Implementation guidance

on the management of wasting and nutritional oedema (acute malnutrition) in infants and children aged under 5 years in inpatient and outpatient settings

unicef
for every child

World Health Organization

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Contents

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Abbreviations

BCG	Bacillus Calmette-Guérin
ETAT	emergency triage assessment and treatment
IMCI	integrated management of childhood illness
IYCF	infant and young child feeding
MAM	moderate acute malnutrition
MUAC	mid-upper arm circumference
ReSoMal	rehydration solution for malnutrition
RUSF	ready-to-use supplementary food
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SD	standard deviation
SFF	specially formulated foods
TB	tuberculosis
UNICEF	United Nations Children's Fund
WASH	water, sanitation and hygiene
WAZ	weight-for-age *z*-score
WHO	World Health Organization
WHZ	weight-for-height *z*-score
WLZ	weight-for-length *z*-score

Glossary

Acute malnutrition	In children aged under 5 years, acute malnutrition is categorized by a weight-for-height z-score (WHZ) or weight-for-length z-score (WLZ) below 2 standard deviations (SD) of the World Health Organization child growth standards median, or having nutritional oedema, or having a mid-upper arm circumference (MUAC) of less than 125 mm (children aged 6–59 months only). Acute malnutrition may be further subclassified as follows: • Severe acute malnutrition (SAM): ⇢ nutritional oedema; and/or ⇢ WHZ or WLZ < −3 SD; and/or ⇢ MUAC < 115 mm (children aged 6–59 months only). • Moderate acute malnutrition (MAM): ⇢ WHZ or WLZ ≥ −3 SD to < −2 SD; and/or ⇢ MUAC ≥ 115 mm to < 125 mm (children aged 6–59 months only); and ⇢ no nutritional oedema.
Admission	The process of a child being registered for and entering inpatient care. This is distinguished from the term "enrolment" used for outpatient care.
Anthropometric recovery	Attainment of a weight-for-height z-score (WHZ) or weight-for-length z-score (WLZ) equal to or greater than −2 standard deviations of the World Health Organization child growth standards median in children aged 0–59 months and/or a mid-upper arm circumference (MUAC) equal to or greater than 125 mm in children aged 6–59 months (depending on whether the child was admitted on WHZ/WLZ or MUAC or both) observed for at least two consecutive outpatient care visits. Before any decisions can be made regarding exit from nutritional treatment, these anthropometric measurements must be accompanied by an assessment of nutritional oedema – the child must be free of nutritional oedema for at least two consecutive visits to meet exit criteria. Note that anthropometric recovery refers to the child no longer having moderate acute malnutrition or severe acute malnutrition (SAM) and is different from exit criteria for children aged 6–59 months with SAM from a nutrition programme or service.
Attachment	Positioning of the infant's mouth on the mother's breast. Good attachment is essential for effective milk transfer.
Breastfeeding counselling and support	The process and interaction between appropriately trained health-care professionals or community-based, lay or peer counsellors and pregnant women and mothers. Breastfeeding counselling and support is not intended to be a top-down intervention – the aim is to empower women to identify and address barriers to appropriate infant and young child feeding.
Caregiver	A person, often a family member, who provides direct and regular care and support to an infant or child. In this guidance, the term is used to emphasize that the child's father, other family members and non-related people can play vital roles in looking after the child, in addition to (or instead of) the mother; this may be even more relevant as the child grows older and is less likely to be breastfed.

Community health workers	People who provide health education, referral and follow-up, case management, and basic preventive health care and home visiting services to specific communities. Community health workers provide support and assistance to individuals and families in navigating health and social services systems. Occupations included in this category normally require formal or informal training and supervision recognized by health and social services authorities. Providers of routine personal care services and traditional medicine practitioners are not included. Community health workers are a type of health associate professional.
Counselling	A supportive, interpersonal process used to help people explore their problems, make decisions and adopt positive behaviours, often in the context of psychological, emotional and social well-being, or to improve specific practices such as maternal nutrition or child development. Counselling emphasizes building a trusting relationship to empower people to find their own solutions and manage their lives.
Discharge	In this document, discharge refers to an infant or child aged 0–59 months with severe acute malnutrition leaving a hospital or inpatient health facility after completing their inpatient care and continuing their treatment in outpatient care. This is distinguished from the term "exit", which is used for outpatient care.
Enrolment	In this document, enrolment refers to an infant or child aged 0–59 months being registered into outpatient care where medical and nutritional support, supplementation or treatment are provided on a regular basis. This is distinguished from the term "admission", which is used for inpatient care.
Exclusive breastfeeding	Feeding an infant only breastmilk, without any additional food, drink or water.
Exit	In this document, exit refers to an infant or child aged 6–59 months completing management of this episode of acute malnutrition and no longer attending outpatient care because they have met the exit criteria. This is distinguished from the term "discharge", which is used for inpatient care. Note that for infants less than 6 months of age at risk of poor growth and development, the term "evaluation and referral" is used, which occur when the infant turns 6 months to decide which services are needed based on their medical and nutritional status and the needs of the mother/caregiver.
Health associate professionals	People who perform technical and practical tasks to support diagnosis and treatment of illnesses, diseases, injuries and impairments, and to support implementation of health care, treatment and referral plans, usually established by medical, nursing or other health professionals. Appropriate formal qualifications are often an essential requirement for entry to these occupations. In some cases, relevant work experience and prolonged on-the-job training may substitute for formal education. Health associate professionals include community health workers, nursing associate professionals and midwifery associate professionals.
Health education	The process of providing knowledge, attitudes and skills to enable people to lead healthy lives. Health education is an integral part of a broader approach that includes health services, nutrition programmes, safe water and supportive environments to promote overall child health and well-being.
Health professionals	People who study, advise on or provide preventive, curative, rehabilitative or promotional health services based on an extensive body of theoretical and factual knowledge in the diagnosis and treatment of diseases and other health problems. They may conduct research on human disorders and illnesses and ways of treating them and supervise other workers. The knowledge and skills required are usually obtained as the result of study at a higher educational institution in a health-related field for a period of 3–6 years, leading to the award of a first degree or higher qualification. Health professionals include doctors, nurses, midwives, physiotherapists, dentists and paramedical practitioners.

Health workers	People engaged to deliver health care to people and populations as part of the health system. Health workers are divided into five main categories: health professionals, health associate professionals, personal care workers in health services, health management and support personnel, and other health service providers not elsewhere classified *(1)*.
Infant	Person aged under 1 year.
Infants less than 6 months of age at risk of poor growth and development	See Section 1.2 (Scope) in the *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children under 5 years* *(2)*.
Inpatient care	In this guidance, inpatient care refers to medical care, nutritional supplementation or treatment, and feeding support for breastfed and non-breastfed infants and children aged 0–59 months delivered in a health facility involving the infant or child staying for one or more nights in the health facility.
Kangaroo care	Continuous or prolonged skin-to-skin contact of the baby with the mother, father or other primary caregiver. This supports exclusive breastfeeding or breastmilk feeding and facilitates early discharge from a health facility *(3)*.
Low birthweight	Birthweight less than 2500 g.
Mother/caregiver	An infant's parent or other primary carer. This role may be performed by the infant's gestational, genetic, social or legal parent, or a member of the infant's extended family if a parent is unable or unwilling to care for the infant. The term is used predominantly in relation to infants less than 6 months of age to highlight the importance of providing services for the mother/caregiver–infant pair together with a holistic approach encompassing all their physical and mental health and nutritional needs and recognizing the interdependence of this unit, especially in the early months of the infant's life. The term is important because much of the evidence that informed the recommendations on infants less than 6 months of age was derived from studies where the study participants were mothers of the infants (also study participants), but it was decided to extend these recommendations to other caregivers for the sake of inclusivity.
Nutrient-dense foods	Foods high in nutrients relative to their caloric content, with 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.
Nutritional supplementation for moderate acute malnutrition (MAM)	Providing nutritional supplementation to a home diet to meet the extra nutrient needs of children aged 6–59 months with MAM and achieve anthropometric recovery. Nutritional supplementation should be delivered alongside medical care and referral to appropriate preventive and supportive medical and psychosocial services, as needed.
Nutritional treatment for severe acute malnutrition (SAM)	Providing children aged 6–59 months old with SAM therapeutic milk (inpatient) or ready-to-use therapeutic food (inpatient or outpatient) to help achieve anthropometric recovery and resolution of nutritional oedema. Nutritional treatment should be delivered alongside medical care and referral to appropriate preventive and supportive medical and psychosocial services, as needed.
Outpatient care for children with acute malnutrition	In this document, this is the delivery of medical care, nutritional supplementation or treatment and feeding support for breastfed and non-breastfed infants and children aged 0–59 months and psychosocial care delivered in a health facility or community setting without requiring an overnight stay, but requiring regular appointments with a health worker until the child reaches clinical and anthropometric recovery. The health worker may be a health professional such as a doctor or nurse, or a health associate professional such as a community health worker.
Preterm infant	An infant born before completion of 37 weeks of gestation.

Psychosocial stimulation	Sensory information received from interactions with people and environmental variability that engages a young child's attention and provides information. Examples include talking, smiling, pointing, enabling and demonstrating, with or without the use of objects. This also includes responsive feeding as a part of responsive caregiving.
Ready-to-use supplementary food (RUSF)	A fortified lipid-based paste or spread used for the supplementation of children with moderate acute malnutrition. RUSF should not be used for the nutritional treatment of children with severe acute malnutrition.
Ready-to-use therapeutic food (RUTF)	Food for special medical purposes (*Codex Alimentarius*)*(5)*, including pastes, spreads and compressed biscuits and bars, developed and used for the nutritional treatment of children with severe acute malnutrition. RUTF can also be used for nutritional supplementation for children with moderate acute malnutrition alongside their home diets.
Referral	In this document, this refers predominantly to a child being referred to inpatient care from outpatient care. Children with malnutrition may, however, also be referred to other services such as HIV or tuberculosis care for follow-up.
Relactation	Re-establishing lactation some time after it was previously ceased, or in a woman who has never previously lactated.
Replacement feeding	Using a commercial infant formula to fill the nutritional deficit that occurs when an infant less than 6 months of age does not have access to sufficient breastmilk to meet their nutritional needs. Replacement feeding may be partial or total. It may be required for only a short time to bridge a gap while the mother or wet-nurse is supported to restore exclusive breastfeeding.
Responsive feeding	In responsive feeding, the mother/caregiver recognizes when the child is hungry and feeds the child appropriately. When feeding, the mother/caregiver must be sensitive to or aware of the signs the child makes, such as looking forward or turning aside, opening the mouth wide or covering the mouth, extending the tongue for food, or pushing the food away *(4)*.
Severely underweight	A weight-for-age *z*-score below 3 standard deviations of the World Health Organization child growth standards median.
Small for gestational age	An infant below the 10th percentile of birthweight for gestational age. The infant may be preterm or full-term.
Specially formulated foods	In this document, and in line with the *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children under 5 years* *(2)*, this refers to foods that have been specifically designed, manufactured, distributed and used according to Codex Alimentarius for *special medical purposes (5)* or for *special dietary uses (6)* *(https://www.fao.org/4/y2770e/y2770e04.htm)* (e.g. ready-to-use therapeutic foods, ready-to-use supplementary foods, fortified blended foods). Some World Food Programme guidance refers to these products as specialized nutritious foods.
Stabilization centre	A term used in many countries to describe an inpatient unit or hospital ward that provides nutritional treatment for infants and children with severe acute malnutrition. Other terms used include nutritional rehabilitation unit, nutrition ward, and inpatient therapeutic feeding centre.
Supplemental feeding	Feeding an infant less than 6 months of age expressed breastmilk, therapeutic milk (F-75 milk or F-100 milk diluted) or commercial generic infant formula in addition to breastfeeding. This is prescribed by a health professional with the goal of meeting the increased nutritional demands or to bridge a temporary gap between available breastmilk and the nutritional needs of the infant while the mother or wet-nurse is supported to increase the volume of breastmilk she is producing.
Supplementary milk	Therapeutic milk (F-75 milk or F-100 milk diluted) or commercial infant formula.

Supplementary suckling technique	Feeding an infant expressed breastmilk, commercial generic infant formula or therapeutic milk at the breast to stimulate increased breastmilk production. This is achieved by using a tube leading from a cup of expressed breastmilk or supplementary milk to the breast and positioned alongside the nipple so it is drawn into the infant's mouth with the nipple. The infant draws the supplementary milk through the tube while providing nipple stimulation and removing milk from the breast to stimulate increased milk production.
Transfer from inpatient to outpatient care	In this document, this refers to the patient movement when a child is discharged from inpatient care to finish nutritional treatment in outpatient care. The child usually goes home from the hospital and then attends an outpatient centre or clinic for nutritional treatment on the date recommended to the mother/caregiver on discharge from inpatient care (e.g. in 5 days or 1 week). The child then attends outpatient care until they reach clinical and anthropometric recovery.
Triage	Preliminary assessment of a patient to determine the urgency of their need for medical treatment and the nature of the treatment required.
Underweight	Weight-for-age *z*-score below 2 standard deviations of the World Health Organization child growth standards median.
Wet-nurse	A woman (who may or may not be related to the infant) who agrees, altruistically, to provide her breastmilk (usually by breastfeeding) to an infant who is not her own child. A wet-nurse may already be lactating or may need to relactate to provide breastmilk.
Wet-nursing	A consensual, unpaid arrangement in which an infant is provided with breastmilk by a woman other than the infant's own mother.
Wasting	see Acute malnutrition.

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6. *(https://www.fao.org/4/y2770e/y2770e04.htm)*

1. Introduction

This implementation guidance aims to help governments and implementing organizations adapt and adopt the recommendations and good practice statements from the 2023 *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children under 5 years* *(1)* to update the management sections of their national guidelines on acute malnutrition. The 2023 guideline incorporates standing recommendations from the 2013 World Health Organization (WHO) *Guideline: updates on the management of severe acute malnutrition in infants and children* *(2)*, which are carried over and are still relevant. Guidance on updating national acute malnutrition guidelines can be found in the United Nations Children's Fund (UNICEF) *A brief guide to updating national child wasting guidelines* *(3)*.

The goal of these national guidelines is to enable policy-makers, programme managers and health workers to deliver nutritional, medical and psychosocial care for infants less than 6 months of age at risk of poor growth and development and children aged 6–59 months with acute malnutrition, and their families.

In addition, this implementation guidance incorporates standing normative guidance from WHO and replaces previous operational guidance documents, such as the *Management of severe malnutrition: a manual for physicians and other senior health workers* *(4)*.

1.1 How to use this implementation guidance

The main sections of this implementation guidance provide considerations for programme managers and health workers on the management of infants less than 6 months of age at risk of poor growth and development and children aged 6–59 months with acute malnutrition in inpatient and outpatient care.

The annexes provide some guidance for programme managers, but they are more focused towards health workers. The annexes include checklists, reference tables and dosing protocols that can be adapted to context and used by health workers in their day-to-day care of infants, children and mothers/caregivers.

This implementation guidance can be used as:

- a reference for developing national child health and nutrition guidelines;
- a reference for implementing organizations;
- the basis and reference point for job aids, clinical algorithms and training materials.

The implementation guidance refers to, and should be used alongside, the following core guidance documents from UNICEF and WHO:

- *Pocket book of hospital care for children: second edition* (hereafter, the WHO Pocket book) *(5)*
- *Integrated management of childhood illness: chart booklet (6)*
- *Updated guideline: paediatric emergency triage, assessment and treatment – care of critically ill children (7)*
- *WHO guideline for complementary feeding of infants and young children 6–23 months of age (8)*
- *WHO guide for integration of perinatal mental health in maternal and child health services (9).*

Specifically for infants less than 6 months of age, the following documents are referenced:

- *WHO recommendations on maternal and newborn care for a positive postnatal experience (10)*
- *WHO recommendations for care of the preterm or low-birth-weight infant (11)*
- *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – IMCI chart booklet (12)*
- *WHO guide for integration of perinatal mental health in maternal and child health services (9)*
- *Infant and young child feeding counselling: an integrated course – trainer's guide, 2nd ed (13)*
- *Baby-friendly Hospital Initiative training course for maternity staff: trainer's guide (14)*
- *Protecting, promoting and supporting breastfeeding: the BFHI for small, sick and preterm newborns (15).*

Important

Context-specific factors must be considered when using the material in this implementation guidance so it is feasible and likely to have the most impact on improving the care of infants and children with malnutrition and their families.

1.2 Structure of this implementation guidance

This implementation guidance is structured as follows:

- **Section 1 –** introduction: this section covers using the implementation guidance, key references and resources, and likely target audience.
- **Section 2 –** identification, referral pathways and service delivery: this section provides guidance on infants less than 6 months of age at risk of poor growth and development and children aged 0–59 months with acute malnutrition, including:
  - identification at the community level;
  - identification at the health facility level;
  - referral pathways for children aged 6–59 months with acute malnutrition;
  - referral pathways for infants less than 6 months of age at risk of poor growth and development, including those with severe acute malnutrition (SAM) or who are severely underweight.
- **Section 3 –** assessment of infants and children aged 0–5 years: this section provides guidance on infants less than 6 months of age at risk of poor growth and development and children aged 6–59 months, including:
  - triage and emergency treatment;
  - paediatric history and clinical examination;
  - anthropometric measurements and other clinical signs of acute malnutrition or being at risk of poor growth and development in infants less than 6 months of age;
  - the appetite test in children aged 6–59 months (feeding assessments for infants less than 6 months of age are covered in more detail in the sections on managing these infants).
- **Section 4 –** inpatient nutritional and medical care for children aged 6–59 months with severe acute malnutrition (SAM).
- **Section 5 –** inpatient nutritional and medical care for children aged 6–59 months with moderate acute malnutrition (MAM).
- **Section 6 –** inpatient nutritional and medical care for infants less than 6 months of age at risk of poor growth and development, with or without severe acute malnutrition (SAM).

- **Section 7 –** outpatient nutritional and medical care for children aged 6–59 months with severe acute malnutrition (SAM).
- **Section 8 –** outpatient nutritional and medical care for children aged 6–59 months with moderate acute malnutrition (MAM).
- **Section 9 –** outpatient nutritional and medical care for infants less than 6 months of age at risk of poor growth and development, with or without severe acute malnutrition (SAM).
- **Section 10 –** psychosocial stimulation.
- **Section 11 –** community health worker management of children aged 6–59 months with moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) in the community: this section covers essential requirements and other important aspects needed for the safe and effective management of children with MAM and SAM in the community by community health workers.
- **Section 12 –** mother/caregiver assessment and support: this section covers basic guidance on assessing and supporting mothers/caregivers of infants less than 6 months of age at risk of poor growth and development (related to their nutritional, physical and mental health status) and emphasizes the importance of managing the mother/caregiver and infant as an interdependent unit.

Guidance on the setup and organization of inpatient and outpatient care (e.g. physical setup, human resources needs) and monitoring the quality of inpatient and outpatient care are provided in separate programme manager guidance.

Prevention at every opportunity

Throughout this guidance, preventive actions and interventions that should already be part of routine practice for many services are highlighted. Effort should be made to ensure prevention of acute malnutrition as part of a child health approach is at the forefront of programme managers' and health workers' minds and the care they deliver.

1.3 Target audience of this implementation guidance

The target audience includes programme managers and other government staff responsible for developing national guidelines and protocols to support the planning and delivery of services for children aged 6–59 months with acute malnutrition and for infants less than 6 months of age at risk of poor growth and development, with or without SAM, and their families.

This implementation guidance may also be useful for staff involved in data collection and monitoring and surveillance of inpatient and outpatient nutritional services, clinical supervisors, programme managers and policy-makers.

2. Identification, referral pathways and service delivery

2.1 Identifying acute malnutrition in children aged 0–5 years

Acute malnutrition in children aged under 5 years is categorized by a weight-for-height z-score (WHZ) or weight-for-length z-score (WLZ) below two standard deviations (SD) of the World Health Organization (WHO) child growth standards median, or having nutritional oedema, or having a mid-upper arm circumference (MUAC) of less than 125 mm (children aged 6–59 months only) (*Figure 1*). Acute malnutrition may be further subclassified as follows:

- Severe acute malnutrition (SAM):
  - nutritional oedema; and/or
  - WHZ or WLZ <–3 SD; and/or
  - MUAC < 115 mm (children aged 6–59 months).
- Moderate acute malnutrition (MAM):
  - WHZ or WLZ ≥ –3 SD to < –2 SD; and/or
  - MUAC ≥ 115 mm to < 125 mm (children aged 6–59 months); and
  - no nutritional oedema.

See Section 3 for guidance on clinical, anthropometric and appetite/feeding assessments.

Note

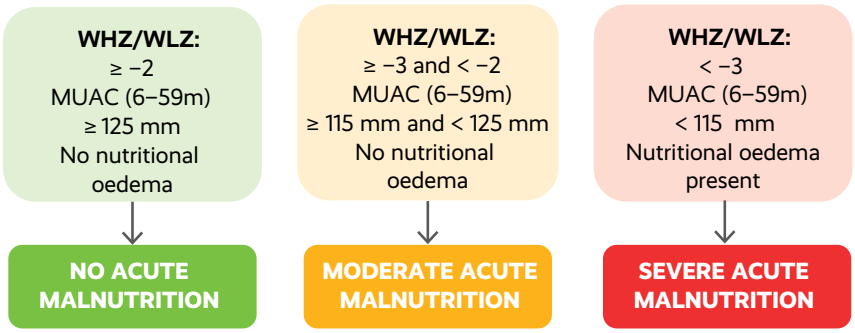
The terms moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) are currently the most familiar and widely used among policy-makers, programme managers and health workers in national health systems and within national and international nongovernmental organizations. These terms, rather than moderate wasting and severe wasting and/or nutritional oedema, are used in this implementation guidance and other derivative tools of the WHO 2023 guideline *(1)*.

2.2 Identifying infants less than 6 months of age at risk of poor growth and development

2.2.1 Who are infants less than 6 months of age at risk of poor growth and development, and why do we need this new category?

Previous WHO guidance for nutrition focused primarily on infants less than 6 months of age with SAM, defined as having WLZ more than 3 SD below the median of the WHO child growth standards and/or nutritional oedema. The 2023 WHO guideline focuses on a broader group of infants who are not growing well in order to identify and provide interventions for these infants and their

Figure 1. Identification and classification of acute malnutrition in infants and children aged 6–59 months



Box 1

Identification criteria for infants less than 6 months of age at risk of poor growth and development

Infants at risk of poor growth and development include infants less than 6 months of age in any of the following categories with any of the following criteria:

- **Category 1:** infants with poor growth based on sequential measures:
  - no weight gain or weight loss from one measurement to the next; or
  - downward crossing of weight-for-age centile lines;[a] or
  - insufficient weight gain (velocity standards[b] or grams/per specific time period[c]).
- **Category 2:** infants with poor anthropometry based on a single measure (if sequential measures are not available):
  - WAZ < −2 SD; or
  - WLZ < −2 SD; or
  - nutritional oedema; or
  - MUAC < 110 mm (for infants between 6 weeks and less than 6 months of age).
- **Category 3:** infants with known risk factors for poor growth and development:
  - neurodevelopmental concerns; or
  - infant feeding concerns; or
  - maternal risk (physical or mental health problem(s) affecting caring practices); or
  - history of being in hospital.
- **Category 4:** infants at risk due to poor birth outcomes:
  - preterm birth; or
  - low birthweight; or
  - small for gestational age.

[a] One or more growth centile spaces if birthweight was below the 9th centile; two or more centile spaces if birthweight was in the range 9th–91st centiles; three or more centile spaces if birthweight was above the 91st centile.

[b] Less than 2 SD below the median on the WHO growth velocity standards from one measurement to the next.

[c] Approximately less than 500 g/month, or if weekly measurements: birth to age 3 months, approximately < 150–200 g/week; age 3–6 months, approximately < 100–150 g per week.

mothers/caregivers[1] before they deteriorate to meeting the anthropometric and clinical criteria of having SAM, as well as still providing recommendations and guidance for infants less than 6 months of age who already have SAM. The interventions suggested in the guideline and this implementation guidance go beyond simply trying to prevent acute malnutrition and will contribute to the ultimate goal of healthy growth and development for these infants and their mothers/caregivers to be healthy and well supported.

2.2.2 Identification criteria

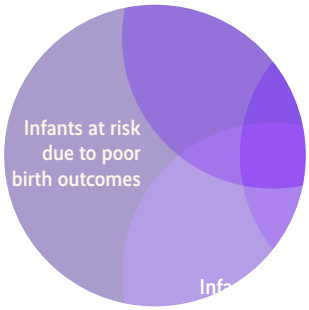
Through an evidence-informed process, a set of criteria, grouped into four categories (*Box 1*), has been established that identify this group of infants now called infants at risk of poor growth and development *(1)*. Sequential measures (e.g. being able to review a growth chart with multiple measurements) are preferable to single measures (e.g. having only one weight measurement available to calculate weight-for-age z-score (WAZ) or WLZ), but other than this there is no hierarchy of importance for these criteria; this means an infant can have any of these criteria from any of the categories and be classified as being at risk of poor growth and development.

The main purpose of these criteria is to flag that these infants and their mothers/caregivers need further assessment and then appropriate care and support according to the needs of the infants and their families.

Figure 2 illustrates how one or more criteria from any of the categories may occur in the same infant. For example, an infant assessed at age 3 months may have WLZ < −2, may have been preterm and may have feeding difficulties, and the mother may have depression. Although these factors are not cumulative from an evidence perspective, the possibility of the infant having more than one criterion from the different categories demonstrates why it is vital to comprehensively assess the mother/caregiver and infant together and take into account the full picture rather than focusing only on anthropometric measurements.

1 The term mother/caregiver is used predominantly in relation to infants aged under 6 months to highlight the importance of providing services for the mother/caregiver and infant pair together with a holistic approach encompassing all their physical and mental health and nutrition needs and recognizing the interdependence of this unit, especially in the early months of the infant's life.

Figure 2. Infants less than 6 months of age at risk of poor growth and development



2.2.2.1 Infants less than 6 months of age with SAM

Infants with SAM are a subgroup of infants at risk of poor growth and development. These infants have nutritional oedema or WLZ < −3, which is less than WLZ < −2 – one of the criteria that identifies them as infants at risk of poor growth and development (*Figure 3*). Note that a MUAC of less than 110 mm in an infant aged 6 weeks to 6 months is not a criterion to identify SAM but does identify the infant as being at risk of poor growth and development.

Figure 3. Infants less than 6 months of age with SAM are a subgroup of infants at risk of poor growth and development

Infants less than 6 months of age with SAM may have criteria that identify them as being at risk of poor growth and development in addition to anthropometric criteria (e.g. depression in the mother, disability), and these should be given equal attention for appropriate interventions and support.

It is important to note that some WHO recommendations are relevant only for infants less than 6 months of age with SAM – for example, the use of routine antibiotics (i.e. for all infants rather than according to clinical indication) is only recommended for infants less than 6 months of age with SAM (see Sections 6 and 9).

See Section 3 for guidance on clinical, anthropometric and appetite/feeding assessments.

> ***Note***
> **The term moderate acute malnutrition is not currently used in a WHO recommendation or guidance for infants less than 6 months of age (as it is for children aged 6–59 months). Infants are classified as being at risk of poor growth and development (and needing ongoing appropriate support and interventions) and/or as having SAM (in which case, due to their significantly increased risk of mortality, there are specific recommendations related to antibiotic use, supplementary feeding and other related matters).**

2.3 Identifying infants and children aged 0–59 months with acute malnutrition and infants less than 6 months of age at risk of poor growth and development

2.3.1 Identification at the community level

In many countries, many infants and children with acute malnutrition or who are not growing well are never taken to a health facility with malnutrition as a presenting complaint. The mother/caregiver may not realize the child is malnourished, may not make the link between observed signs and symptoms (e.g. oedema) and malnutrition, or may not have the means or opportunity to attend a health facility. These children often present to health workers only when medical problems such as severe infection are already present, making it more challenging to treat the child, often with poor outcomes. If people are unaware of the health and nutrition services available to them or are confused or misinformed about what happens in these services, they may not take their children to such services or may prevent others from doing so via word of mouth.

Any services delivering care for children with malnutrition and their families must have a strong community component that works to increase awareness around acute malnutrition, its early identification and referral to available management services, and to combat any stigma linked to families of children with acute malnutrition.

Community engagement covers a range of activities designed to open dialogue, promote mutual understanding, encourage active and sustained engagement from the target community, and improve case-finding and follow-up. Such activities can be integrated into community development plans or can draw on community leaders to promote awareness.

Systematic case-finding within communities can identify infants and children with acute malnutrition and infants less than 6 months of age at risk of poor growth and development before the development of medical problems, thereby improving treatment outcomes.

Opportunities to identify children with acute malnutrition at the community level are described below. These activities are typically carried out by trained health workers and/or community health workers.

Infants and children aged 0–59 months identified with acute malnutrition should be referred to the nearest health facility for further assessment and to start treatment. Alternatively, management can be carried out by community health workers in the community (for children aged 6–59 months), if this is part of the national policy and guideline (see Section 11). It is important that referral pathways are clear and timely, ensuring children with acute malnutrition reach services before complications arise.

There may be a number of opportunities and locations to identify children with acute malnutrition in the community, including:

- community health worker visits and meetings, such as integrated community case management, infant and young child feeding (IYCF), and water, sanitation and hygiene (WASH);
- active case-finding in households (door-to-door);
- outreach clinics for vaccination or other essential health services;
- child health days or weeks;
- community-based growth monitoring and promotion activities;
- mothers' or parents' groups;
- early childhood development sessions conducted at the community level;
- traditional healer consultations;
- food or cash distribution sessions;
- creches, kindergartens, preschools and other childcare groups;
- faith gatherings.

2.3.2 Identification at the health facility level

The identification of SAM guides how some critical emergency treatments are administered – for example, management of shock, severe dehydration and severe anaemia currently have different protocols for children with and without SAM. Rapidly identifying SAM should be prioritized as part of the initial clinical assessment of all children presenting at a health facility (see Section 3.1).

Screening of infants and children for the detection of acute malnutrition and identification of infants less than 6 months of age at risk of poor growth and development should be included at all points where the child has contact with the health system at a clinic or hospital. This screening is recommended as part of integrated management of childhood illness (IMCI) and emergency triage assessment and treatment (ETAT), but in many contexts it is neglected and the focus is only on the preventive intervention (e.g. vaccination) or the medical problem that the child presents with.

Unless children are actively screened, many infants and children with acute malnutrition or infants less than 6 months of age at risk of poor growth and development will be missed.

Opportunities and contact points in the health system to identify children with acute malnutrition include:

- admission to a paediatric ward with any illness;
- outpatient departments;
- HIV clinics;
- tuberculosis (TB) services;
- mother-and-child clinics;
- disability clinics;
- growth monitoring and promotion clinics;
- well-child visits;
- vaccination clinics;
- district hospitals.

Box 2

Country example: family MUAC screening in Somalia

In the family MUAC approach, mothers/caregivers are trained to identify acute malnutrition in their children using a MUAC tape. This approach was developed with the objective of increasing the frequency and coverage of screening for acute malnutrition and ultimately detecting more children with acute malnutrition for early referral to health facilities and services.

Family MUAC has been implemented in a variety of different programme designs, depending on specific context, funding levels and other circumstances.

In 2022, in Baidoa, Somalia, during the peak of a drought, the prevalence of global acute malnutrition among children in camps for internally displaced people rose to 28.6%, and crude death rates among children aged under 5 years reached 2.43 per 10 000. Key to saving lives was ensuring children with acute malnutrition were identified early and treated. The family-led MUAC approach was deployed to empower mothers/caregivers to identify early signs of acute malnutrition in their children using a simple MUAC tape, a role previously reserved only for health workers.

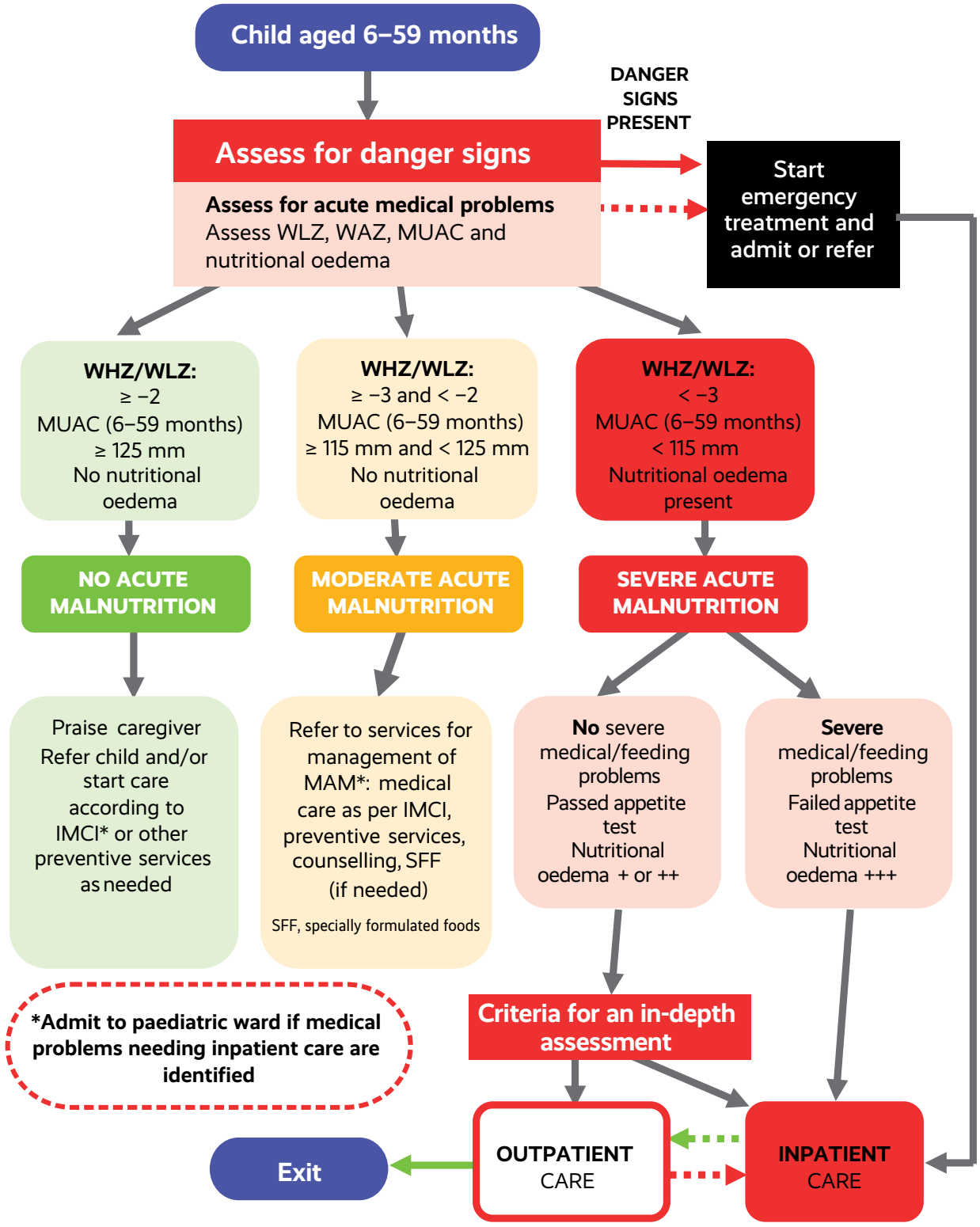
This approach was adopted by the Ministry of Health and nutrition partners in 2020 during the COVID-19 pandemic and has subsequently demonstrated its effectiveness not only as a context-relevant and reliable tool for service continuity in Somalia, but also as an empowering tool for mothers/caregivers to take charge of the health of their own children. It works well in hard-to-reach districts, with a special focus on referrals to nutrition treatment service delivery points.

References

- Quick guidance on simplified approaches for the management of wasting: family MUAC. New York: United Nations Children's Fund (*https://www.nutritioncluster.net/sites/nutritioncluster.com/files/2024-10/SA_Quick%20Guidance_Family%20MUAC-v3.pdf*, accessed 7 January 2026).
- Summary of training toolkit on simplified approaches for the detection and treatment of child wasting. Action Against Hunger, Humanitarian Leadership Academy, International Rescue Committee, Save the Children, United Nations Children's Fund (*https://kayaconnect.org/course/info.php?id=4215*, accessed 7 January 2026).

Source: Family led measurement of the mid-upper arm circumference (MUAC). Mogadishu: United Nations Children's Fund Somalia (*https://www.unicef.org/somalia/stories/family-led-measurement-muac*, accessed 7 January 2026).

Figure 4. Referral pathways for children aged 6–59 months with acute malnutrition



2.4 Referral pathways for children aged 6–59 months with acute malnutrition

Once a child with acute malnutrition has been identified in the community or at a health facility, the child must be referred for and start management for this episode of acute malnutrition and any associated medical or feeding problems. *Figure 4* summarizes the referral pathways.

See Section 3 for guidance on assessment methods, including in-depth assessment.

2.5 Referral pathways for infants less than 6 months of age at risk of poor growth and development

The referral pathways for infants less than 6 months of age at risk of poor growth and development may be more complex than for older children with acute malnutrition, for various reasons:

- Infants less than 6 months of age are often kept at home for many weeks after birth due to social or cultural norms and may be unlikely to come into contact with a health worker or health facility.
- Cultural or work-related factors may mean the family consults a health worker or attends a health facility only when the infant is already sick and not for preventive purposes.
- Cultural, religious or social taboos around vaccination may mean the infant does not attend these preventive vaccination services.
- MUAC is often used to screen for acute malnutrition in children in health facilities and in the community, but until recently this was not applicable to infants less than 6 months of age.

Ideally, infants less than 6 months of age at risk of poor growth and development and their mothers/caregivers should be identified through many different entry points rather than expecting them to present at nutrition services or programmes. The aim is to find these infants and their mothers/caregivers in services where previously insufficient attention was paid to their nutritional and development status. The development of these new criteria (see *Box 1*) should make this identification more user-friendly, but increased efforts to integrate and communicate between services are also needed.

Table 1 highlights examples of entry points and services where infants and their mothers/caregivers could be identified.

Table 1. Examples of opportunities to identify infants at risk of poor growth and development

Comprehensive history and examination			Screening/rapid assessment		
Inpatient neonatal or paediatric ward	**Outpatient department or primary health centre**	**Nutrition programme**	**Preventive programmes**	**Women's health services or postnatal care**	**Mental health or gender-based violence services**
▷ Infant aged 4 months admitted for bronchiolitis – discovered to have feeding problems and was preterm ▷ Infant aged 26 days admitted to neonatal intensive care unit with sepsis – discovered to have a mother with depression and WAZ < –2	▷ Infant aged 5 months presents with fever and vomiting – discovered to have adolescent mother who has problems with breastfeeding ▷ Infant aged 3 months old presents with diarrhoea – discovered to have been small for gestational age and has problems ▷ Infant aged 1 week attends well-child visit – discovered suboptimal practices in preparing breastmilk substitutes and infant is an orphan	▷ Infant aged 3 months referred by community health worker because mother reports problems with breastfeeding ▷ Infant aged 21 days spontaneously presents with feeding concerns ▷ Infant aged 4.5 months referred during nutrition survey and discovered to have WAZ and WLZ < –2	▷ Infant aged 6 weeks presents for vaccination – discovered to have been admitted to hospital last week and has MUAC of 108 mm ▷ Infant aged 4 months attends growth monitoring and promotion session – discovered to have lost weight since last two measurements ▷ Infant aged 2 months attends community IYCF session with community health worker and reports problems with breastfeeding that community health worker cannot help with	▷ Mother presents for 6-week postnatal check visit – discovered to have postnatal depression ▷ Mother presents to family planning centre with infant aged 4 months – discovered mother has recently experienced sexual violence and is having problems breastfeeding	▷ Grandmother presents to mental health services with orphaned infant aged 2 weeks ▷ Mother presents to report domestic violence with her infant aged 4 months who she also reports has weight loss recently

Box 3

Well-child visits as a key entry point to identify infants less than 6 months of age at risk of poor growth and development, including those with SAM and/or severely underweight

UNICEF and WHO have comprehensive guidance on the importance and operationalization of well-child visits for children and adolescents.

Most countries already recommend universal or routine health-care contacts, such as for antenatal, childbirth and postnatal care and vaccinations. The well-child visits promoted in the new guidance go beyond these contact points to provide a life-course and multisectoral approach. Specifically, these well-child visits are an opportunity to:

- promote health and healthy behaviours;
- observe the progress of the child's or adolescent's physical and mental growth and development;
- vaccinate, prevent disease, and provide guidance on parenting and nurturing care;
- identify health risks, delays and disabilities;
- identify and address the needs of children and adolescents, and/or their mothers/caregivers, who require extra care or specialized support.

A minimum of 17 scheduled well-child visits are recommended between birth and adolescence in addition to preconception care and scheduled antenatal contacts before birth:

- Neonatal period: within 24 hours and in the first and second weeks of life (three visits).
- Infancy (age 1–11 months): at 6, 10 and 14 weeks, and at 6 and 9 months (five visits).
- Early childhood (age 1–4 years): at 12 and 18 months, and at 2, 3 and 4 years (five visits).
- Later childhood (age 5–9 years): at 5–6 and 8–9 years (two visits).
- Adolescence (age 10–19 years): at 10–14 and 15–19 years (two visits).
- The guidance gives clear recommendations about questions to ask, assessments to make and actions to take at each visit.

The first six visits (24 hours and weeks 1, 2, 6, 10 and 14) are ideal contact points to identify an infant less than 6 months of age at risk of poor growth and development and to provide or refer for interventions for the infant and the mother/caregiver that could lift them out of this category and prevent the development of acute malnutrition. Reinforcing the importance of these visits to identify these infants and their mothers/caregivers is a vital step in the integration of essential nutrition services into the health system at as many levels as possible.

For further guidance, see *Improving the health and wellbeing of children and adolescents: guidance on scheduled child and adolescent well-care visits (16).*

Infants less than 6 months of age identified as being at risk of poor growth and development and their mothers/caregivers must be assessed using the guidance in Sections 3, 6 and 9 to decide whether they need inpatient or outpatient care.

Figure 5 summarizes an example of how the referral pathway could work for an infant less than 6 months of age at risk of poor growth and development, with or without SAM. In reality, many of the steps in *Figure 5* could happen in parallel.

2.6 Integrated service delivery

Care for infants less than 6 months of age at risk of poor growth and development and children aged 6–59 months with acute malnutrition can be delivered at the primary, secondary or tertiary levels of the health system. The services provided at these levels may differ between contexts, depending on how they fit with other child health services and who delivers this care, but there are some essential elements to care that must be considered and incorporated into programming (see Table 2).

Figure 5. Example of a referral pathway for screening infants less than 6 months of age

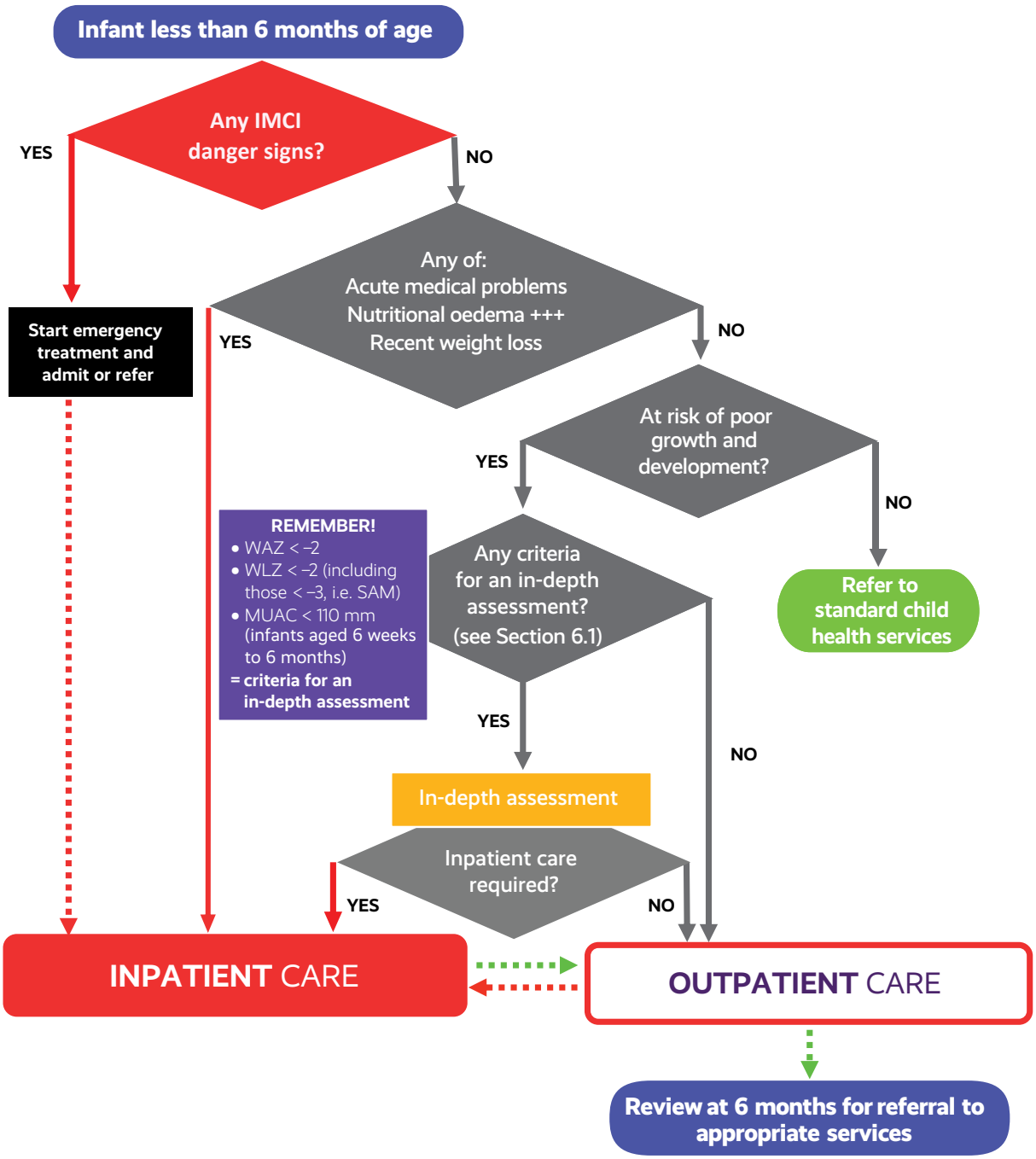


Table 2. Some essential elements of care by service level

Service delivery level	Description	Purpose
Community	▷ Screening to identify and refer infants less than 6 months of age at risk of poor growth and development (and their mothers/caregivers) and children aged 6–59 months who are acutely malnourished at health posts and/or via community health workers. ▷ Management of children aged 6–59 months with MAM or SAM by community health workers who have received adequate training and are regularly supported and supervised as part of the health workforce to be able to appropriately refer children who require inpatient management and manage children who do not need referral. Community health workers should be well trained to identify danger signs and other clinical signs that need immediate referral and be able to measure weight, length/height and MUAC, assess for nutritional oedema, determine overall clinical and nutritional status, and recognize indications for referral for breastfeeding counselling and support (see Box 17 in Section 6). ▷ Regular follow-up/home visits for infants less than 6 months of age at risk of poor growth and development and children aged 0–59 months enrolled in outpatient care for acute malnutrition, especially for those with particular concerns that need more frequent monitoring than health facility visits alone. ▷ Provision of IYCF counselling and support, particularly for breastfeeding.	▷ Active case-finding – identify and refer or manage (if appropriate) more children with acute malnutrition rather than relying on families presenting at health facilities. ▷ Early identification and management before infants and children deteriorate further or develop medical problems that need management in a health facility. ▷ Make nutritional treatment and supplementation (alongside basic medical management) more acceptable and accessible by delivering it close to home. This removes barriers, including potentially long and expensive journeys to health facilities and time away from other financial or familial duties. ▷ Implement essential preventive services for children without MAM or SAM (e.g. siblings of children with acute malnutrition, other children in the community) and secondary preventive activities to prevent MAM deteriorating to SAM.

Service delivery level	Description	Purpose
Outpatient health facility	**Infants less than 6 months of age at risk of poor growth and development, including those with SAM**	
	▷ For infants less than 6 months of age at risk of poor growth and development (including those with SAM) who do not have feeding or medical problems severe enough to need inpatient admission but who need regular monitoring and care related to their nutritional status, feeding problems, medical problems or issues related to the ability of the mother/caregiver to provide care for herself and the infant. ▷ Infants and their mothers/caregivers attend health centres on a regular basis, depending on their clinical and nutritional status (infants with SAM are likely to need more frequent monitoring and feeding support, but this may change as the infant gets older) until age 6 months, when they are carefully reviewed to determine which appropriate services they need next (e.g. referral to MAM/SAM services or regular IYCF services).	▷ Infants less than 6 months of age and their mothers/caregivers can be monitored closer to home via outpatient services rather than as inpatients. ▷ Infants less than 6 months of age who need initial admission to hospital can have shorter admissions (where feasible) and finish their nutritional care as outpatients (where structures exist) when they are medically and nutritionally stable enough to leave hospital. ▷ Shorter hospital admissions decrease the risk of hospital-acquired infections and reduce the opportunity costs to families of having an infant in hospital, which may improve adherence to treatment.
	Children aged 6–59 months with SAM	
	▷ For children categorized as having SAM who have appetite and no acute medical problems that need inpatient admission. ▷ Children and their mothers/caregivers attend outpatient services on a weekly or fortnightly basis for enrolment, medical management and follow-up, supply of ready-to-use therapeutic food (RUTF), health promotion activities and psychostimulation.	▷ Children with SAM without acute medical problems can be treated closer to home via outpatient services rather than as inpatients. ▷ Children with SAM who need initial admission to hospital can have shorter admissions and finish their treatment as outpatients when they are medically stable to leave hospital. ▷ Shorter hospital admissions decrease the risk of hospital-acquired infections and reduce opportunity costs to families of having a child in hospital, which may improve adherence to treatment.
	Children aged 6–59 months with MAM	
	▷ For children aged 6–59 months with MAM to receive appropriate supportive services, which may include nutritional supplementation with a specially formulated food when indicated. ▷ Children and their mothers/caregivers attend outpatient services every 2 weeks for enrolment, medical management and follow-up, supply of supplementary foods (if applicable), health promotion activities and psychostimulation.	▷ Infants and children with MAM are able to receive the appropriate nutritional services to meet their extra needs for anthropometric recovery alongside health assessments to ensure there are no medical problems leading to or exacerbating the malnutrition. If medical problems are present, the child is appropriately referred. ▷ The nutritional and medical care that these children receive also acts as secondary prevention to stop MAM deteriorating to SAM.

Service delivery level	Description	Purpose
Inpatient	**Children aged 6–59 months with MAM**	
	▷ For infants less than 6 months of age at risk of poor growth and development (including those with SAM) who need medical management, close monitoring and/or intensive feeding support that cannot be delivered in outpatient care. ▷ For children aged 6–59 months with SAM plus poor or no appetite, and/or one or more IMCI danger signs, and/or acute medical problems. The objective of inpatient care is to stabilize, treat medical problems and provide nutritional care. Once medically and nutritionally stabilized and appetite is satisfactory, nutritional treatment can be completed through outpatient services. ▷ Children with MAM who have been admitted to hospital for a medical indication should receive adequate nutrition to meet their extra needs for recovery along with appropriate medical treatment. They generally do not need to be admitted to an inpatient service only for children with malnutrition (often called a stabilization centre or nutritional rehabilitation unit) and should be managed in the ward appropriate for their reason for admission (e.g. general paediatrics, surgical ward, TB ward).	▷ Infants and children can receive lifesaving medical and nutritional treatment in a closely monitored environment with the necessary staffing and equipment to deliver care that would not be possible as an outpatient. ▷ Infants, children and their mothers/caregivers can be admitted for a "social admission" if there is a serious child protection threat or it is not considered safe for the child and the mother/ caregiver to remain in their home at this time.

3. Assessment of infants and children aged 0–5 years

The main steps that must be carried out for all children presenting to a health worker or a health facility are summarized in this section, with particular emphasis on identifying infants and children with moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) and infants less than 6 months of age at risk of poor growth and development and/or those with SAM. References to more comprehensive guidance are provided where appropriate. The steps include:

- triage and emergency treatment;
- paediatric history-taking, including questions on feeding practices such as breastfeeding or complementary feeding, as per the child's age;
- paediatric physical examination;
- anthropometric measurements and clinical signs of SAM;
- appetite test for children aged 6–59 months with SAM;
- feeding assessment for infants less than 6 months of age (this is covered in more detail in Sections 6 and 9);
- screening and further investigations;
- in-depth assessment.

3.1 Triage and emergency treatment

Infants and children must be triaged as soon as they enter a health facility or have contact with a health worker to ensure those with any integrated management of childhood iilness (IMCI) danger signs or emergency triage assessment and treatment (ETAT) priority signs receive immediate lifesaving care and all others receive appropriate care indicated for their clinical status and classification.

Important

Using community health workers to assess infants and children aged 6–59 months

Many of the assessment steps described here (e.g. triage, diagnosis of acute medical problems, anthropometric measurements) should be carried out by experienced health workers to be safe and effective.

If a health system or nutrition service uses community health workers to carry out the first steps to assess and classify, it is essential that they can reliably and consistently identify the IMCI danger signs as a minimum to be able to safely refer to a health facility for further assessment of acute medical problems.

Community health workers must be trained to take anthropometric measurements and assess children for nutritional oedema, have the necessary equipment provided, and have ongoing supervision for quality control of measurement techniques.

If community health workers cannot reliably and consistently identify IMCI danger signs, their main role should be to refer any child whose mother/caregiver reports any sickness or other issue to a health facility. There may also be contexts where community health workers are able to accurately diagnose some or all acute medical problems, but they must receive ongoing support, supervision and refresher training.

Important

Hand hygiene saves lives

Perform appropriate hand hygiene before beginning any of the assessments described here. This must be prioritized by all staff members at every patient contact to highlight the importance of protecting people from cross-infection. See the World Health Organization (WHO) *Hand hygiene: implementation tools* for the five moments of hand hygiene and cleaning hands properly *(17)*.

See Annex 1 for the main IMCI danger signs and ETAT priority signs.

See the following for more comprehensive guidance on triage:

- *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – IMCI chart booklet (12)*
- *Pocket book of hospital care for children: second edition* (hereafter, the WHO Pocket book) *(5)*
- *Emergency triage assessment and treatment (ETAT) course (18)*
- *Updated guideline: paediatric emergency triage, assessment and treatment – care of critically-ill children (19)*.

Identifying nutritional status is a vital aspect of this initial assessment to ensure infants and children with SAM receive prompt and appropriate emergency interventions, which may be different from those required for infants and children with MAM or no acute malnutrition.

Triage must be carried out wherever there is first contact between a child (and their mother/caregiver) and a health worker (e.g. a health professional such as a doctor or nurse, or a health associate professional such as a community health worker). Triage may be conducted in a health facility or in the community. The system of triage may vary according to national protocols, but the principles and importance of triage remain constant.

Adequate training, regular supervision and frequent refresher training must be in place to enable health workers to safely and efficiently triage and appropriately stabilize, refer and/or treat children with SAM according to the severity of their clinical condition.

After emergency triage and treatment, a general assessment can be carried out and further treatment given, according to the child's priority.

3.2 Paediatric history-taking

Before a detailed paediatric history can be taken, the child must be triaged and any severe medical problems stabilized or treated.

See the following for guidance on taking a general paediatric history:

- WHO *Pocket book (5)*
- *Integrated management of childhood illness: chart booklet (6)*
- *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – IMCI chart booklet (12)*.

Annex 1 can be used in addition to the WHO *Pocket book (5)* and IMCI guidance as an example of a checklist for taking a paediatric history. Annex 1 includes questions to ask on neurodevelopment, nutrition and feeding. This checklist is not exhaustive: health workers may notice other signs that cause them to be concerned about a child's health or development, and these should be investigated.

More in-depth guidance on feeding assessments for infants less than 6 months of age is available in Sections 6 and 9. It is also very important to get a clear dietary history for infants and children aged over 6 months (and especially during the complementary feeding period of 6–23 months) to understand potential problematic issues and practices at home that can be supported if possible to improve the overall nutritional status of the child and the family.

3.3 Paediatric physical examination

See the following for guidance on performing a paediatric clinical examination:

- WHO *Pocket book (5)*
- *Integrated management of childhood illness: chart booklet (6)*.

Annex 2 can be used in addition to the WHO *Pocket book (5)* and IMCI guidance as a checklist for performing a paediatric clinical examination. It includes some basic questions for assessing neurodevelopmental concerns (see *Box 4*), which are especially relevant for assessing whether an infant less than 6 months of age meets the criteria for being at risk of poor growth and development.

Box 4

Neurodevelopmental concerns

Any neurodevelopmental concern about an infant less than 6 months of age is a criterion that puts the infant at risk of poor growth and development. For an infant or child aged over 6 months, a neurodevelopmental condition could also be a cause of acute malnutrition, particularly if the infant or child has feeding difficulties related to the neurodevelopmental condition.

Neurodevelopment concerns include a wide variety of health and other conditions that affect the developing nervous system and cause impairments in motor, cognitive, language, behaviour or sensory functioning. When these impairments interact with other barriers and contextual factors, they may hinder the child's full and effective participation in society on an equal basis with other people.

The underlying health conditions of children with neurodevelopmental concerns are heterogeneous in terms of their aetiology. They include cerebral palsy, autism, disorders of intellectual development (e.g. developmental delay) and other conditions listed in the International Classification of Diseases, 11th revision under neurodevelopmental disorders. These underlying conditions can also be from a much broader group of congenital conditions (e.g. Down syndrome) or conditions acquired at birth (e.g. cerebral palsy) or during childhood (e.g. acquired brain injury).

A full guide to assessing an infant or child for neurodevelopmental concerns is beyond the scope of this implementation guidance. Some prompts are included in the checklists in Annexes 1 and 2, which should lead to further investigation if any concerns are identified.

See the following resources on assessing for neurodevelopmental assessment and associated feeding problems:

- *The community infant and young child feeding counselling package: counsellor's book part 2 – technical notes* (20)
- *Responsive care and early learning (RCEL) addendum resource collection* (21)
- *The disability tool: inclusive feeding and disability resources for nutrition practices* (22)
- *Identifying and supporting infants under 6-months with feeding difficulties and disabilities: an overview of resources and evidence* (23)
- *Care for child development: improving the care of young children* (24)
- *Windows of achievement for six gross motor milestones* (25)

3.4 Anthropometric measurements and clinical signs of malnutrition

All infants and children who present at a health facility should have their anthropometrics measured, recorded and interpreted as part of routine care.

When the infant or child has been triaged and it is assessed that they can be measured safely (i.e. they are clinically stable enough to be moved), the following measurements should be taken:

- assessment for nutritional oedema (+, ++, +++) (see Annex 3 for guidance);
- mid-upper arm circumference (MUAC) (in millimetres) for children aged 6 weeks and older (see Annex 4);
- weight (in kilograms) (see Annex 5);
- length/height (in centimetres) (see Annex 6).

Using these measurements, the following scores can be calculated or determined using standard look-up tables:

- calculation of weight-for-length z-score (WLZ) or weight-for-height z-score (WHZ) (see Annex 7);
- calculation of weight-for-age z-score (WAZ) (see Annex 8).

3.4.1 Assessing poor growth for infants less than 6 months of age

Section 2.2 presents the categories and criteria that can be used to identify infants less than 6 months of age as being at risk of poor growth and development. The following subsections provide basic guidance on identifying infants with poor growth based on sequential measures or poor anthropometry based on a single measure.

3.4.1.1 Infants with poor growth based on sequential measures

Sequential measures can be used only when multiple measures of weight or length have been recorded, and the age of the infant is documented or can be verified:

- Weight loss or no weight gain from one measurement to another: monthly or less frequent weight measurements may be all that is available for identifying infants at risk of poor growth and development, especially if infants are identified via national growth monitoring and promotion programmes. An infant who has lost weight or not gained any weight since the last measurement is at risk of poor growth and development.
- Downward crossing of weight for age centile lines – thresholds differ according to birthweight (if the birthweight is not known, it is not possible to use this criterion) – see WHO *Weight-for-age charts (26)*:
  - downward crossing of one or more centile spaces if the birthweight was below the 9th centile;
  - downward crossing of two or more centile spaces if the birthweight was in the range of the 9th to 91st centiles;
  - downward crossing of three or more centile spaces if the birthweight was above the 91st centile.
- Insufficient weight gain – decisions must be made on a case-by-case basis. Currently there is no global standard that is easy and quick to apply in a clinic setting, especially in low-resource contexts. As a general guide, the following parameters may be used:
  - Insufficient weight gain using weight velocity standards: more than 2 standard deviations (SD) below the median on the WHO growth velocity standards between one measurement and the next – see WHO *Weight velocity* standards *(27)*. (See Annex 9 for guidance on calculating growth velocity.)

Insufficient weight gain over a specific time period: less than approximately 500 g in 1 month; or less than approximately 150–200 g in 1 week between birth and age 3 months; or less than approximately 100–150 g in 1 week between age 3 months and6 months.

3.4.1.2 Infants with poor anthropometry based on a single measure if sequential measures are not available

In many low-resource settings, sequential weight measurements are not available. In these cases, the following three evidence-informed indices and measurements can be used to identify infants less than 6 months of age at risk of poor growth and development:

- WAZ < −2 SD; and/or
- WLZ < −2 SD; and/or
- MUAC < 110 mm (for infants aged 6 weeks to less than 6 months).

See Annexes 4, 7 and 8 for guidance on calculating z-scores and measuring MUAC.

> ***Note***
> **The presence of any one of these measures indicates the infant is at risk of poor growth and development. The presence of more than one of these measures does not necessarily indicate the infant is at greater risk of poor outcomes.**

3.5 Appetite test for children aged 6–59 months with SAM

A good appetite and the ability to eat ready-to-use therapeutic food (RUTF) are criteria for deciding whether a child aged 6–59 months with SAM should receive outpatient or inpatient care.

Some countries have national guidelines or protocols that use energy-dense foods rather than RUTF.

A consistently poor appetite means the child is likely to have a serious infection and/or metabolic disorder and needs inpatient care. From a practical perspective, a child who cannot or will not eat RUTF during assessment is unlikely to eat it at home either and so outpatient treatment is unlikely to work.

See Annex 10 for guidance on how, when and where to carry out an appetite test.

If the appetite test demonstrates the child has a healthy/normal appetite and they have no other signs or symptoms that indicate they have an illness that requires inpatient medical treatment, the child can be treated as an outpatient. If the appetite test demonstrates the child has a poor appetite, they should be referred to inpatient services for reassessment. If poor appetite is confirmed, the child should be admitted for inpatient management, even if they have no other signs or symptoms indicating an illness that requires inpatient medical treatment.

3.6 Feeding assessments for infants less than 6 months of age

Anthropometric criteria (WHZ, WAZ, MUAC) alone do not identify all infants less than 6 months of age at risk of poor growth and development. Infants less than 6 months of age with feeding difficulties or other risk factors (e.g. preterm birth, low birthweight) may be at risk of poor growth and development even if their WHZ, WAZ or MUAC measurements fall within the normal range. Infants less than 6 months of age should be screened to identify those at risk of poor growth and development due to feeding difficulties and other risk factors every time they come into contact with health services. These contacts include postnatal care visits,

newborn health visits, routine well-child visits, scheduled vaccination milestones, maternal nutritional and health services, and whenever presenting for care due to illness of the infant or the mother.

See Sections 6 and 9 for guidance on feeding assessments for infants less than 6 months of age.

See Annexes 20 and 21 for examples of feeding assessment tools.

3.7 Screening and further investigations

It is vital to carry out a comprehensive history and examination of infants less than 6 months of age at risk of poor growth and development and children aged 6–59 months with SAM to identify all comorbidities. Special attention should be given to several diseases (see below) that have a particularly important association with malnutrition and significantly increase the risk of mortality in these children.

3.7.1 Screening for HIV

Infants and children living with HIV are at increased risk of malnutrition. Weight loss, underweight and/or having acute malnutrition may be one of the first clinical manifestations of disease in a child living with HIV. The prognosis for these children is very poor unless they are treated for both malnutrition and HIV.

For comprehensive guidance on screening for and management of HIV in infants and children with malnutrition (and their mothers/caregivers, as appropriate based on the age of the child and breastfeeding status), see national protocols and *Consolidated guidelines on HIV prevention, testing, treatment, service delivery and monitoring: recommendations for a public health approach* *(28)*.

3.7.2 Screening and diagnostic approaches for tuberculosis

Tuberculosis (TB) is an important cause of death among malnourished children, with 7–26% of malnourished children undergoing nutritional treatment thought to be living with TB *(29)*. Laboratory confirmation can be challenging in children, but untreated TB progresses much more rapidly in children than in adults.

Whenever the population prevalence of TB is high, contact with a person living with TB is reported, or clinical signs consistent with TB infection are present, the child should be screened and evaluated for TB following admission or enrolment into inpatient or outpatient nutritional care. This screening may have to be repeated during admission or enrolment if a high clinical suspicion of TB remains (especially lack of response to nutritional treatment) despite adequate medical and nutritional management.

Important

The mother/caregiver may initially give no history of a TB contact, but with repetitive screening over a number of days and by different members of staff (especially those with whom they have built trust), a history of a TB contact may be disclosed. This may be because the mother/caregiver is initially not aware of any contact or the mother/caregiver is reluctant to admit the child was in contact with a person who has symptoms that may be caused by TB infection.

See national protocols and the following global guidance for comprehensive guidance on screening and managing TB in children with malnutrition:

- *WHO consolidated guidelines on tuberculosis: module 5 – management of tuberculosis in children and adolescents* *(30)*
- *WHO operational handbook on tuberculosis: module 5 – management of tuberculosis in children and adolescents* *(31)*
- *WHO consolidated guidelines on tuberculosis: module 6 – tuberculosis and comorbidities, 2nd ed* *(32)* (this edition consolidates new and existing recommendations on interventions to address undernutrition in people with TB, to provide food assistance to households of people living with TB in food-insecure settings, and to screen for TB among people who are undernourished or food-insecure).

3.7.3 Screening for malaria in malaria-endemic settings

In malaria-endemic areas, children with SAM should be screened for malaria when admitted to inpatient care or enrolled into outpatient care with a rapid diagnostic test or blood smear for malaria following the national protocol. If positive, they should be treated according to national malaria protocols or the WHO *Pocket book* *(5)*.

Important

Some infants and children with SAM do not mount a fever response if they are infected with malaria, due to their immunosuppressed state. There should be a low clinical threshold to test for malaria in malaria-endemic areas for infants and children with SAM who appear generally unwell, even if they do not have a fever.

All children and their mothers/caregivers in malaria-endemic areas should be provided with insecticide-treated nets to limit transmission while staying in hospital.

3.7.4 Other investigations

After a history and physical examination have been carried out, additional investigations may be indicated, according to the findings of the clinical assessment, such as laboratory tests or radiological investigations. For these investigations to be useful for the management of infants and children, they must be available and affordable, and there must be staff who can interpret and use the results to improve the medical and nutritional management plan.

See the WHO *Pocket book* *(5)* for guidance on appropriate investigations according to the clinical findings.

3.8 In-depth assessment

The updated WHO recommendations on enrolment and admission for infants less than 6 months of age at risk of poor growth and development and infants and children aged 6–59 months with SAM into outpatient or inpatient care now include a step called the in-depth assessment. Full guidance on enrolment and admission criteria is covered for infants less than 6 months of age at risk of poor growth and development in Sections 6.1 and 9.1 and for children aged 6–59 months with SAM in Sections 4.2 and 7.2. *Figure 6* summarizes the criteria for an in-depth assessment.

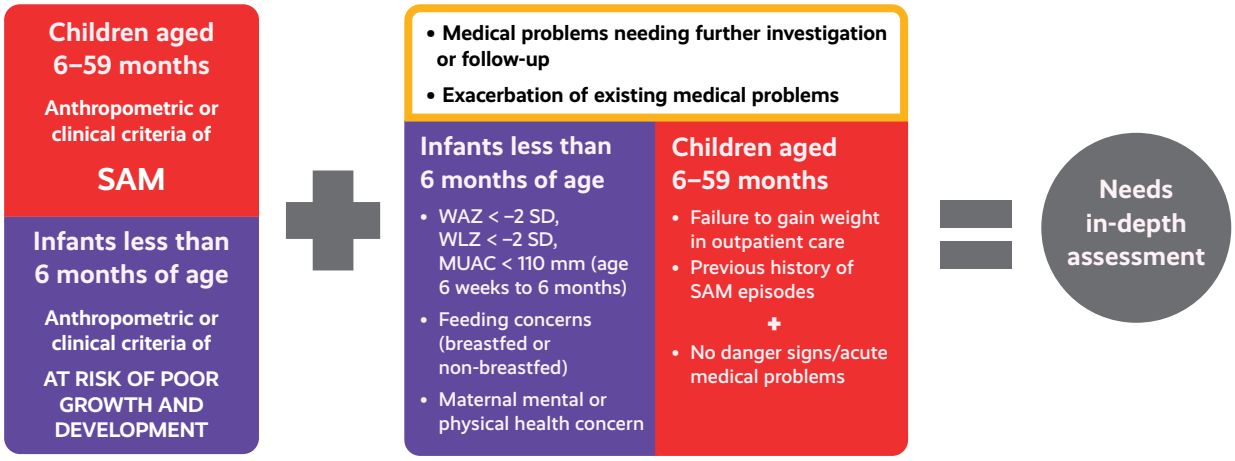
3.8.1 Why do we need an in-depth assessment?

The primary aim of an in-depth assessment is to decide whether it is possible, safe and appropriate to manage the child as an outpatient, or whether the child should be referred for inpatient care. The secondary aim is to initiate the appropriate care and/or referral, wherever this is to be delivered.

WHO guidance historically focused on binary criteria to guide decisions about whether a child needs to be in hospital or can be safely treated as an outpatient. The new guidance recognizes that this decision is not always simple. When it is not clear whether the infant or child requires inpatient care or can be managed safely in outpatient care, an in-depth assessment should be carried out.

Inpatient care is essential for children with illnesses that require constant 24-hour care and for intensive breastfeeding support, but it has potential harms, such as the risk of hospital-acquired infections. Inpatient care also imposes significant burdens on families and communities, including financial and opportunity costs to the family incurred when one parent (usually the mother) is unable to carry out their usual work and caring activities because they are at the hospital with the child. Preventing unnecessary hospital admissions reduces health-system costs and makes resources available to the people most likely to benefit from them.

Figure 6. Infants and children who need in-depth assessment



3.8.2 What is an in-depth assessment?

An in-depth assessment is a comprehensive medical, feeding and psychosocial assessment of an infant less than 6 months of age at risk of poor growth and development or a child aged 6–59 months with SAM. The assessment includes the mother/caregiver.

Personnel, location and other resources will need to be designated to this activity to make it realistic and sustainable to implement. Consider local context, staff capacity and available training when selecting personnel to perform in-depth assessments and the locations in which to perform them.

As the in-depth assessment is a new aspect of the admission or enrolment process recommended by WHO, governments and implementing organizations should take the time to discuss and examine how the step can or cannot be implemented into current service delivery models and what is needed to enable the additional assessment to be implemented now or in the future.

See Sections 3.1–3.9 and the annexes for guidance on the in-depth assessment.

3.8.3 Carrying out an in-depth assessment

Box 5 offers practical suggestions for conducting an in-depth assessment.

Box 5

In-depth assessment: practical suggestions

These suggestions should be adapted to the local context. Human resources, caseload, staff turnover, availability and configuration of physical spaces, geographical considerations and available referral pathways should all be considered in how the in-depth assessment step is implemented. At the individual level, the child's age, comorbidities and relevant sociocultural aspects must be factored into how, where and by whom the in-depth assessment is carried out.

Where to carry out an in-depth assessment

A dedicated room or screened-off area is required for an in-depth assessment. This area should be separate from the room or area where triage and emergency care (in an emergency department or admission unit) or standard outpatient care (in an outpatient clinic) are delivered. Privacy is needed for breastfeeding assessments and to ask sensitive questions (e.g. about HIV or TB). A quieter space with few distractions enables the health worker to be more focused and carry out a more in-depth history and examination.

If an in-depth assessment is not currently possible at the outpatient level due to capacity or other limitations, the child must be referred to a higher-level facility for an in-depth assessment, but all attempts should be made to carry out the in-depth assessment at the health facility closest to where the child presents for the first time.

Every health facility should ensure basic amenities such as drinking water, handwashing stations and waste disposal containers are available to patients and their families. Feeding assessments should take place in a dedicated area that is private, secure and comfortable. A separate area should be available for mothers/caregivers to prepare and give replacement milk (commercial infant formula) to their child, away from other patients and families, to avoid inadvertently promoting the use of breastmilk substitutes – see the *baby-friendly hospital initiative guidance* for more information *(33)*.

Who should carry out the in-depth assessment?

To maximize efficiency and patient flow through the health facility, it is advisable to have staff dedicated to carrying out in-depth assessments. Staff who conduct standard follow-up outpatient care consultations do not usually have the time to conduct in-depth assessments. Conducting feeding assessments for infants less than 6 months of age requires competencies (see Box 19 in Section 6) that are often not developed by general medical staff (including paediatricians, nurses and midwives) during preservice education. Selecting the cadre of staff who will conduct in-depth assessments must be informed by context, staff capacity, access to training, and willingness to develop these competencies. A cadre of dedicated breastfeeding counsellors may be required. Staff from many different cadres can perform in-depth assessments if appropriately trained and supported or mentored by managers or experienced clinical staff who can demonstrate these competencies.

Continuity of care

Regardless of where the in-depth assessment is carried out, a vital aspect is clear communication with other clinical and administrative staff at the primary, secondary and tertiary levels of care. The child and the family may be enrolled into outpatient care (with all relevant medical and psychosocial information gathered in the in-depth assessment transferred to the patient notes) or promptly referred for admission to inpatient care (with a detailed referral letter and contact made with the hospital to inform of the referral and provide all critical information to prepare for the arrival of the child in the inpatient setting).

3.9 Assessing mothers with infants and children

Mothers/caregivers and infants less than 6 months of age are interdependent. Even for older infants and children, identifying maternal risk factors and then providing or referring to the appropriate support are important for the mother/caregiver and the child in terms of the capacity of the mother/caregiver to care for the child *(34)*.

See Section 12 for guidance and further resources on carrying out maternal assessment.

3.9.1 Children aged 6–59 months

Table 3 summarizes the assessments and relevant resources that can be used to identify children aged 6–59 months.

3.9.2 Infants less than 6 months of age at risk of poor growth and development

Table 4 summarizes the assessments and the relevant resources that can be used to identify infants less than 6 months of age at risk of poor growth and development and screen for concomitant medical problems.

