Webinar series for Latin America and the Caribbean

Nutrition in emergencies in the context of COVID-19 and migration

10th March Prevention of malnutrition in pregnant and breastfeeding women

17th March Prevention of malnutrition in children under five – Infant and young child feeding and supplementation

24th March Nutrition care for children under five with acute malnutrition

Spanish (9 to 10:30 am Panama time)

English (11 to 12:30 Panama time)

Credit: UNICEF/Santiago Arcos, 2019

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Global Nutrition Cluster Technical Alliance

Nutrition care for children under five with acute malnutrition

Webinar series for Latin Amercia and the Caribbean

Nutrition in emergencies in the context of COVID-19 and migration

March24th 2021

Pre-webinar evaluation

Presentation content

1. Acute malnutrition - Wasting
   - What it is
   - Why it is important to identify
   - Which factors cause it
   - How to determine if a child has acute malnutrition

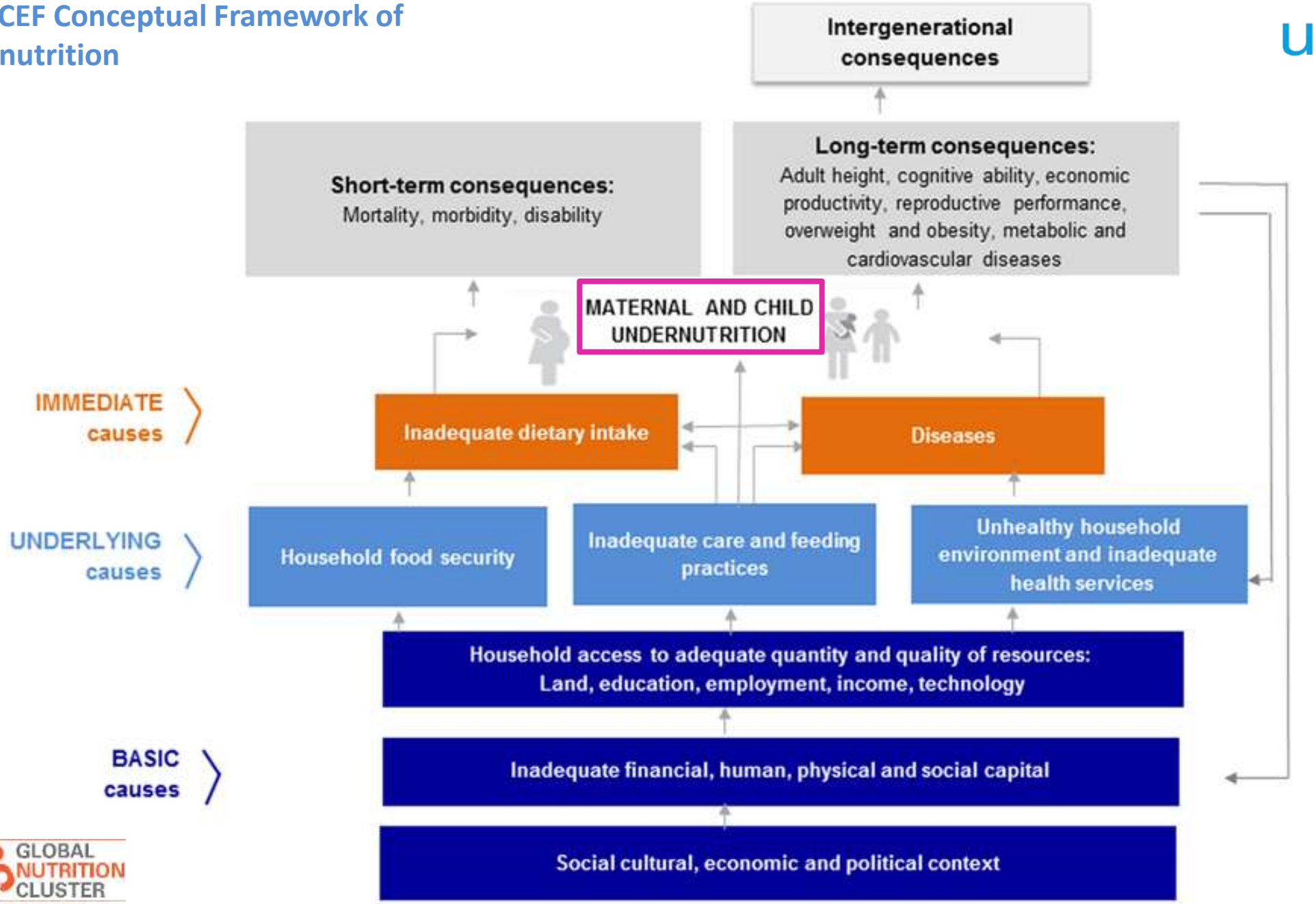
2. Basics of community management of acute malnutrition

3. Simplified approaches to community management of acute malnutrition in the COVID-19 context

4. Resources

1. Acute malnutrition - Wasting

UNICEF Conceptual Framework of Malnutrition



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Source: Adaptaded from UNICEF (1990)

Acute malnutrition

What is it?

- **Acute malnutrition** is a form of undernutrition caused by:
  → a decrease in food consumption and/or
  → illness

↓ results in

Sudden weight loss or oedema (fluid retention)

- **Acute malnutrition** can be **moderate** or **severe**

Lenters et al., 2016

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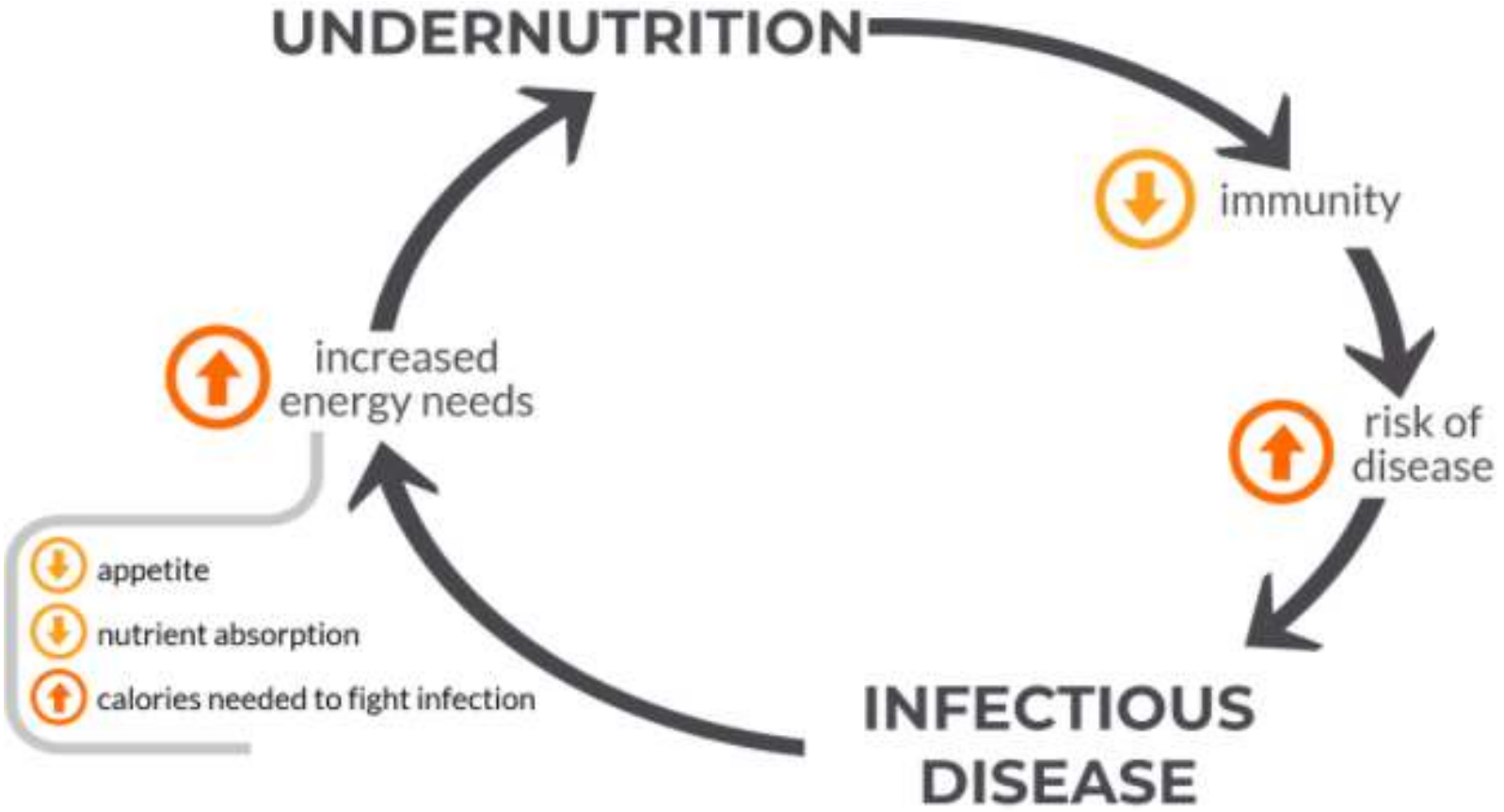
Increased susceptibility to infections and severity of illness

Lenters et al., 2016

Acute malnutrition

What is it?



