is not gaining weight, they should be referred to the physician for a medical check-up. In addition, the caregiver should receive a psychosocial assessment and their understanding of IYCF practices, use of RUTF and family foods, hygiene practices, etc. should be checked.

If the child is absent from a scheduled follow-up visit, the health-care provider should contact the caregiver by phone or through a home visit, if possible, to encourage them to return to the PHCC as soon as possible to collect supplies of RUTF and continue the treatment of the child.

14 Height only needs to be measured every four weeks.

During recovery, the child's anthropometric status may indicate that they are 'moderately wasted' rather than 'severely wasted'. This does not mean that the treatment of the child should be changed. The physiology of a child recovering from severe wasting is not the same as a child with moderate wasting who was never diagnosed with severe wasting. Therapy with RUTF should be continued until discharged as cured.

### *Criteria for transfer to inpatient management during treatment*

If the child continues to deteriorate, s/he may require transfer to hospital for further investigation. The criteria are as follows:

- Increase in oedema or development of oedema
- Unable to eat RUTF or no appetite
- Weight loss for three consecutive weighings or static weight for five consecutive weighings
- Development of IMCI signs or acute medical complications listed in the admission criteria

Children should be transferred to the hospital designated as a treatment centre. Communication between health-care providers in the hospital and the PHCC should be documented. A referral slip should be completed by the health-care provider in the PHCC and should include:

- Reason for referral
- Medical condition if present
- Record of continuing medications
- Anthropometric indices and interpretation of growth parameters
- Feeding regimen using amount of RUTF sachets

### *Discharge criteria for infants and children aged 6-59 months from outpatient care*

At each visit the child should be assessed for discharge. Table 8 gives the criteria for discharge as cured. Infants and children aged 6-59 months with moderate wasting or severe wasting and/or nutritional oedema should only exit from nutritional treatment when **all** of the following conditions are met:

- Their WHZ or WLZ is ≥-2 AND their MUAC is ≥12.5 cm, observed for at least two consecutive visits/ measurements.
- They have had no nutritional oedema for at least two consecutive visits/measurements.
- They have no signs of medical complications (child is clinically well on two consecutive visits).

If the child does not reach cure, they may be discharged for other reasons (see Table 11).

On discharge, each case treated for wasting is reported according to a specific discharge category, namely:

a. Cured
b. Defaulted
c. Died
d. Transferred to another service
e. Non-respondent

**Table 11: Categories of discharge for children not cured**

| CRITERIA | DEFINITION |
|---|---|
| Defaulter | Child has been absent from follow-up visits on 2 consecutive occasions (4 weeks) |
| Death | Child has died (from any cause) during treatment |
| Transfer to another service | Child has been transferred to hospital, inpatient care or another PHCC, or to a severe wasting or high-risk moderate wasting program within the same PHCC |
| Non-responder | Child who has not reached discharge criteria after 4 months in the program |

### *Follow-up of defaulters*

A child or PBW may default from treatment for a variety of reasons. It is important to follow up defaulters whenever possible to do the following:

1. To find out if they are truly a defaulter or whether the child has died

2. If the family still live locally and the child has not died, to discover the reason for defaulting

Each caregiver should be contacted by telephone or followed up through a home visit to identify the reason(s) for default. If possible, the health-care provider should try to find ways of overcoming the reason for default and should encourage the defaulter to return to complete the course of treatment. Over time the reasons for default can be evaluated to see if the service delivery needs to be modified in order to make services more accessible.

If the defaulter is unable or unwilling to return for continuing treatment, the health-care provider should try to refer the caregiver to other ongoing support services, as appropriate to the child's medical and social situation. If the child was referred from a screening PHCC, the treatment PHCC should notify the health-care providers at the screening PHCC of the outcome of treatment.

### *Transfer to another service*

***1.*** *Transfer to another treatment PHCC*

The family of a child may decide to relocate and continue treatment at another treatment PHCC. The health-care provider can facilitate this process by:

- Providing a discharge summary detailing the treatment received prior to transfer
- Providing a standard referral form for transfer to another PHCC (Annex 7)
- Telephoning the health-care provider at the other PHCC to tell them to expect the transfer
- Arranging a scheduled appointment (ideally within 7 days of transfer)
- Providing enough RUTF to last until the next appointment at the other PHCC
- Providing the caregiver with any counselling or information required for the transfer process

***2.*** *Transfer to a treatment hospital*

A child may require transfer to hospital for any medical complications that may occur during treatment. The health-care provider should immediately ensure the following:

- Provision of the first dose of oral antibiotics (Amoxicillin/Ampicillin, 50 mg per kg).
- Provision of 50 ml of 10% sugar water orally if the child is conscious (1 teaspoon of sugar in 50 ml).
- The caregiver should be advised to keep the child warm with skin-to-skin contact and keep the child covered.
- Transportation of the child should be arranged by ambulance, with the appropriate referral slip indicating the reasons for transfer and the medical care given. If possible, the emergency room medical staff should be informed of the transfer.

***3.*** *Transfer to a non-treatment hospital*

A child may require specialized medical or surgical interventions not available at the treatment hospital (e.g. correction of a congenital heart defect). If a child is transferred to a non-treatment hospital, the treatment hospital and/or treatment PHCC should facilitate the continued nutritional support of the child as appropriate to the child's condition.

## 7.4 **PROCEDURES WHEN A CHILD FAILS TO RESPOND TO TREATMENT**

A child under treatment for wasting may fail to respond to treatment at the PHCC for a number of reasons. Typical criteria for identifying non-response in treatment of moderate wasting are as follows:
Not meeting discharge criteria after 4 months of enrolment

- No weight gain after 6 weeks of enrolment
- Weight loss in the first 4 weeks of enrolment
- Weight loss in excess of 5% while enrolled

Typical criteria for identifying non-response for outpatient treatment of severe wasting are as follows:

- Weight loss since enrolment (non-oedematous children)
- Weight loss of 5% of body weight
- Weight loss for 2 successive visits
- Failing the appetite test (at any visit to the PHCC)
- Not gaining more than 2.5 g/kg/day for 22 days (after loss of oedema) or after 15 days (wasting)
- Not gaining weight within the first 22 days (non-oedematous children)
- Failure to start losing oedema after 15 days or oedema is still present after 22 days

Children who do not respond to treatment should not be discharged without prior investigation into the likely causes of the non-response. Figure 6 illustrates the sequence of investigations for cases that fail to respond.

**Figure 6: Procedure for failure to respond to treatment**


Adapted from Golden and Grellety (National Guidelines for the Management of Acute Malnutrition, 2017)

***Check the application of the protocol***

The physician or responsible health facility supervisor should ensure that health-care providers have been provided with training on the national guidelines and that protocols are applied correctly as follows:

- Appropriate admission criteria are applied.
- Appropriate medications are prescribed and administered.
- Appropriate nutrition products are dispensed according to the type of wasting.
- Action protocols are followed promptly when there is no weight gain or clinical deterioration.

### *Check for uncorrected nutritional deficiencies*

Commercial nutritional supplies from the MOPH (therapeutic milk products F-75 and F-100, as well as RUTF) have the appropriate nutrient content to correct nutritional deficiencies, provided they are used correctly. If nutritional deficiency is suspected, the following steps should be taken:

- Ensure the nutritional product is being used correctly at home, and reinforce key messages for using RUTF.
- Check what family foods are being given in addition to the RUTF.
- Ensure that children with disabilities are receiving appropriate support and have adequate opportunity to eat the full ration of RUTF.
- A child with **moderate wasting** can be given a double ration of RUTF for a trial period (2 weeks).
- A child with severe wasting already using RUTF should be transferred to hospital for treatment with RUTF or F-100 under direct observation (refer according to action protocols).
- If generic formulas are being used, ensure they comply with the WHO standards for the treatment of severe wasting.

### *Check for problems in the home environment*

- Ensure the RUTF is not being shared with other children/adults.
- Ensure the RUTF is being correctly stored when not in use (covered in a cool place).
- Ensure the RUTF is not being cooked in any way or directly mixed with family foods or water.
- Ensure inappropriate food additives are not being used (e.g. salt, especially for severe wasting cases).
- Ensure the caregiver has had a psychosocial assessment, including on responsive feeding practices and emotional stimulation for the child.
- Interview the caregiver to assess other possible problems (e.g. support for children with disabilities).

If previous efforts have not diagnosed and addressed the failure to respond to treatment, the child may need to undergo further medical/surgical assessment to identify the reason for the failure to respond, i.e. idiopathic non-response. In rare situations, there may be no understandable cause for the non-response to treatment. In these cases, the physician, in collaboration with other support services, should decide about what treatment or support the child requires for the long-term future.

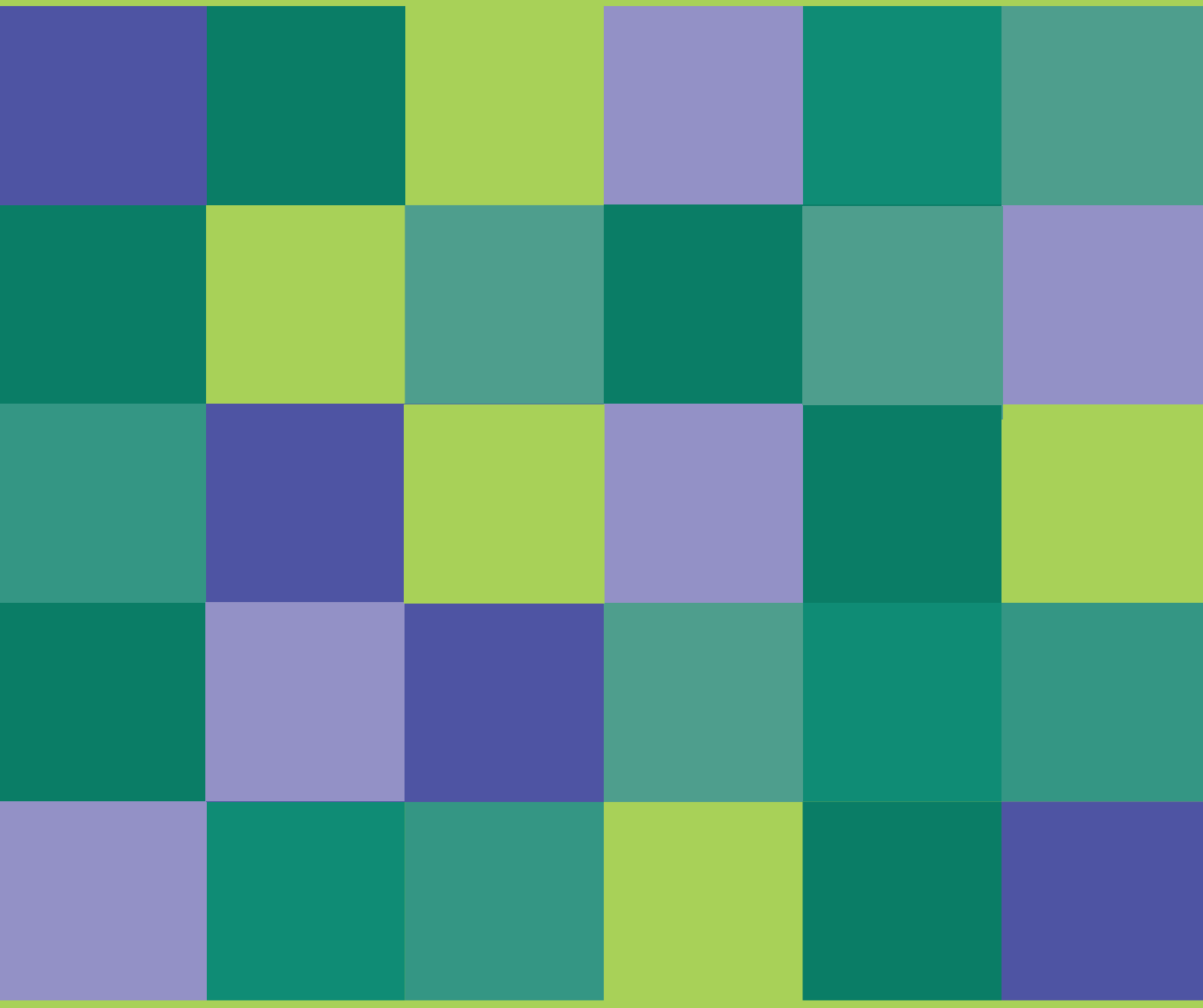
## 7.5 **FOLLOW-UP AND POST-DISCHARGE**

Children with severe wasting and/or nutritional oedema who are discharged from treatment programmes should be periodically monitored to avoid a relapse. Mothers/caregivers of infants and children treated for wasting should be provided with interventions after their children exit from nutritional treatment. These could include counselling and education (on IYCF practices, recognition of common childhood illnesses and appropriate health-seeking behaviours), as well as support to provide responsive and safe care.

Follow-up services at the PHCC level and in the community are important to support the family. They may include outreach by PHCC staff or CHWs and/or referral to other services and programs, as necessary. Follow-up of children who default from the program is also important.

# CHAPTER 8:

# MANAGEMENT OF INFANTS LESS THAN 6 MONTHS AT RISK OF POOR GROWTH AND DEVELOPMENT AT INPATIENT LEVEL



# MANAGEMENT OF INFANTS LESS THAN 6 MONTHS AT RISK OF POOR GROWTH AND DEVELOPMENT AT INPATIENT LEVEL

Infants less than 6 months of age at risk of poor growth and development who develop acute medical problems or other acute complications require treatment in hospitals identified as treatment centres. The initial management should focus on stabilization of metabolic abnormalities and emergency symptoms. The next step should be diagnosing and treating (wherever possible) medical conditions that could be the cause of the infant being at risk of poor growth and development.

Once underlying medical conditions have been ruled out, stabilized and treated (wherever possible), the next phase in management should be addressing the feeding problems causing or contributing to poor growth and development. This phase of treatment is known as the rehabilitation phase, when catch-up growth occurs.

Sensory stimulation must be provided to the infant throughout the period they are receiving inpatient treatment, along with support to the mother or caregiver.

## 8.1 ADMISSION CRITERIA FOR INPATIENT CARE FOR INFANTS LESS THAN 6 MONTHS

Admission for infants less than 6 months of age into inpatient care is done on the basis of immediate referral or following an 'in-depth assessment'.

### *Immediate referral and admission to inpatient care*

Infants less than 6 months of age at risk of poor growth and development who meet one or more of the criteria listed in Table 12 should be admitted in inpatient care at a designated hospital.

**Table 12: Criteria for immediate referral to inpatient care for infants less than 6 months of age**

| CATEGORY | CRITERIA FOR ADMISSION |
|---|---|
| IMCI danger signs: one or more criteria | • Not able to drink or breastfeed<br>• Vomits everything<br>• Had convulsions recently<br>• Convulsing now<br>• Lethargic or unconscious |
| Acute medical problems or conditions under severe classification as per IMCI: one or more criteria | • Signs of possible serious bacterial infection in infants less than 2 months of age<br>• Septic shock<br>• Oxygen saturation <90%<br>• Pneumonia (with chest indrawing and/or fast breathing and, if possible to measure, oxygen saturation <94%)<br>• Dehydration (including some or severe dehydration)<br>• Severe persistent diarrhoea (diarrhoea for 14 days or more, plus dehydration)<br>• Very severe febrile illness<br>• Very severe febrile illness – where there is no risk of malaria or with a negative rapid diagnostic test; this is treated as bacterial disease, e.g. meningitis, etc.<br>• Severe complicated measles<br>• Mastoiditis<br>• Severe anaemia (severe palmar pallor or hemoglobin levels less than 14 g)<br>• Severe side effects from antiretroviral therapy (for HIV) – skin rash, difficulty breathing, severe abdominal pain, yellow eyes, fever, vomiting<br>• Open or infected skin lesions associated with nutritional oedema<br>• Other stand-alone 'priority clinical signs' not classified as danger signs: hypothermia (<35°C axillary or 35.5°C rectal) or high fever (≥38.5°C axillary or 39°C rectal) |
| Nutritional oedema | Bilateral pitting oedema of any grade |
| Recent weight loss | Two or more weight loss measurements documented or reported by the mother/caregiver |

Adapted from World Health Organization. (2023). Guideline: Updates on the management of severe acute malnutrition in infants and children.

### *In-depth assessment to consider admission in inpatient care*

Infants less than 6 months of age at risk of poor growth and development who do not meet any of the criteria from Table 12 should receive an in-depth assessment. The assessment can be carried out by a designated health-care provider at the PHCC or at the emergency unit (if the infant is already at the hospital).

The aims of the in-depth assessment are to do the following:

1. Decide if it is possible, safe and appropriate to manage the infant at an outpatient setting (PHCC) or whether it is necessary to admit them for inpatient care.
2. Initiate the admission process.
3. Initiate the appropriate referral to outpatient settings if admission is not needed.

An in-depth assessment should include the following domains:

1. Infant health status and presence of disabilities
2. Mother/caregiver physical and mental health status
3. Breastfeeding practices: maternal responsiveness to infant cues, positioning, latching, suckling and swallowing

Infants should be referred and admitted to inpatient care at a designated hospital if they meet one or more of the criteria listed in Table 13.

