

Guide for local adaptation

Preliminary version for
country introduction



World Health
Organization

**GUIDELINES FOR AN INTEGRATED APPROACH TO THE NUTRITIONAL
CARE OF HIV-INFECTED CHILDREN (6 MONTHS–14 YEARS)**

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Nutritional care of HIV-infected children
(6 months-14 years)**

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It is expected to update the guideline by 2015.

Introduction

The *Guidelines* provide a framework for integrating nutrition support into the routine care of HIV-infected children. Although the severe nutritional consequences of HIV infection in adults and children has been recognised for many years, gaps remain in the evidence-base for defining effective interventions to prevent and treat HIV-associated malnutrition in resource-constrained settings. As a result, the development and implementation of guidelines on how best to offer nutritional care to HIV-infected children has lagged. The delivery of such care has also been compromised by services providers' overburden and need for training, recurring staff losses and weakened health care systems in HIV-affected settings. Finally, vertical implementation of HIV programmes, such as PMTCT and ART, have resulted in missed opportunities to gain synergy with other existing services.

In 2004 WHO commissioned a technical review of the nutritional requirements of adults and children infected with HIV as an evidence-base for the development of nutritional care guidelines. These were presented at the WHO technical consultation on Nutrition and HIV/AIDS held in Durban, April 2005, where participants called for urgent action to '*Develop practical nutrition assessment tools and guidelines for home, community, health facility-based and emergency programmes.*' Specific aspects of this recommendation were to '*Develop standard and specific guidelines for nutritional care of individuals ...*' and to '*Review and update existing guidelines to include nutrition/HIV considerations (e.g., integrated management of adolescent and adult illness, ARV treatment, nutrition in emergencies)*'.

HIV infected children deserve special attention because of their additional needs to ensure growth and development and their dependency on adults for adequate care including nutrition care and support for treatment. This is of particular importance in light with the recommendation to start treatment as soon as possible in infected children and the fact that nutrition plays an important role in support to antiretroviral treatment. It was therefore proposed to first develop guidelines for children and thereafter consider a similar approach for other specific groups.

In May 2006, WHO and NIH held a technical consultation in Washington, DC to review the guidelines and the technical and scientific base used in development of the guidelines. Participants included scientists and experienced practitioners. Feedback was made following careful assessment and using a feedback form.

The guidelines were field-tested twice in South Africa (2006) in Durban at the Prince Mshiyeni Memorial Hospital and in Johannesburg at the Harriet Chezi Pediatric ARV clinic in Soweto. The information was presented in a full document (The Handbook) and the charts were used and field-tested in a separate one (The Chart Booklet). The two field-tests focused on testing the use, understanding, flow and organization of the information given. Several health workers from different backgrounds, i.e. nutritionists, dietitians, paediatricians, clinicians, chief nurses and community workers, participated in the field-test. The guidelines proved to be very useful, easy to follow, and certainly filled a gap in nutritional status evaluation, classification and management as far as nutrition is concerned. Some useful suggestions from the group were incorporated into the second version.

The revised version of the guidelines were again field-tested twice in Nairobi, Kenya (2007) and Dr Ruth Nduati an expert in the area assisted WHO in planning and conducting the field-test. This was followed by a third field-test in Malawi by Dr Mark Manary. Feedback was considered and a revised version of the guidelines was prepared.

Two meetings were held in Geneva (24 May 2007 and 10-12 July 2007) to review and discuss the revised guidelines with experts in various areas: growth reference study, emergencies,

HIV/AIDS and nutrition, paediatric care, child health. Feedback was considered and agreement reached on all scientific information and recommendations.

The content of these guidelines acknowledges that wasting and undernutrition in HIV-infected children may reflect a series of failures within the health system, the home and community and not just a biological process related to virus and host interactions. In trying to protect the nutritional well-being or reverse the undernutrition experienced by infected children, issues of food insecurity, food quantity and quality as well as absorption and digestion of nutrients are considered. Interventions are proposed that are practical and feasible in resource poor settings and offer a prospect of clinical improvement.

The guidelines do not cover the feeding of infant 0 to 6 months old, because the specialised care in this age group is addressed in other WHO guidelines and documents.¹

The need for adaptation

The *Guidelines* provide a generic framework for integrating nutrition support into the routine care of HIV-infected children. In order to make them most relevant to the sites and facilities in which they might be used, some background information and content should be revised to reflect local policies, resources available and local approaches whether in the health facility or in communities. The main points to be addressed and how they relate to each step of the *Guidelines* are listed below.