Lenters et al., 2016

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Sudden weight loss or oedema (fluid retention).

- **Acute malnutrition** can be **moderate** or **severe**

↓

Increased susceptibility to infections and severity of illness

Increased risk of death due to infectious diseases

Lenters et al., 2016

Acute malnutrition

Why is important to identify it?

Probability of death due to infectious diseases according to the degree of acute malnutrition

Weight for height	All deaths	Death due to pneumonia	Death due to diarrhoea	Deaths due to other infections
Severe acute malnutrition (< - 3 SD)	**11.6**	**9.7**	**12.3**	**11.2**
Moderate acute malnutrition (-3 a <-2 SD)	**3.4**	**4.7**	**3.4**	**2.7**
Normal nutritional status (-2 a <-1 SD)	1.6	1.9	1.6	1.7
Normal nutritional status (> -1 SD)	1	1	1	1

Black et al., 2013

Acute malnutrition

Which factors cause it?

- Inadequate dietary intake
- Inappropriate feeding
- Fetal growth restriction
- Inadequate sanitation
- Lack of parental education
- Family size
- Incomplete vaccination
- Poverty
- Economic, political, and environmental instability
- Emergency situations

Lenters et al., 2016

Acute malnutrition

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- Inadequate dietary intake
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- Family size
- Incomplete vaccination
- Poverty
- Economic, political, and environmental instability
- <u>Emergency situations</u>

COVID-19 context

Worsening situation

- Loss of employment and income
- Reduced economic access to food
- Disruption of services leading to limited or no access to health services

Lenters et al., 2016

Acute malnutrition

How to determine if a child has acute malnutrition?

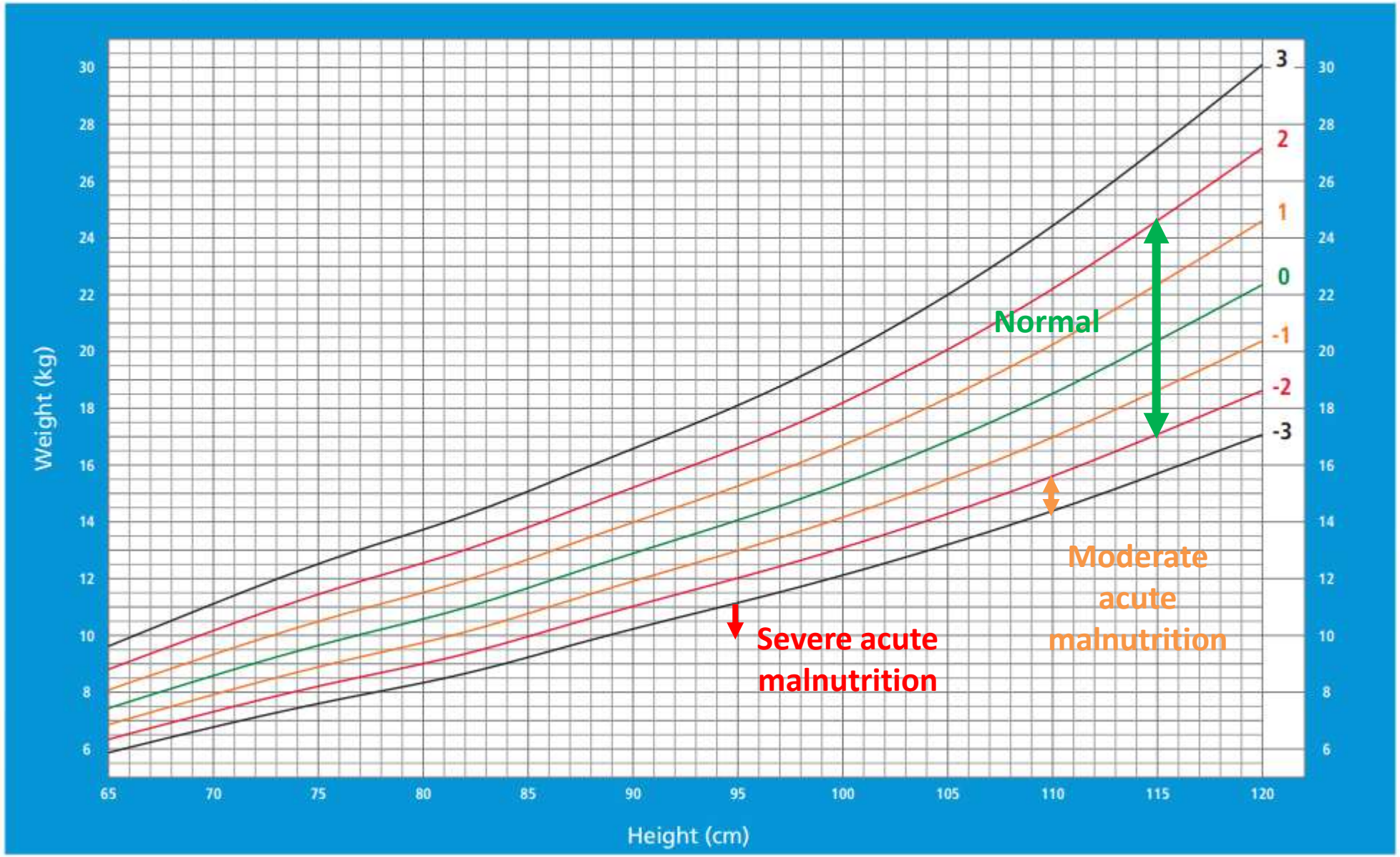
There are criteria to determine the cases of acute malnutrition

- Anthropometry (Weight/Height)
- Mid-upper arm circumference
- Oedema testing

Anthropometry (Weight/Height)

Nutritional status

- **Normal :**
  - 2 to 2 SD
- **Moderate acute malnutrition:**
  <-2 to -3 SD
- **Severe acute malnutrition:**
  < - 3 SD



unicef

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Acute malnutrition

How to determine if a child has acute malnutrition?

Anthropometry (Weight/Height)

- Digital scale
- Height board
- Trained and "standardized" staff
- Personal Protective Equipment

WHO

Ministerio de Salud y Protección Social, Colombia, 2017

GLOBAL NUTRITION CLUSTER
Technical Alliance

Acute malnutrition

How to determine if a child has acute malnutrition?

Anthropometry (Weight/Height)

COVID-19 context

Parameter	Assessment tool	Risk of transmission by contact (surface/people)	Recommended during COVID-19
Weight	Digital scale	• Digital scales are safe. • The scale allows a child's weight to be measured while being held by an adult, standing on the scale with shoes, with no need to touch. • Taring function is automatically initiated, without pressing any operational button.	**YES**
	Infant scale	The infant is undressed and placed on the surface, which may be contaminated.	NO

WHO and UNICEF, 2020

Acute malnutrition

How to determine if a child has acute malnutrition?