**Table 13: Criteria for an in-depth assessment to consider referral to inpatient care for infants less than 6 months of age**

| CATEGORY | CRITERIA FOR ADMISSION |
|---|---|
| Medical problems not requiring immediate inpatient care but requiring further examination, which also have a significant impact on nutritional status | • Newly diagnosed medical problem with potential benefits of initial inpatient care<br>• Intensive observation period<br>• Initiating treatment<br>• Conducting investigations not available in an outpatient setting<br>• Issues needing longer term care, such as congenital heart disease, HIV, tuberculosis, cerebral palsy and other physical disabilities |
| Anthropometric measurements: one or more criteria | For infants less than 6 weeks of age:<br>• Failure to gain weight based on two consecutive measurements<br><br>For infants between 6 weeks and 6 months of age:<br>• WAZ <-2<br>• WLZ <-3<br>• MUAC <110 mm |
| Feeding concerns: one or more criteria | For breastfed infants:<br>• Ineffective breastfeeding (e.g. attachment, positioning, suckling reflex)<br><br>For non-breastfed infants:<br>• Inappropriate and unsafe use of breast milk substitutes for replacement feeding<br>• Milk refusal |
| Maternal-related or social issue needing more intensive support | • Disability of infant<br>• Clinical depression of the caregiver<br>• Absent mother<br>• Adolescent mother<br>• Other adverse social circumstances |

Adapted from World Health Organization. (2023). Guideline: Updates on the management of severe acute malnutrition in infants and children.

Maternal/caregiver autonomy, capacity and consent must be prioritized when referral to inpatient care is recommended.

### *Emergency care*

Feeding and medical treatment should be initiated as soon as the infant and caregiver are admitted. The infant should be kept warm, with the head covered and airway free to prevent hypothermia.

A few infants with severe wasting and/or nutritional oedema will be found to have emergency signs related to shock: cold skin, prolonged capillary refill and fast, weak pulse.

**If the infant has signs of shock** and is not lethargic or unconscious, oral rehydration should be considered: 5 ml/kg of 10% glucose, with a maximum volume of 25 ml. Antibiotics and hydration should then be continued according to the medical management guidelines below.

When signs of shock are present with lethargy and/or loss of consciousness, infants should receive IV fluids. However, these infants may not cope with large amounts of fluids. IV fluids are given at 15 ml/kg over 1 hour, and are either Ringer's lactate solution with 5% dextrose or 0.45% saline with 5% dextrose.

The infant should be monitored closely every 5 to 10 minutes for changes in pulse rate and volume and breathing rate.

If there are signs of improvement (pulse rate falls, pulse volume increases or respiratory rate falls) and no evidence of pulmonary oedema, IV infusion is repeated at same rate of 15 ml/kg over 1 hour, and then oral rehydration can be initiated.

If the infant fails to improve after two IV boluses of 15 ml/kg, IV fluid should be maintained at 4 ml per kg of body weight per hour. IV antibiotics should be given according to the medical management guidelines below (refer to the section on treatment of infection).

**If severe anemia is present**, diagnosed as hemoglobin (Hb) at <4 g/dl or <6 g/dl with the presence of respiratory distress, a blood transfusion is required within the first 24 hours. The blood transfusion must be slow, administering whole blood at 10 ml/kg over 3 hours, along with 1 mg of furosemide per kg intravenously at the start of the transfusion.

If the infant deteriorates during IV rehydration (mainly if the breathing rate increases by 5 per minute and the pulse rate increases by 15 per minute), IV infusion should be stopped to avoid overhydration and heart failure. If other signs of heart failure are present, such as distension of jugular veins, enlarged liver, eyelid oedema, gallop rhythm or fine crackling at lungs, diuretics may be considered cautiously; mainly an IV of furosemide at a rate of 1mg/kg can increase urine output within 2 hours. Blood transfusion when signs of heart failure are present should be done with 10 ml/kg of packed cells, as whole blood could potentially exacerbate the condition.

## 8.2 INPATIENT MANAGEMENT OF MEDICAL COMPLICATIONS FOR INFANTS LESS THAN 6 MONTHS OF AGE

Treatment of infants less than 6 months of age involves two phases: 1) stabilization and 2) rehabilitation. Medical complications are usually targeted and treated in the first phase.

**Table 14: Time frame for the management of infants less than 6 months of age with severe wasting and/or nutritional oedema at inpatient level**

| COMPLICATIONS AND TREATMENT PLANS | STABILIZATION | | REHABILITATION |
|---|---|---|---|
| | Days 1–2 | Days 3–7 | Weeks 2–6 |
| **Medical complications** | | | |
| Hypoglycemia | ----------> | | |
| Hypothermia | ----------> | | |
| Dehydration | ----------> | | |
| **Treatment plans** | | | |
| Micronutrient supplementation | Vitamin A if deficiency present<br>*Iron must not be provided*<br>----------> | | Vitamin A if deficiency present |
| Breastfeeding support | ----------> | | |
| Supplemental milk | ----------> | | If exclusive breastfeeding was not established |

Adapted from World Health Organization. (2013). Pocket book of hospital care for children: Guidelines for the management of common childhood illnesses.

### *Treatment of medical complications and feeding initiation*

Infants with severe wasting are often seriously ill when they first present for treatment. Wasting, anorexia and infections are common. Successful initial management requires frequent, careful medical assessment and anticipation of common complications so they can be prevented or recognized and treated at an early stage. The physiology of malnourished children is abnormal.

First steps focus on the prevention and diagnosis of medical complications, and the commencement of treatment. Laboratory investigations should not delay treatment. Even if there are no laboratory facilities, treatment should start immediately upon admission.

### *Treatment and prevention of hypoglycemia*

All infants less than 6 months of age with severe wasting and/or nutritional oedema are at risk of hypoglycemia which is a common cause of death during the first 2 days of treatment. Treatment should be initiated immediately as follows, even if blood glucose cannot be measured:

1. Upon admission, 50 ml of 10% glucose or sucrose, prepared as one rounded teaspoon of sugar in three tablespoons of water
2. First feed with expressed breast milk or, where this is not possible, commercial formula, F-75 or diluted F-100 as soon as possible
3. Frequent 2-hourly feeds for the first two days, day and night, with breast milk or, where not possible, therapeutic milk as above

If the infant is unconscious, an IV of 10% glucose at 5 ml/kg should be considered upon admission. If IV access cannot be quickly established, administration of 50 ml 10% glucose should be done via nasogastric tube.

Most infants stabilize within 30 minutes following treatment. If a very lethargic or unconscious infant does not respond, it indicates that another underlying cause is responsible for the clinical presentation, potentially stemming from an infection. It is imperative to ascertain and address the specific origin of the lethargy/ unconsciousness.

Blood glucose levels should be monitored closely for the first two days using paper strips. 50 ml of 10% glucose solutions should be administered when blood glucose levels are below 54 mg/dl.

Hypoglycemia is prevented during the stabilization phase by feeding every 2 hours, including throughout the night.

### *Treatment and prevention of hypothermia*

Hypothermia is very common in infants with severe wasting and often indicates coexisting hypoglycemia or a serious infection. It is diagnosed when axillary temperature is <35°C (<95°F) or does not register on a normal thermometer.

Infants should be rewarmed with clothing and a blanket, especially around the head, and a heater used to warm the room. The kangaroo mother care technique is recommended, where the infant is given skin-to-skin contact with the mother while covered with a blanket. Body temperature should be checked every 30 minutes for 2 hours until it rises to >36.5°C. Check for hypoglycemia whenever hypothermia is diagnosed.

Hypothermia can be prevented with simple measures:

- The temperature of the room is ideally kept between 28˚C and 32˚C, and a heater should be used when necessary.
- Wet nappies should be changed frequently.
- The infant should be covered at all times, especially the head (with a bonnet), and kept away from draughts.
- Frequent feeding should be done with breast milk or, if not available, commercial formula or therapeutic milks.

### *Dehydration and fluid management*

Dehydration is difficult to diagnose in infants less than 6 months of age with severe wasting, especially if oedema is present. Poor circulatory volume or perfusion can coexist with oedema. **Dehydration cannot be determined accurately from clinical signs alone.** Dehydration is assumed present in a severely wasted child if the following conditions exist:

- There is a recent history of watery diarrhea or vomiting **and/or**
- there are signs such as an absence of tears, recent sunken eyes, reduced urine output, cold extremities or hypothermia (cold hands and feet) **and**
- there is weak radial pulse.

**Note:** Infants with persistent diarrhea (without an acute watery exacerbation) may not be dehydrated.

The standard WHO oral rehydration solution (ORS) for general use has a high sodium and low potassium content, which is not suitable for severely malnourished infants. Therefore, special rehydration solution for malnutritionl, should be used orally or via nasogastric tube as follows:

1. 5 ml/kg is given every 30 minutes for the first 2 hours.
2. 5-10 ml/kg per hour is given for the next 4 to 10 hours, alternating with the supplemental milk F-75 or diluted F-100.
3. If rehydration is still required after 10 hours, then ORS is discontinued and fluid will be accounted from breast milk or supplemental milk.
4. Throughout the process, ORS should be given more slowly than for a well-nourished child.

The IV route of rehydration is only recommended in cases of shock. IV fluids used in the specific case of shock are either Ringer's lactate solution with 5% dextrose or 0.45% saline with 5% dextrose.

During rehydration, clinical signs should be monitored closely every 30 minutes for two hours, then every hour for the next 4 to 10 hours to check for signs of overhydration and risk of heart failure, which include the following:

- Weight gain (excessive weight gain is a sign that rehydration should be stopped immediately)
- Increase in respiratory rate
- Increase in pulse rate
- Urine frequency
- Enlarging liver size on palpation
- Frequency of stools and vomit

If there are signs of overhydration, which are mainly **early signs of the respiratory rate increasing by 5 per minute** and **the pulse rate by 25 per minute**, the oral rehydration solution should be stopped immediately and reassessment should take place after one hour.

If an infant has continuing watery diarrhea, dehydration should be prevented by encouraging more frequent breastfeeding and administration of the oral rehydration solution orally or by nasogastric tube after each watery stool as follows: 50–100 ml per loose stool for children <10 kg.

**Note:** It is common for infants with severe wasting to pass many small, unformed stools. These should not be confused with profuse, watery stools and do not require fluid replacement.

### *Treatment of infection*

In infants less than 6 months of age with severe wasting and/or nutritional oedema, the usual signs of bacterial infection, such as fever, are often absent, yet multiple infections are suspected. Hypoglycemia and hypothermia are often signs of severe infection. Broad-spectrum antibiotics should be initiated immediately as follows:

1. Oral amoxicillin is given at a dosage of 25 mg/kg twice per day for 5 days.
2. If shock is present, IV-administered antibiotics such as benzylpenicillin (50 000 IU/kg IV every 6 hours) or ampicillin (50 mg/kg IV every 6 hours) are initiated for 2 days, followed by the 5-day dosage of oral amoxicillin.

## 8.3 **BREASTFEEDING RECOMMENDATIONS AND USE OF SUPPLEMENTAL MILK IN INFANTS LESS THAN 6 MONTHS OF AGE**

Infants less than 6 months of age admitted to inpatient care with nutritional oedema and/or anthropometric indices indicating severe wasting should be considered for supplemental milk use as therapeutic feeding while prioritizing breastfeeding. However, treatment should primarily focus on skilled feeding support.

The aim of treatment is to stimulate and establish or re-establish breastfeeding while supplementing the infant with supplemental milk as necessary. Supplemental milk should be expressed breast milk, if possible; otherwise commercial infant formula, F-75 or diluted F-100, can be used. As the quantity of breast milk supply begins to increase, the quantity of supplemental milk can be decreased and eventually stopped entirely.

***Stepwise approach for establishing breastfeeding***

### *Step 1:*

Breastfeeding should be continued, and the mother/caregiver should be supported to breastfeed the infant. The infant should be breastfed as frequently as possible: every 3 hours for at least 20 minutes (more if the infants cries or demands more). Breastfeeding difficulties assessed during admission should be targeted to improve positioning, latching, sucking and swallowing.

If the infant is not breastfed, support should be given to the mother/caregiver to relactate. If this is not possible, wet nursing should be encouraged.

### *Step 2:*

Supplemental feeding should be provided 30 minutes to one hour after a normal breastfeeding session as follows:

- For infants with severe wasting and no oedema, expressed breast milk should be given first, as explained in Annex 8. If expressed breast milk is not possible, F-75 may be given according to the weight of the infant.
- For infants with severe wasting AND oedema, F-75 should be given according to the weight of the infant.

If F-75 is not available, diluted F-100 can be prepared using an extra 30% of water, i.e. one scoop of F-100 diluted in 34 ml water to reach total amount of 39 ml. It is important to note that undiluted F-100 should not be given to infants less than 6 months of age at any time due to the high renal solute load and the risk of hypernatremia.

Supplemental milk should be given in the stabilization phase at the following rate:

- Every 2-3 hours
- 100 kcal/kg per day
- Protein at 1 to 1.5 g/kg per day
- Fluid at 130 ml/kg per day or 100 ml/kg per day if the infant has severe oedema
- 11 ml/kg/feed every 2 hours (12 times per day); 16 ml/kg/feed every 3 hours (8 times per day)

Supplementary suckling techniques as described in Annex 8 should be used to re-establish or commence breastfeeding, and to provide supplemental feeds of expressed breast milk, F-75 or diluted F-100 to severely malnourished infants. The technique entails having the infant suckle the breast while also taking supplementary breast milk, F-75 or diluted F-100 through a fine tube that runs alongside the nipple. The infant is nourished by the supplement, while the suckling stimulates the breast to produce more milk.

Supplementary suckling techniques have proven to be an effective method to re-establish adequate breastfeeding. However, it takes some patience and skill on the part of the health-care provider and the mother to do so. It is important to put the infant to the breast as often as possible.

If the infant is eating less than 80% of the feed on two consecutive feedings, nasogastric feeding tubes should be considered.

## *Step 3:*

The following should be monitored and recorded:

- Amounts of feed offered and left over
- Duration of each session of breastfeeding
- Daily weight
- Vomiting episodes, if any
- Stool frequency and consistency

Once the infant is gaining weight at 20 g per day (absolute weight gain), the quantity of supplemental milk should be decreased by one-third, and breastfeeding should be maintained as much as possible. If a weight gain of 10 g per day is maintained for two to three days consecutively, supplemental milk should be stopped. If not, supplemental milk should be increased back to the initial rate.

### *Infants without prospect of breastfeeding*

When breastfeeding is not possible (considering an assessment has been made), the infant must be provided F-75, diluted F-100 or generic infant formula. Relevant support should be provided for safe preparation and use, including safe water and sanitized bottles. Unlike breastfed infants, treatment of non-breastfed infants aged 0 to 6 months is divided into the stabilization phase, the transition phase and the rehabilitation phase. The infant formula or supplemental milk (F-75 or F-100) is given at different rates depending on the phase of treatment. Return of appetite and reduction of nutritional oedema (if it was present) are the main criteria for moving from the stabilization phase to the transition phase.

The following criteria should be met before the infant progresses from the transition phase to the rehabilitation phase:

- A good appetite, defined as taking almost all (at least 90%) of the diluted F-100 or F-75 prescribed for the transition phase
- Complete loss of nutritional oedema
- Completing a minimum 2-day stay in the transition phase
- No medical complications

When the infant reaches anthropometric recovery and is taking all the milk feed well, it is possible to transfer from diluted F-100 milk to generic commercial infant formula. The use of diluted F-100 can still be continued in the rehabilitation phase.

**Table 15: Feeding regimen for infants less than 6 months of age without prospect of breastfeeding at inpatient level**

| Phase of treatment | Breast milk substitute or therapeutic milk | Rate | Frequency of feeds |
|---|---|---|---|
| Stabilization phase (Days 1 -7) | Infant formula, F-75 or diluted F-100 | 100Kcal/kg/day<br>130ml/kg/day | 2-hourly feeds for the first day<br>3-hourly feeds 16ml/kg/feed<br>8 times/day |
| Transition phase (after day 7) | Infant formula, F-75 if the child has oedema, or diluted F-100 if there is no oedema | 110–130 kcal/kg/day<br>150–170 ml/kg/day | 3-hourly feeds<br>18–21 ml/kg/feed<br>8 times/day |
| Rehabilitation phase (after successful transition) | Infant formula or diluted F-100 | 150 kcal/kg/day<br>200 ml/kg/day | 4-hourly feeds<br>33 ml/kg/feed<br>6 times/day |

### *Vitamin A supplementation*

Routine supplementation of vitamin A is not recommended[15] in infants less than 6 months of age at risk of poor growth admitted to inpatient care. An infant with severe wasting and/or nutritional oedema should be checked for signs of vitamin A deficiency, mainly corneal ulcerations. If present, a high dose of 50,000 IU (international units) should be given at days 1, 2 and 15.

15 F-75 and diluted F-100 are already appropriately fortified. Breastfeeding is also considered adequate.

## 8.4 INTERVENTIONS FOR MOTHERS/CAREGIVERS OF INFANTS LESS THAN 6 MONTHS OF AGE IN INPATIENT CARE

Comprehensive assessment and support for mothers/caregivers of infants less than 6 months old at risk of poor growth and development are essential to optimize both maternal and infant health, focusing on ensuring the caregivers' physical and mental well-being to foster optimal growth in infants. Effective referral links should be established to deliver appropriate medical and mental health support and care to mothers/caregivers.