1. One new concept that appears in the guidelines will be the new growth standards developed and published by WHO in 2006. Many countries in the past have used growth curves based on the National Center for Health Statistics (NCHS) which were derived from measurements of infants and children in the US, a population with different nutritional and genetic background and who were generally fed with commercial infant formula in the early months of their lives. The new growth standards generated by WHO are based on measurements of breastfed infants and children from several countries with different backgrounds and provide a set of growth patterns that are therefore better and more appropriate for use in countries, including those where HIV and malnutrition are a major concern. The growth charts and the values regarded as 'normal' referred to in this set of guidelines may be different from what has been used within countries to date. It is anticipated that countries will adopt these new growth standards and transition to using the WHO growth charts as soon as possible.
2. In addition, the z-score or standard deviation classification system has been chosen in preference to percentiles in the management of severe forms of malnutrition. A z-score is one way of describing how far a value such as a weight or height measurement, deviates from the median or expected value for that age (in mathematical terms, one z-score is the same as one standard deviation). Z-scores encompass a wider range of the distribution of the samples, than do percentiles. Z-scores are thus better able to classify extreme conditions of, in this case, wasting and overweight/ obesity. It is understood however, that health workers that are familiar with the percentile lines may take some time to become familiar with the concept of z-scores and how the new growth charts are used. It is helpful to know that the 3rd, 50th and 97th percentiles are equivalent to the z-score -2, 0 and +2 respectively.
3. MUAC has a good predictive value of mortality. The guidelines recommend the measurement of Mid Upper Arm Circumference (MUAC) as an alternative to weight-for-height and an effective method of identifying children with or at risk of severe

¹ The guidelines and documents are available in the following sites:
http://www.who.int/nutrition/topics/feeding_difficulty/en/index.html
http://www.who.int/child_adolescent_health/topics/prevention_care/child/nutrition/hivif/en/index.html

malnutrition. The MUAC cut-off points for classification of children over 60 months old have not been rigorously validated.

4. These guidelines are meant to assist health care workers in bringing nutrition into daily services provided to children living with HIV. Therefore, the differences in staff roles and responsibilities in countries and settings should be taken into account during adaptation.
5. The referral criteria and systems differ in countries and need to be taken into consideration to ensure follow-up and sustainability.
6. The process of adaptation will also require determining food availability and acceptability in each country or setting.
7. Different local policies and guidelines may need to be assessed and followed as these determine cost, entry and exit criteria, type of nutritional support (i.e. food package, local food product, specialised nutritional product).
8. Also, there is need to consider the national food supply and quality control system when adopting the guidelines and adapting them to the national context.

Countries and local sites will need to decide when and how they will make the different changes, and how they will train staff in the use of the guidelines, including the use of the growth standards. The adaptation will require an identification of local resources and support opportunities which effect nutritional support and steps to be followed for appropriate care of children living with HIV.

Adaptation tasks

	Step or Appendix
<p>1. Review language and include local terms where appropriate</p> <p>Consider whether the words and terms used are appropriate for use in countries and local settings.</p>	All
<p>2. Allocation of roles and responsibilities</p> <p>During field tests of the <i>Guidelines</i>, health workers in local facilities used them in different ways depending on the number and competencies of staff available and how their routine services were organised.</p> <p>The aim of the <i>Guidelines</i>, like IMCI, is to assess nutritional status and manage accordingly every HIV-infected child following a step wise approach. However, the process may be different according to local site conditions.</p> <p>To achieve a comprehensive nutrition care and support for HIV-infected children, sites may be organised assigning specific roles and responsibilities to different staff members, for performing the various tasks included in the guidelines. For example, Steps 1-3 may be conducted by a doctor and if a child is classified with Poor Growth, then a dietician or an experienced community health worker trained in nutrition counselling may conduct Steps 4-7 and may link with a social worker or other community resource person. If a child is being initiated</p>	All

**Step or
Appendix**

on ART, then Step 10 may be conducted by a doctor but if the child is stable then perhaps this step will be followed up by a nurse.

The *Guidelines* should be used for assisting health care workers to bring nutrition into daily services i.e. organising assessments and management, should not be seen as rigid. The way in which the service is organised and nutritional care is integrated into daily activities should be planned and agreed between health staff.

3. The z-score classification system

As mentioned above, WHO has developed new growth charts based on growth measurements of breastfed children from several countries. These are more accurate and should replace existing growth charts.

For the classification of growth failure, severe malnutrition and nutritional recovery Annex 1 provides reference tables for workers to look up the weight-for-height or weight-for-length status of the child.

Steps 1
and 3

Nutrition
care plans
A, B and C

4. Definitions of nutritional recovery

The *Guidelines* suggest that a child:

"... no longer needs Nutrition care plan B if weight-for-height/length is above -1 z-score."