Table 3. Summary of assessment steps for children aged 6–59 months

Does the child have danger signs or other priority signs?		
Follow ETAT, IMCI or national triage protocol (see Section 3.1 and Annex 1) and start emergency treatment immediately, or refer urgently if not possible to start treatment.		
Does the child have acute malnutrition?		
Category	**Criteria**	**Assessment**
SAM	Nutritional oedema (+, ++, +++); and/or WHZ or WLZ < −3 SD; and/or MUAC < 115 mm	History and physical examination to assess for nutritional oedema – see Section 3.4 and Annex 3 Measure weight – see Section 3.4 and Annex 5 Measure length/height – see Section 3.4 and Annex 6 Calculate WHZ/WLZ – see Section 3.4 and Annex 7 Measure MUAC and refer to established cut-offs – see Section 3.4 and Annex 4
MAM	No nutritional oedema; and WHZ or WLZ ≥ −3 SD to < −2 SD; and/or MUAC ≥ 115 mm to < 125 mm	
No acute malnutrition	No nutritional oedema; and WHZ or WLZ ≥ −2 SD; and MUAC ≥ 125 mm	
Does the child have associated medical problems (non-emergency problems)?		
History of medical problems		See Section 3.2 and Annex 1
Medical problems noted on physical examination		See Section 3.3 and Annex 2
Does the child have a poor appetite?		
Conduct the appetite test		See Section 3.5 and Annex 10 If the child has medical complications requiring inpatient care, the appetite test is not needed
Are there any feeding problems?		
Take paediatric history and examination, focusing especially on neurodevelopmental concerns		See Sections 3.2 and 3.3 and Annexes 1 and 2
Does the mother have any physical or mental illnesses?		
Assess mother/caregiver		See Section 12
Are there any maternal social risk factors?		
Assess mother/caregiver		See Section 12

Table 4. Summary of assessment steps for infants less than 6 months of age

Does the infant have danger signs or other priority signs?		
Follow ETAT, IMCI or national triage protocol – see Section 3.1 and Annex 1		
Is the infant at risk of poor growth and development?		
Category	**Criteria**	**Assessment**
Infants with poor growth based on sequential measures	Weight loss or no weight gain from one measurement to the next; or Downward-crossing of WAZ centile lines; or Insufficient weight gain (using WHO child weight velocity standards or grams per specific time period)	See Section 3.4.1 and Annex 9 At least two weight measurements are needed – see Section 3.4 and Annex 5 See *weight-for-age centile charts (26)* and *weight velocity standards (27)* If using downward-crossing of centile lines, birthweight is also needed
Infants with poor anthropometry based on a single measure (if sequential measures not available)	Nutritional oedema; and/or WAZ < –2 SD; and/or WLZ < –2 SD; and/or MUAC < 110 mm for infants aged 6 weeks to < 6 months	History and physical examination to assess for nutritional oedema – see Section 3.4 and Annex 3 Measure weight – see Section 3.4 and Annex 5 Measure length/height – see Section 3.4 and Annex 6 Calculate WLZ – see Section 3.4 and Annex 7 Measure MUAC and refer to established cut-offs – see Section 3.4 and Annex 4
Infants with known risk factors for poor growth and development	Neurodevelopmental concerns including disability; and/or Infant feeding concerns; and/or Maternal risk (physical or mental health problem affecting caring practices or mother's own well-being); and/or History of hospitalization[a]	Questions from paediatric history checklist – see Section 3.2 and Annex 1 Clinical examination – see Section 3.3 and Annex 2 Questions from paediatric history checklist – see Sections 3.2 and 6.4.2 and Annexes 1, 20 and 21 See also Section 12 Ask whether the infant has been admitted to hospital for an overnight stay since the last health-care visit (after discharge, post-delivery if born in a health facility); if so, try to get details of the illness and treatment given Ask whether the mother/caregiver has any discharge reports or paperwork
Infants at risk due to poor birth outcomes	Preterm birth;[b] and/or Low birthweight;[c] and/or Small for gestational age[d]	Questions from paediatric history checklist – see Section 3.2 and Annex 1 Ask for any birth registration documentation and any discharge reports or paperwork from delivery
Does the infant or mother/caregiver have any medical problems?		
History of medical problems		See Section 3.2 and Annex 1
Medical problems noted on physical examination		See Section 3.3 and checklist in Annex 2
History and examination of mother/caregiver		See Section 12

[a] The evidence for this criterion is related only to infants, but previous admission of the mother/caregiver to hospital should be asked about and the impacts of the inpatient episode on the current physical and mental health status of the mother/caregiver–infant pair and caring practices should be assessed.

[b] Preterm: birth before 37 weeks of gestation.

[c] Low birthweight: less than 2.5 kg at birth.

[d] Small for gestational age: preterm or full-term infant below the 10th percentile of birthweight for gestational age.

Inpatient management

The following sections provide guidance on the implementation of World Health Organization (WHO) recommendations related to the inpatient management of:

- infants and children aged 6–59 months with severe acute malnutrition (SAM) (Section 4);
- infants and children aged 6–59 months with moderate acute malnutrition (MAM) (Section 5);
- infants less than 6 months of age at risk of poor growth and development, with or without SAM (Section 6).

Inpatient care for infants and children with SAM is vital for those who are too sick to be managed as outpatients so they can receive lifesaving medical and nutritional treatment in a closely monitored environment with the necessary staffing and equipment to deliver care that would not be possible as outpatients.

The objective of inpatient care is to stabilize the infant or child, treat medical problems and provide nutritional care. Once the infant or child is medically and nutritionally stabilized and the appetite is satisfactory, nutritional treatment can be completed through outpatient services.

These inpatient services should be integrated into core secondary or tertiary inpatient services within the health system so an overall child health approach can be followed, with attention given to all aspects of the child's physical and mental health, growth, development and home environment (including water, sanitation and hygiene, food security and economic stability) and the physical and mental health of the mother/caregiver.

Integration into health-care services needs recognition by the national ministry of health of the importance of the prevention and treatment management of SAM and MAM and their relevance to prevent and reduce national morbidity and mortality rates for children aged under 5 years in the country. An integrated approach between inpatient and outpatient services can reduce costs and be more effective in the management of acute malnutrition.

Children with MAM who are admitted to hospital for a medical indication should receive adequate nutrition to meet their extra needs for recovery along with appropriate medical treatment. They generally do not need to be admitted to an inpatient service only for children with malnutrition (often called a stabilization centre or nutritional rehabilitation unit) and should be managed in the ward appropriate for their reason for admission (e.g. general paediatrics, surgery or tuberculosis ward).

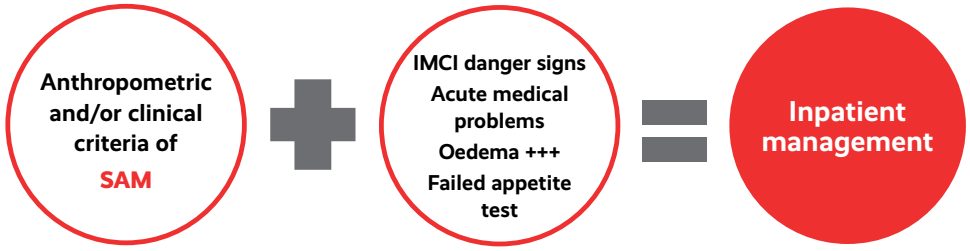
4. Inpatient management of children aged 6–59 months with severe acute malnutrition (SAM)

4.1 Triage and emergency treatment

See Section 3.1 for guidance on triage and emergency treatment.

4.2 Admission criteria

4.2.1 Infants and children aged 6–59 months who need immediate inpatient care

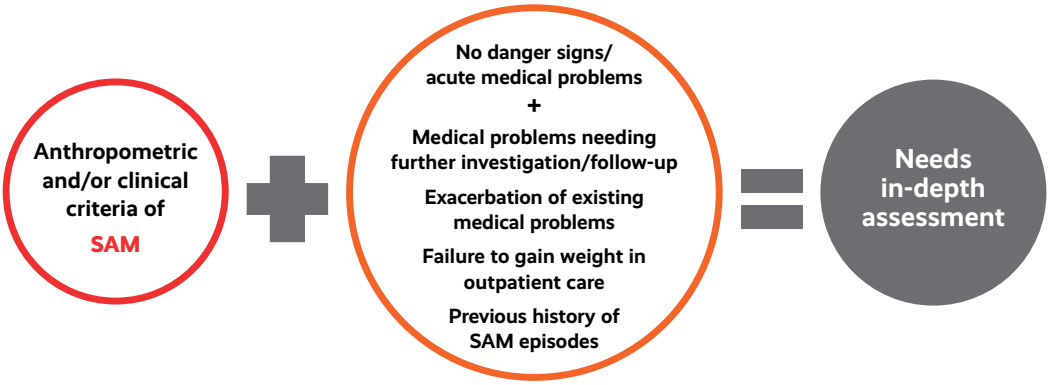


Infants and children aged 6–59 months with SAM who have any of the following characteristics should be referred and admitted immediately for inpatient care:

- one or more integrated management of childhood illness (IMCI) danger signs;
- acute medical problems (see *Box 6*);
- severe nutritional oedema (+++) – bilaterial nutritional oedema affecting the feet, legs and any other part of the body, including the face (see Annex 3);
- poor appetite (failed the appetite test) – child unable to eat the quantity of ready-to-use therapeutic food (RUTF) prescribed in the appetite test as per bodyweight (see Section 3.5 and Annex 10).

> ***Note***
> **Children with medical problems that are judged as not possible to manage in outpatient care (e.g. eye signs of vitamin A deficiency) may need referral to inpatient care.**

4.2.2 Children aged 6–59 months with SAM who need an in-depth assessment to determine whether they can be managed safely in outpatient care



Children aged 6–59 months with SAM who do not meet any of the criteria in Section 4.2.1 for immediate inpatient admission but have the following characteristics should have an in-depth assessment to determine whether they need inpatient admission or outpatient management:

- Medical problems that do not need immediate inpatient care but do need further examination and investigation (e.g. bloody diarrhoea, hypoglycaemia, HIV-related complications) (see *Box 7*).
- Medical problems that need mid- or long-term follow-up care and with a significant association with nutritional status (e.g. congenital heart disease, cerebral palsy or other disability, HIV, tuberculosis (TB)) (see *Box 8*).
- Failure to gain weight or clinically improve in outpatient care:
  - Failure to improve clinically in outpatient care is the most important criterion for an in-depth assessment – careful and comprehensive monitoring is required to identify this.
  - Failure to gain weight in outpatient care can be used as a criterion for an in-depth assessment, but this may have different definitions in different contexts and needs local decision-making and adaptation; examples of how this is calculated in national guidelines include no weight gain for two consecutive weekly visits (unless significant loss of oedema explains weight loss), and average weight gain significantly less than 5 g/kg/day (or 35 g/kg/week) observed over 2–3 weeks;.
- Previous episode(s) of SAM:
  - Children with a history of previous episodes of SAM are at higher risk of mortality than children without a history of SAM.
  - Previous episodes could be determined from patient documentation (e.g. discharge summaries, referral notes) or be reported by the mother/caregiver.
  - A detailed history regarding previous episodes and any accompanying patient documentation can greatly assist in establishing the specific vulnerabilities of the child and the family – and potentially the drivers of these vulnerabilities – which can aid decision-making regarding whether it is safe for the child to be treated as an outpatient; it can also be useful for planning referrals to any additional social protection services available to the family.

See Section 3.8 for guidance and practical suggestions on carrying out an in-depth assessment.

Box 6

Acute medical problems that need inpatient admission (as per IMCI/triage classification)

- shock;
- hypoglycaemia (measured) persistent after initial emergency corrective treatment;
- oxygen saturation below 90%;
- pneumonia, with chest indrawing and/or fast breathing and (if possible to measure) oxygen saturation below 94%;
- dehydration;
- severe persistent diarrhoea for at least 14 days plus dehydration;
- very severe febrile illness:
  - in a malaria zone or with a positive rapid diagnostic test, this is treated as severe malaria;
  - where there is no risk of malaria or with a negative rapid diagnostic test, this is treated as bacterial disease (e.g. meningitis);
- severe complicated measles;
- mastoiditis;
- severe anaemia, defined as severe palmar pallor, or haemoglobin (Hb) below 4 g/dL, or Hb 4–6 g/dL with signs of cardiac or respiratory decompensation;
- severe side-effects from antiretroviral therapy for HIV, such as skin rash, difficulty breathing, severe abdominal pain, yellow eyes, fever or vomiting;
- open or infected skin lesions associated with nutritional oedema;
- other standalone priority clinical signs not classified as danger signs:
  - hypothermia: axillary temperature < 35 °C or rectal temperature < 35.5 °C;
  - high fever: axillary temperature ≥ 38.5 °C or rectal temperature ≥ 39°C.

Box 7

Medical problems that do not need immediate inpatient care but do need further examination and investigation

These medical problems may or may not have an associated diagnosis (i.e. at presentation, there may only be signs and symptoms, with no diagnosis). They do not require immediate admission to hospital, but they may need more time and further investigation than is possible in a standard outpatient consultation appointment or in an emergency room or department with limitations and pressures on staff time and resources. Examples include the following:

- Bloody diarrhoea: a full clinical history is needed to establish as accurately as possible the exact nature of the blood in the diarrhoea (e.g. streaks, frank blood, old blood, fresh blood, immediately bloody stools or only after the onset of non-bloody diarrhoea, frequency of stools, volume). Assessment is needed to determine whether dehydration or other associated problems are present, and to determine a definitive diagnosis that could be responsible for the bloody diarrhoea and needs further investigation and treatment.
- Hypoglycaemia: if the child initially presents with hypoglycaemia, it is vital to establish whether this is correctable (e.g. due to a long journey to the health facility and recent poor appetite) or whether it is refractory and indicative of serious conditions such as sepsis or shock.
- HIV-related complications (as per IMCI):
  - ⇢ not on antiretroviral therapy – any suspicion of opportunistic infections;
  - ⇢ on antiretroviral therapy but not gaining weight for 3 months, loss of milestones, HIV stage worse than before, lower CD4 count than before (in children aged under 5 years), low-density lipoprotein cholesterol higher than 3.5 mmol/L, or triglycerides higher than 5.6 mmol/L;
  - ⇢ monitor start of antiretroviral therapy if child also has TB and/or weighs less than 3 kg;
  - ⇢ poor adherence to antiretroviral therapy for HIV.
- TB-related complications:
  - ⇢ on treatment for TB but TB-related symptoms not resolving (e.g. cough, specific symptoms of extrapulmonary TB), not gaining weight for 3 months, or loss of milestones;
  - ⇢ poor adherence to treatment for TB.
- Extensive dermatological conditions (excluding those associated with nutritional oedema that require inpatient admission) without an obvious aetiology causing irritation to the child but not bad enough for direct inpatient admission.
- Signs and symptoms suggestive of cancer.

Box 8

Medical problems that need mid- or long-term follow-up care and with a significant association with nutritional status

These medical problems may have been diagnosed recently, and a decision may have to be made about whether the child would benefit from initial inpatient care (e.g. for a period of intensive observation, initiating treatment, or investigations not available in an outpatient setting) before commencing ongoing outpatient follow-up.

Alternatively, a child with a known medical problem that needs ongoing follow-up may have an exacerbation or deterioration that does not involve any of the danger signs or signs and symptoms of the acute medical problems listed in Box 6 but requires an in-depth assessment to decide whether referral to inpatient care is appropriate.

Part of this in-depth assessment should involve evaluating how the mother/caregiver is coping with the psychosocial impact of the medical problem and whether the mother/caregiver is able to support the child and the family.

Examples of these problems include the following:

- **Congenital heart disease:** the child may have difficulties with feeding related to fluid balance (particularly overload) and breathlessness when trying to feed. If there is an exacerbation of the condition (e.g. due to an infection), the child may need inpatient assessment and care. If the problems are more stable but still impacting the child's nutritional and health status, it may be possible to manage the child as an outpatient with more regular follow-up, while looking into the possibility of more definitive medical or surgical management of the heart disease.
- **HIV:** the interaction and vicious cycle of HIV disease and malnutrition are well known and are especially harmful for infants and children who are not on antiretroviral therapy or are experiencing treatment failure. HIV-related complications that are likely to need further investigation are listed in Box 7. There may be a need for further assessment of how HIV, and beliefs and perceptions around HIV, impact on feeding practices at home – for example:
  - ⇢ Is the mother/caregiver on antiretroviral therapy?
  - ⇢ Is the mother/caregiver making choices about breastfeeding or replacement feeding based on understanding of HIV, access to antiretroviral therapy, or family opinions and beliefs about feeding?
- **TB:** the interaction and vicious cycle of TB and malnutrition are well known and are especially harmful for infants and children who are not on treatment for TB or are experiencing treatment failure (e.g. due to drug resistance or non-adherence). It is important to assess how TB, and beliefs and perceptions around TB, impact on feeding practices at home – for example:
  - ⇢ Does the mother or another household member have TB?
  - ⇢ If yes, are they on treatment for TB?
  - ⇢ Is the mother/caregiver making choices about breastfeeding or replacement feeding based on understanding of TB, access to treatment, or family opinions and beliefs about feeding?
  - ⇢ What infection prevention and control measures are implemented in the household?
  - ⇢ Has the child received TB preventive treatment?
- **Cerebral palsy or other physical disabilities:** these may have a direct impact on how the child is able to consume solid foods or liquids due to structural or neurological abnormalities centrally (e.g. swallowing coordination) and peripherally (e.g. cleft palate). Such disabilities can also contribute to other medical problems that impact on feeding (e.g. gastroesophageal reflux, repeated respiratory tract infections) and the child's overall health and nutritional status.

See Section 3.3 and:

- *Updated recommendations on HIV prevention, infant diagnosis, antiretroviral initiation and monitoring (35)*
- *WHO operational handbook on tuberculosis: module 5 – management of tuberculosis in children and adolescents (31)*
- *Pocket book of hospital care for children: second edition* (hereafter, the WHO Pocket book) *(5)*.

4.3 Admission procedure

As soon as the child is admitted to inpatient care, it is vital that the mother/caregiver understands why the child has been admitted, the principles of care for inpatient management, and the setup and organization of the ward or unit.

See Annex 12 for guidance on admitting a child and their mother/caregiver to inpatient care.

4.4 Routine medical management

Table 5 summarizes the routine medical management that should be delivered to all children aged 6–59 months with SAM on admission and during their stay in inpatient care.

Box 9

Which ward or unit should a child with SAM be admitted to?

Each inpatient setting will have a different setup for where children with SAM are cared for. In some hospitals there will be a separate ward or unit, often called a stabilization centre, nutritional rehabilitation unit or inpatient therapeutic feeding centre. In other hospitals, children with SAM will be managed in the same physical space as children without malnutrition. Children with moderate acute malnutrition (MAM) generally follow the same medical management as children without malnutrition and can be managed on the general paediatric ward.

It is preferable to manage children with SAM separately from children without malnutrition because they frequently have some level of immunosuppression and are more vulnerable to hospital-acquired infections. In addition, it can be distressing for children with SAM and their mothers/caregivers to see children without malnutrition having normal meals while they are allowed only therapeutic milk at the start of their admission.

The decision on where to manage a child should be driven by local, hospital-based and context-specific considerations, paying attention to staff capacity, available infrastructure and resources, and key infection, prevention and control measures.

Table 5. Routine medical management for children aged 6–59 months with SAM

Intervention	When and how
Broad-spectrum antibiotic	On admission Oral or intravenous, depending on clinical status (see Section 4.4.1) Duration 7 days, or minimum 48 hours and then review – duration will be dictated by the condition of the child, whether there was a clinical indication for a specific antibiotic regime, and the child's response to treatment
Deworming	All children aged ≥ 1 year, unless treatment received through routine services in past 6 months After stabilization phase (see Section 4.6.1) is completed or after transfer to outpatient care
Treat if signs of vitamin A deficiency or other clinically justified reason	On admission (day 1), day 2 and day 14
Ensure all vaccinations are up to date, or refer for vaccination	After stabilization phase or before discharge, if possible or eligible
Screening for signs of vitamin A deficiency	On admission and regularly throughout admission, especially for children with nutritional oedema
Screening for HIV and TB	On admission and as per national protocols
Screening for malaria in malaria-endemic areas	On admission with rapid diagnostic test or blood smear, as per national protocols, and for a clinical indication at a follow-up visit Treat as per national treatment protocols

4.4.1 Routine antibiotics

The World Health Organization (WHO) recommends the use of routine antibiotics for all children with SAM due to evidence of a significant decrease in mortality for this population. The mechanism is likely due to reducing excessive proliferation of small-bowel flora, which can lead to translocation of gut bacteria into the bloodstream and/or modification of the microbiome.

All infants and children aged 1–59 months with SAM should be prescribed routine[2] broad-spectrum antibiotics on admission to inpatient care or enrolment into outpatient care for nutritional treatment. For neonates aged under 1 month, see the WHO ***Pocket book*** *(5)* for appropriate antibiotics and dosages.

If a specific condition or clinical indication has been identified (e.g. severe pneumonia, skin infection, meningitis), the duration of treatment and dosage should be as per the WHO ***Pocket book*** *(5)* for that condition.

Antibiotic regimens should be adapted according to local resistance patterns.

See Annex 14 for recommended regimens for routine antibiotics.

4.4.2 Deworming

Intestinal roundworm infections are an important contributing factor to children developing malnutrition and may limit recovery. Albendazole or mebendazole should be administered routinely to all children aged 1 year and over, after the stabilization phase is completed (see Section 4.6.1) or upon referral to outpatient care if not already given in inpatient care. Children aged 6–12 months with *visible* helminthiasis can also be treated with albendazole.

See Annex 14 for deworming medicine protocols.

4.4.3 Screening for and treating vitamin A deficiency

Many children with SAM have vitamin A deficiency, but it is not easily detectable in the subclinical stage. Vitamin A plays an important role in maintaining visual capacity and the body's defences against infection through epithelial integrity and regeneration. Supplementation is crucial in children with severe malnutrition to reduce morbidity and mortality *(1, 2, 36)*.

The vitamin A intake of children who are fed therapeutic food (F-75 milk, F-100 milk, RUTF) that complies with WHO/Codex Alimentarius specifications exceeds the recommended nutrient intake for well-nourished children and seems adequate for malnourished children without signs of vitamin A deficiency.

Indications for high-dose vitamin A supplementation include:

- signs of vitamin A deficiency/xerophthalmia, such as:
  - dry conjunctiva or cornea;
  - Bitot spots;
  - corneal ulceration;
  - keratomalacia;
- recent measles (measles now or within the past 3 months, documented or reported by the mother/caregiver);
- rare cases where therapeutic foods that are not compliant with WHO/Codex Alimentarius specifications are being used for the whole of a child's nutritional treatment of SAM.

Systematic physical examination for signs of xerophthalmia should be conducted carefully by a clinician experienced in assessing for this condition, in good lighting, on admission and periodically during the child's inpatient stay.

See the WHO ***Pocket book*** *(5)* for guidance on signs of vitamin A deficiency.

See Annex 14 for vitamin A supplementation dosing protocols.

4.4.4 Vaccinations

All children should be assessed for eligibility for vaccinations within the national vaccination programme when they are admitted to inpatient care. Assess whether there is any opportunity to vaccinate the child as an inpatient – and if not, start discharge planning to ensure scheduled or catch-up vaccinations are given in the outpatient clinic before exit from the nutrition programme or service.

2 The term "routine" is used here because all children with SAM are given antibiotics, rather than in standard paediatric practice when antibiotics are given only for specific clinical indications.

Important

Never miss an opportunity to vaccinate!

To reduce *missed opportunities for vaccination*, any contact with an infant less than 6 months of age at risk of poor growth and development, with a child with MAM or SAM, and with their siblings and mother/caregiver is an opportunity to review their home-based records and ensure they are up to date with their vaccinations *(37)*.

Inpatient management should not cause infants to miss scheduled vaccinations. Ensure trained staff are available to vaccinate infants admitted for inpatient management.

If it is not possible to vaccinate at this contact point, the infant or child should be referred or recalled for vaccination.

4.4.4.1 Routine vaccinations

As a minimum, all vaccines included in the national vaccination programmes should be provided to children in nutrition programmes and services.

See *WHO recommendations for routine immunization (38)*.

On enrolment into outpatient care:

- Assess the child for eligibility for vaccinations within the national vaccination programme, including missed vaccinations, and either vaccinate the child directly or refer to the appropriate service.
- Give the mother/caregiver a home-based vaccination record if they do not already have one.
- Counsel the mother/caregiver on the importance of completing the child's scheduled vaccinations and catching up on any missed vaccinations, using clear and understandable terms.

The target age group is dependent on the national vaccination schedule. Catch-up vaccination for children aged up to 59 months is highly recommended.

Vaccinate the child after the initial stabilization phase of the nutritional treatment (see Section 4.6.1). If vaccination is not possible at this point, vaccinate the child before discharge from inpatient care.

Do not vaccinate the child if they are acutely unwell (including with a fever over 38.5 °C) and/or admitted into intensive care – in this case, postpone vaccination until recovery. Mild concurrent infections are not a contraindication to vaccination.

4.4.4.2 Measles vaccination

Vaccination against measles is a priority in all nutrition programmes and services. Measles is an extremely serious disease in children with SAM. Measles impairs the immune system for several months after infection and worsens vitamin A deficiency. Severe complications such as pneumonia are common in acutely malnourished children with measles.

The target age groups for measles vaccination are as follows:

- Age 6 months to 5 years: reaching all children with two doses of measles vaccine should be the standard for all national vaccination programmes. The measles vaccine should be administered to children aged up to 5 years, as per the national vaccination schedule, with a minimum interval of 4 weeks between doses. Interrupted schedules should be resumed as soon as possible, without repeating previous doses *(39)*.
- Children vaccinated at age 6–8 months should be revaccinated once they reach age 9 months, provided an interval of at least 4 weeks has elapsed since the previous dose was given.
- In specific situations, the target age group can be extended up to age 15 years.

4.4.4.3 Suspected or confirmed HIV infection in children

Bacillus Calmette-Guérin (BCG) vaccination is contraindicated in people with untreated HIV. BCG vaccination should be delayed until antiretroviral therapy has been started and the child is immunologically stable (CD4 > 25%) *(40)*.

People with primary immunodeficiency disorders should receive inactivated poliovirus vaccine rather than oral polio vaccine *(41)*. Inactivated poliovirus vaccine or oral polio vaccine may be administered safely to children living with HIV who are clinically well and immunologically stable (CD4 > 25%). HIV testing is not a prerequisite for vaccination.

All other attenuated live vaccines (e.g. measles, rotavirus, yellow fever) can be administered in clinically stable children living with HIV in inpatient care upon transfer out of intensive care or after completing the stabilization phase of nutritional treatment.

All non-live vaccines can be administered to all children living with HIV after the initial stabilization phase of nutritional treatment (diphtheria, tetanus, pertussis, polio, hepatitis B and *Haemophilus influenzae* (DPT-Hib-HepB), pneumococcal conjugate vaccine (PCV), meningococcal conjugate vaccine (MenA)).

Important

Never miss an opportunity to vaccinate!

Always check and complete the tetanus vaccination status of the child's mother and other female caregivers of childbearing age.

4.4.4.4 Discharge from inpatient care

Inform the mother/caregiver about which vaccines the child still requires, and when and where to present to vaccination services. Remind the mother/caregiver to keep the child's home-based record safe and bring it to every future health contact.

4.4.5 Screening and further investigations

4.4.5.1 HIV and TB

HIV and TB are important comorbidities of malnutrition, but they are often overlooked or undiagnosed on initial admission of children with malnutrition into inpatient care. Screening for HIV and TB as per the national protocols is a vital aspect of the management of children of any age with or at risk of malnutrition.

See Section 3.7.1 for guidance and resources for screening for HIV.

See Section 3.7.2 for guidance and resources for screening for TB.

4.4.5.2 Malaria

In malaria-endemic areas, children with SAM should be screened for malaria on admission to inpatient care or enrolment into outpatient care with a rapid diagnostic test or blood smear for malaria, as per the national protocol. If positive, the child should be treated as per the national malaria protocol or the WHO *Pocket book (5)*.

Important

Some infants and children with SAM do not mount a fever response if they have malaria, due to their immunosuppressed state. There should be a low clinical threshold to test for malaria in endemic areas for infants and children with SAM who appear generally unwell, even if they do not have a fever.

4.5 Medical management based on clinical indication

For guidance on managing medical problems identified on admission or during inpatient nutritional care, see the WHO *Pocket book (5)*.

Prevention at every opportunity

For all children with or without malnutrition, it is vital to use any contact point with the health system to deliver appropriate health promotion and education interventions and services and check whether they have received all available preventive services (e.g. vaccinations, vitamin A, deworming as part of a mass campaign).

If possible, use the child's time in hospital to deliver these preventive services, as their clinical condition allows. If this is not possible, refer the child to the relevant services and ensure the mother/caregiver understands the importance of the interventions and when and where to receive them.

4.6 Nutritional treatment

Important

Promoting breastfeeding

For children aged 6–24 months receiving the inpatient nutritional treatment described below, breastfeeding continues to make a significant nutritional contribution and provides unrivalled protection from infectious diseases. Breastfeeding must be encouraged and supported as a critical part of nutritional rehabilitation. Mothers and wet-nurses should be encouraged to practise responsive breastfeeding and to breastfeed frequently during the day and night.

Breastmilk should be given high priority and offered to the child before giving therapeutic foods whenever possible to reduce the risk of infectious diseases.

Breastmilk can be offered as maternal breastfeeding. If the mother is not currently breastfeeding or lactating, breastmilk can be offered as the mother's own expressed breastmilk fed from a cup, by wet-nursing, or as donor-expressed breastmilk fed from a cup.

Inpatient nutritional treatment for children aged 6–59 months with SAM is managed in three phases:

- stabilization phase;
- transition phase;
- rehabilitation phase.

Important

Nutritional oedema

Children with nutritional oedema often have concomitant clinical signs such as dermatosis characterized by hypopigmentation and squamation, hypopigmented and brittle hair, or hepatomegaly.

These signs together are often referred to as kwashiorkor. The exact aetiology of kwashiorkor and why this presentation is so different from that of children without nutritional oedema (often referred to as marasmus) are not known. There is significant documentation that children with nutritional oedema have higher mortality rates than children without nutritional oedema and respond unpredictably to both medical and nutritional treatment.

Children with nutritional oedema need close assessment and monitoring. Clinical judgement may be needed to adapt the nutritional treatment described below according to the child's response.

4.6.1 Stabilization phase

4.6.1.1 Objective

- To restore metabolic function and stabilize the child from a nutritional perspective, while also treating concomitant medical problems.
- Note that weight gain is not necessarily expected in this phase. Children with nutritional oedema often show weight loss as the oedema resolves.

4.6.1.2 Product used

- F-75 milk (75 kcal/100 mL).

4.6.1.3 Protocol

- Give F-75 milk to provide 80–100 kcal/kg of bodyweight per day, usually starting at the lower end (80 kcal/kg/day) for children who are less clinically stable and more prone to refeeding syndrome (see Annex 19). The lower end of the range should also be considered for any child showing signs of feeding intolerance, even if the child is otherwise clinically stable.
- The total daily amount of F-75 milk should ideally be given as eight feeds per day (every 3 hours). A protocol of six feeds per day (every 4 hours) can be used if it is not possible to give eight feeds due to logistical or staffing restraints. For children who are very sick or show any signs of feed intolerance, 12 feeds per day (every 2 hours) may be needed for a brief period until clinical improvement is observed.
- Use the child's admission weight (or weight after initial rehydration) to calculate the amounts of milk for the whole of stabilization phase (see reference tables in Annex 15).
- No foods or liquids other than F-75 milk, breastmilk or water should be given to the child.
- Rehydration solutions (preferably rehydration solution for malnutrition (ReSoMal), or oral rehydration salts if ReSoMal is not available) may be prescribed by the clinical team to treat or prevent dehydration.

Note

For children with nutritional oedema ++ or +++, clinical judgement may be required when deciding on the volume of milk to give. The total volume per day according to the admission weight is unlikely to be an accurate representation of the actual needs due to the oedema contributing to increased weight. Adjustments can be made after the first few mealtimes to see how much milk the child tolerates and any signs of feeding intolerance.

4.6.1.4 Criteria to change from stabilization phase to transition phase

- Medical problems have been stabilized:
  - no danger signs;
  - vital signs are stable;
  - no ongoing conditions affecting the ingestion or tolerance of F-75 milk.
- Appetite has begun to return: the child is keen to drink the milk and asks for more.
- Nutritional oedema has reduced: it is usually advisable to wait until oedema has decreased from severe (+++) to moderate (++) and the criteria above are met.

Note

A child can move from the stabilization phase to the transition phase if a nasogastric tube is in situ (see Section 4.6.7) if they are otherwise tolerating milk well from a gastrointestinal perspective.

4.6.2 Transition phase

The transition phase is a very important aspect of nutritional treatment and should not be omitted. There are two different options – transitioning from F-75 milk to RUTF, or transitioning from F-75 milk to F-100 milk.

4.6.2.1 Objective

- To ensure the child can tolerate higher-calorie foods by slowly changing the treatment from F-75 milk to RUTF or F-100 milk.
- To observe the increase in food intake (energy and protein) and prepare for the rehabilitation phase (catch-up growth).

4.6.2.2 Products used

- RUTF paste or biscuits;
- F-100 milk.

> ***Note***
> **RUTF and F-100 milk have almost the same nutritional value.**

4.6.2.3 Protocol: transitioning from F-75 milk to RUTF

- Give RUTF to provide 100–130 kcal/kg of bodyweight per day as six to eight feeds per day (every 3–4 hours).
- Calculations should be based on the child's weight as they enter the transition phase (see reference tables in Annex 16).
- If the child does not consume the full amount of RUTF per feed, make an approximate assessment of how much is consumed (e.g. one-quarter, one-half or three-quarters of what the child should have eaten) and top up to complete the feed using F-75 milk (see reference tables in Annex 16), and then observe for 1–2 days.
- If the child is consistently not finishing three-quarters or more of the full amount of RUTF at every feed over 1–2 days, consider the following:
  - ⇢ The child may not be ready for the transition phase – go back to the stabilization phase.
  - ⇢ Try using F-100 milk instead of RUTF (see below).

4.6.2.4 Protocol: transitioning from F-75 milk to F-100 milk

A few children completely refuse RUTF or have poor tolerance for solid food (e.g. due to painful mouth or throat lesions or impaired consciousness). These children can be transitioned using F-100 milk:

- Give F-100 milk to provide 100–130 kcal/kg of bodyweight per day as six or eight feeds (every 3–4 hours).
- Calculations should be based on the child's bodyweight as they enter the transition phase (see reference tables in Annex 16).
- When the child is ready for the rehabilitation phase, they may need to spend a few days in the rehabilitation phase as an inpatient using RUTF to ensure they can tolerate RUTF. All efforts should be made to safely discharge the child to the rehabilitation phase as an outpatient as quickly as possible.

> ***Important***
> **Breastfeeding and water**
>
> - **RUTF is consumed much more easily when taken alongside water. Water should be offered during and after the intake of RUTF and between meals.**
> - **The mother should be encouraged and supported to continue breastfeeding in response to the child's hunger cues. If breastfeeding just before a feeding time reduces the child's appetite for RUTF, F-75 milk or F-100 milk, try offering RUTF, F-75 milk or F-100 milk later, between breastfeeds.**
> - **Ensure the prescribed amount of RUTF or F-100 milk is given in 1 day, working around breastfeeding times.**
> - **Support the mother to continue or re-establish breastfeeding as needed.**

4.6.2.5 Criteria to change from transition phase to rehabilitation phase

- Medical problems have been stabilized:
  - ⇢ no danger signs;
  - ⇢ vital signs are stable;
  - ⇢ child is not deteriorating;
  - ⇢ no ongoing conditions that affect the ingestion or tolerance of the milk or RUTF.
- Good appetite: the child easily finishes the RUTF or F-100 milk and asks for more. Note that quantities should not be increased in the transition phase – instead, move the child to the rehabilitation phase.
- Nutritional oedema has reduced: the child can be moved to the rehabilitation phase if there is + or ++ oedema but the child meets the other criteria above.

4.6.2.6 Criteria for medical assessment and return to stabilization phase

- Appearance of any danger signs, any signs of fluid overload and/or heart failure, or diarrhoea with dehydration.
- Development of significant refeeding diarrhoea (white stools 15–30 minutes after eating) with weight loss. Note that a change in stool consistency and colour is often seen when the child moves between phases; if this is only mild and there is no weight loss or dehydration, the child can stay in the transition phase.
- Reappearance or worsening of nutritional oedema.

4.6.3 Rehabilitation phase during inpatient management

4.6.3.1 Objective

- To promote healthy weight gain (approximately 5–10 g/kg/day) and catch-up growth. This is also the phase where there should be full resolution of nutritional oedema and clinical stabilization as far as possible.
- The rehabilitation phase is predominantly carried out in outpatient care, but a minority of children need to start this phase as inpatients. These are usually children who did not tolerate the transition phase with RUTF and had to use F-100 milk. Inpatient care may also be necessary temporarily in settings where outpatient treatment services are not available or functional (e.g. due to RUTF stockouts).

4.6.3.2 Products used

- RUTF;
- F-100 milk (only for inpatient care and if RUTF is not tolerated).

4.6.3.3 Protocol

- Give RUTF in paste or biscuit form to provide 150–185 kcal/kg of bodyweight per day.[3]
- Calculations should be based on the child's bodyweight as they enter the rehabilitation phase (see reference tables in Annex 17).
- Initially give 150–185 kcal/kg/day as RUTF only, because RUTF is much higher in nutrient density than most family meals made in the hospital or brought in by the family.
- It may be possible to add in family meals when the child starts to improve and demands more food after RUTF, after ensuring the daily amount of RUTF has been consumed first. Mealtimes will have to fit with the hospital kitchen. The family meals should be diverse, nutrient-rich and suitable for growing children.
- If the infant or child is breastfeeding, breastmilk should be offered before providing RUTF.
- Water should be offered during and after the intake of RUTF and between meals.

> ***Note***
> **It is advisable for inpatient services to use a specific kcal/kg/day rather than a range to provide clarity and more user-friendly protocols for health workers prescribing RUTF to children. This decision may need to be taken at the service, programme or national level, depending on the context.**

4.6.3.4 Criteria for medical assessment and return to transition phase

- Appearance of any danger signs, any signs of fluid overload and/or heart failure, or diarrhoea with dehydration.
- Development of significant refeeding diarrhoea (white stools 15–30 minutes after eating) with weight loss or dehydration. Note that a change in stool consistency and colour is often observed when a child moves between phases; if this is only mild and there is no weight loss or dehydration, the child can stay in the rehabilitation phase.
- Reappearance or worsening of nutritional oedema.

> ***Note***
> **A full medical assessment is required to identify the underlying problem.**

4.6.4 Summary of nutritional treatment for children aged 6–59 months with SAM

Table 6 summarizes the different phases of nutritional treatment.

3 See *Web annex F* (*42*) from the 2023 *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in children under 5 years* (*1*) for full details on the reasoning behind this range. This range can be reduced when the child no longer meets anthropometric criteria of having SAM to 100–130 kcal/kg of bodyweight per day. It is rare, however, that a child stays in inpatient care until they no longer have SAM, so the range 150–185 kcal/kg of bodyweight per day is most likely to be used in inpatient care.

Table 6. Summary of nutritional treatment for children aged 6–59 months with SAM

Phase	Objective	Product and amounts	Duration
Stabilization phase (inpatient)	▷ Correct electrolyte imbalance ▷ Restore metabolic function ▷ Stabilize clinical condition ▷ Begin resolution of nutritional oedema	▷ F-75 milk ▷ 100 kcal/kg/day (130 mL/kg/day) ▷ Six to eight feeds per day ▷ See reference tables in Annex 15	5–7 days, depending on clinical progression
Transition phase (inpatient)	▷ Gradual increase in calorie and protein content of diet to ensure tolerance to new diet ▷ Ensure return of appetite and acceptability of RUTF ▷ Ensure ongoing clinical improvement ▷ Continued resolution of nutritional oedema	▷ RUTF (or F-100 milk if RUTF not tolerated) ▷ 100–135 kcal/kg/day ▷ Six to eight feeds per day ▷ See reference tables in Annex 16	2–3 days, depending on clinical progression
Rehabilitation phase (usually outpatient; rarely inpatient)	▷ Promote healthy weight gain and catch-up growth ▷ Ensure ongoing clinical improvement ▷ Ensure full resolution of nutritional oedema	▷ RUTF: inpatient or outpatient ▷ F-100 milk: inpatient only **Inpatient:** ▷ A few days may be needed for children who did not tolerate RUTF during the transition phase or if there is another clinical nutritional indication ▷ 150–185 kcal/kg/day RUTF until discharge from hospital and transfer to outpatient care ▷ Family meals if child is still hungry after RUTF consumed **Outpatient:** ▷ 150–185 kcal/kg/day until anthropometric recovery; or ▷ 150–185 kcal/kg/day until child meets criteria of MAM, and then reduce to 100–130 kcal/kg/day until anthropometric recovery See reference tables in Annex 17	Depending on child's response and other contextual factors

4.6.5 Feeding techniques

4.6.5.1 Oral feeding

A number of feeding techniques can be used during inpatient care to ensure the child efficiently and safely consumes the therapeutic milk that is the mainstay of inpatient nutritional management:

- cup and spoon technique;
- feeding cup technique;
- supplementary suckling technique (most relevant for infants less than 6 months of age).

Priority is always given to oral feeding. Mothers/caregivers and clinical staff must take the time and be patient to encourage reticent infants and children to take milk orally, whether via breastfeeding or another feeding technique.

See Annex 18 for guidance on feeding techniques.

4.6.5.2 Nasogastric tube feeding

If feeding by nasogastric tube is necessary, it is recommended only for short periods of time and only:

- for children taking less than 75% of the prescribed daily amount of milk per 24 hours (intake at each feeding time must be documented) or presenting with complete anorexia;

- for children with medical indications – for example:
  - repeated vomiting (extra caution must be taken when inserting the tube);
  - unable to drink or eat, too weak, incapable of swallowing, or painful lesions in the mouth;
  - dehydration if unable to drink.

4.6.6 Common problems during feeding

Several simple and complex problems related to feeding are encountered frequently during inpatient nutritional treatment. It is important to be aware of these problems so early identification and action can be taken. Problems include:

- refusal of therapeutic foods;
- signs and symptoms of intolerance to therapeutic milks;
- mechanical feeding problems, including related to physical disability;
- psychosocial and mental health problems in the child and/or mother/caregiver.

Detailed guidance on these problems is beyond the scope of this guidance, but Annex 19 gives some basic guidance.

See the following resources for more on feeding problems:

- *The disability tool: inclusive feeding and disability resources for nutrition practices* (22)
- *Feeding and disability resource bank* (42).

4.7 Health education and counselling during inpatient care

Health education and counselling are an essential part of inpatient and outpatient care for children with acute malnutrition. Many national and international resources are available to inform health education and counselling for all children, with or without malnutrition. Preference should always be to use national guidance, which will likely be more adapted to the context.

See Annexes 11–13 for the basic topics to be covered during inpatient and outpatient care and brief guidance on communicating with mothers/caregivers.

The following global resources contain comprehensive guidance on these topics:

- *Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed* (43)
- *The community infant and young child feeding counselling package* (44)
- *Infant and young child feeding image bank (45)*
- *Health systems strengthening: an example of integrating SBC into a sector* (46)
- *Guide for integration of perinatal mental health in maternal and child health services* (9)
- *Kangaroo mother care: a clinical practice guide* (47)
- *Parent counselling guide on kangaroo mother care (KMC)* (48).

Prevention at every opportunity

Interventions to prevent children becoming acutely malnourished and to promote overall child health should ideally be implemented through a multisectoral and multisystem approach, incorporating food, health, safe water, sanitation and hygiene (WASH) and social protection systems.

These interventions should include access to a healthy diet and nutrition and medical services, as appropriate; include counselling for breastfeeding, health and nutrition, and especially helping families use locally available nutrient-dense foods for a healthy diet; address maternal and family needs; and involve psychosocial elements of care to ensure healthy growth and development.

Admission of a child to inpatient care is a key moment to initiate or carry out a number of these interventions, especially counselling and psychosocial elements of care for the child and the mother/caregiver.

No opportunity should be wasted to carry out preventive activities.

4.8 Psychosocial stimulation during inpatient care

Psychosocial stimulation is a vital and essential part of inpatient and outpatient care for children with acute malnutrition and should not be neglected. Psychosocial stimulation requires thorough planning, a designated budget, and staff who have been adequately trained and receive ongoing supervision.

See Section 10 for guidance on psychosocial stimulation.

4.9 Monitoring response to inpatient nutritional care

When the guidance in this document is followed, infants and children aged 6–59 months with SAM whose acute medical problems have been stabilized or treated should show signs of improvement within a few days and continue to improve thereafter.

4.9.1 Monitoring clinical and nutritional status

The following actions should be carried out to monitor the clinical and nutritional status of children aged 6–59 months with SAM in inpatient care:

- Assess the clinical status of the child daily, and more frequently if indicated by findings on the ward round or reported by the mother/caregiver or member of staff. This includes a brief assessment of all systems (e.g. cardiovascular, respiratory, gastrointestinal – see Annexes 1 and 2 for guidance). Note that a more in-depth assessment of systems should have been performed on admission.
- Ask the mother/caregiver whether they think the child is progressing, and address any questions they ask.
- Weigh the child daily, and more frequently if clinically indicated (e.g. significant watery diarrhoea after feeding or dehydration). Pay special attention to any signs of feed intolerance (see Section 4.6.8 and Annex 19).
- Ask the mother/caregiver whether they have any problems or concerns related to their own physical or mental health, and address these or refer to other services as needed (see Section 12).
- Observe all feeding times to offer support to the mother/caregiver and ensure the child is being safely and effectively fed the prescribed nutritional treatment. Use this time to assess mother/caregiver–child interactions, which may need support or referral if problems are noticed.

4.9.2 Adequate or good response to nutritional and medical management

4.9.2.1 Medical management

- The infant or child should recover from the acute medical problem they were admitted with through use of appropriate medicines and supportive care (see the WHO *Pocket book* (5)).
- Assess and document any chronic medical problems (e.g. HIV, diabetes) or conditions that require outpatient follow-up (e.g. TB, HIV). Treatment should continue during this inpatient admission unless there is a specific clinical contraindication:
  - If the child has a known chronic medical problem, give the mother/caregiver clear instructions about follow-up care after discharge from hospital.
  - If the child has a newly diagnosed chronic medical condition, all attempts must be made by the clinical team to contact the outpatient services that will follow up the child to develop a realistic discharge plan and ensure appropriate continuity of care.

4.9.2.2 Nutritional management

See Section 4.6 for criteria for progression from one phase of nutritional treatment to another, including tolerating therapeutic milks, improvement in appetite, resolution of nutritional oedema and no further weight loss (for children without nutritional oedema).

4.9.3 Poor response to nutritional and medical management

4.9.3.1 Medical management

An infant or child who does not respond to medical management needs a full re-evaluation and to repeat or start new treatment, according to the findings of the re-evaluation. This is often linked to a poor response to nutritional management (see below).

4.9.3.2 Nutritional management

Some infants and children show a poor response to nutritional management. This can present in several ways (see Table 7).

Table 7. Criteria for poor response to nutritional management

Criterion	Approximate time after admission
No decrease in nutritional oedema	Day 4
Appetite still poor	Day 4
Nutritional oedema still present	Day 10

A child with any of the criteria in Table 7 should be considered to have a poor response to nutritional management. When this classification is made, it is essential that practices in the inpatient service are promptly and carefully reviewed, and the child's condition is thoroughly re-evaluated. The objective of this review is to identify the cause of the poor response and to correct the problem by making specific changes to care practices or to the child's management plan.

Box 10

Frequent causes of poor response to nutritional management

Problems with care practices

- suboptimal environment for children with malnutrition, including infection prevention and control practices (e.g. staff and/or mother/caregiver handwashing practices, child's personal hygiene, bed and ward hygiene);
- insufficient or inadequately trained staff;
- missed signs as a result of unstructured assessments;
- inaccurate anthropometric equipment (e.g. weighing scales);
- insufficient essential supplies;
- lack of compliance with specific and routine treatment protocols;
- incorrect preparation or provision of therapeutic foods;
- mother/caregiver not adhering to the nutritional treatment (this may or may not be intentional), often as a result of:
  - staff not engaging or communicating effectively with the mother/caregiver to check they understand the management plan and know what is expected of them;
  - inadequate counselling and psychosocial support provided to the mother/caregiver, or the mother/caregiver not accepting or understanding the rationale for the treatment being given;
- insufficient psychosocial or physical stimulation of the child;
- inadequate monitoring of the child, quality improvement and performance quality.

Problems with prescribed management plan

- insufficient therapeutic food and/or fluid consumed;
- overlooked or undetected infections, and new hospital-acquired infections (e.g. pneumonia, urinary tract infection, otitis media, TB, malaria, dengue, hepatitis B, HIV);
- overlooked or undetected serious underlying disease (e.g. unrecognized congenital abnormalities, inborn errors of metabolism, malignancies, immunological diseases, other diseases of major organs);
- malabsorption of nutrients;
- psychological trauma or history of neglect.

The child should undergo a full and thorough assessment to identify newly developed or missed problems or underlying disease, and then receive prompt treatment based on the diagnosis, wherever possible.

Box 10 lists some of the frequent causes of poor response to nutritional management.

When a thorough assessment has been made and the problems identified, the clinical, administrative and logistic teams should work together to find solutions where possible.

4.10 Discharge from inpatient care

Continuity of care between inpatient and outpatient services that deliver medical and nutritional treatment is vital for the safe and effective follow-up of infants and children with SAM.

Timely, efficient and holistic discharge planning is key to ensuring the child is discharged from inpatient care at the appropriate time and with definitive guidance given to the mother/caregiver for follow-up care, both in terms of their ongoing nutritional treatment and for accessing ongoing medical and psychosocial support services.

4.10.1 Discharge criteria

Important

Discharge criteria

***All* discharge criteria must be met before the child can be discharged from inpatient care and transferred to outpatient care.**

Infants and children aged 6–59 months with SAM who are admitted to inpatient care can be transferred to outpatient care when all of the following discharge criteria are met:

- The child has no danger signs for at least 24–48 hours before transfer time; and
- The medical problems that prompted admission to hospital have resolved to the extent there is no longer requirement for inpatient care: this means appropriate treatment has been given and the child either no longer has the medical problems that prompted their inpatient admission (see Section 4.2 and Boxes 6 and 7) or has stabilized enough to continue care in an outpatient setting (e.g. HIV with severe opportunistic infection, which has been treated); and
- The child does not have ongoing weight loss (assuming the child did not have nutritional oedema at any time): the decision to discharge is based on clinical judgement and not anthropometric criteria.

It is important that the nutritional and medical treatments prescribed have stabilized the child, and the child has no ongoing weight loss, as a minimum. It is important to make the distinction between children admitted with nutritional oedema (who could still have some weight loss as the oedema resolves fully), and children without nutritional oedema (in whom weight loss would be a sign of deterioration rather than improvement); and

- The child's nutritional oedema is no longer grade +++ and is resolving: children who still have nutritional oedema +++ are often clinically unstable and have not received adequate nutritional or medical treatment to show an improvement in their nutritional oedema and so need further inpatient management; and
- The child has a good appetite: this should be assessed using a systematic method to see whether the child is able to successfully consume the RUTF they will be supplied with in outpatient care to complete their treatment (until anthropometric recovery and the resolution of nutritional oedema). This can be assessed as part of normal feeding time practices or by using the guidance in Section 3.5 and Annex 10 on the appetite test to carry out a separate assessment; and
- If the child has medical problems that need mid- or long-term follow-up care and have a significant association with nutritional status (see *Box 8*), all attempts have been made to refer the child to appropriate care or support services, and/or the limits of inpatient care have been reached (see *Box 11*).

Important

The decision to transfer a child from inpatient to outpatient care should not be made on the basis of anthropometric criteria alone, such as a specific weight-for-height or weight-for-length *z*-score or mid-upper arm circumference. Instead, the criteria listed above should be used.

Upon deciding to transfer a child from inpatient to outpatient care, the mother/caregiver must be linked to appropriate outpatient care with nutrition services. Additional social and family factors should be identified and addressed before transferring the child to outpatient care to ensure the household has the capacity for care provision.

Box 11

Discharge criteria terminology

What does "all attempts have been made" mean?

Many medical problems cannot be definitively treated in inpatient services that deliver nutritional treatment and support. If there is another paediatric ward in the hospital that treats these problems (e.g. HIV, surgical or TB ward), the child may have to be transferred there. If not, the child may have to be transferred to another hospital – for example, to continue TB treatment, for definitive surgery for congenital heart disease, or for outpatient physiotherapy for cerebral palsy.

These referrals are vital for the child's health. The problems will not disappear on discharge from an inpatient service but need further care and management.

Unfortunately, in many contexts, this follow-up care is not available. The term "all efforts have been made" is used here to emphasize that staff should investigate all options and partners that could assist before discharging the child.

What does "limits of care" mean?

The limit of care for inpatient services is usually reached when inpatient care adds no further benefit for the child and their family. More specifically, it refers to the situation where staff have appropriately utilized all the resources and nutritional and medical treatments available to them in this hospital, but the child still has ongoing medical problems or continues to lose weight.

For example, a child with cerebral palsy whose acute medical problems have been treated, who is being fed via nasogastric tube and who is gaining adequate weight or not losing further weight cannot stay indefinitely on the ward for nasogastric tube feeding.

It may be possible to refer the child for more definitive care or ongoing feeding support, or a difficult conversation may be required with the family to explain that the child cannot stay on the ward indefinitely and to help them understand what to expect in terms of quality of life and life expectancy when the child is discharged home.

These difficult conversations should be with experienced staff who are able to talk in a culturally appropriate and helpful way. If appropriate and feasible, faith leaders or respected elders should be involved.

4.10.2 Discharge procedure and arranging post-discharge care

A key aspect of discharge planning involves assessing the child's home environment for environmental health aspects, including WASH, food security, economic stability, and the mother/caregiver's mental and physical health.

This assessment can be done by talking to the mother/caregiver or during a home visit. Discharge planning must start soon after the child is admitted to inpatient care to allow adequate time to identify and/or contact the outpatient services that will continue the medical and nutritional treatment and other relevant support services.

Annex 12 gives basic guidance on supporting the mother/caregiver during discharge. The aspects of the discharge procedure described below should be considered for every child.

4.10.2.1 Where to refer the child

It is important to identify the most feasible outpatient centre for the child and their family to attend. This helps to ensure they actually attend. Distance, travel options and availability of specific services at a health facility should be taken into consideration when advising the mother/caregiver where to receive outpatient care.

If required, efforts should be made to link the child to special care or follow-up with relevant referral services (e.g. physiotherapy for cerebral palsy or other disabilities, HIV or TB services).

4.10.2.2 When to see the child in outpatient care

Children aged 6–59 months with SAM ideally should be seen 5–7 days after discharge from inpatient care, unless there are specific indications to see them sooner.

It is important to remember the child has been stabilized and assessed to be safe to be managed as an outpatient, but ongoing care will be required for several weeks to reach exit criteria.

4.10.2.3 Monitoring whether the child attends outpatient care

The possibility to monitor whether the infant or child continues management in outpatient care depends on the context and the capacity and setup of the health system. The ideal practice is to have efficient and regular contact between inpatient and outpatient care at different health facilities, sharing information on transfers and referrals and progress of children referred between services, keeping in mind that the functioning of nutrition services needs both inpatient and outpatient components.

It is good practice to produce a list of children with contact information and the date they should present to the outpatient care centre and provide this to staff in the health facility on a regular basis (ideally weekly, and more frequently if there is a case that needs urgent attention).

If the child does not present, the outpatient care centre can use its outreach, community networks or community health workers to follow up the child and their family and ensure they continue their follow-up care.

If outpatient and inpatient services are in the same location or health facility, it can be easier to ensure continuity of care. All efforts should be made to act as a single service, even if there are different pressures on each service. When outpatient and inpatient services are in different locations, it is even more important to share information efficiently and ensure regular, open communication at all levels of care.

4.10.2.4 Providing the mother/caregiver with information and counselling on discharge

Start to sensitize the mother/caregiver early in the child's inpatient care about principles of care after discharge and the importance of follow-up.

See Annex 12 for guidance on giving the mother/caregiver information on discharge.

5. Management of children aged 6–59 months with moderate acute malnutrition (MAM) in hospital

Children aged 6–59 months with MAM may be identified in the hospital either on admission or while being treated for a medical condition. It is vital to take this opportunity to carry out a comprehensive assessment and deliver treatment (wherever possible) for the medical and psychosocial problems leading to or exacerbating this episode of MAM, even if the medical treatment is the same as for children without malnutrition (e.g. antiretroviral therapy for HIV, tuberculosis (TB) medicines).

5.1 Triage and emergency treatment

See Section 3.1 on triage and emergency treatment.

5.2 Medical management

There is no routine medical management for children admitted with MAM. Medical management for MAM children should be based on the clinical diagnosis and follow child health guidelines for non-malnourished children.

Prevention at every opportunity

Discovering a child has MAM during an inpatient admission can be a key opportunity to ensure preventive interventions such as infant and young child feeding (IYCF) counselling, vitamin A supplementation, deworming and any other interventions in national protocols are delivered.

If these interventions cannot be given while the child is in the hospital, the child should be referred to relevant outpatient services or campaigns, with clear instructions for the mother/caregiver about where and when to go.

5.3 Nutritional supplementation

The recommended daily energy requirement of children aged 6–59 months with MAM to achieve anthropometric recovery is 100–130 kcal/kg/day (see the *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children under 5 years: web annex H*) *(49)*. The daily energy requirements of children with malnutrition are significantly higher than those of their healthy, non-malnourished peers, who need approximately 80 kcal/kg/day *(50)*.

This range was calculated for children with MAM in outpatient care, taking into consideration increased energy demands associated with common comorbidities and illnesses that do not warrant inpatient care (e.g. simple malaria). Energy demands are likely to be slightly higher for children with MAM who are admitted for inpatient care, because these children have been identified as having a medical condition or illness that is serious enough to require inpatient care. As a result, this population is likely to have slightly higher daily energy requirements.

Children with MAM who are admitted to hospital for any indication are likely to need 130 kcal/kg/day rather than the lower end of the energy requirements. Various options are available to ensure children with MAM receive their total energy and nutrient requirements.

5.3.1 Local food options (hospital diet)

Children with MAM should have access to a nutrient-dense diet (see *Box 12*) 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 energy content – they have a relatively high content of vitamins, minerals,

essential amino acids and healthy fats. Nutrient-dense foods enable children to consume and maximize the absorption of nutrients to fulfil their requirements for energy and all essential nutrients.

Hospitals must ensure children with MAM receive a nutrient-dense diet to meet their total energy requirements on their path to recovery from MAM (which may be reached only after discharge from hospital) through meals supplied from the hospital kitchen or brought in by the mother/caregiver or other family members (context-dependent).

Box 12

Nutrient-dense diets

Nutrient-dense diets enable children to consume and maximize the absorption of nutrients in order to fulfil their requirements for energy and all essential nutrients. Nutrient-dense diets are high in nutrients relative to their energy content; they have a relatively high content of vitamins, minerals, essential amino acids and healthy fats.

Breastmilk is rich in both macronutrients (energy, protein, fat) and bioavailable micronutrients. Breastmilk can provide up to 77% of the energy required by an infant aged 6–9 months, 63% of the energy required by an infant aged 9–12 months, and 44% of the energy required by a child aged 12–24 months. Breastfeeding should be encouraged and supported for children aged up to 2 years and beyond. Children aged 6–23 months who are not breastfed need to consume a more varied diet to meet their nutrient needs.

Nutrient-dense diets also include animal-source foods, beans, nuts and many fruits and vegetables. Animal-source foods are more likely to meet the amino acid and other nutrient needs of recovering children. Plant-source foods, in particular legumes or a combination of cereals and legumes, have high-quality proteins, although they also contain some antinutrients such as phytates, tannins or inhibitors of digestive enzymes, which may limit the absorption of some micronutrients, particularly minerals.

Adequate locally available diets include foods available in the market and/or household typically consumed by the child that are adequate in terms of nutrients.

Important

If the child's food is prepared by a caregiver, nutritional counselling for the caregiver is essential, including around hygienic preparation, responsive feeding and storage practices.

National food-based guidelines and other local resources should be used to create specific meals or daily meal plans for children with MAM using local foods to provide the extra requirements for recovery.

If national or local guidelines are not available, see the following resources to develop guidance at the national level (this list is not exhaustive and these sources are not always specific to children with MAM):

- *Food-based dietary guidelines (51)*
- *Fill the nutrient gap (52)*
- *Moderate acute nutrition (MAM) recipe book – 2021 (53)*
- *NutVal.net: the planning, calculation, and monitoring application for food assistance programmes (54)*
- *Optimizing local diets tool (55)*
- *PDH menu calculation tool (56)*
- *Nourishing children: menus for recovery (57).*

If it is not possible to provide the child with a nutrient-dense diet to meet their extra needs through hospital meals or meals brought in from home, the use of specially formulated foods (SFF) should be considered to supplement the child's meals.

5.3.2 Supplementation with specially formulated foods

Although the best practice for children with MAM is to meet their extra needs for recovery through nutrient-dense home foods, this is not always possible and the use of SFF to meet their total nutrient needs alongside their home diet may be needed in some contexts. This may include children with MAM who have been admitted to hospital regardless of the clinical indication for their admission.

The *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children under 5 years (1)* identifies a number of factors at the individual, social and family levels that can be used to consider which children with MAM to prioritize for supplementation with SFF to meet their total nutrient needs alongside their home diet (see *Box 13*).

Box 13

Factors associated with adverse outcomes in children with MAM and their use in prioritization of use of SFF

SFF interventions with counselling, rather than counselling alone, should be considered for infants and children aged 6–59 months with MAM with any of the following:

Contextual factors

- Living in a high-risk context where the majority of the population is affected by any of the following characteristics or circumstances:
  - high rate of food insecurity;
  - poor water, sanitation and hygiene (WASH) indicators;
  - low income or socioeconomic status;
  - high incidence or prevalence of wasting and/or nutritional oedema, which could be seasonal.

Individual child factors

- mid-upper arm circumference (MUAC) 115–119 mm;
- weight-for-age *z*-score (WAZ) below −3 SD;
- aged under 24 months;
- failing to recover from moderate wasting after receiving other interventions (e.g. counselling alone);
- relapsed to moderate wasting;
- history of severe wasting;
- comorbidity needing mid- or long-term follow-up care and with a significant association with nutritional status (e.g. HIV, TB, physical or mental disability).

Social factors

- severe personal circumstances (e.g. mother has died or poor maternal health and well-being).

These factors have been associated with increased risk of adverse outcomes in infants and children with moderate wasting (reduced anthropometric recovery, deterioration to severe wasting and/or oedema, non-response, mortality, and/or reduced sustained recovery).

The decisions on which factors to use are context-specific, and programme managers should make judgements based on the factors applicable to the context, taking into account feasibility, acceptability and equity.

Children with MAM who are in hospital should be screened for these factors because this is important for their management in hospital and for their follow-up care in outpatient services.

It is particularly important to screen for the comorbidities in *Box 8* and the factors in *Box 13*, which are seen in many children admitted to inpatient care in contexts with a high prevalence of MAM.

5.3.2.1 Type of SFF

Preference in accordance with quantitative effectiveness:

- lipid-based nutrient supplement – either ready-to-use supplementary food (RUSF) or ready-to-use therapeutic food (RUTF); or (if not available)
- improved fortified blended food, such as Super Cereal Plus; or (if not available)
- fortified blended food, such as Super Cereal.

Note

Due to more stringent food safety criteria for children aged under 36 months *(58)*, Super Cereal, which has been formulated and produced for the general population, is not recommended as a major component of the diet for children aged under 36 months and should be used primarily for children aged over 36 months.

Note

In some contexts, an improved fortified blended food may be more acceptable or feasible for a particular child, family or context than a lipid-based nutrient supplement. For example, a child may be more likely to eat a porridge made from an improved fortified blended food that is similar to their home diet than an unfamiliar foil-wrapped lipid-based nutrient supplement that is unfamiliar and not part of their usual diet. In this case, even if a lipid-based nutrient supplement is available, it may be better to use an improved fortified blended food.

5.3.2.2 Quantity of SFF

The World Health Organization (WHO) recommends that for infants and children aged 6–59 months with MAM who require SFF, the SFF should provide 40–60% of the total daily energy requirements needed to achieve anthropometric recovery.

Note

For national guidelines, it is advisable to pick a specific percentage rather than using a range to provide clarity and more user-friendly protocols for health workers prescribing SFF to children.

Calculating the percentage of the total nutritional requirement to be supplemented must take into account contextual considerations (see Section 8.4.4). For children with MAM who are admitted to hospital, the higher end of the range for total energy needs (130 kcal/kg/day) could be considered reasonable.

See Annex 35 for reference tables for children admitted to hospital with MAM.

Note

A midpoint of 50% for the proportion of total requirements supplied by SFF has been chosen for this guidance, but governments and implementing partners may choose to use other percentages.

5.4 Monitoring response to nutritional supplementation

Monitoring the response of a child with MAM to nutritional supplementation as an inpatient should focus on whether the child tolerates the local foods or SFF given (i.e. no vomiting, watery diarrhoea soon after eating, abdominal pain or distension). Actions as per guidance in Annex 19 should be taken if there are signs of intolerance.

Measuring weight daily is not necessary for children with MAM, although recording an admission weight is vital for planning nutritional supplementation and dosing medicines. Measuring the discharge weight can be useful for planning subsequent outpatient management. If the child is in hospital for more than 1 week, it is advisable to document their weight once a week.

5.5 Discharge from hospital

If the child still has MAM on discharge from hospital, it is important to refer the child for ongoing outpatient nutritional and medical management so they recover from this episode of MAM.

If the child has been started on SFF to supplement their diet in hospital, it is advisable to continue giving this in outpatient care until anthropometric recovery.

Children aged 6–59 months with MAM should be seen by a health worker in an outpatient clinic or community service 7–10 days after discharge from hospital, unless there are specific indications to see them sooner.

Counselling is essential to ensure the quality of the child's home diet. Counselling should be provided to the mother/caregiver throughout the child's stay in hospital and when discharged.

See Section 4.10.2 for guidance on the discharge procedure.

For children who started on SFF in hospital and will continue in outpatient services, it is vital to emphasize to the mother/caregiver that the SFF will only supplement the child's normal diet – the normal diet needs to meet the rest of child's needs so they recover (see Annex 12).

6. Inpatient nutritional and medical care for infants less than 6 months of age at risk of poor growth and development, with or without severe acute malnutrition (SAM)

See Section 2.2 for guidance on the identification of infants less than 6 months of age at risk of poor growth and development.

Infants less than 6 months of age at risk of poor growth and development should be managed as outpatients unless they meet the criteria for immediate inpatient admission, or an in-depth assessment indicates a need for inpatient management. These infants should be managed using national and global child health guidelines and tools in addition to the guidance provided in this section.

The primary focus of inpatient and outpatient nutritional management of infants less than 6 months of age at risk of poor growth and development is maintaining and/or restoring exclusive breastfeeding. Prompt and appropriate treatment of medical and psychosocial problems should be conducted concurrently with nutritional management as part of comprehensive child health-focused care.

6.1 Triage and emergency treatment

See Section 3.1 for guidance on triage and emergency treatment.

All infants with integrated management of childhood illness (IMCI) danger signs or acute medical problems should be referred to inpatient care without delay.

Important

Management of neonates

The management of neonates aged less than 28 days often requires clinical approaches and protocols that are different from those required for older infants. Although guidance in this document relating to breastfeeding is applicable to all infants, guidance on inpatient nutritional supplementation applies only to infants aged 1–6 months.

See the following United Nations Children's Fund (UNICEF) and World Health Organization (WHO) guidance on feeding and fluid management for neonates:

- *WHO recommendations on maternal and newborn care for a positive postnatal experience (10)*
- *WHO recommendations for care of the preterm or low-birth-weight infant (11)*
- *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – chart booklet (12)*
- *Pocket book of hospital care for children: second edition* **(hereafter, the WHO Pocket book)** *(5)*
- *WHO recommendations on newborn health (59)*
- *Baby-friendly Hospital Initiative training course for maternity staff: customisation guide (60)*
- *Protecting, promoting and supporting breastfeeding: the BFHI for small, sick and preterm newborns (15)*.

6.2 Admission criteria

Infants who are referred for medical treatment due to IMCI danger signs or acute medical problems should also be screened for criteria identifying them as at risk of poor growth and development, including for SAM or severely underweight, as this could change the initial medical management.

Infants who first come to the attention of health workers because they are identified as being at risk of poor growth and development should also receive an in-depth assessment.

6.2.1 Infants who need immediate inpatient care

Inpatient admission criteria for infants less than 6 months of age at risk of poor growth and development may be related to the infant and/or the mother/caregiver because mothers/caregivers and infants are interdependent.

6.2.1.1 Immediate admission criteria

Infants less than 6 months of age at risk of poor growth and development who have any of the following should be referred immediately for inpatient care and management (see above graphic):

- one or more IMCI danger signs;
- acute medical problems or conditions classified as "severe" as per IMCI (see *Box 14*);
- oedema (nutritional):
  - oedema is always an indication for inpatient management in an infant less than 6 months of age, regardless of grade (+, ++ or +++);
  - even if the oedema is not nutritional in origin (e.g. secondary to nephrotic syndrome, cardiac or pulmonary disease, severe anaemia), inpatient admission is required for further investigation and management;
- recent weight loss – an infant who has lost weight since their weight was last recorded or whose mother/caregiver reports the infant has lost weight should be admitted for inpatient assessment and, if necessary, management.

6.2.1.2 Mother/caregiver admission criteria

If the mother/caregiver of an infant less than 6 months of age at risk of poor growth and development has been assessed as being unable to care for the infant at home (e.g. due to the mother/caregiver's mental or physical health problems or social or family factors such as gender-based violence), the infant should be admitted for inpatient nutritional care.

See Section 12 for guidance on maternal assessment and support.

Many infants less than 6 months of age will be admitted to hospital for many of the clinical criteria above (e.g. IMCI danger signs, acute medical problems), regardless of whether they have also been identified as being at risk of poor growth and development.

An infant admitted to an inpatient facility for any reason should be screened for poor growth and development. Wherever and whenever an infant is identified as being at risk of poor growth and development, appropriate management and support services are needed.

6.2.2 Infants less than 6 months of age at risk of poor growth and development who need an in-depth assessment

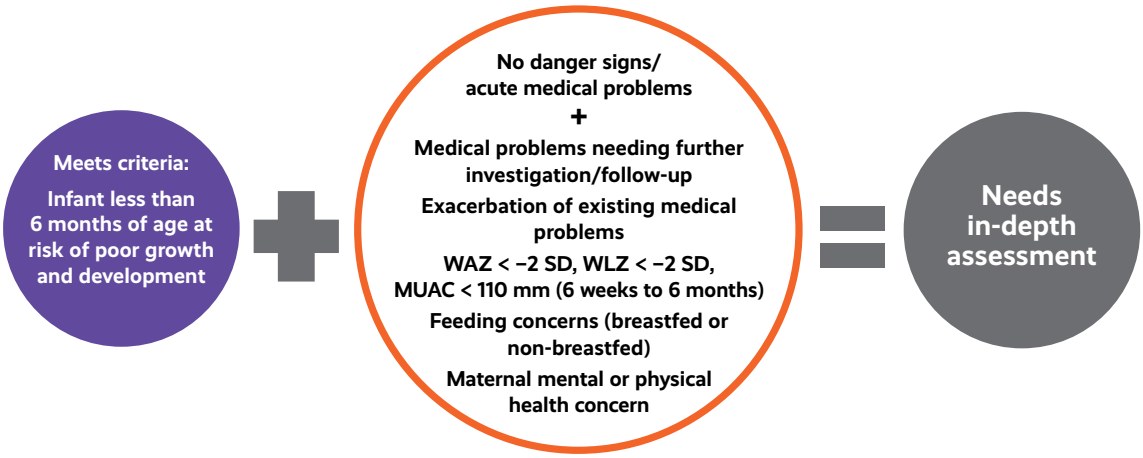
Deciding whether an infant at risk of poor growth and development needs inpatient care is straightforward in many cases, but an in-depth assessment will be required to inform this decision for some infants.

An important objective of the in-depth assessment is to prevent inappropriate or unnecessary admission, or an infant not being admitted and being denied lifesaving inpatient care and management. Both of these scenarios increase the risk of poor outcomes.

Box 14

Acute medical problems or conditions classified as "severe" as per IMCI

- signs of possible serious bacterial infection in infants aged under 2 months;
- shock;
- oxygen saturation below 90%;
- pneumonia (with chest indrawing and/or fast breathing, and (if possible to measure) oxygen saturation below 94%);
- dehydration;
- severe persistent diarrhoea (diarrhoea for at least 14 days plus dehydration);
- very severe febrile illness:
  - in a malaria zone or with a positive rapid diagnostic test, this is treated as severe malaria;
  - where there is no risk of malaria or with a negative rapid diagnostic test, this is treated as bacterial disease (e.g. meningitis);
- severe complicated measles;
- mastoiditis;
- severe anaemia (severe palmar pallor or as per age-associated haemoglobin levels);
- severe side-effects from antiretroviral therapy for HIV (e.g. skin rash, difficulty breathing, severe abdominal pain, yellow eyes, fever, vomiting);
- open or infected skin lesions associated with nutritional oedema;
- other standalone priority clinical signs not classified as danger signs:
  - hypothermia: axillary temperature < 35 °C or rectal temperature < 35.5 °C;
  - high fever: axillary temperature ≥ 38.5 °C or rectal temperature ≥ 39 °C;
- medical problems that cannot be managed safely in outpatient care (e.g. eye signs of vitamin A deficiency).



As this is a new aspect of the admission or enrolment process recommended by WHO, governments and implementing organizations must take time to discuss and determine how this step can be implemented into current service delivery models. See Section 3.5 for guidance and signposting for these discussions.

Infants at risk of poor growth and development who meet any of the following criteria need an in-depth assessment to determine whether they need inpatient admission or can be safely managed in outpatient care.

See Section 3.8 for guidance on carrying out an in-depth assessment.

6.2.2.1 Infant criteria for in-depth assessment

Infants less than 6 months of age at risk of poor growth and development who do not have any of the indications for immediate inpatient admission described in Section 6.2.1.1 should have an in-depth assessment to consider whether they need inpatient admission or outpatient management based on clinical judgement if they have any of the following characteristics:

"i. Medical problems that do not need immediate inpatient care, but do need further examination and investigation [see *Box 15*].

ii. Medical problems needing mid- or long-term follow-up care and with a significant association with nutritional status [see *Box 16*].

iii. Specific anthropometric criteria from the list of criteria used to identify children at risk of poor growth and development:

- WAZ < −2 SD: infants less than 6 months of age who are underweight (WAZ < −2), including severe underweight (WAZ < −3);
- WLZ < −2 SD: infants less than 6 months of age who have wasting (WLZ < −2), including severe wasting (WHZ < −3);
- MUAC < 110 mm for children between 6 weeks and less than 6 months of age;
- failure to gain weight over two consecutive measurements" (see Section 3.4.1) *(1)*.

Although anthropometric criteria alone are not an indication for inpatient admission, infants with any of these anthropometric criteria already have a substantial growth deficit that increases their risk of mortality. These infants need an in-depth assessment to identify the underlying causes and contributors of their growth deficit and to determine whether they can be addressed in an outpatient setting.

"iv. Ineffective breastfeeding or perceived breastmilk insufficiency" *(1)*: any mother of an infant at risk of poor growth and development who is experiencing breastfeeding difficulty that cannot be resolved immediately needs an in-depth assessment. Difficulties include, but are not limited to, poor milk transfer, painful attachment, difficulty positioning the infant at the breast, and depressed suckling reflex. Every mother who reports breastfeeding difficulties requires intensive breastfeeding counselling and support. See Annex 20 for an example assessment tool.

"v. Feeding concerns for non-exclusively breastfed infants (e.g. inappropriate or unsafe use of breastmilk substitutes for replacement feeding, milk refusal)" *(1)*: infants less than 6 months of age given any food or fluid other than breastmilk, including commercial infant formula, are at increased risk of malnutrition, infection, morbidity and mortality. The risks are greatest for infants who are not breastfed at all. An in-depth assessment is needed to identify and mitigate these risks.

Families caring for infants less than 6 months of age who are dependent on commercial infant formula require more intensive support and information to mitigate these risks, restore exclusive breastfeeding, initiate relactation or wet-nursing (if possible), and know when to seek medical care.