A mother/caregiver of an infant at risk of poor growth requires a nutritious diet to be able to take care of the infant. Three daily meals and snacks, along with an extra litre of fluids daily, are essential to maintain breast milk production and effectively care for the infant. Micronutrient supplementation is to be considered for the mother who is breastfeeding (see Chapter 6 on PBW).

Supportive care for mothers may include the following:

- Providing mothers with supportive care for breastfeeding
- Focusing on creating conditions that will facilitate and increase breastfeeding, such as establishing safe 'breastfeeding corners' for mothers and infants
- Providing one-to-one tailored counselling
- Explaining to the mother the different treatment steps her infant will go through, boosting their confidence and alleviating any feelings of self-blame regarding their breastfeeding abilities

Mothers and infants should not be separated. Having beds for the mothers and a dedicated space for breastfeeding at the designated hospital should be considered.

## 8.5 DISCHARGE CRITERIA AND TRANSFER PROCESS TO OUTPATIENT MANAGEMENT FROM INPATIENT CARE FOR INFANTS LESS THAN 6 MONTHS OF AGE

To ensure continuity of care, infants less than 6 months of age admitted to inpatient care can be referred back to outpatient care when they meet the following **combined** criteria:

1. There have been no IMCI danger signs for at least 48 hours prior to discharge.
2. All acute medical complications are resolved.
3. Nutritional oedema is resolved.
4. The infant demonstrates a good appetite and is clinically well and alert.
5. Weight gain is satisfactory on either exclusive breastfeeding or breast milk substitute when breastfeeding is not possible: 5 g/kg/day for at least 3 successive days.
6. The infant has been checked for immunizations and other routine interventions, with any necessary follow-up plans established.
7. The mothers or caregivers are linked with necessary community-based follow-up and support, including for any health, mental health or social issues identified during the course of care.
8. Clear communication has been established to link an infant with diagnosed medical problems to the appropriate primary health care centre.
9. Infants who are not breastfed have an established feeding routine with a generic infant formula, which is readily accessible to the caregiver.

The child health-care record should be checked to ensure all treatment information has been accurately entered and anthropometric measurements recorded. Feedback should also be provided to the caregiver on the treatment outcome and the requirements for follow-up care.

A referral slip should be completed by the health-care provider at the designated hospital. It should include the following:

- Medical condition if diagnosed and the suggested follow-up regimen
- Record of continuing medications
- Anthropometric indices and interpretation of growth parameters
- Feeding regimen using breast milk substitutes when breastfeeding is not possible
- Documentation of education given to the mother or caregiver
- Nearest PHCC proposed for referral, including the contact of the focal point for follow-up on the case.

# CHAPTER 9:

# MANAGEMENT OF WASTING AND/OR NUTRITIONAL OEDEMA IN INFANTS AND CHILDREN AGED 6-59 MONTHS AT INPATIENT LEVEL

# MANAGEMENT OF WASTING AND/OR NUTRITIONAL OEDEMA IN INFANTS AND CHILDREN AGED 6-59 MONTHS AT INPATIENT LEVEL

Infants and children 6-59 months of age identified with severe wasting and/or nutritional oedema may require inpatient treatment at designated hospitals. Identification of nutritional status through an initial assessment ensures that children with severe wasting and/or nutritional oedema receive prompt and appropriate interventions, and admission to hospital when needed.

The initial management should focus on stabilization of the child, correction of metabolic abnormalities and emergency symptoms. Once the child is stabilized, appetite can be re-established and oedema reduced. The next phase is rehabilitation, where therapeutic feeding should be initiated to encourage catch-up growth.

## 9.1 ADMISSION CRITERIA FOR INPATIENT CARE FOR INFANTS AND CHILDREN AGED 6-59 MONTHS WITH SEVERE WASTING AND/OR NUTRITIONAL OEDEMA

***Immediate referral and admission to inpatient care***

Infants and children 6-59 months of age with severe wasting and/or nutritional oedema who have any of the characteristics listed in Table 16 should be referred and admitted for inpatient care.

**Table 16: Criteria for immediate referral to inpatient care for infants and children 6-59 months of age with severe wasting**

| CATEGORY | CRITERIA FOR ADMISSION |
|---|---|
| IMCI danger signs: one or more criteria | • Not able to drink or breastfeed<br>• Vomits everything<br>• Had convulsions recently<br>• Lethargic or unconscious<br>• Convulsing now |
| Acute medical problems or conditions under severe classification as per IMCI: one or more criteria | • Shock<br>• Measured hypoglycaemia persistent after initial corrective treatment<br>• Oxygen saturation <90%<br>• Pneumonia (with chest indrawing and/or fast breathing and, if possible to measure, oxygen saturation <94%)<br>• Dehydration (including some or severe dehydration)<br>• Severe persistent diarrhoea (diarrhoea for 14 days or more, plus dehydration)<br>• Very severe febrile illness<br>• Severe complicated measles<br>• Mastoiditis<br>• Severe anaemia (severe palmar pallor or Hb <4 g/dL or Hb 4 to 6 g/dL with signs of decompensation)<br>• Severe side effects from antiretroviral therapy (for HIV) – skin rash, difficulty breathing, severe abdominal pain, yellow eyes, fever, vomiting<br>• Open or infected skin lesions associated with nutritional oedema<br>• Other stand-alone 'priority clinical signs' not classified as danger signs: hypothermia (<35°C axillary or 35.5°C rectal) or high fever (≥38.5°C axillary or 39°C rectal) |
| Oedema (nutritional) | Severe nutritional oedema 3+ (+++) |
| Poor appetite test | Failing the appetite test when providing RUTF |

Adapted from World Health Organization. (2023). Guideline: Updates on the management of severe acute malnutrition in infants and children

Infants and children 6-59 months of age with severe wasting and/or nutritional oedema who do not meet any of the criteria from Table 16 should have an in-depth assessment to consider if they need inpatient admission or outpatient management based on clinical judgement. The in-depth assessment can be carried out by a designated health-care provider at the PHCC or at the emergency unit (if the child is already at the hospital).

The aims of this in-depth assessment are to do the following:

1. Decide if it is possible, safe and appropriate to manage the child as an outpatient or whether referral to inpatient care is recommended.
2. Initiate the referral.
3. Initiate the appropriate care in outpatient settings if referral is not needed.

An in-depth assessment should include the following domains. It should be careful not to miss any of them to ensure that all criteria described in the table above are covered:

- Comprehensive medical assessment, identifying any underlying or concurrent medical conditions affecting the child's nutritional status
- Feeding assessment of the child's nutritional intake and feeding practices, including an assessment of breastfeeding (if applicable)
- Psychosocial assessment of the child, involving an understanding of the caregiver's ability to support the child's health and nutritional needs

Maternal/caregiver autonomy, capacity and consent must be prioritized when referral to inpatient care is recommended.

**Table 17: Criteria for in-depth assessment to consider referral to inpatient care for infants and children 6-59 months of age with severe wasting**

| CATEGORY | CRITERIA FOR ADMISSION |
|---|---|
| Medical problems not requiring immediate inpatient care but requiring further examination and follow-up, which have a significant impact on nutritional status | • Newly diagnosed medical condition requiring a decision on the potential benefits of initial inpatient care for intensive observation, initiating treatment or investigations unavailable in an outpatient setting, before referral to follow-up care at outpatient level<br>• Child with a known medical condition experiencing an exacerbation or deterioration, not associated with immediate danger signs but requiring an in-depth assessment to determine the need for referral to inpatient care, e.g. congenital heart disease, cerebral palsy or other disability, HIV, tuberculosis<br>• Eye signs of vitamin A deficiency can be considered if outpatient care for vitamin A supplementation cannot be performed |
| Failure to gain weight in outpatient care | • Weight gain of less than 5 g/kg/day for a period of 2 weeks (<70 g/kg) |

Adapted from World Health Organization. (2023). Guideline: Updates on the management of severe acute malnutrition in infants and children.

### *Emergency care*

Feeding and medical treatment should be initiated as soon as the infant/child and caregiver are admitted. The infant/child should be kept warm, with the head covered and the airway free to prevent hypothermia.

**If the child has signs of shock such as cold skin**, prolonged capillary refill and fast, weak pulse, and is not lethargic or unconscious, oral rehydration should be considered: 5 ml/kg of 10% glucose, with a maximum volume of 50 ml. Antibiotics and hydration should then be continued according to the medical management guidelines below.

When signs of shock are present with lethargy and/or loss of consciousness, children should receive IV fluids. However, these infants may not cope with large amounts of fluids. IV fluids are given at 15 ml/kg over 1 hour and are either Ringer's lactate solution with 5% dextrose or 0.45% saline with 5% dextrose.

The child should be monitored closely every 5 to 10 minutes for changes in pulse rate and volume and breathing rate.

If there are signs of improvement (pulse rate falls, pulse volume increases or respiratory rate falls) and no evidence of pulmonary oedema, IV infusion is repeated at the same rate of 15 ml/kg over 1 hour, and then oral rehydration can be initiated.

If the child fails to improve after two IV boluses of 15 ml/kg, IV fluid should be maintained for 4 ml/kg per hour. IV antibiotics should be given according to the medical management guidelines below.

**If severe anemia is present,** diagnosed as Hb <4 g/dl or <6 g/dl with the presence of respiratory distress, a blood transfusion is required within the first 24 hours. The blood transfusion must be slow, administering whole blood at 10 ml/kg over 3 hours, along with 1 mg/kg of furosemide intravenously at the start of the transfusion.

If the child deteriorates during IV rehydration (mainly if the breathing rate increases by 5 per minute and the pulse rate increases by 15 per minute), IV infusion should be stopped to avoid overhydration and heart failure. If other signs of heart failure are present, such as distension of jugular veins, enlarged liver, eyelid oedema, gallop rhythm or fine crackling at lungs, diuretics may be considered cautiously. Furosemide by IV, at a rate of 1mg/kg, can increase urine output within two hours. When signs of heart failure are present, a blood transfusion should be done with 10 ml/kg of packed cells, as whole blood could potentially exacerbate the condition.

## 9.2 INPATIENT MANAGEMENT OF MEDICAL COMPLICATIONS FOR INFANTS AND CHILDREN 6-59 MONTHS OF AGE WITH SEVERE WASTING

Treatment of severe wasting for infants and children 6-59 months of age should be initiated immediately. It involves two phases: 1) stabilization, involving treatment of life-threatening conditions and establishment of feeding, and 2) rehabilitation, which involves intensive feeding to recover lost weight (Table 18). In most cases, rehabilitation will take place in outpatient clinics using RUTF. This phase lasts 2-6 weeks. If the child arrived from the PHCC with a referral slip, check the anthropometric criteria and the reason for referral. If there is no referral slip, check the child's nutrition status using MUAC and check for oedema.

Sensory stimulation should be provided to the children throughout the period they are receiving inpatient treatment, including the following:

- Providing loving care, a cheerful, stimulating environment and involvement of the mother
- Providing toys for the child to play with, books or pictures, and stimulating surroundings
- Encouraging physical activity as soon as the child is well enough

**Table 18: Time frame for the management of infants and children 6-59 months with severe wasting and/or nutritional oedema at inpatient level**

| COMPLICATIONS AND TREATMENT PLANS | STABILIZATION | | REHABILITATION |
|---|---|---|---|
| | Days 1–2 | Days 3–7 | Weeks 2–6 |
| Hypoglycemia | ----------> | | |
| Hypothermia | ----------> | | |
| Dehydration and fluid management | ----------> | | |
| Electrolyte replacement | ----------> | | |
| Infection and antibiotics | ----------> | | |
| Initiation of feeding (supplemental milk) | ----------> | | |
| Catch-up feeding (therapeutic feeding) | | | ----------> |
| Micronutrient supplementation | Vitamin A if deficiency present ----------(no iron)----------> | | Vitamin A if deficiency present |

Adapted from World Health Organization. (2013). Pocket book of hospital care for children: Guidelines for the management of common childhood illnesses.

### *Treatment of medical complications and initiation of feeding*

Children with severe wasting are often seriously ill when they first present for treatment. Wasting, anorexia and infections are common. Successful initial management requires frequent, careful medical assessment and anticipation of common complications so they can be prevented or recognized and treated at an early stage.

On arrival, the child should be kept warm, with the head covered and the airway free to prevent hypothermia. Treatment of medical complications should be started immediately. Laboratory investigations should not delay treatment. Even if there are no laboratory facilities, treatment should start immediately on admission.

### *Treatment and prevention of hypoglycemia*

All infants and children 6-59 months of age with severe wasting are at high risk of hypoglycemia, which is a common cause of death during the first two days of treatment. Blood glucose should be measured using paper strips upon admission, and treatment should be initiated immediately if the blood glucose level is <54 mg/dl. If blood glucose cannot be measured and hypoglycaemia is suspected due to dizziness, shakiness, low body temperature, limpness, lethargy or other clinical signs, treatment should also be started.

Initial treatment of hypoglycemia is as follows:

1. Upon admission, 50 ml of 10% glucose or sucrose, prepared as one rounded teaspoon of sugar in three tablespoons of water
2. First feed with therapeutic milk F-75 as soon as possible
3. Frequent 2-3 hourly feeds with F-75 for the first two days, day and night

If the infant and/or child is unconscious, an IV of 10% glucose at 5 ml/kg should be considered upon admission. If IV access cannot be quickly established, administration of 50 ml 10% glucose should be done via nasogastric tube.

Once treated for hypoglycemia, most children stabilize within 30 minutes. If the child is very lethargic or unconscious and does not respond, it indicates that another underlying cause is responsible for the clinical presentation, potentially stemming from an infection. It is imperative to ascertain and address the specific origin of the lethargy/unconsciousness.

Close monitoring of blood glucose levels should be done for the first two days. 50ml of 10% glucose solutions should be administered when blood glucose levels are below 54 mg/dl.

Hypoglycemia is prevented with frequent feeding every 3 hours, including waking the child during the night, until stabilization is attained. Once the child is tolerating the recommended volume of feeds 5-6 times per day, they do not need to be woken up for night feeds.

### *Treatment and prevention of hypothermia*

Hypothermia is a common complication of severe wasting and mainly coexists with hypoglycaemia or serious infection. It is diagnosed when axillary temperature is <35°C (<95°F) or does not register on a normal thermometer.

Infants and children should be rewarmed with clothing and a blanket, especially the head. Room temperature should be increased by a heater.

Hypothermia can be prevented with simple measures:

- The temperature of room is ideally kept between 28˚C and 32˚C, and a heater should be used when necessary.
- Regular bathing should be avoided, and children should be kept dry. Wet nappies should be changed regularly for children not yet potty trained.
- Infants and children should always be covered with clothes and kept away from draughts.
- Let the child sleep with the mother/caregiver at night for warmth.
- Feed F-75 every 3 hours, starting straight away.

Hypothermia should be monitored as follows:

- Check the body temperature every 30 minutes for the first 2 hours.
- During rewarming, take the temperature every 2 hours until it rises to >36.5°C (take it every 30 minutes if a heater is being used).
- Ensure the patient is always covered, especially at night.
- Check blood glucose levels.
- Check for hypoglycaemia whenever hypothermia is diagnosed.

### *Dehydration and fluid management*

Dehydration cannot be determined accurately from clinical signs alone in infants and children 6-59 months of age with severe wasting, and it therefore tends to be over-diagnosed. It is important to take a detailed medical history and to determine if there was recent fluid loss. Dehydration is assumed present in a severely wasted child if the following conditions exist:

- There is a recent history of watery diarrhoea or vomiting **and/or**
- there are signs such as an absence of tears, recent sunken eyes, reduced urine output in the last 6 hours, cold extremities or hypothermia (cold hands and feet) **and**
- there is weak radial pulse.

**Note:** Children with persistent diarrhoea (without an acute watery exacerbation) may not be dehydrated.

Overhydration in children may fatigue the weakened circulatory function in the cardiovascular system, leading to heart failure. Additionally, sodium retention is mainly suspected in malnourished children despite normal sodium plasma levels. Therefore, a cautious approach to fluid management should be adopted in these infants and children, even when diarrhea is present. IV hydration should not be used, except in cases of shock.

Rehydration solution for malnutrition, should be used as the standard therapy instead of the standard oral rehydration solutions, since it is lower in sodium. It is given orally, or via nasogastric tube in case of lethargy, as follows:

1. 5ml/kg is given every 30 minutes for the first 2 hours.
2. 5 to 10 ml/kg per hour is given for the next 4 to 10 hours on alternate hours with the therapeutic milk F-75. The exact amount depends on how much the child wants, the volume of stool loss and whether the child is vomiting.
3. If rehydration is still required after 10 hours, then ORS can be stopped, and fluid will be accounted from therapeutic milk.
4. Give the ORS more slowly than you would when rehydrating a well-nourished child.

During rehydration, clinical improvement should be monitored closely every 30 minutes for 2 hours, then every hour for the next 4 to 10 hours to check for signs of overhydration and risk of heart failure.

Weight gain is monitored every 30 minutes for 2 hours, and if no clinical improvement is observed, all oral rehydration solutions should be stopped. If clinical improvement is noted with the weight gain, F-75 can be initiated earlier. Other signs to monitor are mainly the regulation of respiration and pulse rates and the passing of urine.