Anthropometry (Weight/Height)

COVID-19 context

Parameter	Assessment tool	Risk of transmission by contact (surface/people)	Recommended during COVID-19
Height	Height board	• Height is measured standing upright or lying down. • Child positioned flat on the board • Caregiver normally requested to help keep the child's head straight. • Child and mother highly in contact with the surface. Therefore, the height board should be disinfected after every use.	YES only if IPC protocols are in place and PPE available

WHO and UNICEF, 2020

Acute malnutrition

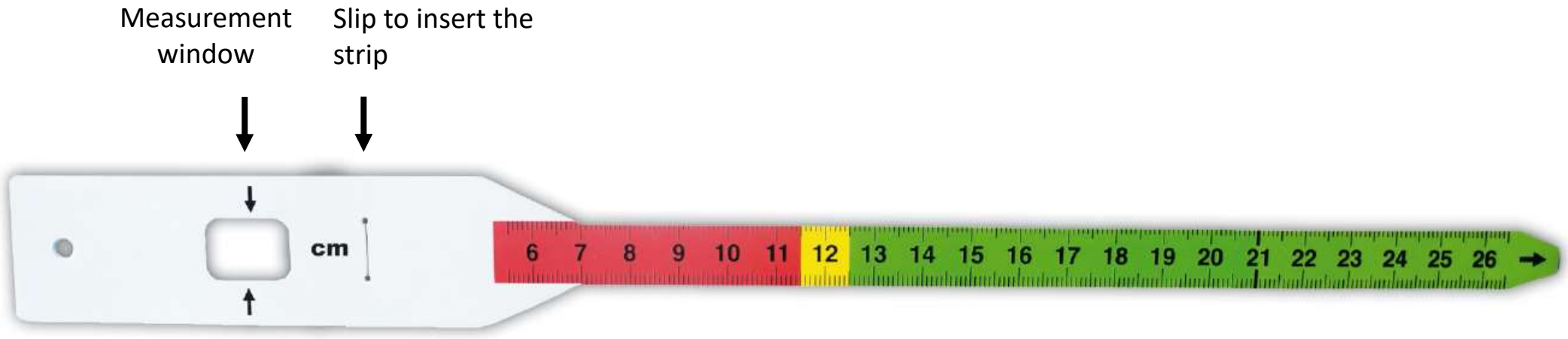
How to determine if a child has acute malnutrition?

Mid-upper arm circumference

MUAC measurement is an indicator for acute malnutrition in children.

The **MUAC strip** is a flexible measurement band which indicates millimeters (mm).

MUAC should only be used in children 6 to 59 months.



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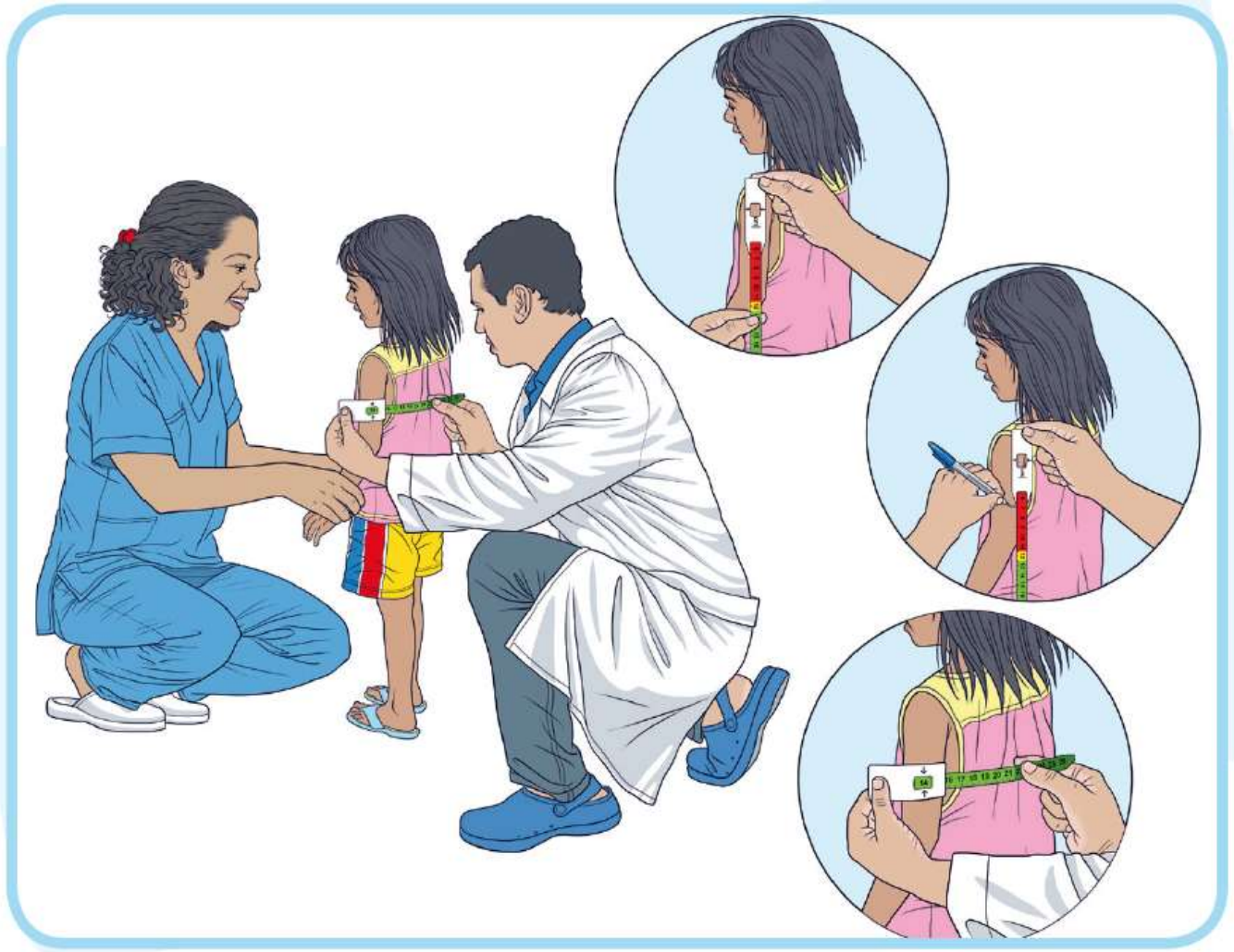
Acute malnutrition

How to determine if a child has acute malnutrition?

Mid-upper arm circumference

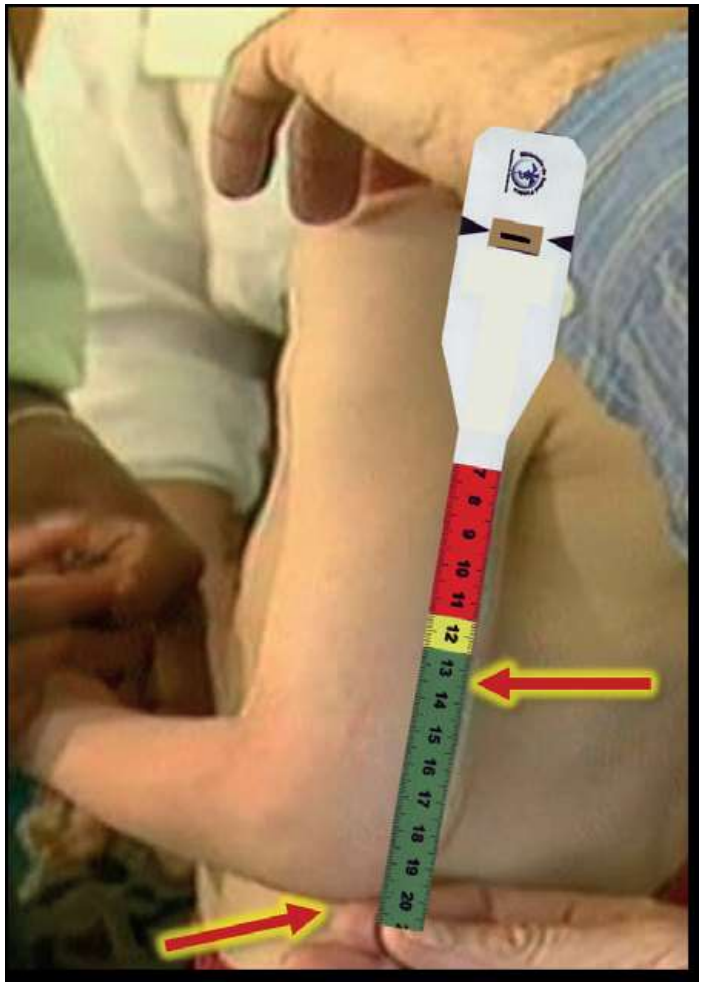


Ministerio de Salud y Protección Social, Colombia, 2017

Acute malnutrition

How to determine if a child has acute malnutrition?

Mid-upper arm circumference



GLOBAL NUTRITION CLUSTER
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Acute malnutrition

How to determine if a child has acute malnutrition?

Mid-upper arm circumference

No acute malnutrition

>125 mm

Moderate acute malnutrition

Entre 115 y <125 mm

Severe acute malnutrition

<115 mm

GLOBAL NUTRITION CLUSTER
Technical Alliance

Acute malnutrition

How to determine if a child has acute malnutrition?

Mid-upper arm circumference

" All studies that have examined the relationship between anthropometry and mortality in representative population samples have consistently showed that **MUAC is more sensitive at high specificity levels than Weight for Height Z-scores (WHZ) for identifying children at high risk of death**.

