



Nutrition Guidelines
for HIV-Exposed and Infected Children
(0-14 Years Of Age)







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FOREWORD

There was a felt need under the National AIDS Control Programme to have a National Nutritional Guideline for HIV infected children, so that its optimal use in HIV related care and treatment including Antiretroviral treatment is ensured.

In order to initiate the process of development of these guidelines, NACO organised a Technical consultation of pediatricians and experts from the Ministry of Health and Family Welfare, World Food Programme, UNICEF, WHO, IAP, BPNI to review the new evidences and experiences in relation to infant feeding.

Based on the new data and keeping the situation of our country in mind, the group made technical recommendations on safer infant feeding options for HIV infected children.

The present guidelines on nutrition for HIV infected children have been adopted from recommendations of WHO and expert consultations and have been developed for different health care personnel such as medical practitioners, nurses, counselors, community workers and volunteers engaged in providing Care and Support to mothers and children infected with HIV/AIDS.

I hope these guidelines will be useful in bridging the knowledge gap and strengthening the care, support and treatment services for HIV infected children in India.

(Sayan Chatterjee)

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अपनी एचआईवी अवस्था जानें, निकटतम सरकारी अस्पताल में मुफ्त सलाह व जाँच पाएँ सत्यमेव जयते

Know your HIV status, go to the nearest Government Hospital for free Voluntary Counselling and Testing



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Abbreviations



AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Anti-Retroviral
AZT	Azidothymidine (Also Named Zidovudine)
BPNI	Breast feeding Promotion Network of India
EBF	Exclusive Breast feeding
ERF	Exclusive Replacement Feedings
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
IAP	Indian Academy Of Paediatrics
IYCF	Infant And Young Child Feeding
IMNCI	Integrated Management Of Neonatal And Childhood Illness
MCH	Maternal And Child Health
MOHFW	Ministry of Health and Family Welfare
MTCT	Mother-To-Child Transmission Of Hiv
MUAC	Mid Upper Arm Circumference
NACO	National Aids Control Organisation
NACP	National Aids Control Program
NGO	Nongovernmental Organization
NRHM	National Rural Health Mission
NVP	Nevirapine
ORS	Oral Rehydration Solution
PP	Post Partum
PPTCT	Prevention Of Parent-To-Child Transmission
RDA	Recommended Dietary Allowance
RUTF	Ready To Use Therapeutic Food
SAM	Severe Acute Malnutrition
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WFP	World Food Programme
ZDV	Zidovudine





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Explanation of Terms



- **Bottle-Feeding:** Feeding from a bottle, any content which may be locally available, such as animal milk, water, infant formula, or other food/ liquid, such as soup, dal ka pani etc.
- **Breast-Milk Substitute:** Any food used as a replacement for breast milk, including commercial infant formula, any kind of animal milk, such as camel, goat, cow, sheep etc. as well as soy-based milk.
- **Cessation of Breast feeding:** Complete stop to breast feeding, including suckling.
- **Commercial Infant Formula:** A breast-milk substitute formulated industrially, in accordance with applicable Codex Alimentarius standards, to satisfy the nutritional requirements of infants during the first months of life up to the introduction of complementary foods
- **Complementary Feeding:** When the child receives both breast milk/ breast-milk substitute as well as solid/ semi-solid food.
- **Complementary Food:** Any food, whether manufactured or locally prepared, used as a complement to breast milk/ breast-milk substitute.
- **Cup-Feeding:** Being fed from or drinking from an open cup, irrespective of its content.
- **Exclusive Breast feeding:** When an infant receives only breast milk. No other liquids, water or solids are given, except drops or syrups consisting of medicines, vitamins, mineral supplements or vaccines.
- **HIV-Affected:** Children who are HIV affected include those who are HIV-positive, lost one or both parents to AIDS and those who are living in a household where one (or both) parent is HIV-positive.
- **HIV-Exposed:** Infants and children born to mothers infected with HIV, until HIV infection can be reliably excluded and the child is not exposed to HIV through breast feeding.
- **HIV-Negative:** Showing no evidence of infection with HIV (e.g. absence of antibodies against HIV) in a blood or oral fluid test. However, if a person is in the “window period” between HIV exposure and detection of antibodies, the antibody test may not show a positive test.
- **HIV-Positive:** Showing indications of infection with HIV (e.g. presence of antibodies against HIV) in a blood or oral fluid test.
- **HIV Status Unknown:** Refers to people who either have not taken an HIV test or do not know the result of an HIV test they have taken.
- **HIV-infected:** Indicates that evidence of HIV has been found via a blood test. It generally refers to people who are infected with HIV, whether or not they are aware of it.
- **Human immunodeficiency Virus (HIV):** The virus that causes AIDS.
- **Infant:** A person from birth to 12 months of age.
- **Infant Feeding Counselling:** Counselling on breast feeding complementary feeding and counselling for HIV- positive women on HIV and infant feeding.
- **Mixed Feeding:** Giving liquids like water, formula, cow’s milk, milk substitutes or other foods to infants below 6 months of age who need exclusive breast feeding.
- **Mother-to-Child Transmission:** Transmission of HIV to an infant from an HIV-infected mother during pregnancy, delivery or breast feeding.
- **Replacement Feeding:** When breast feeding is completely replaced by other substitutes, such as infant formula, animal milk or other milk substitutes and there is no breast feeding done. During the first six months of life, replacement feeding maybe done with a suitable breast-milk substitute. After six months, the breast-milk substitute maybe complemented with other foods.





Background



Nutritional care of children living with HIV is a fundamental part of the continuum of care and support under the national programme. HIV and opportunistic infections not only depress the immune system, but also increase the need for energy, protein and other nutritional components. Malnutrition may result, and contribute to further weakening of the immune system. Nutritional care needs to be integrated in the care of all people and children living with HIV, especially the most vulnerable groups which include infants, young children under 5 years as well as pregnant and lactating women.

In the last few years, there has been a significant amount of evidence and program experience on the use of ARVs to prevent Parent To Child Transmission (PTCT) of HIV infection. Use of ARV by the mother or infant can significantly reduce the risk of post-natal transmission of HIV through breast feeding. HIV-infected women can now choose to safely breast-feed their infants with ARV drugs providing protection against transmission of the HIV virus in breast milk.

More than 50% of the children under the age of 5 in our country have malnutrition. Data from the 2005-06 NFHS-3 showed that 57% of the women of childbearing age in India (urban and rural) have anaemia, with 30% of infants being born underweight. Growth retardation in young children starts during pregnancy and becomes irreversible by two years of age if no preventive/remedial actions are taken. In healthy infants, this can be prevented to a large extent by six months of exclusive breast feeding. However, in rural areas, where women often go back to the fields a few days after giving birth, babies' diets are often supplemented with cow's milk and water, which exposes them to infection.

The present guidelines for feeding, care and management of malnutrition among HIV-affected infants and children are based on the 2010 updated recommendations of WHO on nutrition for children living with HIV. The guidelines are based on a series of consultations convened by NACO, involving expert paediatricians, public health experts, obstetricians, gynaecologists, physicians and partners, such as BPNI, Clinton Foundation, MOHFW, IAP, UNICEF, WFP and WHO.

These guidelines have been developed for use by doctors, nurses, counsellors, community workers and volunteers working in nutritional care for mothers and children affected with HIV/AIDS. The guidelines aim to provide technical and operational details so as to enable integration of nutritional care into everyday practice for healthcare providers.

Essential services for integrating nutrition in the national HIV programme:

1. All children must have nutritional assessment: Anthropometric measurements for progress of growth and development, screen for malnutrition and referral for further action, if required
2. All children and their parents/caregivers must have nutrition counselling regularly
3. All eligible PLHIV families (adults, pregnant women and children) must be linked to existing national, state and local schemes for nutrition in their districts
4. All HIV-infected children should be provided multivitamin/multi-mineral tablets from ART centres/institutions







1. Inter-Relationship between HIV and Nutrition



1.1. Introduction

The HIV epidemic is a serious global challenge that continues to take its toll, particularly on vulnerable populations, such as children. Living with HIV/AIDS brings many implications to families, parents, mother and child, including stigma/ discrimination, poverty, food insecurity, loss of health leading to inability to work and generate income etc. In India, there were estimated 2.39 million people living with HIV in 2009, with a national adult HIV prevalence of 0.31%. Women constituted 36% of the burden of HIV. It is estimated that there were 105,000 children living with HIV in 2009. Parent To Child Transmission is the major contributor of new paediatric HIV infections. In 2009, out of the 55.3 lakh pregnant women counselled and tested in India, 19,357 were found to be HIV infected. Of those, 11,489 (60%) were given PPTCT regimen (sdNVP). There are many challenges in reaching out to counsel and test pregnant women for provision of appropriate care and treatment and institution of preventive measures in case the mother is found to be HIV positive.

As of August 2010 – 77,044 children have been registered for HIV care at ART centres, and 21,343 children have received free ART. Of these, about 40% are under 5 years of age. With the launch of the early infant diagnosis programme in February 2010, it is envisioned that more infants and younger children will be diagnosed and would require ART and other supportive care including nutritional support and counselling.

Childhood is a period characterized by rapid growth and development leading to increased nutritional needs. At the same time, the health of a young infant is closely related to that of his mother. Thus, appropriate nutritional care for both mother and child is essential to ensure a healthy HIV infected parent as well as a healthy child, whether HIV infected or affected.

1.2. Interaction between HIV and Nutrition in Children

Infants and young children who have been infected through the route of mother to child transmission (perinatal infection) have very high loads of HIV virus in their body. Furthermore, the body's response against the HIV virus is inadequate because the immune system is still immature and developing. Thus, these children progress rapidly towards severe symptomatic disease or AIDS. Severe nutritional and immune deficiencies can occur in children under 5 years of age, leading to death. 40% of HIV-infected children, under 18 months, in clinics, experience developmental delays. Without care and treatment including ART, one third will die in the first one year, 50% by the second year and 60% within three years.

The effect of HIV on nutritional status of children can occur early in the course of the disease. HIV infection results in an increased need for energy, protein and other micronutrients like vitamin C, iron and zinc. In infants and children, HIV infection causes more rapid progression to AIDS compared to adults because of the immaturity of children's immune systems as well as a higher viral load, especially if the route of transmission is parent-to-child transmission.

When the immune system is impaired, other infective agents can attack the weakened system easily. Such infections, like tuberculosis, pneumonia, diarrhoea and oral thrush, place higher nutritional demands on the body and weaken it further, resulting in a decline in the nutritional status.

“Appropriate nutritional care for both pregnant women and her children is essential to ensure a healthy HIV infected parent as well as a healthy child, whether HIV infected or affected.”

There exists a vicious cycle between HIV/AIDS and nutrition as is shown in Fig. 1

- HIV impairs the immune system, making the body vulnerable to various infections
- In order to cope with HIV and other infections, the need for energy and other nutrients is increased.





- If these increased needs are not met, malnutrition sets in
- Malnutrition contributes to a weakened immune system, which worsens the effect of HIV.
- This leads to a rapid progression to AIDS

When the child is co-infected with HIV/AIDS, the body needs much more nutrition in order to function optimally. Good nutrition cannot cure AIDS, but it can help maintain and improve the nutritional status of a person with HIV/AIDS and delay the progression from HIV to AIDS-related diseases. It can therefore improve the quality of life of people living with HIV/AIDS.