If there are signs of overhydration, mainly the **early signs of the respiratory rate increasing by 5 per minute and the pulse rate by 25 per minute**, the oral rehydration solution should be stopped immediately, and reassessment should take place after one hour.

- **In the presence of shock:** IV fluids are only recommended in cases of shock. These are either Ringer's lactate solution with 5% dextrose or 0.45% saline with 5% dextrose. They should be given at a specific rate of 15 ml/kg over one hour.

- **In the presence of watery diarrhea:** 30 ml of rehydration solution should be given per every episode of watery diarrhoea, even after 48 hours have passed after admission.

As the child is rehydrated, the pulse rate and respiratory rate should decrease to a normal range, and the child should begin to pass urine.

**Note:** Children with diarrhoea on therapeutic foods (F-75, F-100, and RUTF) that comply with WHO specifications should not be given zinc, as the therapeutic foods contain sufficient zinc to meet the child's needs.

Infants and children with bilateral oedema are frequently hypovolemic, and rehydration is only considered in cases of shock or severe watery diarrhea. Oedema should never be treated with diuretics due to the risk of sodium retention and potassium depletion.

If the child has continuing watery diarrhea, dehydration should be prevented by continuing the feeding regimen, either by F-75 or breastfeeding and administration of the oral rehydration solution orally or by nasogastric tube after each watery stool as follows: 50–100 ml per loose stool for children <10 kg and 100 ml per loose stool for children >10 kgs.

**Note:** It is common for children with severe wasting to pass many small, unformed stools. These should not be confused with profuse, watery stools and do not require fluid replacement.

### *Electrolyte replacement*

All severely wasted children have deficiencies of potassium and magnesium that require almost two weeks to be corrected. Oedema is partly a result of potassium deficiency and sodium retention.

All infants and children 6-59 months of age with severe wasting and/or nutritional oedema should be administered the following:

- Potassium: 3–4 millimole (mmol) per kg per day
- Magnesium: 0.4–0.6 mmol/kg/day

The extra potassium and magnesium should be added in powder form to the supplemental milk during its preparation.

### *Provision of routine antibiotics to treat and prevent infections*

In infants and children 6-59 months of age with severe wasting and/or nutritional oedema, fever may be absent, yet multiple infections are common. Broad-spectrum antibiotics are initiated routinely upon admission as follows:

1. In the absence of hypoglycemia, hypothermia or lethargy, oral amoxicillin is given at a dosage of 25 mg/kg every 8 hours per day for 5 days.
2. If hypoglycemia, hypothermia or lethargy are present, IV antibiotics are initiated as benzylpenicillin (50,000 IU/kg every 6 hours) or ampicillin (50 mg/kg IV every 6 hours) for 2 days, followed by the 5-day dosage of oral amoxicillin.

Do not give anti-parasitic drugs (albendazole or tinidazole) during the stabilization phase, as the child may be too weak to handle an adverse reaction to parasitic worm.

Measles vaccination should be given if the child is not vaccinated or was vaccinated before 9 months of age. Delay vaccination if the child is in shock.

### *Feeding initiation in the stabilization phase*

Feeding should be initiated gradually during the first day of stabilization to avoid refeeding syndrome, which can precipitate cardiac failure. Refeeding syndrome is highly common in infants and children fed high amounts of milk after a prolonged period of very low intake of food or starvation. It is mainly featured by hypophosphatemia.

*Using F-75 supplemental milk*
The initial feeding regimen consists of F-75 due to its lower caloric and protein load (75 kcal and 0.9 g of protein per 100 ml). Each scoop of F-75 is diluted in 25 ml water to produce a total amount of feed of 28 ml. Relevant support should be provided for safe preparation and use, including safe water. It is prescribed as follows:

| FORMULA | RATE | FREQUENCY OF FEEDS FOR FIRST TWO DAYS | FREQUENCY OF FEEDS AFTER 48 HOURS |
|---|---|---|---|
| F-75 | 100 kcal/kg/day<br>130 ml/kg/day | 3-hourly feeds<br>16 ml/kg/feed<br>8 times/day | 4-hourly feeds<br>2 ml/kg/feed<br>6 times/day |

An appropriate feeding method should be used. It is recommended to use a cup and a saucer with proper positioning since malnourished infants and children have weak swallow and gag reflexes.

Breastfed infants and children, mainly 6 to 23 months of age, should always be offered breast milk on demand and/or before being offered the supplemental milk.

A nasogastric tube should be considered if the infant or child:

- Takes less than 80% of the prescribed feed on two consecutive feeds during stabilization
- Has pneumonia (rapid respiration rate) and difficulty swallowing
- Has painful lesions/ulcers of the mouth
- Has a cleft palate or other physical deformity
- Is very weak and shows difficulty remaining conscious

The recommended amount of F-75 or other milk-based formula can be given at the same amount and rate through the nasogastric tube. The use of a nasogastric tube should not normally exceed three days.

**Note:** In infants and children 6-59 months of age who are not tolerating F-75, there is insufficient evidence to recommend switching to hydrolysed formulas. However, if symptoms such as intractable vomiting, osmotic diarrhea and persistent abdominal distension persist, hydrolyzed formula may be prescribed due to suspicion of lactose intolerance or a cow's milk protein allergy.

### *Feeding during the transition phase*

To prevent fluid overload and heart failure, a gradual transition is necessary from the stabilization phase to the rehabilitation phase. An infant or child 6-59 months of age with severe wasting and/or nutritional oedema can transition from the stabilization phase to the rehabilitation phase if all the following criteria are met:

- Acute medical complications are resolved.
- Oedema is subsiding to at least 2+ (++).
- The child is able to drink at least 90% of the F-75 milk.

During the transition phase, the child continues to be treated for medical problems, and the diet is gradually changed from F-75 to RUTF or, in rare cases, to F-100. This is done by gradually decreasing the proportion of feed provided by F-75 and increasing the proportion provided by RUTF.

### *Using ready-to-use therapeutic food*

The transition from F-75 to RUTF should also be done over two to three days, as tolerated, with target calories of 135 kcal/kg.

Before starting the peanut-based RUTF regimen, a trial should be done as an allergy test. A portion of 30 g should be given to the child, and the child should be observed for the coming hour for any symptoms such as rashes or shortness of breath. Feeding can proceed if the allergy test was passed successfully. If an allergy was detected, a cereal-based blend can be considered (BP-100, with amounts prescribed to reach 135 kcal/kg). One bar of BP-100 contains 300 kcal.

The recommended amounts of RUTF to provide in the transition phase are as follows:

| WEIGHT OF INFANT OR CHILD (KG) | SACHET OF RUTF (92 G, 500 KCAL) |
|---|---|
| 3.0–3.4 | 1 |
| 3.5–3.9 | 1 |
| 4.0–4.9 | 1.25 |
| 5.0–5.9 | 1.5 |
| 6.0–6.9 | 1.75 |
| 7.0–7.9 | 2 |
| 8.0–8.9 | 2.25 |
| 9.0–9.9 | 2.5 |
| 10.0–11.9 | 3 |
| ≥12.0 | 4 |

The infant or child is offered RUTF without forced feeding, as prescribed for the transition phase, and allowed to drink water freely. The caregiver should be encouraged to give small, frequent RUTF feeds every 4 hours (6 times per day). Breastfeeding should continue to be offered on demand and/or before being offered RUTF.

If the infant or child does not take the prescribed amount of RUTF, then the feed should be topped up with F-75. The amount of RUTF is increased over 2 to 3 days until the child takes the full recommended amount. Water is always given freely with RUTF, while breastfeeding should continue to be offered on demand.

### *Using F-100 supplemental milk*

In rare situations where a child is not tolerating RUTF, a gradual transition can be made from F-75 to F-100 over 2 to 3 days, as tolerated. F-100 contains 100 kcal and 2.9 g of protein per 100 ml, and one scoop is diluted in 25 ml water to produce a total amount of feed of 29 ml.

F-75 should be replaced with an equal amount of F-100 for two days. On the third day, each successive feed should be increased by 10 ml until some feed remains uneaten. This usually occurs when intake reaches around 200 ml/kg per day. Breastfed children should be offered breast milk on demand before being fed F-100.

### *Monitoring during transition*

The following parameters should be monitored and recorded daily:

- Weight
- Degree of oedema
- Body temperature, pulse and respiration
- Standard clinical signs, including stool, vomiting, dehydration, cough and respiration
- Other relevant data (e.g. absences, refusal of feed)
- Responsiveness of the child to external cues

A child should be moved back from the transition phase to the stabilization phase if there are signs of fluid overload, such as weight gain of more than 10 g/kg/day accompanied by an increased respiratory rate, developing or worsening oedema, or a rapid increase in liver size. Other criteria include tense abdominal distension, the need for intravenous infusion due to complications, the necessity of nasogastric tube feeding, or significant refeeding diarrhea leading to weight loss.

**Note:** It is common for children to have some change in stool frequency when their diet changes. This does not need to be treated unless there is weight loss. Having several loose stools without weight loss is not a criterion for returning a child to the stabilization phase.

### *Catch-up feeding during the rehabilitation phase*

Recovering children can progress to outpatient management before they reach anthropometric recovery. When the child is able to eat the amount of RUTF recommended in the transition phase, the amount offered should be increased to 200 kcal/kg per day in the rehabilitation phase. Drinking water should be offered ad libitum.

The recommended amounts of RUTF to provide in the rehabilitation phase are as follows:

| Weight of infant or child (kg) | Sachet of RUTF (92 g, 500 kcal) |
|---|---|
| 3.0–3.4 | 1.25 |
| 3.5–3.9 | 1.5 |
| 4.0–4.9 | 1.75 |
| 5.0–5.9 | 2 |
| 6.0–6.9 | 2.5 |
| 7.0–7.9 | 3 |
| 8.0–8.9 | 3.5 |
| 9.0–9.9 | 4 |
| 10.0–11.9 | 4.5 |
| ≥12.0 | 5 |

A child able to consume the recommended amount of RUTF in the rehabilitation phase should be considered for transfer to outpatient care to complete treatment at home.

**Note:** Only those who cannot tolerate RUTF or who do not have access to outpatient management of severe wasting should remain as inpatients (refer to Annex 9 for the rehabilitation protocol at the inpatient level).

### *Micronutrient supplementation*

Routine supplementation is not recommended with the use of F-75, F-100 or RUTF since they are appropriately fortified, or with the use of breast milk.
Infants and children 6-59 months of age with severe wasting should be checked for signs of vitamin A deficiency, mainly corneal ulcerations. If present, a high dose of 100,000 IU for infants 6–12 months of age and 200,000 IU for children above 12 months of age should be given at days 1, 2 and 15.

Iron should not be given in the stabilization phase. If RUTF is used as a feeding regimen in the rehabilitation phase, iron should not be given since RUTF contains iron. If F-100 is solely used, iron should be started at 3 mg/kg per day after 2 days on the F-100 catch-up formula.

## 9.3 **DISCHARGE CRITERIA AND TRANSFER PROCESS FROM INPATIENT CARE FOR CHILDREN 6-59 MONTHS OF AGE**

Infants and children 6-59 months of age with severe wasting and/or nutritional oedema who are admitted to inpatient care can be transferred to outpatient care when they meet the following combined criteria:

1. They do not have any danger signs for at least 24 to 48 hours prior to transfer time; and
2. the medical problems that prompted their admission have resolved to the extent that there is no longer requirement for inpatient care; and
3. they do not have ongoing weight loss (among children admitted with severe wasting only, who did not have nutritional oedema at any time); and
4. their nutritional oedema is resolving (grade +); and
5. they have a good appetite and are consuming at least 75% of the RUTF; and
6. all efforts have been made to refer infants with medical problems needing follow-up to appropriate care or support services.

Anthropometric criteria such as a specific weight-for-height/length or MUAC should not be used as criteria for discharge. Children should be transferred to the nearest PHCC designated as a treatment centre to continue the rehabilitation phase. Communication between health-care providers in hospital and the PHCC should be documented in the medical chart and on the child health card.

If the child is 6 to 23 months old, education on the importance of appropriate complementary foods should be given to the mother or the caregiver. If the infant or child is breastfed, breastfeeding practices should be supported. Mothers/caregivers should be reminded of how to use the RUTF at home.

Another key aspect of discharge planning should involve assessing the child's home environment in terms of environmental health aspects, including the following: water, sanitation and hygiene, food security, economic stability, and the mental and physical health of caregivers. Referral to social services, in addition to the medical and nutritional management, should be considered accordingly.

A referral slip should be completed by the health-care provider in the hospital. It should include the following:

- Medical condition, if diagnosed, and suggested follow-up regimen
- Record of continuing medications
- Anthropometric indices and interpretation of growth parameters
- Feeding regimen using amount of RUTF sachets
- Documentation of education given to mother or caregiver
- Nearest PHC centre proposed for referral, including the contact of the focal point for follow-up on the case

## 9.4 **FAILURE TO RESPOND TO TREATMENT**

Some children with severe wasting being treated at the inpatient level may fail to respond to treatment or their condition may deteriorate. The most frequent causes of failure to respond to inpatient treatment stem from problems related to the health facility or to the individual child, such as medical complications or underlying diseases.

The criteria to be diagnosed as failing to respond to treatment are as follows:

- Failure to regain appetite on day 4
- Failure to start to lose oedema on day 4
- Oedema still present on day 10
- Failure to gain at least 5 g per kg of bodyweight on day 10

A thorough medical evaluation is necessary to identify potential causes, and the overall management practices should be reviewed, including adherence to the treatment protocol and the availability of trained health-care professionals.

# CHAPTER 10:

# MONITORING AND REPORTING

# MONITORING AND REPORTING

To ensure that the services for management of wasting are effective at individual, health facility and community levels, monitoring is essential. At the core of monitoring is the capacity to collect, manage and utilize key information.

While the data collected is used directly for monitoring healthy child growth, early detection of wasting and informing individual treatment, secondary data can be collected for the purpose of monitoring national indicators and evaluating the growth monitoring and wasting program. It is therefore most important that the data is collected and reported accurately.

All partners implementing nutrition programming must use standard MOPH forms and report through the MOPH structure.

The sections below describe the process for individual monitoring and monitoring of performance indicators to enable assessment of effectiveness of services.

## 10.1 INDIVIDUAL MONITORING

Monitoring the individual is important to ensure they receive the correct care according to their condition. Where transfer between health facilities is arranged, links must be well managed to ensure the continuity of care. It is important to record healthy children and ensure their data is entered into the information system at **every visit**. This will support growth monitoring efforts and ensure that any problems in the child's health is detected early enough and that the history is present. Individual case review at the health facility should consider the following.

A. ***For the GMP program:***

- Child health records for GMP are regularly provided and available at PHCC and hospital levels.
- Child health records are completed and accurate, and height-for-age z-score (HAZ), WAZ and WHZ are plotted at every child visit.
- Anthropometric data is entered in the MOPH software. Ensure that each of the three above-mentioned z-scores is reported at each visit, individual growth is monitored and action is taken as necessary (refer to the GMP section).
- Monthly reports are generated to calculate the number of children monitored and trends in their growth. This could support the early identification of malnutrition peaks and early response preparation.

B. ***Screening for wasting***

Children are screened at both community and PHCC levels as per the protocol in the screening section (Chapter 4). The total number of children screened and the number of children or PBW with wasting are identified and reported on the PHC monthly reporting form and entered into MOPH software at the PHCC level, or into the MOPH software at the community level.

It is intended that systematic screening at PHCCs and screening activities through outreach services will detect cases of wasting early.

A critical incident should be noted when the following happens:

- A child aged between 6 weeks and 59 months is screened and has a MUAC less than 10.0 cm.
- A child has 3+ (+++) nutritional oedema.

In cases of low MUAC or 3+ (+++) oedema:

- The caregiver should be interviewed sensitively to provide an understanding of why the child had not attended the screening services until the wasting was at an advanced stage.
- The effectiveness of public awareness campaigns should be reviewed.
- The effectiveness of outreach screening strategies should be reviewed.
- The effectiveness of systematic screening at health facilities should be reviewed.

C. ***For the wasting programme:***

1. Weight, height and MUAC are measured correctly and plotted on the patient's malnutrition card as well as the parent/caregiver's card.
2. Admission to treatment is done correctly according to protocols.
3. A MUAC of <10.0 cm in a child aged between 6 weeks and 59 months or oedema of >2+ (++) is identified and reported as a critical incident.
4. An effective individual numbering system is in place for registering cases.
5. Medical checks are conducted when necessary.
6. Psychosocial assessments of caregivers are routinely conducted.
7. Appropriate medications are prescribed.
8. Appetite assessment is done correctly and reported on the treatment card.
9. Appropriate nutrition products are dispensed in the right quantities and reported on the treatment card and in the MOPH software.
10. The malnutrition treatment card is properly completed and kept in a safe filing system.
11. The parent/caregiver's treatment card is completed, kept with the parents and asked to be present on every visit.
12. Absence and default are followed up by phone calls to encourage compliance with treatment.
13. Any failure to respond to treatment is acted upon in a timely manner.
14. Transfer between health facilities is done using standard referral forms.
15. Cases are discharged correctly according to treatment protocols, and cases are closed and reported accordingly in the MOPH software.
16. Cases are appropriately referred for health or social follow-up care, and integration into food security and social protection programs is looked into where needed.
17. The wasting treatment request slips are filled in a timely manner on a monthly basis to order supplies from the MOPH.
18. Costs of treatment to the caregiver are minimized (e.g. no unnecessary lab tests or investigations).