However if sites are using charts based on references other than the WHO growth standards and there is no measurement of height/length, then weight targets can be used as criteria of recovery. Annex 2 provides guidance to identify target weight considering the weight after stabilisation.

The *Guidelines* also suggest that:

Recovery of severely malnourished children is indicated by loss of oedema, recovery of appetite and achieving at least -1 z-score of the median WHO reference value for weight-for-height.

In the child who suffered acute/recent weight loss, then nutritional recovery is indicated by the child achieving the same weight-for-height/length (at least -1 z-score for weight-for-height).

If height has not been measured then nutritional recovery is suggested if the child has lost all oedema, is eating well and gaining at least 10-15 g/kg per day in hospital; if managed in the community, weight gain of 5 g/kg/day should be expected. Therapeutic feeding may be stopped if the child achieves -1 z-score for weight-for-height.

5. Using MUAC as a screening tool for severe malnutrition

These guidelines recommend the measurement of mid upper arm circumference (MUAC) as an alternative to WFH and more specifically as an effective method of identifying children with severe malnutrition or those at risk of severe malnutrition. In many countries or local settings, MUAC is not routinely used. If sites decide to use systematically MUAC they will need supplies of MUAC tapes and to train staff on their use and interpretation.

		Step or Appendix
6.	<p>Identify locally appropriate and acceptable dietary options</p> <p>Also consider availability through different season, cultural preferences.</p>	<p>Steps 3 and 4</p> <p>Suggestion sheets</p>
7.	<p>Determine food equivalents/food exchanges</p> <p>If programmes provide nutrition supplements these should be suitable in energy and micronutrient content to meet the children needs, adapted to local resources, acceptable and sustainable in terms of cost and supply/delivery mechanisms.</p> <p>Each of the Nutrition care plans needs to be reviewed by an experienced nutritionist who is able to decide on local food options that can provide the recommended target energy value especially for Nutrition Care Plans A and B. The nutritionist should provide several food exchange options that reflect local availability and acceptability. Recipes may be included as additional resource material to direct health workers e.g. ways to increase food energy density for children with poor growth.</p>	<p>Step 3</p>
8.	<p>Review local policies and guidelines or determine local approaches</p> <p>The <i>Guidelines</i> should be reviewed to ensure consistency with local policies or recommendations. When there is no national policy or recommendation, these <i>Guidelines</i> suggest approaches that may be adapted to suit local conditions.</p> <p>A major consideration will be the cost implications of decisions and recommendations. Partners who might be responsible for funding should be involved in these decisions to ensure the sustainability of programmes.</p> <p>Major issues that need review and possible adaptation include:</p>	
a.	<p><u>Entry and exit criteria for nutritional support</u></p> <p>In order to increase the energy and nutrients intake of children living with HIV, national programmes may introduce nutritional support or may provide local foods in adequate quantities with advice on how to increase the energy density.</p> <p>Other programmes may provide specially formulated nutritional supplements e.g. fortified porridges or other micronutrient enriched, high energy products to achieve the same energy intake.</p> <p>Programme managers need to decide what will be the entry criteria that would make a child eligible to receive nutritional support. More difficult, managers also need to decide when support could be stopped. The paragraphs below provide</p>	<p>Step 3 and</p> <p>Nutrition Care Plan B</p>

orientation on issues the managers could take into account when defining entry criteria for nutritional support.

Objective entry criteria may be anthropometric criteria such as weight-for-age (WFA) or weight-for-height (WFH) between -1 and -2 z-scores using WHO references; other criteria might include a history of recent weight loss, with HIV or TB positive testing, or diagnosis of a condition that is known to have increased energy requirements e.g. chronic lung disease (LIP), TB, persistent diarrhoea, chronic OIs or an HIV-related malignancy. There is scientific evidence to justify these criteria.

Certain circumstances present within a family or a community can either increase or limit the opportunities for providing nutritional support. This might include limited or additional financial resources to provide nutritional support or welfare assistance through national or other sponsorship. A limited supply and distribution systems may limit the capability of the health system facility to provide nutritional support either as a food package or a nutritional supplement.

In settings where HIV may not be the major or only cause of acute or chronic malnutrition, programme managers will need to consider issues of equity i.e. how to balance giving nutritional support to children with HIV when other children might also be undernourished and in need of support. In this case, managers should consider the number of children who might possibly need support, the finances necessary to provide such support and the sustainability of the supply and distribution mechanisms.

The criteria for stopping nutritional support (either food or a nutritional supplement) may be different depending on why support was first offered. For example, if nutritional support was provided because a child was found to be growing poorly, then if the child gains weight so that his/her weight-for-height is greater than -1 z-score then support could be stopped. If however, nutrition support is started because the child has a condition with chronic increased energy needs e.g. TB or chronic lung disease, then nutrition support should continue until that condition is satisfactorily treated, clinically improves or resolves.