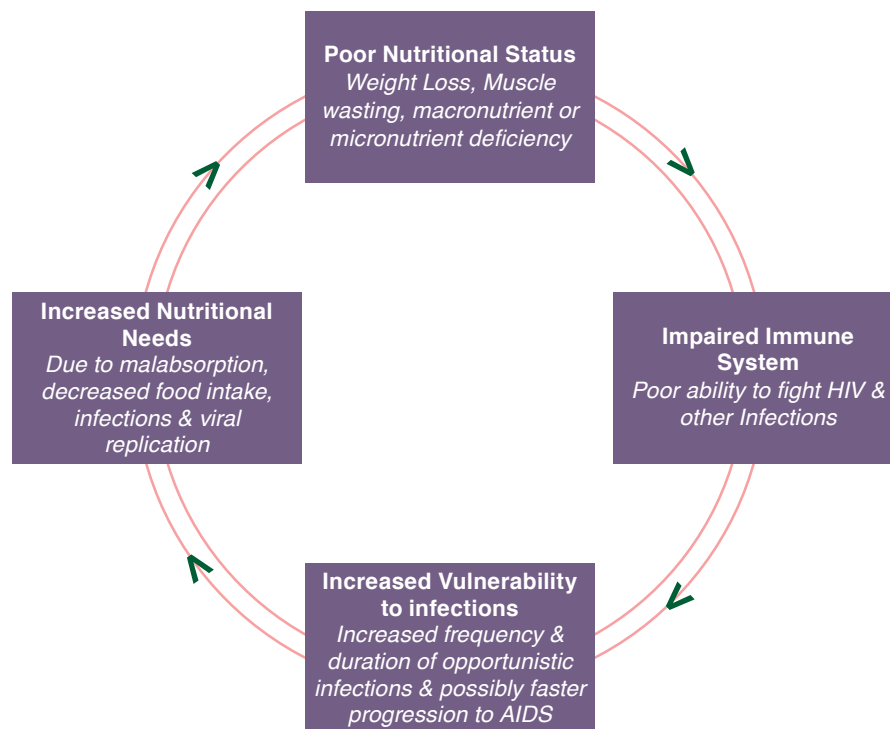
Nutritional care and support are important from the early stages of the infection to prevent the development of nutritional deficiencies. A healthy and balanced diet helps sustain body weight and fitness. Eating well also helps maintain and improve the performance of the immune system – the body’s protection against infections – which in turn helps a person stay healthy.

Many of the conditions associated with HIV/AIDS affect food intake, digestion and absorption, while others influence the functions of the body. Many of the symptoms of these conditions (e.g. diarrhoea, weight loss, sore mouth and throat, nausea or vomiting) are manageable with appropriate nutrition. Good nutrition will also complement and reinforce the effect of any medication taken.

1.3. Nutritional Considerations for HIV Exposed Infants

Parent To Child Transmission (PTCT) is the most significant route of transmission of HIV infection in children below 15 years of age. The term ‘HIV exposed’ refers to infants and children born to women infected with HIV, until a definite diagnosis of HIV infection is made or reliably excluded.

Figure 1: Malnutrition and HIV: A vicious cycle



Source: Adapted from RCQHC and FANTA 2003.





Infants born to HIV infected women are at risk of acquiring HIV infection in utero, at the time of delivery or later during breast feeding. They are also at a higher risk of morbidity, mortality and malnutrition as compared to infants born to women not infected with HIV.

There are several vulnerabilities and risks already prevalent in the community for children in India. These create adverse conditions for children, irrespective of HIV status, such as:

- Variable practice of exclusive breast feeding, e.g., short duration of exclusive breast feeding and early introduction of complementary foods
- Discarding the expressed colostrum before breast feeding the infant
- 'Mixed feeding'
- Over-diluting replacement feeds, resulting in insufficient nutrients for the growing infant
- Inappropriate complementary foods
- Unhygienic conditions, poor sanitation and unsafe water while preparing for replacement feeding
- Adverse socio-economic conditions, such as poverty, food insecurity, parental sickness, limited parental education etc.

It is therefore important to monitor these infants and provide appropriate care, as needed. The optimum feeding strategy for HIV exposed infants has been an issue that has drawn a lot of attention. Breast feeding has been associated with a higher risk of infection transmission to the infant. Exposure to HIV transmission continues for as long as a child is breast fed. Prolonged breast feeding of up to 18 to 24 months accounts for increased risk of HIV transmission to infants, as compared to shortened breast feeding of up to 6 months. Mixed feeding, a norm for the majority of women in India (>90%), has been shown to nearly double the risk of postnatal HIV transmission.

While there is risk of HIV transmission from mother to child during breast feeding, breast milk is a nutritionally complete food for infants who are 0-6 months of age. It contains antibodies which protect the infants against other infections. Thus, there has been a dilemma in deciding whether to breast feed or to opt for replacement feeding, especially when it is financially viable. However, the new national PPTCT regimens and guidelines provide for antiretroviral drugs either to the mother or child during the duration of breast feeding so as to enable breast feeding to be done safely and preventing transmission of the HIV virus in breast-milk. ARV interventions for the mother during pregnancy, labour/delivery and breast feeding and/or to the infant during breast feeding can significantly reduce risk of HIV to less than 5%.

Replacement feeding has been shown to be associated with higher risk of infants dying from infections in resource-limited settings. Thus, in view of the scientific evidence and PPTCT interventions, breast feeding is now recommended as the optimal infant feeding option in India.

The following sections provide the guidelines on nutritional care for infants and children in the following age groups:

- HIV exposed and infected infants < 6 months of age
- HIV exposed and infected infants and children (6 months to 5 years of age)
- HIV- infected children > 5 years to 14 years of age





2. Nutritional Care for HIV-Exposed and Infected Infants < 6 Months of Age



This section presents the infant feeding guidelines for HIV-exposed and infected infants aged 0 to 6 months, last updated in 2011.

The 10 principles of feeding HIV exposed and infected infants are:

1. All HIV positive pregnant women should have PPTCT interventions provided from early stages of pregnancy, as far as possible. The interventions include either maternal or infant ARV prophylaxis for the duration of breast feeding.
2. Exclusive breast feeding is the recommended infant feeding choice for the first 6 months, irrespective of whether mother or infant is provided with ARV drugs for the duration of breast feeding.
3. Mixed feeding should not be practiced.
4. Only in situations where breast feeding cannot be done or on individual parents' informed decision, replacement feeding may be considered. However, all 6 criteria for replacement feeding (see box on page 6) must be met.
5. Exclusive breast feeding should be done for at least 6 months, after which complementary feeding should introduced gradually, irrespective of whether the infant is diagnosed HIV negative or positive by early infant diagnosis.
6. Either mother or infant should be receiving ARV prophylaxis or ART during the whole duration of breast feeding. ARV prophylaxis should continue for one week after the breast feeding has fully stopped.
7. For breast feeding infants diagnosed HIV negative, breast feeding should be continued until 12 months of age, if the mother is on ART or ARV prophylaxis is being given to mother or infant.
8. For infants diagnosed HIV positive, ART should be started and breast feeding should be continued till 2 years of age.
9. Breast feeding should stop once a nutritionally adequate and safe diet without breast-milk can be provided.
10. Breast feeding should never be stopped abruptly. Mothers who decide to stop breast feeding should stop gradually over one month.

Infant feeding options for HIV exposed infants < 6 months of age

The 2011 National Guidelines on Feeding for HIV-exposed and infected infants < 6 months old recommends:

- Exclusive breast feeding for at least 6 months and continuing breast feeding till 12 months where possible
- Only in situations where breast feeding cannot be done or it is the individual mother's choice, replacement feeding may be considered only if all the 6 criteria for replacement feeding are met (see box on page 6)

** Start complementary feeding at 6 months of age, as per IYCF guidelines*





Exclusive breast feeding is the optimal feeding option for HIV-exposed infants below 6 months of age. However, it is recognized that in some cases, breast feeding may not be possible, for example, in situations of maternal death, severe maternal sickness etc.

The tables on pages 11, 12 and 13 give the various actions points in the continuum of the PPTCT, according to infant feeding practices. Most HIV-positive women should breast feed their infants except in case of one of the special situations described above.

To use the tables/summary charts, start from the left side of the chart and continue towards the right side.

2.2. Encouraging Safer Breast Feeding

Factors affecting transmission of HIV infection during breast feeding

There are some conditions, which increase the chances of HIV transmission during breast feeding by infected women. These are enumerated below:

- **When mother has AIDS, was recently infected or if her CD4 is below 350 cells/mm³:** There will be a higher chance of HIV virus transmission during pregnancy, delivery and breast feeding, if no PPTCT interventions are given.
- **Mixed Feeding:** Giving breast milk along with water, cow's milk, infant formulas or other breast milk substitutes in the first six months of life reduces the protection provided by breast milk alone. In young infants, the stomach lining is not adequately developed. Milk, other than human milk, causes damage to the stomach lining, which allows the HIV virus in breast milk to pass through to the infant's blood more easily.
- **Duration of Breast Feeding:** Without the protection of ARV drugs during breast feeding, the longer the baby is breast fed, the higher are the chances that the baby can get infected as there would be longer contact with breast milk. The new PPTCT national guidelines make breast feeding safer. Therefore, mothers known to be HIV-infected (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breast feed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter, and continue breast feeding for the first 12 months of life. However, the decision on how long to breast feed should be made carefully, taking into consideration the financial and social situation of the mother.
- **Improper positioning and attachment during breast feeding:** Improper attachment at the breast increases the likelihood of breast problems, such as cracked nipples, which may lead to easier transmission of the virus.
- **Thrush or Sores in the Child's Mouth:** If the baby has oral thrush or sores in the mouth, the virus can more easily pass through the sores.
- **Poor Breast Health – Cracked Nipples, Swollen Breasts or Mastitis:** any infection of the mother's breast during breast feeding, such as cracked nipples or mastitis, may increase the chance of HIV transmission to the baby.

¹ In a situation where there is no access to ARV drugs during breast-feeding, EBF for a minimum of 6 months is recommended unless conditions suitable for RF are met. This recommendation is based on the evidence that EBF is associated with reduced infant morbidity and mortality over the first year of life in HIV exposed as well as unexposed infants as compared to RF or mixed feeding. In this situation, introduce complementary feeding and animal milk after 6 months of age. Stop BF gradually depending upon the comfort level of mother and infant if a nutritionally adequate and safe diet ensured. If not feasible, continue BF until such a diet is ensured.





Six Criteria for Replacement Feeding

Mothers known to be HIV-infected should consider giving replacement feeding to their infants only when ALL of the following conditions are met:

1. Safe water and sanitation are assured at the household level and in the community, and
2. The mother, or other caregiver can reliably afford to provide sufficient replacement feeding (milk), to support normal growth and development of the infant, and
3. The mother or caregiver can prepare it frequently enough in a clean manner so that it is safe and carries a low risk of diarrhoea and malnutrition, and
4. The mother or caregiver can, in the first six months exclusively give replacement feeding, and
5. The family is supportive of this practice, and
6. The mother or caregiver can access health care that offers comprehensive child health services.



Infant feeding summary charts/ tables: PPTCT and infant feeding options

Note: HIV infected women who become pregnant while on ART should also follow the charts below

Table 1: Exclusive Breast Feeding (EBF)

ART eligibility	Mother antiretroviral drug regimens			Infant feeding choice	Infant NVP: Give first dose of NVP within 6 to 12 hours of delivery and continue daily NVP for ...	EID* results at 6 weeks	After EID results available, infant NVP to continue or stop?	EBF till	Stop BF at	Remarks
	Mother	Antenatal (AN)	Postpartum (PP)							
CD4 > 350 cells/mm ³ irrespective of WHO Clinical Stage OR WHO Stage 3 or 4 disease, irrespective of CD4 cells count	ART regimens for mother's own health Preferred - I : AZT/3TC/NVP Alternative regimens - II : TDF/3TC/NVP III : AZT/3TC/EFV III(a) : TDF/3TC/EFV	Initiate mother on lifelong ART, irrespective of pregnancy gestation and continue ART throughout AN, labour/delivery, PP and throughout Breast Feeding		EBF	6 weeks only	EID Negative	Stop at 6 weeks	6 months	12 months	Stopping Breast Feeding should be done gradually within 1 month
		↑								
CD4 > 350 cells/mm ³ and WHO Clinical Stage 1 or 2	PPTCT Option B regimen if Hb <8 g/dl Regimen III(a) TDF/3TC/EFV once a day starting from 14 weeks of gestation	continue Regimen III (a) throughout AN, labour/delivery, PP and throughout Breast Feeding		EBF	6 weeks only	EID Negative	Stop at 6 weeks	6 months	12 months	Mother continue Regimen III (a) until 1 week after Breast Feeding has stopped
		↑								
CD4 > 350 cells/mm ³ and WHO Clinical Stage 1 or 2	PPTCT Option A regimen if Hb ≤8 g/dl AZT twice daily starting from 14 weeks of gestation	AZT twice daily	sdNVP + AZT/3TC	EBF	Minimum 6 weeks and continue NVP until EID result return	EID Negative	Continue NVP during Breast Feeding until one week after Breast Feeding has stopped	6 months	12 months	Stopping Breast Feeding should be done gradually within 1 month
		* AZT/3TC for 7 days only								
HIV positive pregnant woman		Introduce complementary feeding at 6 months of age as usual								Confirmation of HIV status by antibody HIV test at 18 months of age, irrespective of the result of the first screening HIV tests