**The appropriateness of the treatment service can be monitored through the following:**

1. Analysis of the reasons for default from information collected on defaulter forms
2. Interviews with caregivers attending treatment

**On admission, each case is given a unique registration number/ID:**

1. Screening PHCC registration number
2. Treatment PHCC registration number
3. Hospital registration number
4. Refugee registration number

In each case, any numbers given to the individual should be recorded on all paperwork. The relevant numbers should be noted on transfer forms between health facilities, for example:

- **Transfer from a screening PHCC to a treatment PHCC:** The screening PHCC assigns its own unique registration number to the case. When the case is transferred and enrolled for treatment at the treatment PHCC, then the treatment PHCC will assign its own unique registration number, but all registers and treatment records will keep a note of both registration numbers.

- **Transfer from a treatment PHCC to a hospital:** The unique registration number given by the treatment PHCC is noted on the standard referral form. At the hospital, a unique hospital number is assigned when the case is admitted, and all registers and treatment records should keep a note of both registration numbers (hospital and treatment PHCC).

### *Admission categories*

When a child is admitted for treatment, it is important to distinguish a new episode of wasting from a continuing episode if a child has been transferred from another facility. The categories of admission are explained below.

- **New admission**

A new admission is recorded at the treatment PHCC or the hospital and will be recorded as a new admission by the health facility that first offers treatment for wasting. If the child is then transferred to another health facility, that health facility will admit the child and give a unique registration number, but will note the child as a 'transfer' from a hospital or PHCC.

- **Return defaulter**

After a case defaults from treatment, if they return to treatment within 3 months of the date of the last visit for treatment, then they are re-enrolled into treatment. They are given the same registration number as previously used, and a note is made in the register that the case is a 'return defaulter'. If they return to treatment more than 3 months after the date of their last visit for treatment, they are registered as a new admission[16] and given a new registration number.

- **Transfer from a hospital or another PHCC or between moderate wasting and severe wasting programs**

A case that has already been admitted and is then transferred between treatment health facilities or from low-risk to high-risk moderate wasting program or from a moderate wasting program to a severe wasting program is recorded as 'transfer from hospital or another PHCC' or 'transfer from low-risk moderate wasting program' or 'transfer from moderate wasting program'. This category is not used for children or PBW who have been screened at a screening PHCC and sent for further assessment at a treatment PHCC. This category applies only to cases already registered in treatment.

### *Discharge categories*

A child or PBW is discharged as cured when they reach the cured criteria set out in these guidelines. The cured criteria refer to a nutritional cure. In the case of a hospital transferring a child back to the PHCC for continued nutritional rehabilitation, the child is reported as a 'transfer to treatment PHCC'. Although the child is not yet 'cured' of wasting, a 'transfer to treatment PHCC' after stabilization is considered a positive outcome for the hospital.

On discharge, each case treated for wasting is reported according to a specific discharge category, as described in the management section, namely:

1. Cured
2. Defaulted
3. Died
4. Discharged to another service

Within each category, the hospital or PHCC can add further information in the treatment record to clarify information if required.

## 10.2 SERVICE PERFORMANCE INDICATORS

For children or PBW who stay in treatment until cure, the expected cure rate is almost 100%. In reality, some children or PBW will default or die during treatment. In order to ensure the service is being provided within expected standards, service performance indicators are used as a guide to indicate when issues need to be looked at critically in order to improve performance.

**Once data is entered correctly at the PHCC level using the MOPH software, performance indicators can be calculated using this same software.** The MOPH is responsible for generating monthly and yearly reports on performance indicators through the system.

16 The average time to spontaneous recovery or death for a case of untreated wasting varies in different contexts. Most death after default occurs within two to three months. A cut-off of three months to define a new case is estimated for Lebanon, based on lower disease burden and less food insecurity than other contexts. That is, after three months it is likely that the same individual is experiencing a new episode of wasting.

Each treatment outcome is calculated as a proportion of the total number of discharges after treatment for wasting:

- Proportion cured = number of cured / total number of cases discharged
- Proportion defaulted = number of defaulted / total number of cases discharged
- Proportion died = number of died / total number of cases discharged
- Proportion transferred = number of transferred / total number of cases discharged

The expected discharge outcomes are shown in Table 19. These represent the minimum acceptable standard for performance.

**Table 19: Service performance indicators for expected discharge outcomes**

| DISCHARGE OUTCOME | PERFORMANCE STANDARD |
|---|---|
| Cured | Greater than 75% |
| Defaulted | Less than 15% |
| Died (PHC) | Less than 5% |
| Died (hospital) | Less than 10%* |

** Deaths in hospital are expected to be marginally higher than at PHCCs since only complicated cases with a greater risk of mortality are referred.*

# References:


1. American University of Beirut (2013). The Food-Based Dietary Guideline Manual for Promoting Healthy Eating in the Lebanese Adult Population. Available at: https://www.aub.edu.lb/fafs/nfsc/Documents/FBDG%20English%20Version.pdf

2. Hytten, F.E. (1980). Nutrition. Pp. 163–192 in F. Hytten, editor; and G. Chamberlain, editor, eds. Clinical Physiology in Obstetrics. Blackwell Scientific Publications, Oxford.

3. MOPH (2021). Maternal Mental Health Guidelines for Healthcare Providers. Available at: https://www.moph.gov.lb/en/Pages/0/55740/maternal-mental-health-guidelines-for-healthcare-providers

4. Most, J., Dervis, S., Haman, F., Adamo, K.B., & Redman, L. M. (2019). Energy Intake Requirements in Pregnancy. Nutrients, 11(8), 1812. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6723706/

5. Prof Mike Golden and Yvonne Grellety (2008). Failure to respond to treatment in supplementary feeding programmes. Field Exchange 34, October 2008. p23. Available at: www.ennonline.net/fex/34/failure

6. Rehman A. (2014). Growth standards and charts; World Health Organization. Professional Med J 232-239. Available at: https://applications.emro.who.int/imemrf/Professional_Med_J_Q/Professional_Med_J_Q_2014_21_2_232_239.pdf

7. The United Nations Children's Fund and Ministry of Public Health (2017). National Guidelines for the Management of Acute Malnutrition.

8. Van Raaij, J., Schonk, C.M., Vermaat-Miedema, S.H., Peek, M., & Hautvast, J. (1991). Energy cost of lactation, and energy balances of well-nourished Dutch lactating women: Reappraisal of the extra energy requirements of lactation. The American Journal of Clinical Nutrition, 53, 612-9. Available at: 10.1093/ajcn/53.3.612.

9. World Health Organization (2023), Guideline: Updates on the management of severe acute malnutrition in infants and children, Geneva.

10. World Health Organization (2013), Pocket Book of Hospital Care for Children: Guidelines for the management of common childhood illnesses, Geneva.

11. World Health Organization (2013), Updates on the Management of Severe Acute Malnutrition in Infants and Children, WHO Guidelines.

# ANNEXES

# Table of Content:

# Annex 1:

## Guide to anthropometric measurements and oedema in infants and children

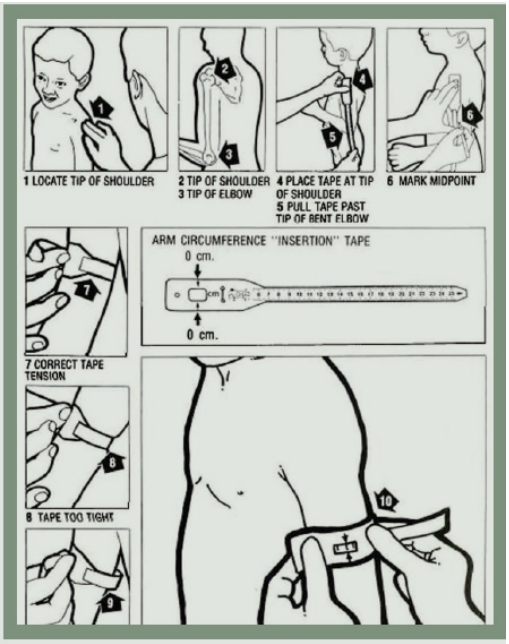
1. **MEASURING MID-UPPER ARM CIRCUMFERENCE (MUAC)**

The circumference of the middle of the upper arm is measured using a MUAC tape. The standard MUAC tape used for children is colour coded and is divided into centimetres and millimetres (Figure 1). The health-care worker should ensure the correct type of MUAC tape is used. The MUAC is measured to the nearest millimetre and recorded in the patient record.

*Figure 1: MUAC Tape*

**How to measure MUAC:**

- **Remove the child's clothing to expose the left arm.**
- **Identify the midpoint of the left arm between the tip of the shoulder and tip of the elbow.**
- **Mark the position of the midpoint with a marker pen or keep the finger over the location.**
- **Wrap the MUAC tape around the midpoint of the left arm.**




- **Ensure the tape lies comfortably against the skin with no gaps (too loose).**
- **Ensure the tape is not pinching the skin of the arm even slightly (too tight).**
- **Take the reading where the arrow on the tape indicates.**

Results from MUAC measurement can be interpreted as follows:

- **Green MUAC:** Greater than or equal to 12.5 cm. This indicates that the child does not have wasting according to MUAC and is at no increased risk of death.
- **Yellow MUAC:** Greater than or equal to 11.5 cm and less than 12.5 cm. This indicates the child has moderate wasting according to MUAC and has a moderate increase in the risk of death.
- **Red MUAC:** Less than 11.5 cm. The child has severe wasting according to MUAC and is at a greatly increased risk of death.

## 2. CHECKING FOR BILATERAL PITTING OEDEMA

The presence of bilateral pitting oedema always indicates severe wasting. The feet are checked first since this is where nutritional oedema first occurs, with both feet checked simultaneously (bilateral). If there is oedema of one foot only, then this is not nutritional oedema and may have another localized cause such as infection.

The severity of the oedema is graded according to where the oedema is present:

- 1+ (+) oedema: Occurs in the feet only
- 2+ (++) oedema: Occurs in both feet, both lower legs and may also involve both hands
- 3+ (+++) oedema: Occurs in both feet, both lower legs, both hands and around the eyes

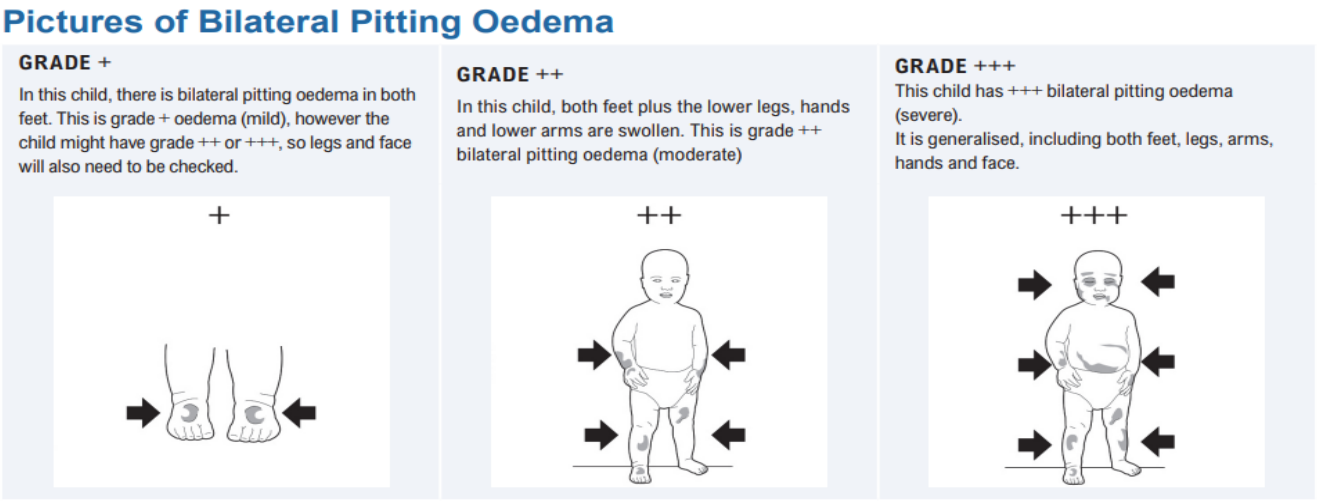



*Figure 2: Asessment of bilateral pitting oedema for children aged 6-59 months*

## 3. MEASURING WEIGHT

### 3.1. Weighing a child using a tared scale

Be sure that the scale is placed on a flat, hard, even surface. Explain all procedures to the mother and enlist her help. Babies should be weighed naked; wrap them in a blanket or other covering until weighing. Older children should be weighed with minimal clothing. If it is socially unacceptable to undress the child, remove as much clothing as possible. If the child is less than 2 years old, do tared weighing:

- The mother will remove her shoes and step on the scale to be weighed first alone. Have someone else hold the undressed baby wrapped in a blanket.
- With the mother still on the scale and her weight displayed, tare the scale. The scale is tared when it displays a figure of a mother and baby and the number 0.0.
- Hand the undressed baby to the mother and ask her to remain still.
- The baby's weight will appear on the display (shown to the nearest 0.1 kg). Record this weight.

**Note:** If a mother is very heavy (e.g. more than 100 kg) and the baby's weight is relatively low (e.g. less than 2.5 kg), the baby's weight may not register on the scale. In such cases, have a lighter person hold the baby on the scale.

### 3.2. If the child is 2 years or older and will stand still, weigh the child alone. If the child jumps on the scale or will not stand still, use the tared weighing procedure instead.

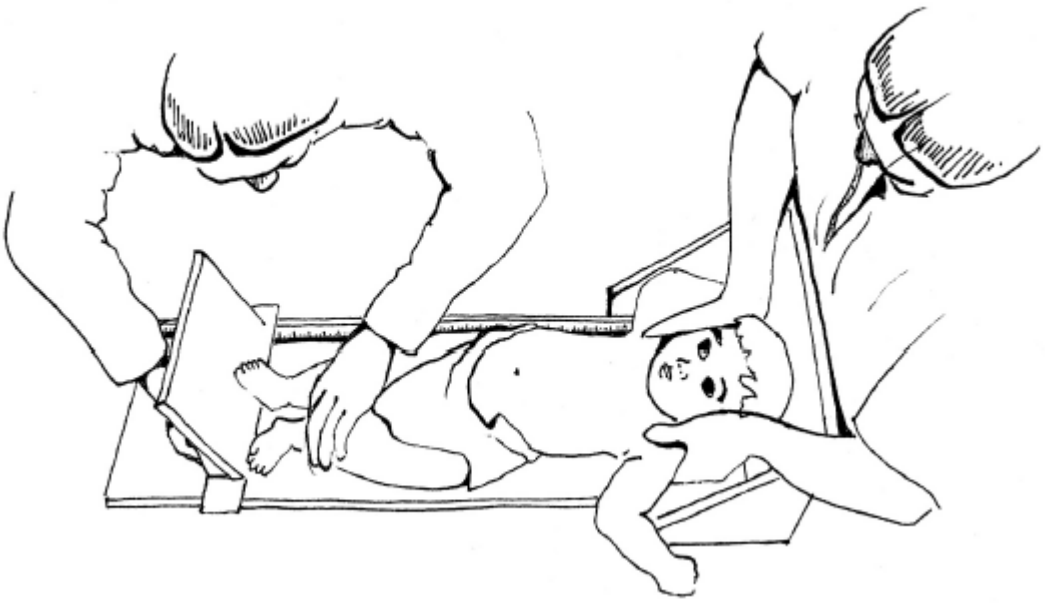
Ask the mother to help the child remove shoes and outer clothing. Talk with the child about the need to stand still. The procedure for regular weighing is as follows:

- Turn on the scale. When the number 0.0 appears, the scale is ready.
- Ask the child to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and to remain still until the weight appears on the display.
- Record the child's weight to the nearest 0.1 kg.

4. **Measuring height or length**

**4.1. If a child is less than 2 years old, measure the child's length lying down (recumbent) using a length board that should be placed on a flat, stable surface such as a table.**

Explain to the mother that she will need to place the baby on the length board herself and then help to hold the baby's head in place while you take the measurement. Ask her to lay the child on his back with his head against the fixed headboard, compressing the hair. Quickly position the head so that an imaginary vertical line from the ear canal to the lower border of the eye socket is perpendicular to the board. (The child's eyes should be looking straight up.) Ask the mother to move behind the headboard and hold the head in this position. Check that the child lies straight along the board and does not change position.



- Shoulders should touch the board, and the spine should not be arched.
- Hold down the child's legs with one hand and move the footboard with the other. Apply gentle pressure to the knees to straighten the legs as far as they can go without causing injury.

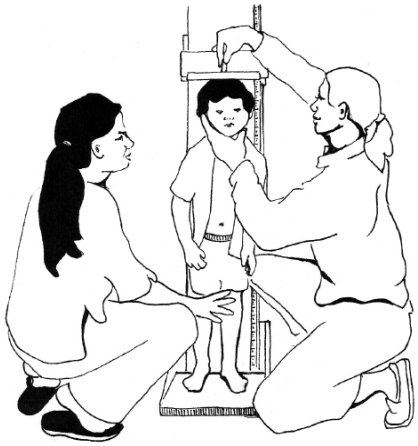
**Note:** It is not possible to straighten the knees of newborns to the same degree as older children. Their knees are fragile and could be injured easily, so apply minimum pressure. If a child is extremely agitated and both legs cannot be held in position, measure with one leg in position.