Inpatient care, even if brief, may be required to ensure the mother/caregiver receives appropriate education and counselling to feed the infant safely. See Annex 20 for an example assessment tool.

"vi. Any maternal-related or social issue that needs more detailed assessment or intensive support (e.g. disability or depression in the mother/caregiver, absent mother, adolescent mother, other adverse social circumstances)" *(1)*: any infant whose mother/caregiver is experiencing physical, mental or social issues is particularly vulnerable. The infant and the mother/caregiver should be assessed carefully to identify the nature of the problem and refer for appropriate management.

See Section 12 for guidance and resources on maternal and social criteria for in-depth assessment.

Box 15

Medical problems that do not need immediate inpatient care but do need further examination and investigation

These medical problems may or may not have an associated diagnosis (i.e. at presentation, there may only be signs and symptoms, with no diagnosis). They do not require immediate admission to hospital, but they may need more time and further investigation than would be possible in a standard outpatient consultation appointment or in an emergency room or department with limitations and pressures on staff time and resources. Examples include the following:

- HIV-related complications (as per IMCI):
  - not on antiretroviral therapy – any suspicion of opportunistic infections;
  - on antiretroviral therapy but not gaining weight for 3 months, loss of milestones, HIV stage worse than before, lower CD4 count than before (in children aged under 5 years), low-density lipoprotein cholesterol higher than 3.5 mmol/L, or triglycerides higher than 5.6 mmol/L;
  - monitor start of antiretroviral therapy if child also has tuberculosis (TB) and/or weighs less than 3 kg;
  - poor adherence to antiretroviral therapy for HIV.
- TB-related complications:
  - on treatment for TB but TB-related symptoms not resolving (e.g. cough, specific symptoms of extrapulmonary TB), not gaining weight for 3 months, loss of milestones;
  - poor adherence to treatment for TB.

Box 16

Medical problems that need mid- or long-term follow-up care and with a significant association with nutritional status

These medical problems may have been diagnosed recently, such that a decision needs to be made about whether the infant would benefit from initial inpatient care (e.g. for a period of intensive observation, initiating treatment, investigations not available in an outpatient setting) before commencing ongoing outpatient follow-up.

Alternatively, an infant with a known medical problem that needs ongoing follow-up may have an exacerbation or deterioration that does not involve any of the danger signs or signs and symptoms of the acute medical problems listed in Box 13 but requires an in-depth assessment to decide whether referral to inpatient care is appropriate.

Part of this in-depth assessment should involve evaluating how the mother/caregiver is coping with the psychosocial impact of the medical problem and whether the mother/caregiver is able to support the infant and the family.

Examples of these problems include the following:

- **Congenital heart disease:** the infant may have difficulties with feeding related to fluid balance (particularly overload) and breathlessness when trying to feed. If there is an exacerbation of the condition (e.g. due to an infection), the infant may need inpatient assessment and care. If the problems are more stable but still impacting the infant's nutritional and health status, it may be possible to manage the infant as an outpatient with more regular follow-up, while looking into the possibility of more definitive medical or surgical management of the heart disease itself.
- **HIV:** the interaction and vicious cycle of HIV disease and malnutrition are well known and are especially harmful for infants and children who are not on antiretroviral therapy or are experiencing treatment failure. HIV complications that are likely to need further investigation are listed in Box 15. There may be a need for further assessment of how HIV, and beliefs and perceptions around the disease, impact on feeding practices at home – for example:
  - ⇢ Is the mother/caregiver on antiretroviral therapy?
  - ⇢ Is the mother/caregiver making choices about breastfeeding or replacement feeding based on understanding of the disease or access to antiretroviral therapy, or family opinions and beliefs about feeding?
- **TB:** the interaction and vicious cycle of TB and malnutrition are well known and are especially harmful for infants and children who are not on treatment for TB or are experiencing treatment failure (e.g. due to drug resistance or non-adherence). It is important to assess how TB, and beliefs and perceptions around TB, impact on feeding practices at home – for example:
  - ⇢ Does the mother or another household member have TB?
  - ⇢ If yes, are they on treatment for TB?
  - ⇢ Is the mother/caregiver making choices about breastfeeding or replacement feeding based on understanding of the disease, access to treatment for TB, or family opinions and beliefs about feeding?
  - ⇢ What infection prevention and control measures are implemented in the household?
  - ⇢ Has the child received TB preventive treatment?
- **Cerebral palsy or other physical disabilities:** these may have a direct impact on how the child is able to consume solid foods or liquids due to structural or neurological abnormalities centrally (e.g. swallowing coordination) and peripherally (e.g. cleft palate). Such disabilities can also contribute to other medical problems that impact feeding (e.g. gastro-oesophageal reflux, repeated respiratory tract infections) and the child's overall health and nutritional status.

See the following for further information:

- WHO *Pocket book* *(5)*
- *Updated recommendations on HIV prevention, infant diagnosis, antiretroviral initiation and monitoring* *(35)*
- *WHO operational handbook on tuberculosis: module 5 – management of tuberculosis in children and adolescents* *(31)*.

6.3 Admission procedure

As soon as the infant is admitted to inpatient care, it is vital that the mother/caregiver understands why the infant has been admitted, the principles of care for inpatient management, and the setup and organization of the inpatient ward.

See Annex 12 for guidance on admitting an infant less than 6 months of age and their mother/caregiver to inpatient care.

When deciding on a ward or unit for an infant less than 6 months of age, the same considerations need to be evaluated as for children aged 6–59 months with SAM (see *Box 9* in Section 4). This will always be a local, context-driven decision.

Infants less than 6 months of age with SAM are medically vulnerable, need close monitoring, and need intensive breastfeeding and/or general feeding support, including preparation and delivery of supplementary or therapeutic milks. These infants should be managed on a ward or unit with the staff and resources to deliver this care.

Infants less than 6 months of age at risk of poor growth and development without SAM are likely to be a heterogeneous population with different needs, but they all have medical problems or feeding concerns that are serious enough to need inpatient care. As such, they must be managed on a ward or unit where close monitoring is available, including based on their young age alone. The level and type of nutritional support required may determine where the infant is managed.

6.4 Medical management

6.4.1 Infants less than 6 months of age with SAM

Table 8 summarizes the routine medical management that should be delivered to all infants less than 6 months of age with SAM (WLZ < −3 and/or nutritional oedema) on admission or during their inpatient stay.

See the WHO *Pocket book (5)* for guidance on managing medical problems identified on admission or during inpatient nutritional care.

Prevention at every opportunity

For all infants less than 6 months of age, with or without malnutrition, and their mothers/caregivers, it is vital to use any contact point with the health system to deliver appropriate health promotion and education interventions and services and check whether they have received all available preventive services (e.g. vaccinations, vitamin A for the mother if needed, infant and young child feeding (IYCF) counselling, breastfeeding counselling).

If possible, use their time in hospital to deliver these preventive services, as the infant's clinical condition allows. If this is not possible, refer the infant to the relevant services and ensure the mother/caregiver understands the importance of these interventions and when and where to receive them.

Table 8. Routine medical management for infants less than 6 months of age with SAM

Intervention	When and how
Broad-spectrum antibiotic	▷ On admission ▷ Oral or intravenous, depending on clinical status ▷ 7 days duration, or minimum 48 hours and then review – duration will be dictated by the condition of the infant, whether there was a clinical indication for a specific antibiotic regime, and the infant's response to treatment
Treat if signs of vitamin A deficiency or other clinically justified reason	▷ On admission (day 1), day 2 and day 14
Ensure all vaccinations are up to date, or refer for vaccination	▷ When infant is clinically and nutritionally stable, or before discharge if possible or eligible
Screening for signs of vitamin A deficiency	▷ On admission and regularly throughout admission, especially for children with nutritional oedema
Screening for HIV and TB	▷ On admission and as per national protocols
Screening for malaria in malaria-endemic areas	▷ On admission with rapid diagnostic test or blood smear, as per national protocols, and for a clinical indication at a follow-up visit ▷ Treat as per national malaria treatment protocols

6.4.1.1 Routine antibiotics

All infants less than 6 months of age with SAM should be prescribed routine broad-spectrum antibiotics on admission to inpatient care or enrolment into outpatient care for nutritional treatment. Infants admitted for inpatient care should be given parenteral antibiotics to treat possible sepsis.

See the WHO *Pocket book* *(5)* for appropriate antibiotics and dosages for neonates.

See Annex 14 for recommended regimens for routine antibiotics. These antibiotic regimens should be adapted according to local resistance patterns.

6.4.1.2 Vitamin A deficiency

Many children with SAM have vitamin A deficiency, but it is not easily detectable in the subclinical stage. Vitamin A plays an important role in maintaining visual capacity and the body's defences against infection through epithelial integrity and regeneration. Supplementation is crucial in children with severe malnutrition to reduce morbidity and mortality (*1, 36*).

Generally, infants are born with low vitamin A stores and are dependent on external sources, most importantly breastmilk. In settings where vitamin A deficiency and/or undernutrition is common, infants are likely to receive inadequate amounts of vitamin A from breastmilk due to poor maternal nutritional status.

Indications for high-dose vitamin A supplementation include:

- signs of vitamin A deficiency/xerophthalmia, such as:
  - dry conjunctiva or cornea;
  - Bitot spots;
  - corneal ulceration;
  - keratomalacia.
- recent measles (measles now or within the past 3 months).

Systematic physical examination for signs of xerophthalmia should be conducted carefully by a clinician experienced in assessing for this condition, in good lighting, on admission and repeated periodically during the child's inpatient stay.

See the WHO *Pocket book* *(5)* for guidance on signs of vitamin A deficiency.

See Annex 14 for protocol for dosing of vitamin A supplementation.

6.4.1.3 Vaccinations

All infants less than 6 months of age should be assessed for eligibility for vaccinations within the national vaccination programme when they are admitted to inpatient care. Assess whether there is any opportunity to vaccinate the infant as an inpatient – and if not, start discharge planning to ensure this follow-up as an outpatient and before exit from the nutrition programme or service.

On discharge from inpatient care, inform the mother/caregiver about which vaccines the infant still requires and when and where to present to vaccination services. Remind the mother/caregiver to keep the infant's home-based record safe and bring it to every future health contact.

6.4.2 Infants less than 6 months of age at risk of poor growth and development without SAM

Infants less than 6 months of age at risk of poor growth and development without SAM should not be prescribed routine antibiotics and should be prescribed antibiotics only for an identified clinical indication (e.g. pneumonia, meningitis).

If a specific medical condition is identified (e.g. severe pneumonia, skin infection, meningitis), the choice, dose and duration of the antibiotics and other medicines should follow the guidance in the WHO *Pocket book* *(5)* for that specific condition. Antibiotic regimens should be adapted to local resistance patterns.

6.5 Nutritional management

6.5.1 Summary of inpatient nutritional management for infants less than 6 months of age

Infants less than 6 months of age at risk of poor growth and development, including infants with SAM, should be exclusively fed with breastmilk. The primary focus of nutritional management of inpatient and outpatient infants less than 6 months of age at risk of poor growth and development is maintaining and/or restoring exclusive breastfeeding before discharge.

Breastfeeding counselling and support (see *Box 17*) is the central component of nutritional management of infants less than 6 months of age at risk of poor growth and development, including infants with SAM.

When an infant cannot be exclusively breastfed, appropriately trained health workers (e.g. breastfeeding counsellors) are required to provide support for relactation (see *Box 18*).

Important

Never miss an opportunity to vaccinate!

To reduce *missed opportunities for vaccination*, any contact with an infant less than 6 months of age at risk of poor growth and development, with a child with MAM or SAM, and with their siblings and caregivers is an opportunity to review their home-based record and ensure they are up to date with their vaccinations *(37)*.

Inpatient management should not cause infants to miss scheduled vaccines. Ensure trained staff are available to vaccinate infants admitted for inpatient management.

If it is not possible to vaccinate at this contact point, the infant should be referred for vaccination.

All vaccines included in the national vaccination programmes should be provided to children in nutrition programmes and services, as a minimum. See also the *WHO recommendations for routine immunization* *(38)*.

On enrolment into outpatient care:

- **assess the infant for eligibility for vaccinations within the national vaccination programme, and either vaccinate the infant directly or refer to the appropriate service;**
- **give the mother/caregiver a home-based vaccination record if they do not already have one;**
- **counsel the mother/caregiver on the importance of completing the child's vaccination schedule, using clear and understandable terms.**

Vaccinate the infant after they have been stabilized clinically and nutritionally or before discharge if possible or eligible. If vaccination is not possible at this point, vaccinate the infant before discharge from inpatient care.

Do not vaccinate the infant if they are acutely unwell (including with a fever over 38.5 °C) and/or admitted to intensive care – in this case, postpone vaccination until recovery. Mild concurrent infections are not a contraindication to vaccination.

For infants with suspected or confirmed HIV infection:

- **Bacillus Calmette-Guérin (BCG) vaccination is contraindicated in infants with untreated HIV. BCG vaccination should be delayed until antiretroviral therapy has been started and the infant is immunologically stable (CD4 > 25%) *(40)*.**
- **Infants with primary immunodeficiency disorders should receive inactivated poliovirus vaccine rather than oral polio vaccine *(41)*. Inactivated poliovirus vaccine or oral polio vaccine may be administered safely to infants living with HIV who are clinically well and immunologically stable (CD4 > 25%). HIV testing is not a prerequisite for vaccination.**
- **All other attenuated live vaccines (e.g. measles, rotavirus, yellow fever) can be administered in clinically stable infants in inpatient care.**
- **All non-live vaccines can be administered to all clinically stable infants in inpatient care (diphtheria, tetanus, pertussis, polio, hepatitis B and *Haemophilus influenzae* (DPT-Hib-HepB), pneumococcal conjugate vaccine (PCV), meningococcal conjugate vaccine (MenA)).**

Always check and complete the tetanus vaccination status of the infant's mother and other female caregivers of childbearing age. Never miss an opportunity to vaccinate.

If relactation is not possible, identifying and supporting a wet-nurse or – only if neither relactation nor wet-nursing is possible – replacement feeding, including a plan for post-discharge from inpatient care, is necessary.

Nutritional management occurs concurrently with medical management. Stabilizing an infant admitted for inpatient care remains a priority, but nutritional management should not be delayed until medical conditions are fully resolved. Nutritional management should be initiated alongside medical care as soon as it is safe for the infant to receive enteral nutrition. Once underlying medical conditions have been stabilized and treatment has been initiated, the focus should be on identifying and addressing feeding problems causing or contributing to the infant's poor growth and development.

An effective nutritional management plan includes the following:

- comprehensive feeding assessment;
- intensive breastfeeding support, including for relactation to increase breastmilk supply or wet-nursing;
- supplementary milk if needed;
- medical, psychosocial and nutritional care for the mother/caregiver;
- planning transfer to outpatient care for growth monitoring, nutritional support (breastfeeding counselling and/or replacement feeding support) and psychosocial support;
- handover to outpatient services for ongoing support and surveillance.

Box 17

Breastfeeding counselling and support

Breastfeeding counselling and support is an essential component of inpatient care for infants less than 6 months of age at risk of poor growth and development. Management should focus on addressing breastfeeding challenges and supporting lactation so the infant can maintain adequate weight gain and healthy growth after exclusive breastfeeding is restored.

Effective breastfeeding counselling requires the mother/caregiver to feel safe enough to disclose all relevant information about her health, personal circumstances, knowledge, beliefs and behaviours.

When an infant is admitted for inpatient nutritional management, the mother/caregiver may be frightened. They may feel embarrassed or ashamed and fear being blamed by the staff for failing to feed the infant properly. They may feel guilty or blame themselves for "allowing" the infant to become ill.

A skilled breastfeeding counsellor supports the mother/caregiver to process these feelings, understand why the infant has become so unwell, and provide knowledge, skills and practical support to develop a plan of action that is feasible for the mother/caregiver to implement, given the unique constraints of the situation.

Support for mothers/caregivers of infants who cannot be breastfed should not be seen as separate from breastfeeding counselling. These families need counselling around reducing the risks of replacement feeding, preparing, storing and feeding commercial infant formula hygienically, and responsive feeding.

Breastfeeding counselling and support are time-intensive activities that involve eliciting and listening to concerns, discussing questions, normalizing and contextualizing infant behaviours, observing interactions, and supporting the development of skills and confidence.

Breastfeeding counselling and support usually cannot be absorbed into the normal workload of nurses. Dedicated breastfeeding counsellors should be included in the health-care team. Breastfeeding counsellors must be trained and equipped with the competencies described in Box 19.

Access to International Board-certified lactation consultants or equivalently qualified personnel for mentoring breastfeeding counsellors and for escalating more complicated cases may improve quality of care and secure better outcomes for infants.

Box 18

Relactation

Support for relactation does not differ significantly from routine breastfeeding counselling and support.

Lactation can be stimulated in a woman who has stopped breastfeeding (recently or some time ago) or in a woman who has never been pregnant or breastfed before. A woman who has never been pregnant may be willing to relactate to wet-nurse an infant who cannot be breastfed by the mother. Many women relactate to wet-nurse when a relative is unable to breastfeed.

Supporting a woman to relactate is the same as supporting a woman to increase her breastmilk production. It requires very frequent breastfeeding or expressing throughout the day and night. Stimulating lactation requires stimulating the production of the hormone prolactin, which provokes development of secretory alveoli in the breasts of non-lactating women and milk secretion in the alveoli of women who have begun to lactate.

Prolactin is produced in response to nipple stimulation, either by an infant willing to suckle at the breast or by using the same technique required for expressing breastmilk (either by hand or with a breast pump). The prolactin response is strongest at night – it is important, therefore, to breastfeed or express frequently overnight and during the day, even when little or no milk is being produced. Increasing the frequency and duration of nipple stimulation is likely to speed up the process.

Once milk secretion has begun, milk must be removed from the breast – either by an infant willing to suckle at the breast or by expressing the milk – very frequently to build the volume of milk produced. Allowing milk to remain in the breast inhibits further milk production. The more frequently milk is removed, the more quickly the volume of milk produced increases.

Milk production may be observed as soon as 2–6 days after beginning frequent nipple stimulation and may occur earlier in women who have stopped breastfeeding more recently. Many mothers can achieve exclusive breastfeeding after 2–3 weeks if milk is removed frequently during the day and night, but this is highly variable and may take longer for some women.

Box 19

Essential breastfeeding counselling competencies

Breastfeeding counsellors should be able to demonstrate the following competencies:

1 Apply requirements of the *International Code of Marketing of Breast-milk Substitutes (61)* in practice.
2 Interpret and apply IYCF policies in practice.
3 Use effective listening, learning and communication skills to provide breastfeeding support and care.
4 Apply breastfeeding knowledge to assess and support breastfeeding.
5 Provide antenatal and postnatal breastfeeding support and care.
6 Support initiation of breastfeeding within the first hour after birth.
7 Provide support for expressing, storing ad feeding breastmilk when infants and young children are not feeding exclusively at the breast.
8 Identify, prevent and support resolution of common breastfeeding challenges.
9 Support feeding of small, sick and/or preterm infants.
10 Protect and support breastfeeding when an infant needs supplemental milk feeding.
11 Coordinate and facilitate continuity of care for breastfeeding mothers and infants.

6.5.2 Comprehensive feeding assessment

Nutritional management for any infant less than 6 months of age at risk of poor growth and development always begins with a comprehensive feeding assessment to identify and address feeding problems that may be causing or contributing to poor growth and development.

The most common feeding problems that contribute to poor growth and development are:

- feeding fluids or foods other than breastmilk, which interrupts exclusive breastfeeding and makes infants more vulnerable to infection;
- insufficient milk intake, which is most commonly due to poor milk transfer, infrequent breastfeeding, or giving frequent breastfeeds of insufficient duration.

Important

Rebuilding breastmilk intake with supply and demand

Feeding foods or fluids other than breastmilk reduces the amount of breastmilk the infant removes from the breast. Reducing the amount of milk the infant removes from the breast reduces the amount of milk the mother's body produces.

Restoring exclusive breastfeeding requires paying attention to the infant's capacity to remove milk effectively from the breast and ensuring milk is removed from the breast while the infant's strength and proficiency improve.

Increasing the volume of milk removed from the breast by breastfeeding more frequently and for longer at each feed, correcting attachment so the infant removes milk more effectively, or removing more milk from the breast (by expressing in addition to breastfeeding until the infant is able to breastfeed or breastfeed effectively) increases the daily volume of milk produced.

A comprehensive feeding assessment investigates the following:[4]

- Feeding practices: assessment of feeding practices can be used to determine what and how the infant is fed. Any infant less than 6 months of age who is not exclusively breastfed is at risk of poor growth and development. Giving an infant less than 6 months of age any food or fluid other than breastmilk greatly increases their risk of infectious diseases (e.g. diarrhoea, pneumonia), which increases the risk of malnutrition.
- Urine and stool output: urine and stool output is an effective measure of intake. An infant who is wetting fewer than six nappies or clothing used as nappies in 24 hours is not getting enough breastmilk, especially if the urine is dark yellow and has a strong smell. An infant aged 1–6 weeks[5] who is getting enough breastmilk will pass copious, unformed, yellow or light-brown stools at least three times a day. From around age 6 weeks, the infant may pass stool as seldom as once a week. The main thing is to ask whether there have been any noticeable changes in the infant's stooling pattern over the past few days and to assess whether these are part of normal variation.

4 Guidance in this subsection is adapted from *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals, 2nd ed (62)*.

5 Healthy, well-nourished term infants pass one stool for each day of life for the first 5 days after birth (one on day 1, increasing to four or more on day 4). During this time, stools lighten in colour from black and sticky to yellow and unformed or even liquid.

- Feed frequency: infants less than 6 months of age need to breastfeed at least 8–10 times every 24 hours, including at least once overnight.
- Positioning and attachment: this requires observing at least one full breastfeed to identify and address attachment problems that interfere with milk transfer or injure the mother's nipples. A full breastfeed lasts from the time the infant is first offered the mother's breast until the infant finishes suckling and releases the second breast. This usually takes around 15–20 minutes for a healthy infant aged over 1 month, but it may take up to 40 minutes.
- Milk transfer at the breast: milk transfer occurs when the infant swallows milk. Swallowing can be observed when the infant's suckling becomes long and deep, and their chin pauses at its lowest point (widest jaw) during suckling while the infant swallows. The swallow can also be observed as a wave-like motion that begins under the infant's chin.
- Other risk factors: these include (but are not limited to) low birthweight, multiple births, disability, separation from mother (including death of the mother), and intimate partner violence.
- Mental and physical health of the mother/caregiver: this includes nutritional status, illness, injury, disability, sexual or gender-based violence, adolescence, perinatal depression or anxiety, primiparity, living with HIV, TB infection, bereavement and financial distress. See Section 12 for more guidance and resources on assessing and supporting the mother/caregiver.

See Annex 21 for an example of a comprehensive feeding assessment tool.

6.5.3 Breastfed infants with SAM or severely underweight

Infants less than 6 months of age with SAM or severely underweight (WAZ < –3) who need inpatient care often have considerable metabolic derangements in addition to acute medical problems. Current WHO recommendations are for these infants to receive supplementary feeding – in addition to breastfeeding – to restore and stabilize metabolic function while any breastfeeding and lactation concerns are addressed.

The ideal scenario is that expressed breastmilk is used for this supplementary feed (in addition to feeding at the breast) to closely monitor nutritional intake. If sufficient expressed breastmilk is not available to make up the supplementary feed, a therapeutic milk or commercial generic infant formula is used in addition to the available expressed breastmilk. The mother or wet-nurse should be supported to express breastmilk more frequently, including at night, until sufficient expressed breastmilk is available or the infant's needs can be met through breastfeeding alone.

Nutritional management should include the following steps (which may occur simultaneously or in a slightly different order):

- Provide intensive breastfeeding support to identify and address breastfeeding issues.
- Establish kangaroo care.
- Support breastmilk expression to increase breastmilk output.
- Start supplementary feeds.
- Monitor clinical status, outputs, breastfeeding and weight gain.
- Update supplementary feed volumes according to the infant's response.
- Transfer the infant to outpatient services for follow-up care.

6.5.3.1 Providing intensive breastfeeding support to identify and address breastfeeding issues

The mother or wet-nurse may need intensive, ongoing breastfeeding counselling and support to identify and address the causes of the infant's undernutrition (see *Box 17*). Breastfeeding counselling and support may be required as often as two or three times a day. The frequency of counselling contacts required may reduce as the infant's inpatient care progresses and feeding problems resolve.

The infant's breastmilk intake usually increases quickly when the mother is supported to improve positioning and attachment, breastfeed at least 8–10 times a day, and express to remove more breastmilk from her breasts.

Actions include the following:

- Observe breastfeeding regularly to identify barriers to milk transfer from the breast to the infant and specific concerns for the mother–infant pair.
- Correct positioning and attachment, if needed.
- Teach the mother or wet-nurse to express breastmilk by hand or with a breast pump.
- Encourage the mother or wet-nurse to offer both breasts twice at every feed.
- Show the mother or wet-nurse how to recognize and respond to the infant's hunger cues.
- Teach the mother or wet-nurse to recognize signs of sufficient milk intake (e.g. urine and stool output).
- Encourage and support the mother or wet-nurse to breastfeed responsively and at least every 2–3 hours

(before supplementary feeds), including at least once overnight (adapted to the age of the infant).

6.5.3.2 Establishing kangaroo care

Kangaroo care is continuous and prolonged (8–24 hours a day, or for as many hours as possible) skin-to-skin contact with the mother/caregiver. Kangaroo care is recommended as routine care for all preterm and low-birthweight infants, but it also has benefits for many infants less than 6 months of age, including those at risk of poor growth and development, with or without SAM.

Kangaroo care improves metabolic stability, reduces energy demand, increases breastmilk production, facilitates responsive feeding, improves the infant's thermoregulation, and facilitates positive interactions between the mother/caregiver and infant.

Kangaroo care should be provided during inpatient care and can be continued while the mother expresses breastmilk.

See the following for guidance on kangaroo care:

- *Kangaroo mother care: a clinical practice guide (47)*
- *Parent counselling guide on kangaroo mother care (KMC) (48)*
- *Kangaroo mother care: implementation strategy for scale-up adaptable to different country contexts (63)*
- *WHO recommendations for care of the preterm or low-birth-weight infant (64).*

6.5.3.3 Supporting breastmilk expression to increase breastmilk output

Frequent breastfeeding is usually the most efficient strategy for removing milk from the breast and increasing milk production. If the infant is unable to remove milk from the breast effectively, the milk must be removed manually. If the infant is not swallowing during breastfeeding, the mother may be producing very little milk or the infant may be unable to remove milk from the breast. Removing milk from the breast by expressing breastmilk frequently increases the amount of milk the mother's body makes.

Actions include the following:

- Provide comfort, safety and privacy for the mother or wet-nurse to effectively express breastmilk.
- Support the mother or wet-nurse to express breastmilk by hand or with a breast pump and personal collection kit as soon as possible after admission.
- Encourage the mother or wet-nurse to express each breast for at least 20 minutes, beginning around 20–30 minutes after breastfeeding. It may take 3 days or more to notice any increase in milk output. The mother or wet-nurse should continue expressing even if no milk is expressed initially, because the nipple stimulation caused by expressing increases the secretion of hormones necessary for lactation.
- Provide equipment to express and feed expressed breastmilk, and to clean the equipment and perform hand hygiene. Ideally, the mother or wet-nurse should not have to leave the infant's bedside to express breastmilk. Teach the mother or wet-nurse to clean the equipment appropriately.
- If a multiuser electric breast pump is available, a double-collection kit can reduce the amount of time it takes to express breastmilk.
- Support the mother or wet-nurse to feed expressed breastmilk to the infant using the supplementary suckling technique or from a cup or with a spoon (see Annex 18).
- Breastmilk that is not used within 2 hours (if the room temperature is above 22 °C) or 4 hours (if the room temperature does not exceed 22 °C) should be discarded (*65, 66*).

See the following for guidance on expressing breastmilk:

- *Hand expressing technique (67)*
- *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals, 2nd ed (62)*
- *Hand expression and container (68)*
- *The community infant and young child feeding counselling package: counsellor's book part 1 – key practices (69)*
- *Assessment of breastmilk expression checklist (70).*

6.5.3.4 Starting supplementary feeds

For infants less than 6 months of age with SAM or severely underweight, supplementary feeds (in addition to breastmilk) should be given in a controlled and monitored way to avoid dangerous conditions such as refeeding syndrome (see Annex 19). Restoring and stabilizing metabolic function and restoring exclusive breastfeeding are complementary treatment goals.

Box 20

Types of supplementary milk

- The available evidence does not support the use of any one type of supplementary milk (F-100 milk diluted, F-75 milk or commercial generic infant formula) over another or suggest a hierarchy of types of supplementary milk.
- The decision of which supplementary milk to use should be driven by contextual considerations, which may be sociocultural or related to logistic and resource considerations:
  - ⇢ In some contexts, F-100 milk diluted may be considered the more appropriate choice. Staff on the ward can assure the mother/caregiver that this is a therapeutic milk that can only be used in hospital to help the infant until exclusive breastfeeding can be resumed, and it is important to stay in the hospital before it is safe and appropriate to go home.
  - ⇢ If there is a concern that the use of infant formula in hospital could be giving an incorrect message that medical staff think this is a "gold standard" of milk over breastmilk, it may be better to use F-100 milk diluted.
  - ⇢ If there are frequent stockouts of F-100 milk but commercial infant formula is easier to access, it may be better to use commercial infant formula.
- If, after all efforts by the mother/caregiver and the hospital team, it is assessed that the infant will not be able to receive breastmilk (e.g. mother is deceased, no wet-nurse is available), the infant will have to go home on a replacement milk (commercial infant formula). In this case, infant formula may be used during inpatient admission, or therapeutic milk may be used and then swapped to infant formula a few days before discharge. The mother/caregiver must be supported to give infant formula safely and correctly at home.

In order of preference, the following supplementary milks can be used:

- Breastmilk:
  - ⇢ From the breast (i.e. breastfeeding); if not possible or sufficient, use expressed breastmilk.
  - ⇢ Aim for a total of 130 mL/kg/day. This is often difficult to calculate when breastfeeding and giving expressed breastmilk at the same time, but expressed milk volumes can be recorded and monitored.
- Therapeutic milk: F-100 milk diluted[6] (or F-75 milk if the infant has oedema) or commercial (generic) infant formula:
  - ⇢ A range of 80–100 kcal/kg/day can be given, usually starting at 80 kcal/kg/day for infants who are less clinically stable and more prone to refeeding syndrome (see Annex 19). Using the lower end of the range should also be considered for any infant who shows signs of feeding intolerance, even if the infant is otherwise clinically stable.

Supplementary milk feeds should be given every 2–3 hours. The volume to give depends on which milk is used (see reference tables in Annexes 26 and 27).

To give supplementary milk:

- Use the supplementary suckling technique (see Section 4.6.7 and Annex 18). This technique encourages the infant to breastfeed more frequently and vigorously. If supplementary suckling is not possible even after intensive support, encourage the mother to breastfeed first (remembering to offer both breasts twice) before offering supplementary milk from a feeding cup/paladai or spoon. Feeding cups/paladais are especially good for small infants (see Section 4.6.7 and Annex 18).
- Avoid using feeding bottles and teats, because they are difficult to clean and increase the risk of contamination.
- When giving supplementary feeds from a cup or spoon, practise responsive feeding (see *Box 21*). If the infant shows signs of satiety (e.g. turning away from the cup or spoon) or does not finish the complete dose of supplementary milk, smaller feeds may be offered more frequently.
- As the infant's breastmilk intake increases, the capacity to suckle effectively and transfer the volume of breastmilk needed each day usually improves.
- An infant who is consistently unable or unwilling to consume enough milk should be referred for medical management, including assessment of oral motor function, possible admission to an intensive care ward (if available), and consideration for nasogastric tube feeding (see Section 4.6.7).

6 F-100 milk diluted is F-100 milk plus 30% extra water as needed for normal preparation of F-100 milk. See Annex 25 for preparation of F-100 milk diluted. F-100 milk diluted provides an adequate balance of nutrients with a similar calorie density to breastmilk.

Box 21

Responsive feeding

- Responsive feeding encourages the infant to eat autonomously and in response to physiological and developmental needs, which may encourage self-regulation in eating and support cognitive, emotional and social development.
- Responsive feeding means encouraging the infant to feed while remaining attentive to their hunger and satiety cues, feeding slowly and patiently, and encouraging the infant to control the pace of the feed.
- Minimize distractions during feeding and encourage the mother/caregiver to maintain eye contact with the infant. Feeding times are periods of learning and bonding. Encourage the mother/caregiver to talk to the infant during feeding.
- When feeding milk from a cup or spoon, the mother/caregiver should remain attentive to the infant's behavioural signals. It is normal for the infant to pause or rest during feeding, often indicated by turning their head away.
- The infant should be supported in an upright position for feeding. Milk should never be placed in the infant's mouth. Instead, the feeding vessel should be placed on the infant's bottom lip so the infant can actively transfer the milk into their mouth and stop when they have had enough.
- Allow the infant to take short breaks during feeds, and do not force the infant to complete the feed.
- Recommended volumes can be used to estimate how much milk the infant needs, but the mother/caregiver should be encouraged to notice and respond to satiety cues. Offering smaller, more frequent feeds usually increases daily milk intake.

See the following for further information and guidance:

- *Nurturing young children through responsive feeding (71)*
- *The community infant and young child feeding counselling package (72)*.

6.5.3.5 Monitoring clinical status, outputs, breastfeeding and weight gain

- Clinical status:
  - ⇢ Assess the clinical status of the infant and the mother/caregiver daily, and more frequently if indicated by findings on the ward round or reported by the mother/caregiver or a ward staff member. This includes a brief assessment of all systems (e.g. cardiovascular, respiratory, gastrointestinal – see Annexes 1 and 2 for guidance). Note that a more in-depth assessment of systems should have been performed on admission.
  - ⇢ Ask the mother/caregiver how they think the infant is progressing and address any questions they ask.
  - ⇢ Ask the mother/caregiver whether they have any problems or concerns related to their own physical or mental health (see Section 12), and address these or refer to other services as needed.
- Outputs:
  - ⇢ Measure and record urine and stool outputs as per guidance in the comprehensive feeding assessment (see Section 6.5.2).
- Breastfeeding:
  - ⇢ Carry out a daily (or more frequent, if indicated) breastfeeding assessment (see Section 6.5.2 and Annex 20).
  - ⇢ Observe feeding times when the mother/caregiver gives supplementary milk to offer support and monitor that the infant is getting the prescribed quantities. Use this time to assess mother/caregiver–infant interactions and behaviours, and offer support or referral if needed.
- Weight gain:
  - ⇢ The infant may not gain significant weight initially. The goal for the first few days is for metabolic stabilization and feed tolerance. Infants with nutritional oedema may initially lose weight as the oedema resolves but should then quickly regain weight.
  - ⇢ As a guide, the infant should start gaining more than 20 g/day[7] in an inpatient setting once they are clinically and metabolically stabilized and receiving supplementary feeds in addition to breastfeeding.

7 One of the criteria to identify an infant at risk of poor growth and development is weight gain of less than approximately 150–200 g/week from birth to age 3 months, which amounts to approximately 20–30 g/day. Although weight gain reduces in velocity from age 3–6 months (approximately 100–150 g/week), weight gain of more than 20 g/day can be used as a practical guide, especially in low-resource contexts where more in-depth calculations may not be possible.

Note

Weight gain of more than 20 g/day can be difficult to calculate initially and needs at least 5–7 days to give an accurate representation. Weight gain can occur in spurts and may not be constant. In general, satisfactory weight gain is specific to the infant and needs careful clinical assessment from a multidisciplinary team.

6.5.3.6 Updating supplementary feed volumes according to the infant's response

- If outputs and weight gain are sustained for 3–4 days after the infant is clinically stable and supplementary milk is started:
  - Reduce the quantity of supplementary feed to 75% of the quantity initially prescribed, increase breastfeeding frequency, and continue to monitor output, weight gain, breastfeeding and clinical status.
  - When the infant has sustained satisfactory weight gain for 2–3 days, reduce the quantity of supplementary milk to 50% of the initial quantity.
  - Repeat this process down to 25%, until the infant is no longer receiving supplementary milk and exclusive breastfeeding is restored.
  - The infant may naturally reduce intake of supplementary milk as breastfeeding problems are addressed, effective milk transfer is restored and lactational output is re-established.
- If outputs and weight gain are not sustained for 2–3 days after the infant is clinically stable and supplementary milk is started:
  - Add an extra 5 mL of expressed breastmilk (or commercial generic infant formula, F-75 milk or F-100 milk diluted) to each feed. If the infant still does not gain weight after 1–2 days, consider intolerance or malabsorption (see Section 4.6.8). and carry out a full medical review for any new or missed diagnoses.
  - Repeat the process until the infant is stabilized and starts to gain weight.

See Annex 30 for a summary of this management.

6.5.3.7 Transferring the infant to outpatient services for follow-up care

See Section 6.8 for specific discharge criteria and procedures. In summary:

- When the infant is exclusively breastfeeding and continues to gain weight consistently for 2–3 days, and the mother is confident in her ability to breastfeed responsively and assess the daily breastmilk intake (by observing urine and stooling pattern – see Section 6.5.2), the infant can be transferred to outpatient services for follow-up care (see *Box 22*).
- Avoid transferring infants who are not exclusively breastfed to outpatient care, wherever possible. If the infant's dependence on supplementary milk persists despite intensive breastfeeding counselling and support, and the limit of available care is reached (including all efforts to find a wet-nurse), and transfer is unavoidable:
  - Initiate partial or total replacement feeding (see Section 6.5.4).
  - Counsel the mother/caregiver on preparation, storage and feeding of infant formula.
  - Emphasize the importance of attending outpatient care on the given date and continuing until the infant is aged 6 months, at which point they will receive a full evaluation and referral for next steps.

Important

Infants who use only infant formula are particularly vulnerable and should receive special attention from the health and social welfare systems, with close follow-up and monitoring in outpatient care.

Box 22

Outpatient follow-up of infants aged less than 6 months

Outpatient services that follow up infants less than 6 months of age at risk of poor growth and development, with or without SAM, until they reach age 6 months and beyond may be delivered at different points within the health system, according to context.

Ideally, these services should be delivered alongside other health services rather than as vertical programmes, for a whole-child approach. Mothers/caregivers should be able to access health services for themselves at the same locations.

6.5.4 Non-breastfed infants with SAM or severely underweight

Nutritional management should include the following steps (which may occur simultaneously or in a slightly different order):

- Provide counselling to explore relactation or wet-nursing.
- Start therapeutic feeding.
- Monitor clinical status, outputs, breastfeeding and weight gain.
- Update therapeutic milk volumes according to the infant's response.
- Transfer the infant to outpatient services for follow-up care.

6.5.4.1 Providing counselling to explore relactation or wet-nursing

Conduct a comprehensive feeding assessment to determine whether:

- the mother is available and willing to re-establish breastfeeding (relactation – see *Box 18*);
- the mother/caregiver is willing to breastfeed or find another woman (usually a relative) who is willing to wet-nurse.

If the mother or another woman is willing to breastfeed the infant, the infant should be managed as for breastfed infants (see Section 6.5.3). If the mother is not willing to initiate relactation or has tried unsuccessfully, or a wet-nurse cannot be identified, ongoing education and counselling should be provided to prepare the mother/caregiver for managing replacement feeding independently after the infant is transferred to outpatient care.

See the following for more guidance on wet-nursing (note these are for emergency contexts, but many principles can be used for other contexts):

- *Technical and operational guidance for increasing access to breastmilk through wet nursing in emergency settings (73)*
- *Wet nursing screening tool (74)*
- *Supporting wet nursing during emergencies: a guide for frontline workers working in emergency preparedness and response (75).*

6.5.4.2 Starting therapeutic feeding

Types of therapeutic milk:

- F-100 milk diluted;[8]
- F-75 milk (if the child has oedema);
- commercial (generic) infant formula.

> **Note**
> **The available evidence does not support the use of any one type of supplementary milk (F-100 milk diluted, F-75 milk or commercial generic infant formula) over another or suggest a hierarchy of types of supplementary milks (see Box 20).**

Quantity of therapeutic milk:

- A range of 80–100 kcal/kg/day can be given, usually starting at 80 kcal/kg/day for infants who are less clinically stable and more prone to refeeding syndrome (see Annex 19). Using the lower end of the range should also be considered for any infant who shows signs of feeding intolerance, even if they are otherwise clinically stable.
- Supplementary milk feeds should be given every 2–3 hours. The volume to give depends on which milk is used (see reference tables in Annexes 28 and 29).

How to give therapeutic milk:

- Use a feeding cup/paladai or spoon. Feeding cups are especially good for small infants (see Section 4.6.7 and Annex 18).
- Avoid using feeding bottles and teats, because they are difficult to clean and increase the risk of contamination.

8 F-100 milk diluted is F-100 milk plus 30% extra water as needed for normal preparation of F-100 milk. See Annex 25 for preparation of F-100 milk diluted. F-100 milk diluted provides an adequate balance of nutrients with a similar calorie density to breastmilk.

- When giving supplementary feeds from a cup or spoon, practise responsive feeding (see *Box 21*). If the infant shows signs of satiety (e.g. turning away from the cup or spoon) or does not finish the complete dose of supplementary milk, smaller feeds may be offered more frequently.
- Infants who are consistently unable or unwilling to consume enough milk should be referred for medical management, including assessment of oral motor function, possible admission to an intensive care ward (if available), and consideration for nasogastric tube feeding (see Section 4.6.7).

6.5.4.3 Monitoring clinical status, outputs, breastfeeding and weight gain

- Clinical status:
  - ⇢ Assess the clinical status of the infant and mother/caregiver daily, and more frequently if indicated by findings on the ward round or reported by the mother/caregiver or a ward staff member. This includes a brief assessment of all systems (e.g. cardiovascular, respiratory, gastrointestinal – see Annexes 1 and 2 for guidance). A more in-depth assessment of systems should have been performed on admission.
  - ⇢ Ask the mother/caregiver how they think the infant is progressing, and address any questions they ask.
  - ⇢ Ask the mother/caregiver whether they have any problems or concerns related to their own physical or mental health (see Section 12), and address these or refer to other services as needed.
- Outputs:
  - ⇢ Measure and record outputs as per guidance in the comprehensive feeding assessment (see Section 6.5.2).
- Weight gain:
  - ⇢ The infant may not gain significant weight initially. The goal for the first few days is for metabolic stabilization and feed tolerance. Infants with nutritional oedema may initially lose weight as the oedema resolves but should then quickly regain weight.
  - ⇢ As a guide, the infant should start gaining more than 20 g/day once they are clinically and metabolically stabilized and receiving therapeutic milk.

> ***Note***
> **Weight gain of more than 20 g/day can be difficult to calculate initially and needs at least 5–7 days to give an accurate representation. Weight gain can occur in spurts and may not be constant. In general, satisfactory weight gain is likely to be specific to the infant and needs careful clinical assessment from a multidisciplinary team.**

6.5.4.4 Updating therapeutic milk volumes according to the infant's response

- If outputs and weight gain are sustained for 3–4 days after therapeutic feeding is started and there are no signs of feed intolerance or other medical problems related to milk intake, increase the volume of milk in steps:
  - ⇢ Infant currently on 80 kcal/kg/day: increase to 100 kcal/kg/day for 3–4 days.
  - ⇢ Infant currently on 100 kcal/ kg/day: increase to 120 kcal/kg/day for 3–4 days.
  - ⇢ The amounts to give differ according to which milk is used (see reference tables in Annexes 28 and 29) and monitoring of the infant's clinical response and weight gain. It is important to monitor closely for signs of refeeding syndrome as nutritional delivery increases.
  - ⇢ Many infants recover from SAM, grow well and gain satisfactory weight on 100–120 kcal/kg/day, but some infants require up to 150 kcal/kg/day. How much the infant needs is determined by monitoring for signs of intolerance and looking for hunger cues at the end of a feed as part of practising responsive feeding by the mother/caregiver supported by health workers during inpatient care.
- If output and gains are not sustained for 3–4 days after therapeutic feeding is started and/or there are signs of feed intolerance or other medical problems related to milk intake:
  - ⇢ Carry out medical re-evaluation (see Sections 3.2 and 3.3) to look for a missed or new medical diagnosis that could be leading to this lack of response to nutritional management.
  - ⇢ Assess for common issues related to therapeutic feeding and potential solutions (see Section 4.6.8 and Annex 19).
  - ⇢ Try increasing the volume again (see above) when the infant is stabilized and starts to gain weight.

6.5.4.5 Transferring the infant to outpatient services for follow-up care

See Section 6.8 for specific discharge criteria and procedures. In summary:

- When the infant is clinically stable and continues to gain weight consistently for 2–3 days (after all adjustments have been made to quantities, as above), there are no signs of feed intolerance, and the mother/caregiver is confident in their ability to prepare, store and feed commercial generic infant formula hygienically and responsively at home (see the replacement feeding discharge assessment in Annex 22), the infant can be transferred to outpatient services for follow-up care (see *Box 22*).
- Emphasize the importance of attending outpatient care on the given date and continuing until the infant is aged 6 months, at which point they will receive a full evaluation and referral for next steps.
- Non-breastfed infants are particularly vulnerable and should receive special attention from the health and social welfare systems, with close follow-up and monitoring in outpatient care.
- For volumes of infant formula to give at home, see Section 6.8.2 and Annex 22.

6.5.5 Breastfed infants without SAM and not severely underweight

Infants categorized as being at risk of poor growth and development without SAM and who are not severely underweight (WAZ < −3) but who do have criteria for inpatient admission (medical, feeding-related or psychosocial) are highly likely to have increased nutritional needs.

For some infants, their illnesses may not be related directly to their nutritional status, but the increased nutritional demands imposed by acute illness may cause or exacerbate undernutrition. These infants and their mothers/caregivers require nutritional support to restore normal growth and prevent developmental deficits.

For other infants (breastfed or non-breastfed), their inpatient admission may be clearly related to feeding problems, and the focus of their admission will be nutritional support and medical management of any medical problems.

Nutritional management should include the following steps (which may occur simultaneously or in a slightly different order):

- Provide counselling to address breastfeeding issues, if needed.
- Establish kangaroo care.
- Support breastmilk expression to increase breastmilk output.
- Monitor clinical status, outputs, breastfeeding and weight gain.
- Progress to exclusive breastfeeding, increase expressed breastmilk or start a supplementary milk
- Transfer the infant to outpatient services for follow-up care.

6.5.5.1 Providing counselling to address breastfeeding issues

If breastfeeding concerns is a criterion that has identified an infant as being at risk of poor growth and development and is severe enough to need inpatient management (i.e. not safe to manage the infant as an outpatient), the mother or wet-nurse will need intensive, ongoing breastfeeding counselling and support to identify and address the concerns to enable healthy growth, weight gain and development of the infant.

Breastfeeding counselling and support may be required as often as two or three a times day. The frequency of counselling contacts required may reduce as inpatient care progresses and feeding problems resolve.

Actions include the following:

- Observe breastfeeding regularly to identify barriers to milk transfer from the breast to the infant and specific concerns for this mother–infant pair.
- Correct positioning and attachment, if needed.
- Teach the mother or wet-nurse to express breastmilk by hand or with a breast pump.
- Encourage the mother or wet-nurse to offer both breasts twice at every feed.
- Show the mother or wet-nurse how to recognize and respond to the infant's hunger cues.
- Teach the mother or wet-nurse to recognize signs of sufficient milk intake (e.g. urine and stool output).
- Encourage and support the mother or wet-nurse to breastfeed responsively and at least every 2–3 hours (before supplementary feeds), including at least once overnight (adapted to the age of the infant).

6.5.5.2 Establishing kangaroo care

Kangaroo care is continuous and prolonged (8–24 hours a day, or for as many hours as possible) skin-to-skin contact with the mother/caregiver. It is recommended as routine care for all preterm and low-birthweight infants. It also has benefits for many infants less than 6 months of age, including those at risk of poor growth and development, with or without SAM.

Kangaroo care improves metabolic stability and reduces energy demand, increases breastmilk production, facilitates responsive feeding, improves thermoregulation, and facilitates positive interactions between the mother/caregiver and infant.

Kangaroo care can be continued while the mother expresses breastmilk.

See the following for more guidance on kangaroo care:

- *Kangaroo mother care: a clinical practice guide (47)*
- *Parent counselling guide on kangaroo mother care (KMC) (48)*
- *Kangaroo mother care: implementation strategy for scale-up adaptable to different country contexts (63)*
- *WHO recommendations for care of the preterm or low-birth-weight infant (64).*

6.5.5.3 Supporting breastmilk expression to increase breastmilk output

Frequent breastfeeding is usually the most efficient strategy for removing milk from the breast and increasing milk production. If the infant is unable to remove milk from the breast effectively, the milk must be removed manually. If the infant is not swallowing during breastfeeding, the mother may be producing very little milk, or the infant may be unable to remove milk from the breast. Removing milk from the breast by expressing breastmilk frequently increases the amount of milk the mother's body makes.

Actions include the following:

- Provide comfort, safety and privacy for the mother or wet-nurse to effectively express breastmilk.
- Support the mother or wet-nurse to express breastmilk by hand or with a breast pump and personal collection kit as soon as possible after admission.
- Encourage the mother or wet-nurse to express each breast for at least 20 minutes, beginning around 20–30 minutes after breastfeeding. It may take up to 3 days or more to notice any increase in milk output. The mother or wet-nurse should continue expressing even if no milk is expressed initially, because the nipple stimulation caused by expressing increases the secretion of hormones necessary for lactation.
- Provide equipment to express and feed expressed breastmilk, and to clean the equipment and perform hand hygiene. Ideally, the mother or wet-nurse should not have to leave the infant's bedside to express breastmilk. Teach the mother to clean the equipment appropriately.
- If a multiuser electric breast pump is available, a double-collection kit can reduce the amount of time it takes the mother to express breastmilk.
- Support the mother or wet-nurse to feed expressed breastmilk to the infant using the supplementary suckling technique or from a cup or spoon (see Annex 18).
- Breastmilk that is not used within 2 hours (if the room temperature is above 22 °C) or 4 hours (if the room temperature does not exceed 22 °C) should be discarded (62, 65, 66).

See the following for guidance on expressing breastmilk:

- *Hand expressing technique (67)*
- *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals, 2nd ed (62)*
- *Hand expression and container (68)*
- *The community infant and young child feeding counselling package: counsellor's book part 1 – key practices (69)*
- *Assessment of breastmilk expression checklist (70).*

6.5.5.4 Monitoring clinical status, outputs, breastfeeding and weight gain

- Clinical status:
  - ⇢ Assess the clinical status of the infant and mother/caregiver daily, and more frequently if indicated by findings on the ward round or reported by the mother/caregiver or a ward staff member. This includes a brief assessment of all systems (e.g. cardiovascular, respiratory, gastrointestinal – see Annexes 1 and 2 for guidance). A more in-depth assessment of systems should have been performed on admission.
  - ⇢ Ask the mother/caregiver how they think the infant is progressing, and address any questions they ask.
  - ⇢ Ask the mother/caregiver whether they have any problems or concerns related to their own physical or mental health (see Section 12), and address these or refer to other services as needed.
- Outputs:
  - ⇢ Measure and record outputs as per guidance in the comprehensive feeding assessment (see Section 6.5.2).
- Breastfeeding:
  - ⇢ Carry out a daily (or more frequently if indicated) breastfeeding assessment (see Section 6.5.2 and Annex 20).

- Weight gain:
  - ⇢ The infant may not gain significant weight initially. As a guide, the infant should start gaining more than 20 g/day[9] in an inpatient setting if breastfeeding is consistently effective and any medical problems have been stabilized or treated.

> ***Note***
> **Weight gain of more than 20 g/day can be difficult to calculate initially and needs at least 5–7 days to give an accurate representation. Weight gain can occur in spurts and may not be constant. In general, satisfactory weight gain is likely to be specific to the infant and needs careful clinical assessment from a multidisciplinary team.**

6.5.5.5 Progressing to exclusive breastfeeding, increasing expressed breastmilk or starting a supplementary milk

- Step 1: if outputs and weight gain are sustained for 2–3 days, continue to monitor output, weight gain, breastfeeding and clinical status while slowly reducing any expressed breastmilk that is being given alongside breastfeeding until the infant maintains satisfactory output and weight gains on breastfeeding alone. The infant may naturally reduce the intake of expressed breastmilk as breastfeeding problems are addressed, effective milk transfer is restored and lactational output is re-established.
- Step 2: if outputs and weight gain are not sustained for 2–3 days, increase the frequency with which the mother expresses breastmilk and consider giving supplementary milk (commercial generic infant formula) in addition to expressed breastmilk up to a total volume of 130 mL/kg/day (infant formula plus expressed breastmilk):
  - ⇢ If the infant still does not gain weight after 1–2 days, consider intolerance or malabsorption (see Section 4.6.8) and carry out a full medical assessment.
  - ⇢ Repeat Step 1 when the infant is stabilized and starts to gain weight.

6.5.5.6 Transferring the infant to outpatient services for follow-up care

See Section 6.8 for specific discharge criteria and procedures. In summary:

- When the infant is exclusively breastfeeding and continues to gain weight consistently for 2–3 days and the mother is confident in her ability to breastfeed responsively and assess the daily breastmilk intake (by observing urine and stooling pattern – see Section 6.5.2), the infant can be transferred to outpatient services for follow-up care (see *Box 22*).
- Avoid transferring infants who are not exclusively breastfed to outpatient care, wherever possible. If the infant's dependence on supplementary milk persists despite intensive breastfeeding counselling and support, and the limit of available care is reached (including all efforts to find a wet-nurse), and transfer is unavoidable:
  - ⇢ Initiate partial or total replacement feeding (see Section 6.5.4)
  - ⇢ Counsel the mother/caregiver on preparation, storage and feeding of infant formula.
  - ⇢ Emphasize the importance of attending outpatient care on the given date and continuing until the infant is aged 6 months, at which point they will receive a full evaluation and referral for next steps.

> ***Important***
> **Infants who use only infant formula are particularly vulnerable and should receive special attention from the health and social welfare systems, with close follow-up and monitoring in outpatient care.**

6.5.6 Non-breastfed infants without SAM or severely underweight

This includes infants at risk of poor growth and development but who are not severely wasted (WLZ < −3), do not have nutritional oedema, and are not severely underweight (WAZ < −3).

Infants categorized as being at risk of poor growth and development without SAM and who are not severely underweight (WAZ < −3) but who do have criteria for inpatient admission (whether medical, feeding related or psychosocial) are highly likely to have increased nutritional needs.

For some infants, their illnesses may not be directly related to their nutritional status, but the increased nutritional demands imposed by acute illness may cause or exacerbate undernutrition. These infants and their mothers/caregivers require nutritional support to restore normal growth and prevent developmental deficits.

9 One of the criteria to identify an infant as being at risk of poor growth and development is weight gain of less than approximately 150–200 g/week from birth to age 3 months, which amounts to approximately 20–30 g/day. Although weight gain reduces in velocity from age 3–6 months (approximately 100–150 g/week), weight gain of more than 20 g/day can be used as a practical guide, especially in low-resource contexts where more in-depth calculations may not be possible.

For other infants (breastfed or non-breastfed), their inpatient admission may be clearly related to feeding problems, and the focus of their admission will be nutritional support and medical management of any medical problems.

6.5.6.1 Providing counselling to explore relactation

Conduct a comprehensive feeding assessment to determine whether:

- the mother is available and willing to re-establish breastfeeding (relactation, see *Box 22*);
- the mother/caregiver is willing to breastfeed or find a relative who is willing to wet-nurse.

If the mother or another woman is willing to breastfeed, manage as for breastfed infants (see Section 6.5.5).

6.5.6.2 Providing ongoing education and counselling

If the mother/caregiver is not willing to initiate relactation, provide daily, ongoing education and counselling to prepare them to manage replacement feeding independently after transfer to outpatient care (see Annexes 12, 13 and 22).

6.5.6.3 Initiating replacement feeding

- Offer up to 130 mL/kg/day commercial (generic) infant formula every 2–3 hours using a feeding cup/paladai or spoon. Feeding cups/paladais are especially good for small infants (see Annex 18).
- When giving replacement feeds from a cup or spoon, practise responsive feeding (see *Box 21*). If the infant shows signs of satiety (e.g. turning away from the cup or spoon) or does not finish the feed, smaller feeds may be offered more frequently.
- Avoid using feeding bottles and teats, because they are difficult to clean and increase the risk of contamination.

6.5.6.4 Monitoring clinical status, outputs, feeding and weight gain

- Clinical status:
  - ⇢ Assess the clinical status of the infant and mother/caregiver daily, and more frequently if indicated by findings on the ward round or reported by the mother/caregiver or a ward staff member. This includes a brief assessment of all systems (e.g. cardiovascular, respiratory, gastrointestinal – see Annexes 1 and 2 for guidance). A more in-depth assessment of systems should have been performed on admission.
  - ⇢ Ask the mother/caregiver how they think the infant is progressing, and address any questions they ask.
  - ⇢ Ask the mother/caregiver whether they have any problems or concerns related to their own physical or mental health (see Section 12), and address these or refer to other services as needed.
- Outputs:
  - ⇢ Measure and record outputs as per guidance in the comprehensive feeding assessment (see Section 6.5.2).
- Replacement feeding:
  - ⇢ Observe feeding times when the mother/caregiver gives commercial generic infant formula to offer support and monitor that the infant is getting the prescribed quantities. Use this time to assess mother/caregiver–infant interactions and behaviours and offer support or referral if needed.
  - ⇢ Throughout admission, counsel and support the mother/caregiver on how to prepare and safely give infant formula at home so they are ready for discharge.
- Weight gain:
  - ⇢ The infant may not gain significant weight initially. As a guide, the infant should start gaining more than 20 g/day[10] in an inpatient setting if they are getting the appropriate amount of infant formula and any medical problems have been stabilized or treated.

> ***Note***
> **Weight gain of more than 20 g/day can be difficult to calculate initially and needs at least 5–7 days to give an accurate representation. Weight gain can occur in spurts and may not be constant. In general, satisfactory weight gain is likely to be specific to the infant and needs careful clinical assessment from a multidisciplinary team.**

10 One of the criteria to identify an infant as being at risk of poor growth and development is weight gain of less than approximately 150–200 g/week from birth to age 3 months, which amounts to approximately 20–30 g/day. Although weight gain reduces in velocity from age 3–6 months (approximately 100–150 g per week), weight gain of more than 20 g/day can be used as a practical guide, especially in low-resource contexts where more in-depth calculations may not be possible.

6.5.6.5 Updating volumes of infant formula given

- Step 1: if output and gains are sustained for 2–3 days on commercial generic infant formula, continue to monitor output, weight gain, clinical status and counsel the mother/caregiver on safely preparing and giving infant formula at home for another 1–2 days, and then transfer the infant to outpatient services (see Section 6.5.6.6).
- Step 2: if output and gains are not sustained for 2–3 days on commercial generic infant formula and/or there are signs of feed intolerance or other medical problems related to milk intake:
  - ⇢ Carry out a medical re-evaluation (see Sections 3.2 and 3.3) to look for a missed or new medical diagnosis that could be leading to this lack of response to nutritional management.
  - ⇢ Assess for common issues related to feeding and potential solutions (see Section 4.6.8 and Annex 19).
  - ⇢ If there are no signs of feed intolerance, consider adding an extra 5 mL of infant formula to each feed.
  - ⇢ Repeat Step 1 when the infant is stabilized and starts to gain weight.

6.5.6.6 Transferring the infant to outpatient services for follow-up care

See Section 6.8 for specific discharge criteria and procedures. In summary:

- When the infant is clinically stable and continues to gain weight consistently for 1–3 days (after all adjustments have been made to volumes of infant formula as per above), there are no signs of feed intolerance, and the mother/caregiver is confident in the ability to prepare, store and feed commercial generic infant formula hygienically and responsively at home (see the replacement feeding discharge assessment in Annex 22), transfer the infant to outpatient services for follow-up care (see *Box 22*).
- Emphasize the importance of attending outpatient care on the given date and continuing to attend until the infant is aged 6 months, at which point they will receive a full evaluation and referral for next steps.
- For volumes of infant formula to be given at home, see Section 6.8.2 and Annex 22.

Important

Infants who are not exclusively breastfed are particularly vulnerable and should receive special attention from the health and social welfare systems, with close follow-up and monitoring in outpatient care.

6.6 Health education and counselling during inpatient care

Health education and counselling are vital for inpatient management and ensuring healthy practices are maintained after discharge from hospital.

Annexes 11–13 highlight the basic topics to be covered during inpatient and outpatient care and offer guidance on communicating with mother/caregivers.

Much of this guidance is relevant for all ages. For infants less than 6 months of age, however, more emphasis should be placed on breastfeeding, particularly exclusive breastfeeding.

See the following global resources for comprehensive guidance on health education and counselling:

- *Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed (43)*
- *The community infant and young child feeding counselling package (44)*
- *Health systems strengthening: an example of integrating SBC into a sector (46)*
- *Guideline: counselling of women to improve breastfeeding practices (76)*
- *Guide for integration of perinatal mental health in maternal and child health services (9)*
- *Kangaroo mother care: a clinical practice guide (47)*
- *Parent counselling guide on kangaroo mother care (KMC) (48).*

6.7 Psychosocial stimulation during inpatient care

Psychosocial stimulation is a vital and essential part of inpatient and outpatient care for infants less than 6 months of age at risk of poor growth and development, with or without SAM. Psychosocial stimulation must be adapted to the age of the infant or child. It requires thorough planning, a designated budget, and staff who have been adequately trained and receive ongoing supervision.

See Section 10 for guidance on psychosocial stimulation.

6.8 Discharge from inpatient care

Continuity of care between inpatient and outpatient services that deliver medical and nutritional treatment is vital for the safe and effective follow-up of infants less than 6 months of age at risk of poor growth and development, with or without SAM.

Timely, efficient and holistic discharge planning is key to ensuring the infant is discharged from inpatient care at the appropriate time and with definitive guidance given to the mother/caregiver for follow-up care, both in terms of their ongoing nutritional support, and for accessing ongoing medical and psychosocial support services.

6.8.1 Discharge criteria

Important

***All* discharge criteria must be met before the infant can be discharged from inpatient care and transferred to outpatient care.**

Infants less than 6 months of age at risk of poor growth and development who are admitted for inpatient care can be transferred to outpatient care when all of the following are met:

6.8.1.1 Infant discharge criteria

- The infant does not have any danger signs for at least 48 hours before transfer time; and
- All acute medical problems (see *Box 13*) are resolved; and
- Nutritional oedema is resolving. An infant can be considered for discharge if they still have nutritional oedema of grade + (feet only) but the clinical team has assessed the infant is clinically stable and it is safe to discharge the infant home. It is advisable to not discharge an infant who still has grade ++ or +++ nutritional oedema; and
- The infant has a good appetite, assessed using a systematic method for either breastfeeding assessment or assessment of appropriate replacement feeding practices (see Section 6.5.2); and
- Documented weight gain for at least 2–3 days is satisfactory on exclusive breastfeeding or replacement feeding. Satisfactory weight gain is likely to be specific to the infant and needs careful clinical assessment and potential discussion in a multidisciplinary team to ensure it is context-appropriate. Weight gain of more than 20 g/day can be used as a guide, with the considerations mentioned above; and
- If the infant has medical problems that need mid- or long-term follow-up care and have a significant association with nutritional status, all attempts have been made to refer the infant to appropriate care or support services, and/or the limits of inpatient care have been reached (see *Box 23*); and
- The infant has received all routine childhood vaccinations recommended in the national vaccination schedule according to their age, or a catch-up schedule has been established, initiated and communicated to the mother/caregiver and other routine interventions delivered, or plans made for follow-up (see Section 6.4.1); and
- Other routine interventions: the infant will receive follow-up in outpatient care, but it may be worth linking the mother/caregiver to growth monitoring and promotion services and any infant feeding services near to their home so they can have multiple forms of follow-up and contact points with the health system.

6.8.1.2 Mother/caregiver discharge criteria

The mother/caregiver should be linked with follow-up care and support for any physical health, mental health or social issues identified during assessment. Relevant handover information must be communicated, and patient-held medical records must be completed (see Section 12).

This should have been started during the inpatient stay, but this is the final check to ensure these assessments have actually been carried out to identify any physical, mental or social issues that could have a negative impact on the caring abilities and well-being of the mother/caregiver.

Try to think laterally regarding services in addition to those in the health system that may be able to help the mother/caregiver (e.g. charities, nongovernmental organizations, faith-based organizations, community groups).

Box 23

Discharge criteria terminology

What does "all efforts have been made" mean?

The term "all efforts have been made" means that medical staff have investigated every available option for further investigation, treatment or follow-up care and found no partners that could assist before the infant is discharged.

Many medical problems cannot be definitively treated in inpatient services that deliver nutritional treatment and support. If there is another paediatric ward in the hospital that treats these problems (e.g. HIV, surgical or TB ward), the child may have to be transferred there. If not, the infant may have to be transferred to another hospital – for example, to continue TB treatment, for definitive surgery for congenital heart disease, or for outpatient physiotherapy for cerebral palsy.

These referrals are vital for the infant's health. The problems will not disappear on discharge from this inpatient service but need further care and management. Unfortunately, in many contexts this follow-up care is not available.

What does "limits of care" mean?

A patient has reached the limits of care when continuing inpatient care adds no further benefit for the infant and the family. More specifically, it refers to the situation where staff have appropriately utilized all the resources and nutritional and medical treatments available to them in this hospital, but the infant still has ongoing medical problems or continues to lose weight.

For example, an infant with cerebral palsy, who has received appropriate treatment for acute medical problems, gains adequate weight or no longer loses weight while receiving nasogastric tube feeding. cannot stay indefinitely on the ward for nasogastric tube feeding. It may be possible to refer the infant for more definitive care or ongoing feeding support but if this is not possible, a difficult conversation with the family is required to explain that the infant cannot stay on the ward indefinitely and to help them understand the quality of life and life expectancy they can expect when the infant is discharged home.

These difficult conversations should be conducted by experienced staff who are able to speak to parents in a culturally appropriate and helpful way. If appropriate and feasible, faith leaders or respected elders should be involved.

6.8.2 Discharge procedure

A key aspect of discharge planning should involve assessing the infant's home environment for environmental health aspects, including water, sanitation and hygiene (WASH), food security, economic stability, and the mental and physical health of the mother/caregiver.

This assessment can be done by talking to the mother/caregiver or during a home visit. Discharge planning must start soon after the infant is admitted to inpatient care to allow adequate time to identify and/or contact the outpatient services that will continue the medical and nutritional treatment and other relevant support services that will be needed.

Annex 12 gives basic guidance on supporting the mother/caregiver during the infant's discharge from hospital. The following aspects of the discharge procedure should be considered for every infant–mother/caregiver pair:

6.8.2.1 Where to refer the infant

It is important to identify the most feasible outpatient service for the infant and the family to attend, because this helps to ensure they actually attend for follow-up care (see *Box 22*). Distance, travel options and availability of specific services at a health facility should be taken into consideration when advising the mother/caregiver where to receive outpatient care.

If required, efforts should be made to link the infant to special care or follow-up with relevant referral services (e.g. physiotherapy for cerebral palsy or other disabilities, HIV or TB services).

6.8.2.2 When to see the infant less than 6 months of age in outpatient care

The period between discharge from inpatient care and attending outpatient care can be a risky time for infants less than 6 months of age at risk of poor growth and development. They have usually had only 2–3 days of adequate weight gain recorded before being discharged home. These infants may have been judged to be safe to go home, but they are not "cured" and need ongoing close follow-up.

The nutritional status and clinical condition of the infant on discharge should determine when they are seen next in outpatient care, but as a guide:

- Aim to review infants less than 6 months of age with SAM in outpatient care 3–4 days after discharge from inpatient care.
- Aim to review infants less than 6 months of age at risk of poor growth and development, but not meeting SAM criteria, 1 week after discharge.

These timeframes are a general guide, taking into account patient safety as the primary consideration, but other contextual factors will need to be evaluated for national guidelines and protocols and even at the subnational level.

6.8.2.3 Deciding whether to provide commercial infant formula on discharge from inpatient care for infants who cannot breastfeed

The decision to provide commercial infant formula for use at home depends largely on national policies and protocols. Further discussions at the local decision-making level may be needed, according to the specific needs of the local population and whether it is an emergency or more stable context.

Supplying commercial infant formula to an infant who has been discharged from inpatient care until they reach age 6 months (when they can start complementary feeding and commercial infant formula does not have to be their sole form of nutrition) guarantees the infant a safe supply of commercial infant formula and ensures regular contact with the nutrition and health services that supply the commercial infant formula, which enables close monitoring and follow-up of the infant.

This has budget and sociopolitical connotations (e.g. compliance with the *International Code of Marketing of Breast-milk Substitutes* *(61)* or health services being seen as a "commercial infant formula dispenser"), however, which need to be taken into consideration and thought through clearly.

Organizations or social support services that may be able to supply commercial infant formula or supplement the household's income to purchase commercial infant formula close to the infant's household should be investigated, if available. It is important to carry out an assessment of how these organizations are funded and any conditions on supplying this commercial infant formula. Companies that market commercial infant formula should not be permitted to fund these organizations, because this increases the risk that commercial formula milk distribution will replace more effective responses, resulting in overdistribution and even diversion, putting other families at risk. Conditional social support can be harmful and put families at risk of unethical practices and influences.

6.8.2.4 Determining how much commercial infant formula to give at home for an infant who cannot breastfeed

Regardless of whether a commercial infant formula will be provided, it is important to advise the mother/caregiver on how much to feed the infant at home. Volumes based on the infant's weight are usually too difficult to calculate at home, so advice should be based on age group (see Annex 22).

It is important to stress that these volumes are only a guide and the mother/caregiver should practise responsive feeding to ensure feeding is demand-driven. Counsel the mother/caregiver on signs of significant feed intolerance (compared with posseting), which require the amounts to be reduced or given in smaller portions and to take the infant to see a health worker for further advice. The mother/caregiver should try to document or remember the volumes given per day to report back in outpatient care.

Important

Although appropriate advice is given in outpatient care for increasing the quantity of milk according to the infant's age and responsive feeding cues, it is important to stress on discharge from the hospital that quantities should be increased with age and according to hunger cues in case the infant and the mother/caregiver do not present for follow-up in outpatient care.

Outpatient management

The following sections provide guidance on the implementation of World Health Organization recommendations related to the outpatient management of:

- infants and children aged 6-59 months with severe acute malnutrition (SAM) (Section 7);
- infants and children aged 6-59 months with moderate acute malnutrition (MAM) (Section 8);
- infants less than 6 months of age at risk of poor growth and development, with or without severe acute malnutrition (SAM) (Section 9).

To maximize service coverage and accessibility for the population, outpatient care for children with SAM and MAM should be provided through integrated primary health services that include essential nutrition actions, to meet the child's needs wherever they present in the health system. These services should take an overall child health approach and pay attention to all aspects of the child's physical and mental health, growth, development and home environment (e.g. water, sanitation and hygiene, food security, economic stability) and the physical and mental health of their mother/caregiver.

Integration into health services needs recognition by the national ministry of health of the importance of the prevention and management of SAM and MAM and their relevance to reducing national morbidity and mortality rates for children aged under 5 years. An integrated approach between inpatient and outpatient services can reduce costs and be more effective in the management of acute malnutrition.

To increase access to essential services, outpatient care for children aged 6–59 months with SAM or MAM may be delivered by community health workers in the community in specific contexts, provided adequate training and supervision of community health workers can be ensured through regular and dedicated resources, and their work is built into core health service delivery.

This is in addition to the vital role that community health workers have historically played in screening and referring children with SAM or MAM to health facilities. The organization of this care and the specific responsibilities community health workers can or cannot take on vary according to national policies and protocols and the capacity of the network of community health workers (see Section 11).

7. Outpatient nutritional and medical care for infants and children aged 6–59 months with severe acute malnutrition (SAM)

The following guidance is predominantly relevant for the management of SAM in stable, non-humanitarian contexts.

7.1 Triage and emergency treatment

The process of triage – a preliminary assessment to determine the urgency and nature of the treatment required – remains the essential initial step when a child presents to a health facility. The primary aim is to decide whether it is possible, safe and appropriate to manage the child as an outpatient.

Infants and children aged 0–59 months should be triaged as soon as they enter a health facility or have contact with a health worker to ensure:

- emergency and danger signs are identified and lifesaving care is delivered;
- appropriate care based on the child's clinical status is planned;
- the nutritional status of the child is assessed, and timely and appropriate medical care is provided accordingly.

See Section 3.1 for guidance on triage and emergency treatment.

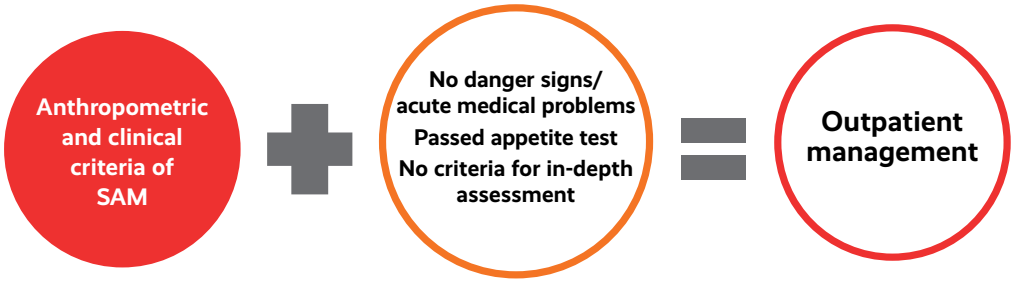
7.2 Enrolment criteria

Infants and children aged 6–59 months with SAM should be enrolled and managed as outpatients if all of the following criteria apply:

- There are no danger signs or any acute medical problems (see Section 4.2 and *Box 6*); and
- There is no nutritional oedema grade +++ (note that nutritional oedema grades + and ++ can be managed in outpatient care if no other criteria present for inpatient management); and
- The child has a good appetite (passed the appetite test – see Section 3.5); and
- There are no criteria that need in-depth assessment (see Section 4.2), or an in-depth assessment has been completed and no inpatient admission is needed (e.g. diarrhoea with no dehydration, respiratory infection with no signs of respiratory distress, malaria with no signs of severity).

The following are enrolment criteria for children transferred from inpatient care:

- No danger signs in hospital have been observed for at least 24–48 hours before transfer time; and
- The medical problems that prompted admission to inpatient care have resolved to the extent there is no longer a requirement for inpatient care; and



- There is no ongoing weight loss (among children admitted with wasting only, who did not have nutritional oedema at any time); and
- Nutritional oedema is no longer grade +++ and is resolving (i.e. there has been an observed decrease in oedema); and
- The child has a good appetite; and
- All attempts have been made to refer a child with medical problems that need mid- or long-term follow-up care and have a significant association with nutritional status to appropriate care and support services, and/or the limits of inpatient care have been reached.

7.3 Enrolment procedure

As soon as the child is enrolled into outpatient care, it is vital that the mother/caregiver understands why they have been enrolled, the principles of care for outpatient management, and the setup and organization of the outpatient service. Adequate training and regular supervision must be ensured to enable health workers to safely and efficiently assess, refer and/or treat children with acute malnutrition, including clinical and nutritional care, according to the severity of the condition.

A strong focus on the continuum of care must be ensured for children discharged from inpatient care who are referred to outpatient services.

See Annex 13 for guidance on enrolling a child and their mother/caregiver into outpatient care.