* EID means DNA PCR screening at ICTC, and if detected positive, confirmation by whole blood sample (WBS) at the ART center

‡ If maternal AZT taken for more than 4 weeks, then omit sd-NVP and AZT/3TC tail. Continue maternal AZT during labour and stop at delivery

± First assess mother if CD4 still >350, then stop option B regimen. Stop EFV and give TDF/3TC for 7 days more. Follow up as usual at ART center for routine pre-ART monitoring

Table 2: Exclusive Replacement Feeding (ERF)

ART eligibility	Mother antiretroviral drug regimens			Infant feeding choice	Infant NVP: Give first dose of NVP within 6 to 12 hours of delivery and continue daily NVP for ...	EID* results at 6 weeks	After EID results available, infant NVP to continue or stop?	ERF till
	Mother	Antenatal (AN)	During labour and delivery					
HIV positive pregnant woman	ART regimens for mother's own health Preferred- I : AZT/3TC/NVP OR Alternative regimens - II : TDF/3TC/NVP III : AZT/3TC/EFV III(a) : TDF/3TC/EFV	Initiate mother on lifelong ART, irrespective of pregnancy gestation and continue throughout AN, labour/delivery, PP	↑	ERF	6 weeks only	EID Negative	Stop at 6 weeks	6 months
								6 months
CD4 > 350 cells/mm ³ and WHO Clinical Stage 1 or 2	PPTCT Option B regimen if Hb < 8 g/dl Regimen III(a) TDF/3TC/EFV once a day starting from 14 weeks of gestation	siARTing from 14 weeks gestation, give PPTCT option B and stop after delivery	↑	ERF	6 weeks only	EID Negative EID Positive EID Negative EID Positive	Stop at 6 weeks	6 months
								6 months
								6 months
								6 months
CD4 < 350 cells/mm ³ irrespective of WHO Clinical Stage OR WHO Stage 3 or 4 disease, irrespective of CD4 cells count	PPTCT Option A regimen if Hb ≥ 8 g/dl AZT twice daily starting from 14 weeks of gestation	AZT	* sdNVP + AZT/3TC	ERF	6 weeks only	EID Negative EID Positive	Stop at 6 weeks	6 months
								6 months

* EID means DNA PCR screening at ICTC, and if detected positive, confirmation by whole blood sample (WBS) at the ART center
 † If maternal AZT taken for more than 4 weeks, then omit sd-NVP and AZT/3TC tail. Continue maternal AZT during labour and stop at delivery
 ‡ First assess mother if CD4 still >350, then stop option B regimen. Stop EFV and give TDF/3TC for 7 days more. Follow up as usual at ART center for routine pre-ART monitoring

Table 3: Antiretroviral prophylaxis for women presenting directly in labour, immediately postpartum and their infants, including infant feeding options

ART eligibility	Mother antiretroviral drug regimens				Infant feeding choice	Postpartum assessment of mother for ART eligibility: - to be done as soon as possible - WHO Clinical staging and CD4 count to be done	Infant NVP: § Give first dose of NVP within 6 to 12 hours of delivery and continue for minimum of 6 weeks Further extension of infant NVP afterwards depends on whether mother needs lifelong ART for her own health or not...	EID Result	Exclusive BF or RF till	Introduce complementary feeding at 6 months of age as usual		Stop BF at	Remarks
	Mother	Antenatal (AN)	During labour and delivery	Postpartum (PP)						6 months	not applicable		
Women with unknown status presenting in screening and/or immediately postdelivery and undergoes HIV screening	Women in direct labour with positive HIV rapid antibody screening	none	sdNVP + AZT/3TC	AZT/3TC for 7 days only	EBF	Mother need ART for her own health*	After initial 6 weeks, continue infant NVP until mother has completed at least 6 weeks of material lifelong ART. Thereafter, infant NVP can be stopped	EID negative	6 months	12 months	Stopping Breast Feeding should be done gradually within 1 month	Confirmation of HIV status by antibody HIV test at 18 months of age, irrespective of the result of the first screening HIV tests	
						Mother does not need ART yet	Continue infant NVP until 1 week after Breast Feeding has stopped	EID negative	6 months	12 months	Infants diagnosed EID positive should be initiated on ART as per national pediatric guidelines		
	Unknown CD4 at baseline	none	sdNVP + AZT/3TC	AZT/3TC for 7 days only	EBF	Irrespective of mother ARTY eligibility	Irrespective of ART eligibility of mother give 6 weeks of infant NVP	Irrespective of EID result (whether negative or positive)	6 months	24 months	24 months	not applicable	
													Irrespective of mother ARTY eligibility

* If mother is eligible for ART - do not delay initiation of ART. ART regimen as per national adult guidelines.
 § If mother is diagnosed HIV positive AFTER DELIVERY, her infant should receive infant NVP prophylaxis for minimum of 6 weeks

Ensuring Safer Breast Feeding for HIV-Infected Mothers

- Mothers should use dual protection (condom) to avoid re-infection with HIV and other STIs during pregnancy and breast-feeding
- Practice exclusive breast feeding for the first 6 months
- Avoid mixed feeding
- Avoid non-nutritive or comfort suckling
- Check for and treat oral thrush and sores in child's mouth immediately
- Practice good breast care
- Recognize and promptly manage breast conditions like mastitis, sore-nipple and abscess. Do not breast feed the infant from affected breast
- Seek medical help, if need arises

Breast feeding can be made safer by addressing the above risk factors (see box above).

Counsel and support the parent on the decision and benefits of breast feeding. The infant should be breast fed within one hour of birth. Early initiation of breast feeding promotes earlier establishment of breast milk production. The feeding of colostrum to the infant provides protective antibodies as well as providing several essential nutrients. Ensure correct attachment of the infant at the breast. Bleeding or cracked nipples, breast abscess and mastitis increase the risk of infection in the infant, and hence should be treated immediately.

2.3. Replacement Feeding as the Infant Feeding Option

For HIV infected women, who cannot breast feed and opt for replacement feeding, ensure that all the 6 criteria for replacement feeding are fulfilled (Box on page 12). The decision to use replacement feeding must be fully considered in terms of affordability, practicability and feasibility. Two options for replacement feeding are available:

- **Locally available animal milk (unmodified)**, which must be fresh, boiled animal milk, or pre-packed, processed milk (toned, containing 3% fat, 3.1% protein and providing 58 Kcal/100ml). While animal milk is not ideally suited to meet the complete nutritional requirements of an infant below 6 months, it is easily available, economical and culturally acceptable. The infants receiving animal milk should additionally receive multivitamin and iron supplementation.
- **Commercial infant feeding formula** has a standard composition to meet the complete nutritional needs of infants below 6 months. However, it is expensive, estimated cost for the milk formula being about INR 8,000-10,000 for 6 months. Preparation of formula milk must be done in strict hygienic conditions with correct quantity of clean, boiled and safe water.

Advice for parents who opt for Replacement Feeding

- Completely ensure breast feeding at all times. Mixed feeding increases the chance of HIV transmission.
- Practice safe replacement feeding, including hygienic preparation and storage of replacement feeds and correct technique of feeding using cup/paladai/ katori-spoon.
- Bottle-feeding should be strongly discouraged and not practiced at all.



- Do not use leftover milk at the end of a feeding session to re-feed the infant.
- Bring infants on replacement feeding, back to health centre for regular medical follow-ups. Especially if new problems develop, e.g., diarrhoea, fever or other infections.
- Regularly monitor for early detection of nutritional deficiencies, growth faltering and infection among the infants.
- Manage breast engorgement in the post-natal period.
- Encourage physical contact with the baby to give the baby comfort and develop mother-infant bonding.
- Infants receiving animal milk should receive multivitamin & iron supplementation.
- Provisions of IMS Act 1992 should be strictly adhered to while advising RF i.e. no free supply of commercial formula milk from any source.
- The parents should be counselled to use condom even if they are using another contraceptive method like an IUD or oral pills, to avoid re-infection during pregnancy.

2.4 Wet Nursing

In certain areas of India where wet nursing is culturally accepted and practiced, the counsellor should discuss this with the family during the antenatal period:

- Ensure that the lactating woman (wet nurse) is HIV negative and follows safe sexual practices throughout the period of lactation, in order to avoid acquiring HIV infection.
- The wet nurse should be aware of the very small risk of reverse transmission of HIV infection to her, in case the infant is HIV infected.
- The wet nurse should be counselled together with the family before delivery and followed up during the period of breast feeding of the HIV-exposed infant.
- HIV exposed infants should have a minimum of 6 weeks of NVP prophylaxis as per usual protocol and be followed up for care.





3. Nutritional Care of HIV Exposed and Infected Children 6 Months-14 Years of Age



3.1. Nutrition Guidelines for HIV Exposed and Infected Children 6 - 60 Months of age

For all infants more than 6 months of age, complementary feeding should be started irrespective of HIV status and initial feeding options.

The Ten Guiding Principles for Complementary Feeding are:

- Introduce complementary foods at 6 months of age (180 days) while continuing to breast feed.
- Start at 6 months of age with small amounts of food and increase the quantity and frequency as the child gets older, while maintaining frequent breast feeding.
- Gradually increase food consistency and variety as the infant grows older, adapting to the infant's requirements and abilities.
- Feed a variety of nutrient-rich and energy-dense food from the family pot to ensure that all nutrient needs are met. Use iron rich complementary foods or vitamin-mineral supplements for the infant, as needed.
- Practice responsive (active) feeding, applying the principles of psychosocial care, good hygiene and proper food handling.
- All breast feeding should stop only when a nutritionally adequate and safe diet, without breast milk, can be provided by complementary feeds.
- Assess the child's nutritional status regularly and, for HIV positive children, classify appropriately as one of the three - growing, poor weight gain/conditions with increased nutritional needs or severe acute malnutrition.
- In addition to age specific needs, HIV positive children who are growing appropriately will require additional 10% energy, based on actual weight.
- In addition to age specific needs, HIV positive children who have poor weight gain or have conditions with increased nutritional needs will require additional 20 - 30% energy, based on actual weight,
- In addition to the age specific needs, HIV positive children who have severe acute malnutrition will need therapeutic feeding to provide 50-100% additional calories and should be referred to appropriate facility for management of SAM.

Guiding Principle 1: Introduce complementary foods at 6 months of age (180 days) while continuing to breast feed.

Breast milk alone is sufficient to meet the nutritional requirements up to 6 months of age. After 6 months of age (180 days), it becomes increasingly difficult for breast fed infants to meet their nutrient needs from breast milk alone. Furthermore, most infants are developmentally ready for other foods at about 6 months. The energy needed in addition to breast milk by infants is about 200 kcal per day for infants 6–8 months, 300 kcal per day for infants 9–11 months, and 550 kcal per day for children 12–23 months of age. HIV infected children require more energy depending on the stage of the disease and nutritional status. As the child gets older and the intake of breast milk decreases the child requires more solid foods.





Guiding Principle 2: Start at 6 months of age with small amounts of food and increase the quantity and frequency, as the child gets older, while maintaining frequent breast feeding.

Complementary foods can be mixtures of cereals, pulses and vegetables like khichri, suji porridge, curd rice, milk as well as fruits like banana, papaya, chikku, mango etc. Table 2 summarizes the amount of food required at different ages. The quantity should be increased gradually, month by month, as the child grows and develops. The table shows the average for each age range.

As per the IMNCI guidelines (Annex-II), for infants aged 6-12 months, give 3 meals per day if breast feed and 5 per day if not breast feed. For 12 – 23 months, give 5 meals per day and for 2-5 years old children; give three meals from the family pot and two additional snacks. Snacks are defined as foods eaten between meals, often self-fed finger foods, which are convenient and easy to prepare.

While introducing complementary feeding, gradually increase the number of meals for the infant, starting with one food for a week and then introducing the next meal with a different food variety. The amount of the food should also be increased gradually, depending on the child's appetite.

At 18 months of age, the confirmatory test for HIV will determine the HIV status of the child. For children who are HIV negative, the IMNCI guidelines on complementary feeding for children (Annex-II) will be applicable. Children who are HIV positive will require extra energy as per their nutrition status.

Guiding principle 3: Gradually increase food consistency and variety as the infant grows older, adapting to the infant's requirements and abilities.