As sometimes reported by health workers and dieticians, who are responsible for assessing patients and providing supplements, it is difficult to stop supplements to children when they are aware that there is no adequate food at home. Sometimes they feel unable to stop nutritional supplements knowing that the basic food needs cannot be met by the family. In these settings, links with other social and welfare services need to be strengthened so that help, can be rapidly provided to the entire family.

**Step or
Appendix**

Other community-based resources might also be available and referral mechanisms developed. Managers should anticipate this scenario and plan accordingly.

Programme managers are recommended to monitor patterns of nutritional support and discuss the difficulties faced by, and opinions of, the health workers directly involved with managing children. Regular reviews of the patterns and experiences of staff will assist managers to review whether the programme is achieving its objectives, what the difficulties are, and how these might be solved.

b.	<p><u>Type of Nutritional support</u></p> <p>As indicated above, nutritional support can be provided either as a food package or a local food product, or as a specialised nutritional product with perhaps enhanced micronutrient and energy content. Nutrition counselling should be part of the support.</p> <p>The type of nutrition support will be determined by the specific needs and the number of affected children who will need support (refer to entry criteria), resources available, and special needs of the child e.g. lactose intolerance.</p> <p>Food or supplements to be provided as nutritional support should be chosen so they provide about 20-30% extra energy (based on actual weight) over and above normal energy requirements for age and approximately 1 RDA of micronutrients. Estimates of 20-30% extra energy for age groups are included in Nutrition care plan B.</p> <p>A skilled nutritionist should review these sections and decide, in discussion with programme manager or funder, what are the most suitable approaches in terms of entry and exit criteria based on physiological need, types of support and resources available, and special conditions of children e.g. lactose intolerance. Monitoring of nutrition support should be planned, formal reviews conducted and approaches revised if programme objectives are not being met.</p>	<p>Step 3 and Nutrition Care Plan B</p>
<hr/>		
c.	<p><u>Type of Therapeutic Feeds</u></p> <p>Therapeutic feeds as recommended in the WHO guidelines for managing children with severe malnutrition implies a nutritional product with a specific formulation that provides a high energy, high protein, high micronutrient intake for such children. In some countries, the term therapeutic feeds can mean any nutritional product or approach that is different from normal feeds and used in a special manner. It does not always imply a specific formulation. <u>In these guidelines the term Therapeutic Feeding refers to a nutritional product with an energy, protein and micronutrient content outlined in Appendix IV.</u> A senior dietician and clinician, preferably experienced in managing children with severe malnutrition</p>	<p>Step 3 and Nutrition Care Plan C</p>

**Step or
Appendix**

and familiar with the WHO guidelines for the management of children with severe malnutrition, should review what a national programme will use as the therapeutic feed.

These guidelines recommend the use of Ready-to-Use Therapeutic Food. See Step 3, page 15 and Appendix IV for full description of RUTF. Some countries do not have RUTF available and use other approaches for rehabilitation of children with severe malnutrition. These guidelines may help programme managers/dieticians to identify sources of RUTF for use in managing all children with severe malnutrition. If not, then programme managers/dieticians need to ensure that a nutritionally equivalent alternative is available for community-based use.

Note, in some countries micronutrient and energy fortified peanut butter/soy pastes are available but are not nutritionally equivalent to RUTF, or not as safe. These are not suitable for managing children with severe malnutrition and should not substitute RUTF.

d.	<p><u>Entry and exit criteria for therapeutic feeding</u></p> <p>WHO guidelines for the management of children with severe malnutrition recommend therapeutic feeding when any one of the definitions for severe malnutrition is present. For children between 6 and 60 months these are:</p> <ul style="list-style-type: none"> • Weight-for-height less than -3 z-score of the growth reference value • Presence of pitting oedema of both feet • Presence of severe visible wasting • Mid upper arm circumference less than 115 mm <p>Due to the HIV epidemic, severe malnutrition is now more often found in children over 60 months for whom definition of severe malnutrition and hence the criteria for starting therapeutic feeding are not well defined. These guidelines apply the same definitions of severe malnutrition to the older child as for the younger child but with different age-specific MUAC thresholds. However, these thresholds have not yet been rigorously validated across all age groups in HIV-infected populations.</p> <p>Initiating therapeutic feeding should be based on a classification of severe malnutrition. These guidelines outline an approach for children who can be managed as outpatients.</p> <p>Severely malnourished, HIV-infected children with complications such as diarrhoea, pneumonia or unable/unwilling to eat should be admitted to hospital and managed in clinical settings according to the WHO Management of Children with Severe Malnutrition guidelines. Children who were admitted and have stabilised into the</p>	<p>Step 3 and Nutrition Care Plan C</p>
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**Step or
Appendix**

recovery phase (i.e. oedema resolved, appetite recovered and gaining weight) and then discharged, or children who had no complications and were managed at home may be provided with a therapeutic feed such as Ready-to-use Therapeutic Food (RUTF) to be provided through home-based care. Hospitalisation discharge criteria (different from exit criteria for RUTF), may be different between programmes depending on the availability of beds, caregiver status or access to antiretroviral drugs. These should be considered by senior clinician/paediatrician and clear instruction included when implementing these guidelines.