Children identified as SAM cases by low MUAC gain both weight and MUAC in response to treatment. **The widespread use of MUAC has brought enormous benefits in terms of the coverage and efficiency of programs.**

As a large high-risk group responding to treatment, children with low MUAC should be regarded as a public health priority independently of their WHZ."

CORRESPONDENCE Open Access

Low mid-upper arm circumference identifies children with a high risk of death who should be the priority target for treatment

André Briend[1,2*], José-Luis Alvarez[3], Nathalie Avril[4], Paluku Bahwere[5,6], Jeanette Bailey[7], James A. Berkley[8], Paul Binns[9], Nikki Blackwell[10], Nancy Dale[11], Hedwig Deconinck[12], Pascale Delchevalerie[13], Nicky Dent[14], Maureen Gallagher[15], Saul Guerrero[16], Kerstin Hanson[17], Marko Kerac[18], Mark Manary[19,20], Martha K. Mwangome[21], Mark Myatt[22], Kevin P. Q. Phelan[23], Silke Pietzsch[24], Núria Salse Ubach[25], Susan Shepherd[26], Saskia van der Kam[27], Antonio Vargas[28] and Sophie Whitney[29]

Abstract

Background: Severe acute malnutrition (SAM) is currently defined by the WHO as either a low mid-upper arm circumference (i.e. MUAC <115 mm), a low weight-for-height z-score (i.e. WHZ <− 3), or bilateral pitting oedema. MUAC and WHZ do not always identify the same children as having SAM. This has generated broad debate, as illustrated by the recent article by Gellerly & Golden (BMC Nutr. 2016;2:10).

Discussion: Regional variations in the proportion of children selected by each index seem mostly related to differences in body shape, including stuntedness. However, the practical implications of these variations in relation to nutritional status and also to outcome are not clear. All studies that have examined the relationship between anthropometry and mortality in representative population samples in Africa and in Asia have consistently showed that MUAC is more sensitive at high specificity levels than WHZ for identifying children at high risk of death. Children identified as SAM cases by low MUAC gain both weight and MUAC in response to treatment. The widespread use of MUAC has brought enormous benefits in terms of the coverage and efficiency of programs. As a large high-risk group responding to treatment, children with low MUAC should be regarded as a public health priority independently of their WHZ.

Conclusion: While a better understanding of the mechanism behind the discrepancy between MUAC and WHZ is desirable, research in this area should not delay the implementation of programs aiming at effectively reducing malnutrition-related deaths by prioritising the detection and treatment of children with low MUAC.

Keywords: Severe acute malnutrition, Mid-upper arm circumference, Weight-for-height, Mortality, Public health priority

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Full list of author information is available at the end of the article

Briend et al., 2016

Acute malnutrition

How to determine if a child has acute malnutrition?

Mid-upper arm circumference

COVID-19 context

Parameter	Assessment tool	Risk of transmission by contact (surface/people)	Recommended during COVID-19
MUAC	Tape to measure mid-upper arm circumference	• Requires short-term but direct physical contact between the child and the health worker, physical proximity between health worker and caregiver, and contact with a surface (the MUAC tape). • Can be used only if the MUAC tape can be disinfected after each use, or if a single-use MUAC tape is available, and if masks and gloves are available for health workers.	YES (MUAC tape must be disinfected after each use, or a single-use MUAC tape must be used for each child)

WHO and UNICEF, 2020

Acute malnutrition

How to determine if a child has acute malnutrition?

Oedema testing

PHOTO: UNICEF

What is oedema?

- Unusual large quantity of liquid which accumulate in the child's tissue.
- Tissues fill with liquid and look swollen.

How to evaluate oedema?

- With both thumbs, press on the upper part of both feed simultaneously for 3 seconds.
- The child has oedema if the dent remains in the child's foot when you take away the thumb.

Severe acute malnutrition

Acute malnutrition

How to determine if a child has acute malnutrition?

Oedema testing

COVID-19 context

Parameter	Assessment tool	Risk of transmission by contact (surface/people)	Recommended during COVID-19
Oedema	Physical assessment of the child's feet	• Requires short-term but direct physical contact between the child and the health worker and proximity with the mother. • The indicator is a sign of severe acute malnutrition and highly related to the risk of mortality. • Oedema can be measured only if masks and gloves and available for health workers.	YES only if IPC protocols are in place and PPE available) otherwise assessment can be carried out by caregivers under health workers supervision

WHO and UNICEF, 2020

Acute malnutrition

How to determine if a child has acute malnutrition?

Criteria to determine the cases of acute malnutrition

Anthropometry (Weight/Height)

- **Normal :**
  - 2 to 2 SD
- **Moderate acute malnutrition:**
  <-2 to -3 to SD
- **Severe acute malnutrition:**
  < - 3 SD

Mid-upper arm circumference

- **No acute malnutrition**
  >125 mm
- **Moderate acute malnutrition**
  Between 115 y <125 mm
- **Severe acute malnutrition**
  <115 mm

Oedema testing

Severe acute malnutrition

Acute malnutrition

Medical complications

Medical complication	Case definition
Anorexia, poor appetite[a]	Child is unable to drink or breastfeed; failed RUTF appetite test.
Intractable vomiting[a]	Child vomits after every oral intake.
High fever	Child has high body temperature, or axillary temperature > 38.5°C, rectal temperature > 39°C.
Hypothermia	Child has low body temperature, or axillary temperature < 35.0°C, rectal temperature < 35.5°C.
Lower respiratory tract infection	Child has a cough with difficult breathing, fast breathing (if child is age 2–12 months: 50 breaths per minute or more; if child is age 12 months to 5 years: 40 breaths per minute or more), or chest indrawing.
Severe anemia	Child has palmar pallor or unusual paleness of the skin (compare the color of the child's palm with your own palm and with the palms of other children).
Skin lesion	Child has broken skin, fissures, flaking of skin.
Unconsciousness[a]	Child does not respond to painful stimuli (for example, injection).
Lethargy, not alert[a]	Child is difficult to wake. Ask the mother if the child is drowsy, shows no interest in what is happening around him or her, does not look at the mother or watch your face when talking, is unusually sleepy.
Hypoglycemia	There are often no clinical signs of hypoglycemia. One sign that does occur in a child with SAM is eyelid retraction: child sleeps with eyes slightly open.
Convulsions[a]	During a convulsion, child's arms and legs stiffen because the muscles are contracting. Ask the mother if the child had convulsions during this current illness.
Severe dehydration	Child with SAM has a recent history of diarrhea, vomiting, high fever or sweating, and recent appearance of clinical signs of dehydration as reported by the caregiver.

Lenters et al., 2016

Acute malnutrition

Summary

Acute malnutrition **with complications**

W/H <-2 SD **OR**
Bilateral oedema **OR**
MUAC<115mm

Anorexia,Lower respiratory infection, severe dehydration, severe anaemia, Not alert

Severe acute malnutrition

without complications

W/H <-3 SD **OR**
MUAC<115mm

No oedema, appetite, clinically well, alert

Moderate acute malnutrition

without complications

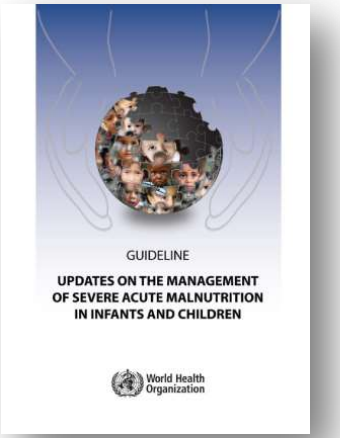
W/H<-3 to <-2 SD **OR**
MUAC: 115- 125mm

No oedema, appetite, clinically well, alert

2. Basics of community management of acute malnutrition

Basics of community management of acute malnutrition

- **Protocol** for the management acute malnutrition in children under 5
- **Trained staff** :
  - Diagnosis of acute malnutrition
  - Treatment until recovery
- Staff trained in **monitoring and follow-up of cases**
  - Record and follow-up of cases
  - Referral site
- **Supplies for acute malnutrition management**:
  - MUAC strips and/or anthropometry equipment for weight and height measurement
  - Nutrition supplies for treating acute malnutrition such as Ready-to-use-therapeutic food (RUTF)
- Referral system between different levels of the health system for complicated cases



Basics of community management of acute malnutrition


UNICEF República Dominicana

COVID-19 context

Infection prevention and control measures

- Hand hygiene
- Personal protection equipment
- Respiratory hygiene
- Cleaning and disinfecting equipment and surfaces
- Supply chain management