The most suitable consistency for an infant's or young child's food depends on age and development. Beginning at 6 months, an infant can eat pureed, mashed or semi-solid foods. By 8 months, most infants can also eat cooked soft finger foods like biscuits, bread, boiled vegetables like potatoes, carrots etc. By 12 months, most children can eat the same types of foods as consumed by the rest of the family. Some examples of the types of complementary foods that can be given to children in each age group are detailed in the IMNCI feeding chart in Annex-III.

The complementary food needs to be nutrient-rich food, as explained in guiding principle 4. Foods that can cause choking, such as whole peanuts, should be avoided. A complementary food should be thick enough so that it stays on a spoon and does not drip off. Generally, foods that are thicker or more solid are more dense in energy and nutrients than thin, watery or soft foods. When a child eats thick, solid foods, it is easier to give more kcal and to include a variety of nutrient-rich ingredients, including animal-source foods. For optimal child development, it is important to gradually increase the consistency of food with age. Introduce 'lumpy' food by 10 months of age, since a delay beyond this age may increase the risk of feeding difficulties later on. For example, a younger child of 6-7 months is more likely to accept a variety of foods and consistency compared to a child beyond one year of age who has not been introduced to different foods.

Good Complementary Foods are:

- Rich in energy, protein and micronutrients particularly iron, zinc, calcium, vitamin A, vitamin C and folate);
- Not spicy or salty;
- Easy for the child to eat;
- Liked by the child;
- Locally available, affordable and culturally acceptable





Table 4: Quantity and Frequency of Meals Recommended for Children 6 - 23 Months of age

Age	Energy needed per day in addition to breast milk	Texture	Frequency	Amount of food an average child will usually eat at each meal
6-8 months	200 kcal per day	Start with thick porridge, well mashed foods Continue with mashed family foods	2-3 meals per day Depending on the child's appetite, 1-2 snacks may be Offered	Start with 2-3 table spoonfuls per feed, increasing gradually to ½ of a 250 ml cup
9-11 months	300 kcal per day	Finely chopped or mashed foods, and foods that baby can pick up and self feed	3-4 meals per day Depending on the child's appetite, 1-2 snacks may be Offered	½ of a 250 ml cup/ bowl
12-23 months	550 kcal per day	Family foods, chopped or mashed if necessary	3-4 meals per day Depending on the child's appetite, 1-2 snacks may be Offered	¾ to full 250 ml cup/ bowl

Guiding principle 4: Feed a variety of nutrient-rich and energy-dense foods from the family pot to ensure that all nutrient needs are met. Use iron-rich complementary foods or vitamin-mineral supplements for the infant, as needed.

Complementary foods should provide sufficient energy, protein and micronutrients to cover a child's energy and nutrient gaps so that, together with breast milk, they meet all his or her needs. The largest gap is for iron, hence it is especially important that complementary foods contain iron, from green leafy vegetables and if possible, from animal-source foods such as meat, eggs, poultry or fish. Pulses (peas, beans, lentils, nuts) fed with vitamin C-rich foods also aid iron absorption (see box on Complementary Foods).

The complementary foods usually comprise of the local cereals like rice, wheat, ragi, bajra; pulses, vegetables and fruits such as potato, banana and papaya which consist mainly of carbohydrates and provide energy. Pulses and cereals also contain proteins.

A variety of other foods should be added to the staple diet every day to provide other nutrients. These include:

- **Foods from animals or fish** are good sources of protein, iron and zinc. Egg is a good source of protein and vitamin A, but not of iron. These can be fed as soft mashed feeds, not just the watery soup/sauce.
- **Dairy** products, such as milk, cheese and yoghurt, are useful sources of calcium, protein, energy and B vitamins.
- **Pulses – peas, beans, lentils, peanuts, and soybeans** are good sources of protein, and some iron. Combining iron rich sources with foods containing vitamin C (for example, tomatoes, guava, lemon, amla and other citrus fruits) helps iron absorption. Green leafy vegetables like spinach, methi, cabbage are also good sources of iron.
- **Orange-coloured fruits and vegetables** such as carrot, pumpkin, mango and papaya, and dark-green leaves such as spinach, are rich in carotene, from which vitamin A is made, and also vitamin C.





- Fats and oils are concentrated sources of energy, and of certain essential fats that children need to grow. Add oil/butter/ghee to complementary foods to increase the energy density.
- In settings where little or no animal-source foods are available/affordable or it is not acceptable to families, consumption of iron-rich complementary foods or fortified foods, if available, should be encouraged.

Guiding principle 5: Practice responsive (active) feeding, applying the principles of psychosocial care, good hygiene and proper food handling.

Like all other infants, HIV exposed infants need loving care for adequate psychosocial stimulation for optimal growth. Play and communication as well as active, sensitive and responsive feeding stimulates the growth of babies. The age appropriate play and communication activities can be referred to in Annex-V.

Responsive Feeding

- Feed infants directly and assist older children when they feed themselves.
- Feed slowly and patiently, and encourage children to eat, but do not force them.
- If children refuse any food, experiment with different food combinations, tastes, textures and methods of encouragement.
- Minimize distractions during meals if the child loses interest easily.
- Remember that feeding times are periods of learning and love – talk to children and include play and communication activities during feeding, with eye-to-eye contact.

Optimal complementary feeding depends not only on what is fed but also on how, when, where and by whom a child is fed. Young children are often left to feed themselves, and encouragement to eat is rarely observed. Forced feeding is also common, but should not be practiced. In such settings, a more active style of feeding can improve dietary intake. The term “responsive feeding” or “active feeding” is used to describe care giving that applies the principles of psychosocial care as outlined in the box on Responsive Feeding.

A child should have his or her own plate or bowl so that the caregiver knows if the child is getting enough food. A utensil, such as a spoon, or just a clean hand, may be used to feed a child, depending on the culture. The utensil needs to be appropriate for the child’s age. Whether breast feeds or complementary foods are given first at any meal has not been shown to matter. A mother can decide according to her convenience, and the child’s demands.

Five Keys to Safer Food

- Keep clean – clean utensils, clean hands and clean place
- Separate raw and cooked food
- Cook food thoroughly
- Keep food at safe temperatures
- Use safe water and safe food materials

Safe preparation and storage of complementary foods can prevent contamination and reduce the risk of diarrhoea. Avoid any use of bottles and teats as these are difficult to clean. All utensils, such as cups, bowls and spoons, used for an infant or young child’s food should be washed thoroughly. Eating by

hand is common in our culture, and it is important for both the caregiver’s and the child’s hands to be washed thoroughly before eating. When food cannot be refrigerated it should be eaten soon after it has been prepared (no more than 2 hours), before bacteria have time to multiply. Refer to Annex-IV for Five Keys to Safer Food.





Guiding principle 6: All breast feeding should stop only when a nutritionally adequate and safe diet without breast milk can be provided by complementary feeds.

Breast feeding in HIV exposed or infected infants should be continued as per the infant feeding protocol defined in section 2 (Table 1). It should stop completely only when a nutritionally adequate and safe diet without breast milk can be provided by complementary feeds, including animal milk. For infants who were on replacement feeding, animal milk should be continued as before, in addition to complementary feeds. These infants (6-12 months of age) should receive two additional complementary feeds as compared to babies who continue to receive breast feeds. For frequency and amount of complementary feeding for breast fed and non-breast fed children, follow the IMNCI guidelines as per Annex-III.

Guiding Principle 7: Assess the child’s nutritional status regularly and for HIV positive children classify appropriately as one of the three - (i) growing (ii) poor weight gain/conditions with increased nutritional needs or (iii)severe acute malnutrition.

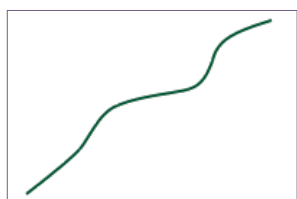
HIV infection can impair the nutritional status of infected children from early in life. Growth faltering and reduction in length/height often occur even before opportunistic infections or other symptoms in almost all infected children. Weight and height should be routinely measured in health facilities and is helpful for monitoring progress. It provides the most accurate way of assessing a child’s nutritional status i.e. Weight-for-height and body mass index. The weight-for-height should be plotted on the WHO Child Growth Standards charts for growth monitoring. For HIV exposed infants, weight and length are monitored at every visit at 6, 10, 14 weeks, followed by 6,9, 12, 15, and 18 months. For HIV infected children, weight is taken at every visit to ART centre (usually once a month) and height, once in 3 months.

Another good indicator of a child’s general nutritional status is their mid-upper arm circumference (MUAC). Measuring the mid-upper arm circumference is also a helpful way of screening children for severe acute malnutrition and helps to identify children at high risk of mortality. However, MUAC does not respond rapidly when malnourished children are treated, and so it is less helpful as a way of measuring recovery or improvement of nutritional status and to evaluate nutrition interventions over a short period of time.

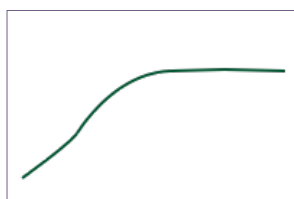
Children who are well and healthy should gain weight and length/height. Child health cards record the weight of children over time. Children who are growing normally follow a growth curve parallel to one of the standard growth curves. Weight loss or failure to gain weight can be identified by observing the child’s weight over time.

When weight “falters” or the growth curve “flattens” and is no longer parallel to the chart line, this indicates the need for urgent clinical assessment, management and nutritional intervention and possibly ART. Below are examples of growing normally, curve flattening (crossing growth lines) and losing weight (using weight-for-age charts).

Figure 2: Depiction of Growth Curve in Different Situations



1. Growing Well: Encourage mother to continue as before



2. Growth Curve Flattening: Urgent clinical assessment



3. Losing weight: Urgent clinical assessment





It is better to identify infants and children who are at risk of under nutrition, or who have poor growth, before they become severely malnourished. Therefore if:

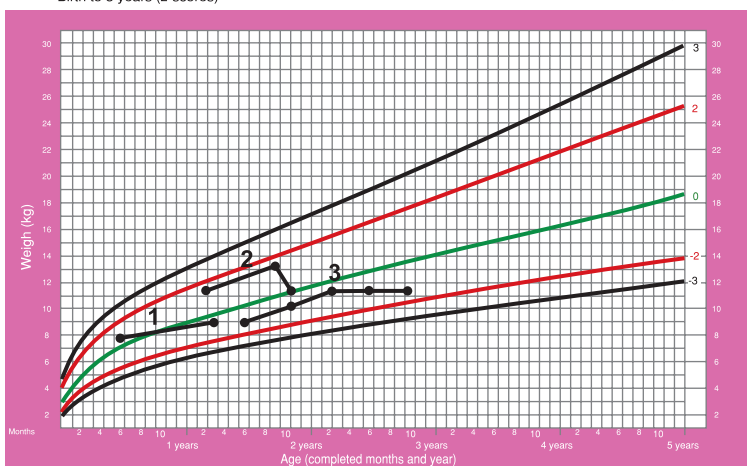
- a mother reports that her child is failing to gain weight
- the child has had a poor appetite recently, or
- the child is not gaining weight and his/her growth curve is flattening, or
- the child is losing weight and the growth curve is dropping downwards, or
- there are changes in caregiver or home circumstances,

The child should be examined for visible signs of malnutrition i.e. very little subcutaneous fat and muscle (particularly obvious on the upper arm and the thighs and buttocks sagging skin) with or without bipedal oedema and followed up closely for monitoring.

Using the chart on the next page as an example, growth faltering is indicated by the crossing of the lower z-score lines {Figure 2 (i)}, sharp decline {Figure 2 (ii)} or flattening of the growth curve {Figure 2 (iii)}. This may indicate the presence of acute illness, such as diarrhoea, pneumonia or deterioration in the HIV infected child. It is also important to ask and understand the social and environmental factors, including who is the primary care giver, who feeds the child, feeding history and access to food.