As with the exit criteria for nutritional support, the exit criteria for stopping therapeutic feeding are more complicated. The WHO Management of Children (HIV uninfected) with Severe Malnutrition recommend that therapeutic feeds should continue until the child's weight-for height is greater than -1 z-score of the WHO reference. This would normally take about 6-10 weeks. Children with HIV tend to recover weight more slowly and may not be able to recover lean body tissue (muscle) substantially unless they are also started on antiretroviral drugs. Poor response to therapeutic feeding in a child (over 12 months old) with HIV is usually an indication for initiating antiretroviral therapy. Note all infants (less than 12 months old) who have HIV need ART, but stabilization of severe acute malnutrition is required prior to starting antiretroviral.

If height is not routinely measured and WFH cannot therefore be determined, or if the child was classified as severely malnourished because the MUAC was very low or the child had severe visible wasting, then nutritional recovery may be defined in a number of other ways. These *Guidelines* suggest exit criteria (see Step 3) that can be justified from existing scientific evidence. However, as with nutrition support, senior clinicians and programme managers need to review these criteria for consistency and feasibility within their programmes. Staff should then be trained on these recommendations.

Note. MUAC is not suitable as an indicator of nutritional recovery since truncal tissue is usually replenished before peripheral (arm) stores.

e.	<u>Eligibility criteria for accessing social welfare grants or other support</u>	Steps 4 and 5
	Criteria for accessing social welfare grants or other support such as livelihood support programmes will be different between countries and sites. Local programmes may have additional community-based or faith-based resources that may provide additional support such as water and sanitation improvement services. These should be explored within any setting and information that would assist referral and access to such services included either directly within the local adaptation or as an addendum e.g. poster or leaflet. Every	

		Step or Appendix
effort should be made to avoid stigma and discrimination and ensure confidentiality.		
f.	<p><u>Eligibility criteria for family food support</u></p> <p>As with the other forms of support listed above, the provision of family food support may or may not be part of routine services. Criteria will be different between countries and sites depending on local resources, the HIV prevalence and poverty rates and the ability of programmes to maintain the logistics of such a provision. Some suggestions are included in Step 6. Local non-governmental or community-based or faith-based resources may provide such support. These should be explored within any setting and information that would assist referral and access to such services included either directly within the local adaptation or as an addendum e.g. poster or leaflet.</p>	Step 6
g.	<p><u>Choice of antiretroviral drugs</u></p> <p>Nutrition programme have a critical importance to support treatment of HIV. Some antiretroviral drugs used by national programme may have adverse effects such as nausea or vomiting. Some of the specific suggestions and comments included in Step 10 will assist and provide nutritional counselling support. Programme managers with support from senior dieticians should review this section and adapt accordingly.</p>	Step 10
9.	<p>Supply and quality control systems</p> <p>After confirmation of what will be recommended for nutritional support, therapeutic feeding and family food support, it is necessary to review the supply chain and monitor distribution and delivery to patients. This is not discussed further within these guidelines. Monitoring of these systems and their sustainability will be essential in order to maintain satisfactory services to children.</p>	Steps 3 and 6
10.	<p>Identify local resources and support opportunities</p> <p>The process of adaptation should include the identification of local resources and support opportunities for preparing national guidelines and planning.</p> <p>The local resources and support opportunities to take into account might include:</p>	
a.	Infant feeding support groups.	Nutrition Care Plans A, B and C and Step 4

		Step or Appendix
b.	HIV support groups.	Steps 4, 5 and 6
c.	Community garden and other food production initiatives.	Steps 4 and 6
d.	Food for work, food for education, and other supplementary feeding programmes.	Steps 4, 5 and 6
e.	Other community-based services that provide nutrition advice and/or support (e.g. faith-based organizations or women's groups with trained volunteers).	Steps 4, 5 and 6
f.	How to access available welfare support.	Steps 4, 5 and 6
g.	How to access community support.	Steps 4, 5 and 6