→

- Use medical (surgical) mask
- Wear eye protection (goggles) or facial protection (shield)
- Wear long sleeve and clean gown
- Use gloves

Basics of community management of acute malnutrition

Identification of cases

Anthropometry (Weight/Height)

- **Moderate acute malnutrition:**
  <-2 to - 3 SD
- **Severe acute malnutrition:**
  < - 3 SD

Mid-upper arm circumference

- **Moderate acute malnutrition**
  Between 115 and <125 mm
- **Severe acute malnutrition**
  <115 mm

Oedema testing

Severe acute malnutrition

AND all of the following:

- Appetite test positive
- No medical complications
- Child conscious and alert

Basics of community management of acute malnutrition

Identification of cases

Anthropometry (Weight/Height) OR **Mid-upper arm circumference** OR **Oedema testing**

- **Moderate acute malnutrition:** <-2 to - 3 SD
- **Severe acute malnutrition:** < - 3 SD

- **Moderate acute malnutrition** Between 115 and <125 mm
- **Severe acute malnutrition** <115 mm

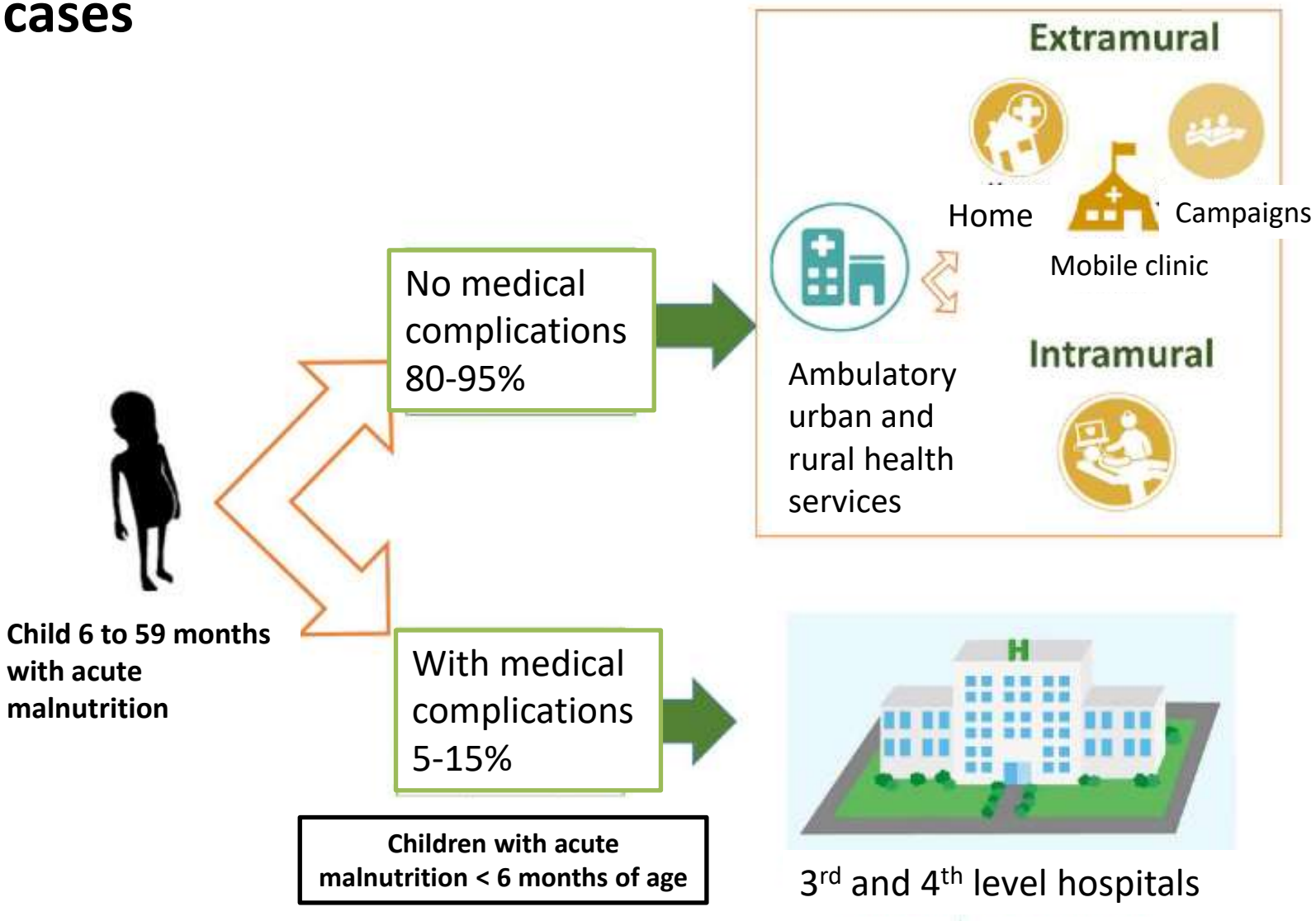
Severe acute malnutrition

AND all of the following:
- Appetite test positive
- No medical complications
- Child conscious and alert

These are independant criteria for admission to treatment of acute malnutrition

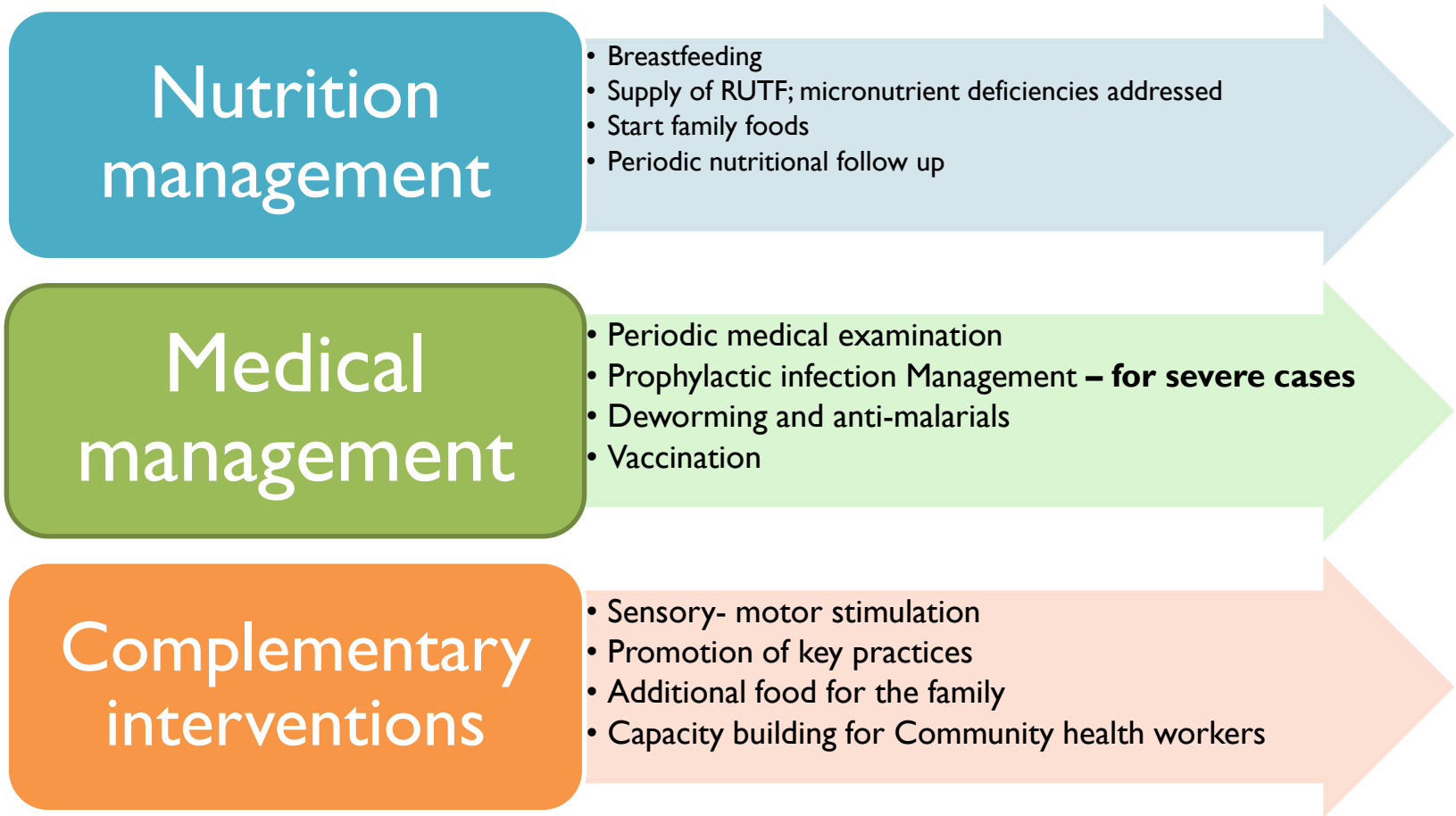
Basics of community management of acute malnutrition