Weight-for-age GIRLS

Birth to 5 years (z-scores)



WHO Child Growth Standards

Classifying the nutritional status of HIV infected children

Based on the anthropometric measurements (weight, height and MUAC) and plotting of the weight for age and/or weight for height, visible signs of wasting and oedema, the nutritional status of the child can be classified as (Table 5):

- 1. Growing appropriately** – The child is gaining weight. The weight for age is more than - 2 z-score and growth curve shows an upward trend.
- 2. Poor Weight Gain** – Poor weight gain in HIV infected is defined by the presence of any of the following:
 - Reported weight loss, or
 - Very low weight (weight-for-age less than -3 z-score), or
 - Underweight (weight-for-age less than -2 z-score), or
 - Confirmed weight loss (>5%) since the last visit, or
 - Growth curve flattening
- 3. Severe Malnutrition** – In children 6-60 months, severe acute malnutrition is marked by the presence of any of the following:
 - weight-for-height is below -3 z-score of the WHO growth standards, or
 - there are signs of severe visible wasting, or
 - oedema of both feet is present, or
 - MUAC is less than 115 mm in children up to 60 months of age





Table 5: Classification of the Nutritional Status of the HIV-Infected Child

Signs	Classify As
Signs of severe visible wasting, or Oedema present in both feet, or Weight-for-height less than -3 z-score, or MUAC less than 115 mm in children 6- 60 months	SEVERE MALNUTRITION
Reported weight loss, or Very low weight (weight for age less than -3 z-score), or Underweight (weight for age less than -2 z-score), or Confirmed weight loss (>5%) since the last visit, or Growth curve flattening	POOR WEIGHT GAIN
Child is gaining weight (weight for age more than -2SD and gaining weight appropriately)	GROWING APPROPRIATELY
Chronic lung disease, or TB, or Persistent diarrhoea, or Other chronic OI or malignancy	CONDITIONS WITH INCREASED NUTRITIONAL NEEDS

HIV infected children with chronic lung disease, tuberculosis, persistent diarrhoea or other chronic opportunistic infections or malignancy have increased nutritional needs, in spite of a good nutritional status. The additional energy requirements are similar to children with poor weight gain.



Figure 3:

Child with Severe Acute Malnutrition

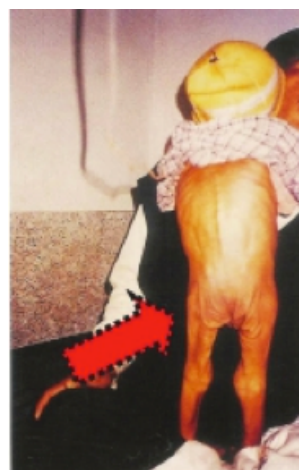


Figure 4:

*Severe Visible Wasting:
Baggy pant appearance*





Figure 5:

Bilateral pitting oedema: you must formally test for oedema with finger pressure, you cannot tell by just looking

Guiding Principle 8: In addition to age specific needs, HIV positive children who are growing appropriately will require additional 10% energy, based on actual weight.

Children who are growing well and asymptomatic or with mild symptoms only; (this may include children on ART for over 6 months following recovery of weight)

The energy needs of these children are increased by about 10% (based on actual weight rather than expected weight for age). The child still needs appropriate energy intake according to his/her age and weight. The additional

energy helps to maintain normal growth, development, activity and body functions. The additional energy is best given through additional household foods, provided as part of a balanced, varied diet. The energy density and quantities of local foods can be increased to provide additional energy, e.g., adding 2 tsp butter/oil or 1-2 tsp sugar to porridge. It can be also be given in addition to normal diet for children 6 – 12 months of age. Table 6 gives the average additional energy requirements for children aged 6 – 60 months, growing adequately.

Guiding Principle 9: In addition to age specific needs, HIV positive children who have poor weight gain or have conditions with increased nutritional needs will require additional 20 - 30% energy, based on actual weight.

The nutritional needs of HIV infected children for growth, development and immunological function depend on the stage of disease and history of recent complications, such as persistent diarrhoea or opportunistic infections.

Table 6: Nutritional Requirements for HIV Infected Children

Energy Requirement in HIV Infected Children			
	Asymptomatic with adequate growth (10% additional energy)	Poor weight gain (20% additional energy)	Severely malnourished (50 - 100% additional energy)
6 - 11 months			
Total Calories for HIV infected children	760 kcal/day	830 kcal/day	150 - 200 kcal/kg/day
Additional Calories*	60 - 70 kcal/day	120 - 150 kcal/day	Based on actual weight
Examples of ways to increase energy intake	Add 2 tsp of edible oil and 1 - 2 tsp of sugar to porridge in addition to normal diet	Add 2 tsp of edible oil and 1 - 2 tsp of sugar to porridge or other foods. Aim to add 2 - 3 times daily.	Therapeutic feeding as per National guidelines



12 - 23 months			
Total Calories for HIV infected children	990 kcal/day	1080 kcal/day	150 - 200 kcal/kg/day
Additional Calories*	80 - 90 kcal/day	160 - 190 kcal/day	Based on actual weight
Examples of ways to increase energy intake in addition to meals and snacks appropriate to age	Add 2 tsp of edible oil and 1 - 2 sugar to porridge. Aim to add 2 times daily.	Extra cup (200ml) of full cream milk or 2 idlis or bread butter (2 slice)	Therapeutic feeding as per National guidelines
2 - 5 yrs			
Total Calories for HIV infected children	1390 kcal/day		150 - 200 kcal/kg/day
Additional Calories*	100 - 140 kcal/day	200 - 280 kcal/day	Based on actual weight
Examples of ways to increase energy intake in addition to meals and snacks appropriate to age	Extra cup of milk or sweetened curd or 1 parantha	Extra 2 puris with vegetable ; or 1 cup porridge or chikki (2 piece)	Therapeutic feeding as per National guidelines

* Calories in addition to that recommended for normal children in the same age group

Children with conditions with increased energy needs, e.g., chronic lung disease or chronic infections, e.g., TB or persistent diarrhoea irrespective of whether the child is taking ART or not.

Children with chronic illnesses may require extra 20-30% energy each day (based on actual weight rather than expected weight for age). These children also need ART and should be referred to a treatment site for assessment and exclusion of TB. The additional 20-30% energy is best given through additional household foods, provided as part of a balanced, varied diet. Table 5 details the energy requirements of children 6 – 11 months, 12 – 23 months and 2 – 5 yrs of age.

Guiding Principle 10: In addition to age specific needs, HIV positive children who have severe acute malnutrition will need therapeutic feeding to provide 50-100% additional calories and should be referred to appropriate facility for management of SAM.

Children with severe malnutrition i.e. signs of visible wasting, bilateral oedema or severely impaired growth irrespective of whether the child is taking ART or not.

These children need 50 to 100% extra energy each day (based on actual weight rather than expected weight for age) for a limited period until weight is recovered. These children should be treated with therapeutic feeding which should continue until nutritional recovery is achieved (average ~ 6-10 weeks). They should also be referred to an ART centre for comprehensive assessment and exclusion of TB and other illnesses.

Severely malnourished infants with no medical complications can often be managed at home if they still have a good appetite and a community-based management program is in place. Children who are sick or have poor appetite or are unable to eat must be referred for inpatient care. The nutritional management of HIV-infected severely malnourished children is largely the same as for any other severely malnourished child. Refer to section 3 for further details on management of SAM.

3.2 Nutrition for HIV Infected Children 5 – 14 yrs

The nutrition management of the HIV infected children in the age group 5-14 years follows the same principles as in HIV infected children 6 – 60 months. Growth monitoring of all children is essential. For children more





than 5 years the rate of weight gain is slower and varies with the development stages. The weight and height in these children should be measured at least once in 3 months. However, weight loss at any time needs further evaluation and more frequent monitoring.

Based on the anthropometric measurements (weight, height and MUAC) and plotting of the weight forage and/or weight for height, visible signs of wasting and oedema, the nutritional status of the child can be classified as (Table 7)

1. **Growing Appropriately:** The child is gaining weight. The weight for age is more than -2 z-score and growth curve shows an upward trend.
2. **Poor Weight Gain:** Poor weight gain in HIV infected is defined by the presence of any of the following:
 - Reported weight loss, or
 - Confirmed weight loss (>5%) since the last visit, or
 - Very low weight (weight-for-age less than -3 z-score for 5-10 yrs), or
 - Underweight (weight-for-age less than -2 z-score for 5-10 yrs), or
 - Growth curve flattening
3. **Severe Acute Malnutrition:** In children 5-14 yrs, severe acute malnutrition is marked by the presence of any of the following:
 - BMI is below -3 z-score of the WHO growth standards, or
 - there are signs of severe visible wasting, or
 - oedema of both feet is present, or
 - MUAC is less than 129 mm in children 5-9 yrs or less than 160 mm in children 10 – 14 yrs.

Nutrition requirements of children 5 -14 years of age are presented in table 7.

Table 7: Classification and Nutritional Requirements of HIV infected Children 5 - 14 years of age

Criterion	Nutritional Status	Age-group	Nutritional Requirements
Signs of severe visible wasting, or Oedema present in both feet, or BMI less than -3 SD or MUAC less than 129 mm in children 5 - 9 yrs or less than 160 mm in children 10 - 14 yrs	SEVERE MALNUTRITION	5 - 9 yrs	Total Calories — 150 - 200 kcal/kg/day Based on actual weight Need therapeutic feeding as per National guidelines
		10 - 14 yrs	Total Calories — 150 - 200 kcal/kg/day Based on actual weight Need therapeutic feeding as per National guidelines
Reported weight loss, or Very low weight (weight for age less than -3 z-score), or Underweight (weight for age less than -2 z-score), or Confirmed weight loss (>5%) since the last visit, or Growth curve flattening	POOR WEIGHT GAIN	5 - 9 yrs	260 - 380 kcal per day required in addition to normal requirement for the age group. Examples of ways to increase energy intake – extra 2 paranthas with curd or poha (1½ cups) or halwa (½ cup)





Chronic lung disease, or TB, or Persistent diarrhoea, or Other chronic OI or malignancy	CONDITIONS WITH INCREASED NUTRITIONAL NEEDS	10 -14 yrs	340 - 400 kcal per day required in addition to normal requirement for the age group. Examples of ways to increase energy intake – Extra 1 egg omelette/bhurji with 2 slices of bread or 1 stuffed parantha and 1 cup milk
Child is gaining weight (weight for age more than -2 z score and is gaining weight appropriately)	GROWING APPROPRIATELY	5 - 9 yrs	130 - 190 kcal/day required in addition to normal requirement for the age group. Examples of ways to increase energy intake – Extra cup (200ml) of full cream milk or egg omlette/bhurji or 4 vegetable pakoras or one roti with vegetable
		10 - 14 yrs	170 - 230 kcal/day required in addition to normal requirement for the age group. Examples of ways to increase energy intake – Extra 1 roti in lunch and dinner with vegetable or one dosa with sambhar or one stuffed parantha

Table 8: Anthropometric measurements of HIV infected and exposed children as convergence of NRHM and HIV services at the different levels of health system

	Anganwadi Center (AWC)	Subcentre/ Village Health and Nutrition Day (VHND)	Link ART Centres (LAC)	ART Centres and District Hospitals
Weight	✓	✓	✓	✓
Height			✓	✓
Weight for height			✓	✓
MUAC	✓	✓	✓	✓
Weight		✓	✓	✓
Height			✓	✓
BMI			✓	✓
MUAC		✓	✓	✓
Weight		✓	✓	✓
Height			✓	✓
BMI			✓	✓
MUAC		✓	✓	✓





3.3. Delivery of Nutrition and Related Services

The delivery of nutrition services to HIV-exposed and infected children is to be integrated within NRHM and HIV services. In particular, ART centres and ICTCs within the HIV services have the major role to play in assessing, monitoring and follow up of children who are HIV exposed and infected, since regular follow-up is to be done.

Children should also be linked to the ICDS nutrition services, since these are more decentralized to the village and community. Table 8 gives the level of health services for which nutrition assessment should be done.





4. Supportive Measures for Improving Health and Nutrition of HIV Infected Children

Maintaining good nutritional status enables HIV infected children to avoid and fight infections. Preventive measures, such as good hygiene, immunisation; de-worming and regular vitamin A supplements similarly protect the child against infections and under nutrition. Physical activity and play help children to grow and improve their sense of well-being. The following measures will support in improving the nutritional status and health of HIV infected children.

- Comprehensive clinical evaluation at ART centre
- Exercise and play
- Avoid infections
- Ensure adequate micronutrient intake
- Vitamin A supplements every 6 months
- De-worming to be done every 6 months
- Cotrimoxazole prophylaxis
- Immunizations
- Regular follow-ups

4.1. Comprehensive Clinical Evaluation at ART Centre

Improving the diet alone, though crucial, may not result in normal growth, weight recovery or improvement in clinical status. All children diagnosed HIV positive must be referred to ART centre for comprehensive evaluation and ART eligibility. Any HIV infected child not on ART who is not growing well should also be referred and assessed at the ART centre. These children may require additional medical interventions for associated TB/OIs or ART.