11. Review specific drug and immunization policies

Compare local policies and practices with WHO recommendations. In particular:

a.	De-worming protocols e.g. albendazole. Review local protocols on use and availability.	Step 3 Nutrition care plans A, B and C and Step 7
b.	Zinc in managing children (HIV-infected and HIV uninfected) with diarrhoeal illnesses. Review local protocols on use and availability.	Step 3 Nutrition care plans B and C and Step 9
c.	Multivitamins/mineral supplements and minerals. Ensure that the formulation of routine supplements is equivalent to about 1 recommended daily allowance (RDA) of most vitamins and minerals. Compare what is available with the recommended formulation in the appendices. For children with severe malnutrition carefully review how micronutrients are provided. If a severely malnourished child received RUTF as the therapeutic feed, then all vitamins, minerals and trace elements will be provided by the RUTF. If another form of energy and protein equivalent therapeutic feed is provided, then review the micronutrients provided	Step 3 Nutrition care plans A, B and C

		Step or Appendix
<p>through that feed and determine if the requirements for a severely malnourished child (see appendices) are being met. Note: the micronutrient requirements of the child recovering from severe malnutrition are different from HIV-infected children who are not severely malnourished.</p>		
d.	<p>Antiretroviral drug protocols. In particular:</p> <ul style="list-style-type: none"> • Review specific adverse events commonly associated with specific first and second-line treatments • Review specific food and feeding practice recommendations for each drug e.g. if should be given with specific foods or pre- or post meal <p>Consistent recommendations on the prevention and management of adverse effect linked to feeding.</p>	Step 10
e.	<p>Cotrimoxazole</p> <p>Presentation to be recommended depends on national programmes availability.</p>	<p>Step 3</p> <p>Nutrition care plans A, B and C and Step 7</p>
f.	<p>Isoniazide preventive therapy</p> <p>Policy on IPT will depend on the tuberculosis epidemiological situation in the country.</p>	<p>Step 3</p> <p>Nutrition care plans A, B and C and Step 7</p>
12.	<p>Review local referral criteria and follow-up periods</p> <p>Local IMCI guidelines include recommended follow-up intervals and referral criteria. Local adaptations of IMCI may therefore conflict with the suggested review intervals in these Guidelines. Also review for consistency in follow-up intervals for children on ART – after initiation and when stable.</p> <p>Review referral mechanisms and requirements between HIV care programmes e.g. ART treatment programmes, local nutrition programmes, welfare offices, local NGOs.</p>	<p>Step 3</p> <p>Nutrition care plans A, B and C and Steps 8, 9 and 10</p>

