Pediatrics - Topic 10 - Provide nutritional support, assessment and monitoring for common nutritional problems

Acute Malnutrition

- Acute malnutrition includes wasting and nutritional edema and can develop rapidly during illness or inadequate food intake.

Definitions and Classification

Wasting and Stunting

- Stunting reflects low height-for-age and is a different indicator, although the same child may be both stunted and wasted.

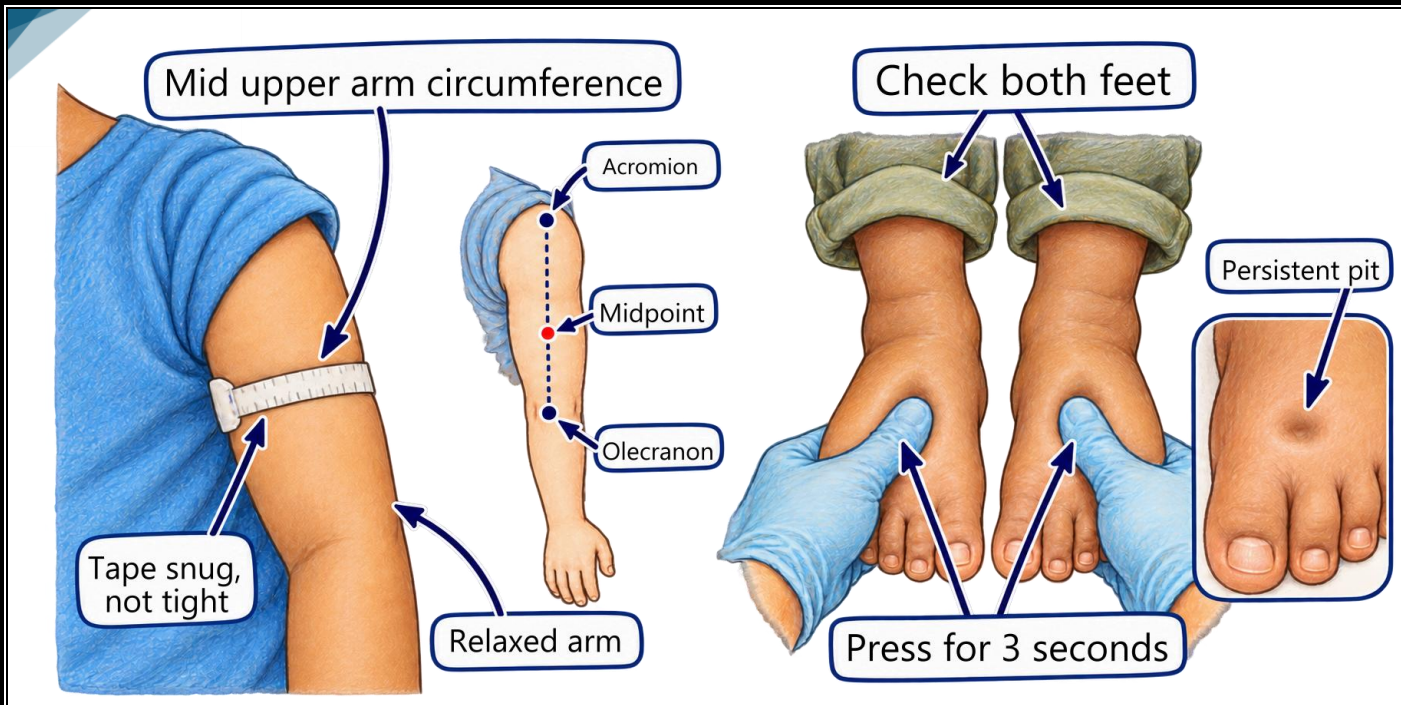
Severe Criteria and Their Interpretation

- For children aged **6–59 months**, severe acute malnutrition is identified by severe wasting, a very low mid upper arm circumference or bilateral nutritional pitting edema.

Classification at 6–59 months	Anthropometric criterion	Edema
Severe wasting or SAM	Weight-for-length/height below −3 z scores OR MUAC below 115 mm.	Bilateral nutritional pitting edema is independently a severe criterion.
Moderate wasting or MAM	Weight-for-length/height from −3 to below −2 z scores OR MUAC 115 to below 125 mm.	Nutritional edema is absent.

- A child only needs to meet one severe criterion to require a full assessment for severe acute malnutrition.
- The fixed mid upper arm circumference thresholds for 6–59 months must not be applied indiscriminately to younger infants or older children.
- A child with edema needs evaluation for nutritional and non-nutritional causes, including renal, cardiac and hepatic disease.