4.2. Exercise and Play

Healthy children enjoy playing; through play, they learn and develop both intellectual and physical skills. HIV infected children lose their muscle strength and the muscles become smaller (reduced muscle mass) as the disease progresses. When HIV-infected children are feeling well or only having occasional periods of illness, regular play and activity can help to build up their muscles.

Regular play and exercise is also helpful in developing and maintaining their appetite. Children who play are healthier and happier. It is also a great way for mothers, fathers, and other caregivers to engage and show that they love the child and to enjoy their child.

4.3. Avoiding Infections

It is better to avoid infections than to need to treat them. There are several simple and practical ways by which parents and caregiver can help their children avoid common infections. This will also protect against malnutrition. These suggestions also help the mother or father to take some control and influence their child's health. The box on the next page lists the steps to avoid infections and ensure good health in HIV infected children.

“When HIV-infected children are feeling well or only having occasional periods of illness, regular play and activity can help to build up their muscles”





- Maintain good nutrition
- Food safety
- Immunizations
- Hygiene and hand washing
- Regular (prophylactic) vitamin A
- De-worming
- Regular (prophylactic) cotrimoxazole
- Avoiding contact with patients with active TB

Avoiding malaria through use of insecticide-treated bed nets (in malaria endemic areas), use of mosquito repellents etc.

4.4. Ensure Adequate Micronutrient Intake

HIV-infected children frequently have low levels of vitamins and other micronutrients. They may not be receiving enough from their diet or their bodies are using up more to fight the HIV infection itself or opportunistic infections. Zinc supplements also help HIV-infected children to recover from diarrhoeal illnesses, as per national guidelines.

Micronutrient intakes at recommended levels need to be assured in HIV-infected children through varied diets, fortified foods, and micronutrient supplements when adequate intakes cannot be guaranteed through local foods. At present, all national recommendations for micronutrient supplementation in the general population (e.g. vitamin A, zinc and iron) apply to HIV-infected children.

If the child's diet is not balanced and does not contain a variety of fruits, vegetables and food from animal sources, give a daily micronutrient supplement that provides one Recommended Daily Allowance of a wide range of vitamins and other micronutrients.

4.5. Vitamin A Supplements Every 6 Months

Vitamin A supplements, as in children without HIV infection, reduce diarrhoeal morbidity and mortality, especially in young children. As per the national guidelines, all children from 6-60 months of age should receive oral vitamin A every six months as per the following schedule:

- 6-12 months: 100, 000 IU
- 1-5 years: 200 000 IU every 6 months till 5 yrs of age

Do not give vitamin A supplement if the child has received a dose of Vitamin A within the past month. For example, from hospital.

4.6. De-worm Every 6 Months

Worm infestation of the intestines can result in poor appetite, anaemia and poor growth. In areas where worm infestations are common, regular de-worming is recommended using Albendazole oral, 400 mg single dose every 6 months after the first year of life.

4.7. Cotrimoxazole Prophylaxis

All HIV-infected children should receive prophylactic cotrimoxazole, following the national paediatric HIV guidelines to prevent PCP pneumonia and other opportunistic infections. From 6 weeks of age, give all HIV-exposed infants and children - cotrimoxazole (5 mg/kg of Trimethoprim per day) once daily, either in syrup or paediatric dispersible tablet formulations.



4.8. Immunizations

Routine childhood immunizations must be given per the national schedule as they are very effective in preventing some common and serious childhood infections, such as pertussis (whooping cough) and measles. For example, HIV-infected children who develop measles have a more serious illness and are more likely to die.

4.9. Follow up of Children

All HIV infected and affected children need to be followed-up. HIV negative children, after confirmation at 18 months, should be followed up by the ASHA and AWW as per the national guidelines of NRHM and ICDS. Children who are infected with HIV will require follow-up at defined intervals as per Table 9. Often it is only children with more serious problems that receive appointments for follow-up assessments and care. Regular follow up provides the opportunity for early support and detection of growth faltering for corrective action. Children with HIV infection who come for follow-up benefit from early care and support that might improve their basic health and delay more serious problems associated with HIV.

HIV-infected children should be referred to other health care facilities when specific needs are identified or when health workers with other skills or other resources are required. The frequency and interval between reviews depends on the condition and needs of the child.

Table 9: Follow up of Nutritional Status of HIV Infected Children

Condition	Nutritional Follow Up	Remarks
The child who is well and growing appropriately	2 - 3 months	(20% additional energy)
The child on ART	3 months	If gaining weight and no other problems
	2 - 4 weeks	If not gaining weight
The child who has chronic increased nutritional needs but investigated and no other active problems	2 - 3 months	Tell caregiver to return earlier if problems arise
Child with poor weight gain	First visit 1 - 2 weeks Then 1 - 2 months	Tell caregiver to return earlier if problems arise
The child who is unwell and/or showing signs of growth faltering or has had recent diarrhoeal illness	2 - 4 weeks	May require more frequent visits depending on clinical status and support offered or being provided
When the child is malnourished +/- other signs of disease progression e.g. history of recent severe weight loss or recent diarrhoea illness	Weekly	Only if fulfils criteria for management at home and no immediate need of other investigations that require hospitalisation
When a child is severely malnourished with medical complications or no appetite	Refer for hospitalization	

Note: HIV infected children who are followed up by the ART programme monthly should have their normal measurements done as per ART guidelines e.g weight. Follow up of their nutritional status is as per above.



5. HIV Infected Child with Special Needs



HIV-infected children commonly experience weight loss, poor appetite and suffer from mouth sores and diarrhoea. In spite of these, the child can often still be managed at home if the correct help is offered early.

5.1. Eating during an Illness and Recovery Period – see Annex-V, Suggestion Sheet 1

Sick children need extra drinks and food during illness, for example, if they have fever or diarrhoea. It is often difficult to feed such children. During these acute illnesses, they are likely to lose weight. In the recovery period, it is important to:

- Increase energy and protein consumed in everyday foods by adding one meal per day (refer to Suggestion sheet 1);
- Feed the child on demand day and night; and
- Encourage the child in simple and loving ways.
- Some of the ways to encourage a child to eat include the following:
 - Make the child comfortable.
 - Be patient and feed slowly.
 - Feed small amounts frequently. Children may tire easily while eating, making it difficult to eat sufficient food in one sitting. Offering feeds frequently may be needed to increase food intake.
 - Give foods that the child likes.
 - Give a variety of foods and extra fluids.
 - If the child is thirsty, give fluids that have some energy, e.g., milk. Avoid commercial juices or fizzy drinks that have very little nutritional value.
- Pay attention to the child and make feeding a happy time.

For younger infants and children, continue breast feeding. A sick young child may prefer breast feeding to eating other foods. All sick children should be offered appropriate foods, unless there is a medical reason.

5.2. Poor Appetite (anorexia) – see Suggestion Sheet 2

Children and adults with HIV infection frequently experience loss of appetite. This may be due to sores in the mouth, an acute illness or because HIV infection itself can cause a loss of appetite. Some antiretroviral or other medications may also cause poor appetite.

5.3. Sore Mouth or Throat – see Suggestion Sheet 3

A sore mouth or throat can make it difficult to eat. Thrush, herpes and other infections, may cause a sore mouth or throat. Such children need to be referred to a doctor. Mouth hygiene, such as rinsing the mouth with clean water before and after meals and cleaning the teeth, is important and can help the child to feel better.

5.4. Change in Taste – see Suggestion Sheet 4

Children may find that they have an unpleasant taste in their mouth or their food tastes different because of side-effects of medication or infection. This may be just temporary. Children may also be more aware of the texture or feel of foods in their mouth.

5.5. Children with diarrhoea – see Suggestion Sheet 5

When a child passes a loose or watery stool three or more times a day, he/she has diarrhoea. Diarrhoea can be a side effect of medicines or caused by an infection. Diarrhoea is often caused by contamination of water or





food related with poor hygiene and sanitation. It may also be linked with antiretroviral or antibiotic treatment.

Usually diarrhoea should stop after a few days. A child should be referred to the clinic if the diarrhoea lasts for more than three days or if there is a fever or blood in the stool. A child should be seen by the health worker if the child has the following:

- An infant or young child who is not able to drink or breast feed or is drinking poorly, or
- Becomes sicker and weak, or has altered sensorium, or
- Has blood in the stool, or
- Develops a fever, or
- Diarrhoea lasts more than 14 days, or
- Severely malnourished child with diarrhoea.

Children with diarrhoea should be managed with Oral Rehydration Therapy, as per national guidelines.

Zinc supplements: Any child with diarrhoea (acute, persistent or dysentery) should receive zinc. The dose for children above 6 – 12 months is 10 mg daily for 14 days and for children above 12 months is 20 mg daily for 14 days.

5.6. Nausea and/or Vomiting – see Suggestion sheet 6

Nausea and vomiting can be caused by infection, stress, certain foods, hunger, lack of water, unpleasant smells or a side-effect of some medications or treatments. Nausea may also reduce the appetite. Children with persistent vomiting and inability to feed should be referred to a health facility.

5.7. Anaemia

Anaemia is common in HIV-infected children and may be due to chronic opportunistic Infections, worm infestation, nutritional deficiency or direct effects of the virus on the bone marrow. Anaemia in HIV-infected children cannot be assumed to be due to iron deficiency and cause should be ascertained.

Children with palmar pallor should be referred for investigation. Iron supplements should only be started if iron deficiency is confirmed.





6. Management of HIV Infected Children with Severe Acute Malnutrition (SAM)

Management of HIV-infected children with severe acute malnutrition has to be made a part of the existing services. The management of SAM children, irrespective of the HIV status, remains same. The guiding principles of management of SAM children are mentioned below.

6.1. Early Detection and Assessment of SAM

Anthropometric assessment [height (or length for children up-to 24 months of age), weight and MUAC] of all children should be done during each contact at the ART centres. The criteria for detecting SAM are:

- Weight for height/length < -3SD and/or
- MUAC < 115 mm and/or
- Bilateral pitting oedema.

The WHO Child Growth standards for weight for height for children under 5 years of age are attached as Annex-IV.

6.2. Referral for Facility Based Care

All HIV-infected children identified as SAM should be referred to an appropriate facility for management of SAM. All SAM children will require assessment and evaluation for complications. SAM children with complications need to be admitted for management in an appropriate facility. HIV infected children with SAM but without any complications may be managed in an outpatient setting, if community based program for management of SAM is available, after thorough assessment.

6.3. Facility Based Care

SAM children with complications, evidenced by loss of appetite, infections, impaired liver and intestinal function, and problems related to imbalance of electrolytes will need facility-based treatment. In-facility care for HIV-infected SAM children is provided at ART Centres located within the same hospitals, district hospitals or paediatrics department of other hospitals. Nutrition Rehabilitation Centres, where operational, may also provide such care.

Most children with HIV infection respond to the treatment of severe malnutrition in the same way as those without HIV infection. Those with a very low CD4 count have a slightly higher mortality. Those with a reasonably high CD4 count appear to have the same mortality risk as non-infected children. The treatment of the malnutrition is the same, whether the patient is HIV positive or negative.

The initial treatment of severe malnutrition lasts until the children have stabilized on this treatment and their appetites have returned. In HIV-uninfected children, this initial phase should not take longer than 10 days, where as in HIV-infected children, the response to initial treatment of severe malnutrition may be delayed or very limited. The national protocols for in-facility care of SAM children, as detailed in the Training Package on Facility based Management of Severe Acute Malnutrition, should be used for managing HIV infected children with SAM.

“Most children with HIV infection respond to the treatment of severe malnutrition in the same way as those without HIV infection.”

All HIV infected children should be particularly screened for TB at the time of HIV testing, as co-infection is particularly common. TB, HIV and SAM are linked and frequently appear in the same patients.





6.4. Initiation of ART

There are no standard guidelines on the time of initiating ART in a child being treated for malnutrition. The drugs that are used for TB and HIV are toxic to the liver and pancreas. These organs are particularly affected by SAM. If treatment with anti-TB drugs or ARVs is started in the severely malnourished patient, they are likely to develop side effects from the drugs. Such side effects lead to withdrawal of many of the patients from the ARV treatment programs.