- While holding the knees, pull the footboard against the child's feet. The soles of the feet should be flat against the footboard, toes pointing upwards. If the child bends the toes and prevents the footboard from touching the soles, scratch the soles slightly and slide in the footboard quickly when the child straightens the toes.
- Read the measurement and record the child's length in centimetres to the last completed 0.1 cm.

**Remember:** If the child whose length you measured is 2 years old or more, subtract 0.7 cm from the length and record the result as height in the visit notes.

**4.2. If the child is aged 2 years or older, measure standing height unless the child is unable to stand.**

Use a height board mounted at a right angle between a level floor and against a straight, vertical surface such as a wall or pillar. Standing height is about 0.7 cm less than recumbent length. This difference was taken into account in developing the WHO growth standards. Therefore, it is important to adjust the measurements if length is taken instead of height, and vice versa.



Ensure that the height board is on level ground. Working with the mother, and kneeling in order to get down to the level of the child, do the following:

- Help the child to stand on the baseboard with feet slightly apart. The back of the head, shoulder blades, buttocks, calves and heels should all touch the vertical board.
- Ask the mother to hold the child's knees and ankles to help keep the legs straight and feet flat, with heels and calves touching the vertical board. Ask her to focus the child's attention, soothe the child as needed, and inform you if the child moves out of position.
- Position the child's head so that a horizontal line from the ear canal to the lower border of the eye socket runs parallel to the base board. To keep the head in this position, hold the bridge between your thumb and forefinger over the child's chin.
- If necessary, push gently on the tummy to help the child stand to full height.
- Still keeping the head in position, use your other hand to pull down the headboard to rest firmly on top of the head and compress the hair.
- Read the measurement and record the child's height in centimetres to the last completed 0.1 cm.

**Remember:** If the child whose height you measured is less than 2 years old, add 0.7 cm to the height and record the result as length in the visit notes.

## 5. Measuring weight-for-length/height (WFH or WFL)[1]

The index of weight-for-height or length (WFH or WFL) is also used to classify the child's nutritional status. After measuring weight and height or length, a chart is used to identify the WFH or WFL z-score.[2]

### 5.1. Plotting weight-for-length/height

To plot weight-for-length/height:

- Plot length or height on a vertical line (e.g. 75 cm, 78 cm). It will be necessary to round the measurement to the nearest whole centimetre (i.e. round down 0.1 to 0.4 and round up 0.5 to 0.9) and follow the line up from the x-axis to wherever it intersects with the weight measurement.
- Plot weight as precisely as possible given the spacing of lines on the chart.
- When points are plotted for two or more visits, connect adjacent points with a straight line to better observe the trend.

Interpretation of charts:

- **WFH or WFL from 0 (median) to -2 z-score:** This is a normal range for WFH or WFL.[3] The child does not have wasting.
- **WFH or WFL from less than -2 z-score to -3 z-score:** This range of values indicates moderate wasting according to the WFH or WFL criterion. The risk of death is moderately high (approximately 1.5 times greater than the risk of a normally nourished child).
- **WFH or WFL less than -3 z-score:** This value indicates severe wasting according to the WFH or WFL criterion. The child has severe wasting and is at a greatly increased risk of death (approximately 4 to 10 times higher than the risk of a normally nourished child).[4]

1 WFL can be measured for any child with a length of 45 cm or greater. Children with a length of less than 87 cm should be measured lying down.

2 A 'z-score' is a unit of the standard deviation from the median of a given parameter according to the WHO growth standards. This may be weight for height, height for age or weight for age.

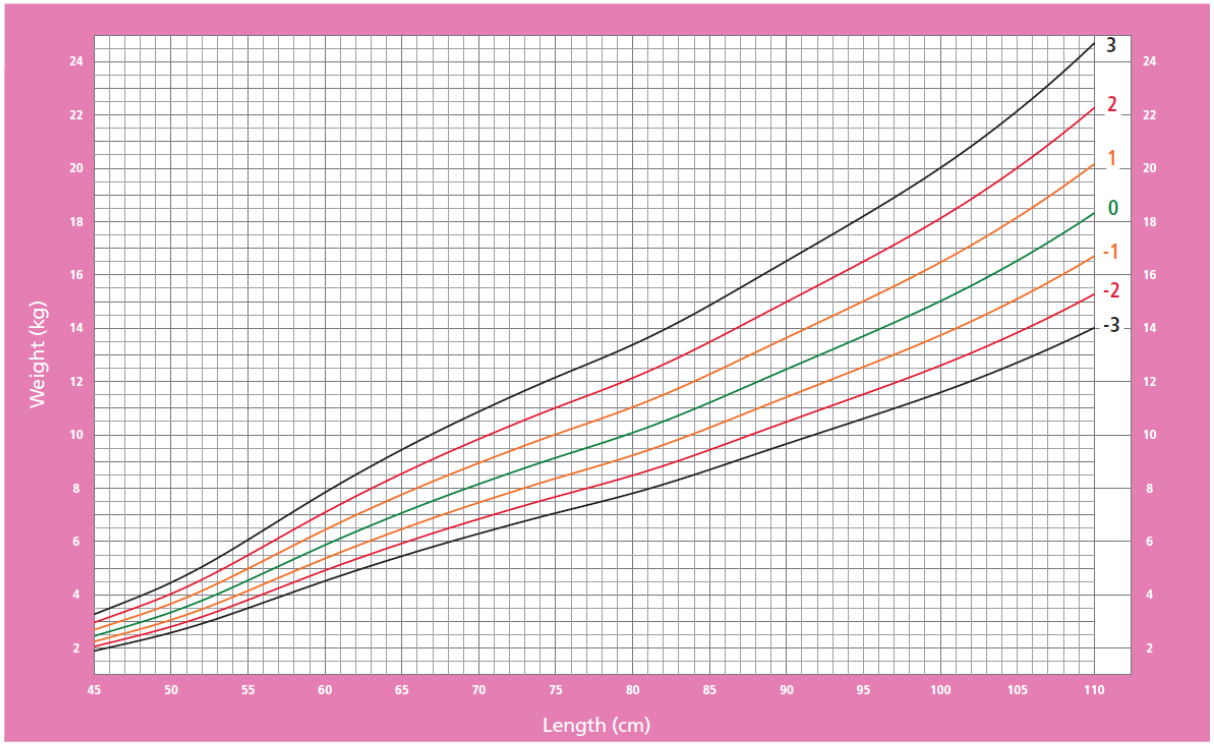
3 A 'normal' range for WFH or WFL is from a -2 z-score to a +2 z-score. Above +2 z-scores is 'overweight'. While overweight and obesity are public health problems, they are not the focus of these guidelines.

4 *WHO Child Growth Standards and the Identification of Severe Acute Malnutrition in Infants and Children: A Joint Statement by the World Health Organization and the United Nations Children's Fund*, 2009, https://www.who.int/publications/i/item/9789241598163.

# Weight-for-length GIRLS

Birth to 2 years (z-scores)

World Health Organization

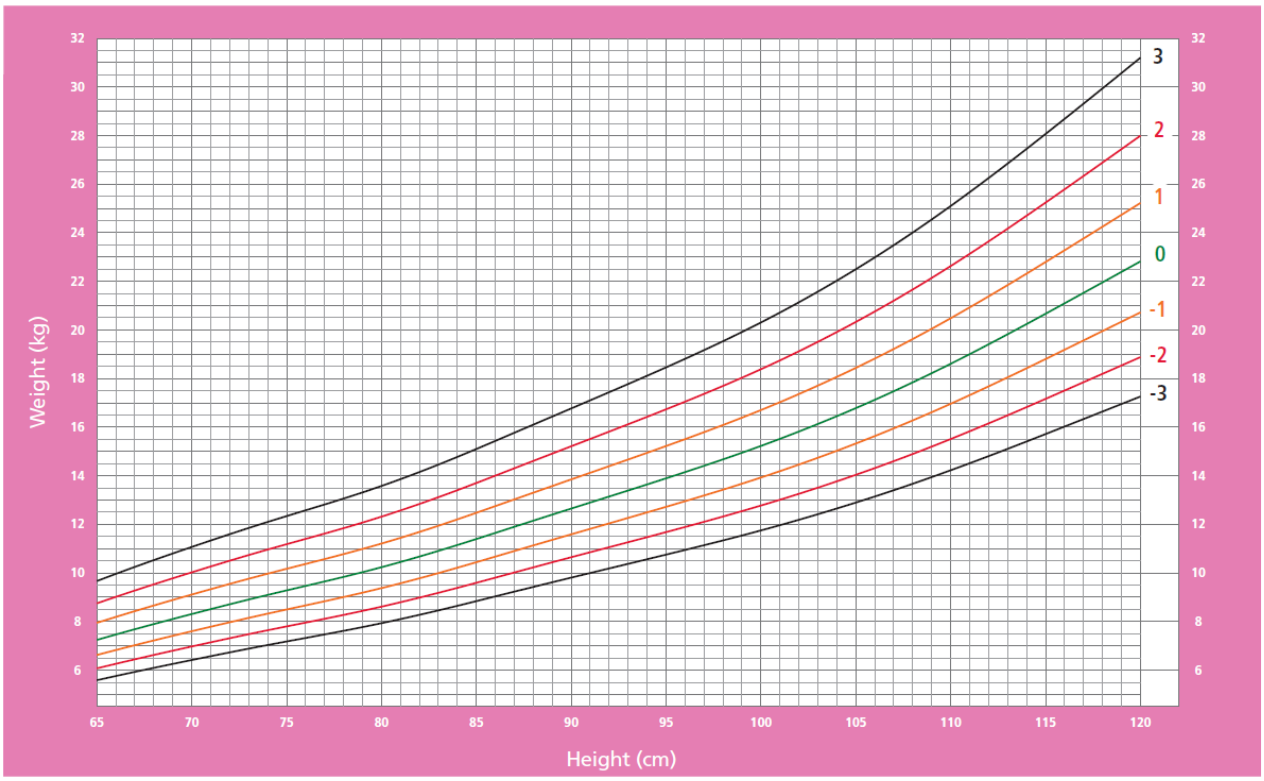



WHO Child Growth Standards

# Weight-for-Height GIRLS

2 to 5 years (z-scores)

World Health Organization

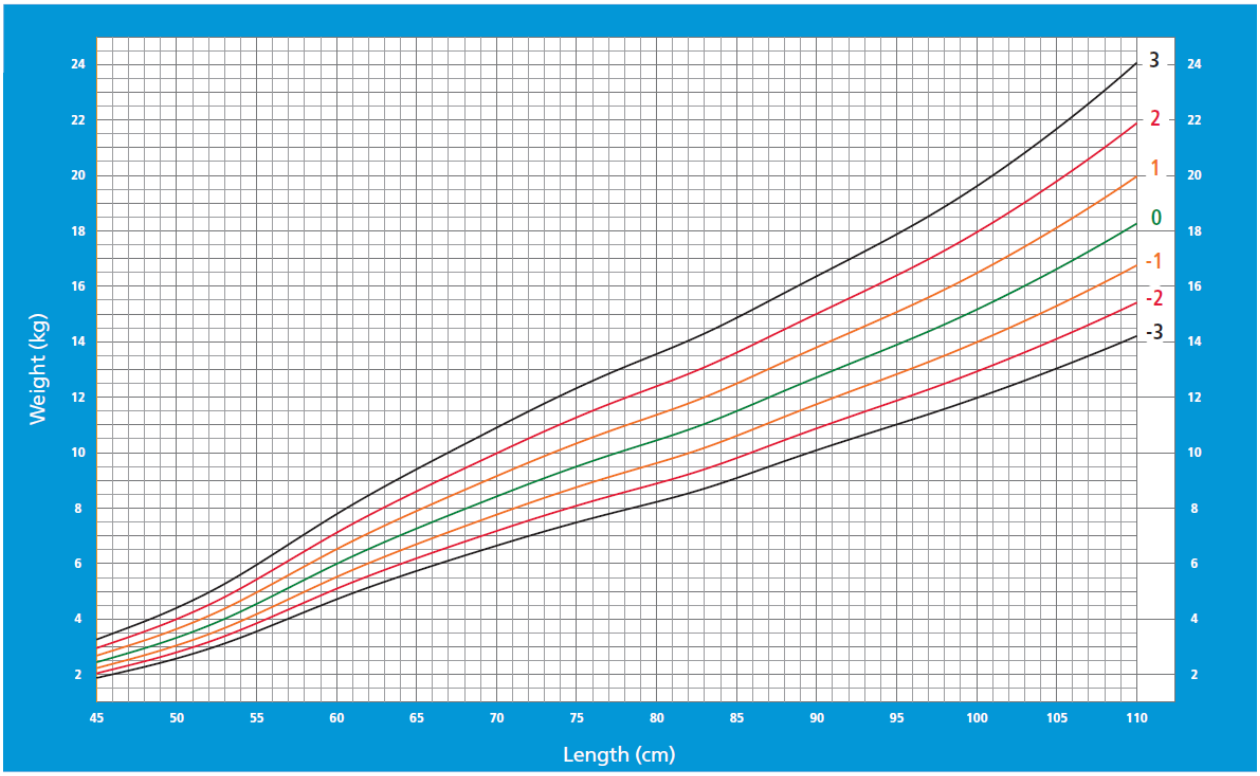



WHO Child Growth Standards

# Weight-for-length BOYS

Birth to 2 years (z-scores)

World Health Organization

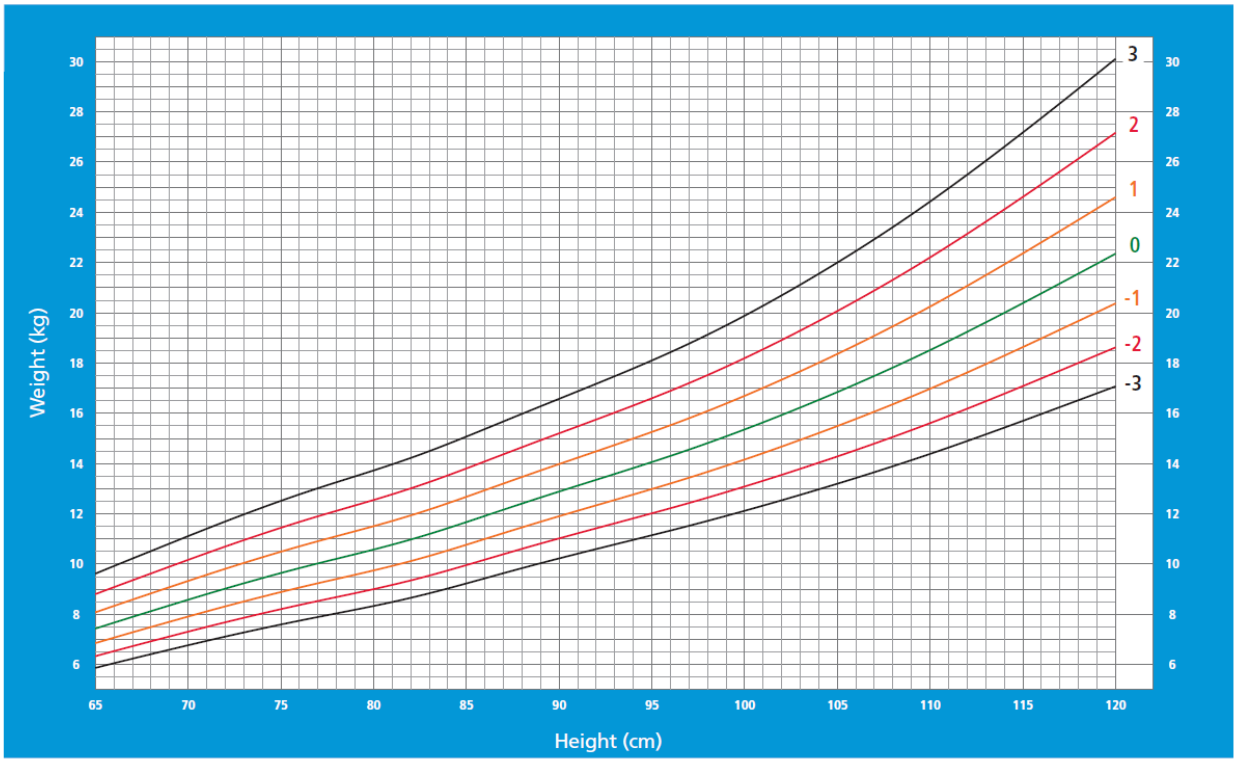



WHO Child Growth Standards

# Weight-for-height BOYS

2 to 5 years (z-scores)

World Health Organization




WHO Child Growth Standards

### 5.2. Plotting weight-for-age (WFA), to assess infants less than 6 months of age

To plot weight-for-age:

- Plot completed weeks and months on a vertical line (not between vertical lines).
- Plot weight on a horizontal line or in the space between lines to show weight measurement to 0.1 kg, e.g. 3.8 kg.
- When points are plotted for two or more visits, connect adjacent points with a straight line to better observe trends.