Important

- **The decision to transfer a child from inpatient to outpatient care should not be made on the basis of anthropometric criteria such as a specific weight or mid-upper arm circumference (MUAC) gain or reaching a specific weight-for-height *z*-score (WHZ) or weight-for-length *z*-score (WLZ). Instead, evidence of the resolution or stabilization of the problems prompting the inpatient stay must be observed, using the criteria listed above.**
- **When deciding to transfer a child from inpatient to outpatient care, the mother/caregiver must be linked to appropriate outpatient care with nutrition services that can manage children with SAM.**
- **Additional social and family factors (e.g. isolated or single head of household, domestic abuse, severe poverty) should be identified and addressed before transfer to outpatient care to ensure the household has the capacity to care for the child.**

Table 9. Routine medical management in outpatient care of infants and children aged 6–59 months with SAM

Intervention	When and how
Broad-spectrum antibiotic	▷ On enrolment, unless given during inpatient care ▷ Oral route (if intravenous antibiotics are thought to be needed, the child must be admitted to inpatient care) ▷ Duration 7 days
Deworming	▷ All children aged ≥1 year (unless received during inpatient care or through routine services in the past 6 months) ▷ On enrolment (if not possible, then during another visit)
Treat if signs of vitamin A deficiency (or other clinically justified reason)	▷ On enrolment (day 1), day 2 and day 14
Ensure all vaccinations are up to date, or refer for vaccination	▷ On enrolment, at each visit and at exit
Screening for signs of vitamin A deficiency	▷ On enrolment and at each visit, especially for children with nutritional oedema ▷ If vitamin A deficiency is detected, refer to inpatient care
Screening for HIV and TB	▷ On enrolment and as per national protocols
Screening for malaria in malaria-endemic areas	▷ On enrolment with rapid diagnostic test or blood smear, as per national protocols, and for a clinical indication at a follow-up visit ▷ Treat as per national malaria treatment protocols

7.4 Routine medical management

Table 9 summarizes the routine medical management that should be delivered to all infants and children aged 6–59 months with SAM on enrolment into outpatient care.

7.4.1 Routine antibiotics

The World Health Organization (WHO) recommends the use of routine antibiotics for all children with SAM due to evidence of a significant decrease in mortality for this population. The mechanism is likely due to reducing excessive proliferation of small-bowel flora, which can lead to translocation of gut bacteria into the bloodstream and/or modification of the microbiome

All infants and children aged 1–59 months with SAM should be prescribed routine broad-spectrum antibiotics on enrolment into outpatient care for nutritional treatment, unless they have already received antibiotics during inpatient care and are being transferred to outpatient care.

See the WHO *Pocket book of hospital care for children: second edition* (hereafter, the WHO Pocket book) *(5)* for appropriate antibiotics and dosages for neonates.

It is important to note that children who do not have SAM should not routinely receive antibiotics unless they show signs of clinical infection *(2)*.

Discussion should occur at the country level to evaluate the use and choice of antibiotics, taking into consideration patterns of antibiotic resistance at the local level.

See Annex 14 for recommended regimens for oral amoxicillin.

7.4.2 Deworming

Intestinal roundworm infections are an important contributing factor to children developing malnutrition and may limit recovery. Albendazole or mebendazole should be administered routinely to all children aged 1 year and over on enrolment into outpatient care, unless received during inpatient care or through routine services in the past 6 months.

Children who are stable enough to be treated as outpatients are stable enough to receive anthelmintic medicines on enrolment. Ensuring this is done on the first visit reduces the chances of it being forgotten later or not given if the child does not return for ongoing care.

See Annex 14 for deworming medicine protocols.

7.4.3 Vitamin A

Many children with SAM have vitamin A deficiency, but it is not easily detectable in the subclinical stage. Vitamin A plays an important role in maintaining visual capacity and the body's defences against infection through epithelial integrity and regeneration. Supplementation is crucial in children with severe malnutrition to reduce morbidity and mortality (*1, 36*).

> ***Note***
> **Children with SAM without signs of vitamin A deficiency/xerophthalmia who are on ready-to-use therapeutic food (RUTF) do not need additional vitamin A supplementation because there are sufficient amounts of vitamin A in RUTF.**

Indications for high-dose vitamin A supplementation include:

- signs of vitamin A deficiency/xerophthalmia, including:
  - dry conjunctiva or cornea;
  - Bitot spots;
  - corneal ulceration;
- keratomalacia;
- recent measles (measles now or within the past 3 months, documented or reported by the mother/caregiver);
- rare cases where therapeutic foods that are not compliant with WHO/Codex specifications are being used for the whole of a child's nutritional treatment of SAM.

Systematic physical examination for signs of xerophthalmia should be conducted carefully by a clinician experienced in assessing for this, in good lighting, on enrolment and repeated at each outpatient visit, because the condition of the eyes can deteriorate rapidly, exposing the child to a high risk of blindness. If there are any doubts or staff do not have adequate experience or competency to assess for vitamin A deficiency/xerophthalmia, the child should be referred to a health facility where this assessment can be carried out accurately.

See the WHO *Pocket book* *(5)* for guidance on signs of vitamin A deficiency.

See Annex 14 for protocols for dosing of vitamin A supplementation.

Important

Children with signs of vitamin A deficiency/xerophthalmia must be referred to inpatient care for management and follow-up as per the WHO *Pocket book* *(5)*.

7.4.4 Vaccinations

All children should be assessed for eligibility for vaccinations within the national vaccination programme when they are enrolled into outpatient care. If possible, any eligible vaccinations should be given at the facility where the child is receiving outpatient care, either immediately or on the next available vaccination service day. If this is not possible, refer the child to the appropriate service.

important

Never miss an opportunity to vaccinate!

To reduce *missed opportunities for vaccination,* any contact with an infant less than 6 months of age at risk of poor growth and development, with a child with moderate acute malnutrition (MAM) or SAM, and with their siblings and caregivers is an opportunity to review their home-based record and ensure they are up to date with their vaccinations *(37)*.

7.4.4.1 Routine vaccinations

Important

All vaccines included in the national vaccination programme should be provided to children in nutrition programmes and services, as a minimum. See also the *WHO recommendations for routine immunization* *(38)*.

On enrolment into outpatient care:

- Assess the child for eligibility for vaccines within the national vaccination programme (and at each subsequent point of contact), and either vaccinate the child directly or refer to the appropriate service.
- Give the mother/caregiver a home-based vaccination record if they do not already have one.
- Remind the mother/caregiver to keep the record safe and bring it to every future health contact.
- Counsel the mother/caregiver on the importance of completing the child's vaccination schedule, using clear and understandable terms.

The target age group is dependent on the national vaccination schedule. Catch-up vaccination for children aged under 59 months is highly recommended.

Do not vaccinate the child if they are acutely unwell (including with a fever over 38.5 °C) – in this case, postpone vaccination until recovery. Note that a child who is acutely unwell should be referred to inpatient care. Mild concurrent infections are not a contraindication to vaccination.

7.4.4.2 Measles vaccination

Vaccination against measles is a priority in all nutrition programmes and services. Measles is an extremely serious disease in children with SAM. Measles impairs the immune system for several months after infection and worsens vitamin A deficiency. Severe complications such as pneumonia are common in acutely malnourished children with measles.

The target age groups for measles vaccination are as follows:

- Age 6 months to 5 years: reaching all children with two doses of measles vaccine should be the standard for all national vaccination programmes. The measles vaccine should be administered to children aged up to 5 years, as per the national vaccination schedule, with a minimal interval of 4 weeks between doses. Interrupted schedules should be resumed as soon as possible, without repeating previous doses *(39)*.
- Children vaccinated before age 9 months should be revaccinated once they reach age 9 months, provided an interval of 4 weeks has elapsed since the previous dose was given.

7.4.4.3 Suspected or confirmed HIV infection in children

- Bacillus Calmette-Guérin (BCG) vaccination is contraindicated in people with untreated HIV. BCG vaccination should be delayed until antiretroviral therapy has been started and the child is immunologically stable (CD4 > 25%) *(40)*.
- People with primary immunodeficiency disorders should receive inactivated poliovirus vaccine rather than oral polio vaccine *(41)*. Inactivated poliovirus vaccine or oral polio vaccine may be administered safely to children living with HIV who are clinically well and immunologically stable (CD4 > 25%). HIV testing is not a prerequisite for vaccination.
- All other vaccines, including live-attenuated vaccines (e.g. measles, rotavirus, yellow fever) and non-live vaccines (e.g. diphtheria, tetanus, pertussis, polio, hepatitis B and *Haemophilus influenzae* (DPT-Hib-HepB), pneumococcal conjugate vaccine (PCV), meningococcal conjugate vaccine (MenA)) can be administered in children living with HIV who

are clinically stable on enrolment into outpatient care. Giving vaccines on the first visit (or as near as possible to the first visit) reduces the chances of vaccination being forgotten later.

Important

Never miss an opportunity to vaccinate!

Always check and complete the tetanus vaccination status of the child's mother and other female caregivers of childbearing age.

7.4.4.4 Exit from outpatient care

Inform the mother/caregiver about which vaccines the child still requires, and when and where to return for these. Remind the mother/caregiver to keep the child's home-based record safe and bring it to every future health contact.

7.4.5 Screening and further investigations

7.4.5.1 HIV and TB

HIV and TB are important comorbidities of malnutrition, but they are often overlooked or undiagnosed on initial enrolment of malnourished children into outpatient care. Screening for HIV and TB as per the national protocols is a vital aspect of the management of children of any age with or at risk of malnutrition.

See Section 3.7.1 for guidance and resources for screening for HIV.

See Section 3.7.2 for guidance and resources for screening for TB.

7.4.5.2 Malaria

In malaria-endemic areas, children with SAM should be screened for malaria on admission to inpatient care or enrolment into outpatient care with a rapid diagnostic test or blood smear for malaria, as per the national protocol. If positive, the child should be treated as per the national malaria protocol or the WHO *Pocket book (5)*.

Important

Some infants and children with SAM do not mount a fever response if they have malaria due to their immunosuppressed state. There should be a low clinical threshold to test for malaria in endemic areas for infants and children with SAM who appear generally unwell, even if they do not have a fever.

7.5 Medical management based on clinical indication

For guidance on managing medical problems identified on enrolment into outpatient care or during any visit, see the *Integrated management of childhood illness: chart booklet (6)*. The WHO *Pocket book (5)* may also be useful, but usually if a child is sick enough to need guidance from this, they also need to be admitted to inpatient care. Medical problems may include:

- cough or cold (uncomplicated upper respiratory tract infection);
- diarrhoea or vomiting with no signs of dehydration;
- malaria with no signs of severity;
- ear infection with no signs of systemic illness or complications.

Important

Any child with danger signs or acute medical problems as per Section 4.2 and Box 6 should be referred for inpatient assessment and treatment.

7.6 Nutritional treatment

Important

Promoting breastfeeding

For children aged 6–24 months receiving the outpatient nutritional treatment described below, breastfeeding must be encouraged and supported.

Breastmilk should be given high priority and offered before giving therapeutic foods, whenever possible. Mothers/caregivers of infants and children aged 6–59 months with SAM and dehydration but not in shock should be encouraged to continue breastfeeding in addition to any oral rehydration fluid given.

Breastmilk can be offered as maternal breastfeeding. If the mother is not currently breastfeeding or lactating, breastmilk can be expressed by the mother or wet-nurse and given from a cup or spoon. Providing support for breastfeeding and/or expressing breastmilk should be prioritized in services providing care for these children.

Box 24

Nutrient-dense diets

Nutrient-dense diets enable children to consume and maximize the absorption of nutrients in order to fulfil their requirements for energy and all essential nutrients. Nutrient-dense diets are high in nutrients relative to their energy content; they have a relatively high content of vitamins, minerals, essential amino acids and healthy fats.

Breastmilk is rich in both macronutrients (energy, protein, fat) and bioavailable micronutrients. Breastmilk can provide up to 77% of the energy required by an infant aged 69 months, 63% of the energy required by an infant aged 9–12 months, and 44% of the energy required by a child aged 12–24 months. Breastfeeding should be encouraged and supported for children aged up to 2 years and beyond. Children aged 6–23 months who are not breastfed need to consume a more varied diet to meet their nutrient needs.

Nutrient-dense diets also include animal-source foods, beans, nuts and many fruits and vegetables. Animal-source foods are more likely to meet the amino acid and other nutrient needs of recovering children. Plant-source foods, in particular legumes or a combination of cereals and legumes, have high-quality proteins, although they also contain some antinutrients such as phytates, tannins or inhibitors of digestive enzymes, which may limit the absorption of some micronutrients, particularly minerals.

Adequate locally available diets include foods available in the market and/or household typically consumed by the child that are adequate in terms of nutrients.

7.6.1 Objective

- Recovery from SAM, with healthy weight gain (approximately 5–10 g/kg/day) through the provision of 100% of the child's nutritional needs. A starting quantity of 150–185 kcal/kg/day should be provided, which can then be reduced (see below) or continued until recovery.

7.6.2 Products used

- RUTF pastes, spreads, compressed biscuits or bars developed and used for the nutritional treatment of children with SAM.

7.6.3 Protocol

- There are two protocols.[11] Both protocols are calculated per bodyweight per day. Current evidence of effectiveness shows comparable results between the two protocols, and contextual factors are the most important to consider when deciding which to use:
  - ⇢ Fixed quantity protocol: give 150–185 kcal/kg/day of RUTF until anthropometric recovery and resolution of nutritional oedema (see *Box 28*).
  - ⇢ Reducing quantity protocol: give 150–185 kcal/kg/day of RUTF until the child no longer meets the criteria of SAM (i.e. they now meet anthropometric criteria for MAM), and then reduce the quantity to provide 100–130 kcal/kg/day of RUTF, until anthropometric recovery.
- The energy requirements should initially be covered by RUTF only, because this is much higher in nutrient density than most family meals.
- It may be possible to add in family meals when the child improves, gains weight and demands more food after the RUTF – but only after making sure the daily amount of RUTF has been consumed first. Family meals should be diverse, nutrient-rich, safe and suitable for growing children (see Annex 11).
- For infants and children who are breastfeeding, breastmilk should be offered first before providing RUTF.
- RUTF can be hard to eat or swallow without water. Safe drinking water should be offered during and after the intake of RUTF and between meals.

11 See *Web annex F (49)* from the 2023 *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in children under 5 years (1)* for full details on the reasoning behind the recommended ranges.

Box 25

Choosing between fixed-quantity and reducing-quantity protocols

The decision over whether to reduce the quantity of RUTF given to children when they no longer meet the criteria of SAM (i.e. they now have MAM) must be made by programme managers for the whole area or district they are responsible for. The decision should be based on the following:

- capacity of the health workers in the area or district who deliver the nutritional treatment to safely and efficiently follow a reducing-quantity protocol along with close monitoring of the child's clinical condition;
- food security context of the population – if there is widespread food insecurity, reducing the quantity of RUTF may not be appropriate, especially if it is known that food insecurity could lead to a higher risk of sharing RUTF at home with other family members;
- costs and availability of RUTF – in resource-constrained periods, programme managers may decide that a reducing-quantity protocol will significantly reduce the costs and improve availability of RUTF for all children with SAM.

If decision-makers consider more harm than good could result from reducing the quantity of RUTF, the fixed-quantity protocol should be used until anthropometric recovery.

In some settings, it may be appropriate for programme managers to shift between protocols, depending on new contextual factors that arise. This must involve a risk–benefit analysis with respect to confusion over the change and incorrect prescribing versus the benefits of one protocol over another.

Box 26

End-user protocols: the importance of claritu

It is advisable for outpatient services to use a specific kcal/kg/day rather than a range to provide clarity and more user-friendly protocols for health workers prescribing RUTF to children. This decision should be based on national discussions on the topic involving implicated with the relevant competencies and experience.

These decisions can draw on the information in *Web annex F (77)* of the 2023 *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in children under 5 years (1)*, which breaks down the different components of the calculations used for the recommendation.

These calculations take into account comorbidities and related stress factors, but they do not consider more contextual or social factors. If a government assesses that the population of children is likely to have higher stress factors than those used in the calculations due to contextual factors such as disease endemicity related to climatic or geographical considerations, they may choose a kcal/kg/day at the higher end of the range.

7.7 Education and counselling on breastfeeding, health and nutrition during outpatient care

Interventions to prevent children becoming acutely malnourished and promoting overall child health should ideally be implemented through a multisectoral and multisystem approach, incorporating food, health, safe water, sanitation and hygiene (WASH), and social protection systems.

These interventions include access to healthy diets and nutrition and medical services as appropriate; include counselling for breastfeeding, health and nutrition, and especially helping families use locally available nutrient-dense foods for a healthy diet; address maternal and family needs; and involve psychosocial elements of care to ensure healthy growth and development.

Enrolment of a child into outpatient care is a key moment to initiate or carry out a number of these interventions, especially counselling and psychosocial elements of care for the child and the mother/caregiver.

No opportunity should be wasted to carry out preventive activities.

Health education and counselling are an essential part of inpatient and outpatient care for children with acute malnutrition and for infants less than 6 months of age at risk of poor growth and development. Many national and international resources are available to inform health education and counselling for malnourished children and children in general. Preference should always be to use national guidance, which will likely be more context-adapted. See Annexes 11 and 13 for a list of the basic topics that should be covered during outpatient care and brief guidance on communicating with mothers/caregivers.

See the following global resources for comprehensive guidance on these topics:

- *Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed (43)*
- *The community infant and young child feeding counselling package (44)*
- *Infant and young child feeding image bank (45)*
- *Health systems strengthening: an example of integrating SBC into a sector (46)*
- *Guide for integration of perinatal mental health in maternal and child health services (9)*
- *Kangaroo mother care: a clinical practice guide (47)*
- *Parent counselling guide on kangaroo mother care (KMC) (48).*

7.8 Psychosocial stimulation during outpatient care

Psychosocial stimulation is a vital and essential part of inpatient and outpatient care for children with acute malnutrition and should not be neglected. Psychosocial stimulation needs thorough planning, a designated budget, and staff who have been adequately trained and receive ongoing supervision and support.

See Section 10 for guidance on psychosocial stimulation.

Box 27

Frequency of outpatient visits for a child with SAM

There are no WHO recommendations on the ideal frequency of outpatient visits for a child with SAM. Many national guidelines use a weekly schedule, and this has been shown to work well from programmatic experience. Children with SAM who have been transferred from inpatient care or enrolled directly into outpatient care are a vulnerable group at higher risk of mortality than children without acute malnutrition and need close follow-up and monitoring.

Ideally, a visit schedule should be adapted to the progress the child is making, with more frequent visits proposed if required to provide more intensive monitoring.

7.9 Checklist for each outpatient visit

Annex 31 provides a summary of minimum essential actions that should be carried out at each outpatient visit for children aged 6–59 months with SAM and their mothers/caregivers to ensure safe, effective and high-quality care. Actions targeted at the caregiver vary, depending on whether it is the child's mother (especially if breastfeeding) or another primary caregiver. Countries may specify additional actions according to national guidelines and service delivery context.

7.10 Monitoring response to outpatient nutritional and medical management

Annex 31 contains a checklist of actions that should be carried out at each outpatient visit. The following aspects must be assessed:

- Clinical status:
  - Assess the overall clinical status of the child at each visit (see Annexes 1 and 2).
  - Ask the mother/caregiver how they think the child is progressing, and address any questions they ask.
  - Ask the mother/caregiver whether they have any problems or concerns related to their own physical and mental health, especially if they are breastfeeding (see Section 12), and address these or refer to other services as needed.
- If the child is breastfeeding and the mother or wet-nurse reports problems with breastfeeding, carry out a breastfeeding assessment (see Section 9.4.2 and Annex 20). The enrolment visit breastfeeding assessment should be more comprehensive and carried out even if there are no problems are initially – this provides a baseline of breastfeeding for the mother and infant or child and allows support to be given for any issues identified. This is especially important for children aged 6–23 months.
- There is no global standard for the weight a child aged 6–59 months with SAM should gain per week or month in outpatient care, but a target weight of 5–10 g/kg/day can be used as an evidence-informed guide. National guidelines or standard operating procedures should be followed, if available.

7.11 Assessment methods

- Plot the child's weight on a growth chart, using the WHO *growth chart for weight-for-age z-scores (26)*. This is the preferred option but is not always easy for less experienced staff members. All efforts to train staff to use these charts should be made – see the *WHO child growth standards: training course on child growth assessment (78)*.

- Assess weight gain between visits: clinical improvement is the most important aspect for assessing progress and the next steps of management in outpatient care. A child who is progressing well could be expected to gain 5–10 g/kg/day. This can be used to work out an average weight gain in a week (i.e. between two visits if the visits are on a weekly schedule).

> ***Note***
> **Weight gain can occur in spurts and may not be constant, which must be taken into consideration even if using 5–10 g/kg/day as a guide for assessing weight gain. In general, satisfactory weight gain is likely to be specific to the child and needs careful clinical assessment from a multidisciplinary team in outpatient care.**

7.12 Updating the medical and nutritional management plan

At each visit, after the assessments in Annex 31 have been carried out, a decision must be made regarding the child's progress according to their clinical status, weight gain or loss, and the mother/caregiver's perception of the child's overall progress. The health worker must decide whether the child:

- is improving;
- shows no change (is neither improving nor deteriorating);
- has deteriorated.

See Annex 32 for guidance on determining how well the child is progressing and examples of actions that can be taken to adjust the medical and nutritional plan according to the child's clinical and nutritional status, including encouraging the mother/caregiver if the child is improving or addressing issues that could be leading to the lack of improvement or deterioration.

> ***Important***
> **Any deterioration in the child's status that includes the appearance of danger signs or any of the criteria for inpatient admission should lead to direct referral to inpatient care.**

7.13 Exit from outpatient care

7.13.1 Exit criteria

Infants and children aged 6–59 months with SAM should exit from nutritional treatment only when all of the following conditions are met:

- Anthropometrics and clinical signs of acute malnutrition observed for at least two consecutive visits or measurements:
  - WHZ/WLZ ≥ −2 standard deviations (SD) and MUAC ≥ 125 mm (see *Box 28*);
  - no nutritional oedema.
- Medical and social issues appropriately managed or referred: medical problems that need mid- or long-term follow-up care and have a significant association with nutritional status (e.g. HIV, tuberculosis (TB), congenital heart disease, cerebral palsy) and/or additional social factors (e.g. household food insecurity, vulnerable household) have been referred to appropriate care or support services care, and the limit of care has been reached for outpatient care for severe wasting and/or nutritional oedema.
- Weight gain: percentage weight gain and absolute weight gain should not be used as exit criteria from outpatient care because a child starting from a very low baseline weight will still be very small and still at high risk of mortality and/or morbidity, even after a seemingly good percentage or absolute weight gain.

Box 28

Anthropometric indices for exit criteria

Some children enrolled on both WLZ/WHZ and MUAC criteria may, after lengthy nutritional management, "normalize" on one criterion but not another. For example, the child's WHZ may be equal to or greater than −2 SD of the WHO child growth standards median (WHZ or WLZ ≥ −2), but the MUAC may remain stagnant and not reach 125 mm, despite prolonged nutritional treatment and adequate clinical care.

The child should be assessed by a health professional who, ideally, has been following their care throughout. If it is decided that it would be safe and appropriate to do so, the child may exit from outpatient care and be labelled as "recovered" in the programme or service reporting system.

A follow-up visit within 1 month of exit should be arranged to assess whether the child is still clinically well and has not deteriorated in terms of their nutritional and clinical status.

Note

There is currently no evidence to be able to provide a recommendation on exactly how long outpatient nutritional treatment for SAM should take to produce clinical and anthropometric recovery in a child. The time it takes depends on many factors specific to the child, the family environment, the organization, and the competencies of the staff managing the treatment.

It can be useful for programme managers to look at average length of stay for individual health facilities or community health worker-led programmes for the purposes of supply and human resources management. The main programmatic focus, however, should be on ensuring continuous close monitoring of children and quickly identifying and acting on children who are not responding to treatment, rather than using a specific time point to look for children not doing well.

7.13.2 Exit procedure

Clear processes and detailed guidance for the mother/caregiver are vital for the child's ongoing healthy growth and development and to prevent relapse to SAM when the child exits outpatient care.

See Annex 12 for guidance on information to give the mother/caregiver on exit.

Child health must be promoted through continued care involving health services, community and home care in a healthy environment to ensure sustained recovery. This can be achieved by:

- ensuring linkages with appropriate care and support services for children with medical problems that need mid- or long-term follow-up care and have a significant association with nutritional status, such as:
  - outpatient HIV or TB treatment;
  - physiotherapy or speech or language therapy for feeding difficulties associated with cerebral palsy or other disabilities;
  - psychological support groups for children and their mothers/caregivers;
- provision of supportive services for other social factors, such as food assistance and other social safety net interventions for the household as a whole; the possibility to refer children to these services or care will vary between contexts, but policy-makers, programme managers and health workers should advocate for the provision of these services.

The limit of care for outpatient services is usually reached when there is no longer a perceived benefit of ongoing outpatient care in this particular health facility for the individual child and the family.

Special attention should be paid to ensuring the mother/caregiver feels prepared for exit and ensuring their mental and physical health and capacity for care at home are taken into consideration for the timing of exit decisions and any subsequent follow-up.

While the child is in nutritional treatment, all efforts should be made to deliver age-appropriate vaccinations and clear referral plans made for when and where they can receive their next scheduled vaccinations after exit from nutritional treatment.

7.14 Post-exit from outpatient care

When a child exits as recovered from outpatient care for acute malnutrition, they continue to be at risk of adverse outcomes such as relapse, morbidity and mortality.

The main objectives of post-exit interventions are to prevent relapse, ensure sustained recovery, and put the child back on the pathway to healthy growth and development. Post-exit interventions should not target only the child but should provide support to the entire household, including siblings and the mother/caregiver.

Many of the underlying factors that contributed to this episode of acute malnutrition may still exist once the child has exited outpatient care (e.g. poor household economic resources, food insecurity, poor sanitation and hygiene, unhealthy feeding and care practices). For this reason, it is important to continue providing appropriate care and support to children exiting from outpatient care.

The 2023 *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children under 5 years (1)* recommends that children with SAM who exit outpatient care should be monitored periodically to avoid relapse. There is currently no globally agreed definition of relapse, and practice shows definitions differ per country.

Important

- **Although the interventions described here are called post-exit interventions, ideally they should be initiated during inpatient and outpatient care and be continued after exit. In addition, many of these interventions can be incorporated into a preventive package of care targeting all children at risk of acute malnutrition.**

Note

There are no exit criteria for infants less than 6 months of age at risk of poor growth and development. These infants are still considered vulnerable even after the acute problem that necessitated their admission or enrolment into care has been resolved.

Regular follow-up (even if reduced in frequency) is recommended until the child reaches age 6 months (see Section 9.10). The interventions described in this section, however, also apply to infants less than 6 months of age at risk of poor growth and development and their mothers/caregivers.

7.14.1 Actions for post-exit care

Scheduled well-child visits (see Section 2.5 and *Box 3*) provide a critical opportunity for monitoring and ongoing support of individual children, parents/caregivers and families to promote health and well-being and prevent relapse *(16)*. A minimum of 17 scheduled visits is proposed, with age-specific interventions provided at each contact to maximize the existing opportunities and resources. These visits are primarily carried out in health facilities, but community health workers may be able to provide these services in some contexts if they are part of national policy. The scheduled visits should be provided as part of post-exit interventions with the following objectives:

- Address any concerns of the mother/caregiver or family about the child's health, development and nutrition.
- Identify potential household risk factors (e.g. economic, mental health-related, sociocultural).
- Provide growth monitoring and promotion interventions.
- Check or provide vaccinations.
- Provide health and nutrition counselling.
- Perform developmental assessments and early identification of developmental concerns.
- Provide psychosocial stimulation, and teach and support the mother/caregiver how to provide this at home.
- Refer to specialized services when needed (e.g. if an infant or child is identified with medical or developmental problems).

The mother/caregiver and household members should receive appropriate and adapted counselling to ensure optimal practices and care. Counselling topics should include improving the capacity of the mother/caregiver to recognize early signs of malnutrition and when to present to a health facility; breastfeeding and appropriate complementary feeding for infants and young children aged 0–23 months; recognition of common childhood illnesses; and safe WASH practices to improve overall child health and prevent relapse.

In addition to home visits and counselling, when a child exits outpatient care and whenever possible, a safe dosage of RUTF for maintenance of the child's nutritional status for an additional number of weeks (determined by the context as per capacity) should be provided.

7.14.2 Community engagement

Community engagement is essential for the effective management of children with acute malnutrition, and this includes post-exit from a nutrition programme. Fostering an open dialogue helps promote mutual understanding of the challenges and solutions surrounding child malnutrition and encourages active and sustained engagement from the community, ensuring interventions ultimately support the prevention of relapse after exit from outpatient care. Inclusive participation contributes to improved case-finding and follow-up, strengthening the continuum of care and enhancing recovery outcomes for children with malnutrition.

Family MUAC is a strategy that could be implemented and adapted to contextual need. Mothers/caregivers of eligible children are trained by health workers to screen their children on a regular basis using a MUAC tape, allowing them to refer their children directly to an outpatient treatment centre when acute malnutrition is detected (see Section 2.3.2 and *Box 2*).

7.14.3 Multisectoral system referrals

Most children who recover from acute malnutrition continue to live in the environment that predisposed them to this episode of acute malnutrition. Families should be linked to existing interventions that address the underlying causes of acute malnutrition, including health, food systems, social protection, WASH practices and early childhood development. For lasting impact, it is important these systems work together in an integrated way, ensuring children, women and families have access to the right foods, receive the right nutrition services, and adopt positive nutrition and care practices at the right time.

7.14.3.1 Health

Whenever possible, children treated for SAM, along with their mothers/caregivers and entire households, should systematically be referred to health interventions after exit from outpatient care.

Interventions provided by health workers may include regular screening and treatment of common childhood infections following the integrated community case management approach or using the integrated management of childhood illness (IMCI) protocol, promotion and provision of family planning services, and promotion of health-seeking behaviours and hygiene activities.

Children presenting with suboptimal nutritional status and medical problems requiring mid- or long-term follow-up care (e.g. HIV, TB, congenital heart disease, cerebral palsy) should be referred to appropriate care and support services during their inpatient or outpatient nutritional care or as part of post-exit interventions. The possibility to refer to these services will vary between contexts, but policy-makers, programme managers and health workers should advocate for the provision of these services.

Special attention should be paid to ensuring the mother/caregiver receives care for their own mental and physical health, both during and after the child's outpatient care (see Section 12).

Psychosocial stimulation should be provided at all stages of the treatment cycle and care pathway, including post-exit as part of an integrated package of post-exit interventions to improve child development and anthropometric outcomes (see Section 10).

Important

Linkages should be made with community early childhood development centres, if available. These can play a pivotal role in preventing acute malnutrition through provision of counselling in health, nutrition, WASH, provision of health services (e.g. growth monitoring and promotion), mother/caregiver support, promoting responsive caregiving, early learning and stimulation, and identifying food-insecure households and linking them to food security programmes and social protection services.

7.14.3.2 Food systems

Food systems help ensure nutrient-rich foods needed for child growth and development are available, accessible, safe and affordable when the child recovers, for the child and for the family. Linkages should be made to platforms such as resilience programmes that provide support for individual home gardens and communal farms, the positive deviance hearth approach *(79)*, and community-led complementary feeding and learning sessions *(80)*.

For country examples of community-led complementary feeding and learning sessions, see the following resources:

- *Community feeding, learning sessions reducing malnutrition (81)*
- *Combating malnutrition with community-led complementary feeding and learning sessions and early malnutrition detection (82)*.

7.14.3.3 Social protection

Evidence shows that well-designed social protection programmes can break the link between malnutrition, hunger and poverty, and improve nutrition outcomes, including post-exit. Social protection can reduce harmful coping strategies (e.g. selling assets to buy food or cutting food intakes of the household), and enable access to a safe, affordable and nutritious diet *(83)*.

Unconditional cash transfers have been found to decrease the proportion of relapse to acute malnutrition following treatment. Strong linkages should be made to social protection platforms such as cash transfer programmes. Cash transfers have been shown to decrease relapses and to improve overall child health, both during and after exit from outpatient care, when delivered as part of an integrated package of post-exit interventions *(84)*.

Other key actions within social protection to prevent relapses in child wasting include *(85)*:

- strengthening data and target systems to identify and prioritize nutritionally vulnerable groups, especially women and children;
- ensuring programmes meet the needs of people from vulnerable groups, such as adding top-ups to household support, and ensuring integration with behaviour change activities;

- integrating behaviour change initiatives to social transfers for better access to nutritious diets and essential health services;
- linking social transfers with food system actions to enhance availability, affordability and consumption of nutritious foods through local production, market access and fortification;
- building synergies between child nutrition and social protection to address underlying causes of malnutrition.

7.14.3.4 Water, sanitation and hygiene

There is a direct link between poor WASH practices and child undernutrition. Access to and availability, quality and and use of water and sanitation systems, combined with adequate hygiene practices, play a critical role in nutrition in young children and affect their ability to grow and develop. Access to safe water and a clean environment are critical to significantly reducing environmental contamination and improving children's nutrition *(86)*.

Health workers should counsel and educate mothers/caregivers of children who exit outpatient care on health and hygiene practices (e.g. handwashing, waste disposal). It is important to promote point-of-use or household drinking water treatment and safe storage. Health workers can also refer households to functional WASH services.

8. Management of moderate acute malnutrition (MAM) in children aged 6–59 months

8.1 Triage and emergency treatment

See Section 3.1 for guidance on triage and emergency treatment.

8.2 Enrolment criteria

Infants and children aged 6–59 months should be enrolled in outpatient care for MAM if they meet the following criteria:

- weight-for-height z-score (WHZ) or weight-for-length z-score (WLZ) ≥ −3 and < −2; and/or
- mid-upper arm circumference (MUAC) ≥ 115 mm and < 125 mm; and
- no nutritional oedema; and
- no medical problems requiring inpatient care (including those not related to nutritional status).

8.3 Medical management

All infants and children aged 6–59 months with MAM should be assessed comprehensively and treated wherever possible for medical and psychosocial problems leading to or exacerbating this episode of MAM. Although dietary management is necessary for MAM, it is not sufficient without treatment of any medical and psychosocial conditions leading to or exacerbating this episode of MAM.

There is no routine medical management for children enrolled into outpatient care for MAM, but this contact is a key opportunity to ensure preventive interventions such as infant and young child feeding (IYCF) counselling, vitamin A supplementation, vaccination, deworming and any other interventions are delivered as per national protocols. Other important interventions include health- and nutrition-related counselling and psychosocial stimulation (e.g. play therapy at home).

Any medical treatment initiated should follow national or global guidance such as the *Integrated management of childhood illness: chart booklet* *(6)* or other relevant World Health Organization (WHO) or national treatment guidance.

8.4 Nutritional management

8.4.1 WHO recommendations on the nutritional management of children with MAM

The 2023 *WHO guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in children aged under 5 years* *(1)* provides the first set of comprehensive recommendations on the nutritional management of MAM. Although there are many evidence gaps in the WHO guideline – importantly, on the specific use of which home foods can be used to enable children to recover from MAM – innovative methods were used such as prognostic factor reviews to provide guidance on areas such as which children with MAM to prioritize for specially formulated foods (SFF) when resources are not unlimited. In addition, significant emphasis is placed on the importance of implementing (or working towards implementing) a home-foods approach to managing children with MAM and the vital aspects of a health assessment, which could lead to treating a medical condition that is the cause of this episode of MAM.

Box 29 clarifies some of the 2023 WHO recommendations on the management of children with MAM.

Box 29

Clarifying WHO recommendations on MAM

- Children who meet the anthropometric criteria of MAM are a diverse population, with many different causes leading to this episode of MAM and many different ways to recover from it. A child may develop MAM secondary to a medical problem or a psychosocial reason that is not linked directly to their nutritional intake. For this reason, special emphasis is placed on assessing the child's health status and treating all existing medical problems, as feasible within the specific context.
- WHO emphasizes using locally available nutrient-dense foods to meet the extra needs of children with MAM for anthropometric recovery and for healthy growth and development. SFF should be considered only when these needs cannot be met by local foods.
- WHO does not recommend that all children with MAM in all contexts receive SFF. In high-risk contexts with a recent or ongoing humanitarian emergency, WHO recommends considering giving SFF to all children with MAM because they are highly vulnerable in these contexts.
- Children with MAM and one or more of the individual child or social factors identified by WHO (see below) have a higher risk of poor outcomes (deterioration to severe acute malnutrition (SAM), non-response, mortality, sustained recovery). These factors are independent, and there is no current evidence to say they are cumulative (i.e. a child with three factors is not necessarily at more risk than a child with only one factor).
- Children with MAM and one or more of the individual child or social factors do not automatically need to have SFF. These risk factors should be used to help prioritize which children with MAM should be given SFF when resources are not infinite. Decision-makers implementing the recommendations will need to decide which factors are applicable in the contexts, considering feasibility, acceptability and potential impacts on equity.
- The recommendations do not provide insight into how infants and children with MAM and the identified factors will respond to SFF, because this information was not available from the evidence (i.e. there is no evidence to demonstrate that giving these children SFF will definitely reduce their increased risk of mortality or non-response). These factors are proposed only to prioritize children at higher risk, taking a health equity approach.
- Children with MAM who do not have any of these factors can still be given SFF if this is decided at the programme or individual child level (i.e. decided by a health worker) to be the best approach for this context or child.
- Lipid-based nutrient supplements are the preferred type of SFF. These include ready-to-use supplementary food (RUSF) and ready-to-use therapeutic food (RUTF). When these are not available, fortified blended foods with added sugar, oil and/or milk (improved fortified blended foods) are preferred instead of fortified blended foods with no added sugar, oil and/or milk.
- RUSF and RUTF are comparable and can be used for children with MAM to supplement their home diets. RUSF is currently not recommended for the treatment of SAM. If children with MAM can be given RUSF or RUTF, stocks should be prioritized for children with SAM who have a significantly higher risk of dying than children with MAM.

8.4.2 Nutrition targets

The recommended daily energy requirements of children aged 6–59 months with MAM to achieve anthropometric recovery are 100–130 kcal/kg/day. This range is calculated is detailed in *Web annex H* *(49)* 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)*. The daily energy requirements of children with MAM are higher than those of their healthy, non-malnourished peers, who need approximately 80 kcal/kg/day *(50)*.

Apart from these recommended daily energy requirements, and although WHO provided guidance on the proposed nutrient composition of supplementary foods for use in the management of moderate wasting in children in 2012 *(87)*, there are no recent global recommendations for other nutrient requirements for children with MAM.

Many studies and organization-based projects use the 2009 *proposed recommended nutrient densities for moderately malnourished children* developed by Golden *(88)*. The recommendations include energy, protein

and micronutrient standards presented as nutrient: energy densities per 1000 kcal. They were derived using approximations of the needs of a healthy, non-malnourished child living in a clean, safe environment and a severely malnourished child recovering in a challenging environment. The comparators used are the recommended nutrient intakes *(50)* and F-100 therapeutic milk used for inpatient treatment of children aged 6–59 months with SAM (see Section 4.6). These values (see Annex 33) may be used as an interim reference until more current or context-specific evidence becomes available.

To meet these daily energy requirements and their extra needs for nutritional and functional recovery, improved survival, health and development, it is recommended that all children with MAM consume a diet consisting of nutrient-dense foods (see *Box 30*). Ideally, this should come in the form of adequate locally available and affordable nutrient-dense foods. These include foods that are adequate in terms of nutrients and available in local markets and/or produced by the household and are culturally acceptable to the child and the family.

If it is not possible to meet the extra nutritional needs of a child with MAM through local foods alone, SFF may be needed. This may be due to poor availability of nutrient-dense foods in local markets, lack of financial resources, inability to reach local markets due to security issues or other obstacles, lack of knowledge regarding which foods to give and how to prepare them, or beliefs and taboos around certain foods.

Analyses by implementing organizations such as the United Nations Children's Fund (UNICEF) and the World Food Programme have found that meeting the requirements for particular micronutrients such as calcium, vitamin D and zinc through local food-based approaches alone is challenging in many different contexts, especially during ongoing humanitarian crises. Programme managers and decision-makers in each country should propose micronutrient targets that are realistic for the context – for example, by using daily intake plans or meal plans that meet 80% of the target for the more challenging micronutrients, or adding micronutrient powders or fortified foods to local recipes.

Important

If the child's food is prepared by the mother/caregiver, nutritional counselling for the mother/caregiver is essential, including around hygienic preparation, responsive feeding and storage practices.

Box 30

Nutrient-dense diets

Nutrient-dense diets enable children to consume and maximize the absorption of nutrients in order to fulfil their requirements for energy and all essential nutrients. Nutrient-dense diets are high in nutrients relative to their energy content; they have a relatively high content of vitamins, minerals, essential amino acids and healthy fats.

Breastmilk is rich in both macronutrients (energy, protein, fat) and bioavailable micronutrients. Breastmilk can provide up to 77% of the energy required by an infant aged 6–9 months, 63% of the energy required by an infant aged 9–12 months, and 44% of the energy required by a child aged 12–24 months. Breastfeeding should be encouraged and supported for children aged up to 2 years and beyond. Children aged 6–23 months who are not breastfed need to consume a more varied diet to meet their nutrient needs.

Nutrient-dense diets also include animal-source foods, beans, nuts and many fruits and vegetables. Animal-source foods are more likely to meet the amino acid and other nutrient needs of recovering children. Plant-source foods, in particular legumes or a combination of cereals and legumes, have high-quality proteins, although they also contain some antinutrients such as phytates, tannins or inhibitors of digestive enzymes, which may limit the absorption of some micronutrients, particularly minerals.

Adequate locally available diets include foods available in the market and/or household typically consumed by the child that are adequate in terms of nutrients.

8.4.3 Nutrition management options

The nutrition management options for children with MAM must take into consideration contextual factors, feasibility, acceptability and equity (especially regarding the use of SFF). This decision should be reviewed regularly. This implementation guidance describes three main options for nutritional management of children with MAM in outpatient care based:

- Option A: enabling access to nutrient-dense foods to improve the quality of the diet of the child with MAM and that of the family.
- Option B: supplementation with SFF plus enabling access to nutrient-dense foods to improve the quality of the diet of the child with MAM and that of the family.

- Option C: supplementation with SFF plus provision of nutrient-dense foods for children with MAM and for their families (in high-risk or humanitarian contexts).

The option chosen should be decided at the programmatic level according to the local context and in line with national policies. These decisions may need to be adapted if the current situation changes (e.g. due to a natural disaster, conflict, or other reason affecting the availability and accessibility of nutrient-dense foods). Individual and social factors are also susceptible to change.

In some contexts, it may be effective and feasible to start a child on one option and then move to a different option if no response is seen.

Important

The nutrition management options described below all include counselling on health and nutrition topics as a vital aspect of the care delivered, (as well as appropriate medical management – see Section 8.3). The evidence that led to the recommendations informing these management options was based on counselling being provided.

National protocols and guidance should be used to carry out context-specific health and nutrition education and counselling.

See Annexes 11 and 13 for guidance.

8.4.3.1 Option A: enabling access to nutrient-dense foods

This option is most appropriate in relatively stable contexts where markets are functional and there is a reliable supply of foods for nutrient-dense diets, but household resources may not be sufficient to obtain nutritious diets to meet the extra needs for recovery of the child with MAM. The interventions used will differ, depending on the context.

Examples of interventions include:

- conditional or unconditional cash transfers;
- food vouchers;
- support to home or community gardens or local agricultural projects (longer-term intervention);
- direct provision of food or food distribution (usually in high-risk or humanitarian contexts).

This option requires two vital preparatory actions:

- A detailed analysis of the food environment must be carried out to determine the feasibility of managing the child with MAM with nutrient-dense home foods, taking into consideration food seasonality, cost, preference and acceptability, gender aspects (especially restrictions), supply and value chains, and food quality and safety aspects.
- Clear, context-specific daily intake plans, meal plans and menu options must be developed to enable health workers or other staff who manage the child to give practical, appropriate and feasible guidance to the mother/caregiver.

See Annex 33 for guidance on these preparatory actions.

At each outpatient visit:

- Carry out a health and nutritional status assessment (see Annex 34). Deliver or refer the child for appropriate medical or psychosocial care, according to the findings of the assessments and the services provided in this outpatient context.
- Provide details and counselling on the daily intake plans, meal plans and menu options that have been developed (see Annex 33) and will be used in this programme or service for the child and the family. Emphasize what is needed to meet the individual needs of the child and the family, and how they fit together.

Important

In some contexts, it may not be possible (either temporarily or longer-term) to enable access to local nutrient-dense foods through cash transfers or food vouchers, or offer direct provision of food. In these contexts, there is still value in health workers or community health workers (depending on the context) regularly reviewing children with MAM in outpatient services to identify medical problems that need attention or referral; to identify and refer children who deteriorate to SAM; and to provide counselling, with an emphasis on active listening and empathy, even if no direct provision of nutritional supplementation can be ensured.

Active advocacy efforts should be made in these contexts to start or resume access to nutrient-dense foods for children with MAM to ensure healthy diets for whole families.

- Depending on the context and programmatic decisions, provide the interventions described above to enable access to nutrient-dense foods for the child and foods to improve the overall quality of the family diet.

8.4.3.2 Option B: supplementation with SFF plus enabling access to nutrient-dense foods

This option can be used if it is assessed, through a comprehensive and context-specific evaluation, that a child (or children in a specific context or population) is unlikely to recover from MAM based on the diet in their household alongside counselling, despite appropriate management of any medical problems that could be causing or exacerbating this episode of MAM.

Enabling access to nutrient-dense foods for a child and their family requires a prerequisite that markets are functional and have an adequate and reliable supply of nutrient-dense foods, even if the household resources may not be sufficient to obtain a nutritious diet from accessible foods.

SFFs have been shown to be an effective intervention for recovery from MAM in many infants and children, when used in addition to comprehensive medical and psychosocial care.

It is currently not recommended, however, to give SFF to all children with MAM in all contexts. There may be unintended consequences of providing SFF to all children with MAM, such as displacement of healthy home foods and breastmilk, and the relatively high costs of these nutritional products for the high numbers of children with MAM in many low-income countries. In addition, some children with MAM recover without the use of SFF.

Prioritization of SFF for children with MAM is often needed. Using a risk-based approach means more attention and resources are prioritized to more disadvantaged infants and children, reflecting a concern for health equity. Prioritizing children for SFF is based on individual child, social and contextual factors (see Section 8.4.3.3).

Evidence has shown that the factors in Table 10 are associated with an increased risk of adverse outcomes in infants and children with MAM, such as reduced anthropometric recovery, deterioration to SAM, non-response, mortality or reduced sustained recovery. The evidence used to describe these factors could not show whether the factors are cumulative, and therefore each factor must be considered on its own (i.e. a child with three factors is not necessarily at more risk than a child with only one factor). This means a child could be prioritized to receive SFF with only one factor alone or with a number of factors. As soon as a child has one factor, they are at higher risk of poor outcomes.

Decision-makers at the policy or programme level may decide to use any of the factors individually or together, in a manner that is most effective, feasible and acceptable for their context. These factors can be used in all contexts, including in high-risk contexts and humanitarian emergencies when further prioritization is needed (see also Section 8.4.3.3).

Table 10. Individual child and social factors for prioritizing SFF interventions for infants and children with moderate wasting

Individual child factors	▷ MUAC 115–119 mm ▷ Weight-for-age *z*-score (WAZ) < −3 SD ▷ Age under 24 months ▷ Failing to recover from moderate wasting after receiving other interventions (e.g. counselling alone) ▷ Having relapsed to MAM (i.e. previously enrolled in a MAM management programme, exiting as recovered and then presenting with a new episode of MAM) ▷ History of SAM ▷ Comorbidities that need mid- or long-term follow-up care and have a significant association with nutritional status (e.g. HIV, tuberculosis (TB), physical or mental disability); many national protocols for these conditions (especially HIV and TB) have guidance on the importance of nutritional supplementation for these children
Social factors	Severe personal circumstances (e.g. deceased mother, poor maternal health and well-being)

Deciding which factors to use must be done at the programme or national level and should consider:

- prevalence and incidence of MAM at the national and subnational levels;
- recommendations in current national policies and protocols for the management of acute malnutrition related to this topic;
- known causes or driving factors for MAM at the national and subnational levels, and the ability to ameliorate these factors at the local level;
- feasibility of measuring or assessing the factor at different levels of the health system (including available documentation, e.g. discharge summaries to show a child was previously enrolled or admitted for MAM or SAM) by different cadres of health workers;
- (exclusive) breastfeeding rates and complementary feeding patterns;
- public health overview, including disease burden, morbidity and mortality trends, and relevant epidemiological characteristics of the population;
- maternal health indicators, including maternal mental health.

This is a new recommendation for WHO using this risk-based approach, and global guidance will need to be generated with new regional and country experiences.

See *Methods to estimate caseloads of children with moderate wasting using individual risk factors* for current guidance on deciding which factors to use *(89)*.

At each outpatient visit:

- Carry out a health and nutritional status assessment (see Annex 34). Deliver or refer for appropriate medical or psychosocial care according to the findings of the assessments and the services provided in this outpatient context.
- Provide SFF based on the child's weight child (see Annex 35) and considerations from Section 8.4.4 on which SFF to give and the proportion of daily needs to be covered.
- Provide details and counselling on the daily intake plans, meal plans and menu options that have been developed and will be used in this programme or service for the child and their family. Emphasize that the SFF provided covers only a proportion of the child's total needs (see Section 8.4.4), and the daily intake plans, meal plans and menu options will make up the rest of their needs.
- Depending on the context and programmatic decisions, provide interventions as per the list in Option A to enable access to nutrient-dense foods for the child with MAM and improve the family's diet.

8.4.3.3 Option C: supplementation with SFF plus provision of nutrient-dense foods in high-risk or humanitarian contexts

Option C can be used when a government and/or implementing partner assesses it is appropriate to provide SFF for all children with MAM living in a high-risk or humanitarian context along with provision of nutrient-dense foods to improve the quality of the diet of the child and the family.

The risk level or emergency classification has usually already been established before planning nutritional management options for children with MAM – for example, via a nutrition humanitarian needs assessment and analysis or an Integrated Food Security Phase Classification acute malnutrition classification.

As per the 2023 WHO guideline, high-risk contexts include those where the majority of the population is affected by any of the following characteristics or circumstances:

- high rates of food insecurity;
- poor water quality and sanitation (or poor water, sanitation and hygiene (WASH) indicators);
- low income or socioeconomic status;
- high incidence or prevalence of wasting and/or nutritional oedema, which could be seasonal.

Many national and global assessment scales and tools are available to evaluate whether a context is high-risk or humanitarian, including:

- *Famine Early Warning Systems Network (90)*
- *IPC overview and classification system (91)*
- *IPC acute malnutrition classification (92)*
- *SMART methodology (93)*
- *WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) (94)*
- *Humanitarian standards (95)*.

In high-risk contexts where there is a recent or ongoing humanitarian crisis, all infants and children aged 6–59 months with MAM should be considered for SFF along with counselling and provision of home foods for the children and their families.

If it is not possible or appropriate to provide all children with MAM with SFF to supplement their diets, the individual child and social factors approach described for Option B above can be used to prioritize which children receive SFF.

For developing daily intake plans, meal plans and menu options for children with MAM, see the preparatory actions as per Option A above and Annex 33. Home foods do not need to cover all the child's nutritional requirements for recovery from MAM because SFF is being used, but home foods and SFF combined must make up the total needs.

Assess whether the ingredients are available in local markets for access through cash or food vouchers. If not, a food distribution programme will be required (which may still use some local products, but with some regional or imported food products).

See the following resources for guidance on planning for the provision of food for the whole family:

- *Household economy analysis (96)*
- *Economic capacity to meet essential needs (ECMEN) (97)*
- *Calculating the minimum expenditure basket: a guide to best practice (98)*
- *Cost of the diet: a practitioner's guide (99).*

Note

Aim to provide context-adapted guidance so that meal plans for children with MAM can be based on family meals, but with ingredients added to ensure the meals are nutrient-dense.

At each outpatient visit:

- Carry out a health and nutritional status assessment (see Annex 34). Deliver or refer for appropriate medical or psychosocial care according to the findings of the assessments and the services provided in this outpatient context.
- Provide SFF based on the child's weight (see Annex 35) and considerations from Section 8.4.4 on which SFF to give and the proportion of daily needs to be covered.
- Provide details and counselling on the daily intake plans, meal plans and menu options that have been developed and will be used in this programme or service for the child and their family. Emphasize that the SFF provided covers only a proportion of the child's total needs (see Section 8.4.4), and the daily intake plans, meal plans and menu options will make up the rest of the needs.
- Depending on the context and programmatic decisions, provide interventions as per the list in Section 8.4.3.1 to enable access to nutrient-dense foods for the child with MAM and improve the quality of the family diet.

8.4.4 Deciding which SFF to give, and how much of the total daily energy needs should be covered

Important

Not all children with moderate wasting need SFF to supplement their diet. All children with moderate wasting need a health assessment to rule out medical problems that could be the cause or main driver of the moderate wasting. They also need access to a nutrient-dense home diet to meet their energetic and nutrient needs.

The decisions on which factors to use for prioritizing children with MAM are context-specific. Programme managers should make judgements based on the factors that are applicable in their contexts, taking into account feasibility, acceptability and equity.

8.4.4.1 Types of SFF

The following types of SFF are recommended to supplement the diet of a child with MAM to reach anthropometric recovery (these are given in order of preference, based on current effectiveness evidence):

- lipid-based nutrient supplements (RUSF or RUTF);
- improved fortified blended foods with added sugar, oil and/or milk (e.g. Super Cereal plus);
- non-improved fortified blended foods with no added sugar, oil and/or milk (e.g. Super Cereal).

In some contexts, better outcomes may be achieved by providing an improved fortified blended food in a flour format that can be made into a meal that more closely resembles food usually served at home (e.g. porridge), is more acceptable to the child and their family, and is consumed more readily than a lipid-based nutrient supplement.

8.4.4.2 Proportion of daily energy needs covered

Current recommendations are that children with MAM who require SFF should be given SFF to provide 40–60% of the total daily energy requirements needed to achieve anthropometric recovery (with the rest of their energy and other nutrient requirements provided by home foods). Total daily energy requirements needed to achieve anthropometric recovery are estimated to be 100–130 kcal/kg/day. For example, if a child receives SFF covering 40% of their needs, the other 60% of their needs must be ensured through a nutrient-dense home diet (see Sections 8.4.3.1 and 8.4.3.2).

Ideally, a decision is made at the programme level in line with national policies on the kcal/kg/day for total energy needs of children with MAM to be used (from the range 100–130 kcal/kg/day) and a percentage to use for all children in a programme, context or population,

with clear standard operating procedures, protocols or equivalent guidance documents. These decisions may be adapted according to changes in context (e.g. a new humanitarian crisis or an improvement in the food security situation for the majority of households).

Contexts where the food security situation is poor and other factors exist may favour using the higher end of the range, and those that are more stable may prefer to use the lower end of the range. Systematic, clear decision-making tools should be developed at the local level to make these decisions with built-in flexibility for review and changes in approaches.

Note

The reference tables for prescribing SFF in Annex 35 were developed using a midpoint of 115 kcal/kg/day, with different options for the percentage of needs covered. These values can be adapted or changed at the programme or country level.

8.5 Checklist for each outpatient visit

See Annex 34 for a summary of minimum essential actions that should carried out at each outpatient visit for children aged 6–59 months with MAM and their mothers/caregivers.

Box 31

Frequency of outpatient visits for a child with MAM

There are no WHO recommendations on the ideal frequency of outpatient visits for a child with MAM. Many national guidelines use a schedule of every 2 weeks. In light of the lack of a global standard, policy-makers and programme managers should decide on a visit schedule that is effective, feasible and acceptable to the health system (or other system delivering these services) and families. Ideally, the schedule should be adapted to the progress the child is making, with more or less frequent visits proposed accordingly.

8.6 Monitoring response to nutritional and medical management

See Annex 33 for a checklist of actions that should be carried out at each outpatient visit. In summary:

- Clinical status:
  - ⇢ Assess the overall clinical status of the child at each visit – see Annexes 1 and 2 for guidance.
  - ⇢ Ask the mother/caregiver how they think the child is progressing, and address any questions they ask.
  - ⇢ Ask the mother/caregiver whether they have any problems or concerns related to their own physical or mental health (see Section 12), especially if they are breastfeeding, and address these or refer to other services as needed.
- Breastfeeding: if the child is breastfeeding and the mother or wet-nurse reports problems with breastfeeding, carry out a breastfeeding assessment (see Section 9.4.2 and Annex 20). The enrolment visit breastfeeding assessment should be more comprehensive and carried out even if no problems are reported initially, to provide a baseline understanding of breastfeeding for this mother/caregiver and infant or child and to provide support for any issues identified. This is especially important for children aged 6–23 months.
- Weight gain: there is no global standard for the exact weight that a child aged 6–59 months with MAM should gain per week or month in outpatient care, but a target weight of 5–10 g/kg/day can be used as an evidence-informed guide. National guidelines or standard operating procedures should be followed, if available.

8.7 Assessment methods

- Plot the child's weight on a growth chart, using the WHO *growth chart for weight-for-age z-scores (26)*. This is the preferred option but is not always easy for less experienced staff members. All efforts to train staff to use these charts should be made – see *WHO child growth standards: training course on child growth assessment (78)*.
- Assess weight gain between visits: clinical improvement is the most important aspect for assessing progress and the next steps of management in outpatient care. A child who is progressing well could be expected to gain 5–10 g/kg/day. This can be used to work out an average weight gain in a week even if the visits are every 2 weeks.

Note

The data used to inform the weight gain above are based on children receiving SFF. Children on Option A (food-based, no SFF) may gain weight at a slower rate – but if the child is improving clinically, the mother/caregiver does not report any new problems and the child is not losing weight, they should continue in outpatient care with the same management and consider increasing the frequency of the visits if there are ongoing concerns.

Note

Weight gain can occur in spurts and may not be constant, which must be taken into consideration even if using 5–10 g/kg/day as a guide for assessing weight gain. In general, satisfactory weight gain is likely to be specific to the child and needs careful clinical assessment from a multidisciplinary team in outpatient care.

8.8 Update the nutritional management plan

At each visit, after the assessments in Annex 34 have been carried out, a decision must be made regarding the child's progress. The health worker must decide whether the child:

- is improving;
- shows no change (is neither improving nor deteriorating);
- is deteriorating.

See Annex 36 for guidance on criteria to determine how well the child is progressing and actions that could be taken to update or adjust the medical and nutritional plan according to the child's clinical and nutritional status. This includes encouraging the mother/caregiver if the child is improving or addressing issues that could be leading to a lack of improvement or deterioration.

important

Any deterioration in the child's status that includes the appearance of danger signs or any of the criteria for inpatient admission should lead to direct referral to inpatient care.

8.9 Exit from outpatient care

8.9.1 Exit criteria

There is no specific WHO recommendation on exit criteria for children with MAM. One of the recommendations on the nutritional management of children with MAM, however, focuses on energy requirements to achieve anthropometric recovery, and so this can be used to guide exit criteria. For example, infants and children aged 6–59 months with MAM can exit outpatient nutritional care when they have:

- WHZ or WLZ equal to or greater than −2 standard deviations (SD) of the WHO child growth standards median (WHZ or WLZ ≥ −2 SD) if weight-for-height was used for the child's enrolment into outpatient care; and/or
- MUAC is equal to or greater than 125 mm if MUAC was used for the child's enrolment into outpatient care.

All of these should be observed for at least two consecutive visits or measurements.

Box 32

Anthropometric indices for exit criteria

Some children enrolled on both WLZ/WHZ and MUAC criteria may, after lengthy nutritional management, "normalize" on one criterion but not another. For example, a child's WHZ may be equal to or greater than −2 SD of the WHO child growth standards median, but the MUAC may remain stagnant and not reach 125 mm, despite prolonged nutritional supplementation and adequate clinical care.

The child should be assessed by a health professional who, ideally, has been following their care throughout. If it is decided that it would be safe and appropriate to do so, the child may exit from outpatient care and be labelled as "recovered" in the programme or service reporting.

A follow-up visit within 1 month of exit should be arranged to assess whether the child is still clinically well and has not deteriorated in terms of their nutritional and clinical status.

8.9.2 Exit procedure

Clear processes and detailed guidance for mothers/caregivers are vital on exiting outpatient care for the child's ongoing healthy growth and development and to prevent relapse back to MAM or even to SAM.

See Annexes 11 and 13 for guidance on information to give mothers/caregivers on exit.

8.10 Post-exit from outpatient care

See Section 7.12 for guidance on post-exit from outpatient care.

9. Outpatient nutritional and medical care for infants less than 6 months of age at risk of poor growth and development, with or without severe acute malnutrition (SAM)

See Section 2.2 for guidance on the identification of infants less than 6 months of age at risk of poor growth and development.

Infants less than 6 months of age at risk of poor growth and development, with or without SAM, should be managed as outpatients unless they have:

- one or more integrated management of childhood illness (IMCI) danger signs;
- acute medical problems or conditions under severe classification as per IMCI;
- oedema (nutritional);
- recent weight loss; or
- an in-depth assessment has been completed and determined that inpatient admission is needed.

Outpatient management should follow national and global child health guidelines and tools in addition to the nutritional care guidance provided below. The main focus of inpatient and outpatient management of infants less than 6 months of age at risk of poor growth and development is maintaining and/or restoring exclusive breastfeeding. Alongside this nutritional management, prompt and appropriate treatment of medical problems and support for any psychosocial problems that the mother/caregiver is experiencing are essential parts of a comprehensive package of care.

The mother/caregiver and the infant should be able to access these services at all levels of the health system, and ideally as close as possible to their home. Well-child visits are an important entry or contact point to identify these mother/caregiver–infant pairs and either start interventions or refer them to other services that can deliver the interventions (see Section 2.5 and *Box 3*) *(16)*. Many other entry and contact points can also be used to identify these infants and initiate appropriate care (see Table 1). A full assessment of the health system to determine where these services can be best delivered should be carried out and reviewed on a regular basis.

9.1 Triage and emergency treatment

See Section 3.1 for guidance on triage and emergency treatment.

9.2 Enrolment criteria

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 any of the criteria for inpatient admission (see Section 6.1 and *Box 13*); and
- no criteria needing in-depth assessment (see Section 6.1), or an in-depth assessment has been completed and determined that inpatient admission is not needed (e.g. feeding problems that can be managed in outpatient care, diarrhoea with no dehydration, respiratory infections with no signs of respiratory distress, malaria with no signs of severity).

9.3 Enrolment procedure

As soon as the infant is enrolled in outpatient care, it is vital that the mother/caregiver is given a clear explanation of why the infant has been enrolled, the principles of care for outpatient management, and the setup and organization of the outpatient service.

See Annexes 11 and 13 for guidance on enrolling an infant and their mother/caregiver into outpatient care.

9.4 Medical management

On enrolment of an infant aged less than 6 months into outpatient care, the mother/caregiver should be assessed to identify any physical or mental illnesses and then treated or referred appropriately. The mother/caregiver should also be assessed on follow-up visits in case new problems arise. See Section 12 for further guidance.

9.4.1 Infants less than 6 months of age with SAM

Outpatient nutritional management occurs in parallel with medical management of non-severe medical problems. Infants with severe medical problems should be referred to inpatient care (see Section 6.1 and *Box 13*).

Table 11 summarizes the routine medical management for all infants less than 6 months of age with SAM on enrolment into outpatient care.

See the following for guidance on managing medical problems identified on enrolment or during outpatient nutritional care

- *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – chart booklet (12)*
- *Integrated management of childhood illness: chart booklet (6).*

The World Health Organization (WHO) *Pocket book of hospital care for children: second edition* (hereafter, the WHO Pocket book) *(5)* may also be useful, but usually if a child is sick enough to need guidance from this, they also need to be admitted for inpatient care.

Table 11. Summary of medical management for infants less than 6 months of age with SAM

Intervention for infants aged less than 6 months with SAM	When and how
Broad-spectrum antibiotic	▷ On enrolment, unless given during inpatient care ▷ Oral route (if intravenous antibiotics are thought to be needed, the child must be admitted to inpatient care) ▷ Duration 7 days
Ensure all vaccinations are up to date, or refer for vaccination	▷ On enrolment, at each visit and at exit
Screening for signs of vitamin A deficiency	▷ On enrolment and at each visit (especially for children with nutritional oedema) ▷ If vitamin A deficiency is detected, refer to inpatient care
Screening for HIV and tuberculosis (TB)	▷ On enrolment and as per national protocols
Screening for malaria in malaria-endemic areas	▷ On enrolment with rapid diagnostic test or blood smear, as per national protocols, and for a clinical indication at a follow-up visit ▷ Treat as per national malaria treatment protocols

Prevention at every opportunity

For all infants aged less than 6 months, with or without malnutrition, and their mothers/caregivers, it is vital to use every contact with the health system to deliver appropriate health promotion, education and counselling interventions and services and check whether they have received all available preventive services (e.g. vaccinations and infant and young child feeding (IYCF) counselling).

If it is not possible to deliver these preventive services during outpatient care visits, the infant and the mother/caregiver should be recalled for follow-up visits or referred to services that can provide these interventions. Ensure the mother/caregiver understands the importance of the interventions and knows when and where they need to go to receive them.

9.4.1.1 Routine antibiotics for infants with SAM

All infants and children aged 1–59 months with SAM should be prescribed routine broad-spectrum antibiotics on enrolment into outpatient care for nutritional management, unless they have already received antibiotics during inpatient care.

See the WHO *Pocket book* *(5)* for appropriate antibiotics and dosages for neonates aged under 1 month.

See Annex 14 for recommended regimens for routine antibiotics. These antibiotic regimens should be adapted according to local resistance patterns.

9.4.1.2 Screening and treating vitamin A deficiency

Many infants with SAM have vitamin A deficiency, but it is not easily detectable in the subclinical stage. Vitamin A plays an important role in maintaining visual capacity and the body's defences against infection through epithelial integrity and regeneration. Supplementation is crucial in infants with severe malnutrition to reduce morbidity and mortality (*1, 36*).

Indications for high-dose vitamin A supplementation include:

- signs of vitamin A deficiency/xerophthalmia:
  - dry conjunctiva or cornea;
  - Bitot spots;
  - corneal ulceration;
  - keratomalacia.
- recent measles (measles now or within the past 3 months, documented or reported by the mother/caregiver).

Systematic physical examination for signs of xerophthalmia should be conducted carefully by a clinician experienced in assessing for this, in good lighting, on enrolment and repeated at each outpatient visit, because the condition of the eyes can deteriorate rapidly, exposing the infant to a high risk of blindness. If there are any doubts or staff do not have adequate experience or competency to assess for vitamin A deficiency/xerophthalmia, the infant should be referred to a health facility where this assessment can be carried out accurately.

See the WHO *Pocket book* *(5)* for guidance on signs of vitamin A deficiency.

See Annex 14 for protocols for dosing of vitamin A supplementation.

Important

Children with signs of vitamin A deficiency/xerophthalmia must be referred to inpatient care for management and follow-up as per the WHO *Pocket book* *(5).*

9.4.1.3 Vaccinations

On enrolment into outpatient care:

- Assess the infant for eligibility for vaccines within the national vaccination programme (and at each subsequent point of contact), and either vaccinate directly or refer to the appropriate service.
- Give the mother/caregiver a home-based vaccination record if they do not already have one.
- Remind the mother/caregiver to keep the record safe and bring it to every future health contact.
- Counsel the mother/caregiver on the importance of completing the infant's vaccination schedule, using clear and understandable terms.

Important

All vaccines included in the national vaccination programmes should be given to infants in nutrition programmes and services, as a minimum. See also the *WHO recommendations for routine immunization* *(38).*

Postpone vaccination only if the infant is acutely unwell (including with a fever higher than 38.5 °C). Note that an infant who is acutely unwell should be referred to inpatient care. Vaccinate as soon as the infant has recovered.

Mild concurrent infections (including with a fever lower than 38.6 °C) are not a contraindication to vaccination.

Important

Never miss an opportunity to vaccinate!

To reduce *missed opportunities for vaccination*, any contact with an infant less than 6 months of age at risk of poor growth and development, with a child with MAM or SAM, and with their siblings and caregivers is an opportunity to review their home-based record and ensure they are up to date with their vaccinations *(37).*

Always check and complete the tetanus vaccination status of the child's mother and female caregivers of childbearing age.

On exit from outpatient care, inform the mother/caregiver about which vaccines the infant still requires, and when and where to return for these. Remind the mother/caregiver to keep the child's home-based record safe and bring it to every future health contact.

9.4.2 Infants less than 6 months of age at risk of poor growth and development without SAM

Infants less than 6 months of age at risk of poor growth and development without SAM should not be prescribed routine antibiotics and should be prescribed antibiotics only for an identified clinical indication (e.g. otitis media).

If a specific medical condition has been identified, the choice, dose and duration of the antibiotics and other medicines should follow national protocols or the guidance from *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – chart booklet (12)* and *Integrated management of childhood illness: chart booklet (6)* for the specific condition. Antibiotic regimens should be adapted to local resistance patterns.

Important

Infants less than 6 months of age are a particularly vulnerable group. Any sign of deterioration or suspicion of serious infection is an indication that the infant should be referred for inpatient assessment and/or management.

Prevention at every opportunity

Infants receiving outpatient nutritional care should be vaccinated according to the national vaccination schedule. Outpatient nutritional care is an important opportunity to deliver scheduled vaccinations or catch up on missed vaccinations. All efforts must be made to deliver these vaccinations, or arrange follow-up so the infant can receive them in another health facility or location. See Section 9.4.1.3 for guidance.

9.5 Nutritional management

Important

The importance of breastfeeding

All infants, including those less than 6 months of age at risk of poor growth and development, with or without SAM, should be exclusively breastfed to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods, while continuing to breastfeed for up to 2 years or beyond.

9.5.1 Summary of outpatient nutritional management for infants less than 6 months of age

The primary focus of outpatient nutritional management of infants less than 6 months of age at risk of poor growth and development, with or without SAM, is maintaining and/or restoring exclusive breastfeeding.

Breastfeeding counselling and support (see *Box 33*) are the central components of nutritional management of infants less than 6 months of age at risk of poor growth and development, with or without SAM. Infants with SAM are much more vulnerable than infants without SAM, and there should be a lower threshold for initiating more intensive monitoring and support, including referral to inpatient care, for infants with SAM.

When an infant is not exclusively breastfed, appropriately trained health workers (e.g. breastfeeding counsellors) should support the mother to restore exclusive breastfeeding by increasing her supply (through very frequent breastfeeding or expressing) or relactating if she has stopped breastfeeding (see *Box 19* in Section 6). If the mother is unavailable, unwilling or unable to relactate, the family should be supported to identify a wet-nurse. If these options have been exhausted and exclusive breastfeeding is not possible, the family will need intensive support to provide replacement feeding at home.

Box 33

Breastfeeding counselling and support

Breastfeeding counselling and support is an essential component of inpatient care for infants less than 6 months of age at risk of poor growth and development. Management should focus on addressing breastfeeding challenges and supporting lactation so the infant can maintain adequate weight gain and healthy growth after exclusive breastfeeding is restored.

Effective breastfeeding counselling requires the mother/caregiver to feel safe enough to disclose all relevant information about her health, personal circumstances, knowledge, beliefs and behaviours.

When an infant is admitted for inpatient nutritional management, the mother/caregiver may be frightened. They may feel embarrassed or ashamed and fear being blamed by the staff for failing to feed the infant properly. They may feel guilty or blame themselves for "allowing" the infant to become ill.

A skilled breastfeeding counsellor supports the mother/caregiver to process these feelings and understand why the infant has become unwell. The breastfeeding counsellor provides knowledge, skills and practical support, and works with the mother/caregiver to develop a plan of action that is feasible for the mother/caregiver to implement, given the unique constraints of the situation.

Support for mothers/caregivers of infants who cannot be breastfed should not be seen as separate from breastfeeding counselling. These families need counselling around reducing the risks of replacement feeding, preparing, storing and feeding commercial infant formula hygienically, and responsive feeding.

Breastfeeding counselling and support is a time-intensive activity that involves eliciting and listening to concerns, discussing questions, normalizing and contextualizing infants' behaviour, observing interactions, and supporting the development of skills and confidence.

Breastfeeding counselling and support usually cannot be absorbed into the normal workload of nurses. Dedicated breastfeeding counsellors should be included in the health-care team. Breastfeeding counsellors must be trained and equipped with the competencies described in Box 34.

Access to International Board-certified Lactation Consultants or equivalently qualified personnel for mentoring breastfeeding counsellors and for escalating more complicated cases may improve quality of care and secure better outcomes for infants.

An effective nutritional management plan includes the following elements:

- comprehensive feeding assessment;
- intensive breastfeeding counselling and support (including for relactation (see *Box 19*), to increase breastmilk supply/intake, wet-nursing or replacement feeding if exclusive breastfeeding is not possible);
- medical, psychosocial and nutritional care for the mother/caregiver;
- evaluation at age 6 months, and referral to appropriate services for ongoing nutritional monitoring and support.

9.5.2 Comprehensive feeding assessment

Nutritional management for any infant less than 6 months of age always begins with a comprehensive feeding assessment to identify and address feeding problems that may be causing or contributing to poor growth and development. The most common feeding problems that contribute to poor growth and development are:

- feeding the infant fluids or foods other than breastmilk, which interrupts exclusive breastfeeding, making the infant more vulnerable to infection;
- insufficient milk intake, which is most commonly due to poor milk transfer, not breastfeeding frequently enough, or restricting the duration of breastfeeds.

A comprehensive feeding assessment investigates the following:[12]

- Feeding practices: assessment of feeding practices can be used to determine what and how the infant is fed. Infants less than 6 months of age who are not exclusively breastfed are at risk of poor growth and development. Giving an infant less than 6 months of age any food or fluid other than breastmilk greatly increases their risk of infectious diseases (including diarrhoea and pneumonia), which increases the risk of malnutrition.

12 Guidance in this section is adapted from *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals, 2nd ed (63).*

- Urine and stool output: urine and stool output is an effective measure of intake. An infant who is wetting fewer than six nappies (or clothing used as nappies) in 24 hours is not getting enough breastmilk, especially if the urine is dark yellow and has a strong smell. An infant aged 1–6 weeks[13] who is getting enough breastmilk will pass copious, unformed, yellow or light-brown stools at least three times a day. From around age 6 weeks, the infant may pass stool as seldom as once a week. The main thing is to ask whether there have been any noticeable changes in the infant's stooling pattern over the past few days and assess whether these are within the range of normal variation.
- Feed frequency: infants less than 6 months of age need to breastfeed at least 8–10 times every 24 hours, including at least once overnight. Infants at risk of poor growth and development may need to breastfeed slightly more often.

Box 34

Essential breastfeeding counselling competencies

Qualified breastfeeding counsellors should be able to demonstrate the following competencies:

- Apply requirements of the *International Code of Marketing of Breast-milk Substitutes (61)* in practice.
- Interpret and apply IYCF policies in practice.
- Use effective listening, learning and communication skills to provide breastfeeding support and care.
- Apply breastfeeding knowledge to assess and support breastfeeding.
- Provide antenatal and postnatal breastfeeding support and care.
- Support initiation of breastfeeding within the first hour after birth.
- Provide support for expressing, storing and feeding breastmilk when infants and young children are not feeding exclusively at the breast.
- Identify, prevent and support resolution of common breastfeeding challenges.
- Support feeding of small, sick and/or preterm infants.
- Protect and support breastfeeding when an infant needs supplemental milk feeding.
- Coordinate and facilitate continuity of care for breastfeeding mothers and infants.

Important

Supply and demand: rebuilding breastmilk intake

Feeding foods or fluids other than breastmilk reduces the amount of breastmilk the infant removes from the breast. Reducing the amount of milk the infant removes from the breast reduces the amount of milk the mother produces.

Restoring exclusive breastfeeding requires paying attention to the infant's capacity to remove milk effectively from the breast *and* ensuring milk is removed from the breast while the infant's strength and proficiency improve.

Increasing the volume of milk removed from the breast by breastfeeding more frequently, offering both breasts and breastfeeding until the infant detaches or falls asleep at each feed, correcting attachment so the infant removes milk more effectively, or removing more milk from the breast (by expressing in addition to breastfeeding until the infant is able to breastfeed or breastfeed effectively) increases the daily volume of milk produced.