Initiation of ART and other long-term treatment of illnesses that are not immediately lethal should be delayed until the stabilization of children with nutritional therapy. Expert opinion, therefore, suggests that HIV-infected children with severe malnutrition be stabilized before decisions are made on the initiation of ART. For ART initiation in HIV-infected children who are slow to improve on malnutrition treatment, a decision may be taken (either for inpatients or outpatients) at around 6-8 weeks if they have not achieved 85% weight for height (i.e. cure). In children who rapidly gain weight because of adequate nutrition and ART, dosages of ARVs should be frequently reviewed. Continue cotrimoxazole prophylaxis as per NACO guidelines. Any other opportunistic infections should be screened and treated.

6.5. Community Based Management of SAM

The community based management, if available, may be adopted for such HIV-infected SAM children without medical complications. Such cases may be treated in the community by providing therapeutic foods. This will require putting in place uninterrupted supply chain for the therapeutic food as well follow up mechanisms at the community level. In addition, these children will need to be followed up closely and assessed at the health facility every month. The available national/state guidelines for community based management of SAM should be followed.





Annexures



Annex-I: Counseling the HIV infected mother/family for infant feeding options: 0 – 6 months

1. Ask about the mother, HIV/ART status, home and family situation.
 - Does her family know her HIV Status? Does she know her husband's HIV Status?
 - Is her husband/family supportive and willing to help baby care?
 - Family income per month
 - Source of drinking water
 - Type of latrine/toilet used?
 - Can she prepare each feed with boiled water and clean utensils e.g. up to 12-15 times per day in the first 4 months of her baby's life?
 - Can she prepare feeds at night?
 - What is her latest CD4 count and is she taking ART or PPTCT regimens?
 - Does she plan to deliver in the health facility or go back to her parent's house or somewhere else? (need to plan referral or other ICTCs)

3. Discuss Exclusive Replacements Feeding (ERF) as a feeding option if mother cannot breast feed only if the 6 months criteria for ERF are fulfilled as below. \$
 - Advantages:**
 - No risk of HIV transmissions
 - ERF milks can be given by other persons
 - Disadvantages:**
 - Animal milk is not a complete food for baby
 - Formula milk is a complete food but is expensive (about 8,000 – 10,000 Rupees for 6 months)
 - Baby has more risk of infections – diarrhoea, respiratory & ear infections
 - Careful and hygienic preparations required each time; sterilize feeding cups, using boiled water and fresh preparations for all feeds 12-15 times in the first 4 months of the baby's life

4. Explain the risks of parent-to-child transmission. If mother or baby is taking ART or PPTCT regimen drug schedules, explain:
 - That the risk of HIV transmission from mother to child is very low because the ARV drugs will reduce the number of HIV virus in the breast milk
 - When mother or baby is taking ARV drugs less than 5 baby's out of 100 may be HIV infected
 - It is important to take the ARV drugs as prescribed-reinforce adherence to ART or PPTCT regimens.

If mother is not on ART or mother/infants not receiving new PPTCT regimens (e.g. in the districts which are still using sd-NVP during the scale up of new PPTCT guidelines), explain:

 - During the first 6 months of life it is important to keep the child healthy by good feeding practices
 - EBF is recommended because breast milk contained antibodies which protect the babies from infections-unless ERF can be safely done according to the 6 criteria
 - ERF must be correctly done otherwise child will not grow well or may develop malnutrition
 - Although there is a small risk of transmission of HIV through breast milk, this must be balanced with the risk of other health problems (diarrhoea, respiratory infections) due to replacement feeding

5. Help mother and family decide on feeding choice
 - Clarify questions
 - Go through point 2-4 again if necessary

6. Explain the chosen feeding options.
 - Exclusive breastfeeding for 6 months:**
 - EBF means giving only breast milk and no other liquids or solids, not even water, with the exception of medicines.
 - NO "mixed" feeding (i.e. breastfeeding and giving other feeds) – animal or formula milk can irritate the lining of infants stomach, causing inflammation and making it easier for the HIV virus in the breast milk to get into the baby's body.
 - Breastfeeding: discuss and demonstrate correct attachment to nipple and positioning of baby
 - Discuss prevention and treatment of crack nipples; expressed some breast milk after baby has finished and rub over nipple
 - Discuss prevention and treatment of mastitis; breastfeed frequently and until the breast is empty.
 - Avoid breast engorgement.
 - Discuss prevention and treatment of oral ulcers and oral thrush in infant
 - Discuss breast and hand hygiene for mother; and oral hygiene for baby
 - Exclusive Replacement Feeding for 6 months:**
 - Discuss and demonstrate the amount to be fed
 - Tell mother to prepare according to instructions with scoop (if formula feeding)
 - Discuss hygiene preparations of feeds:
 - Hand washing with soap
 - Clean utensils and surface
 - Boiled water
 - Prepare enough for one feed
 - Throw away left over feed if baby does not finish
 - Do not re-use left over feeds as it may lead to food poisoning

7. Provide follow-up, counseling and support at every visit.
 - About Baby:**
 - Ask about the progress on infant feeding
 - Ask about baby's immunization; cotrimoxazole dosing, EID status; infant NVP prophylaxis adherence and monthly refill
 - Ask about baby's growth and health, look for signs of illness and malnutrition
 - Asses if further action or doctors check is required and advised
 - Discuss about complimentary feeding at 6 months of age, and whether to continue or stop breast feeding
 - For HIV-infected children < 2 years old, check that baby is initiated on ART; encourage breastfeeding to continue till 2 years of age
 - For breastfeeding infants still on infant NVP daily prophylaxis or mothers on ART or PPTCT option B, check baby's adherence to daily NVP; encourage mother to continue breastfeeding till 12 months. Infants should start complementary feeding at 6 months of age.
 - Follow IMNCI guidelines for complementary feedings.
 - See National guidelines for nutrition for HIV affected and infected infants and children, NACO 2011.
 - About mother:**
 - Ask how mother & family is coping with the baby
 - Ask for mothers mod changes (screen for postpartum depression)
 - Family planning/ contraception and birth spacing
 - Give condoms and reinforce consistent condom use
 - Ask status and progress for pre-ART or ART care
 - Reinforce adherence to ART or PPTCT regimens
 - Refer to ART centre as appropriate
8. Counseling for stopping breastfeeding.
 - For mother on ART for her own health; continue ART
 - For infants still on infant NVP prophylaxis or mothers on PPTCT option B: Continue ARV drugs until 1 week after breastfeeding has completely stopped.
 - Do not stop breastfeeding abruptly; gradually cut down the number of breastfeeding sessions a day according to the comfort of mother and infant over a month
 - Ensure complementary feeding is nutritionally adequate and safe.
 - Check for growth and nutritional status of baby
 - Once breastfeeding is stopped completely. **DO NOT** put baby back to breast for any sucking.

Support the decision for infant feeding. Breastfeeding is recommended as it is

- Affordable
- Safer with ARV drugs
- Feasible, and
- Convenient

BOX \$: Six criteria for replacement feeding. Mother's known to be HIV-infected should give replacement feeding to their infants only when ALL of the following conditions are met:

- Safer water and sanitation are assured at the household level and in the community, and
- The mother, or other caregiver can reliably afford to provide sufficient RF (milk), to support normal growth and development of the infant, and
- The mother or the caregiver can prepare it frequently enough in a clean manner so that it is safe and carries a low risk of diarrhoea and malnutrition, and
- The mother or the caregiver can, in the first six months exclusively give replacement feeding, and
- The family is supportive of this practice, and
- The mother or caregiver can access health care that offers comprehensive child services.

Annex-II: Complementary Feeding Recommendations for Children



Up to 6 months	6 to 12 months	12 months – 2 years	2 years and older
<p>Breast feed as often as the child wants, day and night, at least 8 times in 24 hours</p> <p>Do not give any other foods or fluids not even water</p>	<p>Breast feed as often as the child wants.</p> <p>Give at least one katori serving* at a time:</p> <ul style="list-style-type: none"> • Mashed roti/ rice/ bread/biscuit mixed in sweetened undiluted milk <p>OR</p> <ul style="list-style-type: none"> • Mashed roti/rice/ bread mixed in thick dal with added ghee/ oil or khichri with added oil/ghee. Add cooked vegetables also in the servings <p>OR</p> <ul style="list-style-type: none"> • Sevian/dalia/halwa/ kheer prepared in milk or any cereal porridge cooked in milk <p>OR</p> <ul style="list-style-type: none"> • Mashed boiled/fried potatoes <p><i>* 3 times per day if breast fed; 5 times per day if not breast fed.</i></p>	<p>Breast feed as often as the child wants</p> <p>Offer food from the family pot</p> <p>Give at least 1½ katori serving* at a time of :</p> <ul style="list-style-type: none"> • Mashed roti/rice/ bread mixed in thick dal with added ghee/ oil or khichri with added oil/ghee. Add cooked vegetables also in the servings <p>OR</p> <ul style="list-style-type: none"> • Mashed roti/rice/ bread/biscuit mixed in sweetened undiluted milk <p>OR</p> <ul style="list-style-type: none"> • Sevian/dalia/ halwa/ kheer prepared in milk or any cereal porridge cooked in milk <p>OR</p> <ul style="list-style-type: none"> • Mashed boiled/fried potatoes <p>Also give nutritious food between meals, such as: banana/ biscuit/ cheeko/ mango/papaya as snacks</p> <p><i>* 5 times per day</i></p>	<p>Give family foods at 3 meals each day.</p> <p>Also twice daily, give nutritious food between meals, such as: banana/ biscuit/cheeko/mango/ papaya as snacks</p>
Remember	Remember	Remember	Remember
<p>Continue breastfeeding if the child is sick.</p>	<p>Keep the child in your lap and feed with your own hands</p> <p>Wash your own and child's hands with soap and water every time before feeding</p>	<p>Ensure that the child finishes the serving</p> <p>Wash your child's hands with soap and water every time before feeding</p>	<p>Ensure that the child finishes the serving</p> <p>Teach your child to wash his hands with soap and water every time before feeding</p>



Annex-III: Infant and Young Child Feeding Counselling



Infant and young child feeding counselling is the process by which a health worker can support mothers and babies to implement good feeding practices and help them overcome difficulties. Details of infant and young child feeding counselling depend on the child's age, HIV status and clinical stage, nutritional status and the mother's circumstances. Generally, a health worker should:

Use good communication and support skills:

- Listen and learn
- Build confidence and give support

Assess the situation:

- Assess the child's growth
- Take a feeding history
- Observe a breast feed
- Assess the health of the child and the mother

Manage problems and reinforce good practices:

- Refer the mother and child if needed
- Help the mother with feeding difficulties or poor practices
- Support good feeding practices
- Counsel the mother on her own health, nutrition and family planning

The health provider needs to be skilled in counselling. The counselling skills are included below:

Communication and support skills

Listening and learning

- Use helpful non-verbal communication
- Ask open questions
- Use responses and gestures which show interest
- Reflect back on what the mother says
- Empathize – show that you understand how she feels
- Avoid words which sound judging

Building confidence and giving support

- Accept what a mother thinks and feels
- Recognize and praise what a mother and infant are doing right
- Give practical help
- Give some relevant information
- Use simple language
- Make one or two suggestions (e.g. small "do-able" actions), not commands

Checking understanding

- Make mother comfortable and relaxed
- Ask open questions
- Supplement recall or demonstration





Annex-IV: Five Keys to Safer Food



1. Keep Clean

- Wash your hands before handling food and often during food preparation
- Wash your hands after going to the toilet, changing the baby or being in contact with animals
- Wash clean all surfaces and equipment used for food preparation or serving
- Protect kitchen areas and food from insects, pests and other animals

2. Separate raw and cooked foods

- Separate raw meat, poultry, fish and seafood from other foods
- Use separate equipment and utensils, such as knives and cutting boards for handling raw foods
- Store foods in covered containers to avoid contact between raw and cooked foods

3. Cook thoroughly

- Cook food thoroughly, especially meat, poultry, eggs, fish and seafood. For meat and poultry, make sure juices
- are clear, not pink
- Bring foods like soups and stews to boiling point
- Reheat cooked food thoroughly. Bring to the boil or heat until too hot to touch. Stir while re-heating

4. Keep food at safe temperatures

- Do not leave cooked food at room temperature for more than two hours
- Do not store food too long, even in a refrigerator
- Do not thaw frozen food at room temperature
- Food for infants and young children and other people with low immune systems should ideally be freshly prepared and not stored at all after cooking

5. Use safe water and foods

- Use safe water or treat it to make it safe
- Choose fresh and wholesome foods
- Do not use food beyond its expiry date
- Use pasteurized milk or boil milk before use
- Wash fruits and vegetables in safe water, especially if eaten raw





Annex-V: Suggestion Sheets to Improve Food Intake



SUGGESTION SHEET 1

How to add extra energy and protein to everyday foods

- Add milk, cheese, butter, oil or ghee to mashed vegetables, potatoes, rice, dal and soup, and other foods.
- To make fortified milk: add 1 table spoon of any flour (wheat/rice/sooji), 1 table spoon of oil, 2 table spoon of sugar to 100 ml of milk. Stir well and keep in a cool place. Use full fat milk powder, if available, instead of skimmed milk powder. Use this fortified milk in tea, on cereals, and in cooking.
- Nuts, such as groundnuts are a good source of energy. For children more than 3 years, keep them near to feed the child as a snack. For younger children, put crushed nuts or nut paste into foods.
- Add cream or curd to cereals, dal, khichdi and milky drinks.
- Use local foods that are rich in fat, such as fish, vegetable oils like coconut/ mustard/ gingiley oil and fried foods, if tolerated.
- Sprinkle crispy fried onions, fried fatty meat or similar food items on top of meals.
- Stir a beaten egg into hot porridge or mashed potatoes and cook for a few minutes more to cook the egg. Do not feed the child raw or undercooked eggs. Always cook eggs.
- Give locally available seasonal fruits.