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Mid upper arm circumference and bilateral pitting edema are important parts of nutritional assessment; edema still requires assessment of its cause

Levels of Causation

1. Immediate Causes

- Inadequate intake and infection reinforce each other because illness reduces appetite while malnutrition impairs immune defence.
- Poor breastfeeding, delayed or low-quality complementary feeding and repeated diarrhea are common contributors.
- Malabsorption, tuberculosis, HIV, congenital disease and disability can increase risk or delay recovery.

2. Underlying Conditions

- Food insecurity, unsafe water, poor sanitation and limited access to care can make appropriate feeding difficult.
- Caregiver illness, depression, lack of support and harmful feeding restrictions may contribute.
- Assessment should identify these barriers without assuming neglect from the child's appearance alone.

Marasmus and Oedematous Malnutrition

1. Marasmus

- Marked wasting of fat and muscle is present.
- Weight is very low for length or height.
- The child may appear very thin with loose skin.

2. Kwashiorkor or Oedematous Malnutrition

- Bilateral nutritional edema is present.

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- Fluid retention may conceal the degree of tissue loss.
- Skin or hair changes, irritability and fatty liver may occur.

Clinical Phenotypes at a Glance

Feature	Marasmus	Kwashiorkor or edematous malnutrition
Main finding	Marked wasting of fat and muscle is present.	Bilateral nutritional edema is present.
Measured weight	Weight is very low for length or height.	Fluid retention may conceal the degree of tissue loss.
Associated findings	The child may appear very thin with loose skin.	Skin or hair changes, irritability and fatty liver may occur.

- Marasmic kwashiorkor combines marked wasting with nutritional edema.
- These traditional names describe phenotypes; current treatment decisions use wasting, edema, appetite and medical complications.

Clinical Findings and Physiological Risk

- Severe wasting causes loss of muscle and fat, loose skin, reduced activity and poor growth.
- Nutritional edema usually begins in both feet and may extend upward as severity increases.
- Skin changes, sparse hair, hepatomegaly and irritability may occur in edematous malnutrition.
- Hypoglycemia, hypothermia, infection, dehydration and electrolyte disturbances can be present with few obvious signs.
- Severely malnourished children may have serious infection without a high fever or a strong inflammatory response.
- Reduced cardiac and renal reserve increases the danger of fluid overload and inappropriate rapid feeding.

Grading Nutritional Edema

- Mild edema affects both feet or ankles, moderate edema extends to the legs and may involve the hands, and severe edema is generalised and may include the face.
- Press gently over both feet for several seconds to look for persistent pits and document the distribution.
- Severe generalised edema is an inpatient-care indication even when the child appears willing to eat.

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Assessment and Choice of Care Setting

Initial Assessment

1. Triage for Immediate Danger

- Assess airway, breathing, circulation, consciousness, temperature and glucose before completing a detailed nutrition history.
- Urgently manage or refer shock, severe respiratory distress, convulsions, lethargy or inability to feed.
- Look for severe dehydration, significant anemia, extensive skin infection and other acute illness.

2. Confirm Nutritional Status

- Measure weight and length or height accurately and plot the relevant WHO index.
- Measure mid upper arm circumference correctly and examine both feet for pitting edema.
- Observe appetite through the programme's standardised appetite assessment when age and clinical status permit it.
- Assess feeding, immunization, development, tuberculosis contact and the social conditions that affect recovery.

Hospital or Community Management

- A child with severe wasting or nutritional edema needs inpatient care when there is a danger sign, an acute medical complication, severe generalized edema or poor appetite.
- A clinically stable child with good appetite and no admission criterion may be eligible for structured outpatient care with reliable follow-up.
- Failure to improve, recurrent severe malnutrition, important chronic disease or difficult social circumstances requires a more detailed assessment.
- Infants younger than 6 months need a separate mother–infant assessment focused on feeding effectiveness, growth, medical illness and maternal wellbeing.

Management of Severe Acute Malnutrition

Immediate Stabilisation Priorities

1. Prevent or Treat Hypoglycemia and Hypothermia

- Check glucose promptly and provide urgent glucose treatment when needed, followed by appropriate frequent feeding.
- If the child cannot safely take oral feeds, use the emergency route specified by the pediatric protocol while protecting the airway.
- Keep the child warm, avoid unnecessary exposure and monitor temperature closely.

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