- Positioning and attachment: this requires observing at least one full breastfeed to identify and address attachment problems that interfere with milk transfer or injure the mother's nipples. A full breastfeed lasts from the time the infant is first offered the mother's breast until the infant finishes suckling and releases the second breast. This usually takes around 15–20 minutes for a healthy infant aged over 1 month, but may take up to 40 minutes for an infant who is unwell.
- Milk transfer at breast: milk transfer occurs when the infant swallows milk. Swallowing can be observed when the infant's suckling pattern slows, their sucks become long and deep, and their chin pauses at its lowest point (widest jaw) during suckling while the infant swallows. The swallow can also be observed as a wave-like motion that begins under the infant's chin.
- Other risk factors: these include, but are not limited to, low birthweight, multiple births, disability, separation from mother (including deceased mother), and intimate partner violence.
- Mental and physical health of the mother/caregiver: this includes, but is not limited to, poor nutritional status, illness, injury, disability, sexual or gender-based violence, adolescence, perinatal depression or anxiety, primiparity, living with HIV, TB infection, bereavement and financial distress. See Section 12

13 In the first week or so of life, stooling patterns may be more varied, including the passing of meconium, which usually happens on days 1–2 of life.

for more guidance and resources on assessing and supporting the mother/caregiver.

See Annex 21 for an example of a comprehensive feeding assessment tool.

9.5.3 Breastfed infants less than 6 months of age

The approach to outpatient nutritional management for breastfed infants less than 6 months of age at risk of poor growth and development is essentially the same, regardless of whether they have SAM. As infants with SAM are already severely malnourished, however, there should be a lower threshold for referring them to inpatient care where supplementary milk feeds (other than expressed breastmilk) can be given safely (see Section 6.5.3).

Nutritional management should include the following steps (some of which may occur simultaneously or in a slightly different order):

- Provide intensive breastfeeding support to identify and address breastfeeding issues.
- Support breastmilk expression to increase breastmilk output.
- Encourage kangaroo care at home.
- Start supplementary feeds.
- Monitor clinical status, outputs, breastfeeding and weight gain at each visit.
- Update the nutritional management plan.

9.5.3.1 Providing intensive breastfeeding counselling to identify and address breastfeeding issues

The mother or wet-nurse will need intensive, ongoing breastfeeding counselling and support to identify and address any feeding-related causes of the infant's undernutrition (see Section 6.1 and *Box 13*). Breastfeeding counselling must be provided at outpatient visits and may be needed more than once a week. The frequency of counselling contacts required may reduce as the infant's outpatient management progresses and feeding problems resolve.

The infant's breastmilk intake usually increases quickly when the mother is supported to improve positioning and attachment, breastfeed 8–10 times a day or more, and express to remove more breastmilk from her breasts.

Actions include the following:

- Observe breastfeeding regularly to identify barriers to milk transfer from the breast to the infant and specific concerns for this mother–infant pair.
- Correct positioning and attachment, if needed.
- Teach the mother or wet-nurse to express breastmilk by hand and with a breast pump if available.
- Encourage the mother or wet-nurse to offer both breasts twice at every feed.
- Show the mother or wet-nurse how to recognize and respond to the infant's hunger cues.
- Teach the mother or wet-nurse to recognize signs of sufficient milk intake, especially urine and stool output.
- Encourage and support the mother or wet-nurse to breastfeed responsively and at least every 2–3 hours, including at least once overnight (adapted to the age of the infant). Breastfeed from both breasts before giving expressed breastmilk from a cup.

9.5.3.2 Supporting breastmilk expression to increase breastmilk output

Frequent breastfeeding is usually the most efficient strategy for removing milk from the breast and increasing milk production. If the infant is unable to remove milk from the breast effectively, the milk must be removed manually and fed to the infant from a cup or spoon while intensive breastfeeding support is provided to build the infant's strength and improve milk transfer. If the infant is not swallowing during breastfeeding, the mother may be producing very little milk, or the infant may be unable to remove milk from the breast. Removing milk from the breast by expressing breastmilk frequently increases the amount of milk the mother's body makes.

Actions include the following:

- At the first enrolment visit, teach the mother or wet-nurse to express breastmilk by hand (even if they have a breast pump) and to clean any equipment used to express and feed breastmilk (including expressing bowl, breast pump parts, cup or spoon).
- Provide comfort, safety and privacy for the mother or wet-nurse to learn to effectively express breastmilk, clean the equipment, and feed the infant expressed breastmilk in outpatient care.
- Encourage the mother or wet-nurse to express each breast for at least 20 minutes, beginning around 20–30 minutes after breastfeeding (at least eight times a day, including at least once overnight). It may take up to 3 days or more to notice an increase in milk output. The mother or wet-nurse should be advised to continue expressing even if no milk is expressed initially, because the nipple stimulation caused by expressing increases the secretion of the hormones necessary for lactation.

- Teach the mother/caregiver how to feed expressed breastmilk to the infant from a cup or spoon. Ask the mother or wet-nurse to measure and record the amount of expressed breastmilk produced at each feed using a standard cup size or a standard cup that has been marked to show staff in the outpatient service.
- Breastmilk that is not used within 2 hours if the room temperature is above 22 °C or 4 hours if the room temperature does not exceed 22 °C should be discarded (*65, 66*).

See the following for more guidance on expressing breastmilk:

- *Hand expression and container (68)*
- *The community infant and young child feeding counselling package: counsellor's book part 1 – key practices (69)*
- *Assessment of breastmilk expression checklist (70)*
- *Hand expressing technique (67)*
- *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals, 2nd ed (62).*

9.5.3.3 Encouraging kangaroo care at home

Kangaroo care is continuous and prolonged (8–24 hours a day, or for as many hours as possible) skin-to-skin contact with the mother/caregiver. It is recommended as routine care for all preterm and low-birthweight infants. It also has benefits for many infants less than 6 months of age, including those at risk of poor growth and development, with or without SAM.

Kangaroo care improves metabolic stability and reduces energy demand, increases breastmilk production, facilitates responsive feeding, improves thermoregulation, and facilitates positive interactions between the mother/caregiver and the infant.

Kangaroo care can be continued while the mother expresses breastmilk.

See the following for more guidance on kangaroo care:

- *Kangaroo mother care: a clinical practice guide (47)*
- *Parent counselling guide on kangaroo mother care (KMC) (48)*
- *Kangaroo mother care: implementation strategy for scale-up adaptable to different country contexts (63)*
- *WHO recommendations for care of the preterm or low-birth-weight infant (64).*

9.5.3.4 Monitoring clinical status, outputs, breastfeeding and weight gain at each visit

See Annex 37 for a checklist of actions to be carried out at each outpatient visit. In summary, the following must be assessed:

- Clinical status:
  - ⇢ Assess the clinical status of the infant and mother/caregiver at each visit. Increase the visit frequency if indicated by findings during the assessment or reported by the mother/caregiver, if it is feasible for the family to come back more frequently (see Annexes 1 and 2 for guidance). Pay special attention to any signs of feed intolerance (see Annex 19).
  - ⇢ Ask the mother/caregiver how they think the infant is progressing, and address any questions they ask.
  - ⇢ Ask the mother/caregiver whether they have any problems or concerns related to their own physical and mental health (see Section 12), and address these or refer to other services as needed.
- Outputs: ask the mother/caregiver about urine and stool outputs, as per guidance in the comprehensive feeding assessment (see Section 9.4.2). As it is rare to be able to measure these directly in the outpatient setting, focus on asking about the number of wet nappies (or other material used for this purpose) and stooling patterns per day. Encourage the mother/caregiver to keep track of these while the infant is enrolled.
- Breastfeeding: carry out a breastfeeding assessment at each visit (see Section 9.4.2 and Annex 21). The enrolment visit assessment is likely to be longer and more comprehensive than at follow-up visits, which can focus on and try to address any issues identified.
- Weight gain:
  - ⇢ There is no global standard for the exact amount of weight an infant less than 6 months of age at risk of poor growth and development, with or without SAM, should gain each week or month in an outpatient setting. Infants at risk of poor growth and development are a diverse group, and there is a wide variety of reasons for an infant to be at risk of poor growth and development.
  - ⇢ For infants less than 6 months of age with SAM, approximate weight gain ranges have been used in a number of WHO documents and in national guidelines for inpatient management, but less evidence is available to guide outpatient management.

- The WHO *growth chart for weight-for-age z-scores (26)* for infants 0–6 months of age should be used, even for infants who were born preterm or low-birthweight infants. For the first 13 weeks, there is a line for each week; after this, the lines are marked by month, so an estimation may have to be made about where to mark the weight for this outpatient visit. This is not always easy for less experienced staff members. All efforts to train staff to use these charts should be made using the *WHO child growth standards: training course on child growth assessment (78)*.
- Clinical improvement is the most important indicator of progress and next steps of management in outpatient care. An infant who is progressing well could be expected to gain more than 10 g per day and follow their growth trajectory (growth curve).

Note

Weight gain can occur in spurts and may not be constant, even if using more than 10 g per day as a guide. In general, satisfactory weight gain is likely to be specific to the infant and a careful clinical assessment conducted by a multidisciplinary team is necessary to assess progress of infants in outpatient care.

9.5.3.5 Updating the nutritional management plan

See Section 9.9 for full guidance on what to do according to the medical and clinical status of the infant at each visit. If no improvement is observed in the infant after all the actions described above have been taken, follow the steps below for managing and supporting non-breastfed infants.

9.5.4 Non-breastfed infants less than 6 months of age

The approach to outpatient nutritional management for non-breastfed infants less than 6 months of age at risk of poor growth and development is essentially the same, regardless of whether they have SAM. There should, however, be a lower threshold for referring infants with SAM for inpatient care, where supplementary milk feeds can be given safely (see Section 6.5). Infants less than 6 months of age with SAM are a very vulnerable group, and any sign of non-response to nutritional management or deterioration is an indication that inpatient assessment and/or management is required.

Nutritional management should include the following steps (some of which may occur simultaneously or in a slightly different order):

- Provide counselling to explore relactation or wet-nursing.
- Provide ongoing education and counselling.
- Support replacement feeding if neither relactation nor wet-nursing is possible.
- Monitor clinical status, outputs, feeding and weight gain at each visit.
- Update the nutritional management plan.

9.5.4.1 Providing counselling to explore relactation or wet-nursing

Conduct a comprehensive feeding assessment to determine whether:

- the mother is available and willing to re-establish breastfeeding (relactation – see *Box 35*);
- the mother/caregiver is willing to breastfeed or find a woman who is willing to wet-nurse.

If the mother or another woman is willing to breastfeed, manage as for breastfed infants (see Section 9.5.3).

Box 35

Relactation

Support for relactation does not differ significantly from routine breastfeeding counselling and support.

Lactation can be stimulated in a woman who has stopped breastfeeding (recently or some time ago) or in a woman who has never been pregnant or breastfed before. A woman who has never been pregnant may be willing to relactate to wet-nurse an infant who cannot be breastfed by the mother. Many women relactate to wet-nurse when a relative is unable to breastfeed.

Supporting a woman to relactate is the same as supporting a woman to increase her breastmilk production. It requires very frequent breastfeeding or expressing throughout the day and night. Stimulating lactation requires stimulating the production of the hormone prolactin, which provokes development of secretory alveoli in the breasts of non-lactating women and milk secretion in the alveoli of women who have begun to lactate.

Prolactin is produced in response to nipple stimulation, either by an infant willing to suckle at the breast or by using the same technique required for expressing breastmilk (either by hand or with a breast pump). The prolactin response is strongest at night – it is important, therefore, to breastfeed or express frequently overnight and during the day, even when little or no milk is being produced. Increasing the frequency and duration of nipple stimulation is likely to accelerate the process.

Once milk secretion has begun, milk must be removed from the breast very frequently – either by the infant suckling at the breast or by expressing the milk – to build the volume of milk produced. Allowing milk to remain in the breast inhibits further milk production. The more frequently milk is removed, the more quickly the volume of milk produced increases.

Milk production may be observed as soon as 2–6 days after beginning frequent nipple stimulation and may occur earlier in women who have stopped breastfeeding more recently. Many mothers can achieve exclusive breastfeeding after 2–3 weeks if milk is removed frequently during the day and night, but this is highly variable and may take longer for some women.

9.5.4.2 Providing ongoing education and counselling

A mother/caregiver who is not breastfeeding should be provided ongoing education and counselling to manage replacement feeding and monitor the infant. Replacement feeding requires a context-specific, coordinated package of sustained care and skilled support to ensure the family can meet the nutritional needs of the infant and manage the increased risks of infectious diseases and nutritional deterioration.

See the following for guidance on counselling around this topic:

- *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals (62)*
- *Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed (13)*
- *The community infant and young child feeding counselling package (44)*
- *Planning and managing artificial feeding interventions during emergencies: a guide for decision makers and programmers working in emergency preparedness and response (100)*
- *Infant and young child feeding in emergencies (IYCF-E) curriculum for programme managers version 2 (101)*

9.5.4.3 Supporting replacement feeding

Commercial generic infant formula should be given from a cup or spoon (see Annex 18). The caregiver should be counselled to practise responsive feeding (see *Box 22* in Section 6).

If the infant shows signs of satiety by turning away from the cup or spoon or does not finish the feed, smaller feeds may be offered more frequently. If the infant finishes all the feed and still shows hunger cues, more infant formula can be given.

See Annex 22 for suggested daily schedules and amounts of commercial generic infant formula to be given at home to non-breastfed infants less than 6 months of age at risk of poor growth and development, with or without SAM.

Important

Monitor for signs of feed intolerance

If the infant has SAM, the mother/caregiver should be carefully counselled on signs of feed intolerance (see Annex 19), which may mean the infant is being given too much infant formula or fed too quickly. If these signs reappear after the next feed, the infant should be taken to a health facility for review as soon as possible.

Advise the mother/caregiver to avoid using feeding bottles and teats, because these are difficult to clean and increase the risk of contamination, which can cause serious illness, including diarrhoea.

The decision to provide commercial generic infant formula for use at home during outpatient care depends largely on national policies and protocols. Further discussion at the local decision-making level may be needed to determine whether formula milk will be provided for infants who cannot be exclusively breastfed, according to the specific needs of the local population and whether it is an emergency or more stable context.

Supplying commercial infant formula to an infant at risk of poor growth and development until age 6 months (when complementary feeding begins and commercial infant formula is no longer necessary) guarantees the infant a safe supply of commercial infant formula and ensures regular contact with the nutrition and health services, which enables close monitoring and follow-up of the infant.

This decision has budget and sociopolitical implications (e.g. compliance with the *International Code of Marketing of Breast-milk Substitutes* *(61)* or health services being seen as a "commercial infant formula dispenser"), however, which need to be taken into consideration and thought through carefully.

Organizations or social support services that may be able to supply commercial infant formula or supplement the household's income to purchase commercial infant formula close to the infant's household should be investigated, if available. It is important to carry out an assessment of how these organizations are funded and any conditions placed on supplying this commercial infant formula that could be harmful or put the family at risk of unethical practices and influences.

9.5.4.4 Monitoring clinical status, outputs, feeding and weight gain at each visit

See Annex 37 for a checklist of minimum essential actions to be carried out at each outpatient visit. In summary, the following aspects must be assessed:

- Clinical status:
  - Assess the clinical status of the infant and mother/caregiver at each visit, and increase the visit frequency if indicated by findings during the assessment or reported by the mother/caregiver, if this is feasible for the family (see Annexes 1 and 2 for guidance). Pay special attention to any signs of feed intolerance (see Section 4.6.8 and Annex 19).
  - Ask the mother/caregiver how they think the infant is progressing, and address any questions they ask.
  - Ask the mother/caregiver whether she has any concerns related to her own physical or mental health (see Section 12), and address these or refer to other services as needed.
- Outputs: ask the mother/caregiver about urine and stool outputs as per guidance in the comprehensive feeding assessment (see Section 9.4.2). As it is rare to be able to measure these directly in the outpatient setting, focus on asking about the number of wet nappies (or other material used for this purpose) and stooling patterns per day. Encourage the mother/caregiver to keep track of these while the infant is enrolled.
- Weight gain:
  - There is no global standard for the exact weight an infant less than6 months of age at risk of poor growth and development, with or without SAM, should gain per week or month in an outpatient setting. Infants at risk of poor growth and development are a diverse group, and there is a wide variety of reasons for an infant to be at risk of poor growth and development.
  - For infants less than 6 months of age with SAM, approximate weight gain ranges have been used in a number of WHO documents and in national guidelines in relation to inpatient management, but less evidence is available to inform outpatient management.
  - The WHO *growth chart for weight-for-age z-scores* *(26)* for age 0–6 months should be used. For the first 13 weeks, there is a line for each week; after this, the lines are marked by month and an estimation may have to be made as to where to mark the weight for this outpatient visit. This is not always easy for less experienced staff members. All efforts to train staff to use these charts should be made using the *WHO child growth standards: training course on child growth assessment* *(78)*.

- Clinical improvement is the most important indication for assessing progress and next steps of management in outpatient care. An infant who is progressing well could be expected to gain more than 10 g per day and follow their growth trajectory (growth curve).

Note

Weight gain can occur in spurts and may not be constant, even if using more than 10 g per day as a guide. In general, satisfactory weight gain is likely to be specific to the infant and needs careful clinical assessment from a multidisciplinary team in outpatient care.

9.5.4.5 Updating the nutritional management plan

See Section 9.9 for full guidance on what to do according to the medical and clinical status of the infant at each visit. If no improvement is observed in the infant after all the actions described above have been taken, refer the infant to inpatient care for further assessment and/or admission.

9.6 Health education and counselling during outpatient care

Health education and counselling for caregivers of infants less than 6 months of age at risk of poor growth and development, with or without SAM, are vital to ensure healthy practices are maintained at home during outpatient care and after exit.

Prevention at every opportunity

See Section 2.2 and Box 3 on well-child visits as a key point of entry for activities to prevent an infant becoming at risk of poor growth and development or developing acute malnutrition, and identifying and referring or managing infants already at risk of poor growth and development, with or without acute malnutrition.

Enrolment into outpatient care is a key contact point to initiate or carry out a number of these interventions, especially counselling and psychosocial elements of care for infants and children and their caregivers.

No opportunity should be wasted to carry out preventive activities.

Many national and international resources are available to inform health education and counselling for children with malnutrition and children in general. Preference should always be to use national guidance, which will likely be more context-adapted. See Annexes 11 and 13 for a list of the basic topics that should be covered during outpatient care and brief guidance on how to communicate with caregivers.

See the following global resources for guidance on these topics:

- *Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed (43)*
- *The community infant and young child feeding counselling package (44)*
- *Infant and young child feeding image bank (45)*
- *Health systems strengthening: an example of integrating SBC into a sector (46)*
- *Guide for integration of perinatal mental health in maternal and child health services (9)*
- *Kangaroo mother care: a clinical practice guide (47)*
- *Parent counselling guide on kangaroo mother care (KMC) (48).*

9.7 Psychosocial stimulation during outpatient care

Psychosocial stimulation is a vital and essential part of inpatient and outpatient care for infants less than 6 months of age at risk of poor growth and development, with or without SAM, that should not be neglected. It must be adapted to the age group. Psychosocial stimulation needs thorough planning, a designated budget, and staff who have been adequately trained and receive ongoing supervision and support.

See Section 10 for guidance on psychosocial stimulation.

Important

Plan for psychosocial stimulation

Detailed planning is needed to ensure there is a dedicated area for psychosocial stimulation in outpatient care. Even in a busy primary health-care facility, these activities are an integral part of the care needed by malnourished children and their mothers/caregivers to recover from this episode of acute malnutrition and to put them on the path to healthy growth and development.

9.8 Mother/caregiver assessment and support

See Section 12 for guidance on mother/caregiver assessment and support.

9.9 Checklist for each outpatient visit

Annex 37 provides a checklist of minimum essential actions that should be carried out at each outpatient visit for infants less than 6 months of age at risk of poor growth and development, with or without SAM, and their mothers/caregivers.

9.10 Monitoring response to nutritional and medical management

At each visit, after the assessments in Annex 37 have been carried out, a decision must be made regarding the infant and the progress of the mother/caregiver. The health worker must decide whether the infant:

- is improving;
- shows no change (is not improving or deteriorating);
- is deteriorating.

See Annex 38 for guidance on criteria to determine how well the mother/caregiver–infant pair is progressing and any actions to take accordingly.

9.11 De-escalation of outpatient care visits

All infants less than 6 months of age at risk of poor growth and development, with or without SAM, should be followed up until age 6 months.

Infants less than 6 months of age at risk of poor growth and development are still considered vulnerable even after the acute problem that necessitated their admission or enrolment into nutritional or medical care has been resolved. Regular follow-up at reduced frequency is recommended until the infant reaches age 6 months.

Not all infants will need weekly outpatient visits if they are progressing well. Decreasing the frequency of visits when the infant and mother/caregiver are progressing well can be beneficial for the family in terms of reduced actual and opportunity costs of coming to the outpatient service and reduces the load on the service, ensuring infants in greatest need of close monitoring and review get adequate time and attention. *Figure 7* gives some guidance on the criteria to use in deciding visit frequency. Contextual factors may lead to different criteria and/or visit schedules being used.

Some infants may need closer follow-up (e.g. every 3 days) according to their nutritional and medical needs. Some infants may go back and forth between visit frequencies. These decisions should always be based on the clinical status of the infant and the mother/caregiver and family constraints.

Note

Home visits by outreach staff or community health workers can be an efficient way to ensure patient safety if visit frequencies are changed, especially if the visits become less frequent.

For example, if an infant is switching from a schedule of visits every 2 weeks to visits once a month, a home visit between the next scheduled visits could help to assess whether it is safe to continue with the planned visit schedule.

9.12 Evaluation and referral at age 6 months

Infants at risk of poor growth and development should be assessed (including assessment of their anthropometry) once they reach 6 months of age to assess their ongoing monitoring and care needs. These needs may include:

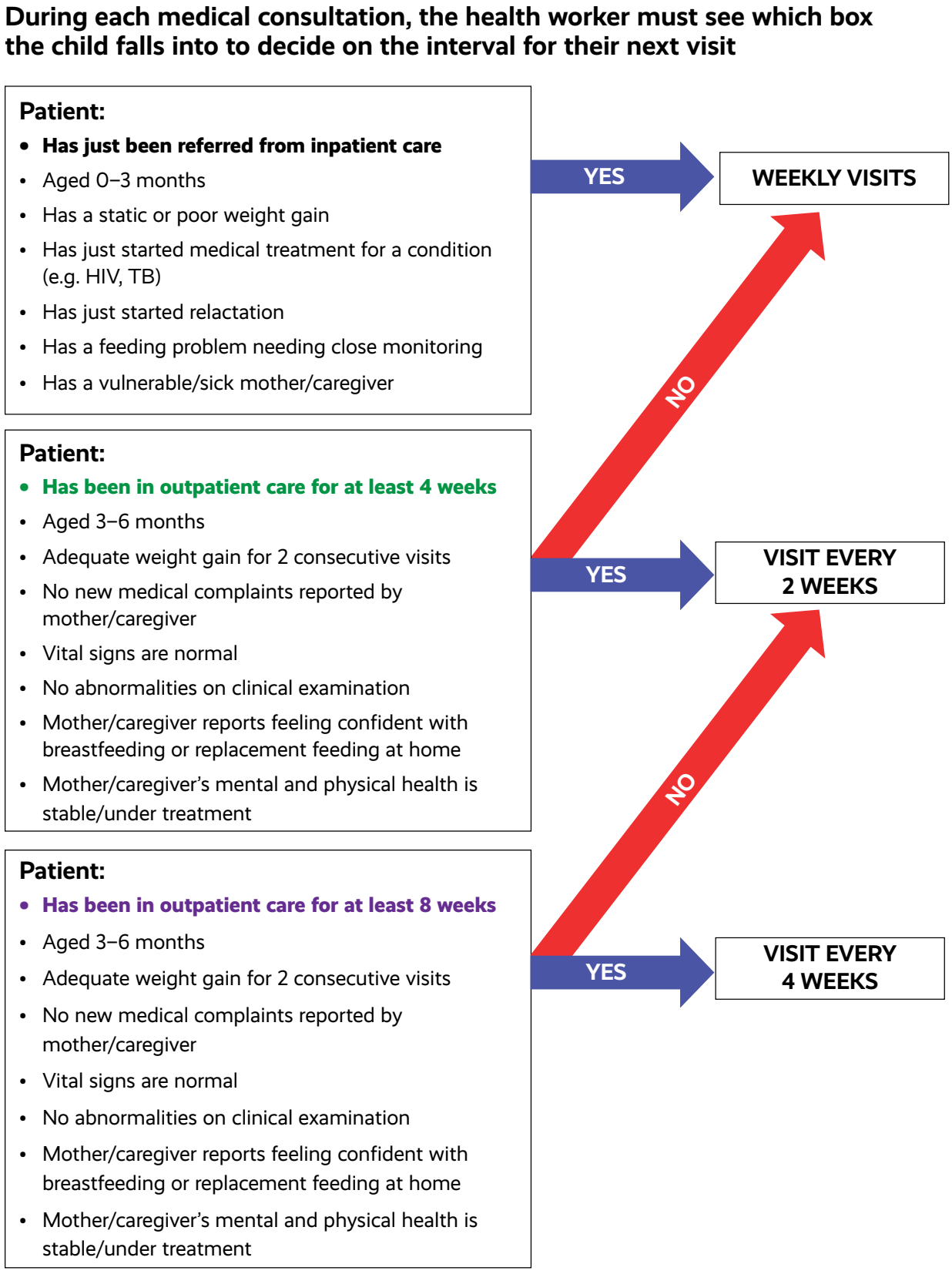
- standard IYCF support and monitoring;
- outpatient management of moderate acute malnutrition (MAM) and SAM for infants aged 6 months or older;
- routine vaccination;
- specialized medical care for congenital diseases or disabilities;
- outpatient management of HIV, TB or other chronic diseases;
- psychological support for the mother/caregiver;
- social protection services.

Many of these services may be delivered in the same location or health facility that the infant has been attending, but a comprehensive handover is required to ensure the history of the infant and mother/caregiver and interventions delivered is effectively transmitted for future care and support.

If the outpatient service has been supplying the infant with commercial generic formula, local decisions must be made and protocols put in place regarding whether this support continues now the infant can start complementary feeding. Careful, sensitive communication with the family is required in advance to prepare the family for complementary feeding, coping without the support of commercial infant formula being provided or a reduction in the amount provided, and other resources they can use to ensure the infant continues to receive the nutrition needed for healthy growth and development.

See Annex 39 for actions to take according to the findings of the evaluation at age 6 months.

Figure 7. Guidance on determining visit frequency



10. Psychosocial stimulation and support activities in inpatient and outpatient care

Psychosocial stimulation can be defined as the sensory information received from interactions with people and environmental variability that engages a child's attention and provides information. Examples include talking, smiling, pointing, enabling and demonstrating, with or without objects. Psychosocial stimulation includes responsive feeding as a part of responsive caregiving.

Enabling young children to achieve their full developmental potential is a human right and a critical requisite for sustainable development *(102)*. This is even more pertinent for infants less than 6 months of age at risk of poor growth and development, and children aged 6–59 months with severe acute malnutrition (SAM) or (to a lesser extent) moderate acute malnutrition (MAM), because these children often already show signs of developmental delay. In addition, many of these children live in households experiencing poverty, insecurity, gender inequities, violence, environmental toxins, and poor mental health among mothers/caregivers, which are all major risk factors for suboptimal child development. Many of these conditions further inhibit families from providing nurturing care due to poverty, displacement or lack of adult presence.

Mothers/caregivers need considerable support. Having a child admitted for inpatient care or attending weekly outpatient appointments can place considerable stress on the family. The mother/caregiver may be worried about being away from other children or household responsibilities, especially if the duration of inpatient admission is long (e.g. due to admission for conditions such as malaria or pneumonia). Attending for outpatient visits for 8 weeks or more may disrupt employment, placing stress on the family's economic resources. In addition, the reason for the child's admission or enrolment is often related to feeding problems, which can lead to associated feelings of guilt and shame in the mother/caregiver.

The psychosocial and developmental needs of the child must be given priority alongside the medical and nutritional management.

See Sections 3.2 and 3.3 and Annexes 1 and 2 for guidance on assessing for neurodevelopmental concerns in the child and Section 12 on identifying mental health problems in the mother/caregiver.

The guidance below gives some basic principles and tips related to psychosocial stimulation and support.

For more comprehensive guidance on ensuring healthy neurodevelopment and other aspects of psychosocial care, see the following resources:

- *Improving early childhood development (102)*
- *Nurturing care for early childhood development (103)*
- *Care for child development: improving the care of young children (24)*
- *Nurturing care practice guide (104)*
- *Training for caregivers of children with developmental disabilities, including autism (105)*
- *Rehabilitation in health systems: guide for action (106)*
- *Resource package and training modules for promoting gender-transformative parenting (107)*
- *Caring for the caregiver (108).*

10.1 The environment

There may be limitations due to the availability of physical space and competing activities, but it is important to create a pleasant and reassuring environment in outpatient and inpatient services and to provide activities aimed at bringing pleasure, creating social bonds, and improving adherence and trust in the medical and nutritional management being provided.

If possible, create a play area where most psychosocial stimulation activities can be implemented. If this is not feasible, a minimum is to provide a private and welcoming area for the child or mother/caregiver to go if they want to discuss anything, disclose distress, or spend some quiet time with someone they trust.

If it is not possible to provide an area dedicated to psychosocial activities, a team trained in these activities should be available. This team can be "floating" and work with mothers/caregivers on a ward or at different points in outpatient care (e.g. in the waiting area or near the dispensary). The staff in this team should be able to carry out psychosocial activities and help identify mothers/caregivers and/or children particularly in need of this type of support.

Trained staff cannot replace the principal role of the mother/caregiver, and psychosocial stimulation should primarily be carried out by the mother/caregiver. Staff should work with the mother/caregiver to encourage them to engage with their children. This is especially important to ensure psychosocial activities continue after discharge from hospital or exit from outpatient care.

Toys and play sessions should be included in all stages of nutritional management and should be adapted according to the child's age and developmental stage *(109)*.

Regular information concerning the child's progress must be given to the mother/caregiver so they feel involved in the child's care.

10.2 Specific activities

Important

Involving fathers: a family-centred approach

Wherever possible, the child's father should be involved in the activities described below, whether they are the primary caregiver in the outpatient or inpatient service or visiting the child in hospital. This supports the mother and encourages sustained behaviours and practices at home. It is important to consider who will be the best staff members to engage fathers in these activities – these may be male or older staff members.

10.2.1 Initial days of admission to inpatient care

- Individually or in groups:
  - ⇢ Time should be made for a discussion with the mother/caregiver concerning their stay, how they feel in general, how they feel about the subject of malnutrition, their situation at home, their background and their concerns, in order to improve their mental health and self-confidence as a caregiver.
  - ⇢ During these discussions, information and instructive messages concerning the child's treatment and the symptoms of the illness should be given or re-emphasized. This can be an important moment to assess the relationship between the child and the mother/caregiver and to pick up on signs of difficulty bonding or other signs of distress on both sides.
  - ⇢ See Annex 11 for additional guidance.
- The child may be weak in the early days. Even older children who can normally sit up may not have enough energy to do so. Focus should be placed on auditory and visual stimulation and touch:
  - ⇢ Staff members should interact with the child directly as much as possible, even if the child is not very receptive. This helps create a relationship of trust between the staff and the mother/caregiver, and demonstrates how to stimulate the child verbally and physically. When the child starts to interact, this will be one of the first signs of clinical improvement.
  - ⇢ Make the child's environment as stimulating as possible, using attractive colours and homemade objects.
- Support and reassure the mother/caregiver about the child's progress, especially during feeding times. Encourage the mother/caregiver to feed the child patiently, carefully and responsively, and to avoid forcing the child to eat.
- Give the mother/caregiver a small toy to promote interaction with the child, even if they are not interested initially.

10.2.2 When the child shows clinical improvement

- If the mother/caregiver demonstrates difficulty interacting with the child, introduce individual play sessions between the mother/caregiver and the child.
- Plan short play sessions of around 20–40 minutes for small groups of mothers/caregivers and children.
- Breastfeeding groups or other mothers' counselling groups provide the ideal situation for group conversations and fostering mutual support, while observing and stimulating feeding and interaction practices.

11. Community health worker management of children aged 6–59 months with moderate acute malnutrition (MAM) or severe acute malnutrition (SAM) in the community

Assessment, classification and management or referral of infants and children aged 6–59 months with MAM or SAM can be carried out by community health workers provided they receive adequate training and regular supervision of their work is built into service delivery. This provision of care by community health workers will be a context-specific decision in line with national policies and protocols.

Community health worker management of children aged 6–59 months with MAM or SAM should follow the same approach as for outpatient care in health facilities:

- Assessment – measure the child's weight, length/height and mid-upper arm circumference (MUAC), and look for bilateral pitting oedema (nutritional oedema).
- Classification – establish whether the child has:
  - MAM – defined as weight-for-height z-score (WHZ) or weight-for-length z-score (WLZ) between −2 and −3 standard deviations (SD) of the World Health Organization (WHO) child growth standards median (WHZ or WLZ ≥ −3 and < −2 SD) and/or MUAC ≥ 115 mm and < 125 mm;
  - SAM – defined as WHZ or WLZ below −3 SD of the WHO child growth standards median and/or MUAC below 115 mm and/or nutritional oedema in infants and children aged 6–59 months.
- Management – including provision of ready-to-use supplementary food (RUSF), ready-to-use therapeutic food (RUTF) or specially formulated foods (SFF) (or other appropriate dietary management), micronutrients and medical management according to the current WHO recommendations, and regular monitoring and follow-up during management. For children with SAM, an appetite test is required to decide whether the child should be managed as an outpatient or referred for inpatient care.

Note

The current WHO recommendation for community health workers to manage children with MAM and SAM in the community is applicable only to children aged 6–59 months. The studies that provided the evidence for this recommendation enrolled only children aged 6–59 months, and it is currently not appropriate to extrapolate this recommendation to younger infants without the necessary evidence.

11.1 Requirements for outpatient care by community health workers

There are a number of recommended requirements for community health workers to safely and effectively deliver outpatient care to children aged 6–59 months with MAM or SAM:

- Training should cover all of the points below and include comprehensive initial training and periodic refresher training. Training should be delivered based on national treatment guidelines or protocols.
- Regular supervision and monitoring of the quality of care delivered by community health workers by qualified health workers are essential.
- Community health workers should be well trained to identify and appropriately refer children who

require inpatient care. Each context should assess the capacity and expertise to decide whether community health workers can refer directly to a hospital or to the primary health-care level for a comprehensive assessment of the child's need for inpatient care.

- Community health workers should have the equipment and capacity to weigh, measure height or length, measure MUAC, assess for nutritional oedema, record all of these measurements, and use reference tables to work out a child's WHZ or WLZ.
- Community health workers should be able to prescribe antibiotics and deworming tablets as part of the routine medical management of children with SAM.
- Community health workers should be able to use the child's weight to assess the dosage of antibiotics and deworming tablets the child needs, and how much RUTF/RUSF/SFF the child needs until the next outpatient visit (using reference tables).
- Community health workers who provide care for children with wasting and/or nutritional oedema should be remunerated appropriately.

In addition:

- Supervision should be conducted in line with supervision structures and processes recommended in national guidelines and protocols for community health workers. A community health worker or integrated community case management platform integrating outpatient management of children with MAM or SAM should include an established supervision structure and two-way communication mechanism to relay critical updates to and from community health workers and supervisors or health facility staff.
- Identify inpatient and outpatient health facilities to which community health workers can refer children with severe medical problems or other admission criteria for inpatient care.
- Adequate resources (e.g. MUAC tape, weighing scales, length/height board, therapeutic and supplementary foods, medicines) must be available for use. Adequate resources must be allocated for training and supervision activities.
- Ensure a rigorous, reliable and well-managed supply chain for all necessary medical, nutritional and administrative resources.

11.2 Programmatic considerations

Community health workers should be able to manage children aged 6–59 months as per Sections 7 and 8 of this implementation guidance. The tasks they can carry out will depend on national policies and protocols, their education and training, and the capacity of the community health worker network. The following examples are potential scenarios in which community health workers deliver outpatient care for children with MAM or SAM, with slight modifications to the standard delivery of treatment at the health facility:

- Integration with integrated community case management programming: integrated community case management is a strategy that trains and equips community health workers to diagnose and treat common childhood illnesses (e.g. malaria, pneumonia, diarrhoea) in the community, particularly in areas with limited access to health facilities. Integrating the management of SAM and MAM into integrated community case management expands the reach of community health workers.
- Community health workers with low literacy: whenever possible, community health workers should use national ministry of health patient registers or forms to maintain required reporting procedures, admission or enrolment, and tracking of follow-up visits and treatment outcomes. If community health workers cannot be trained to use these monitoring tools or are not able to use them due to literacy requirements, a set of adapted tools, with a simplified register and other job aids, have been designed for such contexts.
- Adapted protocols: in some countries, community health workers do not have the capacity to implement full treatment protocols as per WHO guidance in exceptional circumstances (e.g. health system disruption due to conflict, natural disasters or public health emergencies). In some countries, national policies restrict the tasks community health workers can carry out, or the types of SFF that can be used or are available. In these cases, community health workers can use adapted protocols for the management of SAM and MAM – for example:
  - In contexts where children are admitted or enrolled for management at the health facility level because community health workers are not allowed to provide routine medicines (e.g. antibiotics) as per national protocols, a referral mechanism is established whereby children can be transitioned to community health workers for follow-up visits once they have received routine medical management.

⇢ If calculating weight-based dosages and tracking and interpreting weight are difficult to achieve due to a lack of availability of weighing scales or other tools, community health workers can use MUAC tapes for this task.

See the following for guidance and resources on community health worker management of children with acute malnutrition:

- *WHO/UNICEF joint statement: integrated community case management – an equity-focused strategy to improve access to essential treatment services for children (110)*
- *Integrated community case management (iCCM) (111)*
- *Can low-literate community health workers treat severe acute malnutrition? A study of simplified algorithm and tools in South Sudan (112)*
- *Training toolkit on simplified approaches for the detection and treatment of child wasting (113)*
- *Tools for community health workers (CHW) community-based treatment of uncomplicated wasting for children 6–59 months in the context of COVID-19 (114).*

See the following for country examples of using community health workers to manage children with acute malnutrition:

- *Lessons and considerations from the integrated community case management "plus" (iCCM+) in Somalia (115)*
- *Adapting iCCM to enable family health workers to treat acute malnutrition in Somaliland (116).*

12. Mother/caregiver assessment and support

Mothers/caregivers and infants less than 6 months of age are interdependent. Even for older infants and children, identifying maternal risk factors and referring to or providing the appropriate support is important for the mother/caregiver and the infant *(34)*.

12.1 Assessing maternal risk factors

The presence of maternal risk factors is one of the criteria used to classify an infant less than 6 months of age as being at risk of poor growth and development, and likely also increases the risk for a child aged over 6 months to become malnourished.

Approaching the mother and child as an interdependent unit recognizes that risk factors for the health and well-being of the mother have a negative effect on her life and the infant's health and development – for example, children of mothers with depression are 1.5 times more likely to be underweight and 1.4 times more likely to be stunted.

Note

The guidance and references in this section can also be used to assess for risk factors in mothers of infants less than 6 months of age and older children, which can be critical for person-centred and successful management of acute malnutrition in these children and support for the mother and family.

Note

The evidence that led to the criterion of maternal risk factors being agreed on as one to identify an infant less than 6 months of age at risk of poor growth and development came specifically from mothers of children. It is acknowledged throughout this implementation guidance that the primary carer may be the mother or another caregiver (e.g. father, grandparent), but this section refers specifically to the mother. Much of the guidance here is likely, however, to be useful for other caregivers.

A full examination of all maternal risk factors is beyond the scope of this guidance, but some examples and links to further resources are given here.

12.1.1 Maternal physical health

Among mothers of infants less than 6 months of age at risk of poor growth and development, comprehensive assessment and support are recommended to ensure the physical and mental health and well-being of the mother.

The level of assessment and care that can be provided depends on the capacity and setup of the nutrition services and the health facility they are situated in – for example, whether services for adults are also present in the health facility (e.g. postnatal, gynaecology, general medicine). Wherever the infant or child presents, a general screening of the mother's physical health should be part of the initial history-taking of the child.

See the following World Health Organization (WHO) resources for guidance on the assessment and treatment of the majority of common conditions in adults and postnatal women:

- *WHO recommendations on maternal and newborn care for a positive postnatal experience (10)*
- *WHO guide for integration of perinatal mental health in maternal and child health services (9)*
- *IMAI district clinician manual: hospital care adolescents and adults (117)*.

12.1.2 Maternal nutritional status

Nutritional screening of the mother should be done when the infant is admitted to inpatient care or enrolled into outpatient care to determine whether the mother is malnourished or at risk of malnutrition, followed by referral to or delivering the appropriate nutritional care.

National protocols should be used for the appropriate screening tools for each context. This may include body mass index, mid-upper arm circumference (MUAC – see *Box 36*), a history-based screening tool or a combination of all of these.

Box 36

Country example – maternal MUAC

There is currently no WHO standard for a MUAC cut-off to identify pregnant or breastfeeding women who are undernourished. Some countries (e.g. Afghanistan, Democratic Republic of the Congo, Kenya, Myanmar) and implementing organizations (e.g. Médecins Sans Frontières, World Food Programme) have been using the MUAC cut-offs below to screen pregnant or breastfeeding women as being at risk of undernutrition. These cut-offs have been proposed through reviews of the existing evidence (mostly operational research) and programmatic experience of working in the field of nutritional support for pregnant and breastfeeding women.

Population	Geographical region	MUAC	Interpretation or categorization
Pregnant and breastfeeding women	Africa and Latin America	< 230 mm	At risk of undernutrition
	South Asia	< 210 mm	

Any use of MUAC to screen pregnant or breastfeeding women for undernutrition is likely to need additional and more in-depth assessment of the woman's health and nutritional status, but it can be a useful and quick tool to identify women who need this further assessment – which might be especially important in emergency or humanitarian contexts.

For pregnant and breastfeeding adolescents (typically defined as aged under 20 years), most countries and implementing organizations have taken the decision to directly enrol them for nutritional supplementation, regardless of their MUAC or other anthropometric measurements. This is due to their vulnerability and the extra demands of pregnancy and breastfeeding at this young age in terms of their nutritional status, health status and psychosocial status.

Work is ongoing to establish the optimal and most evidence-based cut-offs for MUAC for pregnant and breastfeeding women at the global level. Currently, the emphasis is on using national protocols and guidelines.

12.1.3 Maternal mental health

For the purpose of this implementation guidance and several other WHO guidance documents, maternal mental health refers to the full spectrum of mental health problems that can affect women during pregnancy and up to 1 year postnatally. Most commonly, this encompasses depressive and anxiety disorders in the perinatal period. In low- and-middle income countries, the prevalence of perinatal depression is estimated to be 15–20% *(118)*.

The combination of discovering their infant is at risk of poor growth and development or their child has severe acute malnutrition (SAM), especially if admitted for inpatient care, is difficult for many mothers to manage, especially if they have other children and home and work duties. Staff trained in mental health counselling are best qualified to assess these issues. Staff should take the time to listen to the mother to understand her situation and work with her to find the best way to tackle the problems identified.

When a mother with mental health problems or disorders is identified, the health facility should be able to provide mental health support or refer to appropriate services.

See the following resources on tools to assess different aspects of maternal mental health:

- *WHO recommendations on maternal and newborn care for a positive postnatal experience (10)*
- *WHO guide for integration of perinatal mental health in maternal and child health services (9)*
- *Caring for the caregiver (108)*
- *Edinburgh postnatal depression score (119)*
- *MAMI assessment form (with feeding and maternal mental health assessment) (120)*

12.1.4 Gender-based violence

Maternal exposure to violence is a known risk factor for poor child growth and development, including acute malnutrition, through direct physical and mental health impacts on the mother and child and indirect impacts on poverty status and economic stressors *(121)*. Exposure of women and girls to gender-based violence is often exacerbated during humanitarian emergencies. It is important for health workers to be aware that a woman's or child's health problems may be caused or worsened by violence, including family conflict.

Men may also experience partner violence and sexual assault, but generally women experience more sexual violence, more severe physical violence, and more control from male partners.

See the following WHO and United Nations Children's Fund (UNICEF) resources for more information and guidance on gender-based violence:

- *Responding to intimate partner violence and sexual violence against women* *(122)*
- *Health care for women subjected to intimate partner violence or sexual violence: a clinical handbook* *(123)*
- *Caring for women subjected to violence: a WHO curriculum for training health-care providers, revised edition, 2021* *(124)*
- *Intimate partner violence and child growth brief: a summary of the evidence base* *(125)*
- *A rapid evidence assessment on exposure to gender-based violence and children's nutrition* *(126)*
- *GBV risk mitigation menu of measures adapted for the nutrition sector* *(127)*
- *Intimate partner violence and breastfeeding: a summary of the evidence base* *(128)*.

12.1.5 Demographic and socioeconomic factors

- Maternal age (adolescent mother):
  - ⇢ Children born to adolescent mothers are more likely to experience acute malnutrition than children born to non-adolescent mothers *(129)*. This may be due to biological immaturity, limited nutritional knowledge, inadequate caregiving capacity, and socioeconomic disadvantages.
  - ⇢ It is important to identify adolescent mothers during assessments and inpatient management to ensure young mothers and their children receive targeted and tailored support and care due to their unique risk factors.
- Maternal education:
  - ⇢ Maternal education plays a significant role in determining child nutrition outcomes, including risk of wasting *(130)*. The relationship between maternal education and child wasting operates through several mechanisms, including nutritional knowledge and practices (e.g. child feeding practices) and health-care utilization.
  - ⇢ Maternal education can be assessed directly by asking about highest level of schooling completed, or indirectly, such as by asking about information communication technology use related to mobile phones, the internet and computers as markers of socioeconomic development and education levels.
- Poverty status and household wealth:
  - ⇢ Having access to financial resources, including income, at a level that can support the mother and the family's needs and external responsibilities for others is associated with resilience to the negative effects of health problems for members of the family, and to violence, exploitation and abuse in unstable contexts.

See the following resources for more information and guidance on the ways in which maternal demographic and socioeconomic factors influence wasting and can be rapidly assessed to help identify additional at-risk children:

- *Demographic and Health Surveys Program* data and questionnaires on maternal age, education and household wealth *(131)*
- *UNICEF Multiple Indicator Cluster Survey Version 7* (MICS7) questions on women's use of information and communication technology and decision-making power over reproductive health *(132)*
- *Indicators of women's empowerment* *(133)*
- *Guidance for measuring intra-household power and decision-making* *(134)*.

12.1.6 Migrants, refugees and internally displaced people

In times of displacement, women and girls face an increased risk of poor physical and mental health, discrimination and gender-based violence, and a potentially even lower level of decision-making power than if they were not displaced or compared with the host population. Women and girls make up around 50% of any refugee, internally displaced or stateless population. Women and girls who are unaccompanied, pregnant, heads of households, disabled or elderly are especially vulnerable in these situations *(135)*.

See the following resources for more information and guidance:

- *Assessing mental health and psychosocial needs and resources: toolkit for humanitarian settings* *(136)*
- *Needs assessment handbook* *(137)*
- *Guidelines on the protection of refugee women* *(138)*
- *IOM handbook on protection and assistance to migrants vulnerable to violence, exploitation and abuse* *(139)*.

Important

Assessing maternal risk factors

- **If a mother has physical or mental health issues or social risk factors that she or the clinical team judges will interfere with how she can care for her infant or child, this is a maternal risk factor. If the infant is less than 6 months of age, the infant can be classified as being at risk of poor growth and development (see Section 2.2).**
- **If the infant or child is aged over 6 months, this may still be a significant enough factor to lead to outpatient enrolment or inpatient admission for nutritional and medical care and mental health and psychosocial support (see Sections 4 and 7).**

12.2 Maternal/caregiver support

The following sections give some basic guidance on supporting mothers/caregivers while they are in hospital with their children.

12.2.1 Maternal physical health

See the following WHO resources for guidance on the assessment and treatment of the majority of common conditions:

- *WHO recommendations on maternal and newborn care for a positive postnatal experience (10)*
- *IMAI district clinician manual: hospital care adolescents and adults (117).*

12.2.2 Maternal nutritional care

Maternal nutritional care starts with nutritional screening on admission to see whether the mother is malnourished or at risk of malnutrition (see Section 12.1.2), and then referring to or delivering the appropriate nutritional care. If these services are not available, data from nutritional screening of mothers/caregivers should be used to strongly advocate for the need to provide these services.

For many settings with a significant prevalence of infants at risk of poor growth and development, the main concern is likely to be mothers/caregivers who are at risk of undernourishment or are underweight, and how to nutritionally support them, although an increasing prevalence of overweight/obesity is also seen in many of these settings. The focus in the following guidance is on underweight/undernutrition.

The guidance here is particularly pertinent for breastfeeding women, but good nutrition and care for primary caregivers who are not breastfeeding are also important for their physical health, confidence, and acceptance of the nutritional and medical services provided to the child.

National protocols for the management of malnutrition in adults should be followed if the mother/caregiver is assessed as being malnourished (undernutrition or overweight/obesity).

Provide the mother/caregiver with balanced meals with adequate energy and nutritional value for the duration of their time in hospital, aiming to give 2500 kcal/day. If this is not reached from standard hospital meals, which for example may provide 2100 kcal/day, supplement with a snack of, for example, 400–500 kcal. The preference is to use local food, but specially formulated foods (SFF) can be used if local food is not available.

Encourage breastfeeding women to drink a minimum of 2 L of water per day, and more if the weather is hot.

See the following resources on this topic:

- *What are healthy diets? Joint statement by the Food and Agriculture Organization of the United Nations and the World Health Organization (140)*
- *Programme guidance on maternal nutrition (141)*
- *Programme guidance: nutrition of women and girls in humanitarian settings (142).*

12.2.3 Maternal mental health and psychosocial support

This section describes some basic principles and tips on providing maternal mental health and psychosocial support.

See the following resources for more detailed information:

- *WHO recommendations on maternal and newborn care for a positive postnatal experience (10)*
- *WHO guide for integration of perinatal mental health in maternal and child health services (9).*

Significant rates of depression are found among mothers/caregivers of children with malnutrition, impacting mother/caregiver–child interaction and child development. Screening and management are vital for the health and well-being of the mother and the child.

Mental health and psychosocial support is an integral part of services for infants at risk of poor growth and development and malnourished children in general. A minimum package of mental health and psychosocial support should be provided in all inpatient services. Wherever possible, a more comprehensive package should be provided. If it is not possible to provide a

comprehensive package in this particular inpatient service, assess whether there is another partner or organization in the area that could provide these specific services.

Staff trained in mental health counselling are best qualified for tackling mental health issues. Counsellors should take the time to listen to the mother/caregiver to understand the situation and work with them to find the best way to tackle the problems identified. Mothers/caregivers with severe symptoms are likely to need referral to more specialized mental health support or services.

The suggested minimum package of mental health and psychosocial support for mothers/caregivers could include the following:

- Sensitize and train all staff (e.g. doctors, nurses, nutrition assistants) on basic mental health and psychosocial support principles and activities in relation to nutrition.
- Ensure clear and respectful communication between health staff and mothers/caregivers.
- Train as many staff as possible in psychological first-aid.
- Provide psychoeducation messages to mothers/caregivers, in a culturally sensitive way, on the principles of the treatment, improving mother/caregiver–child interaction, and the negative consequences of lack of stimulation.
- Mobilize community resources (e.g. extended family, neighbours, leaders) to support the family, if needed.
- Offer parenting support, particularly when there are challenges such as discrimination of minority populations (e.g. internally displaced people, refugees), large families, or children with behavioural problems.
- Screen for gender-based violence, and offer referral for care and social services.

The suggested comprehensive package of mental health and psychosocial support for mothers/caregivers could include the following:

- Screen for depression among mothers/caregivers (e.g. using PHQ-9 or the Edinburgh postnatal questionnaire) on admission to the inpatient service.
- Include discussions on mental health of mothers/caregivers in regular multidisciplinary meetings, and note particular cases that may need more attention and care.
- Offer support groups for caregivers (e.g. tea groups, breastfeeding groups). These are ideal places to discuss parenting difficulties, develop coping strategies and provide mutual support.
- Offer individual and group counselling and follow-up for mothers/caregivers with common mental health conditions.
- Identify mothers/caregivers with severe mental health disorders (moderate to severe depression, psychosis), and refer to the medical team.
- Offer group psychosocial stimulation activities that promote mother/caregiver–child interaction (e.g. psychomotor stimulation, mother/caregiver–child play with homemade toys, sensory stimulation, emotional stimulation) in a separate area from the main inpatient centre or unit that is appropriately equipped and furnished.
- Provide individual mother/caregiver–child psychosocial stimulation sessions.

For additional information, see *MAMI outpatient care maternal mental health support summary (143)*.

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Annexes

Annex 1

Paediatric clinical history

Summary of integrated management of childhood illness (IMCI) danger signs and emergency triage assessment and treatment (ETAT) emergency and priority signs

See the following for comprehensive guidance on triage:

- *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – IMCI chart booklet (1).*
- *Pocket book of hospital care for children: second edition (2).*
- *Emergency triage assessment and treatment (ETAT) course (3).*
- *Updated guideline: paediatric emergency triage, assessment and treatment – care of critically-ill children (4).*

IMCI danger signs

- **Ask:**
  - Is the child able to drink or breastfeed?
  - Does the child vomit everything?
  - Has the child had convulsions?
- **Look:**
  - Is the child lethargic or unconscious?
  - Is the child convulsing now?
  - Does the child have respiratory distress?

ETAT emergency and priority signs

- **Emergency signs – ABCD:**
  - airway
  - breathing
  - circulation
  - coma
  - convulsion
  - dehydration (severe).
- **Priority signs:**
  - tiny baby – any sick child aged under 2 months;
  - temperature – child is very hot;
  - trauma or other urgent surgical condition;
  - pallor (severe);
  - poisoning;
  - pain (severe);
  - respiratory distress;
  - restless, continuously irritable or lethargic;
  - referral (urgent);
  - malnutrition – visible severe wasting;
  - nutritional oedema;
  - burns.

Taking a history

- Any questions asked as part of a paediatric history must be adapted to the age of the child and to the local context, and be translated into the local language where appropriate as per health worker needs.
- To take an effective clinical history, ensure the child and the mother/caregiver feel comfortable and safe and understand why you are asking these questions.
- Active listening is key: reflect back information you have heard to check it is correct and in case the child and/or the mother/caregiver has anything else to add – for example, "You said the diarrhoea had blood in it only once – is that correct?"
- Clearly document all the relevant information after taking the history. If possible, do not take notes while you are taking the history, because this can break eye contact and effective communication – but if you think you will forget the information, it is safer to document it straight away.
- The example paediatric history checklist in Table A1.1 can be used for the majority of children, but Steps 5 and 6 are most relevant for infants less than 6 months of age.

Table A1.1. Example paediatric history checklist

Step	Actions
1 Introductions and consent	• Introduce yourself, giving your name and role. • Check the identification of the child, and record their age (in weeks, months or years, depending on their age) and sex. • Explain to the caregiver why you need to take a clinical history. • Note who is providing the information (e.g. mother, aunt). Ask whether they have been with the child consistently since the presenting complaint started; if not, you may need to ask whether they can call someone who can give this detailed information. • Ensure the child and caregiver are comfortable.
2 Presenting complaint	• Ask the caregiver why they are here using open questions – for example, "What seems to be the problem today?" or "What brought your child in today?" • If the child is verbal, you can also ask them what the problem is, because this can provide additional insights.
3 History of presenting complaint	• Onset – since when has the child been sick or malnourished (weight loss, appearance of oedema)? • Was the onset sudden (acute) or gradual? • Previous episodes – has the child experienced these symptoms previously? • Fever – duration? • Diarrhoea – duration, frequency, type (watery/bloody), associated with abdominal pain? • Vomiting – duration, frequency, type ("coffee grounds"/blood/bilious)? • Cough – duration, productive, associated with fast or difficult breathing, any close contacts with tuberculosis (TB)/long cough? • Wet nappies (diapers)/urine output – has the number of wet nappies or urine output increased or decreased? (Urine output is decreased with dehydration.) • Behaviour – irritability, less responsive, still interested in playing? • Night blindness? Any changes – for example, has the child started to bump into things after dark? • Recent contact with measles? • Any other signs or symptoms from other systems – ear/nose/throat, skin, neurological, urogenital?
4 Past medical history	• Known or suspected HIV infection/exposure, signs or symptoms of HIV infection? • Other major illnesses (medical or surgical) or trauma – type(s) and approximate dates? • Previous hospital admissions – reasons for admissions and approximate dates? • Vaccination status – if vaccination card is available, document this information in the child's notes.
5 Birth history	*This section is most relevant for infants less than 6 months of age; for older infants and children, ask at least the questions marked *.* • Ask to see any records of the pregnancy or birth. • Any problems during pregnancy or admissions to hospital for pregnancy complications?* • Is the child a twin/triplet/multiple birth? • Is the mother an adolescent? • Was the child born early (preterm) or on time? How many weeks' gestation?* • Type of delivery – vaginal or caesarean section? • Delivery complications – did the infant cry straight away? Was the infant taken to a neonatal intensive care unit (NICU)/special care baby unit?* • Birthweight – check any available records. Was the mother told the infant had a low birthweight?* • Did they start breastfeeding soon (within an hour) after birth? • Neonatal period – illness, admission to hospital or special care baby unit?*

Step	Actions
6 Neurodevelopmental concerns	*This level of detail is usually most relevant for the enrolment or admission history and does not necessarily need to be taken at each outpatient visit or as part of daily care in an inpatient centre.* • Has the child reached the appropriate developmental milestones for their age (e.g. sitting up, grasping objects, crawling) (see *Windows of achievement for six gross motor milestones (5)* and *Your baby's developmental milestones (6)*). • Has the caregiver noticed excessive coughing, food spillage or choking when the child tries to eat? • Is the child in pain/expressing pain (verbally or non-verbally) when they eat? • Does the child seem especially floppy or stiff in some or all parts of their body?
7 Feeding history	*This level of detail is usually most relevant for the enrolment or admission history and does not necessarily need to be taken at each outpatient visit or as part of daily care in an inpatient centre, but consider asking some of these questions again if the child is not improving.* **Infants less than 6 months of age:** • How are you feeding the infant? • If breastfeeding, ask: How many times does the infant breastfeed during the day? Do you also breastfeed during the night? Do you give any fluids other than breastmilk? If yes, why? Do you give the infant any semisolid or solid foods? Do you have any problems breastfeeding? • If the infant is not breastfed, ask: What formula or other milk is given? How much? How frequently do you feed the infant? How do you prepare the milk? What do you use to feed the infant? Do you have any problems feeding your infant with formula or other milk? **Current nutritional status (children of all ages):** • Does the mother/caregiver think the child is malnourished? *(Use the local terminology.)* • When did the child start losing weight? *(Prompt with days/weeks/months or use local calendar events.)* • Does the mother/caregiver identify a reason why the child has been losing weight? • If oedema is present, when did this appear? *(Prompt with days/weeks/months or use local calendar events, and use local terminology.)* • If oedema is present, where did this appear first? *(This checks for nutritional origin.)* • What does the mother/caregiver think the oedema is due to? • Has there been a recent change in the child's appetite? Since when? *(Prompt with days/weeks/months or use local calendar events, and use local terminology.)* Does the child have any appetite at all? • When did the child have their last meal or drink? What was it? *(This can also help in thinking about hypoglycaemia, although this should have been checked as part of triage or initial assessment.)* **Normal diet and mealtime practices (children aged over 6 months):** • Number of children in the family? Birth order of the child? Are there other malnourished children in the household? • What is the child's usual diet? Ask the mother/caregiver to describe a normal day of meals (not including festivals or special events). • Does the child receive any breastmilk substitutes on a regular basis? • How many children share the same food bowl or plate? • Is the child supervised by an adult during mealtimes? • Are there any foods the child is not allowed to eat (related to previous medical advice given or food beliefs)?

Step	Actions
7 Feeding history (cont.)	• Does the child usually have any difficulties with eating and drinking? *(See Question 6 on neurodevelopmental concerns if not already asked.)* • Is the mother/caregiver able to eat the foods and quantities of food as part of a normal day that they would like to? If not, why not? *(This assesses the food security situation in the home; if the mother is breastfeeding, this is especially important.)*
8 Family medical history	• How is the health of other members of the family at home? *(This is an open question and may need follow-up prompts.)* • Known TB disease or exposure in the household? • Known HIV infection or exposure in the household? • Tetanus vaccination status of mother?
9 Social history	• Who is the head of the family or household? • Is the child's mother alive? • Who takes care of the child on a regular basis (i.e. primary caregiver)? • Number of children alive from the same mother? • What number is the child in the family? • Is the child adopted, twin, fostered or orphaned?
10 Medicines history	• Treatment (traditional or allopathic) already received for this episode of illness? • Any other regular medicines (traditional or allopathic) taken? • Any recent (past 4 months) vitamin A supplementation?
11 Allergies	• Any known allergies (medicines or food)? If yes, ask what the reaction was (e.g. breathing problems, rash, upset tummy).
12 Summary of history	• Complete the history by reviewing what the child and/or mother/caregiver said. • Repeat back the important points so the child and/or mother/caregiver can correct any mistakes or provide any extra information.
13 Questions and feedback from the child and/or mother/ caregiver	• After taking the history, ask the child (if age-appropriate) and mother/caregiver whether they have any questions. • If you do not know the answer to any of their questions, try to find the answers rather than improvising (e.g. discuss with a more experienced health worker) before they leave the health facility or consultation.

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Annex 2

Paediatric clinical examination

- All aspects of the paediatric physical examination must be adapted to the age of the child and to the local context where the examination is being performed.
- To perform an effective clinical examination, ensure the child and the mother/caregiver feel comfortable and safe and understand why you are touching the child in the way you are.
- Make sure your hands and your stethoscope are clean and warm. Demonstrate that the stethoscope does not hurt by listening to your own or the mother's/caregiver's chest, if this is culturally appropriate and especially taking into account gender norms.
- You may want to listen to the child's breathing and heart while they are still dressed and comfortable by slipping your stethoscope under their clothes or cover. This can make auscultation easier, because undressing the child may make them cry, masking important breath and heart sounds.
- Examine painful areas last to maximize cooperation from the child.

An example checklist for conducting a paediataric clinical examination is given in Table A2.1.

Table A2.1. Example paediatric examination checklist

Step	Actions
1 Introductions and consent	• Introduce yourself, giving your name and role. • Check the identification of the child, and record their age (in weeks, months or years, depending on their age) and sex. • Explain to the caregiver why you need to physically examine the child, and ask their permission to examine the child.
2 Vital signs and anthropometric measurements	*If examining a child after initial triage and emergency treatment, you may want to repeat their vital signs:* • Respiratory frequency. • Pulse rate and character. • Capillary refill time. • Presence of temperature gradient from core to peripheries. • Axillary or rectal temperature. • Blood glucose (if possible). • Pulse oximetry (if possible). Anthropometric measurements: • Weight. • Height/length, depending on age. • Mid-upper arm circumference (MUAC). • Calculate weight-for-height z-score (WHZ) or weight-for-length z-score (WLZ). For children less than 6 months of age, also calculate weight-for-age z-score (WAZ). Clinical signs of severe acute malnutrition (SAM): • Nutritional oedema.

Step	Actions
3 General inspection	*General impression of the child's overall appearance and behaviour – try to gather as much information as possible by observation, without touching the child:* • How does the child look overall? Do they look comfortable? • Look for alertness using the AVPU score – alert, responds to voice, responds to pain, unconscious/currently convulsing. • General behaviour – apathetic, irritable, willingness to play, easy to interact with the child? • Any obvious syndromes (e.g. Down syndrome)? • Any obvious congenital abnormalities, disabilities or injuries? • Look for signs of hypoglycaemia – drowsiness, loss of consciousness, seizures, low body temperature, eyelid retraction, eyes half open when asleep. Check glucose level (if possible), and give glucose if required. • Look for dehydration – recent fluid loss, weight loss, recently sunken eyes (only relevant if recent – hours or a day). • Look for anaemia or severe anaemia – pale skin, pale conjunctiva, palms of the hands, soles of the feet, mucous membranes. If pallor is present, check haemoglobin level on admission (if possible).
4 Respiratory system	• Observe breathing pattern – is the child breathing comfortably, or do they appear to be struggling to breathe? • Observe use of accessory muscles – chest indrawing (note degree and location of retraction) and whether nasal flaring is present. • Auscultation: ▷ Are breath sounds equal in both lungs? ▷ Note the presence of crackles, wheezes or rhonchi, upper airway noise, or transmitted voice sounds. • Percussion: ▷ Percuss over the chest. The sound should be resonant, like tapping a drum. Dullness replaces resonance if there is consolidation from pneumonia, empyema or pleural effusion. ▷ To increase the likelihood of detecting empyema, have the child sit up (if possible) and percuss the back.
5 Cardiovascular system	• Listen to the heart and note the heart rhythm and any murmurs. Pay close attention to the quality of heart sounds, because very quiet sounds can indicate pericardial effusion. • Check the pulse in multiple locations, including the upper and lower extremities, and note its strength and quality. • Check capillary refill time. • Check for any temperature gradient in the extremities.
6 Abdomen and genitourinary system	• Observe for any obvious masses, scars or skin changes. • Listen for abdominal sounds. • Palpate the abdomen, noting masses, tenderness (avoiding tender areas until the end of the examination), rebound tenderness or guarding. Examine the liver, spleen and kidneys. • Look for any abdominal or inguinal hernias. • Warn the caregiver and child before you do so, and then check the external genitalia gently.

Step	Actions
7 Neurological system	• Determine the child's muscle tone and strength. • Check deep tendon reflexes. • Check for neck stiffness. • Cranial nerve examination. • Neurodevelopment: ▷ Is there an obvious visually detectable syndrome (e.g. Down syndrome)? ▷ Does the child seem excessively stiff or floppy on examination, centrally and/or peripherally? ▷ If the child is lying on the bed, lift them gently by the arms and, if aged over 6 months, attempt to have them sit. Is there head lag? Is the child too weak to sit? Is the child stiff? ▷ Is there the presence of cleft palate or other abnormalities of the mouth? ▷ Perform a developmental assessment – see *Windows of achievement for six gross motor milestones (1)* and *Your baby's developmental milestones (2)*.
8 Skin and lymphatic system	• Rashes, petechiae, jaundice, kwashiorkor skin lesions. • Lymph node enlargement, location, mobility and consistency. • Scars or injuries.
9 Musculoskeletal system	• A detailed musculoskeletal examination is necessary only if concern is raised in the child's history.
10 Head and neck	• Examine the cervical lymph nodes. • Examine the hair, noting the colour and quality (depigmented and thinner when associated with nutritional oedema or kwashiorkor). • Check whether the fontanel is bulging or depressed.
11 Eyes	• Check for eye signs of vitamin A deficiency: ▷ Dry conjunctiva or cornea. ▷ Bitot spots. ▷ Corneal ulceration. ▷ Keratomalacia. • A child with vitamin A deficiency is likely to be photophobic and may keep their eyes closed. It is important to examine the eyes very gently to prevent corneal rupture. • Do the eyes demonstrate appropriate movement (e.g. following objects)? • Are the pupils round, reactive to light, and equal in size?
12 Nose	• Check for any discharge, noting the colour and presence of blood.
13 Ears	• Examine any abnormalities or rashes on the external ear. • Check for any discharge, noting the colour and consistency. • View the tympanic membranes with an otoscope and check for inflammation, infection and perforation.

Step	Actions
14 Mouth and throat	*Assessing oral health is especially relevant for children with malnutrition, because oral pathologies can greatly hinder nutritional treatment but remain hidden unless specifically looked for.* • Oral thrush: see *Pocket book of hospital care for children: second edition (3)* for treatment. • Dental cares: this could be painful and inhibit the child from eating (needs referral for dental treatment) • Simple gingivitis: ▷ Spontaneous bleeding. ▷ Redness and pain of gums and mouth. ▷ Local oedema. ▷ Hypersalivation. • Ulceronecrotic gingivitis: ▷ Foul-smelling breath. ▷ Gingival ulceration. ▷ Tumefaction with facial swelling or oedema. ▷ Dry necrosis. ▷ Loss of tissue. *Some of the signs and symptoms of ulceronecrotic gingivitis can be suggestive of Noma, which disproportionately affects children with malnutrition.* • Look at the tonsils, noting the size, colour and any exudates. • Check the posterior pharyngeal wall (back of throat) and note the colour.
15 Summary and differential diagnosis	• Take a moment to go over all the systems in the body to check you have not forgotten anything. • Record findings with as much detail as possible. • When the history and examination are complete, propose a differential diagnosis and state whether further investigations are needed and/or possible.
16 Questions and feedback from the child and/or mother/caregiver	• Ask the child (if age-appropriate) and mother/caregiver whether they have any questions or anything they want to show or report in relation to the examination. • Help the mother/caregiver or child put back on any clothes that were removed for the examination.

References

1 Windows of achievement for six gross motor milestones. Geneva: World Health Organization (*https://cdn.who.int/media/docs/default-source/child-growth/child-growth-standards/indicators/motor-development-milestones/mm_windows_graph.pdf?sfvrsn=ea3a0241_5*, accessed 13 January 2026).

2 Your baby's developmental milestones. New York: United Nations Children's Fund (*https://www.unicef.org/parenting/child-development/your-babys-developmental-milestones*, accessed 13 January 2026).

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Annex 3

Assessing for nutritional oedema

History

- Oedema of nutritional origin is always bilateral (e.g. both feet, both legs, both hands). It always starts in the feet and moves upwards.
- If the caregiver gives a history of oedema starting somewhere other than the feet and not being bilateral, search for other causes of oedema, including renal conditions (e.g. nephrotic syndrome), severe anaemia, some infections and snake bites. A urine dipstick for proteinuria can be helpful in these cases.

Examination

- Oedema is assessed on the top of the foot or on the anterior tibia surface (inside of the shin).
- Apply moderate pressure bilaterally for 3 seconds (see 1 in Figure A3.1) (the time it takes to say "one hundred and twenty-one") and then release the pressure. The child has oedema if the thumbprint remains visible as a depression – this is the sign of pitting oedema (see 2 in Figure A3.1).

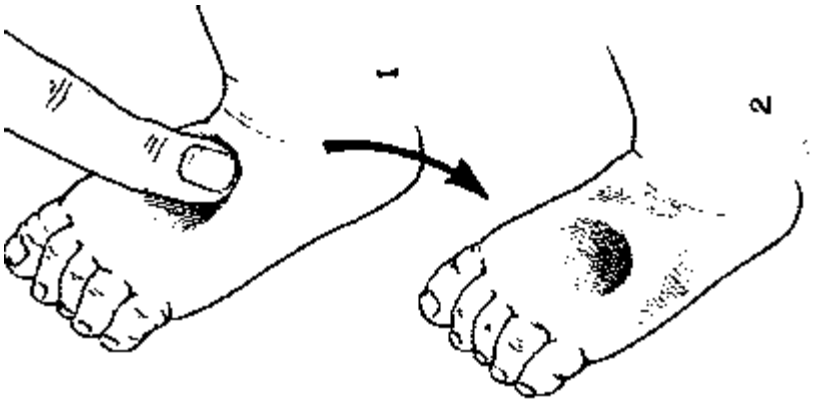
Categorizing oedema

\+ Bilateral oedema on the feet only.

++ Bilateral oedema on the feet and lower legs.

+++ Bilateral oedema on the feet, lower legs and anywhere else, including the face.

Figure A3.1. Bilateral pitting oedema



Source: How to weigh and measure children: assessing the nutritional status of young children. New York: United Nations; 1986.

Annex 4

Measuring mid-upper arm circumference (MUAC)

MUAC is used in the community and in health facilities to screen children aged over 6 weeks. Table A4.1 summarizes the cut-offs for MUAC in children aged 0–59 months.

Table A4.1. Cut-offs for MUAC in infants and children aged 0–59 months

Age	MUAC	Interpretation/categorization
Birth to < 6 weeks		Not enough evidence to currently support use of MUAC for this age group.
6 weeks to < 6 months	< 110 mm	Child at risk of poor growth and development.
	≥ 110 mm	Child not categorized as being at risk of poor growth and development according to MUAC. Child may be categorized using other criteria, however, such as weight-for-age *z*-score (WAZ) or feeding difficulty.
6–59 months	≥ 125 mm	No acute malnutrition. If based on MUAC alone, need to also measure weight-for-height *z*-score (WHZ) and nutritional oedema.
	≥ 115 to < 125 mm	Moderate acute malnutrition. If based on MUAC alone, need to also measure WHZ and nutritional oedema.
	< 115 mm	Severe acute malnutrition.

Note

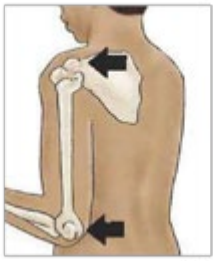
Although MUAC can be used as one of the criteria for admission to inpatient care, in-depth assessment or enrolment into outpatient care, it should not be used to monitor anthropometric and clinical progression. MUAC cut-offs were established in the light of an increased risk of mortality (likely linked to nutritional status) with a MUAC of less than 115 mm, rather than as a tool for measuring clinical progression. In addition, there are no standards for how much MUAC should increase or decrease per week due to significant variability in evidence and differences in age-related morphology.

Weight gain and assessment of clinical status should be used to monitor progression for all infants and children aged 0–59 months.

Figures A4.1 and A4.2 demonstrate measuring MUAC in children aged 6–59 months and infants aged 6 weeks to 6 months.

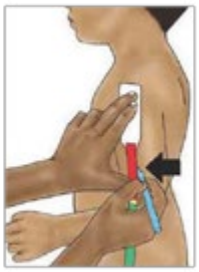
Figure A4.1. Measuring MUAC in children aged 6–59 months

1. Bend the left arm at a 90° angle.



2. Find the top of the shoulder and the tip of the elbow.

3. Keep the tape at eye level and place it at the top of the shoulder. Put your right thumb on the tape where it meets the tip of the elbow (endpoint).

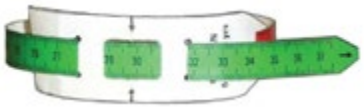


4. Find the middle of the upper arm by carefully folding the endpoint to the top edge of the tape. Place your left thumb on the point where the tape folds (midpoint). Mark the midpoint with a finger or pen.

5. Straighten the arm and wrap the tape around the arm at the midpoint.
6. Place the tape through the window and correct the tape tension.