Interpretation of charts:

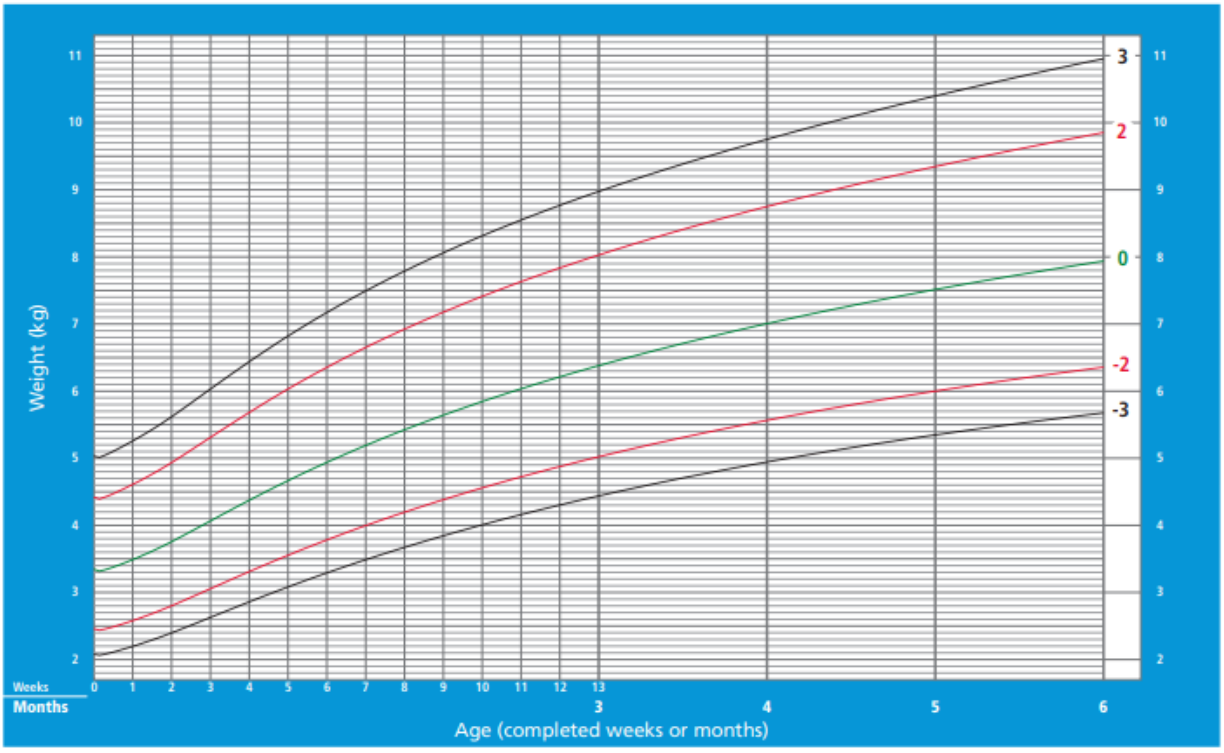
- **WFA between -2 z-score and 2 z-score:** This range indicates normal growth; the infant is within a healthy weight range. A z-score of 0 indicates that the infant has an average weight for their age and sex.
- **WFA of less than -2 z-score:** This value indicates that the infant is lighter than normal and would require further investigation to asses for undernutrition or inadequate feeding.
- WFA is not used to classify an infant as overweight or obese[5].
- WFA should be interpreted with caution in situations where the infant's age cannot be accurately determined, such as refugee situations.

5 World Health Organization. Training Course on Child Growth Assessment. Geneva, WHO, 2008. https://iris.who.int/bitstream/handle/10665/43601/9789241595070_C_eng.pdf?sequence=3&isAllowed=y

# Weight-for-age BOYS

Birth to 6 months (z-scores)

World Health Organization

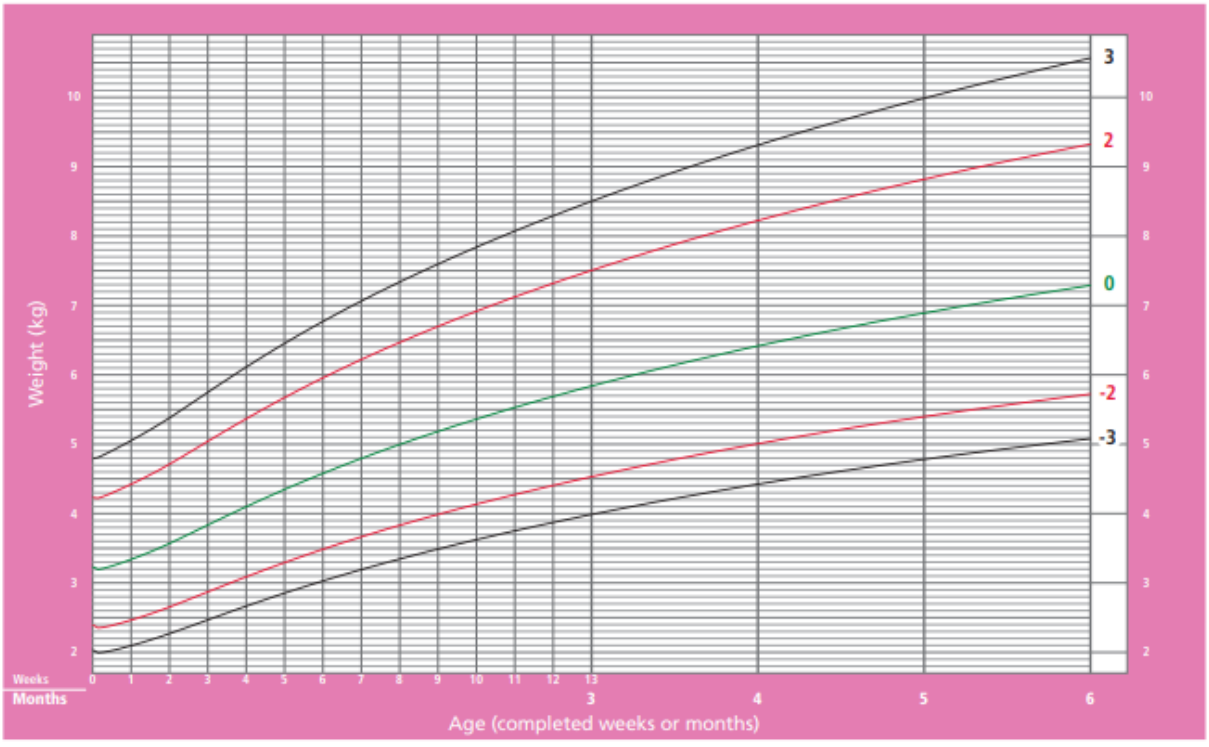



WHO Child Growth Standards

# Weight-for-age GIRLS

Birth to 6 months (z-scores)

World Health Organization




WHO Child Growth Standards

# Annex 2:

## Responsive and non-responsive caregiver feeding practices

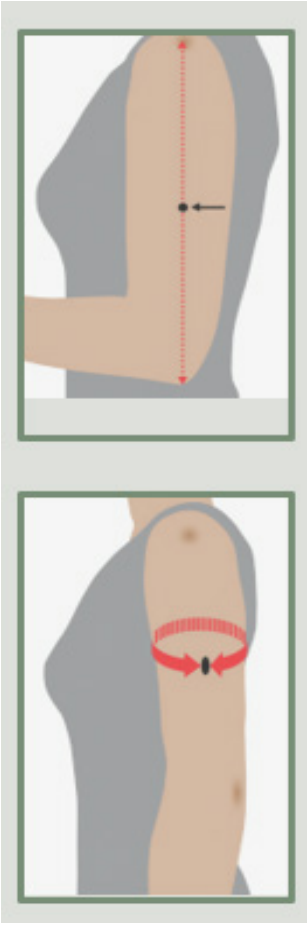
Responsive feeding entails caregivers actively engaging with children during mealtimes, attentively responding to their hunger cues, and fostering a positive eating environment. In contrast, non-responsive feeding practices may involve pressuring children to eat or using food as a reward, which can disrupt the development of healthy eating behaviours. Understanding these dynamics is crucial for promoting optimal growth and nurturing life-long healthy eating habits in children. The below outlines the key differences between responsive and non-responsive caregiver feeding practices.

| Responsive | Non-responsive |
|---|---|
| Encourages the child to eat, but does not force the child, being attentive to their hunger and satiety cues | Dominates the feeding situation through controlling and pressuring behaviours (e.g. forcing a child to finish all the food on the plate even though the child has shown signs of being full or satiated) |
| Feeds slowly and patiently, encouraging the child to progressively self-feed; recognizes that messiness is part of learning to self-feed | Feeds child directly, even when the child is able to self-feed, and does not give attention to prompts of being ready or full |
| Encourages family meal times to model healthy eating practices | Fails to direct child behaviours that interfere with the establishment of healthy food preferences and eating routines (e.g. frequent snacking on junk foods, consumption of sugar-sweetened beverages in place of water) |
| Minimizes distractions during meals, as the child may easily lose interest in feeding | Ignores the child or is distracted during meal times (e.g. is preoccupied with a television or cell phone during meal times) |
| Understands that feeding times are periods of learning and a time to bond; talks to the child during feeding, making eye-to-eye contact | Does not utilize meal times as an opportunity to interact with the child (e.g. does not talk to the child or make eye-to-eye contact) |
| If the child refuses certain foods, experiments with different food combinations, tastes, textures and methods of encouragement | Does not provide the child with enough opportunities to retry foods once refused |

*Source: UNICEF and World Health Organization,* Nurturing Young Children through Responsive Feeding*, thematic brief, 2023.*

# Annex 3:

## Guide to measurement of MUAC in pregnant and breastfeeding women



The circumference of the middle of the upper arm is measured using an adult MUAC tape. The standard MUAC tape used for children is colour coded and is divided into centimetres (see figure). The health-care worker should ensure the correct type of MUAC tape is used. The MUAC is measured to the nearest millimetre and recorded in the mother's record.

- Ensure that the left arm is not covered with clothes.
- Keep the upper arm parallel to the body.
- Bend the elbow at a 90-degree angle.
- Identify the midpoint of the upper arm (from the tip of the shoulder to the tip of the elbow).
- Mark it and place the tape on the midpoint.
- Wrap the tape around the upper arm at the midpoint.

Results from MUAC measurement can be interpreted as follows:

- MUAC less than 23 cm -> wasting (should be referred for in-depth assessment and management)
- MUAC between 23 and 24 cm -> at risk of wasting (should be referred for in-depth assessment)
- MUAC greater than or equal to 24 cm -> normal nutritional status
- Nutritional oedema: If oedema is diagnosed, she should be referred immediately to the physician for a full assessment. While oedema is common during pregnancy, it may also be a sign of preeclampsia, a serious condition that results in poor outcomes for the mother and the foetus.

# Annex 4:

## Performance of appetite test for infants and children aged 6-59 months

**Perform the appetite test for children with severe wasting**

The health-care provider should perform the appetite test. The appetite test is a clinical indicator that must be determined by direct observation and not from reports given by the caregiver. If the child cannot eat the ready-to-use therapeutic food (RUTF) that is required for nutritional recovery, they cannot be treated at the PHCC and must be referred to hospital.

1. Prepare for the appetite test. Have RUTF and clean drinking water available.
2. Counsel the caregiver regarding the appetite test procedure.
3. Ensure the caregiver and child wash hands before giving the appetite test.
4. Give sips of water to the child before giving RUTF.
5. Open the corner of the packet of RUTF and squeeze out a small amount of RUTF.
6. Ask the caregiver to encourage the child to eat the RUTF.

- If the child eats the RUTF readily, encourage the caregiver to give the child at least two or three more mouthfuls (approximately 3 teaspoons in total). Give the child sips of clean water between mouthfuls.
  ***If the child eats 3 teaspoons of RUTF under observation, then the child has 'passed' the appetite test.***
- If the child does not readily eat the RUTF or refuses completely, the caregiver should sit in a quiet corner and gently encourage the child to eat the RUTF for a period up to 1 hour.
  ***If the child fails to eat at least 3 teaspoons of RUTF, then they have 'failed' the appetite test.***

The table gives the criteria for 'passing' or 'failing' the appetite test.

**Appetite test for RUTF**

| PASSES THE APPETITE TEST | FAILS THE APPETITE TEST |
|---|---|
| Eats at least 3 teaspoons of RUTF | Fails to eat at least 3 teaspoons of RUTF |

# Annex 5:

## Use of ready-to-use therapeutic food (RUTF)

Ready-to-use therapeutic food (RUTF) is a prepackaged energy and nutrient-dense product that contains all the macronutrients and micronutrients required for a child with severe wasting to recover, even if no other foods are eaten (RUTF has 500 kcal per 92 g sachet). RUTF is soft food paste made from nutritious ingredients such as peanuts, oils and essential proteins. It should not be considered as a substitute for a varied diet and breast-feeding. In most cases, the child also eats family foods during recovery, as advised by the health-care provider.

**Target and use**

- RUTF is used for children 6-59 months of age who are identified with moderate or severe wasting.
- The product is ready to eat and does not need any prior dilution or cooking. Once opened, the product has to be used within one day.
- The child being treated with RUTF should not receive any additional micronutrient supplementation until after the full treatment course with RUTF is completed.
- RUTF should not be given to children who are allergic to peanuts, dairy products or soy.

**Important remarks**

- Breastfed children with wasting should eat RUTF in addition to breast milk. They should always be offered breast milk first. Children should also consume the RUTF in addition to other foods.
- RUTF is not intended for children under 6 months. Infants should be exclusively breastfed until 6 months of age and should continue breastfeeding until at least the age of 2 years.. Complementary feeding can be introduced at the age of 6 months.

**Storage conditions**

- RUTF should be stored in a cool, dry place and covered to protect it from any insects or rodents. It is best stored below 30°C in dry and hygienic conditions and can be kept without refrigeration (<30°C) for up to 24 months.
- Opened sachets should be rolled up, kept covered and dry, and used within one day.

**Instructions on use**

1. To prevent illnesses, the mother/caregiver should wash their hands and the child's hands with soap before eating.
2. Knead/massage the sachet briefly prior to opening the package to blend the contents uniformly.
3. To open the sachet, tear open a small portion of the pack. Children may eat directly from the sachet (the paste can be directly put into the child's mouth or transferred to a spoon).
4. The child can be offered clean water to drink while eating, as the food can make the child thirsty.

RUTF is an energy-dense, mineral/vitamin-enriched food recommended by WHO for the treatment of severe wasting. It provides the appropriate balance of all the nutrients and electrolytes a child requires for recovery. It is an oil-based paste, microbiologically safe, and can be kept for up to 2 years in simple packaging. With proper hygiene practices, RUTF can safely be used at home. RUTF should be stored in a cool, dry place and covered to protect from insects and rodents.


**Nutritional composition of RUTF**

| | |
|---|---|
| **Moisture content** | 2.5% maximum |
| **Energy** | 520–550 kcal/100 g |
| **Proteins** | 10%–12% total energy |
| **Lipids** | 45%–60% total energy |
| **Sodium** | 290 mg/100 g maximum |
| **Potassium** | 1,110–1,400 mg/100 g |
| **Calcium** | 300–600 mg/100 g |
| **Phosphorus (excluding phytate)** | 300–600 mg/100 g |
| **Magnesium** | 80–140 mg/100 g |
| **Iron** | 10–14 mg/100 g |
| **Zinc** | 11–14 mg/100 g |
| **Copper** | 1.4–1.8 mg/100 g |
| **Selenium** | 20–40 µg |
| **Iodine** | 70–140 µg/100 g |
| **Vitamin A** | 0.8–1.1 mg/100 g |
| **Vitamin D** | 15–20 µg/100 g |
| **Vitamin E** | 20 mg/100 g minimum |
| **Vitamin K** | 15–30 µg/100 g |
| **Vitamin B1** | 0.5 mg/100 g minimum |
| **Vitamin B2** | 1.6 mg/100 g minimum |
| **Vitamin C** | 50 mg/100 g minimum |
| **Vitamin B6** | 0.6 mg/100 g minimum |
| **Vitamin B12** | 1.6 µg/100 g minimum |
| **Folic acid** | 200 µg/100 g minimum |
| **Niacin** | 5 mg/100 g minimum |
| **Pantothenic acid** | 3 mg/100 g minimum |
| **Biotin** | 60 µg/100 g minimum |
| **n-6 fatty acids** | 3%–10% of total energy |
| **n-3 fatty acids** | 0.3%–2.5% of total energy |

**Other family foods may be given during recovery:**

- Give the RUTF daily ration in divided doses at normal family mealtimes.
- Give sips of breast milk or water before starting to feed RUTF.
- Give RUTF in small mouthfuls (with plenty of breast milk or clean water)
- After eating RUTF wait at least 30 minutes before giving other family foods.
- If after eating the whole ration of RUTF for that meal the child is still feeling hungry, they may be given other family foods to eat. Give small amounts of family food at first.
- Use only family foods which are prepared without salt.
- If the child is able to eat the whole ration of RUTF at the next mealtime, then the same amount of family food may be increased to satisfy hunger.
- If the child does not eat the whole ration of RUTF at the next mealtime, then the amount of family food given should be reduced until the whole amount of RUT can be eaten.