Referral of cases



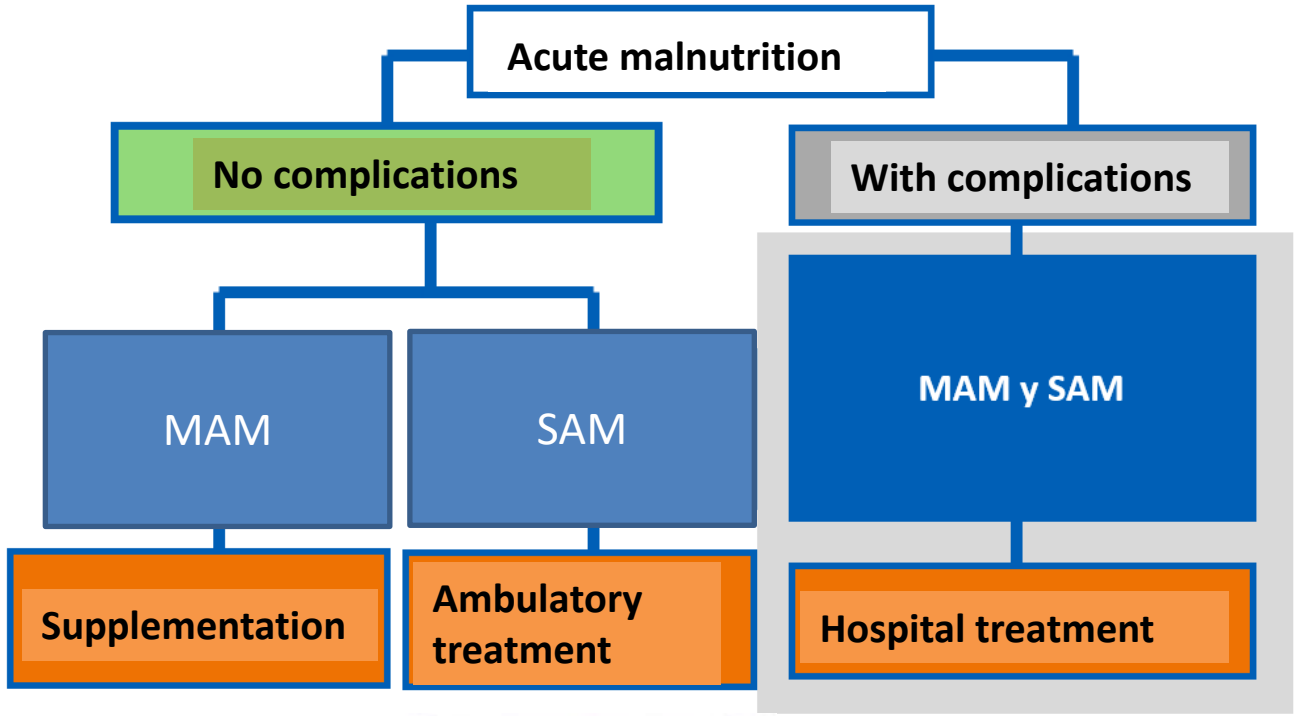
Basics of community management of acute malnutrition

Key elements of outpatient management



Basics of community management of acute malnutrition

Referral and treatment pre-COVID-19



Ready-to-use supplementary food

Ready-to-use therapeutic food

Therapeutic milk formula

Basics of community management of acute malnutrition

Outpatient treatment of severe acute malnutrition

- Ready-to-use specially formulated paste
- Provides high-quality protein, energy, and micronutrients
- More nutrient dense than available home foods
- 1 Sachet: 92g/ 500 Kcal
- Does not require preparation
- Very low moisture content
- Resistant to microbes
- Calculated based on the weight of the child.
- **Start with** 100 Kcal/kg/day **up to 200 Kcal/kg/day** according to the severity of the acute malnutrition.

Ready-to-Use Therapeutic Food

Basics of community management of acute malnutrition

Follow-up

- Review compliance with the Management plan
- Feeding recalls and evaluating family feeding practices
- Presence of illness in the last two weeks.
- Physical exam – detecting danger signs and signs of recovery
- Appetite test.
- Testing oedema.
- Measuring weight, height and MUAC.
- Medical and nutritional evaluation.

Actions

- Adjust RUTF and liquids.
- Strengthen family key practices competencies.

Alerts

- No positive evolution in 2 follow-up visits.
- Acute diarrhoea.
- Mother or caretaker have special need.

3. Simplified approaches to community management of acute malnutrition in the COVID-19 context

Simplified approaches to community management of acute malnutrition

Programatic adaptations to lower the risk of infection

What we are moving from	What we are moving to
MUAC screening conducted by Community Health Workers and other health center staff	**MUAC by Caregivers: caregivers are trained to screen their own children for malnutrition by measuring Mid-Upper Arm Circumference.[1,2]**
Current treatment models propose two different but very similar products to treat SAM (RUTF) and MAM (RUSF).	**Treating of wasted children, without complications, with the one product — RUTF in one harmoinised programme with one associated data collection mechanism.[3,4,5]**
Under current protocol RUTF dosage increases over the course of treatment and is based on weight.	**2 sachets/day for uncomplicated severe wasting and 1 sachet/day for uncomplicated moderate wasting as determined by MUAC or oedema status.[6,7]**
Current treatment protocol calls for weekly follow-up visits for children receiving treatment.	**Reducing the regularity of follow-up visits for wasted children admitted into treatment from weekly to bi-weekly or monthly.[8]**
Admissions criteria by MUAC and/or oedema and/or weight for height.	**Use of a single anthropometric criteria (<120mm or <125mm MUAC and/or oedema) to define and facilitate the enrollment and follow-up of children suffering from wasting and other forms of acute malnutrition in need of treatment.[9,10,11,12]**
Treatment of children with uncomplicated wasting takes place in a health facility.	**Enabling and empowering community health workers (CHWs) to treat uncomplicated wasting in the communities.[13,14,15,16]**

WHO and UNICEF, 2020

Simplified approaches to community management of acute malnutrition

Programatic adaptations to lower the risk of infection

Why Family MUAC?

- Caregivers to identify early signs of malnutrition in their children using a simple to use Mid-Upper Arm Circumference (MUAC) tape.
- Mothers (or other family members) can do this task as effectively as Community Health Workers (CHWs)
- Malnutrition detected earlier
- Less hospitalizations
- Potential to save money and valuable time for health workers.
- Support and empower the community.

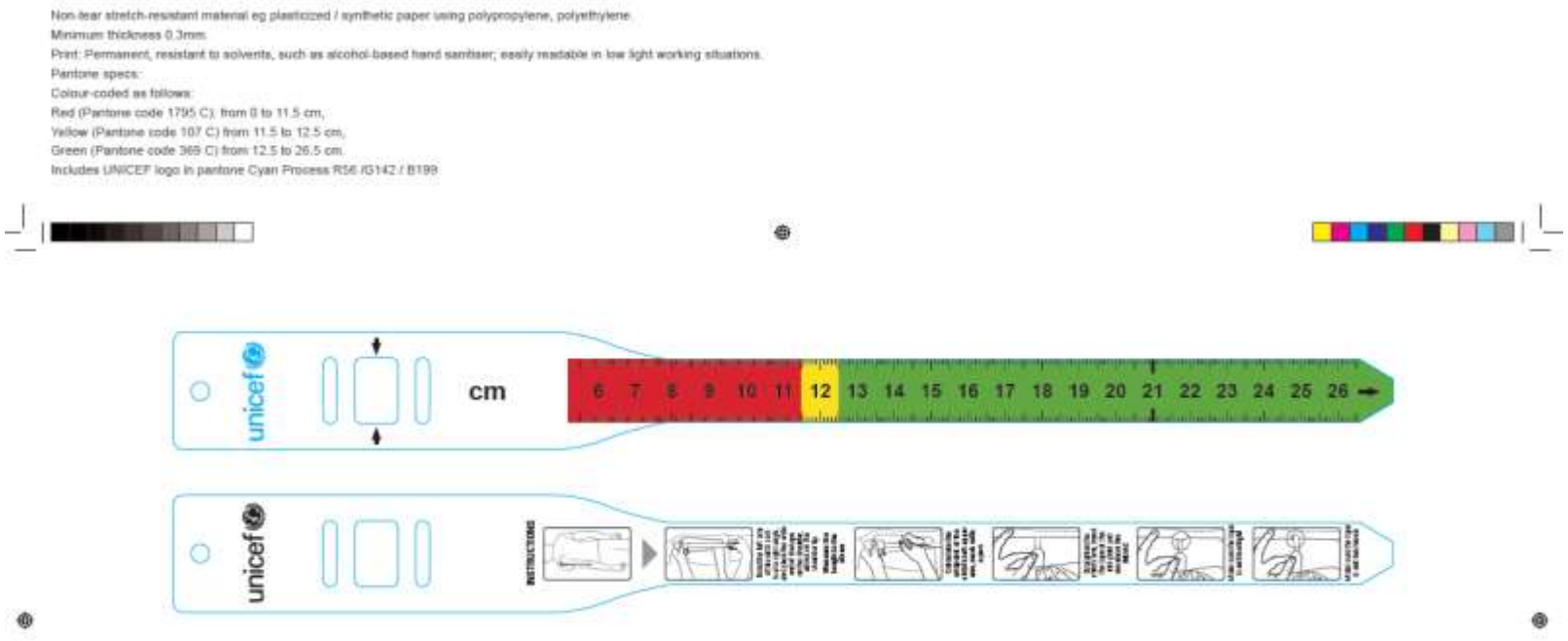
Simplified approaches to community management of acute malnutrition