Annex 1-Weight-for-Length/Height Reference Card ^{a, b}

Boys' weight (kg)					Length (cm)	Girls' weight (kg)				
-4 SD	-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD	-4 SD
1.7	1.9	2.0	2.2	2.4	45	2.5	2.3	2.1	1.9	1.7
1.8	2.0	2.2	2.4	2.6	46	2.6	2.4	2.2	2.0	1.9
2.0	2.1	2.3	2.5	2.8	47	2.8	2.6	2.4	2.2	2.0
2.1	2.3	2.5	2.7	2.9	48	3.0	2.7	2.5	2.3	2.1
2.2	2.4	2.6	2.9	3.1	49	3.2	2.9	2.6	2.4	2.2
2.4	2.6	2.8	3.0	3.3	50	3.4	3.1	2.8	2.6	2.4
2.5	2.7	3.0	3.2	3.5	51	3.6	3.3	3.0	2.8	2.5
2.7	2.9	3.2	3.5	3.8	52	3.8	3.5	3.2	2.9	2.7
2.9	3.1	3.4	3.7	4.0	53	4.0	3.7	3.4	3.1	2.8
3.1	3.3	3.6	3.9	4.3	54	4.3	3.9	3.6	3.3	3.0
3.3	3.6	3.8	4.2	4.5	55	4.5	4.2	3.8	3.5	3.2
3.5	3.8	4.1	4.4	4.8	56	4.8	4.4	4.0	3.7	3.4
3.7	4.0	4.3	4.7	5.1	57	5.1	4.6	4.3	3.9	3.6
3.9	4.3	4.6	5.0	5.4	58	5.4	4.9	4.5	4.1	3.8
4.1	4.5	4.8	5.3	5.7	59	5.6	5.1	4.7	4.3	3.9
4.3	4.7	5.1	5.5	6.0	60	5.9	5.4	4.9	4.5	4.1
4.5	4.9	5.3	5.8	6.3	61	6.1	5.6	5.1	4.7	4.3
4.7	5.1	5.6	6.0	6.5	62	6.4	5.8	5.3	4.9	4.5
4.9	5.3	5.8	6.2	6.8	63	6.6	6.0	5.5	5.1	4.7
5.1	5.5	6.0	6.5	7.0	64	6.9	6.3	5.7	5.3	4.8
5.3	5.7	6.2	6.7	7.3	65	7.1	6.5	5.9	5.5	5.0
5.5	5.9	6.4	6.9	7.5	66	7.3	6.7	6.1	5.6	5.1
5.6	6.1	6.6	7.1	7.7	67	7.5	6.9	6.3	5.8	5.3
5.8	6.3	6.8	7.3	8.0	68	7.7	7.1	6.5	6.0	5.5
6.0	6.5	7.0	7.6	8.2	69	8.0	7.3	6.7	6.1	5.6
6.1	6.6	7.2	7.8	8.4	70	8.2	7.5	6.9	6.3	5.8
6.3	6.8	7.4	8.0	8.6	71	8.4	7.7	7.0	6.5	5.9
6.4	7.0	7.6	8.2	8.9	72	8.6	7.8	7.2	6.6	6.0
6.6	7.2	7.7	8.4	9.1	73	8.8	8.0	7.4	6.8	6.2
6.7	7.3	7.9	8.6	9.3	74	9.0	8.2	7.5	6.9	6.3
6.9	7.5	8.1	8.8	9.5	75	9.1	8.4	7.7	7.1	6.5
7.0	7.6	8.3	8.9	9.7	76	9.3	8.5	7.8	7.2	6.6
7.2	7.8	8.4	9.1	9.9	77	9.5	8.7	8.0	7.4	6.7
7.3	7.9	8.6	9.3	10.1	78	9.7	8.9	8.2	7.5	6.9
7.4	8.1	8.7	9.5	10.3	79	9.9	9.1	8.3	7.7	7.0
7.6	8.2	8.9	9.6	10.4	80	10.1	9.2	8.5	7.8	7.1
7.7	8.4	9.1	9.8	10.6	81	10.3	9.4	8.7	8.0	7.3
7.9	8.5	9.2	10.0	10.8	82	10.5	9.6	8.8	8.1	7.5
8.0	8.7	9.4	10.2	11.0	83	10.7	9.8	9.0	8.3	7.6
8.2	8.9	9.6	10.4	11.3	84	11.0	10.1	9.2	8.5	7.8
8.4	9.1	9.8	10.6	11.5	85	11.2	10.3	9.4	8.7	8.0
8.6	9.3	10.0	10.8	11.7	86	11.5	10.5	9.7	8.9	8.1

^a A more detailed table is available on http://www.who.int/childgrowth/standards/weight_for_length/en/index.html

^b Length is measured for children below 87 cm. For children 87 cm or more, height is measured. Recumbent length is on average 0.7 cm greater than standing height; although the difference is of no importance to individual children, a correction may be made by subtracting 0.7 cm from all lengths above 86.9 cm if standing height can not be measured.