Too loose

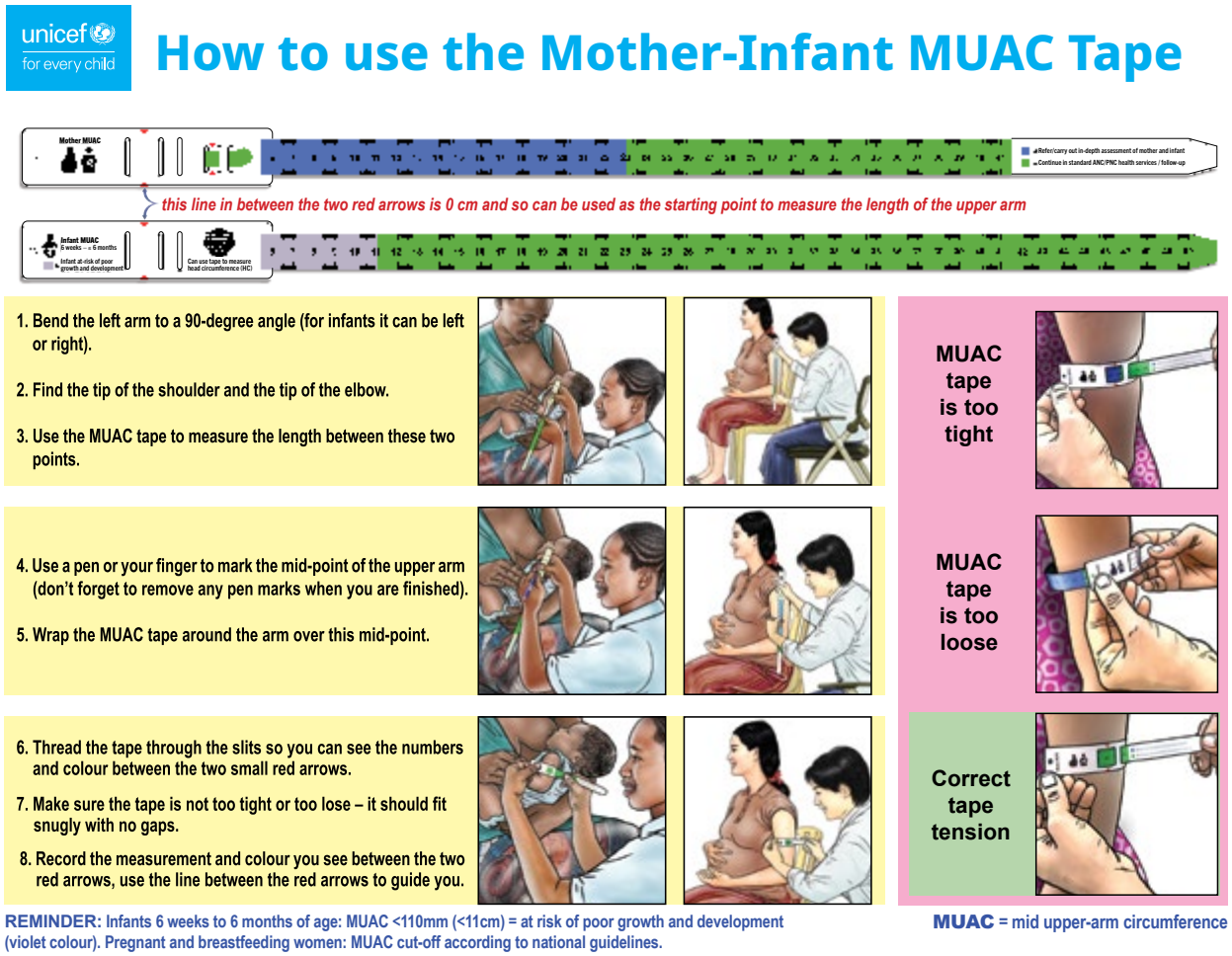
Too tight



7. Read the measurement in centimetres (cm) in the window where the arrows point inward.
8. Record the measurement to the nearest 0.1 cm and record the colour.

Source: FANTA guide: how to measure MUAC. Washington, DC: United States Agency for International Development; 2016 (*https://www.fantaproject.org/sites/default/files/download/MUAC-2.7-NACS-Users-Guide-Apr2016.pdf*).

Figure A4.2. Measuring MUAC in infants aged 6 weeks to 6 months



Source: The UNICEF mother–infant MUAC tape information sheet. New York: United Nations Children's Fund (*https://www.childwasting.org/media/2871/file/The%20UNICEF%20Mother-Infant%20MUAC%20Tape%20Information%20Sheet.pdf*).

Annex 5

Measuring weight

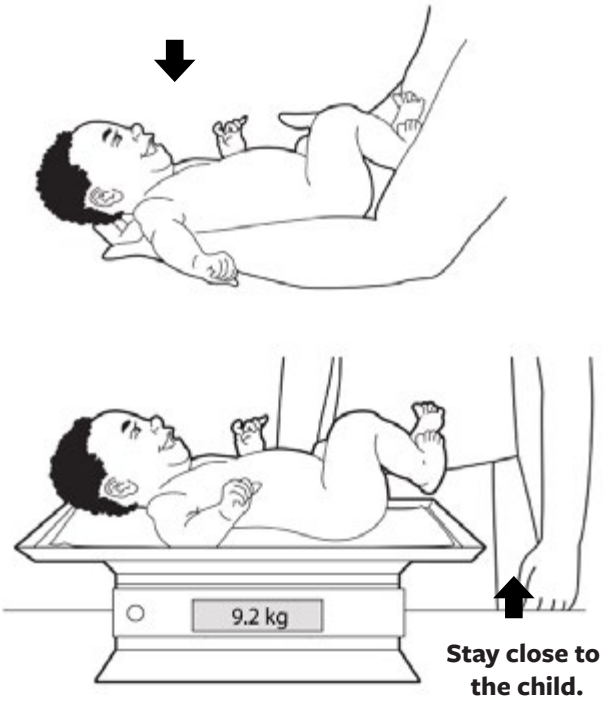
Using an electronic baby scale

The preferred and most accurate equipment for weighing an infant aged under 1 year is an electronic baby scale. This is especially important for infants less than 6 months of age, for whom weight should be measured to the nearest 10 g to assess progress and plan appropriate management. If an electronic baby scale is not available, follow the guidance below on electronic mother–child scales or hanging scales.

To use an electronic baby scale (see Figure A5.1):

1. Turn on the scale by pressing the Start button (or follow the instructions for that scale). Wait until 0.00 kg appears.
2. Gently place the naked infant on their back on the centre of the scale pan, with the help of a trained assistant or the caregiver, who should help calm and secure the infant if they start crying or moving. Stay close and observe the infant to ensure they do not roll or fall off the scale.
3. Read the weight aloud when the infant is still and the digital display is no longer changing. Ask the trained assistant to record and/or plot the weight to the nearest 10 g, which is 0.01 kg (e.g. 3.43 kg rather than 3.4 kg) clearly and accurately in the child's notes. If a trained assistant is not available, record and/or plot the measurement yourself.
4. Check the recorded or plotted weight for accuracy and legibility.

Figure A5.1. Using an electronic baby scale



Source: FANTA module 6: anthropometry guide. Washington, DC: United States Agency for International Development; 2018 (https://www.fantaproject.org/sites/default/files/resources/MODULE-6-FANTA-Anthropometry-Guide-May2018.pdf).

Using an electronic mother–child scale

The preferred equipment to weigh a child aged over 1 year is an electronic mother–child scale. This is more accurate than a hanging scale (see below), easier and quicker for staff to use, and less distressing for the caregiver and child.

Figure A5.2. Using an electronic mother–child scale

First, weigh adult. Feet centered on scale.

Second, adult holds child securely.

Source: FANTA module 6: anthropometry guide. Washington, DC: United States Agency for International Development; 2018 (*https://www.fantaproject.org/sites/default/files/resources/MODULE-6-FANTA-Anthropometry-Guide-May2018.pdf*).

To use an electronic mother–child scale (see Figure A5.2):

1. Ensure the scale is on a flat surface.
2. Zero the scale. The method used depends on the type of scale. Some scales can be zeroed by covering the solar panel for 1 second. When the display says 0.00 and an image of a mother and baby is displayed, the scale is ready to be used. Other scales require someone to step gently on the scale before zeroing.
3. Ask the caregiver to step on to the centre of the scale and stand still. Wait until the weight of the caregiver displays and remains fixed in the display panel. If the caregiver is not available, ask a trained assistant or another adult to do this.
4. Tare the scale while the caregiver is on it, following the appropriate method for that scale.
5. Place the naked child in the caregiver's arms and ask the caregiver to remain still. The caregiver should try to calm the child and prevent them moving.
6. The child's weight will appear on the display. Read the weight aloud. Ask the trained assistant to record and/or plot the child's weight to the nearest 0.1 kg clearly and accurately on the appropriate documentation. If a trained assistant is not available, record and/or plot the measurement yourself.
7. Check the recorded or plotted weight for accuracy and legibility.

Taking accurate measurements

- **Place the scale on a hard, flat surface for accuracy and security.**
- **Remove all the infant's footwear and clothing, except dry nappies (diapers) or underwear.**
- **Wait until the infant is still before reading and recording the weight. Ask the caregiver to distract the infant (e.g. with their face or toy) so they stay still. Stay close to the infant.**
- **Read, record and plot measurements as soon as possible – do not try to remember the number later.**

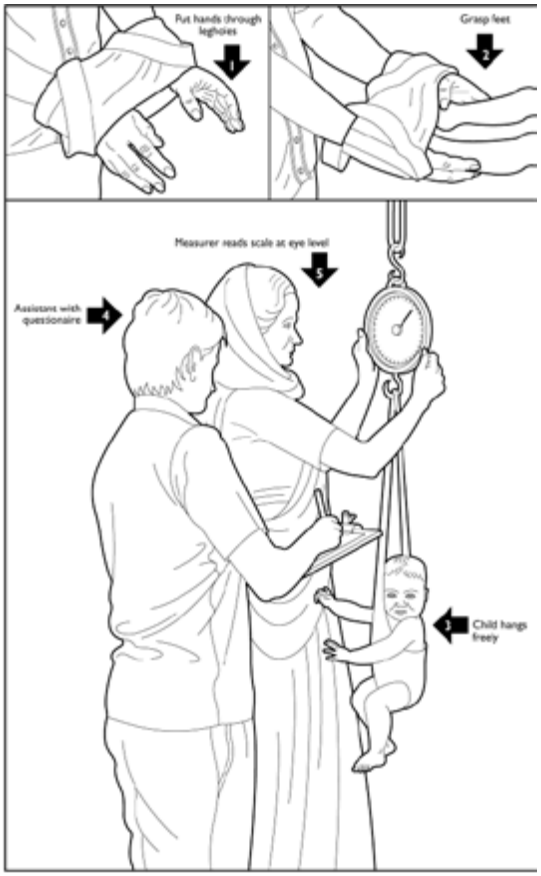
Using a hanging scale

When an electronic baby scale or mother–child scale is not available, a hanging scale graduated by 100 g can be used.

To use a hanging scale (see Figure A5.3):

1. Adjust the scale to zero using empty weighing-pants or a basin, and check the accuracy of the scale regularly with a standard weight.
2. Remove the child's clothes, place the child in the weighing-pants or basin, and hang the weighing-pants or basin freely from the hook.
3. When the child is steady, record the weight to the nearest 100 g, with the dial of the scale at eye level.
4. If it is not possible to keep the child still and the arrow does not stabilize, estimate the weight by recording the value at the midpoint of the range of oscillations.
5. Read the child's weight aloud. Ask the trained assistant to record and/or plot the child's weight to the nearest 100 g clearly and accurately in the appropriate documentation. If a trained assistant is not available, record and/or plot the measurement yourself.
6. Check the recorded or plotted weight for accuracy and legibility.

Figure A5.3. Using a hanging scale



Source: How to weigh and measure children: assessing the nutritional status of young children. New York: United Nations; 1986.

> ***Note***
> **Try to perform anthropometric measurements as quickly as possible to avoid the child getting cold and potentially hypothermic.**

Annex 6

Measuring length or height

For all infants and children aged under 2 years, length is measured with the child lying down. For children aged over 2 years, standing height is measured *(1)*.

Important

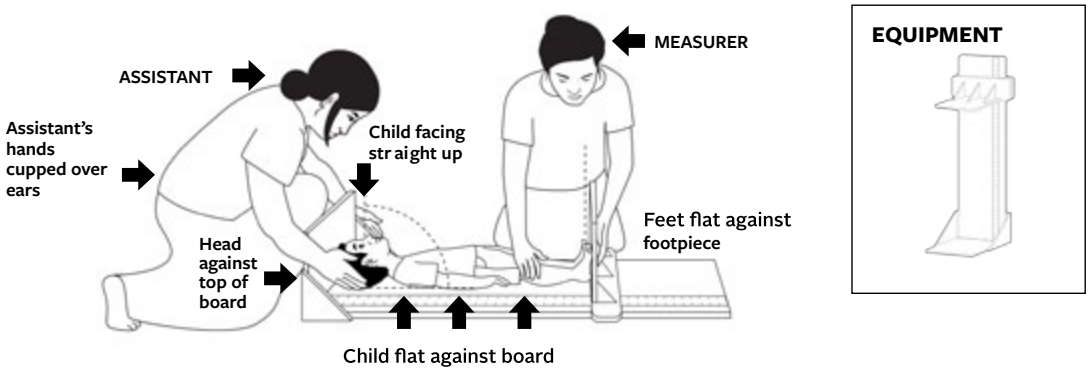
Do not attempt to measure height or length in a severely ill child. Wait until after the stabilization of life-threatening conditions and the child is safe to be moved to a height board.

Measuring length in a child aged under 2 years

To measure length in a child aged under 2 years (see Figure A6.1):

1. Place the measuring board on the ground or on a table, making sure it is flat. Gently lay the child supine in the middle of the board. Remove the child's shoes and any hair accessories that could interfere with taking an accurate measurement.
2. Ask a trained assistant to hold the side of the child's head and position the head until it touches the headboard (the stable end of the measuring board).
3. Position and hold the child's knees in a straight line, and place the cursor/footboard (the movable part of the measuring board) at a right-angle against the child's feet.
4. Read and announce the length to the nearest 0.1 cm. Ask the trained assistant to record and/or plot the child's length to the nearest 0.1 cm clearly and accurately on the appropriate documentation. Do not let go of the child if the board is on a table. If a trained assistant is not available, record and/or plot the measurement yourself.
5. Check the recorded or plotted height for accuracy and legibility.

Figure A6.1. Measuring length in a child aged under 2 years



FOR ACCURATE MEASUREMENT, REMEMBER:

- Place the measuring board on a hard, flat, surface.
- Place the footboard firmly against the heels of both of the child's feet.
- **Ensure that the child's legs are straight at the knees and that the knees are positioned correctly.**
- **Check the child's position to ensure that she/he is lying straight just before taking length measurement.**
- **Read, record, and plot measurements carefully.**

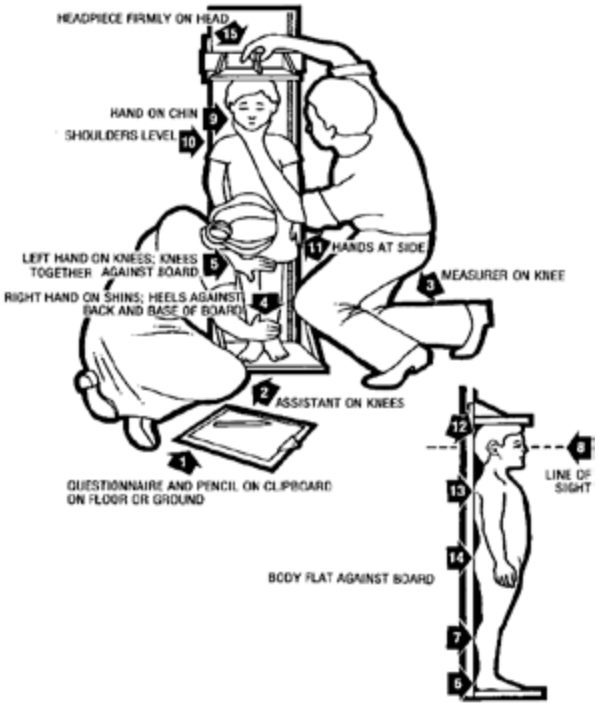
Source: FANTA module 6: anthropometry guide. Washington, DC: United States Agency for International Development; 2018 (*https://www.fantaproject.org/sites/default/files/resources/MODULE-6-FANTA-Anthropometry-Guide-May2018.pdf*).

Measuring height in a child aged over 2 years

To measure height in a child aged over 2 years (see Figure A6.2):

1. Place the measuring board upright. Remove the child's shoes and stand the child in the middle of the measuring board. Remove any hair accessories that could interfere with taking an accurate measurement.
2. Ask a trained assistant to press the child's ankles and knees against the board, ensuring the child's head, shoulders, buttocks, knees and heals touch the board and remain straight.
3. Position the child's head at a right-angle to the cursor.
4. Read and announce the length to the nearest 0.1 cm. Ask the trained assistant to record and/or plot the child's height to the nearest 0.1 cm clearly and accurately on the appropriate documentation. If a trained assistant is not available, record and/or plot the measurement yourself.
5. Check the recorded or plotted height for accuracy and legibility.

Figure A6.2. Measuring height in a child aged over 2 years



Source: How to weigh and measure children: assessing the nutritional status of young children. New York: United Nations; 1986.

> ***Note***
>
> - **On average, people are 0.7 cm taller when lying down than when standing.**
> - **If a child aged under 2 years will not lie down for measurement of length, measure the child's standing height and add 0.7 cm to convert the measurement to length.**
> - **If a child aged 2 years or over cannot stand, measure the child's recumbent length and subtract 0.7 cm to convert the measurement to height.**
> - **It is important to observe this rule to compare lengths and heights with the *WHO reference table* (1).**

References

1 WHO child growth standards: length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age – methods and development. Geneva: World Health Organization; 2006 (*https://www.who.int/publications/i/item/924154693X*, accessed 13 January 2026).

Annex 7

Calculating weight-for-length or weight-for-height *z*-score

The weight-for-length *z*-score (WLZ) or weight-for-height *z*-score (WHZ) reflects bodyweight in proportion to attained growth in length or height. Weight-for-length and weight-for-height charts and simplified field tables help to identify children with low weight for length or height.

Using a growth chart

See the *WHO child growth standards: training course on child growth assessment (1)*.

Using a simplified field table

1. Find the correct simplified *field table (2)* for the child's age and sex.
2. Find the figure closest to the child's length or height in the left-hand column.
3. Move your finger towards the right to find where the weight you have measured lies and the nearest corresponding *z*-score.

Example of infant less than 6 months of age

An infant girl has a length of 49.5 cm and a recorded weight of 2.60 kg (see Figure A7.1). This weight is less than 2.7 kg (−2 standard deviations (SD)), and so she has WLZ < −2. She is categorized as being at risk of poor growth and development, and is already wasted.

If the same infant with a length of 49.5 cm had a weight of 2.4 kg, she would have WLZ < −3 and would be categorized as having severe acute malnutrition (SAM). This is relevant for some interventions (e.g. systematic antibiotics), and it is important to document this. In general, however, the focus should be on the broader group of infants at risk of poor growth and development rather than only infants with SAM, rather than waiting for WLZ < −3, to enable quick action.

Figure A7.1. Simplified weight-for-length field tables, birth to 2 years (z-scores), girls

Weight-for-length GIRLS
Birth to 2 years (z-scores)

World Health Organization

cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
45.0	1.9	2.1	2.3	2.5	2.7	3.0	3.3
45.5	2.0	2.1	2.3	2.5	2.8	3.1	3.4
46.0	2.0	2.2	2.4	2.6	2.9	3.2	3.5
46.5	2.1	2.3	2.5	2.7	3.0	3.3	3.6
47.0	2.2	2.4	2.6	2.8	3.1	3.4	3.7
47.5	2.2	2.4	2.6	2.9	3.2	3.5	3.8
	.3	2.5	2.7	3.0	3.3	3.6	4.0
	.4	2.6	2.8	3.1	3.4	3.7	4.1
	.4	2.6	2.9	3.2	3.5	3.8	4.2
49.5	2.5	2.7	3.0	3.3	3.6	3.9	4.3
50.0	2.6	2.8	3.1	3.4	3.7	4.0	4.5

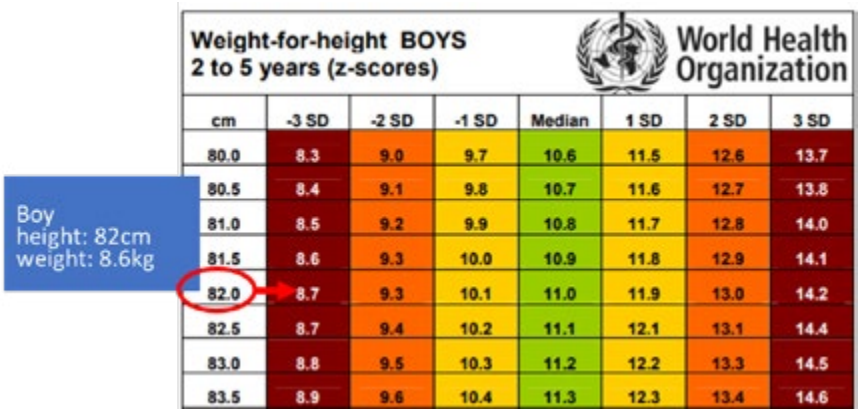
Infant girl with length: 49.5cm, weight: 2.60kg

Source: Weight-for-length/height. Geneva: World Health Organization (*https://www.who.int/tools/child-growth-standards/standards/weight-for-length-height*).

Example of child aged over 2 years

A boy has a height of 82 cm and a recorded weight of 8.6 kg (see Figure A7.2). This weight is less than 8.7 kg (−3 SD), and so he has WHZ < −3. He is categorized as having SAM.

Figure A7.2. Simplified weight-for-height field tables, age 2–5 years (z-scores), boys



cm	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
80.0	8.3	9.0	9.7	10.6	11.5	12.6	13.7
80.5	8.4	9.1	9.8	10.7	11.6	12.7	13.8
81.0	8.5	9.2	9.9	10.8	11.7	12.8	14.0
81.5	8.6	9.3	10.0	10.9	11.8	12.9	14.1
82.0	8.7	9.3	10.1	11.0	11.9	13.0	14.2
82.5	8.7	9.4	10.2	11.1	12.1	13.1	14.4
83.0	8.8	9.5	10.3	11.2	12.2	13.3	14.5
83.5	8.9	9.6	10.4	11.3	12.3	13.4	14.6

Source: Weight-for-length/height. Geneva: World Health Organization (*https://www.who.int/tools/child-growth-standards/standards/weight-for-length-height*).

Table A7.1 summarizes the cut-offs for WLZ and WHZ in children aged 0–59 months.

Table A7.1. Cut-offs for WLZ/WHZ in infants and children aged 0–59 months

Age	WLZ/WHZ	Interpretation/categorization
Birth to < 6 months	≥ −2	▷ Child not categorized as being at risk of poor growth and development according to WLZ. ▷ Child may be categorized using other criteria, however, such as weight-for-age z-score (WAZ) or feeding difficulty.
	< −2	▷ Child at risk of poor growth and development.
	< −3	▷ Child has severe wasting.
6–59 months	≥ −2	▷ No acute malnutrition. ▷ If using WHZ alone, also need to assess nutritional oedema and mid-upper arm circumference (MUAC).
	< −2 and ≥ −3	▷ Moderate acute malnutrition (MAM). ▷ If using WHZ alone, also need to assess nutritional oedema and MUAC.
	< −3	▷ Severe acute malnutrition (SAM).

References

1 WHO child growth standards: training course on child growth assessment. Geneva: World Health Organization; 2008 (*https://www.who.int/publications/i/item/9789241595070*, accessed 13 January 2026).

2 Weight-for-length/height. Geneva: World Health Organization (*https://www.who.int/tools/child-growth-standards/standards/weight-for-length-height*, accessed 13 January 2026).

Annex 8

Calculating weight-for-age *z*-score

The weight-for-age *z*-score (WAZ) reflects bodyweight relative to the child's age on a given day. WAZ is used to assess whether a child is underweight or severely underweight. It is not used to classify a child as overweight or obese. WAZ is less reliable in situations where a child's age cannot be accurately determined, but this is usually less of an issue with infants less than 6 months of age because parents and caregivers have a shorter period to the birth to recall *(1)*.

Using a growth chart

See the WHO *Training course on child growth assessment: module C – interpreting growth indicators (1)*.

Using a simplified field table

1. Find the correct simplified *field table (2)* for the child's age and sex. For WAZ, there are tables for birth to age 13 weeks and for birth to age 5 years. If the child is aged under 13 weeks, use the tables for birth to age 13 weeks.
2. Find the figure closest to the child's age in the left-hand column.
3. Move your finger towards the right to find where the weight you have measured lies and the nearest corresponding *z*-score.

Example

An infant boy aged 6 weeks has a recorded weight of 3.65 kg (see Figure A8.1). This is less than 3.8 kg (−2 standard deviations (SD)), and so he has WAZ < −2 (underweight) and is categorized as being at risk of poor growth and development.

If he had WAZ < −3 (severely underweight), he would also be classified as being at risk of poor growth and development.

Figure A8.1. Simplified weight-for-age field tables, birth to 13 weeks (z-scores), boys

Weight-for-age BOYS
Birth to 13 weeks (z-scores)

World Health Organization

Weeks	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
0	2.1	2.5	2.9	3.3	3.9	4.4	5.0
1	2.2	2.6	3.0	3.5	4.0	4.6	5.3
2	2.4	2.8	3.2	3.8	4.3	4.9	5.6
3	2.6	3.1	3.5	4.1	4.7	5.3	6.0
4	2.9	3.3	3.8	4.4	5.0	5.7	6.4
5	3.1	3.5	4.1	4.7	5.3	6.0	6.8
6	3.3	3.8	4.3	4.9	5.6	6.3	7.2
7	3.5	4.0	4.6	5.2	5.9	6.6	7.5
8	3.7	4.2	4.8	5.4	6.1	6.9	7.8
9	3.8	4.4	5.0	5.6	6.4	7.2	8.0

Infant boy 6 weeks old, weight: 3.65kg

Source: Weight-for-age. Geneva: World Health Organization (https://www.who.int/tools/child-growth-standards/standards/weight-for-age).

Table A8.1 summarizes the cut-offs for WAZ in children aged 0–59 months.

Table A8.1. Cut-offs for weight-for-age in infants and children aged 0–59 months

Age	WAZ	Interpretation/categorization
Birth to < 6 months	≥ −2	▷ Child not underweight and not categorized as being at risk of poor growth and development according to WAZ. ▷ Child may be categorized using other criteria, however, such as weight-for-length *z*-score (WLZ) or feeding difficulty.
	< −2	▷ Child underweight and at risk of poor growth and development.
	< −3	▷ Child severely underweight and at risk of poor growth and development.
6–59 months	≥ −2	▷ Not underweight.
	< −2 and ≥ −3	▷ Underweight.
	< −3	▷ Severely underweight.

References

1 Training course on child growth assessment: module C – interpreting growth indicators. Geneva: World Health Organization; 2008 (*https://iris.who.int/server/api/core/bitstreams/9f942a40-044a-45b5-9823-4716cd168fcc/content*, accessed 13 January 2026).

2 Weight-for-age. Geneva: World Health Organization (*https://www.who.int/tools/child-growth-standards/standards/weight-for-age*, accessed 13 January 2026).

Annex 9

Weight velocity standards

Weight velocity is one of the criteria that may be used to identify infants less than 6 months of age at risk of poor growth and development. Weight velocity more than 2 standard deviations (SD) below the median indicates the infant is at risk of poor growth and development.

Weight velocity is calculated by measuring the infant's weight at two different points in time and dividing the difference by the time interval between those measurements.

WHO simplified *field tables* *(1)* for weight velocity for boys and girls can be used to see how far from the median an infant's weight velocity deviates over 1, 2-, 3-, 4- and 6-month increments. This provides an indication of how quickly the infant is growing.

Figure A9.1 shows an example of weight velocity for an infant girl aged 3 months. Her weight at the last measurement at age 2 months was 4.9 kg. Her weight today at age 3 months is 5.1 kg. This is an increase of 200 g. She has gained less than 297 g between age 2 and 3 months, and so she is below −2 SD from the median of weight increments for this age. She is categorized as being at risk of poor growth and development. An assessment is needed to see whether she also has other criteria.

Figure A9.1. Simplified field tables, 1-month increments, birth to 12 months (*z*-scores), girls

- Weight at 2 months = 4.9 kg
- Weight at 3 months = 5.1kg
- Increase = 200g
- 200g is less than 297g
- > −2 SD from median

Simplified field tables

1-month weight increments (g) GIRLS
Birth to 12 months (z-scores)

World Health Organization

Interval	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
0 - 4 wks	123	358	611	879	1161	1453	1757
4 wks - 2 mo	251	490	744	1011	1290	1580	1880
2 - 3 mo	105	297	502	718	944	1178	1421
3 - 4 mo	14	192	383	585	796	1016	1244
4 - 5 mo	-62	108	293	489	695	911	1134
5 - 6 mo	-132	31	210	401	604	815	1036
6 - 7 mo	-185	-24	153	344	547	760	982
7 - 8 mo	-224	-64	116	311	519	738	967
8 - 9 mo	-259	-101	77	273	482	702	933
9 - 10 mo	-286	-131	48	245	456	679	913
10 - 11 mo	-307	-151	31	233	451	682	924
11 - 12 mo	-324	-166	22	232	458	699	953

WHO Growth Velocity Standards

Source: Weight velocity. Geneva: World Health Organization (https://www.who.int/tools/child-growth-standards/standards/weight-velocity).

Reference

1 Weight velocity. Geneva: World Health Organization (*https://www.who.int/tools/child-growth-standards/standards/weight-velocity*, accessed 13 January 2026).

Annex 10

Appetite test for children aged 6–59 months

Who needs the appetite test?

Consider using the appetite test for the following:

- any child with severe acute malnutrition (SAM) presenting for the first time to a health facility, to assess whether they need inpatient or outpatient care;
- any child being followed up in outpatient care who has no weight gain since the previous visit;
- any child being followed up in outpatient care who has lost weight since the previous visit;
- any child being followed up in outpatient care whose mother/caregiver reports any problems with their appetite or consumption of ready-to-use therapeutic food (RUTF) at home;
- any child that the clinician in the medical consultation has a concern about (refer back to the appetite test area if required).

Important

If a child has a medical problem that is serious enough to need inpatient admission, the appetite test does not need to be performed and the child should be referred directly to inpatient care.

Carrying out the appetite test

- The appetite test should be carried out carefully and patiently, in a quiet place.
- Explain the purpose of the test to the caregiver. Ask the mother/caregiver whether the child has ever had a reaction after eating nuts, such as difficulty breathing, a rash or itching. If they report a reaction, use a biscuit-based RUTF such as BP-100.
- Ask the mother/caregiver to wash their hands, and then to wash the child's hands and face and remove any visible dirt or dust from the RUTF sachet.
- Ask the mother/caregiver to sit comfortably, with the child comfortable on their lap. The child must be in a sitting position, whether they are able to sit up on their own or the mother/caregiver has to support them, because using a horizontal position can lead to aspiration of RUTF or water.
- Press or squeeze the RUTF around the sachet before opening the sachet so it becomes soft and evenly distributed in the sachet. You can give this job to the child so they become familiar with the product and treat it as a game to make them feel more at ease.
- Offer the RUTF to the child directly from the sachet, without forcing them, and regularly encourage the child verbally and non-verbally. If the child refuses to eat from the sachet, ask the mother/caregiver to offer a small amount of RUTF from their clean finger (the first approach is preferable to reduce the risk of contamination).
- If the child refuses the RUTF, give them a break. Then ask the mother/caregiver to continue quietly encouraging the child, taking the time needed.
- If using RUTF biscuit (e.g. BP-100) for children aged under 1 year, you can make a porridge by adding some cooled, boiled water to the biscuit. Do not use boiling water, because this kills many micronutrients.
- The test should last approximately 30 minutes. Some children may need longer, but many will do it quicker. Do not force the child to eat the RUTF.
- Provide drinking water during the appetite test, and encourage the mother/caregiver to give the water to the child.

Remember

The child and mother/caregiver may have had a lengthy walk or journey to reach the health facility. Lack of access to water and the drying effects of a hot climate may mean the child is thirsty. RUTF pastes and biscuits are dense and hard to swallow without sufficient water.

Table A10.1 gives a simplified dosing scheme for RUTF based on the child's bodyweight.

Table A10.1. Simplified dosing scheme for RUTF appetite test

Weight of child	Minimum amount of RUTF to be consumed		Suggested amount of water to drink
	RUTF paste (92 g sachet = 500 kcal)	RUTF biscuit (57 g bar = 300 kcal)	
< 6 kg	0.25 sachet	0.5 bar	150 mL
6.0–11.9 kg	0.5 sachet	1 bar	250 mL
12.0–15.0 kg	0.75 sachet	1.5 bars	400 mL
> 15 kg	1 sachet	2 bars	500 mL

Result of the appetite test

The appetite test is considered "passed" if the child eats at least the quantity (or more) of RUTF indicated in Table A10.1.

The appetite test is considered "failed" if the child eats less than the quantity of RUTF indicated in Table A10.1. If the child fails the test, the next steps are as follows (depending on where the test was performed):

- **Outpatient:** refer the child to the hospital to be assessed again and likely admitted if they still fail the appetite test in the emergency department or admissions unit.
- **Inpatient:** admit the child to the hospital for inpatient nutritional treatment.

Limitations of the appetite test

It is important to carry out the appetite test correctly and patiently. Even if the test is carried out well, there are several reasons why the test may not represent the child's true appetite status (see Table A10.2).

Table A10.2. Other reasons for failed appetite test

Reason for failing appetite test not related to having a consistently poor appetite	Actions
The child may have recently eaten or drunk and not be ready to eat again	▷ If the child and caregiver can wait 30 minutes, try the appetite test again. ▷ Use this time for to provide a health education session or infant and young child feeding counselling, or carry out the medical consultation and return to the appetite test later.
The child may be uncomfortable or stressed by the new environment and does not want to eat; or the caregiver may be stressed by the new environment, and the child may pick up on this	▷ Engage the child and caregiver in activities to reduce their stress – for example, take them for a tour of the health facility, explain the services offered, carry out an individual counselling session with the caregiver and child to address stressful issues, or have a guided or unguided play session with the child.
Behavioural reaction normal for the child's age, leading to refusal of wishes or instructions from the mother/caregiver (especially if they are the child's parent)	▷ Ask a staff member to show the caregiver and child how to do the test and explain how important it is in a way the child can understand (according to age and developmental stage); use role play or other play activities if needed. ▷ Ask a staff member to carry out the appetite test, with the caregiver close by.
The RUTF is a new food the child has not experienced before, and they may not want to accept it in the health facility	▷ Take time to explain to the child what the RUTF is and show them pictures of the main ingredients. ▷ Put the RUTF in a bowl or cup so the child can see what it looks like, let the child manipulate it with a spoon, and let the child feed themselves. ▷ Try putting some RUTF on the caregiver's or child's clean finger and encourage the child to eat the RUTF from there. ▷ Allow the child to watch other children eating the RUTF.

Key points

Location and environment:

- The appetite test needs a dedicated space, with appropriate shade and shelter from heat or rain.
- Ensure clean drinking water and regularly cleaned cups are readily available.
- Ensure areas to perform hand hygiene are available.
- Display pictures or posters that explain the appetite test pictorially and in local languages.
- Ensure the appetite test can be carried out in the hospital emergency department or admission unit (e.g. with availability of RUTF, appropriate space and well-trained staff) – this can prevent inpatient admission if done properly and at the right time. Avoid admitting a child with no medical problems to a nutrition ward to do an appetite test.

Staff:

- The appetite test needs experienced and patient staff to monitor it and encourage the caregivers.
- Emergency department staff can do the appetite test, or organize the rota to use nutrition assistants from the nutrition ward so there is always a nutrition assistant available to help with this task in the emergency department.
- Ensure staff are trained in what to do if there are problems carrying out the appetite test.

For a child who has been referred from outpatient to inpatient care based only on a failed appetite test and with no other medical problems that need inpatient admission (or no nutritional oedema grade +++), consider retrying the test before admitting the child as an inpatient.

The appetite test provides an ideal opportunity to observe caregiver–child interactions and to detect any psychosocial problems.

Annex 11

Welcoming and supporting caregivers and children in nutritional services: health education and counselling basics

In this implementation guidance, the following definitions are used:

- Counselling is a supportive, interpersonal process used to help people explore their problems, make decisions and adopt positive behaviours, often in the context of psychological, emotional and social well-being, or to improve specific practices such as maternal nutrition or child development. Counselling emphasizes building a trusting relationship to empower people to find their own solutions and manage their lives.
- Health education is the process of providing knowledge, attitudes and skills to enable people to lead healthy lives. It is an integral part of a broader approach that includes health services, nutrition programmes, safe water and supportive environments to promote overall child health and well-being.

This annex covers basic guidance on delivering health education and counselling and the key topics that should be covered. It is not exhaustive, and national and global guidance should be consulted. The following key global resources contain comprehensive guidance:

- *Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed* (1)
- *The community infant and young child feeding counselling package* (2)
- *Health systems strengthening: an example of integrating SBC into a sector* (3)
- *Guideline: counselling of women to improve breastfeeding practices* (4)
- *Guide for integration of perinatal mental health in maternal and child health services* (5)
- *Kangaroo mother care: a practical guide* (6).

Use of visual aids and other tools

To explain and counsel on many of the topics in this annex, the use of visual aids such as counselling cards, toys, models and examples of food utensils can be more effective than simply telling a caregiver what to do.

For example, *infant and young child feeding (IYCF) counselling cards* (7) **can be adapted to reflect the local context, helping the caregiver better relate to the images. When the people depicted in the illustrations resemble the people being counselled, it can enhance connection, trust and understanding.**

The United Nations Children's Fund (UNICEF) *Infant and young child feeding image bank (8)* **has a wide range of context-appropriate infant and young child feeding (IYCF) counselling images that can be used or adapted as needed.**

See the UNICEF *Community infant and young child feeding package: planning and adaptation guide* **for how to adapt these tools** (9)**.**

Steps to support behaviour change

For a person to change their behaviour, they need knowledge, motivation and practical support:

- Understand the importance of change: the person needs to know why the change is important and how it will benefit them. This builds a foundation for understanding and relevance.
- Increase motivation: the person needs to feel motivated and believe the change is both valuable and achievable. Building confidence in their ability to succeed is crucial.
- Provide clear steps for action: a clear plan should outline how the person can try to make the change.

This includes specific steps to follow and strategies to handle challenges.

- Offer ongoing support: the person needs continuous help, such as reminders, encouragement and practical tools, to sustain the new behaviour.

Health-care professionals are key in helping people make behaviour changes. It is important, however, not to overwhelm a caregiver with too many messages at the same time or to lecture them. Messages should be tailored to the caregiver's needs and delivered in a way that builds trust.

Building trust between caregivers and health-care professionals

Trust is essential, especially in high-stress situations such as hospitalization. Trust can be nurtured through the following approaches:

Use positive body language:

- Keep an open posture, with uncrossed arms and relaxed shoulders.
- Maintain gentle eye contact to show attentiveness.
- Sit at eye level with the caregiver to foster a sense of equality.

Adopt an empathic tone:

- Speak calmly and with genuine concern to reassure the caregiver.
- Avoid rushing or sounding dismissive, because this can make the caregiver feel undervalued.
- Use comforting phrases such as "I understand this must be difficult for you" or "We are here to support you."

Simplify communication:

- Avoid using technical terms.
- Use simple, clear language. For example, instead of saying "Your child has severe acute malnutrition and needs therapeutic feeding," say "We will give your child special food to help them regain strength and grow healthier."

Motivating the caregiver through conversations

Conversations between health-care professionals and the caregiver should be collaborative and supportive. The following approaches can support this:

Ask open-ended questions:

- Instead of telling the caregiver what to do, ask "What do you think you need to change?" or "Why would you want to make this change?"
- Help the caregiver identify personal motivations by asking "If you decide to make this change, how might you succeed?" or "What are your three best reasons for making this change?"

Practise reflective listening:

- Summarize what the caregiver says to show you value their perspective.
- Include the caregiver's desires, reasons and perceived need for change in your summary.

Affirm positive behaviours:

- Highlight strengths and efforts using positive affirmations that begin with "you" – for example, "I can tell you are a loving mother, and you are already doing a great job by paying attention to your child's nutritional needs. This will make a big difference."

Health education and counselling messaging: key topics

General health

If the child shows any of the following danger signs, the caregiver must alert the hospital staff or (if they are not in the hospital when these occur) take the child to a health facility immediately:

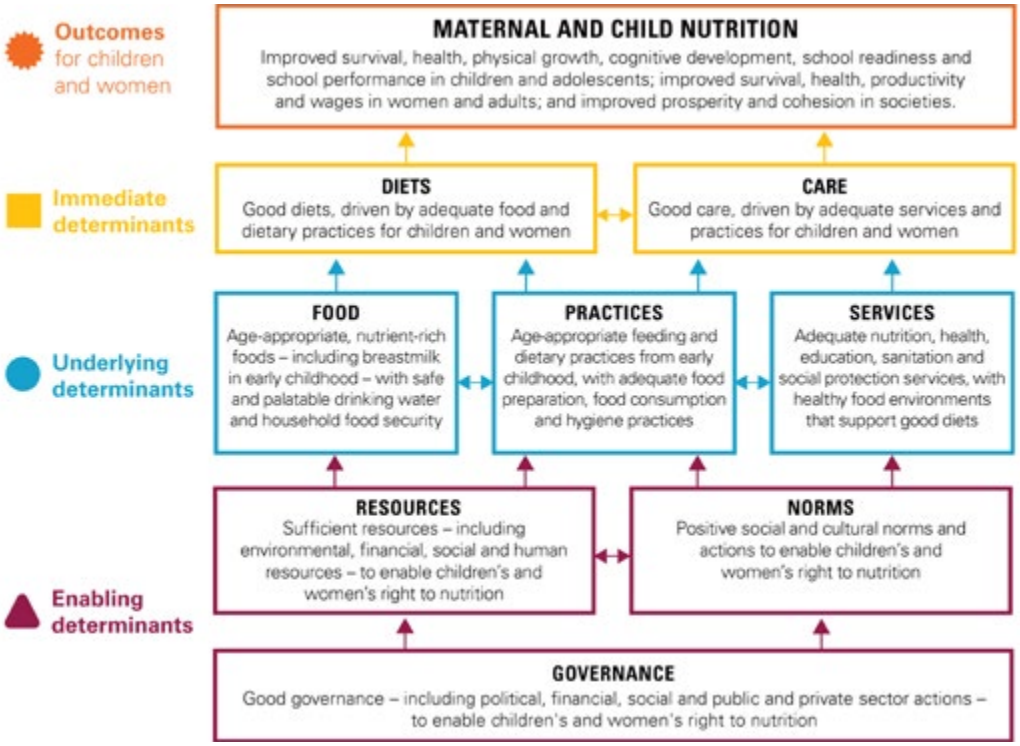
- not able to drink or breastfeed;
- breathing difficulties;
- vomits everything;
- convulsions;
- lethargic or unconscious.

If the child has diarrhoea at home, do not stop feeding the child. Give more breastmilk if possible and ensure feeding on demand.

Malnutrition

The *UNICEF conceptual framework on maternal and child nutrition (10)* can be used to structure messaging on the causes of malnutrition using audience-appropriate language to explain the three levels of underlying, intermediate and immediate causes of malnutrition (see Figure A11.1 and Box A11.1). Take the time to explain how each level and element contributes to a child becoming malnourished, and how many of these can occur at the same time. Ensure this is explained in a sensitive way that does not imply blame on the caregiver or suggest they have not been looking after the child correctly.

Figure A11.1. UNICEF conceptual framework on maternal and child nutrition



Source: UNICEF conceptual framework on maternal and child nutrition. New York: United Nations Children's Fund; 2021 (*https://www.unicef.org/documents/conceptual-framework-nutrition*).

Box A11.1

Causes of malnutrition: key messages

Factors and pathways leading to maternal and child undernutrition are diverse, complex and often interconnected. The *UNICEF conceptual framework on maternal and child nutrition (10)* reflects the various factors, how they interact and affect the nutritional status of an individual. The Framework lists three types of cause:

- Immediate causes are related to inadequate dietary intake (e.g. the child is not getting enough food and/or the right kinds of food) and to diseases (e.g. diarrhoea, pneumonia, malaria, HIV, tuberculosis (TB)). These causes lead directly to maternal and child undernutrition.
- Underlying causes include poor household access to efficient, safe and nutritious food (food insecurity); inappropriate care and feeding practices (e.g. unsafe preparation of infant formula, use of foods not suitable for the child's age and developmental stage); and unsafe environments with poor access to clean water and high-quality sanitation and hygiene services. Underlying causes also include inadequate access to or availability of health services and education, which are often linked. Underlying causes lead to immediate causes.
- Basic causes are rooted in poverty and involve interactions between social, political and demographic conditions. Basic causes lead to underlying causes.

All of these factors increase vulnerability to shocks and long-term stresses such as natural disasters (e.g. earthquakes, floods, droughts), ongoing conflict and climate change.

The information in Box A11.2 can be used to develop messages on the signs and symptoms of the different types of acute malnutrition. It is important to explain the signs associated with nutritional oedema in the syndrome of kwashiorkor and how this may not look like undernutrition in the same way that the marasmic presentation does. Kwashiorkor is a serious form of malnutrition, and the child needs immediate medical attention. Explain to the caregiver how to test for nutritional oedema at home.

Box A11.2

Clinical phenotypes of malnutrition

- **Marasmus – severe wasting without nutritional oedema:**
  - "old man" face, sunken eyes and hollow cheeks;
  - very thin, with minimal fat stores;
  - reduced skin turgor and loose skin;
  - muscular atrophy (wasted muscles);
  - reduced strength;
  - abdominal peristalsis may be visible;
  - appetite is usually still present;
  - may be irritable.
- **Kwashiorkor – severe wasting with nutritional oedema:**
  - bilateral pitting nutritional oedema present;
  - depigmented hair, which may be fragile and sparse;
  - depigmented, desquamating, easily infected skin lesions ("flaky paint rash");
  - hepatomegaly (enlargement of the liver);
  - appetite is often reduced;
  - may be irritable or apathetic, with no interest in the environment;
  - there is evidence that children with kwashiorkor have higher mortality than children with marasmus and often respond atypically and unpredictably to treatment.
- **Marasmic kwashiorkor:** the child has a mixture of the signs and symptoms of the two phenotypes of malnutrition, such as the facial features of marasmus but with nutritional oedema in the feet and legs.

Infant and young child feeding and healthy diet practices at home

Key IYCF messages emphasize practices that are crucial for child survival, growth, development and maternal health. The messaging must be clear and adapted to the specific audience. More detail is given in the *infant and young child feeding counselling cards* *(7)*, but a brief summary is given here:

- **Optimal breastfeeding:**
  - Early initiation – breastfeed within 1 hour of birth.
  - Exclusive breastfeeding – give only breastmilk for the first 6 months of life.
  - Continued breastfeeding – continue breastfeeding while introducing complementary foods up to age 2 years or beyond.
  - Frequent breastfeeding – breastfeed frequently, day and night.
  - Breastfeeding when sick – continue breastfeeding if the mother or infant is sick.
- **Complementary feeding:**
  - Timely introduction – introduce complementary foods at age 6 months, alongside continued breastfeeding.
  - Adequate and safe foods – ensure complementary foods are nutritious, safe and prepared hygienically (ensuring an age- and developmental stage-appropriate diversity, quantity, frequency and consistency of foods).
  - Appropriate feeding practices – consider frequency, feeding method and responsive feeding.
- **Other important messages:**
  - Avoid water or other liquids – do not give water or other liquids during the first 6 months, unless prescribed by a health-care provider (e.g. rehydration solution for malnutrition (ReSoMal) or oral rehydration salts).
  - Responsive care – respond to the infant's needs and cues during feeding.
- **Healthy diet practices at home:**
  - Discuss available nutrient-dense food within the context and how to improve the dietary quality of the child.
  - Explain the child needs a good diet at home, in particular animal-source foods such as meat, fish, eggs and dairy products, and green vegetables.

- Provide guidance on the use of locally available nutritious foods (animal-source foods, pulses, fruits, vegetables) and suggestions on the amounts of these foods needed by the child, and discuss low-cost options where households have financial challenges.
- Recommend only foods and feeding practices that are affordable, feasible, acceptable and sustainable to the family.
- Provide additional dietary support with cooking demonstrations – this can be arranged during home visits and/or through caregiver group meetings.

The following resources provide detailed and interactive resources to communicate with caregivers on these topics:

- *Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed (1)*
- *Integrated management of childhood illness: management of the sick young infant aged up to 2 months – IMCI chart booklet (11)*
- *Integrated management of childhood illness: chart booklet (12)*
- *The community infant and young child feeding counselling package (2).*

Hand and food hygiene

- Explain to the caregiver the importance of washing hands with soap after using the toilet, after changing or touching soiled clothing or nappies, before eating, and before preparing food to prevent illness.
- Discuss what to do if soap is not available (e.g. using ash as a safe, effective alternative).
- Encourage the family to cover food and store it in clean, cool conditions to avoid contamination.
- Remind the caregiver to store treated water properly in a covered container and to use clean methods to serve water to children (e.g. by pouring).

References

1 Infant and young child feeding counselling: an integrated course – participant's manual, 2nd ed. Geneva: World Health Organization and United Nations Children's Fund; 2021 (*https://www.who.int/publications/i/item/9789240032408*, accessed 8 January 2026).

2 The community infant and young child feeding counselling package. New York: United Nations Children's Fund (*https://www.unicef.org/documents/community-iycf-package*, accessed 8 January 2026).

3 Health systems strengthening: an example of integrating SBC into a sector. New York: United Nations Children's Fund (*https://www.sbcguidance.org/sites/default/files/2023-04/4-4-3%20Do%20-%20Health%20Systems%20Strengthening.pdf*, accessed 8 January 2026).

4 Guideline: counselling of women to improve breastfeeding practices. Geneva: World Health Organization; 2018 (*https://www.who.int/publications/i/item/9789241550468*, accessed 13 January 2026).

5 Guide for integration of perinatal mental health in maternal and child health services. Geneva: World Health Organization; 2022 (*https://www.who.int/publications/i/item/9789240057142*, accessed 6 January 2026).

6 Kangaroo mother care: a practical guide. Geneva: World Health Organization; 2003 (*https://iris.who.int/items/cf026be8-e511-4070-a788-13a274592a99*, accessed 8 January 2026).

7 Infant and young child feeding: counselling cards for community workers. New York: United Nations Children's Fund (*https://www.unicef.org/media/108391/file/Counselling%20Cards.pdf*, accessed 13 January 2026).

8 Infant and young child feeding image bank. New York: United Nations Children's Fund (*https://iycfimagebank.org/*, accessed 8 January 2026).

9 The community infant and young child feeding counselling package: planning and adaptation guide. New York: United Nations Children's Fund; 2024 (*https://www.unicef.org/media/108411/file/Planning%20and%20Adaptation%20Guide.pdf*, accessed 13 January 2026).

10 UNICEF conceptual framework on maternal and child nutrition. New York: United Nations Children's Fund; 2021 (*https://www.unicef.org/documents/conceptual-framework-nutrition*, accessed 13 January 2026).

11 Integrated management of childhood illness: management of the sick young infant aged up to 2 months – IMCI chart booklet. Geneva: World Health Organization; 2019 (*https://iris.who.int/items/8c31ee56-4bbd-4640-a25b-2cd1ce98ac59*, accessed 6 January 2026).

12 Integrated management of childhood illness: chart booklet. Geneva: World Health Organization; 2014 (*https://www.who.int/publications/m/item/integrated-management-of-childhood-illness---chart-booklet-%28march-2014%29*, accessed 6 January 2026).

Annex 12

Admission to and discharge from inpatient care

Admission to inpatient care

It is vital that the caregiver understands why the child has been admitted to inpatient care, the principles of care for inpatient management, and the setup and organization of the inpatient service. This information should be explained at the time of admission and repeated regularly during the different phases of treatment. Staff should take time to do this in a welcoming way, using words that are easy to understand and reassuring.

The following should be communicated to the caregiver when the child is admitted:

- Offer the caregiver and child a tour of the hospital to show them facilities such as the latrines or toilets, showers, nappy changing area, handwashing points and potty cleaning area. Depending on the number of new admissions per shift, a time can be fixed to do this with all the new caregivers together.
- Explain why the child has been admitted on to the ward, and explain the admission and discharge criteria.
- For all children (especially those aged 6–23 months), emphasize the benefits of continuing breastfeeding up to age 2 years and beyond. Explain that there are staff on the ward who can help if there are any problems or questions concerning breastfeeding.
- Explain in detail what will be done, and why. It is essential that the caregiver understands the importance of adherence to treatment until it is completed. Obtain an oral agreement on the treatment principles from the caregiver. Messages should include the following:
  - Breastfeeding is very much encouraged, and there are staff to help if there are any problems or questions concerning breastfeeding.
  - Mothers of infants less than 6 months of age will be shown how to express their breastmilk (if necessary) and encouraged to express frequently in between breastfeeds. The breastmilk that the mother expresses will be given to the baby after breastfeeding and before any other therapeutic milk is given.
  - The child should not be given any other food or drinks, unless a doctor or other clinician prescribes rehydration fluids if the child has dehydration (e.g. due to diarrhoea or vomiting).
  - The mother/caregiver should stay with the child until they leave the hospital. The child needs the care and reassuring presence of the mother/caregiver to get them through their stay in hospital. Their presence at feeding times is essential.
  - The child will be seen every day (several times a day if needed) by the health staff.
  - The clinical staff will monitor the child's general health status, their weight, and how well they breastfeed and/or consume therapeutic milk.
  - Infants less than 6 months of age may receive therapeutic milk as well as breastfeeding as part of their care. Use context-adapted language to explain what therapeutic milk is, including the use of infant formula in inpatient care.
  - Infants and children aged 6–59 months will receive therapeutic milk as their only food for the beginning of their treatment as an inpatient. As the child's condition improves and their appetite recovers, the therapeutic milk will be carefully switched to ready-to-use therapeutic food (RUTF) (use context-adapted terminology to explain this), and the child will continue their treatment at home with weekly follow-up in outpatient services.
- Ask whether there are other children with similar problems (using context-adapted language) in the family or community. If yes, ask whether they can be brought to the health facility for review.
- Explain how, where and when the caregiver can eat their own meals. Ideally, these meals should be provided by the health facility, because in most contexts they will spend a significant amount of time involved in the care of the child (e.g. feeding every

2–3 hours, giving rehydration fluids), with little time to prepare their own food. If this is not possible, ensure there is a clean, well-equipped area for the caregiver to prepare meals or food services that are not too costly for the context.

Important: Providing information in manageable amounts

- **The amount of information provided can feel overwhelming in high-stress situations such as when a child is admitted to hospital.**
- **Aim to communicate clearly and calmly, using simple and reassuring language.**
- **Consider breaking down information into small, manageable parts and sharing it in stages rather than all at once.**
- **Check frequently for understanding. Encourage the caregiver to repeat back key points in their own words to confirm comprehension.**
- **Where possible, use visual aids, demonstrations (e.g. for feeding or giving medicines), and written materials in the local language to support understanding.**
- **Make time for questions. Reassure the caregiver they are welcome to ask anything, at any time, if they are unsure about something or forget. Sensitivity and empathy are critical to ensuring the caregiver feels supported and confident in the care being provided.**

Discharge from inpatient care

Start to sensitize the caregiver early in the inpatient admission about the principles of care after discharge and the importance of follow-up:

- **Infants less than 6 months of age:**
  - ⇢ Even when the infant is better, nutritional support will continue in an outpatient centre. This is especially important for breastfeeding support for infants until age 6 months. Explain that this nutritional support may initially be weekly but eventually may become monthly once the infant is growing well and their health and feeding have improved. At age 6 months, the infant will have a final review to decide the best services for ongoing support.
  - ⇢ For infants with no possibility to be fed breastmilk and who will be fed infant formula at home, explain the quantities and frequency of formula to be given clearly. Remind the caregiver to increase the amount of infant formula as the infant gets older and in accordance to hunger cues (responsive feeding) – this helps to ensure that even if the infant does not present for follow-up in outpatient care, they receive adequate nutrition for healthy growth and development.
- **Infants and children aged 6–59 months:**
  - ⇢ Although the child is better and well enough to leave hospital, they need to continue with nutritional treatment in an outpatient centre until they are fully recovered. This is likely to be once a week. The child will be reviewed for any other medical problems and receive RUTF.
  - ⇢ Discuss with the caregiver which outpatient centre is most appropriate for the child and encourage the family to think about how they will organize the weekly visits.

Each hospital will have its own context-specific discharge checklist, but as a minimum it should include the following:

- Provide a discharge summary to the caregiver, with the medical management section completed by the treating doctor or clinician who has seen the child most regularly on the ward. Keep a copy of the summary in the child's file.
- Ensure all medicines for home use have been given to the caregiver in sufficient quantities until the next outpatient visit, and the caregiver is confident in how and when to give the medicines.
- Ensure the appropriate quantity of RUTF has been given to the caregiver in sufficient quantities until the next outpatient visit, and the caregiver is confident in how and when to give RUTF.
- Ensure the relevant health education and counselling, especially danger signs, have been given and understood by the caregiver. Emphasize that the reappearance of nutritional oedema is not technically a danger sign, but the caregiver should return to a health facility as soon as possible if this occurs. Counselling information should also include information on a healthy diet and safe water, sanitation and hygiene practices.
- Ensure vaccinations are up to date. If not, give clear guidance and a referral note for the child to receive these vaccinations elsewhere, and give a home-based record or vaccination card if they do not already have one.
- Double-check the child has been screened for HIV and tuberculosis (TB). If the child is on treatment for either of these, check follow-up appointments have

been arranged for after discharge. If the results of screening or tests are pending, ensure the caregiver knows how to call or return to get the results.

- Assess the caregiver's physical and mental health to ensure they feel confident to go home and deal with the child's outpatient follow-up. Consider discussing or referring the mother for family planning and other women's health services.
- Ensure the child and the caregiver leave the hospital at a safe time (e.g. consider whether curfews are in place or routes are unsafe at particular times). Consider providing transport home, especially if there are risks to health or personal security on the journey.
- Ensure the caregiver understands what has been achieved, the next phases of follow-up, and what to do if they are concerned that the child is unwell at home.

For caregivers considering leaving against medical advice:

- Try to understand why the caregiver wants to leave against medical advice.
- Ensure the caregiver fully understands that they are leaving against the advice of the medical team and understands the risks (this can be done with the medical team giving technical information).
- See whether a compromise can be made: can another family member come to stay with the child? Can the child and the caregiver come back in a few days? Can the child and the caregiver go for outpatient care tomorrow to be followed up?
- Try to get agreement for a home visit by an appropriate health-care worker or community health worker.

Annex 13

Enrolment into outpatient care

The following guidance covers important aspects that should be communicated to the caregiver on enrolment of a child into outpatient care. This can be done by different cadres of well-trained staff. These messages should be given at the time of enrolment and repeated regularly as needed during subsequent visits. Staff should take time to do this in a welcoming way, using words that are easy to understand and reassuring.

- Explain the setup of the outpatient service and the patient flow. Make sure the caregiver knows where essential facilities are, such as the latrines or toilets, handwashing points and potty cleaning area.
- Explain why the child has been enrolled in this service, and explain the enrolment and exit criteria.
- Explain in detail what will be done, and why. It is essential that the caregiver understands the importance of adherence to the treatment until it is completed. Obtain oral agreement on the treatment principles from the caregiver.
- For all children (especially those aged 6–23 months), emphasize the benefits of continuing breastfeeding up to age 2 years and beyond. Explain there are staff in the outpatient service who can help if there are any problems or questions concerning breastfeeding.

Explaining outpatient management for children with severe acute malnutrition (SAM)

- Explain what SAM is and the causes of it, using nonjudgemental language and non-verbal signals.
- Explain that the child will receive medical care for any medical problems they have as well as nutritional treatment in the form of ready-to-use therapeutic food (RUTF)..
- Provide counselling on infant and young child feeding (IYCF) and healthy diets at home.
- Explain that the child will attend the service weekly. The child will be weighed and assessed by a health worker and given the medical and nutritional treatment they need. Explain the danger signs and other reasons to return to a health facility – emphasize that if the child becomes unwell, they should not wait for the next visit but should return sooner to this service or the nearest health facility.
- Explain that if the child does not improve with this treatment, they may have to be admitted to hospital for closer follow-up, but the majority of children with SAM need only outpatient care.
- Explain the exit criteria.
- Ask about vaccinations and explain the importance of vaccination. Explain that the child will be offered vaccinations during their outpatient care or referred to another service for vaccinations – and it is vital to attend.
- Ask whether there are other children with similar problems in their family or community. If yes, ask whether they can be brought to the health facility for review.
- Provide time for the caregiver to ask questions and emphasize they may ask questions at any time, day or night.

Important

Children and caregivers who are directly enrolled into outpatient care from the community may need more explanations and are likely to be more stressed than caregivers of children coming from inpatient care.

Explaining nutritional treatment for SAM

- **What is RUTF and who should eat it:**
  - RUTF is a special medical food used to treat SAM.
  - RUTF is intended only for the child with malnutrition, and they need the full number of sachets or bars prescribed to get better.
  - Do not give RUTF to anyone other than the child with malnutrition.
- **How to give RUTF:**
  - Before any meal, wash your hands, wash the child's hands and face, and remove any visible dirt from the sachet or package of RUTF.
  - The child may accept RUTF more readily if it is divided up into smaller meals throughout the day rather than given all at once.

- Provide lots of water with RUTF, because it can be hard to eat without water. If the child refuses to eat more RUTF, try giving some water and then see whether they want to eat more RUTF.
- Before opening an RUTF paste sachet, press the RUTF around the sachet so it becomes soft and evenly distributed – you can let the child do this and make it into a fun game. Tear off the corner of the sachet as indicated by the dotted line on the sachet. Squeeze up the RUTF and allow the child to eat straight from the sachet. If the child does not accept this, try putting some RUTF on your clean finger or the child's clean finger.
- RUTF biscuits can be eaten directly from the package or made into a porridge using safe clean drinking water. The porridge should be prepared to a consistency that is spoonable but not so thin that it is drinkable. This ensures the child can comfortably swallow it and maximizes the energy and nutrient density of the preparation. Prepare sufficient quantity for only one meal and consume all the porridge shortly after preparation.

- If the child is breastfeeding, continue to do so, preferably before RUTF is given. Breastmilk is an excellent source of nutrients, but after age 6 months the child also needs other food – RUTF first and then family meals if the child is still hungry after the RUTF and breastfeeding.
- Storing RUTF:
  - If the child does not finish the full sachet in one sitting, store the sachet in an airtight container to reduce the chance of it being contaminated by dirt or other harmful substances.
  - Opened sachets of RUTF must be consumed within 24 hours after opening.

> ***Note***
> **Use clear, understandable language and consider using local terminology for aspects such as RUTF and malnutrition.**

Explaining outpatient management for children with moderate acute malnutrition (MAM)

- Explain what MAM is and its causes, and how it is different from SAM, using nonjudgemental language and non-verbal signals.
- Explain that the child will receive medical care for any medical problems they have (or be referred to an appropriate health facility) as well as nutritional management.
- Explain that nutritional management will entail counselling with or without the provision of food, cash, vouchers or specially formulated foods. Make this message context-specific according to the child's condition and/or the programmatic approach.
- Provide counselling on IYCF and eating a healthy diet at home.
- Explain how often the child and caregiver need to attend the service. Explain that at each visit, the child will be weighed and assessed by a member of the outpatient care team and given or referred to the medical treatment and nutritional management required.
- Explain that if the child does not improve with this treatment, they may be referred to another outpatient service or a hospital, but the majority of children with moderate wasting need only outpatient care.
- Explain the exit criteria.
- Ask about vaccinations and explain their importance. Explain that the child will be offered vaccinations during their outpatient care or referred to another service for vaccinations – and it is vital to attend.
- Ask whether there are other children with a similar problem in their family or community. If yes, ask whether they can be brought to this service or another health facility for review.
- Provide time for the caregiver to ask questions and emphasize they may ask questions at any time, day or night.
- What is a specially formulated food (SFF) and who should eat it:
  - SFF is a food for special dietary purposes used to supplement children with moderate wasting (use local language to explain this).
  - SFF is intended only for the child, and they need the full quantity prescribed to get better.
  - Do not give SFF to anyone other than the child.

- Giving RUTF and ready-to-use supplementary food (RUSF):
  - Before any meal, wash your hands, wash the child's hands and face, and clean any visible dirt from the sachet of RUTF/RUSF.
  - The child may accept RUTF/RUSF more readily if it is divided into smaller meals throughout the day rather than given all at once.
  - Provide lots of water with RUTF/RUSF, because it can be hard to eat without water. If the child refuses to have more RUTF/RUSF, try giving some water and then see whether they want to eat more RUTF/RUSF.
  - Before opening the sachet, squeeze the RUTF/RUSF around the sachet so it becomes soft and evenly distributed. You can let the child do this and make it into a fun game.
  - Tear off the corner of the sachet as indicated by the dotted line on the sachet. Squeeze the sachet and allow the child to eat RUTF/RUSF straight from the sachet. If they do not accept this, try putting some RUTF/RUSF on your clean finger or the child's clean finger.
  - If the child is breastfeeding, continue to do so, preferably before RUTF/RUSF is given. Breastmilk is an excellent source of nutrients, but after age 6 months the child also needs other food to meet all their needs. RUTF/RUSF makes up part of those needs alongside normal family meals.
- Giving improved fortified blended foods:
  - These foods should be used to make up porridges or similar dishes using safe, clean drinking water.
  - Before preparing food, wash your hands and wash all cooking and serving utensils with clean water.
  - Prepare the porridge to a spoonable consistency, but not so thin that it is drinkable. This ensures the child can comfortably swallow it, while also maximizing the energy and nutrient density of the preparation. For example, the recommended preparation of Super Cereal Plus (a fortified blended flour) is 1 cup of flour and 3 cups of water.
  - Prepare sufficient quantity for only one meal, and consume all the porridge shortly after preparation.
- Storing RUTF and RUSF:
  - If the child does not finish the full sachet in one sitting, store the sachet in an airtight container to reduce contamination by dirt or other harmful substances.
  - Opened sachets of RUTF/RUSF must be consumed within 24 hours after opening.
- Storing improved fortified blended foods:
  - Store fortified blended foods in a cool, dry, hygienic place, away from direct sunlight.

Referral from outpatient to inpatient care

Being told the child is not progressing and needs to be referred to inpatient care may be stressful for the child and the caregiver. They may not have what they need to go directly to the hospital (e.g. change of clothes, personal hygiene items, money). They should be supported to make the decisions that best balance the urgency of the child's need for inpatient care and adequate preparation for an inpatient admission:

- Using nonjudgmental language, explain why the child is being referred to inpatient care and that this is in the best interests of the child.
- Explain what they need for a stay in hospital, and prepare them to be there for a minimum of 1 week.
- Briefly explain what the management is likely to be (e.g. medicines, therapeutic foods). Reassure the child and caregiver that they will get more explanation when they arrive at the hospital.
- Explain how to get to the inpatient facility, and arrange transportation if possible.

Exiting outpatient care

Each service will have its own context-specific checklist for leaving outpatient care. As a minimum, it should include the following:

- Provide an exit summary to the caregiver, with the nutritional and medical management sections filled out by the staff member or health worker who has seen the child most regularly during outpatient care. Keep a copy of the summary in the patient's file.
- Ensure all medicines for home use have been given to the caregiver, and they are confident in how and when to give them.

- Ensure the caregiver has received and understood the relevant health education and counselling. Reinforce and explain what has been achieved during the outpatient care and what the caregiver should do if they are concerned that the child is unwell, including recognizing danger signs.
- Ensure the child's vaccinations are up to date. If not, give clear guidance and a referral note for the child to receive vaccinations elsewhere. Give a home-based record or vaccination card if they do not have one.
- Ensure the caregiver feels prepared for exiting outpatient care, and their own mental and physical health and capacity for care at home have been considered for the timing of exit decisions and any subsequent follow-up.
- For children with medical problems that need mid- or long-term follow-up care and have a significant association with nutritional status:
  - ⇢ Ensure referral to appropriate care or support, such as outpatient HIV or TB treatment, physiotherapy and speech and language therapy for feeding difficulties associated with cerebral palsy or other disabilities, or psychological support groups for the child and/or the caregiver.
  - ⇢ Supportive services for other social factors may include food assistance and other social safety net interventions for the whole household.
  - ⇢ The possibility to refer children to these services differs between contexts. Policy-makers, programme managers and health workers should advocate for the provision of such services wherever possible.

Annex 14

Protocols for routine medical management for infants and children with severe acute malnutrition (SAM)

Oral antibiotics

Dispersible tablets can be divided using a tablet cutter to obtain the correct dose (Table A14.1). Allow the correct dose to disperse in 5–10 mL water. Mix the solution well (remember these tablets are dispersible, not dissolvable). Draw up the complete mixture with a 5 mL or 10 mL oral or enteral syringe to give the medicine.

If dispersible tablets are not available, use normal tablets and use a tablet cutter to obtain the correct dose (Table A14.1). Crush the correct dose using a mortar and pestle or a tablet crusher. Mix the resulting powder as well as possible with 5–10 mL water. Draw up the complete mixture with a 5 mL or 10 mL oral or enteral syringe to give the medicine.

Table A14.1. Quick dosing table for amoxicillin 250 g tablets

Weight of child	Dose to give twice a day (based on 50 mg/kg/dose)	Number of tablets to give twice a day
2 kg	100 mg	0.5 tablet
3 kg	150 mg	0.5 tablet
4 kg	200 mg	1 tablet
5 kg	250 mg	1 tablet
6 kg	300 mg	1 tablet
7 kg	350 mg	1.5 tablets
8 kg	400 mg	1.5 tablets
9 kg	450 mg	2 tablets
10 kg	500 mg	2 tablets
11 kg	550 mg	2 tablets
12 kg	600 mg	2.5 tablets
13 kg	650 mg	2.5 tablets
14 kg	700 mg	3 tablets
15 kg	750 mg	3 tablets

Table A14.2. Quick dosing table for amoxicillin 125 mg/5 mL suspension

Weight of child	Dose to give twice a day (based on 50 mg/kg/dose)	Amount to give twice a day
2 kg	100 mg	4 mL
3 kg	150 mg	6 mL
4 kg	200 mg	8 mL
5 kg	250 mg	10 mL
6 kg	300 mg	12 mL

Intravenous antibiotics

Antibiotic regimens should be adapted to local resistance patterns.

Infants less than 6 months of age with SAM

- Antibiotics:
  - ampicillin 50 mg/kg every 8 hours plus gentamicin 5 mg/kg once a day; or
  - ceftriaxone 50 mg/kg once a day.
- If serious bacterial infection is suspected, the child is likely to need treatment for 7 days. The exact duration depends on the child's condition and response to treatment. Treat for a minimum of 48 hours and then review. If the child improves and does not need intravenous antibiotics for the full 7 days, complete the full 7-day course with an oral antibiotic such as amoxicillin.
- If a specific condition has been identified (e.g. severe pneumonia, skin infection, meningitis), the choice of antibiotic, duration of treatment and dosage should be as per guidance in the World Health Organization (WHO) *Pocket book of hospital care for children: second edition* (hereafter, the WHO Pocket book) *(1)* for that condition.

Children aged 6–59 months with SAM

- Antibiotics:
  - benzylpenicillin 50 000 U/kg intravenous every 6 hours or ampicillin 50 mg/kg intravenous every 6 hours; plus gentamicin 7.5 mg/kg intravenous once a day; or
  - ceftriaxone 50 mg/kg once a day.
- If serious bacterial infection is suspected, the child is likely to need treatment for 7 days. The exact duration depends on the child's condition and response to treatment. Treat for a minimum of 48 hours and then review. If the child improves and does not need intravenous antibiotics for the full 7 days, complete the full 7 day course with an oral antibiotic such as amoxicillin.
- If a specific condition has been identified (e.g. severe pneumonia, skin infection, meningitis), the choice of antibiotic, duration of treatment and dosage should be as per guidance in the WHO *Pocket book (1)* for that condition.

Deworming

Table A14.3. Dosing schedule for deworming medicines for children aged over 1 year

Medicine	Route	Dose	Duration	When
Albendazole	Oral	400 mg	One dose	After stabilization phase is completed (child is clinically stable) or enrolment into outpatient care
Mebendazole	Oral	100 mg	Once a day for 3 days	After stabilization phase is completed (child is clinically stable) or enrolment into outpatient care

Vitamin A

The vitamin A dosing schedule in Table A14.4 is only for children with signs of vitamin A deficiency/xerophthalmia or recent measles, or if therapeutic foods that do not meet the WHO/Codex Alimentarius specifications are being used.

Table A14.4. Treatment dosing schedule for vitamin A according to child's weight

Timing	Vitamin A dosage in drops from a 200 000 IU capsule
Immediately on diagnosis (day 1)	
Age < 6 months	2 drops (50 000 IU)
Age 6–12 months	4 drops (100 000 IU)
Age > 12 months	4 drops (100 000 IU)
Next day (day 2)	Same age-specific dose
Day 14[a]	Same age-specific dose

[a] If the child is no longer in hospital on day 14, ensure the need for this dose is clearly written in the child's discharge summary and referral note to outpatient care.

Reference

1 Pocket book of hospital care for children: second edition. Geneva: World Health Organization; 2013 (*https://www.who.int/publications/i/item/978-92-4-154837-3*, accessed 6 January 2026).

Annex 15

Stabilization phase: reference tables for F-75 milk for children aged 6–59 months with severe acute malnutrition (SAM)

- Give F-75 milk to provide 80–100 kcal/kg of bodyweight per day, usually starting at the lower end (80 kcal/kg/day) for children who are less clinically stable and more prone to refeeding syndrome (Table A15.1). The lower end of the range should also be considered for any child showing signs of feeding intolerance, even if they are otherwise clinically stable.
- The total daily amount of F-75 milk should be given in eight feeds per day (every 3 hours). A protocol of six feeds per day (every 4 hours) can be used if it is not possible to give eight feeds due to logistic or human resources restraints. For children who are less clinically stable or show any signs of feed intolerance, 12 feeds per day (every 2 hours) may be needed for a brief period until clinical improvement is observed.
- Use the child's admission weight (or weight after initial rehydration) to calculate the amount of milk for the whole of the stabilization phase.
- For children with nutritional oedema ++ or +++, clinical judgement may be needed when deciding on the volume of milk to give, because the total volume per day according to their admission bodyweight is likely to be an inaccurate representation of their actual needs due to oedema contributing to an increased weight. Adjustments can be made after the first few mealtimes to see how much milk the child tolerates and any signs of feeding intolerance.
- No foods or liquids should be given to the child apart from F-75 milk, breastmilk or water.
- Rehydration solutions (preferably rehydration solution for malnutrition (ReSoMal), or oral rehydration salts if ReSoMal is not available) may be prescribed by the clinical team to prevent or treat dehydration.