Programatic adaptations to lower the risk of infection

Child MUAC tape design updated to make it easier for caregivers to use.

- New MUAC tape design specifically developed for use by caregivers:
  - double-sided
  - featuring user instructions on the reverse side to guide caregivers in monitoring their infants and children for acute malnutrition at home.

- MUAC Tape and print specifications available online and tapes can be printed by and procured from local print houses.



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Simplified approaches to community management of acute malnutrition

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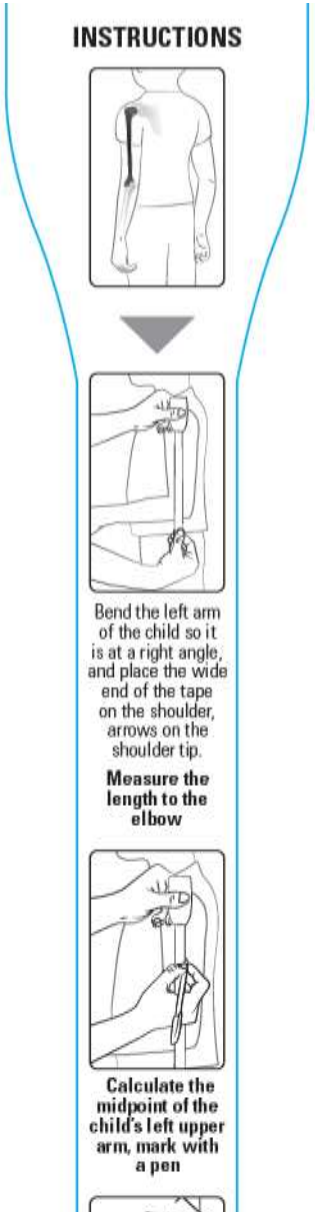

Simplified approaches to community management of acute malnutrition

Expected outcomes

Increase coverage
Increase early detection of children with acute malnutrition
Decrease defaulting amongst children enrolled in programs
Decrease cost per child cured
Improve continuum of treatment
Reduce opportunity costs for caregivers/population
Increase capacity of health staff on management of acute malnutrition
Increase integration of treatment into community health structures
Increase integration of management of wasting into health systems

Increase effectiveness and cost-effectiveness

Contribute to reducing mortality and improve child development at the population level

Simplified approaches to community management of acute malnutrition

Migration context

Borders (shelters)

Diagnosis
- Early detection of children under 5 with wasting (under twos in priority)
- Screening of Acute Malnutrition by the family

Admission/Discharge
- Empower community health workers to treat child wasting in the community
- Use of a single, easy to use criteria (MUAC) for admission and discharge from therapeutic treatment

Treatment
- Adoption of a single product (RUTF) for all children with wasting in need of therapeutic treatment
- Optimizing the amount of RUTF used for the treatment of child wasting
- Reduced visits to health facility during treatment

Mobile clinics

In transit

Border:
- Possibility to hand out MUAC strips to caregivers of children under 5 years
- Train caretakers to identify acute malnutrition with the MUAC strip

In host communitites

Diagnosis
- Early detection of children under 5 with wasting (under twos in priority)
- Screening of Acute Malnutrition by the family

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Ambulatory health services

Simplified approaches to community management of acute malnutrition

Migration context

Borders (shelters)

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Mobile clinics

In transit

Border:
- Possibility to hand out MUAC strips to caregivers of children under 5 years
- Train caretakers to identify acute malnutrition with the MUAC strip

Review existing national protocol

Develop simplified protocol if no national protocol available

In host communitites

Diagnosis
- Early detection of children under 5 with wasting (under twos in priority)
- Screening of Acute Malnutrition by the family

Admission/Discharge
- Empower community health workers to treat child wasting in the community
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- Adoption of a single product (RUTF) for all children with wasting in need of therapeutic treatment
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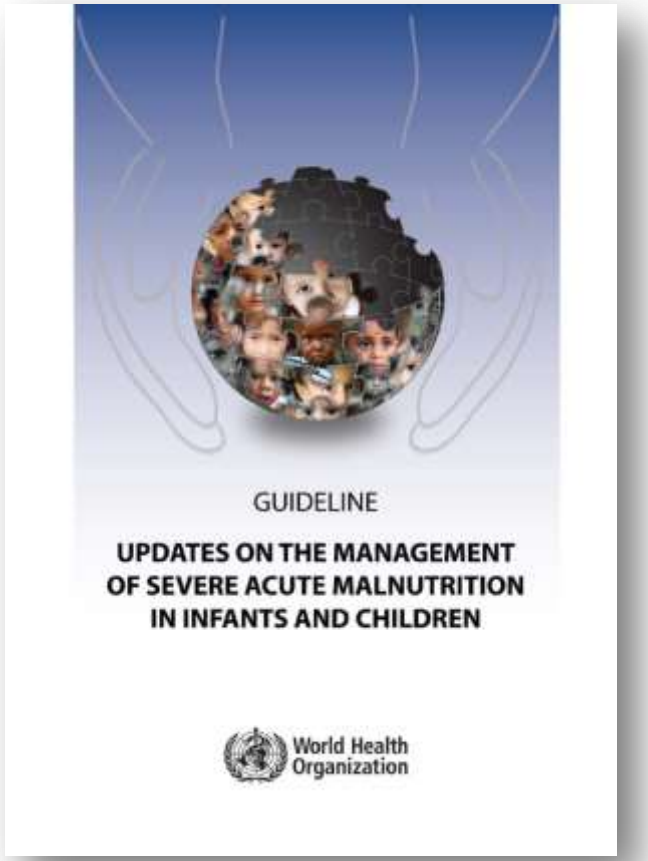
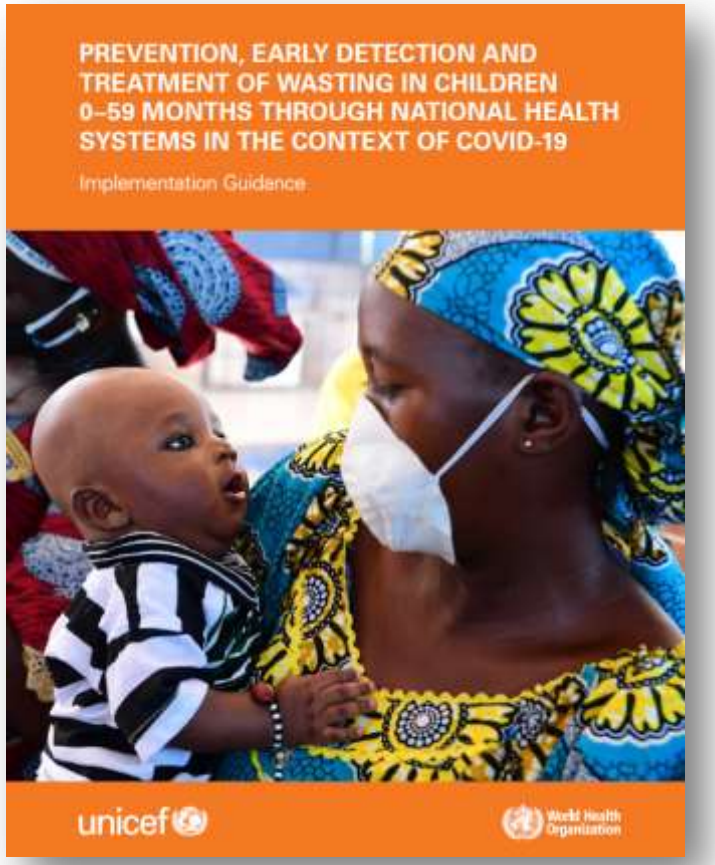
Ambulatory health services