Weight-for-Length/Height Reference Card^{a, b}

Boys' weight (kg)					Height (cm)	Girls' weight (kg)				
-4 SD	-3 SD	-2 SD	-1 SD	Median		Median	-1 SD	-2 SD	-3 SD	-4 SD
8.9	9.6	10.4	11.2	12.2	87	11.9	10.9	10.0	9.2	8.4
9.1	9.8	10.6	11.5	12.4	88	12.1	11.1	10.2	9.4	8.6
9.3	10.0	10.8	11.7	12.6	89	12.4	11.4	10.4	9.6	8.8
9.4	10.2	11.0	11.9	12.9	90	12.6	11.6	10.6	9.8	9.0
9.6	10.4	11.2	12.1	13.1	91	12.9	11.8	10.9	10.0	9.1
9.8	10.6	11.4	12.3	13.4	92	13.1	12.0	11.1	10.2	9.3
9.9	10.8	11.6	12.6	13.6	93	13.4	12.3	11.3	10.4	9.5
10.1	11.0	11.8	12.8	13.8	94	13.6	12.5	11.5	10.6	9.7
10.3	11.1	12.0	13.0	14.1	95	13.9	12.7	11.7	10.8	9.8
10.4	11.3	12.2	13.2	14.3	96	14.1	12.9	11.9	10.9	10.0
10.6	11.5	12.4	13.4	14.6	97	14.4	13.2	12.1	11.1	10.2
10.8	11.7	12.6	13.7	14.8	98	14.7	13.4	12.3	11.3	10.4
11.0	11.9	12.9	13.9	15.1	99	14.9	13.7	12.5	11.5	10.5
11.2	12.1	13.1	14.2	15.4	100	15.2	13.9	12.8	11.7	10.7
11.3	12.3	13.3	14.4	15.6	101	15.5	14.2	13.0	12.0	10.9
11.5	12.5	13.6	14.7	15.9	102	15.8	14.5	13.3	12.2	11.1
11.7	12.8	13.8	14.9	16.2	103	16.1	14.7	13.5	12.4	11.3
11.9	13.0	14.0	15.2	16.5	104	16.4	15.0	13.8	12.6	11.5
12.1	13.2	14.3	15.5	16.8	105	16.8	15.3	14.0	12.9	11.8
12.3	13.4	14.5	15.8	17.2	106	17.1	15.6	14.3	13.1	12.0
12.5	13.7	14.8	16.1	17.5	107	17.5	15.9	14.6	13.4	12.2
12.7	13.9	15.1	16.4	17.8	108	17.8	16.3	14.9	13.7	12.4
12.9	14.1	15.3	16.7	18.2	109	18.2	16.6	15.2	13.9	12.7
13.2	14.4	15.6	17.0	18.5	110	18.6	17.0	15.5	14.2	12.9
13.4	14.6	15.9	17.3	18.9	111	19.0	17.3	15.8	14.5	13.2
13.6	14.9	16.2	17.6	19.2	112	19.4	17.7	16.2	14.8	13.5
13.8	15.2	16.5	18.0	19.6	113	19.8	18.0	16.5	15.1	13.7
14.1	15.4	16.8	18.3	20.0	114	20.2	18.4	16.8	15.4	14.0
14.3	15.7	17.1	18.6	20.4	115	20.7	18.8	17.2	15.7	14.3
14.6	16.0	17.4	19.0	20.8	116	21.1	19.2	17.5	16.0	14.5
14.8	16.2	17.7	19.3	21.2	117	21.5	19.6	17.8	16.3	14.8
15.0	16.5	18.0	19.7	21.6	118	22.0	19.9	18.2	16.6	15.1
15.3	16.8	18.3	20.0	22.0	119	22.4	20.3	18.5	16.9	15.4
15.5	17.1	18.6	20.4	22.4	120	22.8	20.7	18.9	17.3	15.6

^a A more detailed table is available on http://www.who.int/childgrowth/standards/weight_for_height/en/index.html.

^b Length is measured for children below 87 cm. For children 87 cm or more, height is measured. Recumbent length is on average 0.7 cm greater than standing height; although the difference is of no importance to individual children, a correction may be made by subtracting 0.7 cm from all lengths above 86.9 cm if standing height can not be measured.

Annex 2-Guidance table to identify target weight

Guidance table to identify the target weight		Guidance table to identify the target weight	
Weight after stabilisation	Target weight: 15% weight gain	Weight after stabilisation	Target weight: 15% weight gain
4.1	4.7	10.7	12.3
4.3	4.9	10.9	12.5
4.5	5.2	11.1	12.8
4.7	5.4	11.3	13.0
4.9	5.6	11.5	13.2
5.1	5.9	11.7	13.5
5.3	6.1	11.9	13.7
5.5	6.3	12.1	13.9
5.7	6.6	12.3	14.1
5.9	6.8	12.5	14.4
6.1	7.0	12.7	14.6
6.3	7.2	12.9	14.8
6.5	7.5	13.1	15.1
6.7	7.7	13.3	15.3
6.9	7.9	13.5	15.5
7.1	8.2	13.7	15.8
7.3	8.4	13.9	16.0
7.5	8.6	14.1	16.2
7.7	8.9	14.3	16.4
7.9	9.1	14.5	16.7
8.1	9.3	14.7	16.9
8.3	9.5	14.9	17.1
8.5	9.8	15.1	17.4
8.7	10.0	15.3	17.6
8.9	10.2	15.5	17.8
9.1	10.5	15.7	18.1
9.3	10.7	15.9	18.3
9.5	10.9	16.1	18.5
9.7	11.2	16.3	18.7
9.9	11.4	16.5	19.0
10.1	11.6	16.7	19.2
10.3	11.8	16.9	19.4
10.5	12.1	17.1	19.7

In the area of nutrition and HIV, children deserve special attention because of their additional needs to ensure growth and development and their dependency on adults for adequate care. It was therefore proposed to first develop guidelines for children and thereafter consider a similar approach for other specific groups.

The content of these guidelines acknowledges that wasting and undernutrition in HIV-infected children reflect a series of failures within the health system, the home and community and not just a biological process related to virus and host interactions. In trying to protect the nutritional well-being or reverse the undernutrition experienced by infected children, issues of food insecurity, food quantity and quality as well as absorption and digestion of nutrients are considered. Interventions are proposed that are practical and feasible in resource-poor settings and offer a prospect for clinical improvement.

The guidelines do not cover the feeding of infants 0 to 6 months old, because the specialised care in this age group is already addressed in other WHO guidelines and documents.

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