Table A15.1. Amount of F-75 milk to give 80 kcal/kg/day based on six feeds per day (every 4 hours)

Weight of child	Per day	Per feed
3.0–3.4 kg	341 mL	60 mL
3.5–3.9 kg	395 mL	70 mL
4.0–4.4 kg	448 mL	75 mL
4.5–4.9 kg	501 mL	85 mL
5.0–5.4 kg	555 mL	90 mL
5.5–5.9 kg	608 mL	100 mL
6.0–6.4 kg	661 mL	110 mL
6.5–6.9 kg	715 mL	120 mL
7.0–7.4 kg	768 mL	130 mL
7.5–7.9 kg	821 mL	140 mL
8.0–8.4 kg	875 mL	150 mL
8.5–8.9 kg	928 mL	155 mL
9.0–9.4 kg	981 mL	165 mL
9.5–9.9 kg	1035 mL	170 mL
10.0–10.4 kg	1088 mL	180 mL
10.5–10.9 kg	1141 mL	190 mL
11.0–11.4 kg	1195 mL	200 mL
11.5–11.9 kg	1248 mL	210 mL
12.0–12.4 kg	1301 mL	220 mL
12.5–12.9 kg	1355 mL	230 mL
13.0–13.4 kg	1408 mL	235 mL
13.5–13.9 kg	1461 mL	245 mL
14.0–14.4 kg	1515 mL	250 mL
14.5–14.9 kg	1568 mL	260 mL
15.0–15.4 kg	1621 mL	270 mL
15.5–15.9 kg	1675 mL	280 mL

Table A15.2. Amount of F-75 milk to give 80 kcal/kg/day based on eight feeds per day (every 3 hours)

Weight of child	Per day	Per feed
3.0–3.4 kg	341 mL	45 mL
3.5–3.9 kg	395 mL	50 mL
4.0–4.4 kg	448 mL	60 mL
4.5–4.9 kg	501 mL	65 mL
5.0–5.4 kg	555 mL	70 mL
5.5–5.9 kg	608 mL	80 mL
6.0–6.4 kg	661 mL	85 mL
6.5–6.9 kg	715 mL	90 mL
7.0–7.4 kg	768 mL	100 mL
7.5–7.9 kg	821 mL	105 mL
8.0–8.4 kg	875 mL	110 mL
8.5–8.9 kg	928 mL	120 mL
9.0–9.4 kg	981 mL	125 mL
9.5–9.9 kg	1035 mL	130 mL
10.0–10.4 kg	1088 mL	140 mL
10.5–10.9 kg	1141 mL	145 mL
11.0–11.4 kg	1195 mL	150 mL
11.5–11.9 kg	1248 mL	160 mL
12.0–12.4 kg	1301 mL	165 mL
12.5–12.9 kg	1355 mL	170 mL
13.0–13.4 kg	1408 mL	180 mL
13.5–13.9 kg	1461 mL	185 mL
14.0–14.4 kg	1515 mL	190 mL
14.5–14.9 kg	1568 mL	200 mL
15.0–15.4 kg	1621 mL	205 mL
15.5–15.9 kg	1675 mL	210 mL

Table A15.3. Amount of F-75 milk to give 100 kcal/kg/day based on six feeds per day (every 4 hours)

Weight of child	Per day	Per feed
3.0–3.4 kg	427 mL	70 mL
3.5–3.9 kg	493 mL	80 mL
4.0–4.4 kg	560 mL	95 mL
4.5–4.9 kg	627 mL	105 mL
5.0–5.4 kg	693 mL	115 mL
5.5–5.9 kg	760 mL	130 mL
6.0–6.4 kg	827 mL	140 mL
6.5–6.9 kg	893 mL	150 mL
7.0–7.4 kg	960 mL	160 mL
7.5–7.9 kg	1027 mL	170 mL
8.0–8.4 kg	1093 mL	180 mL
8.5–8.9 kg	1160 mL	195 mL
9.0–9.4 kg	1227 mL	205 mL
9.5–9.9 kg	1293 mL	215 mL
10.0–10.4 kg	1360 mL	230 mL
10.5–10.9 kg	1427 mL	240 mL
11.0–11.4 kg	1493 mL	250 mL
11.5–11.9 kg	1560 mL	260 mL
12.0–12.4 kg	1627 mL	270 mL
12.5–12.9 kg	1693 mL	280 mL
13.0–13.4 kg	1760 mL	295 mL
13.5–13.9 kg	1827 mL	305 mL
14.0–14.4 kg	1893 mL	315 mL
14.5–14.9 kg	1960 mL	330 mL
15.0–15.4 kg	2027 mL	340 mL
15.5–15.9 kg	2093 mL	350 mL

Table A15.4. Amount of F-75 milk to give 100 kcal/kg/day based on eight feeds per day (every 3 hours)

Weight of child	Per day	Per feed
3.0–3.4 kg	427 mL	50 mL
3.5–3.9 kg	493 mL	60 mL
4.0–4.4 kg	560 mL	70 mL
4.5–4.9 kg	627 mL	80 mL
5.0–5.4 kg	693 mL	90 mL
5.5–5.9 kg	760 mL	95 mL
6.0–6.4 kg	827 mL	100 mL
6.5–6.9 kg	893 mL	110 mL
7.0–7.4 kg	960 mL	120 mL
7.5–7.9 kg	1027 mL	130 mL
8.0–8.4 kg	1093 mL	140 mL
8.5–8.9 kg	1160 mL	145 mL
9.0–9.4 kg	1227 mL	155 mL
9.5–9.9 kg	1293 mL	160 mL
10.0–10.4 kg	1360 mL	170 mL
10.5–10.9 kg	1427 mL	180 mL
11.0–11.4 kg	1493 mL	185 mL
11.5–11.9 kg	1560 mL	195 mL
12.0–12.4 kg	1627 mL	205 mL
12.5–12.9 kg	1693 mL	210 mL
13.0–13.4 kg	1760 mL	220 mL
13.5–13.9 kg	1827 mL	230 mL
14.0–14.4 kg	1893 mL	235 mL
14.5–14.9 kg	1960 mL	245 mL
15.0–15.4 kg	2027 mL	255 mL
15.5–15.9 kg	2093 mL	260 mL

Annex 16

Transition phase

reference tables for F-100 milk and ready-to-use therapeutic food (RUTF) for children aged 6–59 months with severe acute malnutrition (SAM)

Both F-100 milk and RUTF are recommended for use in the transition phase. Current evidence does not show that one product is superior to the other in terms of tolerance, duration of transition phase, incidence of diarrhoea or appearance of other complications. The clinical team should base the decision of which product to use on the needs of the child and local contextual factors and restraints.

There are advantages and disadvantages of using F-100 milk and RUTF. For example, for an inpatient service that consistently has high or full bed occupancy, or in the peak season, using RUTF may mean children can be discharged more rapidly as they are already familiar with the nutritional treatment they will go home on. On the other hand, some children do not accept RUTF straightaway and the transition phase needs to be with F-100 milk.

Transitioning from F-75 milk to RUTF

- If the child eats the full amount of RUTF (see Tables A16.1 and A16.2) and has no medical problems that require inpatient treatment, the child can be transferred when the transition phase is completed (usually 2–3 days, depending on clinical assessment) to the rehabilitation phase as an outpatient.
- If the child does not accept or tolerate the full amount of RUTF, the total energy needs should be completed (topped up) with F-75 milk.
- The amounts of RUTF are given in tablespoons and proportions of a sachet in Tables A16.1 and A16.2. A tablespoon is assumed to be equivalent to 10 g.
- The suggested amounts of F-75 milk in this annex are one-quarter, one-half and three-quarters of the total amount of F-75 milk that would be given to meet the energy needs of the transition phase if only F-75 milk was being used. A midpoint of 115 kcal/kg/day (range 100–130 kcal/kg/day) has been used for the calculations.
- The quantity chosen depends on how much of the RUTF the child consumes. For example, if the child eats only half of the required amount of RUTF, the other half should be given as F-75 milk; if the child eats only one-quarter of the RUTF, the remaining three-quarters should be given as F-75 milk.
- If the child is consistently not finishing three-quarters or more of each RUTF feed over 1–2 days, consider the following:
  - The child may not be ready for the transition phase and should go back to the stabilization phase.
  - Try transitioning using F-100 milk instead of RUTF.

Table A16.1. Amount of RUTF and F-75 milk to give 115 kcal/kg/day based on six meals a day

	Amount of RUTF	Quantity of F-75 milk for top-up if child does not eat full amount of RUTF		
Weight of child	Tablespoons or sachets per meal	If child eats one-quarter of required RUTF	If child eats one-half of required RUTF	If child eats three-quarters of required RUTF
3.0–3.4 kg	1 tablespoon	35 mL	25 mL	10 mL
3.5–3.9 kg	1 tablespoon	40 mL	30 mL	15 mL
4.0–4.4 kg	1 tablespoon	50 mL	30 mL	15 mL
4.5–4.9 kg	2 tablespoons	50 mL	25 mL	20 mL
5.0–5.4 kg	2 tablespoons	60 mL	40 mL	20 mL
5.5–5.9 kg	2 tablespoons	65 mL	40 mL	20 mL
6.0–6.4 kg	One-quarter of a sachet	70 mL	45 mL	25 mL
6.5–6.9 kg	One-quarter of a sachet	75 mL	50 mL	25 mL
7.0–7.4 kg	One-quarter of a sachet	80 mL	55 mL	30 mL
7.5–7.9 kg	One-quarter of a sachet	85 mL	60 mL	30 mL
8.0–8.4 kg	One-third of a sachet	90 mL	60 mL	30 mL
8.5–8.9 kg	One-third of a sachet	100 mL	65 mL	30 mL
9.0–9.4 kg	One-third of a sachet	100 mL	70 mL	35 mL
9.5–9.9 kg	One-third of a sachet	110 mL	70 mL	35 mL
10.0–10.4 kg	One-third of a sachet	115 mL	75 mL	40 mL
10.5–10.9 kg	One-third of a sachet	120 mL	80 mL	40 mL
11.0–11.4 kg	One-third of a sachet	125 mL	85 mL	40 mL
11.5–11.9 kg	One-third of a sachet	130 mL	90 mL	45 mL
12.0–12.4 kg	One-half of a sachet	135 mL	90 mL	45 mL
12.5–12.9 kg	One-half of a sachet	140 mL	95 mL	50 mL
13.0–13.4 kg	One-half of a sachet	150 mL	100 mL	50 mL
13.5–13.9 kg	One-half of a sachet	150 mL	100 mL	50 mL
14.0–14.4 kg	One-half of a sachet	160 mL	105 mL	55 mL
14.5–14.9 kg	One-half of a sachet	165 mL	110 mL	55 mL
15.0–15.4 kg	Two-thirds of a sachet	170 mL	115 mL	55 mL
15.5–15.9 kg	Two-thirds of a sachet	175 mL	115 mL	60 mL

Table A16.2. Amount of RUTF and F-75 milk to give 115 kcal/kg/day based on eight meals a day

Weight of child	Quantity of RUTF paste	Quantity of F-75 milk for top-up if child does not eat full amount of RUTF		
	Tablespoons or sachets per meal	If child eats one-quarter of required RUTF	If child eats one-half of required RUTF	If child eats three-quarters of required RUTF
3.0–3.4 kg	1 tablespoon	30 mL	20 mL	10 mL
3.5–3.9 kg	1 tablespoon	30 mL	20 mL	10 mL
4.0–4.4 kg	1 tablespoon	35 mL	25 mL	10 mL
4.5–4.9 kg	1 tablespoon	40 mL	25 mL	15 mL
5.0–5.4 kg	1 tablespoon	45 mL	30 mL	15 mL
5.5–5.9 kg	2 tablespoons	50 mL	30 mL	15 mL
6.0–6.4 kg	2 tablespoons	50 mL	35 mL	20 mL
6.5–6.9 kg	2 tablespoons	55 mL	40 mL	20 mL
7.0–7.4 kg	2 tablespoons	60 mL	40 mL	20 mL
7.5–7.9 kg	2 tablespoons	65 mL	45 mL	20 mL
8.0–8.4 kg	2 tablespoons	70 mL	45 mL	25 mL
8.5–8.9 kg	One-quarter of a sachet	75 mL	50 mL	25 mL
9.0–9.4 kg	One-quarter of a sachet	80 mL	50 mL	25 mL
9.5–9.9 kg	One-quarter of a sachet	80 mL	55 mL	30 mL
10.0–10.4 kg	One-quarter of a sachet	85 mL	60 mL	30 mL
10.5–10.9 kg	One-third of a sachet	90 mL	60 mL	30 mL
11.0–11.4 kg	One-third of a sachet	95 mL	60 mL	30 mL
11.5–11.9 kg	One-third of a sachet	100 mL	65 mL	35 mL
12.0–12.4 kg	One-third of a sachet	100 mL	70 mL	35 mL
12.5–12.9 kg	One-third of a sachet	105 mL	70 mL	35 mL
13.0–13.4 kg	One-third of a sachet	110 mL	75 mL	40 mL
13.5–13.9 kg	One-third of a sachet	115 mL	75 mL	40 mL
14.0–14.4 kg	One-half of a sachet	120 mL	80 mL	40 mL
14.5–14.9 kg	One-half of a sachet	125 mL	80 mL	40 mL
15.0–15.4 kg	One-half of a sachet	130 mL	85 mL	40 mL
15.5–15.9 kg	One-half of a sachet	130 mL	90 mL	45 mL

Transitioning from F-75 milk to F-100 milk

- A few children completely refuse RUTF or have poor tolerance of solid food (e.g. due to painful mouth or throat lesions or impaired consciousness). These children can be transitioned using F-100 milk.
- The amount of F-100 milk required during transition is 100–130 kcal/kg of bodyweight per day given as six or eight feeds. A midpoint of 115 kcal/kg/day has been used in Tables A16.3 and A16.4.
- Calculations should be based on the child's individual weight as they enter the transition phase.
- When a child transitioned on F-100 milk is ready for the rehabilitation phase, they may need a few days in the rehabilitation phase using only RUTF to ensure they will tolerate the RUTF, but all efforts should be made to safely discharge the child to the rehabilitation phase as an outpatient as quickly as possible.

Table A16.3. Amount of F-100 milk to give 115 kcal/kg/day based on six feeds a day

Weight of child	Per day	Per feed
3.0–3.4 kg	368 mL	60 mL
3.5–3.9 kg	426 mL	70 mL
4.0–4.4 kg	483 mL	80 mL
4.5–4.9 kg	541 mL	90 mL
5.0–5.4 kg	598 mL	100 mL
5.5–5.9 kg	656 mL	110 mL
6.0–6.4 kg	713 mL	120 mL
6.5–6.9 kg	771 mL	130 mL
7.0–7.4 kg	828 mL	140 mL
7.5–7.9 kg	886 mL	150 mL
8.0–8.4 kg	943 mL	160 mL
8.5–8.9 kg	1001 mL	170 mL
9.0–9.4 kg	1058 mL	180 mL
9.5–9.9 kg	1116 mL	190 mL
10.0–10.4 kg	1173 mL	200 mL
10.5–10.9 kg	1231 mL	200 mL
11.0–11.4 kg	1288 mL	220 mL
11.5–11.9 kg	1346 mL	220 mL
12.0–12.4 kg	1403 mL	230 mL
12.5–12.9 kg	1461 mL	240 mL
13.0–13.4 kg	1518 mL	250 mL
13.5–13.9 kg	1576 mL	260 mL
14.0–14.4 kg	1633 mL	270 mL
14.5–14.9 kg	1691 mL	280 mL
15.0–15.4 kg	1748 mL	290 mL
15.5–15.9 kg	1806 mL	300 mL

Table A16.4. Amount of F-100 milk to give 115 kcal/kg/day based on eight feeds a day

Weight of child	Per day	Per feed
3.0–3.4 kg	368 mL	50 mL
3.5–3.9 kg	426 mL	50 mL
4.0–4.4 kg	483 mL	60 mL
4.5–4.9 kg	541 mL	70 mL
5.0–5.4 kg	598 mL	80 mL
5.5–5.9 kg	656 mL	80 mL
6.0–6.4 kg	713 mL	90 mL
6.5–6.9 kg	771 mL	100 mL
7.0–7.4 kg	828 mL	100 mL
7.5–7.9 kg	886 mL	110 mL
8.0–8.4 kg	943 mL	120 mL
8.5–8.9 kg	1001 mL	130 mL
9.0–9.4 kg	1058 mL	130 mL
9.5–9.9 kg	1116 mL	140 mL
10.0–10.4 kg	1173 mL	150 mL
10.5–10.9 kg	1231 mL	150 mL
11.0–11.4 kg	1288 mL	160 mL
11.5–11.9 kg	1346 mL	170 mL
12.0–12.4 kg	1403 mL	180 mL
12.5–12.9 kg	1461 mL	180 mL
13.0–13.4 kg	1518 mL	190 mL
13.5–13.9 kg	1576 mL	200 mL
14.0–14.4 kg	1633 mL	200 mL
14.5–14.9 kg	1691 mL	210 mL
15.0–15.4 kg	1748 mL	220 mL
15.5–15.9 kg	1806 mL	230 mL

Annex 17

Rehabilitation phase

reference tables for ready-to-use therapeutic food (RUTF) paste and biscuit for inpatient or outpatient care of children aged 6–59 months with severe acute malnutrition (SAM)

- A midpoint of 165 kcal/kg/day (or another quantity in the range 150–185 kcal/kg/day) is used for the starting quantity. This can be used until the child reaches the criteria for moderate acute malnutrition (MAM) or until anthropometric recovery.
- A midpoint of 115 kcal/kg/day (or another quantity in the range 100–130 kcal/kg/day) is used once the child reaches the criteria for MAM until anthropometric recovery if the dose is to be reduced.
- There are three dosing protocols to choose from (Tables A17.1–A17.4):
  - one-step protocol (165 kcal/kg/day until anthropometric recovery);
  - two-step reduction protocol (165 kcal/kg/day and then 115 kcal/kg/day);
  - three-step reduction protocol (165 kcal/kg/day, 115 kcal/kg/day and then 100 kcal/kg/day) – this protocol goes to the lowest quantity of kcal/kg/day recommended for a child with SAM when the child reaches the criteria for MAM.
- Sachets of RUTF paste and bars of RUTF biscuit are rounded to the nearest half of a sachet or bar.

Table A17.1. RUTF paste (as 92 g sachets) to give 165 kcal/kg/day: one-step protocol – fixed protocol, with no reduction in quantity, for a child with mid-upper arm circumference (MUAC) < 115 mm or weight-for-height *z*-score (WHZ) < –3 or nutritional oedema

Weight of child	Per day	Per week
3.0–3.4 kg	1 sachet	7 sachets
3.5–3.9 kg	1 sachet	7 sachets
4.0–4.4 kg	1.5 sachets	11 sachets
4.5–4.9 kg	1.5 sachets	11 sachets
5.0–5.4 kg	2 sachets	14 sachets
5.5–5.9 kg	2 sachets	14 sachets
6.0–6.4 kg	2 sachets	14 sachets
6.5–6.9 kg	2 sachets	14 sachets
7.0–7.4 kg	2.5 sachets	18 sachets
7.5–7.9 kg	2.5 sachets	18 sachets
8.0–8.4 kg	3 sachets	21 sachets
8.5–8.9 kg	3 sachets	21 sachets
9.0–9.4 kg	3 sachets	21 sachets
9.5–9.9 kg	3 sachets	21 sachets
10.0–10.4 kg	3.5 sachets	25 sachets
10.5–10.9 kg	3.5 sachets	25 sachets
11.0–11.4 kg	4 sachets	28 sachets
11.5–11.9 kg	4 sachets	28 sachets
12.0–12.4 kg	4 sachets	28 sachets
12.5–12.9 kg	4 sachets	28 sachets
13.0–13.4 kg	4.5 sachets	32 sachets
13.5–13.9 kg	4.5 sachets	32 sachets
14.0–14.4 kg	5 sachets	35 sachets
14.5–14.9 kg	5 sachets	35 sachets
15.0–15.4 kg	5 sachets	35 sachets
15.5–15.9 kg	5.5 sachets	39 sachets

Table A17.2. RUTF paste (as 92 g sachets): two-step reduction protocol to give 165 kcal/kg/day and then 115 kcal/kg/day

Weight of child	MUAC < 115 mm Or WHZ < −3 Or nutritional oedema		MUAC > 115 mm and < 125 mm And WHZ ≥ −3 and −2 And no nutritional oedema	
	165 kcal/kg/day		115 kcal/kg/day	
	Per day	Per week	Per day	Per week
3.0–3.4 kg	1 sachet	7 sachets	1 sachet	7 sachets
3.5–3.9 kg	1 sachet	7 sachets	1 sachet	7 sachets
4.0–4.4 kg	1.5 sachets	11 sachets	1 sachet	7 sachets
4.5–4.9 kg	1.5 sachets	11 sachets	1 sachet	7 sachets
5.0–5.4 kg	2 sachets	14 sachets	1 sachet	7 sachets
5.5–5.9 kg	2 sachets	14 sachets	1.5 sachets	11 sachets
6.0–6.4 kg	2 sachets	14 sachets	1.5 sachets	11 sachets
6.5–6.9 kg	2 sachets	14 sachets	1.5 sachets	11 sachets
7.0–7.4 kg	2.5 sachets	18 sachets	2 sachets	14 sachets
7.5–7.9 kg	2.5 sachets	18 sachets	2 sachets	14 sachets
8.0–8.4 kg	3 sachets	21 sachets	2 sachets	14 sachets
8.5–8.9 kg	3 sachets	21 sachets	2 sachets	14 sachets
9.0–9.4 kg	3 sachets	21 sachets	2 sachets	14 sachets
9.5–9.9 kg	3 sachets	21 sachets	2 sachets	14 sachets
10.0–10.4 kg	3.5 sachets	25 sachets	2.5 sachets	18 sachets
10.5–10.9 kg	3.5 sachets	25 sachets	2.5 sachets	18 sachets
11.0–11.4 kg	4 sachets	28 sachets	2.5 sachets	18 sachets
11.5–11.9 kg	4 sachets	28 sachets	3 sachets	21 sachets
12.0–12.4 kg	4 sachets	28 sachets	3 sachets	21 sachets
12.5–12.9 kg	4 sachets	28 sachets	3 sachets	21 sachets
13.0–13.4 kg	4.5 sachets	32 sachets	3 sachets	21 sachets
13.5–13.9 kg	4.5 sachets	32 sachets	3 sachets	21 sachets
14.0–14.4 kg	5 sachets	35 sachets	3.5 sachets	25 sachets
14.5–14.9 kg	5 sachets	35 sachets	3.5 sachets	25 sachets
15.0–15.4 kg	5 sachets	35 sachets	3.5 sachets	25 sachets
15.5–15.9 kg	5.5 sachets	39 sachets	3.5 sachets	25 sachets

Table A17.3. RUTF biscuit (as 300 kcal/57 g bar, 2 tablets per bar) to give 165 kcal/kg/day: one-step protocol, with no reduction in quantity, for a child with MUAC < 115 mm or WHZ < −3 or nutritional oedema

Weight of child	Per day	Per week
3.0–3.4 kg	2 bars	14 bars
3.5–3.9 kg	2 bars	14 bars
4.0–4.4 kg	2.5 bars	18 bars
4.5–4.9 kg	2.5 bars	18 bars
5.0–5.4 kg	3 bars	21 bars
5.5–5.9 kg	3 bars	21 bars
6.0–6.4 kg	3.5 bars	25 bars
6.5–6.9 kg	4 bars	28 bars
7.0–7.4 kg	4 bars	28 bars
7.5–7.9 kg	4 bars	28 bars
8.0–8.4 kg	4.5 bars	32 bars
8.5–8.9 kg	5 bars	35 bars
9.0–9.4 kg	5 bars	35 bars
9.5–9.9 kg	5.5 bars	39 bars
10.0–10.4 kg	5.5 bars	39 bars
10.5–10.9 kg	6 bars	42 bars
11.0–11.4 kg	6 bars	42 bars
11.5–11.9 kg	6.5 bars	46 bars
12.0–12.4 kg	7 bars	49 bars
12.5–12.9 kg	7 bars	49 bars
13.0–13.4 kg	7.5 bars	53 bars
13.5–13.9 kg	7.5 bars	53 bars
14.0–14.4 kg	8 bars	56 bars
14.5–14.9 kg	8 bars	56 bars
15.0–15.4 kg	8.5 bars	60 bars
15.5–15.9 kg	8.5 bars	60 bars

Table A17.4. RUTF biscuit (as 300 kcal/57 g bar, 2 tablets per bar): two-step reduction protocol to give 165 kcal/kg/day and then 115 kcal/kg/day

	MUAC < 115 mm Or WHZ < −3 Or nutritional oedema		MUAC > 115 mm and < 125 mm And WHZ ≥ −3 and < −2 And no nutritional oedema	
	165 kcal/kg/day		115 kcal/kg/day	
Weight of child	Per day	Per week	Per day	Per week
3.0–3.4 kg	2 bars	14 bars	1 bars	7 bars
3.5–3.9 kg	2 bars	14 bars	1.5 bars	10.5 bars
4.0–4.4 kg	2.5 bars	18 bars	1.5 bars	10.5 bars
4.5–4.9 kg	2.5 bars	18 bars	2 bars	14 bars
5.0–5.4 kg	3 bars	21 bars	2 bars	14 bars
5.5–5.9 kg	3 bars	21 bars	2 bars	14 bars
6.0–6.4 kg	3.5 bars	25 bars	2.5 bars	17.5 bars
6.5–6.9 kg	4 bars	28 bars	2.5 bars	17.5 bars
7.0–7.4 kg	4 bars	28 bars	3 bars	21 bars
7.5–7.9 kg	4 bars	28 bars	3 bars	21 bars
8.0–8.4 kg	4.5 bars	32 bars	3 bars	21 bars
8.5–8.9 kg	5 bars	35 bars	3.5 bars	24.5 bars
9.0–9.4 kg	5 bars	35 bars	3.5 bars	24.5 bars
9.5–9.9 kg	5.5 bars	39 bars	4 bars	28 bars
10.0–10.4 kg	5.5 bars	39 bars	4 bars	28 bars
10.5–10.9 kg	6 bars	42 bars	4 bars	28 bars
11.0–11.4 kg	6 bars	42 bars	4.5 bars	31.5 bars
11.5–11.9 kg	6.5 bars	46 bars	4.5 bars	31.5 bars
12.0–12.4 kg	7 bars	49 bars	5 bars	35 bars
12.5–12.9 kg	7 bars	49 bars	5 bars	35 bars
13.0–13.4 kg	7.5 bars	53 bars	5 bars	35 bars
13.5–13.9 kg	7.5 bars	53 bars	5.5 bars	38.5 bars
14.0–14.4 kg	8.0 bars	56 bars	5.5 bars	38.5 bars
14.5–14.9 kg	8 bars	56 bars	5.5 bars	38.5 bars
15.0–15.4 kg	8.5 bars	60 bars	6 bars	42 bars
15.5–15.9 kg	8.5 bars	60 bars	6 bars	42 bars

Annex 18

Supplemental feeding techniques for inpatient nutritional management

A number of feeding techniques can be used during inpatient care to ensure the child efficiently and safely consumes the therapeutic milks that are the mainstay of inpatient nutritional management.

Oral feeding

Cup and spoon technique

This is a useful technique for children of all ages. Even small infants can be fed therapeutic milk with a spoon. Infants instinctively purse their lips when a spoon is placed at their mouth, which makes drinking more efficient.

- Explain to the mother/caregiver what the technique involves. Encourage the mother/caregiver to speak to other people who have used the technique and ask them to demonstrate it.
- Before using the technique, perform hand hygiene and ask the mother/caregiver to perform hand hygiene.
- Place the infant on the mother's/caregiver's knees, with the infant resting against their chest, with one arm tucked behind the mother's/caregiver's back. The infant should be seated, with their back straight and head supported. If the infant is too horizontal, there is a risk of aspiration during feeding.
- The mother's/caregiver's arm encircles and supports the infant, while holding the cup under the infant's chin.
- Do not overfill the spoon. Place the spoon on the infant's lower lip and allow them to lap the milk into the mouth with their tongue. Make sure the infant has swallowed before offering next the spoon.
- The infant may need a bib or other protection for their clothes.

Feeding cup technique

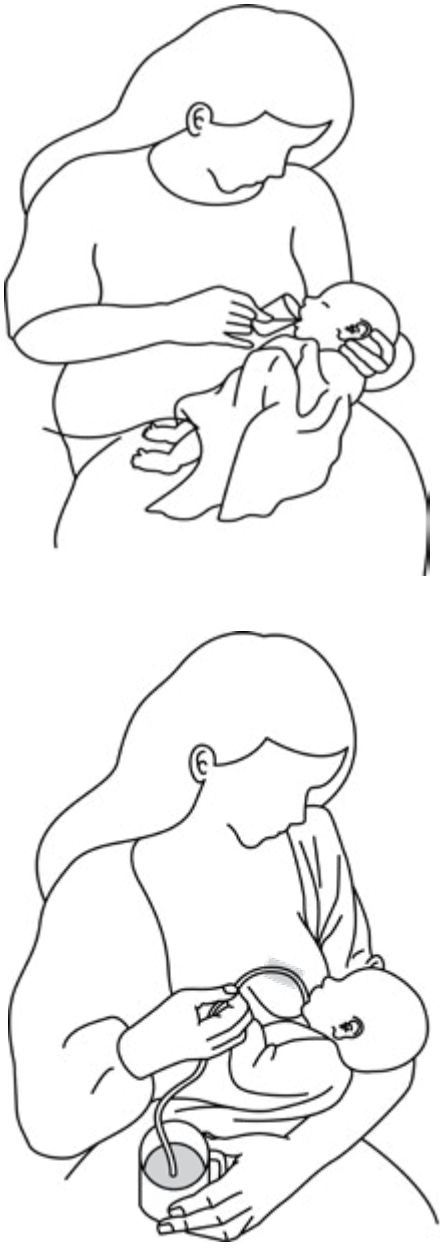
A soft feeding cup can be used for small infants who find it difficult to drink from a rigid cup or spoon (Figure A18.1). Soft feeding cups are made of soft silicone material, which is gentle against the infant's mouth. The spout has a reservoir for the infant to suck or lap milk, allowing the infant to control the pace of feeding. The mother can express breastmilk directly into the feeding cup. Feeding cups are calibrated and can be used to measure the volume of milk given, so it is not necessary to use a syringe to measure the amount of milk given. Further information about how to feed infants with a cup can be found in Section 4 of *Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals*, second edition *(1)*.

Figure A18.1. Using a soft feeding cup

Supplementary suckling technique

The supplementary suckling technique (also known as double suction) delivers a supplementary milk (expressed breastmilk, therapeutic milk or infant formula) while the infant suckles at the breast. This technique delivers supplementary milk through a small tube (usually a nasogastric tube) attached to the nipple that draws milk from a cup held below the level of the infant's mouth (Figure A18.2). Supplementary suckling stimulates the mother's or wet-nurse's nipples, which provokes milk synthesis, while satisfying the infant at the breast *(1)*.

Figure A18.2. Supplementary suckling technique



- Explain to the mother/caregiver what the supplementary suckling technique involves.
- Encourage her to speak to other mothers/caregivers who have used the technique, or ask them to demonstrate using the technique.
- Before using the technique, perform hand hygiene and ask the mother to perform hand hygiene.
- Cut the tip off a nasogastric tube no.°8 (Luer or Enfit).
- Tape the end of the nasogastric tube next to the mother's nipple or ask her to hold the tube in place.
- Put the correct quantity of therapeutic milk into a cup, and place the other end of the nasogastric tube (open) in the cup.
- An assistant holds the cup about 10 cm lower than the mother's breast, and the mother offers the infant the breast. When the infant suckles, the milk is sucked from the cup. When the mother is accustomed to using the technique, she can hold the cup herself.
- It may take the infant 1–2 days to adjust to feeding by the tube. Initially the infant may notice the difference in taste between breastmilk and therapeutic milk and reject the tube, but it is important to persevere.
- After use, clean the tube with clean water and a syringe, and dry the tube in a clean, safe place.
- Keep the tube, cup and spoon in a clean, sealed container. Change tubes when there is residue that cannot be removed by washing, and after a maximum of 24 hours.
- Clean the cup according to the cleaning protocol on the ward.
- Trying the technique at every mealtime is the only way to see productive results. Explain to the mother/caregiver that this technique can take up to a week to produce maximal results.

Nasogastric feeding

Priority is always given to oral feeding. Mothers/caregivers and clinical staff must take time and be patient to encourage reticent infants and children to take milk orally, whether via breastfeeding or another feeding technique.

Nasogastric tube feeding may be necessary sometimes, but only for a short period of time and for the following indications:

- infant takes less than 75% of the prescribed amount of milk per 24 hours (intake at each feeding time must be documented) or presents with complete anorexia;
- medical indications:
  - repeated vomiting (extra caution must be taken when inserting the tube);
  - infant is unable to drink or eat, too weak or incapable of swallowing, or has painful lesions in the mouth;
  - dehydration if unable to drink.

Take time to explain to the caregiver the necessity of the nasogastric tube. Always try patiently to give milk by mouth before every tube feeding. Verify the position of the nasogastric tube before trying the oral route at every tube feeding.

See Annex 1: practical procedures in the World Health Organization *Pocket book of hospital care for children: second edition (2)* for guidance on insertion and management of the nasogastric tube.

References

1 Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals, second edition. Geneva: World Health Organization; 2025 (*https://iris.who.int/handle/10665/382885*, accessed 9 February 2026).

2 Pocket book of hospital care for children: second edition. Geneva: World Health Organization; 2013 (*https://www.who.int/publications/i/item/978-92-4-154837-3*, accessed 6 January 2026).

Annex 19

Common feeding problems during inpatient nutritional care

Therapeutic food refusal

Therapeutic food refusal is common, especially in the early phases of nutritional treatment, when the child may be weak and unwell, may not like or be used to the taste of the therapeutic milk, and may be stressed in their new surroundings. Children with severe acute malnutrition (SAM) are often apathetic, which makes caregiver–child interaction and stimulation during feeding times challenging but particularly important. Promoting communication and play between the caregiver and child is helpful during feeding times and beyond.

Patience is key for all interventions surrounding food refusal. The following may be helpful:

- Take time with the caregiver and the child to work out the main drivers of this food refusal.
- A stressed caregiver is unlikely to convince a child to drink therapeutic milk or eat ready-to-use therapeutic food (RUTF). Support the caregiver to fully understand and agree to what needs to be done for the child. This can make the caregiver less stressed and more able to support the child during the nutritional treatment phases.
- Promote positive attachment, play and stimulation during feeding times, bathing, clothing and bedtime.
- Stress the importance of not forcing the child to eat, and explain the negative consequences of doing so (e.g. increasing the child's stress and unwillingness to eat, possible aspiration).
- Changing the utensil used to give the milk may help – for example, using a spoon instead of a cup, or using a feeding cup instead of a big cup. Older children may prefer to hold the cup.
- If the child refuses the milk after encouragement, a nasogastric tube may have to be inserted – but all milk should still be offered orally first at every meal. If the child is old enough to understand, explain you can take out the nasogastric tube as soon as they drink the milk.
- If the child refuses to eat RUTF, consider using F-100 milk for the transition phase and try again with RUTF in a few days.

Intolerance of therapeutic milks

Intolerance of F-75 or F-100 milks can be defined as frequent and persistent vomiting, and/or frequent and watery diarrhoea, and/or abdominal distension, and/or abdominal pain, after acute abdomen and infection have been ruled out. Bloody stools may be due to feeding intolerance, but a full assessment to look for other causes should be carried out.

Important: Refeeding syndrome

A patient with refeeding syndrome presents with a change in their general condition and appears unwell. Signs of refeeding syndrome vary widely, but can involve shock, fluid overload, hyper- or hypoglycaemia, paralytic ileus with abdominal distention, hypo- or hyperthermia, and altered consciousness.

Due to the nonspecific clinical picture of refeeding syndrome, differential diagnoses – including sepsis, severe anaemia with signs of respiratory or cardiac decompensation, severe dehydration and fluid overload – must always be considered and ruled out if possible. When available, laboratory investigations may show hypophosphataemia, hypokalaemia, hypomagnesaemia, sodium and water retention, and vitamin (notably thiamine) deficiencies.

See the World Health Organization (WHO) *Pocket book of hospital care for children: second edition* **(hereafter, the WHO Pocket book)** *(1)* **for management of refeeding syndrome.**

The signs and symptoms of intolerance range from mild to severe. Most commonly, intolerance presents as vomiting straight after a milk feed, or watery diarrhoea (often similar in appearance to milk) 20–30 minutes after a milk feed. These manifestations of intolerance usually appear early on in nutritional treatment, or when switching from one phase to the next. For the majority of children, this type of diarrhoea resolves after about 72 hours of nutritional treatment.

In many low-resource contexts, it is difficult to ascertain the exact aetiology of the intolerance without laboratory and radiological investigations. For milder presentation of intolerance, a number of measures can be put in place to improve the child's tolerance of therapeutic milks and overall clinical progression, depending on the phase of treatment:

- **Stabilization phase:**
  - Closely monitor feeds to ensure the child is not being forced to drink milk, which could lead to a gag reflex or more milk being ingested than the child's body is ready to digest. Offer support and guidance to the caregiver so they give the milk slowly and correctly.
  - Try fractioning the feeds: divide the volume of milk to be given into two, three or four equal portions. Give one portion and then wait 10–20 minutes before giving another portion.
  - Give smaller volumes of milk more frequently: instead of feeding every 3 hours, try feeding every 2 hours with smaller volumes each time.
  - Dilute the milk by adding extra cooled, boiled water – try adding an extra quarter of the total volume of milk (e.g. if the milk feed is 60 mL, add an extra 15 mL of water).
  - Reassess regularly to rule out refeeding syndrome.
  - If refeeding diarrhoea persists despite these measures, screen the child for HIV and tuberculosis (TB) (even if done previously) and consider a temporary lactose intolerance – see the WHO *Pocket book (1)* for more guidance. Permanent lactose intolerance is rare, but temporary lactose intolerance is seen more frequently as secondary to malnutrition, to starting nutritional treatment or to gastroenteritis cause by an infectious pathogen.
- **Transition phase:**
  - If refeeding diarrhoea occurs after receiving RUTF or F-100 milk for the first time, it is possible that the transition phase has been started too soon. Return to the stabilization phase with F-75 milk for 24–48 hours and then review.
  - If refeeding diarrhoea or irregular episodes of loose stool occur after the child has been in the transition phase for 1–2 days but there is no dehydration, keep the child in the transition phase for 2–3 days until the diarrhoea resolves. If there is no resolution, return to the stabilization phase with F-75 milk for 24–48 hours and then review again.
  - If diarrhoea persists for more than 72 hours in the absence of another obvious explanation for diarrhoea (e.g. otitis media, pneumonia, urinary tract infection), consider other infective causes of diarrhoea and treat according to guidance in the WHO *Pocket book (1)*.

Note: Hydrolysed milks

Current evidence does not support a global recommendation for the use of hydrolysed formulas for children with SAM experiencing therapeutic milk intolerance.

It is acknowledged, however, that there could be a potential benefit for hydrolysed formulas for some children where an experienced clinician assesses they are not tolerating F-75 or F-100 milks (based on clinical indication) to help them recover from this episode of illness or malnutrition when all other management options have been exhausted.

These decisions must be made on a case-by-case basis, taking into account the much higher price of these formulas compared with therapeutic milks, issues related to accessing these formulas, and other context-related considerations.

Functional feeding difficulties

Functional feeding difficulties may occur in any child for any length of time. These difficulties may be part of a larger disability or may be an isolated challenge. In both cases, feeding difficulties can lead to the child needing inpatient admission and make it challenging to deliver nutritional treatment. Feeding problems that are likely to be long-term, and especially those where there is unlikely to be a definitive resolution to the problem, can impact the child's health, development and quality of life, and limit the child's opportunities to connect with families and social groups.

Functional feeding problems may be manifested by excessive coughing during feeds, dribbling, choking, and expression of pain or discomfort while eating. If the child displays these or the caregiver reports them, this should prompt a more in-depth neurodevelopmental history and examination to identify associated clinical signs and potentially a differential diagnosis.

The following guidance can help to manage some common feeding difficulties, adapted to the age and developmental stage of the child:

- Difficulty controlling head or body:
  - ⇢ A stable, upright position with support for eating and drinking is one of the most important factors for safe feeding. Make sure the child's whole body is well supported so they can focus on eating.
  - ⇢ If the child is floppy, support their back and head using the caregiver's body or a chair. Keep the child's head upright while feeding to prevent choking.
- Persistent difficulty chewing or swallowing:
  - ⇢ Difficulty chewing and swallowing can cause choking and lead to illness.
  - ⇢ Consider pureeing foods by passing soft foods through a sieve. It is easier for a child to learn to control food in their mouth and swallow if the food has only one texture.
  - ⇢ Prepare foods with a texture that is easily managed by the child, matching the texture of the food to the child's abilities.
  - ⇢ Drinking water and other liquids may be difficult for some children. Pouring liquid into the child's mouth could lead to overfilling and/or coughing and choking. Start by offering small, single sips – pay attention to how the child manages the liquid and follow the child's cues.
- Difficulty self-feeding:
  - ⇢ Spoons and forks with thicker handles are easier for children to hold and control.
  - ⇢ Attach a rubber tube or piece of wood to the spoon handle to make it thicker.
  - ⇢ Bowls and plates with steep sides may make it easier for some children to scoop up food. You could create a special bowl from a clean plastic bucket.

See the following resources for more detail:

- *The disability tool: inclusive feeding and disability resources for nutrition practices (2)*
- *Feeding and disability resource bank (3).*

Psychosocial and mental health problems in the caregiver

Psychosocial and mental health problems in the caregiver may manifest as the caregiver refusing to give the feeds (e.g. openly or covertly throwing away the food), getting angry with the child during feeding times and force-feeding, or being distant from and uninvolved with the child and feeding times. The following steps may help to manage these issues:

- Assess the emotional and mental state of the caregiver and offer support if needed (e.g. involve mental health support staff and health educators).
- Ask whether the caregiver has questions or concerns about the child's medical or nutritional treatment.
- Ask a member of staff to guide a few feeding times with the child to show best practices and how to interact positively with the child.
- Ask another member of the family to support the caregiver on the ward with any specific issues and with the daily care of the child. Other caregivers on the ward can also help in a peer support approach.

References

1 Pocket book of hospital care for children: second edition. Geneva: World Health Organization; 2013 (https://www.who.int/publications/i/item/978-92-4-154837-3, accessed 6 January 2026).

2 The disability tool: inclusive feeding and disability resources for nutrition practices. Geneva: Global Nutrition Cluster (https://www.nutritioncluster.net/disability-tool-inclusive-feeding-and-disability-resources-nutrition-practices, accessed 14 January 2026).

3 Feeding and disability resource bank. New York: United Nations Children's Fund (https://knowledge.unicef.org/feeding-and-disability-resource-bank/landing-page, accessed 11 February 2026).

Annex 20

In-depth feeding assessment tool

to decide whether an infant less than 6 months of age at risk of poor growth and development needs inpatient or outpatient care for feeding support

The purpose of this assessment is to identify infants less than 6 months of age with poor growth and development experiencing feeding difficulties who need referral for inpatient assessment and management.

For infants who are breastfed or fed expressed breastmilk, see the breastfeeding assessment in Table A20.1.

For infants who are fed infant formula only, see the replacement feeding assessment in Table A20.2 and replacement feeding observation checklist in Table A20.3.

For infants who are both breastfed and fed infant formula, all three of these assessment tools must be used.

Table A20.1. Breastfeeding assessment

! NOte

If the responses in the questionnaire highlighted with ! are chosen, do the following:
The mother/caregiver–infant pair may need intensive breastfeeding counselling. This is likely to need the mother/caregiver and infant attending the health facility two to three times a week until breastfeeding concerns have started to improve. If this is not possible, consider inpatient admission, at least for initial intensive support and monitoring.

1. Is the infant fed anything other than breastmilk?	☐ No – *go to Question 2* ☐ **!** Infant formula ☐ **!** Fresh or powdered milk or yoghurt ☐ **!** Water, tea, juice or other drink (including alternative milks) ☐ **!** Solid or semisolid foods
2. How often do you breastfeed the infant in 24 hours (between one sunrise and the next)?	☐ Eight or more times ☐ **!** Fewer than eight times
3. Does the infant feed overnight?	☐ Yes ☐ **!** No
4. How many wet nappies (diapers or other clothing used as underwear) does the infant have in 24 hours?	☐ Six or more disposable nappies or eight or more cloth nappies ☐ **!** Fewer than six disposable nappies or eight cloth nappies
5. How often does the infant pass stool at least the size of the palm of their own hand?	☐ At least two to four times a day if infant is aged under 2 months ☐ **!** Less than two to four times a day if infant is aged under 2 months ☐ At least once a day if infant is aged over 2 months ☐ **!** Less than once a day if infant is aged over 2 months
6. What texture are the infant's stools?	☐ Unformed or liquid ☐ **!** Formed or semisolid

7. Has the infant's stooling pattern changed in the past 2–3 days?	☐ No ☐ ! Infant passing stools less often than usual ☐ ! Infant passing stools much more frequently than usual ☐ ! Infant's stool has a stronger smell than usual[a]
8. Observe breastfeeding	☐ ! Infant will not attach to breast ☐ ! Cannot see or hear infant swallowing during breastfeeding ☐ ! Only rapid/urgent sucking during breastfeeding
9. Are the mother's breasts swollen, red or painful?	☐ No ☐ ! Red, warm, hard, tight, lumpy breast ☐ ! Painful or aching breast ☐ ! Signs of systemic infection (fever, joint pain and/or general malaise)
10. Observe the mother	☐ ! Mother looks unwell, tense or depressed ☐ ! Mother does not make eye contact with infant during breastfeeding ☐ ! Mother struggles to soothe infant when crying

Table A20.2. Replacement feeding assessment

! NOte

If the responses in the questionnaire highlighted with ! are chosen, do the following:
Initiate intensive infant and young child feeding counselling and support to restore appropriate feeding. If the mother/caregiver cannot attend more than once a week, refer for inpatient management.

1. Do you give the infant anything other than infant formula to eat or drink (even water)?	☐ No ☐ ! Yes
2. Which formula milk product do you use for the infant?	☐ Infant formula (suitable from birth) ☐ ! Formula milk product that is not suitable from birth ☐ Fresh animal milk or substitute (e.g. soy, oat, rice) ☐ ! Other powdered milk product
3. How do you feed infant formula to the infant?	☐ Cup or spoon ☐ ! Feeding bottle and teat
4. Do you ever run out of infant formula for the infant?	☐ No ☐ ! Yes
5. Have you ever been unable to buy enough infant formula for the infant?	☐ No ☐ ! Yes
6. Are the instructions printed on the packaging in a language you can read?	☐ Yes ☐ ! No
7. Please describe how you store infant formula at home	☐ Sealed, rigid container ☐ Cool place ☐ ! Unsealed box or packet ☐ ! Warm place (e.g. close to stove or fire, in sun)

8. How much formula milk do you give the infant in total each day?

Use a locally available, familiar vessel to estimate how much milk is given at each feed.

☐ Sufficient

☐ ! Insufficient

Age in months	Feeds per day (24 hours)	Frequency (including through the night)	Quantity of milk per feed
0–1	8	Every 3 hours	60 mL
1–2	7	Approximately every 3.5 hours	90 mL
2–4	6	Every 4 hours	120 mL
4–6	6	Every 4 hours	150 mL

9. Is clean drinking water available in or near your home?

☐ Yes

☐ ! No

10. Is clean drinking water stored in a clean, covered container that is used only for drinking water in your home?

☐ Yes

☐ ! No

11. Do you have enough clean water available for every person in your home (1 L per person per day) and another 4 L for each formula feed (3 L for cleaning, 1 L for reconstituting feed)?

☐ Yes

☐ ! No

12. Do you have enough fuel at home to boil the water you need to prepare feeds and disinfect feeding equipment (4 L per feed)?

☐ Yes

☐ ! No

13. Is there a clean surface available to put utensils on, and a clean cover for them?

☐ Yes

☐ ! No

14. How do you measure water to prepare feeds?

☐ Clean measuring cup (or bottle) volumes marked

☐ ! Estimate (no volume markings)

15. Do you have enough time to prepare the infant's infant formula feeds and meet all your other responsibilities?

☐ Yes

☐ ! No

16. What do you do with infant formula that the infant does not finish within an hour of starting the feed?

☐ Drink it, give it to an older child to drink, or discard it

☐ ! Keep it to give to the infant at the next feed

17. How many wet nappies (diapers) does the infant have in 24 hours?

☐ Six or more disposable nappies or eight or more cloth nappies

☐ ! Fewer than six disposable nappies or eight cloth nappies

18. Does the infant's urine have a strong smell or colour?

☐ No

☐ ! Yes

19. How often does the infant pass stool at least the size of the palm of their own hand?

☐ Two to four times or more every day

☐ ! Fewer than twice every day

20. What consistency are the infant's stools?

☐ Unformed, like porridge or paste

☐ ! Liquid

☐ ! Formed like small stones

21. Has the infant's stooling pattern changed recently?

☐ No

☐ ! Infant is passing stools less often than usual

☐ ! Infant is passing stools much more frequently than usual

22. What colour are the infant's stools?

☐ Yellow or light brown

☐ ! Pale or grey – *refer for immediate medical assessment*

Table A20.3. Replacement feeding observation checklist

! Note

If the responses in the questionnaire highlighted with ! are chosen, do the following:
Initiate intensive breastfeeding counselling. If the mother/caregiver cannot attend more than once a week, refer for inpatient management.

Hygiene		
Mother/caregiver washes hands before preparing feed	☐ Yes	☐ ! No
All feeding equipment is washed thoroughly with soap and water	☐ Yes	☐ ! No
Infant is fed from a cup	☐ Yes	☐ ! No
All feeding equipment is submerged in boiling water for more than 1 minute	☐ Yes	☐ ! No
All feeding equipment is removed from boiling water handled with tongs	☐ Yes	☐ ! No
All feeding equipment is air-dried on a clean surface protected from insects and animals	☐ Yes	☐ ! No
All feeding equipment is stored and carried in a sealed container	☐ Yes	☐ ! No
Infant is fed from a bottle and teat	☐ Yes	☐ No – *skip to next section*
Milk residue is cleared from screw threads on bottles and holes in teats (if used)	☐ Yes	☐ ! No

Preparation		
Water used to prepare feed is brought to a rolling boil and cooled for no more than 20 minutes	☐ Yes	☐ ! No
Water is measured correctly	☐ Yes	☐ ! No
Powdered infant formula is measured correctly (the provided scoop is dipped into powder and levelled with a clean knife)	☐ Yes	☐ ! No
Infant formula is mixed according to manufacturer's instructions	☐ Yes	☐ ! No
Powdered infant formula is added to hot water and mixed gently	☐ Yes	☐ ! No
Prepared feed is cooled to feeding temperature quickly	☐ Yes	☐ ! No
Appropriate quantity of infant formula is prepared for the feed	☐ Yes	☐ ! No

! Note

If the responses in the questionnaire highlighted with ! are chosen, do the following:
Consider inpatient care, especially if the infant is underweight.

Feeding behaviours		
Mother/caregiver recognizes and responds when infant displays hunger cues	☐ Yes	☐ ! No
Infant is held in an upright position throughout the feed	☐ Yes	☐ ! No
Mother/caregiver makes eye contact with infant during the feed	☐ Yes	☐ ! No
Mother/caregiver pauses the feed when infant stops suckling or turns away from the feed	☐ Yes	☐ ! No
Infant actively moves milk from cup to mouth (milk is not poured into infant's mouth)	☐ Yes	☐ ! No
Bottle (if used) is held horizontally throughout the feed	☐ Yes	☐ ! No
Infant takes all or most of the milk offered	☐ Yes	☐ ! No
Mother/caregiver drinks, discards or offers leftover milk (if any) to an older child	☐ Yes	☐ ! No

Annex 21

Comprehensive feeding assessment

The purpose of this assessment form is to gather information required to identify feeding difficulties among infants less than 6 months of age and inform development of a management plan. Use this assessment to collect information from all mothers/caregivers with infants less than 6 months of age. Once the assessment has been completed, explain the findings and develop an agreed action plan with the caregiver/mother.

Table A21.1. Comprehensive feeding assessment

! Note

If the responses in the questionnaire highlighted with ! are chosen, do the following:

Confirm the mother has been referred for mental health assessment and support.

Mother's mental health					
1. Over the past 2 weeks, have you experienced any of the following feelings?					
Feeling anxious or worrying uncontrollably	☐ ! Yes	☐ No	☐ Sometimes	☐ ! Often	☐ ! Almost every day
Difficulties coping with daily chores	☐ ! Yes	☐ No	☐ Sometimes	☐ ! Often	☐ ! Almost every day
Little interest or pleasure in doing things you used to enjoy	☐ ! Yes	☐ No	☐ Sometimes	☐ ! Often	☐ ! Almost every day
Feeling down, depressed or hopeless	☐ ! Yes	☐ No	☐ Sometimes	☐ ! Often	☐ ! Almost every day
On a scale of 1 (very unsupported) to 5 (very supported), how supported do you feel by family and friends in caring for your infant?				☐ ! 1 ☐ ! 2 ☐ ! 3 ☐ 4 ☐ 5	

! Note

If the responses in the questionnaire highlighted ! are chosen, do the following:

Confirm the mother or caregiver has been referred for psychosocial support.

Mother's health		
2. Is the infant's primary caregiver someone other than the mother (mother deceased, unable or unwilling)?	☐ ! Yes	☐ No
3. Is the mother very young (adolescent)?	☐ ! Yes	☐ No
4. Is the mother a single parent?	☐ ! Yes	☐ No
5. Is the mother's MUAC less than 125 mm? ***If the mother's MUAC is less than 125 mm Yes, confirm the mother is receiving nutritional rehabilitation.***	☐ Yes	☐ No
6. Is the infant a twin or multiple birth (regardless of whether or not the other infant(s) survived)?	☐ ! Yes	☐ No
7. Does the mother feel unsafe in her home?	☐ ! Yes	☐ No

! Note

If the responses in the questionnaire highlighted with ! are chosen, follow the action required in the right-hand column.

Feeding	
8. Is the infant breastfed?	☐ Yes – *go to Question 11* ☐ No – *go to Question 9*
9. Would you like to start breastfeeding again?	☐ Yes – *initiate relactation protocol* ☐ No
10. Do you know a woman who would be willing to breastfeed your infant until age 6 months or you have restored exclusive breastfeeding?	☐ Yes ☐ No - *provide support and education about replacement feeding*
11. Is the infant fed anything other than breastmilk? ☐ No – *go to Question 12* ☐ ! Infant formula ☐ ! Fresh or powdered milk or yoghurt ☐ ! Water, tea, juice or other drink (including alternative milks) ☐ ! Solid or semisolid food	*Explore reasons for introducing these – for example:* ▷ mother's other responsibilities prevent breastfeeding ▷ mother believes infant is hungry or her breastmilk is not enough *Inform the mother these foods or fluids can make babies less than 6 months of age sick, including with diarrhoea or pneumonia* *Reassure the mother you will help her to restore exclusive breastfeeding*
12. How often do you breastfeed the infant in 24 hours (between one sunrise and the next)? ☐ Eight or more times in 24 hours ☐ ! Fewer than eight times in 24 hours	*Actions to take:* ▷ Explore reasons for infrequent feeding ▷ Discuss ways to increase breastfeeding frequency ▷ Help the mother to recognize and respond to hunger cues ▷ Provide information about normal infant sleeping and feeding ▷ Offer suggestions for managing night feeding, including safe co-sleeping ▷ Help the mother develop a plan for more frequent breastfeeding
13. Does the infant feed overnight? ☐ Yes ☐ ! No	
14. How many wet nappies (diapers) does the infant have in 24 hours? ☐ Six or more disposable nappies or eight or more cloth nappies ☐ ! Fewer than six disposable nappies or eight cloth nappies	*Actions to take:* ▷ Infant is not getting enough breastmilk ▷ Complete breastfeeding observation checklist ▷ Address poor positioning and attachment ▷ Increase feeding frequency (see above)
15. Does the infant's urine have a strong smell or colour? ☐ ! Yes ☐ No	
16. How often does the infant pass stool? ☐ Two to four times or more every day – *go to Question 18* ☐ Fewer than two times every day – *go to Question 17*	
17. Is the infant aged under 2 months? ☐ ! No ☐ Yes	*Actions to take:* ▷ The infant is not getting enough breastmilk ▷ Complete breastfeeding observation checklist ▷ Address poor positioning and attachment ▷ Increase feeding frequency (see above)
18. Is the stool larger than the palm of the infant's own hand? ☐ ! No ☐ Yes	
19. What texture are the infant's stools? ☐ Unformed or liquid ☐ ! Formed or semisolid	

20. Does the infant's stool have a foul odour? ☐ No ☐ ! Yes **21.** Has the infant's stooling pattern changed recently? ☐ No ☐ ! Infant is passing stools less often than usual ☐ ! Infant is passing stools much more frequently than usual	*Actions to take:* ▷ Encourage more frequent breastfeeding ▷ Refer for medical assessment and treatment if required

Table A21.2. Breastfeeding observation checklist

Signs of good positioning	Signs of poor positioning	Action
☐ Mother relaxed and comfortable ☐ Mother's back and arms are well supported ☐ Feed starts with infant's nose opposite nipple ☐ Mother pulls infant towards breast when infant reaches, roots or gapes ☐ Infant's ear, shoulder and hip form a straight line ☐ Infant's chin touching breast, with chest and tummy touching mother ☐ Infant's whole body is supported ☐ Infant's whole body is facing the breast ☐ Infant's head is free to move during breastfeeding ☐ Infant's nose is free	☐ Mother looks uncomfortable, with shoulder tensed or hunched ☐ Mother's body is not well supported or is leaning over infant ☐ Feeds start with infant's mouth opposite nipple ☐ Mother moves breast towards infant when infant reaches, roots or gapes ☐ Infant's ear, shoulder and hip form a curve ☐ Infant's chin, chest or tummy not touching mother's body ☐ Infant's body is not well supported (looks unstable or precarious) ☐ Infant's body is not facing breast – neck is twisted ☐ Infant's head movement is restricted (mother's hand or arm behind head) ☐ Infant's nose is occluded or buried in the breast	▷ If any signs of poor positioning are observed, help mother to improve positioning
Signs infant is attaching well	**Signs of poor attachment**	**Action**
☐ Mother is comfortable during breastfeeding ☐ Infant's mouth is wide open ☐ Lips turned outwards ☐ Cheeks rounded (convex) ☐ More areola above than below infant's mouth ☐ Infant stays comfortably attached to breast for more than 5 minutes ☐ Infant suckles quietly ☐ Nipple looks round or cylindrical immediately after breastfeeding ☐ Skin on nipple is intact (not broken or grazed)	☐ Infant will not attach to breast ☐ Breastfeeding is painful or uncomfortable for the mother ☐ Mouth is not wide open or lips are pursed ("kissing" or "fish" lips) ☐ Lips turned inwards ☐ Cheeks sucked in (concave) ☐ More areola below infant's mouth than above ☐ Infant slips off the breast or does not stay attached for more than 5 minutes ☐ Infant makes smacking or clicking sound during breastfeeding ☐ Nipple looks creased, squashed or flattened immediately after breastfeeding ☐ Skin on nipple is broken or grazed or cracks present at base of nipple)	▷ If there are any signs of poor attachment, help mother to improve attachment – improving positioning usually improves attachment

Signs infant is swallowing milk when breastfeeding	Signs breastfeeding infant may not be swallowing milk	Action
☐ Can see or hear infant swallowing during breastfeeding ☐ Suckling slows to deep, rhythmic sucks with occasional pauses[a] ☐ Milk drips from one breast while breastfeeding from the other[a] ☐ Mother feels tingling, warmth or heaviness in her breasts during breastfeeding[a] ☐ Mother feels thirsty or has a dry mouth during breastfeeding[a] ☐ Infant's hands relax and open during breastfeeding ☐ Nipples look round or cylindrical ☐ Skin on nipples is intact (not broken) ☐ Infant looks relaxed and satisfied after feeding ☐ Infant is calm or sleepy after feeding ☐ Infant suckles for more than 5 minutes [a] Signs of let-down reflex	☐ Cannot see or hear infant swallowing during breastfeeding ☐ Only rapid/urgent sucking that does not slow down during the breastfeeding ☐ No signs of let-down reflex ☐ Infant restless, cries, coughs, gags or chokes at breast ☐ Infant's hands remain clenched into fists throughout breastfeeding ☐ Nipple looks creased, squashed, flattened or damaged after breastfeeding ☐ Infant looks tense, worried or eager after breastfeeding ☐ Infant fusses, cries or appears unsatisfied after breastfeeding ☐ Infant suckles for less than 5 minutes ☐ Infant falls asleep less than 5 minutes after starting to breastfeed	▷ Address signs of poor positioning and attachment and observe for swallowing again ▷ Encourage mother to recognize and respond to hunger cues and offer both breasts at every feed and repeat if infant still seems hungry ▷ Offer a breastfeed if no hunger cues are observed 3 hours after last feed began ▷ Express breastmilk between feeds ▷ Offer available expressed breastmilk after breastfeeding
Responsive feeding	**Restricted feeding**	**Action**
☐ Mother allows infant to finish breastfeeding and release breast spontaneously ☐ Mother offers both breasts ☐ Mother makes eye contact with infant during breastfeeding ☐ Mother responds calmly to infant's need for comfort and feeding	☐ Mother decides when breastfeeding is finished and actively detaches infant from breast ☐ Mother breastfeeds from only one breast ☐ Mother does not make eye contact with infant during breastfeeding ☐ Mother struggles to soothe infant when crying	▷ Help mother to recognize and respond to hunger and satiety cues ▷ Encourage mother to offer both breasts at every feed, interact with the infant during breastfeeding, and allow infant to continue breastfeeding for as long as the infant is willing
	Signs of mastitis	**Action**
	☐ Red, warm breast ☐ Hard, tight, lumpy breast ☐ Painful or aching breast ☐ Sharp pain that shoots into breast from nipple ☐ White patches in infant's mouth that do not wipe away ☐ Red, swollen lump on breast ☐ Fever ☐ Joint pain and/or general malaise	▷ Initiate mastitis protocol

Counselling plan for the breastfeeding observation checklist

What have you noticed?

- ☐ Inappropriate feeding (infant formula, other foods or fluids)
- ☐ Insufficient breastmilk intake
- ☐ Not breastfeeding often enough
- ☐ Not breastfeeding at night
- ☐ Poor positioning and/or attachment
- ☐ Mastitis
- ☐ Infant not breastfed
- ☐ Physical disability of infant
- ☐ Maternal illness

What will your counselling plan include?

- ☐ Eliminate formula milk and other foods and fluids
- ☐ Positioning and attachment
- ☐ Responsive feeding (recognizing hunger and satiety cues)
- ☐ Breastfeed more frequently
- ☐ Breastfeed at night
- ☐ Expressing and storing breastmilk
- ☐ Cup or spoon feeding with expressed breastmilk
- ☐ Relactation
- ☐ Wet-nursing
- ☐ Manage mastitis/thrush
- ☐ Breastfeeding during physical or mental illness
- ☐ Breastfeeding or expressed breastmilk feeding infant with a disability
- ☐ Expressing and feeding expressed breastmilk during separation
- ☐ Recognizing and responding to signs of insufficient breastmilk intake

Annex 22

Replacement feeding: discharge assessment and volumes of milk to give at home

Table A22.1. Replacement feeding discharge observation checklist

Note

Check whether the mother/caregiver has everything needed to feed the infant at home.

If any answer is "*No*" in the following questionaire, consider delaying discharge until the mother/caregiver is able to demonstrate safe preparation and use of commercial infant formula.

Observations	Yes	*No*
1. Mother/caregiver washes hands before beginning preparation		
2. Mother/caregiver knows that a cup is the safest feeding vessel		
3. Mother/caregiver agrees to cup feeding		Go to Question 4
▷ feeding cup and other equipment are washed with soap and water		
▷ all equipment is completely submerged in boiling water for more than 1 minute		
▷ all equipment is removed with tongs and placed on a clean surface to air-dry		
▷ all equipment is protected from insects and vermin while drying		
▷ all clean feeding equipment is stored in a clean covered container until next use	Go to Question 5	
4. Mother/caregiver chooses to use feeding bottle and teat:		
▷ bottle and teat are washed thoroughly with soap and water		
▷ milk residue is cleared from holes in teat and screw-threads		
▷ all parts are completely submerged in boiling water for more than 1 minute		
▷ all parts are removed with tongs and placed on a clean surface to air-dry		
▷ all parts are protected from insects and vermin while drying		
▷ all clean feeding equipment is stored in a clean, covered container until next use		
5. Fresh drinking water is brought to a rolling boil and cooled for no more than 30 minutes before preparing the feed		
6. Mother/caregiver measures water correctly		
7. Mother/caregiver measures formula with the supplied scoop and levels the formula with a clean knife		
8. Formula is added to water (rather than water added to formula) and mixed gently using clean cutlery		
9. Prepared formula is covered and cooled to feeding temperature quickly		
10. Temperature of feed is checked before it is given to the infant		
11. Mother/caregiver recognizes and responds when infant displays hunger cues		
12. Infant takes most or all of the milk		
13. Mother/caregiver pauses feeding when infant stops actively suckling or turns head from cup (or teat)		
14. Infant is held in an upright position throughout the feed		

Observations	Yes	No
If the infant is fed with a cup, go to Question 16		
15. If infant is fed with a feeding bottle, the bottle is held horizontally and not vertically		
16. Mother/caregiver interacts lovingly with the infant during the feed		
17. Any milk not taken by the infant after 1 hour is discarded, or consumed by the mother/caregiver, or given to an older child		
18. Mother/caregiver knows how much infant formula to offer at each feed and in total each day		

Table A22.2. Replacement feeding interview

Note

Check whether the mother/caregiver has everything needed to feed the infant at home.

If any answer is "*No*", consider delaying discharge until the mother/caregiver and health-care worker are confident that the infant can be fed safely at home.

Observations	Yes	No
1. Is powdered infant formula provided to the family?	*Go to Question 5*	*Go to Question 2*
2. Does the mother/caregiver know which product to buy for the infant?		
3. Is the mother/caregiver confident they will be able to purchase the formula the infant needs?		
4. Are instructions printed in the mother's/caregiver's own language?		
5. Does the mother/caregiver have sufficient, appropriate commercial infant formula (suitable from birth) to feed the infant until the next visit or until the infant is aged 6 months?		
6. Is the expiry date clearly marked and later than the next scheduled visit?		
7. Have you observed the mother/caregiver preparing and feeding formula milk without help from clinic staff?		
8. Has the observation checklist been completed?		
9. Is the mother/caregiver able to explain how to store and use formula hygienically?		
10. Does the mother/caregiver have containers with lids that can be closed tightly to use for storing feeding equipment and formula?		
11. Is running water available in or near the home?	*Go to Question 15*	*Go to Question 12*
12. Is drinking water stored safely in a clean, covered container used only for drinking water in the home?		
13. Is at least 3 L of water available every day for washing hands and washing and boiling equipment?		
14. Is at least 1 L of drinking water available for preparing feeds every day in addition to household needs?		
15. Is soap available for washing hands and feeding equipment?		
16. Is there enough fuel to boil water and disinfect feeding equipment available in the home?		
17. Is there a clean surface available to place feeding equipment to air-dry?		
18. Does the mother/caregiver have a suitable means of measuring water to prepare feeds? *A health worker can measure the required volume and mark it on a cup. Avoid using feeding bottles because the markings are often inaccurate.*		
19. Does the mother/caregiver have time available to prepare at least six to eight fresh feeds per day, including washing and disinfecting equipment?		

Volume of commercial generic infant formula to give at home

Table A22.3 can be used to advise the mother/caregiver on how much generic infant formula to feed the infant at home. It is important to stress that these quantities are only a guide, and the mother/caregiver should practise responsive feeding to ensure feeding is demand-driven. Counsel the mother/caregiver clearly on signs of significant feed intolerance (compared with posseting), which may mean the amount should be reduced or the formula given in smaller portions, and to take the infant to see a health worker for further advice if they notice these signs.

The suggested volumes in Table A22.3 are averages – but every day the infant may eat less or more per feed. As a general guide, for the majority of feeds every day, the infant should finish at least three-quarters of the volume prescribed for that feed.

Important

Although appropriate advice is given in outpatient care for increasing the quantity of milk according to the infant's age and responsive feeding cues, it is important to stress on discharge from the hospital that quantities should be increased with age and according to hunger cues in case the infant and the mother/caregiver do not present for follow-up in outpatient care.

Table A22.3. Commercial milk formula feeds for infants who cannot be breastfed

Age	Number of feeds per 24 hours	Frequency (including through the night)	Volume of milk per feed
0–1 months	8	Every 3 hours	60 mL
1–2 months	8	Every 3 hours	90 mL
2–4 months	6	Every 4 hours	120 mL
4–6 months	6	Every 4 hours	150 mL

Annex 23

Preparing F-75 therapeutic milk

F-75 milk may be prepared for individual children, but usually it is prepared for a number of children at the same time. For example, if a total of 1000 mL of F-75 milk is needed for all the children in an inpatient service for the 06:00 feed, Table A23.1 can be used to find the total amount of reconstituted milk (on the tin of milk this is written "Estimated amount of reconstituted milk") that would meet these needs, in this case 1108 mL, and work towards the right of the table to see how much milk powder (40 scoops) and how much water (1000 mL) are needed for preparation.

Note that one scoop of milk powder is equivalent to 4.6 g.

Table A23.1. Quantities required to prepare reconstituted F75 milk

Total amount of reconstituted F-75 milk	Number of measuring scoops	Amount of water
28 mL	1	25 mL
55 mL	2	50 mL
110 mL	4	100 mL
165 mL	6	150 mL
220 mL	8	200 mL
275 mL	10	250 mL
416 mL	15	375 mL
554 mL	20	500 mL
688 mL	25	625 mL
831 mL	30	750 mL
963 mL	35	875 mL
1108 mL	40	1000 mL
1238 mL	45	1125 mL
1385 mL	50	1250 mL
1513 mL	55	1375 mL
1662 mL	60	1500 mL
1788 mL	65	1625 mL
1939 mL	70	1750 mL
2063 mL	75	1875 mL
2200 mL	80	2000 mL
2338 mL	85	2125 mL
2438 mL	88 (= 1 tin)	2200 mL

Annex 24

Preparing F-100 milk

F-100 milk may be prepared for individual children, but usually it is prepared for a number of children at the same time. For example, if a total of 1500 mL of F-100 milk is needed for all the children in an inpatient service for the 06:00 feed, Table A24.1 can be used to find the total amount of reconstituted milk (on the tin, this is written as "Estimated amount of reconstituted milk") that would meet these needs – in this, case 1568 mL. Work towards the right of the table to find how much milk powder (55 scoops) and how much water (1375 mL) are needed for preparation.

Note that 1 scoop of milk powder is equivalent to 5.4 g.

Table A24.1. Quantities required to prepare reconstituted F100 milk

Total amount of reconstituted F-100 milk	Number of measuring scoops	Amount of water
28 mL	1	25 mL
57 mL	2	50 mL
14 mL	4	100 mL
171 mL	6	150 mL
228 mL	8	200 mL
285 mL	10	250 mL
428 mL	15	375 mL
570 mL	20	500 mL
713 mL	25	625 mL
855 mL	30	750 mL
998 mL	35	875 mL
1140 mL	40	1000 mL
1283 mL	45	1125 mL
1425 mL	50	1250 mL
1568 mL	55	1375 mL
1710 mL	60	1500 mL
1853 mL	65	1625 mL
1995 mL	70	1750 mL
2109 mL	74 (= 1 tin)	1850 mL

Annex 25

Preparing F-100 milk diluted

F-100 milk diluted is prepared as per F-100 milk, but then 30% more water is added. For example, if 100 mL of water is needed to make up F-100 milk for a particular child, 130 mL will be needed to make it into F-100 milk diluted.

F-100 milk diluted may be prepared for individual children, but usually it is prepared for a number of children at the same time. For example, if 800 mL of F-100 milk diluted is needed for all the children in an inpatient service for the 06:00 feed, Table A25.1 can be used to find the total amount of reconstituted F-100 milk diluted (on the tin of milk this is written as "Estimated amount of reconstituted milk") that would cover these needs – in this case, 900 mL. Then work back towards the left of the table to find how much milk powder (25 scoops) and how much water (813 mL) are needed for preparation.

Note that 1 scoop of milk is equivalent to 5.4 g.

Table A25.1. Quantities required to prepare F100 milk diluted

Number of measuring scoops of F-100 milk powder	Amount of water	Total amount of reconstituted F-100 milk diluted
1	33 mL	36 mL
2	65 mL	72 mL
4	130 mL	144 mL
6	195 mL	216 mL
8	260 mL	288 mL
10	325 mL	360 mL
15	488 mL	540 mL
20	650 mL	720 mL
25	813 mL	900 mL
30	975 mL	1080 mL
35	1138 mL	1260 mL
40	1300 mL	1440 mL
45	1463 mL	1620 mL
50	1625 mL	1800 mL
55	1788 mL	1980 mL
60	1950 mL	2160 mL
65	2113 mL	2340 mL
70	2275 mL	2520 mL
74 (= 1 tin)	2405 mL	2664 mL

Annex 26

Breastfed infants less than 6 months of age with severe acute malnutrition (SAM)

Reference tables for quantities of generic commercial infant formula for supplementary feeds

Two example protocols are provided:

- Protocol 1 (Tables A26.1–A26.4) starts from 80 kcal/kg/day and then reduces in four steps to reduce dependency on therapeutic milk as breastfeeding (or giving expressed breastmilk) improves or increases and can support the infant's nutritional needs. Starting at 80 kcal/kg/day (rather than 100 kcal/kg/day) may be useful for less clinically stable infants and infants in whom feeding intolerance is seen at higher calorie levels.
- Protocol 2 (Tables A26.5–A26.8) starts from 100 kcal/kg/day and then reduces in four steps.

Calculations are based on the midpoint weight in kilograms for each weight category. Volumes are rounded to the nearest 5 mL and given for feeds every 2 or 3 hours. Feeding every 2 hours may be necessary for less clinically stable infants, infants with frequent episodes of hypoglycaemia, and infants showing signs of feed intolerance on feeds every 3 hours.