**IMPORTANT:**

Family foods that are given to the child with SAM must contain no salt. Small amounts of salt substitute may be used as long as it does not contain sodium. Use only fresh ingredients and unprocessed foods. Avoid canned vegetables, bread (unless bread is salt free), and salted snacks such as nuts or crackers (use salt free snacks). Salt substitutes that use potassium instead of sodium may be used to flavor foods. Spices and herbs may also be used for flavoring.

**Counselling on RUTF**

The mother/caregiver should be given counselling regarding the proper use of RUTF and age-appropriate complementary feeding practices. Key messages for RUTF counselling are as follows:

- Attention must be given to general hygiene practices (hand washing, safe handling, clean utensils).
- RUTF is NOT suitable for children aged less than 6 months.
- The food contains extra protein, vitamins and minerals to help your child gain weight.
- If breastfeeding, continue to offer breastmilk to the child before giving RUTF.
- The child should eat the amount prescribed each day (not eat all of the packets at once).
- Do not share the RUTF with other family members. The prescribed amount is for the child only. Sharing with others may result in the child with wasting not recovering properly.
- If the child has diarrhea, do not stop feeding. Ensure good hygiene and give extra breast milk, food and clean water.
- Make sure the child attends assigned visits to the PHCC for follow-up on treatment for better recovery.
- Return empty sachets of RUTF to the PHCC to monitor progress.

# Annex 6:

## Infant and young child feeding considerations and recommendations for nutrition during pregnancy and breastfeeding

**Exclusive breastfeeding from 0 to 6 months of age**

- The WHO and UNICEF recommend exclusive breastfeeding for infants for the first six months of life. This means that infants should receive only breast milk, with no additional food or drink, not even water.
- Breast milk provides all the food and water that the infant needs during the first six months.
- Exclusive breastfeeding provides essential nutrients, supports optimal growth and development, and strengthens the infant's immune system.
- Even during very hot weather, breast milk will satisfy the infant's thirst.

**Mixed feeding from 0 to 6 months of age**

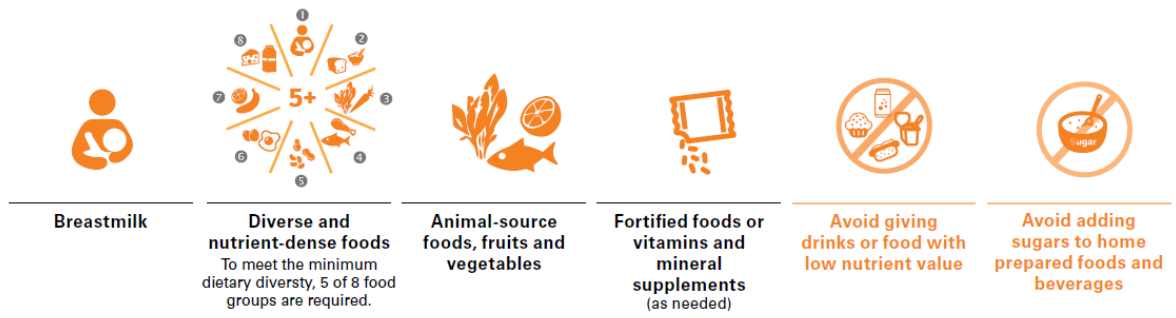
- Mixed feeding refers to a combination of breastfeeding and infant formula feeding. Even with mixed feeding, it is recommended to continue breastfeeding for as long as possible, as it offers valuable health benefits to the infant.
- Mixed feeding increases the chances that the infant will suffer from illnesses such as diarrhea and pneumonia, and from malnutrition.
- Introducing bottles or infant formula early may lead to nipple confusion, which can make breastfeeding more challenging for some infants.
- Mixed feeding can increase the risk of infections and illnesses such as diarrhea and pneumonia.

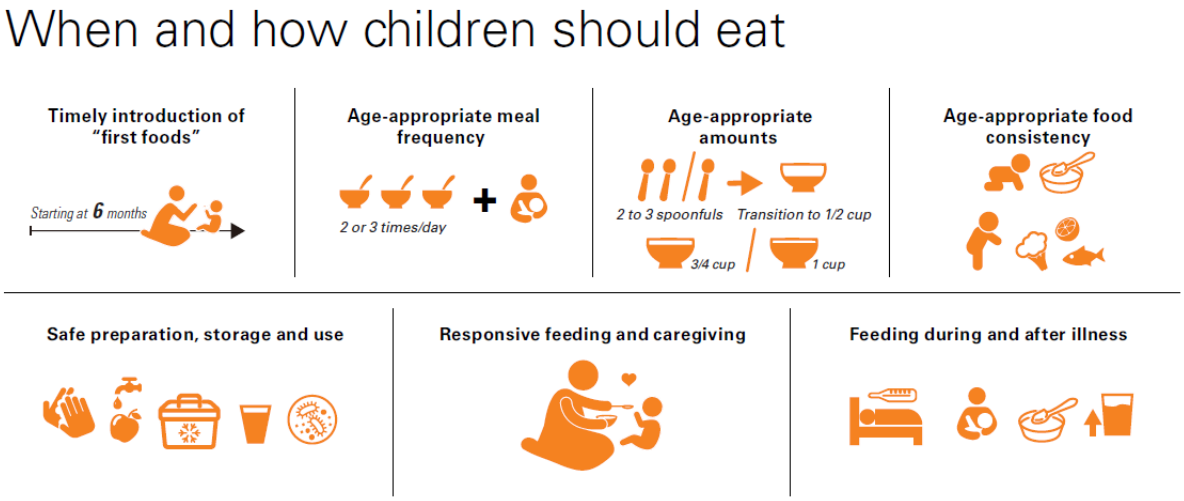
**General remarks**

- Breastfeeding the infant should be on demand, day and night.
- More suckling (with good attachment) can help produce more breast milk. Giving the infant anything else will cause him/her to suckle less and will reduce the amount of breast milk that the mother produces.
- Allow the infant to finish breastfeeding from one breast before offering the other. Switching back and forth from one breast to the other prevents the infant from getting the nutritious 'hind milk'. The 'fore milk' has more water and satisfies the baby's thirst. The 'hind milk' has more fat and satisfies the infant's hunger.
- Crying may be a late sign of hunger. Early signs that the infant wants to breastfeed include restlessness, opening of the mouth and turning the head from side to side, sticking out the tongue, and suckling on fingers and fists.
- Bottles and teats should not be used to feed infants. They are difficult to clean and can cause your baby to become sick.

**In case of illness**

- Breastfeeding should be more frequent during illness, including diarrhea, to help the infant fight sickness, reduce weight loss and recover more quickly.
- Breastfeeding during illness can also provide comfort to the infant. If your infant refuses to breastfeed, encourage them until they are able to take the breast again.
- Medications can be provided when breastfeeding only if recommended by the physician.
- If the infant is too weak to suckle, expressed breast milk can be provided. This can help keep the milk supply and prevent breast difficulties.
- After each illness, increase the frequency of breastfeeding to help the infant regain health and weight.




*Source: United Nations Children's Fund (UNICEF),* Improving Young Children's Diets during the Complementary Feeding Period, *UNICEF Programming Guidance, New York, 2020.*

**Complementary feeding from 6 months of age**
After the age of 6 months, breastfeeding should continue alongside the introduction of complementary foods, with the goal of maintaining breastfeeding for up to 2 years of age or beyond. The child during this period should be introduced to their first soft, semi-solid or solid foods.

**Age-appropriate meal frequency**
Caregivers should increase the number of meals fed to children throughout the day as they get older. The appropriate number of feedings depends on the energy density of the food and the quantities consumed at each feeding. WHO recommends the following minimum meal frequency for a healthy child:

- Two meals a day of solid, semi-solid or soft foods for breastfed infants aged 6–8 months.
- Three meals a day of solid, semi-solid or soft foods for breastfed children aged 9–23 months.
- Four meals a day of solid, semi-solid or soft foods (or milk feeds) for non-breastfed children aged 6–23 months, of which at least one meal must include solid, semi-solid or soft food.

**Age-appropriate amounts**
Caregivers should introduce children to small amounts of food at first and increase the quantity of each meal gradually as the child gets older. The recommended age-appropriate amounts per meal for breastfed and non-breastfed children are as follows:

- Begin with 2–3 teaspoons of food and transition to about ½ cup per meal for children aged 6–8 months.
- Provide ½ cup per meal to children aged 9–11 months.
- Provide ¾ cup to 1 cup per meal to children aged 12–23 months.

**Age-appropriate food consistency**

The consistency of food should gradually evolve (from soft to semi-solid to solid) with age, according to the child's requirements and abilities. Young children move from eating mashed foods to finger foods to family foods by the time they reach their first year. Inappropriate consistency can compromise nutrient intake, as children may only be able to consume a trivial amount. At the same time, diluting complementary foods to reduce viscosity can also lower their energy density, which is an increasing concern with the rise of pureed food pouches. While pureed foods are needed for children with special needs (e.g. those with disabilities or developmental delays that make eating and drinking difficult), in most cases the extended use of pureed foods can delay the consumption of foods with varied textures and consistencies.

**Recommendations for nutrition during pregnancy and breastfeeding**

- Maintain a healthy body weight, and focus on nutrient-dense foods to meet caloric needs. Pregnant women need an additional 300 to 500 kilocalories per day, while lactating women require about 500 extra kilocalories.
- Consume a variety of nutritious foods daily from the different food groups (whole grain cereals, fruits and vegetables, legumes, milk and dairy, lean meat and poultry, fish, nuts and seeds).
- Limit the consumption of added sugars, high-salt foods and solid fats.
- Drink adequate amounts of safe and clean water.
- Taking tea or coffee with meals can interfere with the body's use of the foods. Limit the amount of coffee you drink during pregnancy.
- Take iron and folic acid tablets to prevent anemia during pregnancy and for at least three months after delivery.
- Take vitamin A tablets immediately after delivery or within six weeks so that the infant receives the vitamin A during breastfeeding.
- Take deworming tablets to help prevent anemia.
- Adolescent mothers need extra care, more food and more rest than older mothers. They need to nourish their own body, which is still growing, as well as the growing infant.

# Annex 7:

## Standard referral form

الجمهورية اللبنانية
وزارة الصحة العامة

نموذج إحالة حالات سوء التغذية الحاد
(مستشفى معالج - مركز رعاية صحية أولية معالج)

رقم الإحالة: № 15841

| | | | | |
|---|---|---|---|---|
| اسم المستفيد: | الإسم | الأب | العائلة | تاريخ الولادة / / |
| الجنس: ☐ انثى ☐ ذكر | | | | تاريخ الإحالة: / / |
| اسم المستشفى المحال منه: | | | | اسم العامل(ة) الصحي (ة): |
| اسم مركز رعاية صحية أولية المحال(ة) إليه: | | | | عنوان مركز الرعاية الصحية المحال/ة إليه : |

| الوضع الصحي للطفل/ة عند الإحالة: | التشخيص: |
|---|---|
| - الوزن: _____ - الطول: _____ | - سوء تغذية حاد: ☐ معتدل ☐ شديد |
| - الوزن بالنسبة للطول (Z score) : _____ | - ملاحظات أخرى: _____ |
| - قياس محيط منتصف أعلى الذراع (MUAC): _____ | |
| - وجود تورم ثنائي: ☐ + ☐ ++ ☐ +++ | |

يونيسف

This referral slip is provided as a reference for health-care providers and may be updated based on need.

# Annex 8:

## Expressed breast milk and the supplementary suckling technique

**Expressed breast milk**
Expressed breast milk is milk that is manually or mechanically removed from the breasts for feeding when direct breastfeeding is not possible. It allows for flexibility and ensures the baby receives breast milk even when the mother is away or unable to nurse.

Before expressing breast milk, it is essential to wash hands thoroughly with soap and water. This helps prevent the transfer of bacteria or contaminants to the breast, pump or expressed milk, ensuring the milk remains safe for the baby.

**Three ways to express breast milk:**

1. *Hand expression*
   - Involves massaging and compressing the breast by hand to release milk
   - Useful for occasional expression or when no equipment is available
   - Technique includes positioning fingers around the nipple and pressing back towards the chest, then squeezing to express milk

2. *Manual pumping*
   - Uses a handheld pump to extract milk
   - Can be effective for occasional use and is portable and affordable
   - Requires squeezing a pump handle repeatedly to create suction and express milk
   - Note: pumps may be difficult to clean and should be used where there are adequate hygiene and sanitation facilities

3. *Electric pumping*
   - Employs an electricity-powered pump to extract milk
   - Ideal for frequent expression; can be single or double pumps
   - Offers adjustable suction and speed settings for comfort and efficiency
   - Note: pumps may be difficult to clean and should be used where there are adequate hygiene and sanitation facilities.

**Supplementary suckling**
Supplementary suckling is a method used in neonatal care to enhance the nutrition for newborns, especially when the primary feeding method (e.g. breastfeeding) is not sufficient or possible. This technique can help address feeding challenges, support the mother's milk supply, and promote better weight gain and overall health in the infant.

**Technique**

The supplementation is given using a tube the same size as a n°8 nasogastric tube (a n°5 tube size can be used, but the therapeutic milk should be strained through cotton wool to remove any small particles that would block the tube).

**Steps for supplementary suckling**

- Initial breastfeeding: Begin with breastfeeding the infant at the breast to stimulate the mother's milk production and encourage bonding.
- Introduce the supplement: Provide the supplementary expressed breastmilk or formula as follows.
    - Expressed breastmilk, F75 or diluted F-100 therapeutic milk is put in a cup and the mother holds it. The cup should be placed at about 5 to 10 cm below the level of the nipple so the milk does not flow too quickly and distress the infant.
    - The end of the nasogastric tube is put in the cup.
    - 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.
    - As the infant becomes stronger, the cup should be lowered progressively to about 30 cm below the breast.
- Monitor and adjust: Regularly monitor and adjust the amount of supplementary feed based on the baby's needs and health-care provider recommendations.

**Remarks**
- A health-care provider can first help the mother by holding the cup and the tube in place. Later, the mother can be supported to hold the cup and tube without assistance.
- It may take one or two days for the infant to get used to the tube and the taste of the mixture of milks.
- For very weak infants, the cup can be at the level of the infant's mouth. Never position the cup higher than this level as it can expose the infant to the danger of aspiration. As the suckling becomes stronger, the position of the cup relative to the child's mouth may be lowered.
- The best person to show the mother the technique is another mother who is using the technique successfully.
- The mother should be relaxed. Excessive or officious instructions about the correct positioning or attachment positions often inhibit the mother and make her think the technique is much more difficult than it is. Any way in which the mother is comfortable and finds that the technique works is satisfactory.
- 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.

# Annex 9:

## Rehabilitation regimen for the rare cases who cannot tolerate RUTF and must stay as inpatients consuming F-100

If an infant or child 6-59 months of age requires nutritional rehabilitation in a hospital setting, the child may continue taking RUTF using the outpatient PHC ration or use F-100 therapeutic milk. RUTF is nutritionally similar to F-100, but the latter lacks the iron content of RUTF.

During the rehabilitation phase, the energy and protein content of the diet is increased, and rapid weight gain is expected (except where a child may still be recovering from oedema). On average, the duration is two to three weeks, depending on the rate of weight gain.

**Medical management**

If it is indicated and has not already been given, deworming treatment may be given in the rehabilitation phase. Any continuing medications from the stabilization or transition phases may be continued. No other medications are given in this phase unless indicated by a specific medical diagnosis.

| Medication | Route | Dosage | Prescription |
|---|---|---|---|
| Mebendazole | Oral | 500 mg | Day 7 or rehabilitation phase |

**Dietary management**

The energy and protein intake of the child is increased to 200 kcal/kg/day, giving F-100 therapeutic milk. During rehabilitation with F-100, iron is added to the therapeutic milk. The amount of milk to be given is based on weight and is shown in the table below.

**Amount of F-100 to be given in the rehabilitation phase for infants and children 6-59 months of age**

| Weight in kg | F-100 (6 feeds per day) in ml | F-100 (5 feeds per day) in ml |
|---|---|---|
| 3.0 to 3.4 | 110 | 130 |
| 3.5–3.9 | 125 | 150 |
| 4.0–4.9 | 135 | 160 |
| 5.0–5.9 | 160 | 190 |
| 6.0–6.9 | 180 | 215 |
| 7.0–7.9 | 200 | 240 |
| 8.0–8.9 | 215 | 260 |
| 9.0–9.9 | 225 | 270 |
| 10.0–11.9 | 230 | 280 |
| 12.0–14.9 | 260 | 310 |

To fortify F-100 therapeutic milk with iron:

- 200 mg of ferrous sulfate should be added to 2 liters of F-100 therapeutic milk.
- 100 mg of ferrous sulfate should be added to 1 liter of F-100 therapeutic milk. For smaller quantities, 100 mg (half an iron tablet) should be crushed and thoroughly mixed in 10 ml of water (ensure the tablet is well crushed with no sediment).
- 10 mg of ferrous sulfate (1 ml of the 10 ml iron solution) should be added to each 100 ml of therapeutic milk.

Feeds are to be given at least five times per day. Milk volumes are determined based on whether five or six feeds per day are provided.

**Discharge remark**

Discharge from the rehabilitation phase is based on the same criteria as those for discharge from outpatient PHCC rehabilitation.