4. Resources

Resources



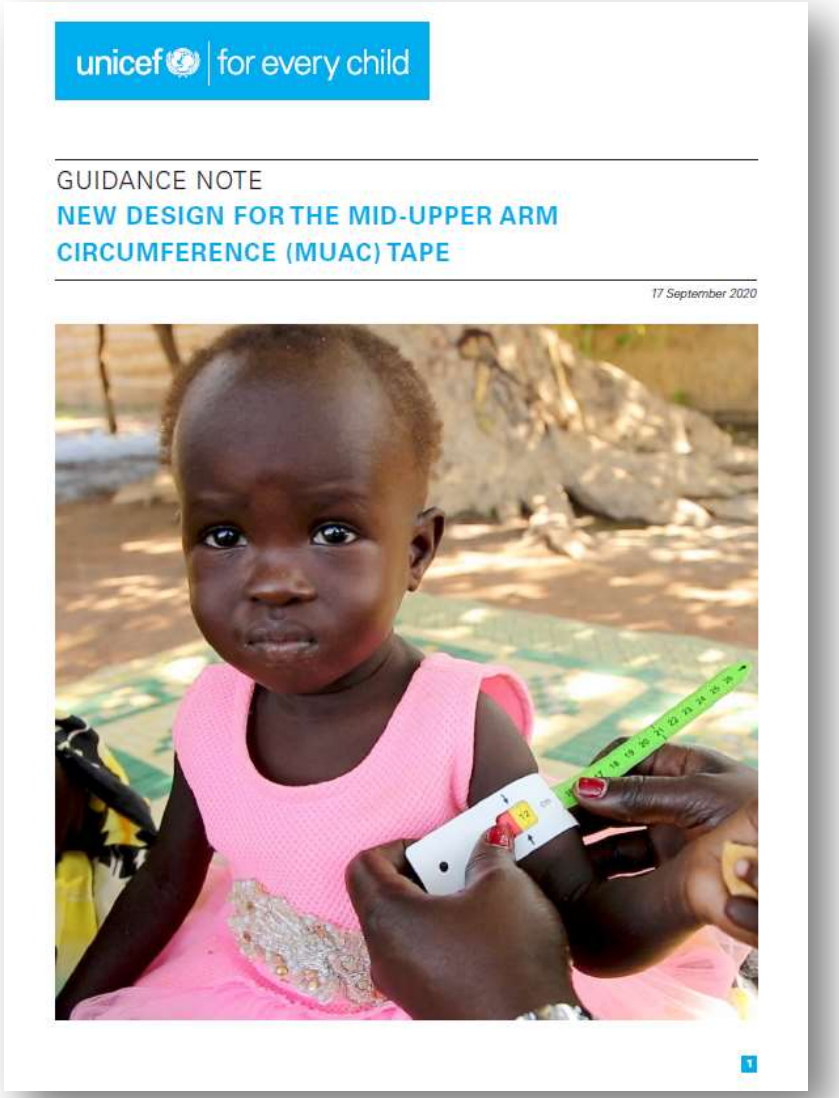
WHO, 2013



WHO and UNICEF, 2020

Resources

International Rescue Committee and UNICEF, 2020



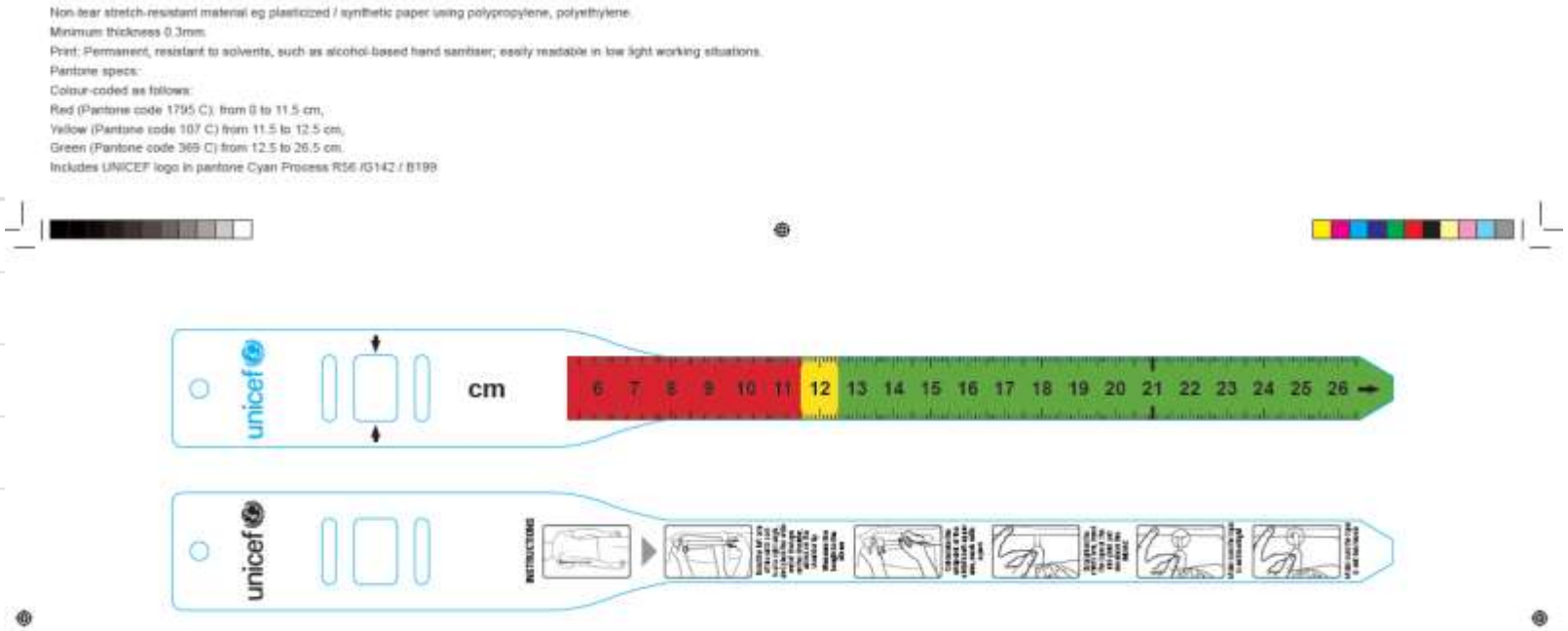
UNICEF, 2020

Resources

New MUAC tape specifications

Associated documents

Resource title
New Design for the Mid-Upper Arm Circumference (MUAC) Tape
Print file: English. New Design for MUAC Tape
Print file: French. New Design for MUAC Tape
Print file: Arabic. New Design for MUAC Tape
Print file: Spanish. New Design for MUAC Tape



https://www.acutemalnutrition.org/en/resource-library/2YtJUUryLhuqV0MBo5B6v7

GLOBAL NUTRITION CLUSTER
Technical Alliance

Resources

Family MUAC

The approach

- CORTASAM Recommandation sur l'usage du périmètre brachial au sein de la communauté
- The MUAC for Mothers Approach : ALIMA
- The Family MUAC Approach: Action Against Hunger Senegal
- Stratégie PB ménage dans le Département de Linguere (Louga, Senegal)
- The Family-MUAC approach: World Vision in Mauritania
- GOAL Presentation: Family MUAC approach

Case studies

- Family MUAC: COOPI in DRC - Case Study
- The Family-MUAC approach: GOAL

Tools

- **The Family MUAC Approach: The Click-MUAC Project**

Trainings

- **Mother-MUAC Teaching Mothers To Screen For Malnutrition (ALIMA, training)**
- **GOAL: Training guide for Family-MUAC approach**
- **World Vision: Mother-led MUAC tools**

M&E tools

- GOAL Family MUAC M&E Toolkit
- IMC_M&E tools for the Family MUAC approach
- **CRF_M&E tools and training (contact anne-sophie.desmaris@croix-rouge.fr)**

And for more information:
https://www.acutemalnutrition.org/en/Family-MUAC

Post webinar evaluation

Questions and answers