Protocol 1: 80 kcal/kg/day

Step 1: 80 kcal/kg/day based on 8 or 12 feeds per day

Table A26.1. Amount of generic commercial infant formula required to give 80 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	35 mL	25 mL
2.5–2.9 kg	40 mL	30 mL
3.0–3.4 kg	50 mL	35 mL
3.5–3.9 kg	55 mL	40 mL
4.0–4.4 kg	65 mL	45 mL
4.5–4.9 kg	70 mL	50 mL
5.0–5.4 kg	80 mL	55 mL
5.5–5.9 kg	90 mL	60 mL
6.0–6.4 kg	95 mL	65 mL
6.5–6.9 kg	105 mL	70 mL
7.0–7.4 kg	110 mL	75 mL
7.5–7.9 kg	120 mL	80 mL
8.0–8.4 kg	125 mL	85 mL
8.5–8.9 kg	135 mL	90 mL
9.0–9.4 kg	140 mL	95 mL
9.5–9.9 kg	150 mL	100 mL
10.0–10.4 kg	155 mL	105 mL
10.5–10.9 kg	165 mL	110 mL

Step 2: 80 kcal/kg/day, reducing to 75% of Step 1 quantities based on 8 or 12 feeds per day

Table A26.2. Amount of generic commercial infant formula required to give 75% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	25 mL	15 mL
2.5–2.9 kg	30 mL	20 mL
3.0–3.4 kg	35 mL	25 mL
3.5–3.9 kg	45 mL	30 mL
4.0–4.4 kg	50 mL	30 mL
4.5–4.9 kg	55 mL	35 mL
5.0–5.4 kg	60 mL	40 mL
5.5–5.9 kg	65 mL	45 mL
6.0–6.4 kg	70 mL	50 mL
6.5–6.9 kg	75 mL	50 mL
7.0–7.4 kg	85 mL	55 mL
7.5–7.9 kg	90 mL	60 mL
8.0–8.4 kg	95 mL	65 mL
8.5–8.9 kg	100 mL	65 mL
9.0–9.4 kg	105 mL	70 mL
9.5–9.9 kg	110 mL	75 mL
10.0–10.4 kg	120 mL	80 mL
10.5–10.9 kg	125 mL	80 mL

Step 3: 80 kcal/kg/day, reducing to 50% of Step 1 quantities based on 8 or 12 feeds per day

Table A26.3. Amount of generic commercial infant formula required to give 50% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	15 mL	10 mL
2.5–2.9 kg	20 mL	15 mL
3.0–3.4 kg	25 mL	15 mL
3.5–3.9 kg	30 mL	20 mL
4.0–4.4 kg	30 mL	20 mL
4.5–4.9 kg	35 mL	25 mL
5.0–5.4 kg	40 mL	25 mL
5.5–5.9 kg	45 mL	30 mL
6.0–6.4 kg	50 mL	30 mL
6.5–6.9 kg	50 mL	35 mL
7.0–7.4 kg	55 mL	35 mL
7.5–7.9 kg	60 mL	40 mL
8.0–8.4 kg	65 mL	40 mL
8.5–8.9 kg	65 mL	45 mL
9.0–9.4 kg	70 mL	45 mL
9.5–9.9 kg	75 mL	50 mL
10.0–10.4 kg	80 mL	50 mL
10.5–10.9 kg	80 mL	55 mL

Table A26.4. Amount of generic commercial infant formula required to give 25% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	10 mL	5 mL
2.5–2.9 kg	10 mL	5 mL
3.0–3.4 kg	10 mL	10 mL
3.5–3.9 kg	15 mL	10 mL
4.0–4.4 kg	15 mL	10 mL
4.5–4.9 kg	20 mL	10 mL
5.0–5.4 kg	20 mL	15 mL
5.5–5.9 kg	20 mL	15 mL
6.0–6.4 kg	25 mL	15 mL
6.5–6.9 kg	25 mL	15 mL
7.0–7.4 kg	30 mL	20 mL
7.5–7.9 kg	30 mL	20 mL
8.0–8.4 kg	30 mL	20 mL
8.5–8.9 kg	35 mL	20 mL
9.0–9.4 kg	35 mL	25 mL
9.5–9.9 kg	35 mL	25 mL
10.0–10.4 kg	40 mL	25 mL
10.5–10.9 kg	40 mL	25 mL

Protocol 2: 100 kcal/kg/day

Step 1: 100 kcal/kg/day based on 8 or 12 feeds per day

Table A26.5. Amount of generic commercial infant formula required to give 80 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	40 mL	30 mL
2.5–2.9 kg	50 mL	35 mL
3.0–3.4 kg	60 mL	40 mL
3.5–3.9 kg	70 mL	45 mL
4.0–4.4 kg	80 mL	55 mL
4.5–4.9 kg	90 mL	60 mL
5.0–5.4 kg	100 mL	65 mL
5.5–5.9 kg	110 mL	75 mL
6.0–6.4 kg	120 mL	80 mL
6.5–6.9 kg	130 mL	85 mL
7.0–7.4 kg	140 mL	90 mL
7.5–7.9 kg	150 mL	100 mL
8.0–8.4 kg	160 mL	105 mL
8.5–8.9 kg	165 mL	110 mL
9.0–9.4 kg	175 mL	120 mL
9.5–9.9 kg	185 mL	125 mL
10.0–10.4 kg	195 mL	130 mL
10.5–10.9 kg	205 mL	135 mL

Step 2: 100 kcal/kg/day, reducing to 75% of Step 1 quantities based on 8 or 12 feeds per day

Table A26.6. Amount of generic commercial infant formula required to give 75% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	30 mL	20 mL
2.5–2.9 kg	40 mL	25 mL
3.0–3.4 kg	45 mL	30 mL
3.5–3.9 kg	55 mL	35 mL
4.0–4.4 kg	60 mL	40 mL
4.5–4.9 kg	70 mL	45 mL
5.0–5.4 kg	75 mL	50 mL
5.5–5.9 kg	80 mL	55 mL
6.0–6.4 kg	90 mL	60 mL
6.5–6.9 kg	95 mL	65 mL
7.0–7.4 kg	105 mL	70 mL
7.5–7.9 kg	110 mL	75 mL
8.0–8.4 kg	120 mL	80 mL
8.5–8.9 kg	125 mL	85 mL
9.0–9.4 kg	135 mL	90 mL
9.5–9.9 kg	140 mL	95 mL
10.0–10.4 kg	145 mL	100 mL
10.5–10.9 kg	155 mL	105 mL

Step 3: 100 kcal/kg/day, reducing to 50% of Step 1 quantities based on 8 or 12 feeds per day

Table A26.7. Amount of generic commercial infant formula required to give 50% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	20 mL	15 mL
2.5–2.9 kg	25 mL	15 mL
3.0–3.4 kg	30 mL	20 mL
3.5–3.9 kg	35 mL	25 mL
4.0–4.4 kg	40 mL	25 mL
4.5–4.9 kg	45 mL	30 mL
5.0–5.4 kg	50 mL	35 mL
5.5–5.9 kg	55 mL	35 mL
6.0–6.4 kg	60 mL	40 mL
6.5–6.9 kg	65 mL	45 mL
7.0–7.4 kg	70 mL	45 mL
7.5–7.9 kg	75 mL	50 mL
8.0–8.4 kg	80 mL	55 mL
8.5–8.9 kg	85 mL	55 mL
9.0–9.4 kg	90 mL	60 mL
9.5–9.9 kg	95 mL	60 mL
10.0–10.4 kg	100 mL	65 mL
10.5–10.9 kg	105 mL	70 mL

Step 4: 100 kcal/kg/day, reducing to 25% of Step 1 quantities based on 8 or 12 feeds

Table A26.8. Amount of generic commercial infant formula required to give 50% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	10 mL	5 mL
2.5–2.9 kg	15 mL	10 mL
3.0–3.4 kg	15 mL	10 mL
3.5–3.9 kg	20 mL	10 mL
4.0–4.4 kg	20 mL	15 mL
4.5–4.9 kg	25 mL	15 mL
5.0–5.4 kg	25 mL	15 mL
5.5–5.9 kg	25 mL	20 mL
6.0–6.4 kg	30 mL	20 mL
6.5–6.9 kg	30 mL	20 mL
7.0–7.4 kg	35 mL	25 mL
7.5–7.9 kg	35 mL	25 mL
8.0–8.4 kg	40 mL	25 mL
8.5–8.9 kg	40 mL	30 mL
9.0–9.4 kg	45 mL	30 mL
9.5–9.9 kg	45 mL	30 mL
10.0–10.4 kg	50 mL	35 mL
10.5–10.9 kg	50 mL	35 mL

Annex 27

Breastfed infants less than 6 months of age with severe acute malnutrition (SAM)

reference tables for quantities of F-75 milk and F-100 milk diluted for supplementary feeds

Two example protocols are provided:

- Protocol 1 (Tables A27.1–A27.4) starts from 80 kcal/kg/day and then reduces in four steps to reduce dependency on therapeutic milk as breastfeeding (or giving expressed breastmilk) improves or increases and can support the infant's nutritional needs. Starting at 80 kcal/kg/day (rather than 100 kcal/kg/day) may be useful for less clinically stable infants and infants in whom feeding intolerance is seen at higher calorie levels.
- Protocol 2 (Tables A27.5–A27.8) starts from 100 kcal/kg/day and then reduces in four steps.

Calculations are based on the midpoint weight in kilograms for each weight category. Volumes are rounded to the nearest 5 mL and given for feeds every 2 or 3 hours. Feeding every 2 hours may be necessary for less clinically stable infants, infants with frequent episodes of hypoglycaemia, and infants showing signs of feed intolerance on feeds every 3 hours.

Protocol 1: 80 kcal/kg/day

Step 1: 80 kcal/kg/day based on 8 or 12 feeds per day

Table A27.1. Amount of F-75 milk or F-100 milk diluted required to give 80 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	30 mL	20 mL
2.5–2.9 kg	35 mL	25 mL
3.0–3.4 kg	45 mL	30 mL
3.5–3.9 kg	50 mL	35 mL
4.0–4.4 kg	55 mL	35 mL
4.5–4.9 kg	65 mL	40 mL
5.0–5.4 kg	70 mL	45 mL
5.5–5.9 kg	75 mL	50 mL
6.0–6.4 kg	85 mL	55 mL
6.5–6.9 kg	90 mL	60 mL
7.0–7.4 kg	95 mL	65 mL
7.5–7.9 kg	105 mL	70 mL
8.0–8.4 kg	110 mL	75 mL
8.5–8.9 kg	115 mL	75 mL
9.0–9.4 kg	125 mL	80 mL
9.5–9.9 kg	130 mL	85 mL
10.0–10.4 kg	135 mL	90 mL
10.5–10.9 kg	145 mL	95 mL

Step 2: 80 kcal/kg/day, reducing to 75% of Step 1 quantities based on 8 or 12 feeds per day

Table A27.2. Amount of F-75 milk or F-100 milk diluted required to give 75% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	20 mL	15 mL
2.5–2.9 kg	25 mL	20 mL
3.0–3.4 kg	30 mL	20 mL
3.5–3.9 kg	35 mL	25 mL
4.0–4.4 kg	40 mL	30 mL
4.5–4.9 kg	45 mL	30 mL
5.0–5.4 kg	50 mL	35 mL
5.5–5.9 kg	55 mL	40 mL
6.0–6.4 kg	60 mL	40 mL
6.5–6.9 kg	65 mL	45 mL
7.0–7.4 kg	70 mL	50 mL
7.5–7.9 kg	75 mL	50 mL
8.0–8.4 kg	80 mL	55 mL
8.5–8.9 kg	85 mL	60 mL
9.0–9.4 kg	90 mL	60 mL
9.5–9.9 kg	95 mL	65 mL
10.0–10.4	100 mL	70 mL
10.5–10.9 kg	105 mL	70 mL

Step 3: 80 kcal/kg/day, reducing to 50% of Step 1 quantities based on 8 or 12 feeds per day

Table A27.3. Amount of F-75 milk or F-100 milk diluted required to give 50% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	15 mL	10 mL
2.5–2.9 kg	20 mL	10 mL
3.0–3.4 kg	20 mL	15 mL
3.5–3.9 kg	25 mL	15 mL
4.0–4.4 kg	30 mL	20 mL
4.5–4.9 kg	30 mL	20 mL
5.0–5.4 kg	35 mL	25 mL
5.5–5.9 kg	40 mL	25 mL
6.0–6.4 kg	40 mL	30 mL
6.5–6.9 kg	45 mL	30 mL
7.0–7.4 kg	50 mL	30 mL
7.5–7.9 kg	50 mL	35 mL
8.0–8.4 kg	55 mL	35 mL
8.5–8.9 kg	60 mL	40 mL
9.0–9.4 kg	60 mL	40 mL
9.5–9.9 kg	65 mL	45 mL
10.0–10.4 kg	70 mL	45 mL
10.5–10.9 kg	70 mL	50 mL

Step 4: 80 kcal/kg/day, reducing to 25% of Step 1 quantities based on 8 or 12 feeds per day

Table A27.4. Amount of F-75 milk or F-100 milk diluted required to give 25% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	5 mL	5 mL
2.5–2.9 kg	10 mL	5 mL
3.0–3.4 kg	10 mL	5 mL
3.5–3.9 kg	10 mL	10 mL
4.0–4.4 kg	15 mL	10 mL
4.5–4.9 kg	15 mL	10 mL
5.0–5.4 kg	15 mL	10 mL
5.5–5.9 kg	20 mL	15 mL
6.0–6.4 kg	20 mL	15 mL
6.5–6.9 kg	20 mL	15 mL
7.0–7.4 kg	25 mL	15 mL
7.5–7.9 kg	25 mL	15 mL
8.0–8.4 kg	25 mL	20 mL
8.5–8.9 kg	30 mL	20 mL
9.0–9.4 kg	30 mL	20 mL
9.5–9.9 kg	30 mL	20 mL
10.0–10.4 kg	35 mL	25 mL
10.5–10.9 kg	35 mL	25 mL

Protocol 2: 100 kcal/kg/day

Step 1: 100 kcal/kg/day based on 8 or 12 feeds per day

Table A27.5. Amount of F-75 milk or F-100 milk diluted required to give 100 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	35 mL	25 mL
2.5–2.9 kg	45 mL	30 mL
3.0–3.4 kg	55 mL	35 mL
3.5–3.9 kg	60 mL	40 mL
4.0–4.4 kg	70 mL	45 mL
4.5–4.9 kg	80 mL	50 mL
5.0–5.4 kg	85 mL	60 mL
5.5–5.9 kg	95 mL	65 mL
6.0–6.4 kg	105 mL	70 mL
6.5–6.9 kg	110 mL	75 mL
7.0–7.4 kg	120 mL	80 mL
7.5–7.9 kg	130 mL	85 mL
8.0–8.4 kg	135 mL	90 mL
8.5–8.9 kg	145 mL	95 mL
9.0–9.4 kg	155 mL	100 mL
9.5–9.9 kg	160 mL	110 mL
10.0–10.4 kg	170 mL	115 mL
10.5–10.9 kg	180 mL	120 mL

Step 2: 100 kcal/kg/day, reducing to 75% of step 1 quantities based on 8 or 12 feeds per day

Table A27.6. Amount of F-75 milk or F-100 milk diluted required to give 75% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	30 mL	20 mL
2.5–2.9 kg	40 mL	25 mL
3.0–3.4 kg	45 mL	30 mL
3.5–3.9 kg	55 mL	35 mL
4.0–4.4 kg	60 mL	40 mL
4.5–4.9 kg	70 mL	45 mL
5.0–5.4 kg	75 mL	50 mL
5.5–5.9 kg	80 mL	55 mL
6.0–6.4 kg	90 mL	60 mL
6.5–6.9 kg	95 mL	65 mL
7.0–7.4 kg	105 mL	70 mL
7.5–7.9 kg	110 mL	75 mL
8.0–8.4 kg	120 mL	80 mL
8.5–8.9 kg	125 mL	85 mL
9.0–9.4 kg	135 mL	90 mL
9.5–9.9 kg	140 mL	95 mL
10.0–10.4 kg	145 mL	100 mL
10.5–10.9 kg	155 mL	105 mL

Step 3: 100 kcal/kg/day, reducing to 50% of Step 1 quantities based on 8 or 12 feeds per day

Table A27.7. Amount of F-75 milk or F-100 milk diluted required to give 50% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	20 mL	15 mL
2.5–2.9 kg	25 mL	15 mL
3.0–3.4 kg	30 mL	20 mL
3.5–3.9 kg	35 mL	25 mL
4.0–4.4 kg	40 mL	25 mL
4.5–4.9 kg	45 mL	30 mL
5.0–5.4 kg	50 mL	35 mL
5.5–5.9 kg	55 mL	35 mL
6.0–6.4 kg	60 mL	40 mL
6.5–6.9 kg	65 mL	45 mL
7.0–7.4 kg	70 mL	45 mL
7.5–7.9 kg	75 mL	50 mL
8.0–8.4 kg	80 mL	55 mL
8.5–8.9 kg	85 mL	55 mL
9.0–9.4 kg	90 mL	60 mL
9.5–9.9 kg	95 mL	60 mL
10.0–10.4 kg	100 mL	65 mL
10.5–10.9 kg	105 mL	70 mL

Step 4: 100 kcal/kg/day, reducing to 25% of Step 1 quantities based on 8 or 12 feeds per day

Table A27.8. Amount of F-75 milk or F-100 milk diluted required to give 25% of Step 1 quantities based on 8 or 12 feeds per day

Weight of child	Volume of F-75 milk or F-100 milk diluted every 3 hours	Volume of F-75 milk or F-100 milk diluted every 2 hours
2.0–2.4 kg	10 mL	5 mL
2.5–2.9 kg	15 mL	10 mL
3.0–3.4 kg	15 mL	10 mL
3.5–3.9 kg	20 mL	10 mL
4.0–4.4 kg	20 mL	15 mL
4.5–4.9 kg	25 mL	15 mL
5.0–5.4 kg	25 mL	15 mL
5.5–5.9 kg	25 mL	20 mL
6.0–6.4 kg	30 mL	20 mL
6.5–6.9 kg	30 mL	20 mL
7.0–7.4 kg	35 mL	25 mL
7.5–7.9 kg	35 mL	25 mL
8.0–8.4 kg	40 mL	25 mL
8.5–8.9 kg	40 mL	30 mL
9.0–9.4 kg	45 mL	30 mL
9.5–9.9 kg	45 mL	30 mL
10.0–10.4 kg	50 mL	35 mL
10.5–10.9 kg	50 mL	35 mL

Annex 28

Non-breastfed infants less than 6 months of age with severe acute malnutrition (SAM)

reference tables for quantities of generic commercial infant formula for therapeutic feeding

Three example reference tables are provided, showing volumes of infant formula needed for 80 kcal/kg/day (Table A28.1), 100 kcal/kg/day (Table A28.2) and 120 kcal/kg/day (Table A28.3). Different kcal/kg/day can be given according to the clinical progression observed on a case-by-case basis.

Calculations are based on the midpoint weight in kilograms for each weight category. Volumes are rounded to the nearest 5 mL and given for feeds every 2 or 3 hours. Feeding every 2 hours may be necessary for less clinically stable infants, infants with frequent episodes of hypoglycaemia, and infants showing signs of feed intolerance on feeds every 3 hours.

Table A28.1. Amount of generic commercial infant formula required to give 80 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	35 mL	25 mL
2.5–2.9 kg	40 mL	30 mL
3.0–3.4 kg	50 mL	35 mL
3.5–3.9 kg	55 mL	40 mL
4.0–4.4 kg	65 mL	45 mL
4.5–4.9 kg	70 mL	50 mL
5.0–5.4 kg	80 mL	55 mL
5.5–5.9 kg	90 mL	60 mL
6.0–6.4 kg	95 mL	65 mL
6.5–6.9 kg	105 mL	70 mL
7.0–7.4 kg	110 mL	75 mL
7.5–7.9 kg	120 mL	80 mL
8.0–8.4 kg	125 mL	85 mL
8.5–8.9 kg	135 mL	90 mL
9.0–9.4 kg	140 mL	95 mL
9.5–9.9 kg	150 mL	100 mL
10.0–10.4 kg	155 mL	105 mL
10.5–10.9 kg	165 mL	110 mL

Table A28.2. Amount of generic commercial infant formula required to give 100 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	40 mL	30 mL
2.5–2.9 kg	50 mL	35 mL
3.0–3.4 kg	60 mL	40 mL
3.5–3.9 kg	70 mL	45 mL
4.0–4.4 kg	80 mL	55 mL
4.5–4.9 kg	90 mL	60 mL
5.0–5.4 kg	100 mL	65 mL
5.5–5.9 kg	110 mL	75 mL
6.0–6.4 kg	120 mL	80 mL
6.5–6.9 kg	130 mL	85 mL
7.0–7.4 kg	140 mL	90 mL
7.5–7.9 kg	150 mL	100 mL
8.0–8.4 kg	160 mL	105 mL
8.5–8.9 kg	165 mL	110 mL
9.0–9.4 kg	175 mL	120 mL
9.5–9.9 kg	185 mL	125 mL
10.0–10.4 kg	195 mL	130 mL
10.5–10.9 kg	205 mL	135 mL

Table A28.3. Amount of generic commercial infant formula required to give 120 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of infant formula every 3 hours	Volume of infant formula every 2 hours
2.0–2.4 kg	50 mL	35 mL
2.5–2.9 kg	60 mL	40 mL
3.0–3.4 kg	75 mL	50 mL
3.5–3.9 kg	85 mL	55 mL
4.0–4.4 kg	95 mL	65 mL
4.5–4.9 kg	110 mL	70 mL
5.0–5.4 kg	120 mL	80 mL
5.5–5.9 kg	130 mL	90 mL
6.0–6.4 kg	145 mL	95 mL
6.5–6.9 kg	155 mL	105 mL
7.0–7.4 kg	165 mL	110 mL
7.5–7.9 kg	180 mL	120 mL
8.0–8.4 kg	190 mL	125 mL
8.5–8.9 kg	200 mL	135 mL
9.0–9.4 kg	210 mL	140 mL
9.5–9.9 kg	225 mL	150 mL
10.0–10.4 kg	235 mL	155 mL
10.5–10.9 kg	245 mL	165 mL

Annex 29

Non-breastfed infants less than 6 months of age with severe acute malnutrition (SAM)

reference tables for quantities of F-75 milk and F-100 milk diluted for therapeutic feeding

Three example reference tables are provided, showing volumes of F-75 milk or F-100 milk needed for 80 kcal/kg/day (Table 29.1), 100 kcal/kg/day (Table 29.2) and 120 kcal/kg/day (Table 29.3). Different kcal/kg/day can be given according to the clinical progression observed on a case-by-case basis.

The same volumes are used for F-75 milk and F-100 milk diluted, because the kcal/100 mL is very similar (75 kcal/100 mL and 77 kcal/100 mL), but note that F-100 milk diluted has a higher protein content than F-75 milk diluted.

Calculations are based on the midpoint weight in kilograms for each weight category. Volumes are rounded to the nearest 5 mL and given for feeds every 2 or 3 hours. Feeding every 2 hours may be necessary for less clinically stable infants, infants with frequent episodes of hypoglycaemia, and infants showing signs of feed intolerance on feeds every 3 hours.

Table A29.1. Amount of F-75 milk or F-100 milk diluted required to give 80 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of F–75 milk or F–100 milk diluted every 3 hours	Volume of F–75 milk or F–100 milk diluted every 2 hours
2.0–2.4 kg	30 mL	20 mL
2.5–2.9 kg	35 mL	25 mL
3.0–3.4 kg	45 mL	30 mL
3.5–3.9 kg	50 mL	35 mL
4.0–4.4 kg	55 mL	35 mL
4.5–4.9 kg	65 mL	40 mL
5.0–5.4 kg	70 mL	45 mL
5.5–5.9 kg	75 mL	50 mL
6.0–6.4 kg	85 mL	55 mL
6.5–6.9 kg	90 mL	60 mL
7.0–7.4 kg	95 mL	65 mL
7.5–7.9 kg	105 mL	70 mL
8.0–8.4 kg	110 mL	75 mL
8.5–8.9 kg	115 mL	75 mL
9.0–9.4 kg	125 mL	80 mL
9.5–9.9 kg	130 mL	85 mL
10.0–10.4 kg	135 mL	90 mL
10.5–10.9 kg	145 mL	95 mL

Table A29.2. Amount of F-75 milk or F-100 milk diluted required to give 100 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of F–75 milk or F–100 milk diluted every 3 hours	Volume of F–75 milk or F–100 milk diluted every 2 hours
2.0–2.4 kg	35 mL	25 mL
2.5–2.9 kg	45 mL	30 mL
3.0–3.4 kg	55 mL	35 mL
3.5–3.9 kg	60 mL	40 mL
4.0–4.4 kg	70 mL	45 mL
4.5–4.9 kg	80 mL	50 mL
5.0–5.4 kg	85 mL	60 mL
5.5–5.9 kg	95 mL	65 mL
6.0–6.4 kg	105 mL	70 mL
6.5–6.9 kg	110 mL	75 mL
7.0–7.4 kg	120 mL	80 mL
7.5–7.9 kg	130 mL	85 mL
8.0–8.4 kg	135 mL	90 mL
8.5–8.9 kg	145 mL	95 mL
9.0–9.4 kg	155 mL	100 mL
9.5–9.9 kg	160 mL	110 mL
10.0–10.4 kg	170 mL	115 mL
10.5–10.9 kg	180 mL	120 mL

Table A29.3. Amount of F-75 milk or F-100 milk diluted required to give 120 kcal/kg/day based on 8 or 12 feeds per day

Weight of child	Volume of F–75 milk or F–100 milk diluted every 3 hours	Volume of F–75 milk or F–100 milk diluted every 2 hours
2.0–2.4 kg	45 mL	30 mL
2.5–2.9 kg	55 mL	35 mL
3.0–3.4 kg	65 mL	45 mL
3.5–3.9 kg	75 mL	50 mL
4.0–4.4 kg	85 mL	55 mL
4.5–4.9 kg	95 mL	65 mL
5.0–5.4 kg	105 mL	70 mL
5.5–5.9 kg	115 mL	75 mL
6.0–6.4 kg	125 mL	85 mL
6.5–6.9 kg	135 mL	90 mL
7.0–7.4 kg	145 mL	95 mL
7.5–7.9 kg	155 mL	105 mL
8.0–8.4 kg	165 mL	110 mL
8.5–8.9 kg	175 mL	115 mL
9.0–9.4 kg	185 mL	125 mL
9.5–9.9 kg	195 mL	130 mL
10.0–10.4 kg	205 mL	135 mL
10.5–10.9 kg	215 mL	145 mL

Annex 30

Summary of inpatient nutritional treatment for breastfed infants less than 6 months of age

with severe acute malnutrition (SAM) or severely underweight (weight-for-age *z*-score (WAZ) < −3)

Table A30.1. Summary of inpatient nutritional treatment for breastfed infants less than 6 months of age with SAM or severely underweight (WAZ < −3)

Step	Breastfeeding	Supplemental feeds	Monitoring and management
Step 1	Breastfeed on demand Express breastmilk between breastfeeds and at least 8 times per day Use supplementary suckling technique to give supplementary feed (expressed breastmilk and, if required, supplemental milk to make up volume) Provide intensive breastfeeding counselling (initially with each feed/ expressing, but can be less frequent as breastfeeding improves)	Expressed breastmilk – 130 mL/kg/day If < 130 mL/kg/day expressed breastmilk is available, give F-100 milk diluted, or F-75 milk or commercial infant formula to make up remaining volume at 80–100 kcal/kg/day (see Annexes 26 and 27 for reference tables for quantities) Give 8–12 feeds per day (every 2–3 hours)	Monitor clinical status, breastfeeding, outputs and weight gain for 2–3 days
Step 2	Breastfeed on demand Express breastmilk between breastfeeds and at least 8 times per day Use supplementary suckling technique to give supplementary feed (expressed breastmilk first plus other milk to make up volume) Provide intensive breastfeeding counselling (initially with each feed/ expressing but can be less frequent as breastfeeding improves)	If output (6–8 wet nappies and stooling normally) and weight gain (at least 20 g/day) are sustained by end of Step 1 (2–3 days), gradually decrease supplementary feed to 75%, 50% and then 25% of quantity prescribed in Step 1 Give 8–12 feeds per day (every 2–3 hours)	Allow 1–3 days for each step of decrease: ▷ Decrease to 75% of Step 1 amount for 1–3 days ▷ Decrease to 50% of Step 1 amount for 1–3 days ▷ Decrease to 25% of Step 1 amount for 1–3 days
		If output and weight gain are not sustained by end of Step 1, add an extra 5 mL of supplementary feed to each feed Give 8–12 feeds per day (every 2–3 hours)	If infant still does not gain weight after 1–2 days, consider intolerance or malabsorption Carry out a full medical review for any new or missed diagnoses

Step	Breastfeeding	Supplemental feeds	Monitoring and management
Step 3	Exclusive breastfeeding on demand	If output (6–8 wet nappies and stooling normally) and weight gain are sustained (> 20 g/day and following growth trajectory) for at least 2–3 days on 25% of Step 1 quantity, stop supplementary feed and continue exclusive breastfeeding only	Keep the mother and infant admitted for an additional 2–3 days on breastmilk alone to ensure breastfeeding is well established and the infant continues to gain weight and remains clinically well If infant deteriorates, go back to 25% of Step 1 amount for 1–2 days and then try again

Annex 31

Children aged 6–59 months with severe acute malnutrition (SAM): checklist of minimum essential actions for each outpatient visit

Additional actions may be required according to national guidelines and context.

Table A31.1. Minimum essential actions for each outpatient visit for children aged 6–59 months with SAM

Action	Details
Triage, looking for emergency signs – refer if present	Triage using national system or emergency triage assessment and treatment (ETAT) at every visit Assess for emergency signs and medical complications that would need inpatient admission at every visit – refer child if any of these signs are present
Nutrition screening	**Enrolment visit:** • weight (kg) • height (cm) • weight-for-height *z*-score (WHZ) • mid-upper arm circumference (MUAC) (mm or cm) • check for nutritional oedema **Follow-up visits:** • weight (kg) • MUAC (mm or cm) • check for nutritional oedema Ideally, the mother should also undergo nutritional screening (e.g. by body mass index (BMI) assessment or MUAC if she is pregnant or breastfeeding)

Action	Details
Nutrition assessment	**Enrolment visit:** • review anthropometrics • use checklists in Annexes 1 and 2 to get dietary history and look for nutrition-related clinical signs **Follow-up visits:** • review anthropometrics • ask about how the ready-to-use therapeutic food (RUTF) is being consumed at home – start with an open question and then follow up with more closed questions such as: ▷ does the child like the RUTF? ▷ do you split the RUTF over the day, or give it all in one go? ▷ does the child eat all the RUTF they are supposed to eat per day? ▷ does the RUTF get shared with other children or members of the family? ▷ do you give water to the child when they are eating the RUTF? ▷ how do you store any RUTF sachets or packages after opening? ▷ if the biscuit form is being used, is it eaten straight or made into a porridge? If it is made into a porridge, can you explain how you make the porridge? • ask whether the child is still being breastfed: ▷ try to get an idea of how often and how long to assess the contribution breastfeeding is making to the child's diet; this is especially relevant for children aged 6–23 months but also for older children ▷ ask whether the mother or wet-nurse has any concerns with breastfeeding that she might need support with – if yes, refer for or carry out a breastfeeding assessment
Clinical assessment	Carry out a paediatric history and physical examination (see checklists in Annexes 1 and 2) At the enrolment visit, a full previous medical, dietary, social and family history must be taken and acted on; at each follow-up visit, the health worker can carry out a brief review of all systems to pick up any new medical issues and look into any new complaints
Nutritional management	Discuss the infant's weight change (or lack of) with the caregiver and explain the implications of this for what will happen at this visit Deliver breastfeeding counselling and support if needed, focusing on issues that arise in the breastfeeding assessment Deliver appropriate counselling (see Annex 11) Prescribe the correct quantity of RUTF for use until the next visit (see Annex 17)
Medical management	**Enrolment visit:** • provide routine medical management • give routine antibiotics • deworming • check for eligible vaccinations and give if possible or refer to receive them • screen for vitamin A deficiency – start treatment if deficiency observed and refer for inpatient assessment • screen for HIV and tuberculosis according to clinical indication and national protocols • screen for malaria as per national protocols • prescribe medicines for new medical complaints as per integrated management of childhood illness (IMCI) or other national guidance **Follow-up visits:** • provide any routine medical management that has been missed or not given yet (especially checking for new eligibility for vaccinations) • prescribe medicines for new medical complaints as per IMCI or other national guidance

Action	Details
Maternal assessment and referral or treatment (depending on available services)	**Nutrition:** • review BMI and/or MUAC and refer to or start appropriate nutritional treatment according to national protocols **Mental health:** • carry out maternal mental health assessment • refer to or start appropriate mental health support and care Physical health: • take basic history and physical examination • refer to or start appropriate medical treatment Follow-up visits are focused more on monitoring progress rather than initiating treatment or support
Health education and counselling	Health education in group or individual sessions and individual counselling should be provided, covering important context-specific health messaging and issues relevant for the child and the family (see Annex 11 for basic guidance and more resources)

Annex 32

Children aged 6–59 months with severe acute malnutrition (SAM): checklist of actions to take in outpatient care

Table A32.1. Actions to take in outpatient care for children aged 6–59 months with SAM based on clinical and nutritional status

Clinical and nutritional status compared with last visit	Actions
Improving: • Caregiver reports improvement in child's overall condition • Clinical assessment shows stable or improved status • Sufficient weight increase (for this specific child)	▷ Congratulate the caregiver on the care they are giving the child and encourage them to keep caring in the same way (see guidance in Annex 11 on health promotion and education) ▷ Carry out routine care as per the checklist in Annex 31
No change (no improvement or deterioration) – any of the following criteria (list not exhaustive): • Caregiver reports no obvious improvement in child's overall condition • Clinical assessment shows no improvement in overall status • Poor weight gain • No weight gain (weight same as previous visit)	▷ Consider checking whether this visit's measurements have been done correctly and are accurate (this is especially relevant if the child has been improving until this visit) ▷ Look for new or missed medical diagnoses, based on the review of systems carried out in the consultation: • If the child has had diarrhoea or vomiting since the last visit, there may be no improvement in weight due to dehydration and/or reduction in appetite • Are there any new or recurring signs and symptoms indicating screening or rescreening for tuberculosis or testing or retesting for HIV? ▷ Arrange a home visit by the outreach or community health worker team to assess how the home environment (including the environmental health of the home) could be leading to lack of improvement, and try to propose realistic solutions to any problems found ▷ Consider whether the child needs referral to a specialist service for further investigations (e.g. surgery, isolation), and whether this is possible according to the context ▷ Discuss with the caregiver bringing the child back for earlier review (e.g. if visits are usually once a week, returning after 3–4 days) ▷ If poor or no weight gain is seen at the next visit despite all these actions, follow guidance for "Deteriorated" below

Clinical and nutritional status compared with last visit	Actions
Deteriorated – any of the following criteria (list not exhaustive): • Caregiver reports deterioration in child's overall condition • New/worsening medical problems • New/worsening appetite problems • Weight loss • Appearance or reappearance of oedema	▷ If there is a new medical complication that needs inpatient care, refer the child for inpatient care ▷ If there is new anorexia (reported by the caregiver and observed during an appetite test), refer the child for inpatient care ▷ If there is the appearance or reappearance of nutritional oedema, refer the child for inpatient care: even though children with + and ++ grade oedema can usually be managed as outpatients, the appearance of oedema when a child is already on nutritional treatment indicates outpatient treatment is not working or not sufficient for this child (even if there is a social cause), and they need further assessment and monitoring in an inpatient setting ▷ If weight loss is the only sign and the child is otherwise clinically stable (this is usually rare), check weight measurements again; if measurements are still correct, carry out an in-depth assessment, taking into account: • the amount of weight lost since the last visit – this is specific to the child and their age, clinical history and current status, and all of this must be considered when deciding whether this weight loss warrants referral to inpatient care or needs closer follow-up in outpatient care • any new medical problems • results from a repeated appetite test • evaluation of the caregiver's mental and physical health and reported home environment status

Annex 33

Children aged 6–59 months with moderate acute malnutrition (MAM): food-based nutritional management

Evidence on food-based approaches for the management of MAM is limited. This guidance is provisional and will be updated as new evidence emerges. National evidence and protocols should always be used when available.

An example process for developing local food recommendations for the management of MAM is summarized in Figure A33.1.

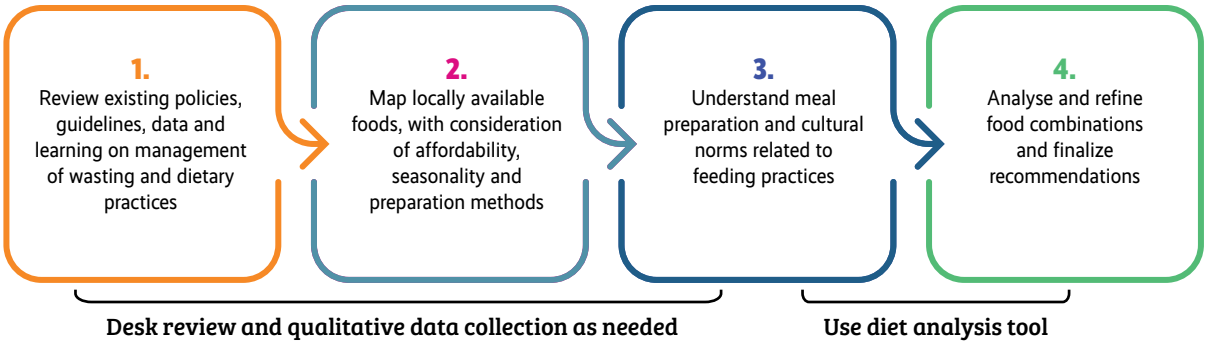


Figure A33.1. Actions for developing local food recommendations for management of MAM

Step 1: review existing policies, guidelines, data and learning on management of wasting and dietary practices

- Review relevant national guidelines to understand the current approach for managing MAM.
- Review any evidence around enabling factors and constraints affecting current services for managing moderate wasting. This may include reports on community and qualitative insights (e.g. social behaviour change assessments, community feedback, previous focus group discussions, key informant interviews).
- Identify approved specially formulated foods permitted for MAM and note any policy restrictions on imported versus locally produced products. Identify any existing qualitative data on community preferences and attitudes to specially formulated foods used nationally.
- Review relevant data on the diets of young children (e.g. infant and young child feeding indicators) and any evidence around feeding practices.
- Identify local food composition tables and seasonality of available foods.

Step 2: map locally available foods, with consideration of affordability, seasonality and preparation methods

- Carry out a market mapping exercise to identify the types of food that are locally available, accessible and affordable in the market using existing tools such as *Mapping of territorial markets* *(1)*.
- List locally available foods and their composition using existing food composition tables.
- Include seasonality, availability, affordability, cultural acceptability and preparation methods using a form such as the *Optimizing local diets tool* *(2)* or the World Vision *PDH menu calculation tool* *(3)*.

Step 3: understand meal preparation and cultural norms related to feeding practices

- If needed, conduct a qualitative exercise to further understand foods available in the community and meal preparation norms and practices to help shape recommendations.
- Assess whether households have access to cooking equipment, fuel and clean water (e.g. as part of rapid assessments). This will influence the type of food to be provided (e.g. wet versus dry rations, ready-to-use nutrient-dense foods versus nutrient-dense foods that require preparation).
- Assess storage and food safety practices. Many nutrient-dense foods (e.g. animal source foods) are highly perishable and have food safety risks if stored improperly.

Step 4: analyse and refine food combinations and finalize recommendations

- Conduct nutrient analysis using a menu calculator or diet tool such as:
  - *NutVal.net: the planning, calculation, and monitoring application for food assistance programmes* *(4)*
  - World Vision *PDH menu calculation tool* *(3)*
  - World Food Programme *Enhance* tool *(5)*.
- Develop food combinations that meet the nutritional requirements of the child.
- Suggest family daily intake plans and meal plans that could incorporate plans for the child to increase feasibility and acceptability of this food-based approach. For example, the child could eat the same meal as other family members, but with added ingredients to increase the nutrient value of the foods consumed. A decision will need to be taken over whether the plans for the whole family aim to cover all or only a proportion of their needs.

National food-based dietary guidelines and other local resources should be used to create specific meals or daily meal plans for children with MAM using local foods to provide their extra needs for recovery. Where such guidelines and local resources are not available, the following references are useful to develop these at the national level (note this list is not exhaustive or always specific to children with MAM):

- *Food-based dietary guidelines* *(6)*
- *Fill the nutrient gap* *(7)*
- *Moderate acute malnutrition (MAM) recipe book: 2021* *(8)*
- World Food Programme *Enhance* tool *(5)*
- *NutVal.net: the planning, calculation, and monitoring application for food assistance programmes* *(4)*
- *Optimizing local diets tool* *(9)*
- World Vision International *PDH menu calculation tool* *(3)*
- *Nourishing children: menus for recovery* *(10)*
- *Methods to assess the cost and affordability of nutritious and healthy diets: summary of assessment methods* *(11)*.

The following resources can be used to develop plans and interventions to provide food for the whole family and/or increase the quality of diet for the whole family:

- *Food assistance* chapter in the Food security cluster handbook *(12)*
- *Food assistance* chapter in The sphere handbook *(13)*
- *Household economy analysis* *(14)*
- *Economic capacity to meet essential needs (ECMEN)* *(15)*
- *Calculating the minimum expenditure basket: a guide to best practice* *(16)*
- *Cost of the diet: a practitioner's guide* *(17)*.

References

1 Mapping of territorial markets: methodology and guidelines for participatory data collection. Rome: Food and Agriculture Organization; 2023 (https://openknowledge.fao.org/server/api/core/bitstreams/45c088f2-fe9d-44f0-91dd-9f93e56b0260/content, accessed 15 January 2026).

2 Optimizing local diets tool. Washington, DC: United States Agency for International Development; 2023 (https://www.complementaryfeedingcollective.org/media/1591/file, accessed 11 February 2026).

3 PDH menu calculation tool. Monrovia, CA: World Vision (https://www.wvi.org/nutrition/pdh-menu-calculation-tool, accessed 15 January 2026).

4 NutVal.net: the planning, calculation, and monitoring application for food assistance programmes (https://www.nutval.net/, accessed 15 January 2026).

5 Enhance. Rome: World Food Programme (https://enhancedietsanalytics.wfp.org/, accessed 15 January 2026).

6 Food-based dietary guidelines. New York: United Nations Children's Fund (https://www.unicef.org/documents/food-based-dietary-guidelines, accessed 16 January 2026).

7 Fill the nutrient gap. Rome: World Food Programme (https://www.wfp.org/publications/fill-nutrient-gap, accessed 16 January 2026).

8 Moderate acute malnutrition (MAM) recipe book: 2021. Mandaluyong City, Philippines: World Food Programme (https://www.wfp.org/publications/moderate-acute-malnutrition-mam-recipe-book-2021, accessed 16 January 2026).

9 Optimizing local diets tool. Washington, DC: United States Agency for International Development; 2023 (https://www.complementaryfeedingcollective.org/media/1591/file, accessed 11 February 2026).

10 Nourishing children: menus for recovery. Monrovia, CA: World Vision; 2023 (https://www.wvi.org/sites/default/files/2023-10/Nourishing Children_Menus for Recovery 2023.pdf, accessed 16 January 2026).

11 Methods to assess the cost and affordability of nutritious and healthy diets: summary of assessment methods. London: Save the Children; 2024 (https://resourcecentre.savethechildren.net/document/methods-to-assess-the-cost-and-affordability-of-nutritious-and-healthy-diets-summary-of-assessment-methods, accessed 16 January 2026).

12 Food assistance. In: Food security cluster handbook. Rome: Global Food Security Cluster (https://handbook.fscluster.org/docs/561-food-assistance, accessed 16 January 2026).

13 Food assistance. In: The sphere handbook: humanitarian charter and minimum standards in humanitarian response (*https://handbook.spherestandards.org/en/sphere/#ch007_008*, accessed 16 January 2026).

14 Household economy analysis. London: Save the Children (https://resourcecentre.savethechildren.net/article/household-economy-analysis, accessed 16 January 2026).

15 Economic capacity to meet essential needs (ECMEN). Rome: World Food Programme; 2025 (https://resources.vam.wfp.org/data-analysis/quantitative/essential-needs/economic-capacity-to-meet-essential-needs-ecmen, accessed 16 January 2026).

16 Calculating the minimum expenditure basket: a guide to best practice. Oxford: CALP Network; 2022 (https://www.calpnetwork.org/publication/calculating-the-minimum-expenditure-basket-a-guide-to-best-practice/, accessed 16 January 2026).

17 Cost of the diet: a practitioner's guide. London: Save the Children; 2014 (https://resourcecentre.savethechildren.net/document/cost-of-the-diet-a-practitioners-guide, accessed 16 January 2026).

Annex 34

Children aged 6–59 months with moderate acute malnutrition (MAM): checklist of actions for each outpatient visit

Table 34.1. Actions for each outpatient visit for children aged 6–59 months with MAM

Action	Details
Triage, looking for emergency signs	Triage using national system or emergency triage assessment and treatment (ETAT) at each visit Assess for emergency signs and medical complications that would need inpatient admission at each visit
Nutrition screening	**Enrolment visit:** • weight • weight-for length *z*-score (WLZ) or weight-for height *z*-score (WHZ) • mid-upper arm circumference (MUAC) • check for nutritional oedema **Follow-up visits:** • weight • MUAC • check for nutritional oedema **Mother (depending on services offered):** • MUAC
Nutrition assessment	**General:** • review anthropometrics • ask whether the child is being breastfed: • if breastfed, try to get an idea of how often and how long to assess the contribution of breastfeeding to the child's diet – this is especially relevant for children aged 6–23 months but also for older children • ask whether the mother or wet-nurse has any concerns with breastfeeding that she might need support with – if yes, refer or carry out a breastfeeding assessment **Option A:** • ask what the child is eating at home, and get an example of a day's diet • ask about the child's appetite **Options B and C:** • ask about how the child consumes the specially formulated foods (SFF) and whether there are any concerns • ask what else the child is eating to meet the rest of their needs, and get an example of a day's diet • ask about the child's appetite

Action	Details
Clinical assessment	Carry out a paediatric history and physical examination At the enrolment visit, a full previous medical, dietary, social and family history must be taken and acted on; at each follow-up visit, the clinician can ask whether anything has changed regarding these topics and look into any new complaints that have arisen
Nutritional management	**General:** • discuss weight change (or lack of) with the caregiver and explain the implications of this for what will happen at this visit • deliver breastfeeding counselling and support, focusing on issues that arise in the breastfeeding assessment **Option A:** • provide dietary advice and infant and young child feeding (IYCF) counselling to the caregiver • discuss and provide counselling on appropriate use of household and family foods, including the importance of using appropriate hygiene and storage practices • if the family does not have access to diverse and nutritious food, enable the caregiver access to local nutrient-dense foods to improve the family diet through scheduled in-kind or cash transfers in line with local programmatic decisions and national policies • address and strengthen social and behavioural change communication to address barriers to demand and uptake of local nutrient-dense food • give clear guidance on when the caregiver needs to return to the outpatient service for the next visit and explain reasons for coming back sooner; advise on when to present at a health facility (e.g. appearance of danger signs or other medical problems) • discuss and agree on a home visit, if necessary and feasible **Option B:** • provide SFF based on the child's weight using the reference tables in Annex 35 and considerations of which SFF to give and the proportion of daily needs to be covered • counsel the caregiver on what the SFF is, what it is used for and how to use it • discuss and provide counselling on appropriate use of household and family foods, including the importance of using hygiene and storage practices and providing clear meal or daily intake plans • if the family does not have access to diverse and nutritious foods, try to enable the caregiver to access local nutrient-dense foods to improve the family diet through scheduled in-kind or cash transfers, in line with local programmatic decisions and national policies • provide individualized health and nutrition counselling, focusing on addressing barriers to demand and uptake of local nutrient-dense foods • give clear guidance on when the caregiver needs to return to the outpatient service for the next visit and explain other reasons for coming back sooner; advise on when to present at a health facility (e.g. appearance of danger signs or other medical problems) • discuss and agree on a home visit, if necessary and feasible **Option C:** • provide SFF based on the child's weight using the reference tables in Annex 35 and considerations of which SFF to give and proportion of daily needs to be covered • counsel the caregiver on what the SFF is, what it is used for and how to use it • discuss and provide counselling on IYCF, including appropriate use of household and family foods, the importance of appropriate hygiene and storage practices, and clear meal or daily intake plans • provide food, cash or vouchers so the caregiver can access nutrient-dense foods for the child and the rest of the family; if the food is not provided at the same outpatient service, make sure the caregiver has the correct referral documentation and clear instructions on where to pick up the food • give clear guidance on when the caregiver needs to return to the outpatient service for the next visit and explain other reasons for coming back sooner; advise on when to present at a health facility (e.g. appearance of danger signs or other medical problems) • discuss and agree on a home visit, if necessary and feasible

Action	Details
Medical management	Prescribe medicines for new medical complaints as per integrated management of childhood illness (IMCI), or refer to the appropriate health facility or health worker to access these services
Maternal assessment and referral/treatment (depending on available services)	**Nutrition:** • review MUAC and refer to or start appropriate nutritional treatment according to national protocols **Mental health:** • carry out maternal mental health assessment • refer to or start appropriate mental health support and care **Physical health:** • take a basic history and physical examination • refer to or start appropriate medical treatment Follow-up visits are focused more on monitoring progress rather than initiating treatment or support
Health education and counselling	Health promotion group or individual sessions covering important health messaging and issues relevant for the child and the family

Annex 35

Children aged 6–59 months with moderate acute malnutrition (MAM): reference tables for quantities of specially formulated foods per weight category

Inpatient care

The example in Table A35.1 uses 130 kcal/kg/day to calculate the quantities of ready-to-use supplementary food (RUSF) or ready-to-use therapeutic food (RUTF) to give children with MAM who are admitted to hospital for a medical condition.

RUSF sachets contain 535 kcal in 100 g, and RUTF sachets contain 500 kcal in 92 g (sachet weights may differ slightly between manufacturers). The quantities calculated are very similar, and the same table can be used for RUSF and RUTF. In Table A35.1, the amount of RUSF/RUTF is rounded to the nearest 0.5 sachet.

Super Cereal Plus packets weigh 1.5 kg, with 400 kcal per 100 g. In Table A35.1, the weight of Super Cereal Plus is rounded to the nearest 5 g.

Table A35.1. Children aged 6–59 months with MAM: quantities of specially formulated foods per weight category for inpatient treatment

Weight of child	RUSF/RUTF per day	Super Cereal Plus per day[a]
3.0–3.4 kg	0.5 sachet	50 g
3.5–3.9 kg	0.5 sachet	60 g
4.0–4.4 kg	0.5 sachet	70 g
4.5–4.9 kg	0.5 sachet	80 g
5.0–5.4 kg	1 sachet	90 g
5.5–5.9 kg	1 sachet	90 g
6.0–6.4 kg	1 sachet	100 g
6.5–6.9 kg	1 sachet	110 g
7.0–7.4 kg	1 sachet	120 g
7.5–7.9 kg	1 sachet	130 g
8.0–8.4 kg	1 sachet	130 g
8.5–8.9 kg	1 sachet	140 g
9.0–9.4 kg	1 sachet	150 g
9.5–9.9 kg	1.5 sachet	160 g
10.0–10.4 kg	1.5 sachet	170 g
10.5–10.9 kg	1.5 sachet	170 g
11.0–11.4 kg	1.5 sachet	180 g
11.5–11.9 kg	1.5 sachet	190 g
12.0–12.4 kg	1.5 sachet	200 g
12.5–12.9 kg	2 sachet	200 g
13.0–13.4 kg	2 sachet	220 g
13.5–13.9 kg	2 sachet	220 g
14.0–14.4 kg	2 sachet	230 g
14.5–14.9 kg	2 sachet	240 g
15.0–15.4 kg	2 sachet	250 g
15.5–15.9 kg	2 sachet	260 g

[a] **This can be prepared as a porridge, using approximately 30 g of Super Cereal Plus per portion (doubled for children weighing 13 kg or more) and given three or four times per day.**

Outpatient care

A midpoint of 115 kcal/kg/day is used, although governments and implementing partners may choose another point to use in the range 100–130 kcal/kg/day.

There are three dosing schedules:

- RUSF/RUTF or Super Cereal Plus to supplement 40% of total daily energy requirements;
- RUSF/RUTF or Super Cereal Plus to supplement 50% of total daily energy requirements;
- RUSF/RUTF or Super Cereal Plus to supplement 60% of total daily energy requirements.

The remaining percentage of total daily energy requirements must be provided as a nutrient-dense home diet.

RUSF sachets contain 535 kcal in 100 g, and RUTF sachets contain 500 kcal in 92 g (sachet weights may differ slightly between manufacturers). The quantities calculated are very similar, and the same table can be used for RUSF and RUTF. In Tables A35.2–A35.7, the amount of RUSF/RUTF is rounded to the nearest 0.5 sachet.

Super Cereal Plus packets weigh 1.5 kg, with 400 kcal per 100 g. In Tables A35.2–A35.7, the weight of Super cereal Plus is rounded to the nearest 5 g.

Lipid-based nutrient supplement: RUSF/RUTF

Table A35.2. RUSF/RUTF sachets to supplement 40% of total daily energy requirements

Weight of child	RUSF/RUTF per day	RUSF/RUTF per week
3.0–3.4 kg	0.5 sachet	4 sachets
3.5–3.9 kg	0.5 sachet	4 sachets
4.0–4.4 kg	0.5 sachet	4 sachets
4.5–4.9 kg	0.5 sachet	4 sachets
5.0–5.4 kg	0.5 sachet	4 sachets
5.5–5.9 kg	0.5 sachet	4 sachets
6.0–6.4 kg	0.5 sachet	4 sachets
6.5–6.9 kg	0.5 sachet	4 sachets
7.0–7.4 kg	1 sachet	7 sachets
7.5–7.9 kg	1 sachet	7 sachets
8.0–8.4 kg	1 sachet	7 sachets
8.5–8.9 kg	1 sachet	7 sachets
9.0–9.4 kg	1 sachet	7 sachets
9.5–9.9 kg	1 sachet	7 sachets
10.0–10.4 kg	1 sachet	7 sachets
10.5–10.9 kg	1 sachet	7 sachets
11.0–11.4 kg	1 sachet	7 sachets
11.5–11.9 kg	1 sachet	7 sachets
12.0–12.4 kg	1 sachet	7 sachets
12.5–12.9 kg	1 sachet	7 sachets
13.0–13.4 kg	1 sachet	7 sachets
13.5–13.9 kg	1.5 sachets	11 sachets
14.0–14.4 kg	1.5 sachets	11 sachets
14.5–14.9 kg	1.5 sachets	11 sachets
15.0–15.4 kg	1.5 sachets	11 sachets
15.5–15.9 kg	1.5 sachets	11 sachets

Table A35.3. RUSF/RUTF sachets to supplement 50% of total daily energy requirements

Weight of child	RUSF/RUTF per day	RUSF/RUTF per week
3.0–3.4 kg	0.5 sachet	4 sachets
3.5–3.9 kg	0.5 sachet	4 sachets
4.0–4.4 kg	0.5 sachet	4 sachets
4.5–4.9 kg	0.5 sachet	4 sachets
5.0–5.4 kg	0.5 sachet	4 sachets
5.5–5.9 kg	1 sachet	7 sachets
6.0–6.4 kg	1 sachet	7 sachets
6.5–6.9 kg	1 sachet	7 sachets
7.0–7.4 kg	1 sachet	7 sachets
7.5–7.9 kg	1 sachet	7 sachets
8.0–8.4 kg	1 sachet	7 sachets
8.5–8.9 kg	1 sachet	7 sachets
9.0–9.4 kg	1 sachet	7 sachets
9.5–9.9 kg	1 sachet	7 sachets
10.0–10.4 kg	1 sachet	7 sachets
10.5–10.9 kg	1 sachet	7 sachets
11.0–11.4 kg	1.5 sachets	11 sachets
11.5–11.9 kg	1.5 sachets	11 sachets
12.0–12.4 kg	1.5 sachets	11 sachets
12.5–12.9 kg	1.5 sachets	11 sachets
13.0–13.4 kg	1.5 sachets	11 sachets
13.5–13.9 kg	1.5 sachets	11 sachets
14.0–14.4 kg	1.5 sachets	11 sachets
14.5–14.9 kg	2 sachets	14 sachets
15.0–15.4 kg	2 sachets	14 sachets
15.5–15.9 kg	2 sachets	14 sachets

Table A35.4. RUSF/RUTF sachets to supplement 60% of total daily energy requirements

Weight of child	RUSF/RUTF per day	RUSF/RUTF per week
3.0–3.4 kg	0.5 sachet	4 sachets
3.5–3.9 kg	0.5 sachet	4 sachets
4.0–4.4 kg	0.5 sachet	4 sachets
4.5–4.9 kg	0.5 sachet	4 sachets
5.0–5.4 kg	1 sachet	7 sachets
5.5–5.9 kg	1 sachet	7 sachets
6.0–6.4 kg	1 sachet	7 sachets
6.5–6.9 kg	1 sachet	7 sachets
7.0–7.4 kg	1 sachet	7 sachets
7.5–7.9 kg	1 sachet	7 sachets
8.0–8.4 kg	1 sachet	7 sachets
8.5–8.9 kg	1 sachet	7 sachets
9.0–9.4 kg	1.5 sachets	11 sachets
9.5–9.9 kg	1.5 sachets	11 sachets
10.0–10.4 kg	1.5 sachets	11 sachets
10.5–10.9 kg	1.5 sachets	11 sachets
11.0–11.4 kg	1.5 sachets	11 sachets
11.5–11.9 kg	1.5 sachets	11 sachets
12.0–12.4 kg	2 sachets	14 sachets
12.5–12.9 kg	2 sachets	14 sachets
13.0–13.4 kg	2 sachets	14 sachets
13.5–13.9 kg	2 sachets	14 sachets
14.0–14.4 kg	2 sachets	14 sachets
14.5–14.9 kg	2 sachets	14 sachets
15.0–15.4 kg	2 sachets	14 sachets
15.5–15.9 kg	2 sachets	14 sachets

Improved fortified blended foods

Table A35.5. Amount of Super Cereal Plus to supplement 40% of energy requirements

Weight of child	Super Cereal Plus per day	Super Cereal Plus per month
3.0–3.4 kg	40 g	1 packet
3.5–3.9 kg	45 g	1 packet
4.0–4.4 kg	50 g	1 packet
4.5–4.9 kg	55 g	1 packet
5.0–5.4 kg	60 g	1 packet
5.5–5.9 kg	65 g	1 packet
6.0–6.4 kg	70 g	1 packet
6.5–6.9 kg	80 g	2 packets
7.0–7.4 kg	85 g	2 packets
7.5–7.9 kg	90 g	2 packets
8.0–8.4 kg	95 g	2 packets
8.5–8.9 kg	11 g	2 packets
9.0–9.4 kg	105 g	2 packets
9.5–9.9 kg	110 g	2 packets
10.0–10.4 kg	120 g	2 packets
10.5–10.9 kg	125 g	3 packets
11.0–11.4 kg	130 g	3 packets
11.5–11.9 kg	135 g	3 packets
12.0–12.4 kg	140 g	3 packets
12.5–12.9 kg	145 g	3 packets
13.0–13.4 kg	150 g	3 packets
13.5–13.9 kg	160 g	3 packets
14.0–14.4 kg	165 g	3 packets
14.5–14.9 kg	170 g	3 packets
15.0–15.4 kg	175 g	4 packets
15.5–15.9 kg	180 g	4 packets

Table A35.6. Amount of Super Cereal Plus to supplement 50% of energy requirements

Weight of child	Super Cereal Plus per day	Super Cereal Plus per month
3.0–3.4 kg	45 g	1 packet
3.5–3.9 kg	55 g	1 packet
4.0–4.4 kg	60 g	1 packet
4.5–4.9 kg	70 g	1 packet
5.0–5.4 kg	75 g	2 packets
5.5–5.9 kg	80 g	2 packets
6.0–6.4 kg	90 g	2 packets
6.5–6.9 kg	95 g	2 packets
7.0–7.4 kg	105 g	2 packets
7.5–7.9 kg	110 g	2 packets
8.0–8.4 kg	120 g	2 packets
8.5–8.9 kg	125 g	3 packets
9.0–9.4 kg	130 g	3 packets
9.5–9.9 kg	140 g	3 packets
10.0–10.4 kg	140 g	3 packets
10.5–10.9 kg	155 g	3 packets
11.0–11.4 kg	160 g	3 packets
11.5–11.9 kg	170 g	3 packets
12.0–12.4 kg	175 g	4 packets
12.5–12.9 kg	185 g	4 packets
13.0–13.4 kg	190 g	4 packets
13.5–13.9 kg	200 g	4 packets
14.0–14.4 kg	205 g	4 packets
14.5–14.9 kg	210 g	4 packets
15.0–15.4 kg	220 g	4 packets
15.5–15.9 kg	225 g	5 packets

Table A35.7. Amount of Super Cereal Plus to supplement 60% of energy requirements

Weight of child	Super Cereal Plus per day	Super Cereal Plus per month
3.0–3.4 kg	55 g	1 packet
3.5–3.9 kg	65 g	1 packet
4.0–4.4 kg	70 g	1 packet
4.5–4.9 kg	80 g	2 packets
5.0–5.4 kg	90 g	2 packets
5.5–5.9 kg	100 g	2 packets
6.0–6.4 kg	110 g	2 packets
6.5–6.9 kg	115 g	2 packets
7.0–7.4 kg	125 g	3 packets
7.5–7.9 kg	135 g	3 packets
8.0–8.4 kg	140 g	3 packets
8.5–8.9 kg	150 g	3 packets
9.0–9.4 kg	160 g	3 packets
9.5–9.9 kg	170 g	3 packets
10.0–10.4 kg	175 g	4 packets
10.5–10.9 kg	185 g	4 packets
11.0–11.4 kg	195 g	4 packets
11.5–11.9 kg	200 g	4 packets
12.0–12.4 kg	210 g	4 packets
12.5–12.9 kg	220 g	4 packets
13.0–13.4 kg	230 g	5 packets
13.5–13.9 kg	235 g	5 packets
14.0–14.4 kg	245 g	5 packets
14.5–14.9 kg	255 g	5 packets
15.0–15.4 kg	260 g	5 packets
15.5–15.9 kg	270 g	5 packets

Annex 36

Children aged 6–59 months with moderate acute malnutrition (MAM): checklist of actions to take in outpatient care

Table A36.1. Actions to take in outpatient care for children aged 6–59 months with MAM based on clinical and nutritional status

Clinical and nutritional status compared with last visit	Actions
Improving: • Caregiver reports improvement in child's overall condition • Clinical assessment shows stable or improved status • Sufficient weight increase (for this specific child)	Congratulate the caregiver on the care they are giving the child and encourage them to keep caring in the same way Carry out routine care as per the checklist in Annex 34
No change (no improvement or deterioration) – any of the following criteria (list not exhaustive): • Caregiver reports no obvious improvement in child's overall condition • Clinical assessment shows no improvement in overall status • Poor weight gain • No weight gain (weight same as previous visit)	Look for new or missed medical diagnoses, based on the review of systems carried out in the consultation: • If the child has had diarrhoea or vomiting since their last visit, there may be no improvement in weight due to dehydration and/or a reduction in appetite • Are there any new or recurring signs and symptoms indicating screening or rescreening for tuberculosis (TB) or testing or retesting for HIV? Arrange a home visit by the outreach or community health worker team to assess how the home environment (including the environmental health of the home) could be leading to lack of improvement, and try to propose realistic solutions to any problems found Consider whether the child needs referral to a specialist service for further investigations (e.g. surgery, isolation), and whether this is possible according to the context Consider checking whether this visit's weight measurements have been done correctly and are accurate – this is especially relevant if the child has been improving until this visit If the child is on Option A[a] and is improving clinically but weight gain is not within the target range for weight gain, continue with current management but consider increasing the frequency of visits to weekly until an improvement is seen; if there is no improvement, follow actions for "Deteriorated" below. Children on Option B or C[a] are likely to show greater weight gain than children on Option A due to receiving specially formulated foods (SFF) – there is therefore a lower threshold to refer a child on Option B or C for further investigations if they are clinically improving but there is no weight gain or weight gain is suboptimal There may be a psychosocial reason (e.g. child is not receiving SFF or it is being shared in the household), so a home visit may be useful Discuss with the caregiver regarding bringing the child back for earlier review (e.g. if visits are every 2 weeks, bring the child back after 5 days)

Clinical and nutritional status compared with last visit	Actions
Deteriorated – any of the following criteria (list not exhaustive): • Caregiver reports deterioration in child's overall condition • New or worsening medical problems • New or worsening appetite problems • Weight loss • Appearance or reappearance of oedema	Look for new or missed medical diagnoses, based on the review of systems carried out in the consultation: • If the child has had diarrhoea or vomiting since their last visit, there may be no improvement in weight due to dehydration and/or reduction in appetite • Are there new or recurring signs and symptoms indicating screening or rescreening for TB or testing or retesting for HIV? Deliver medical care if possible, or refer to appropriate health facility for in-depth investigation and further management If the child is on Option A and is improving clinically but there is weight loss (i.e. weight loss is the only criteria of deterioration), consider starting the child on SFF alongside enabling access to nutrient-dense home foods and monitor weekly to see whether there is an improvement; a home visit may also be useful

There are three nutritional management options for children with MAM:

Option A: enabling access to nutrient-dense foods to improve the quality of the child's diet, along with that of the family.

Option B: supplementation with SFF plus enabling access to nutrient-dense foods to improve the quality of the child's diet, along with that of the family.

Option C: supplementation with SFF plus provision of nutrient-dense foods for children with MAM and their families (in high-risk or humanitarian contexts).

Annex 37

Infants less than 6 months of age at risk of poor growth and development: checklist of minimum essential actions for each outpatient visit

Additional actions may be required according to national guidelines and context.

Table A37.1. Minimum essential actions to take at each outpatient visit for infants less than 6 months of age at risk of poor growth and development

Action	Details
Triage, looking for emergency signs	☐ Triage using the national system or emergency triage assessment and treatment (ETAT) ☐ Assess for emergency signs and medical complications that would need inpatient admission
Nutrition screening	**Enrolment visit:** ☐ weight ☐ weight-for-age *z*-score (WAZ) ☐ weight-for-length *z*-score (WLZ) ☐ mid-upper arm circumference (MUAC) ☐ check for nutritional oedema **Follow-up visits:** ☐ weight ☐ check for nutritional oedema **Mother:** ☐ MUAC
Nutrition assessment	☐ Review anthropometrics and feeding assessment **Breastfed infants:** ☐ breastfeeding assessment (in-depth at enrolment visit, can be more rapid at follow-up visits) **Non-breastfed infants:** ☐ investigate reasons why not breastfed ☐ assess possibility for mother expressing breastmilk, using a wet-nurse or relactation (if mother temporarily unavailable to breastfeed) ☐ replacement feeding assessment
Clinical assessment	☐ Take a full paediatric history and physical examination At the enrolment visit, a full previous medical, dietary, social and family history must be taken and acted on; at each follow-up visit, the clinician can ask whether anything has changed regarding these topics and look into any new complaints that have arisen

Action	Details
Nutritional management	**Breastfed infants:** ☐ deliver breastfeeding counselling and support focusing on issues that arise in the breastfeeding assessment **Non-breastfed infants:** ☐ support wet-nurse, as appropriate ☐ give guidance or put in place corrective measures for issues identified during replacement feeding assessment At the enrolment visit, a feeding assessment must be carried out and acted on; at each follow-up visit, the clinician can ask whether anything has changed regarding these topics and look into any new problems that have arisen
Medical management	**Enrolment visit:** ☐ provide routine medical management for infants less than 6 months of age with SAM: ☐ routine antibiotics ☐ check for eligible vaccinations and give if possible or refer to receive them ☐ screen for vitamin A deficiency – start treatment if deficiency observed and refer for inpatient assessment ☐ screen for HIV and TB according to clinical indications and national protocols ☐ screen for malaria as per national protocols ☐ prescribe medicines for new medical complaints as per IMCI or other national guidance **Follow-up visits:** ☐ provide any routine medical management aspects that have been missed or not given yet (especially checking for new eligibility for vaccinations) ☐ prescribe medicines for new medical complaints as per IMCI or other national guidance
Maternal assessment and referral or treatment	**Nutrition:** ☐ review MUAC and refer to or start appropriate nutritional treatment according to national protocols **Mental health:** ☐ carry out maternal mental health assessment ☐ refer to or start appropriate mental health support and care **Physical health:** ☐ take basic history and physical examination ☐ refer to or start appropriate medical treatment Follow-up visits will focus more on monitoring progress rather than initiating treatment or support
Health education and counselling	☐ Health promotion group or individual sessions covering important health messaging and issues relevant for the mother/caregiver–infant pair

Annex 38

Criteria for assessing progress of mothers and infants less than 6 months of age at risk of poor growth and development and actions

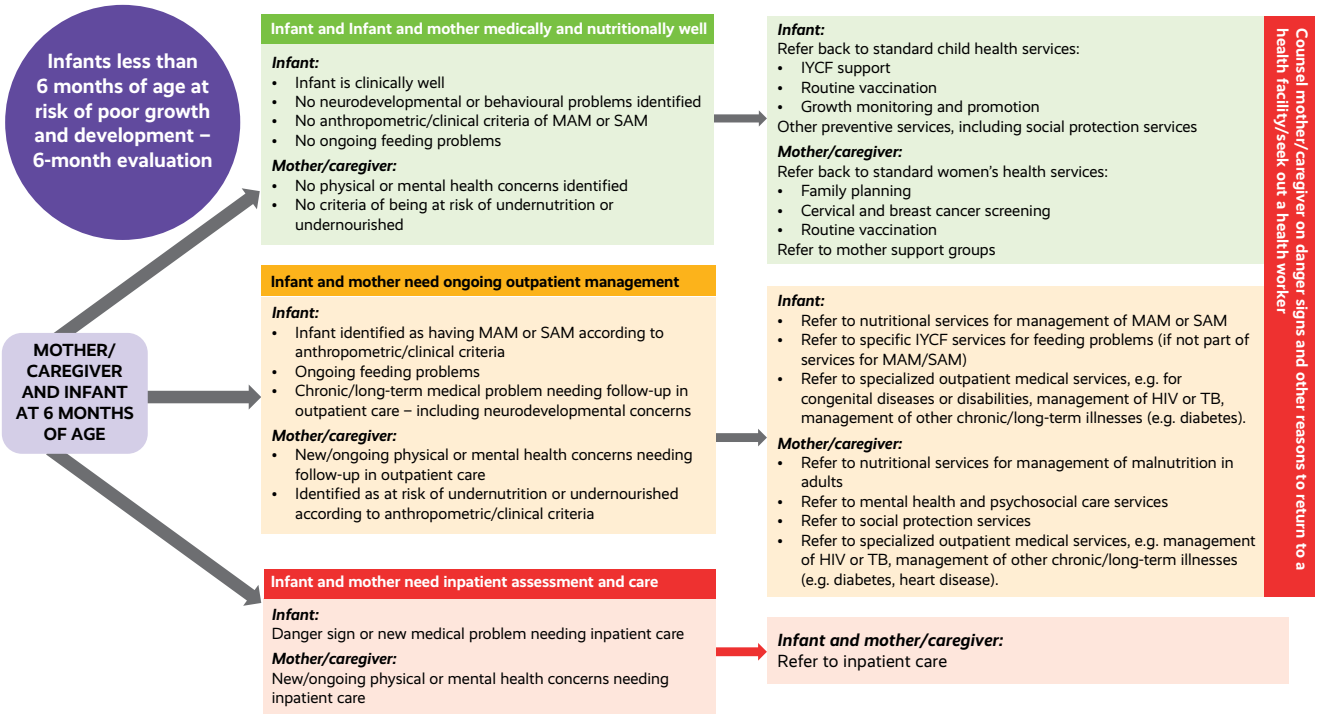
Table A38.1 Example checklist of criteria and actions to take in outpatient care for infants less than 6 months of age at risk of poor growth and development

Criteria: clinical and nutritional status compared with last visit	Actions
Improving: • Mother/caregiver reports improvement in infant's overall condition • Clinical assessment shows stable or improved status • Weight increasing	☐ Check weight gain is approximately sufficient; if there is not sufficient weight gain, follow the actions for "No change" below ☐ Congratulate the mother/caregiver on the care they are giving the infant and encourage them to keep caring in the same way ☐ Carry out routine care as per the checklist in Annex 37
No change (no improvement or deterioration) – any of the following criteria (list not exhaustive): • Mother/caregiver reports no obvious improvement in the infant's overall condition • Clinical assessment shows no improvement in overall status • Insufficient weight gain • No weight gain (weight same as last visit)	☐ Maintain a low threshold to refer infants less than 6 months of age to inpatient care, because they can deteriorate quickly and cannot be treated in the same way as children aged 6–59 months ☐ More intensive breastfeeding support may be needed – referral to inpatient care may be appropriate ☐ Consider checking whether this visit's weight measurements have been done correctly and are accurate (this is especially relevant if the infant has been improving until this visit) ☐ Although there is no gold standard for weight gain in outpatient care, use guidance to see whether weight gain is sufficient ☐ Look for acute medical causes – for example, if the infant has had diarrhoea or vomiting since the last visit, there may be no improvement in weight due to dehydration and/or reduction in appetite ☐ Look for feeding difficulties, including new difficulties and ongoing difficulties that are not responding to outpatient support ☐ Ensure the infant has been tested for HIV, and screen or rescreen for tuberculosis ☐ Arrange a home visit by the outreach or community health worker team to assess how the home environment (including the environmental health of the home) could be leading to the lack of improvement, and try to propose realistic solutions to any problems found ☐ Refer to inpatient care if the infant meets the referral criteria, or consider a brief admission for more in-depth feeding and medical assessments and intensive treatment and support ☐ Consider whether the infant needs referral to a specialist service for further investigations (e.g. surgery, isolation), and whether this is possible based on the context ☐ Discuss with the mother/caregiver regarding bringing the infant back for earlier review in 2–3 days rather than waiting until the next visit in 7 days; if poor or no weight gain is seen at the next visit in 2–3 days despite all these actions, refer to inpatient care for further review

Criteria: clinical and nutritional status compared with last visit	Actions
Deteriorated – any of the following criteria (list not exhaustive): • Mother/caregiver reports a deterioration in the infant's overall condition • New or worsening medical problems • New or worsening appetite or feeding problems • New oedema • Weight loss	If objectively observed in a consultation or the mother/caregiver reports deterioration in the infant's overall condition, carry out the following actions: • if there has been weight loss, check the measurements again; if correct, refer to inpatient care • if there is a new medical complication that requires inpatient care, refer to inpatient care • if there is new oedema, refer to inpatient care • if there is new anorexia (reported by the mother/caregiver and observed on feeding assessment), refer to inpatient care • if there is a feeding problem that cannot be managed in outpatient care, refer to inpatient care

Annex 39

Infants less than 6 months of age at risk of poor growth and development: decision-making tree for actions based on the 6-month evaluation



IYCF, infant and young child feeding; MAM, moderate acute malnutrition; SAM, severe acute malnutrition; TB, tuberculosis.

Annex 40

Methodology

The implementation guidance has been developed by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) in alignment with the 2023 WHO *Guideline on the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children under 5 years* (*https://iris.who.int/handle/10665/376075*), with the aim of expanding its audience to policy-makers, health workers and programme managers on how to implement these recommendations and good practice statements and supporting country-level adaptation if applicable.

The guideline development process involved 32 three-hour virtual Guideline Development Group (GDG) meetings and eight days of in-person/hybrid meetings to develop 21 recommendations (14 new and 7 updated) and 12 good practice statements. It supersedes the 2013 WHO *Guideline: updates on the management of severe acute malnutrition in infants and children*, although many past recommendations have been carried forward. Within the GDG meetings, WHO facilitated extensive discussion and deliberations around the remarks that accompany recommendations, many of which are related to operational/implementation issues and with a focus on how to ensure equitable implementation of recommendations.

This implementation guidance builds on the recommendations and corresponding remarks that were formulated by the GDG, which was a group of 27 experts with a range of technical skills, diverse perspectives, wide geographical representation and gender balance. WHO and UNICEF has led on the writing of the implementation guidance based on the guideline, other standing recommendations and updated training tools. Relevant and current WHO and UNICEF resources have been referenced to support the messages in the implementation guidance, including systematic reviews of intervention effectiveness, qualitative evidence syntheses focusing on equity, acceptability and feasibility, and systematic reviews of economic evidence including resource use and cost-effectiveness. Specifically, the implementation guidance is aligned with, and makes reference to, core guidance documents from WHO and UNICEF and additional narrative reviews.

Following the release of the guideline, the UNICEF/WHO Technical Advisory Group (TAG) on Wasting and Nutritional Oedema (Acute Malnutrition) (*https://www.who.int/groups/unicef-who-technical-advisory-group-on-wasting-and-nutritional-oedema-(acute-malnutrition)/members-and-secretariat*) has been established with specific functions around production of operational guidance as outlined in the terms of reference:

- identification of operational guidance gaps in the prevention and management of wasting and nutritional oedema (acute malnutrition) in infants and children;
- contribute to the prioritization of the workplan for producing operational guidance as identified above;
- timely review and contribution (where appropriate) to relevant WHO/UNICEF-led technical product development/update (e.g. operational guidance, research agenda).

These technical experts have served in their personal capacities to represent the broad range of disciplines relevant to wasting and nutritional oedema (acute malnutrition). In the selection of the experts, consideration was given to attaining an adequate distribution of technical expertise, geographical representation and gender balance, as was the case with the GDG. All external experts submitted to WHO a declaration of interest disclosing potential conflicts of interest that might affect, or might reasonably be perceived to affect, their objectivity and independence in relation to the subject matter of this guidance. WHO reviewed each of the declarations and concluded that none could give rise to a potential or reasonably perceived conflict of interest related to the subjects discussed at the meeting or covered by the guidance. WHO regional offices have been consulted regularly and consistently, and WHO country offices have contributed by sharing country-level perspectives, which has supported shaping the implementation guidance.

The TAG on Wasting and Nutritional Oedema (Acute Malnutrition) provided expert advice to review and refine each section of the draft implementation guidance. TAG members and observers joined a series of online working sessions to review the document, during which specific questions were posed by the UNICEF/WHO secretariat for the TAG to consider and advise on. These sessions aimed to review outstanding technical issues based on TAG feedback with a view to assisting UNICEF and WHO to finalize text in the implementation guide itself.

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