SUGGESTION SHEET 2

What to try if the child does not feel like eating

- Give the child small, frequent meals – so he/she eats something every 2–3 hours.
- Give the child food whenever he/she is hungry or feels like eating. Do not wait until a mealtime.
- Choose healthy foods that the child enjoys most. Some children are very 'picky/choosy' eaters and are more likely to eat these foods.
- On days the child feels well or is eating well, try to give extra meals.
- Always stay with the child while eating, both to watch for difficulties and to encourage eating.
- Make sure the child has enough liquid in the day. Try to use fluids such as milk, buttermilk and coconut.
- When the appetite has returned or the illness has passed, be sure to feed the child an extra meal (or increased amount per meal) to make up for the missed meals.
- Lack of appetite may be a sign of an infection, such as tuberculosis or of depression; talk to your doctor about it.

SUGGESTION SHEET 3

What to try if the child has a sore/dry mouth or throat

(Always check for oral and oesophageal thrush or mouth sores e.g. herpes stomatitis)

Sour Mouth

- If oral thrush is visible or other mouth ulcers are present, refer the child to the doctor for specific treatment.
- Clean mouth frequently, at least twice a day - morning and evening, preferably after every meal. Rinse with slightly salty warm water; use clean water.
- Use cinnamon tea as a mouthwash (1/4 teaspoon of cinnamon to one cup of boiling water; cover and allow to cool).





- Add gravy or curd to meals to make them moist but not sticky or dip foods in liquid.
- Suggest that the child uses a straw to drink.
- Chop or mash food.
- Avoid rough foods such as toast or raw vegetables.
- Avoid sticky foods such as mashed potatoes.
- Avoid very hot or very cold foods.
- Avoid spicy, salty or acidic foods that irritate the mouth of the child.
- Suggest that the child drinks sour/fermented milk or yoghurt.

Sour Throat

The suggestions above for a sore mouth may be helpful. Also, try the following:

- Honey with water has a soothing effect: one tea spoon of honey in half cup of lukewarm water.
- Feed the child soft foods that are easy to swallow.
- Offer the child nourishing liquids if solid food is too hard to eat.

Dry Mouth

- Stimulate saliva production by offering the child a hard sweet, or chewing gum.
- Serve liquids with meals and make the child sip cold liquids frequently during the day.
- Rinse mouth with clean warm salty water.
- Avoid very hard foods and drinks high in caffeine such as coffee, strong tea and sodas.

SUGGESTION SHEET 4

What to try if the child has a change in taste

- Clean the child's mouth frequently. Rinse with slightly salty warm water; use clean water.
- Use salt, sugar, spices, vinegar, lemon, and other flavours to mask any unpleasant taste in the child's mouth. Some medications may make mint, garlic and ginger taste less pleasant.
- Feed the child the foods he/she likes.
- Try a variety of foods as the child's taste may come back after a few weeks.
- Very cold foods may taste better.
- Fresh fruits and fruit juices are refreshing and may leave a pleasant taste in the child's mouth.

SUGGESTION SHEET 5

What to try if the child has diarrhoea

All children with diarrhoea should receive oral zinc supplements for 2 weeks

- Encourage the child to continue eating and drinking when there is diarrhoea. The child should eat foods he/she can tolerate.
- Encourage the child to drink lots of fluids: Give home-available fluids, like ORS, after each stool to prevent dehydration. If the child has blood in stool, looks sick, has fever, is unable to drink or drinking poorly, the child should be referred to a doctor.
- Feed the child small meals, five or more times in the day. He/she should eat slowly and chew well.





- Give particular attention to food hygiene. Use clean water; keep food and utensils very clean, store food for as short a time as possible in a cold place. If you are reheating food, make sure it is very hot. Keep raw food separate from cooked food.
- Peel and cook vegetables rather than feeding the child raw vegetables.
- Feed the child easily digestible foods, like bananas, cooked vegetables, khichdi, yoghurt etc. Do not give high fibre food.
- Feed the child warm foods, rather than very hot foods.
- Continue breastfeeding or increase breastfeeding as per the child's demand.
- Some medications may cause diarrhoea. Talk to your doctor or nurse.

Preparation of oral rehydration solution (ORS) to use if there is dehydration

- Use clean water, boiled if possible.
- From a packet: Follow directions on the packet.

** In addition to ORS, the child should be given home available fluids such as yoghurt drink, milk, lemon drink, rice or pulses based-drink, vegetable soup, green coconut water or plain clean water.*

SUGGESTION SHEET 6

What to try if the child has nausea and/or vomiting

- Make sure the child has enough liquid in the day. Try to use fluids such as milk, buttermilk, yoghurt, coconut water etc.
- Encourage the child to drink liquids about half an hour after meals, rather than with meals. Encourage the child to drink liquids slowly.
- Feed the child small, frequent meals; eat something every 2–3 hours. Increase the quantity and variety of foods as the child feels better.
- Feed the child whenever he/she is hungry or feels like eating. Do not wait until a mealtime.
- Let the child chew foods well to make them easier to digest.
- Have the child eat slowly and relax for a while after eating. Avoid him/her lying down immediately after a meal.
- Keep some high-energy snacks available: nuts, yoghurt, bread with a spread.
- Some children find sour foods easier to eat than sweet foods.
- Avoid cooking smells; prepare food away from the child.
- Try dry foods such as dry bread, toast or plain biscuits and keep meals dry.
- Avoid fizzy drinks that can make the child feel bloated and gassy.
- Choose foods that do not have a strong smell.
- When the illness has passed, be sure to feed the child an extra meal (or increased amount per meal) to make up for the missed meals.
- Nausea may be a side-effect of drug treatments; talk to your doctor about it.
- There are also medications, which can reduce nausea, so discuss these with a health worker if needed.



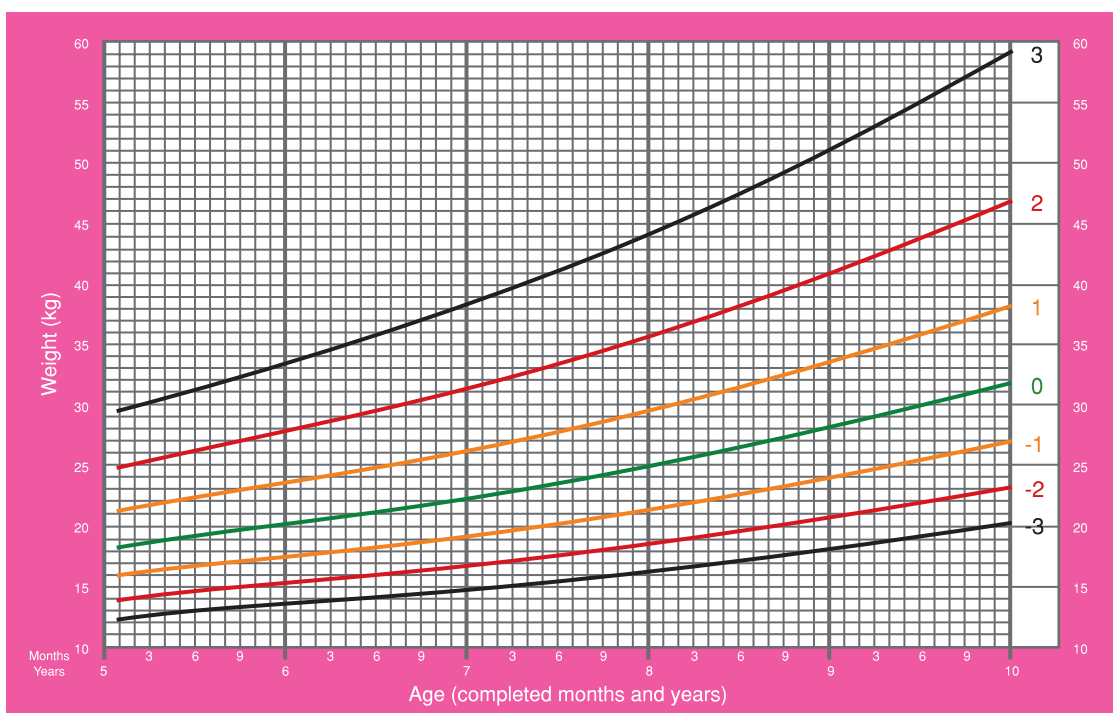
Annex-VI: WHO Growth Charts for Monitoring Growth



Weight- for-age charts: 0-10 yrs girls and boys

Weight-for-age GIRLS

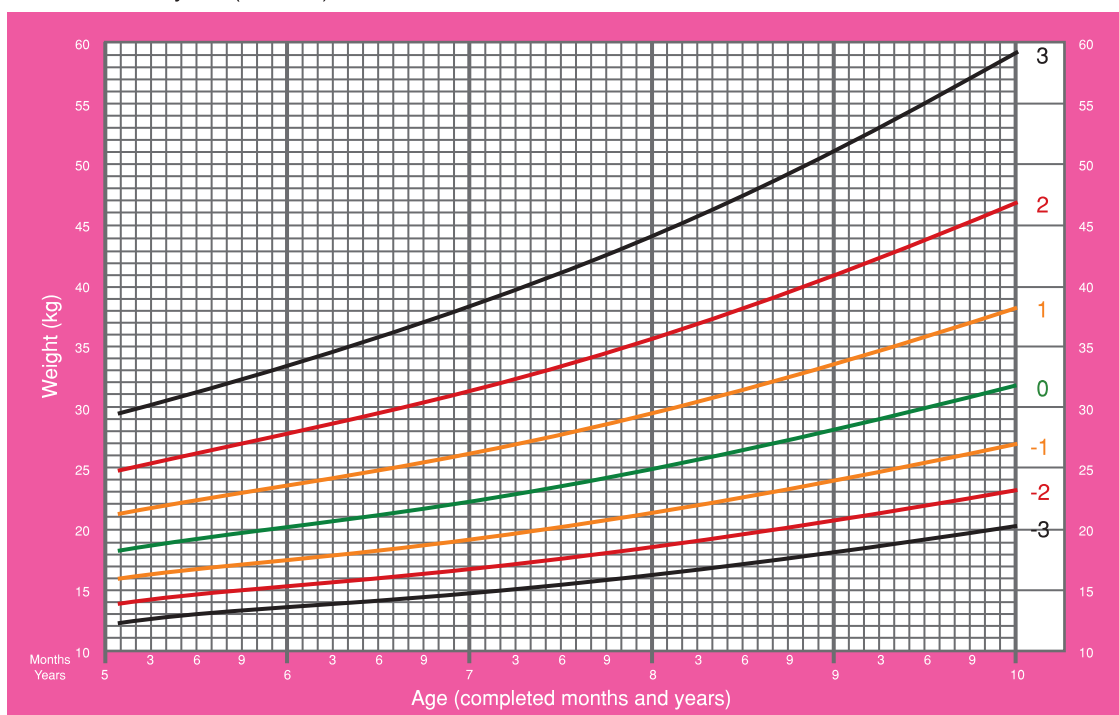
5 to 10 years (z-scores)



WHO Child Growth Standards

Weight-for-age GIRLS

5 to 10 years (z-scores)

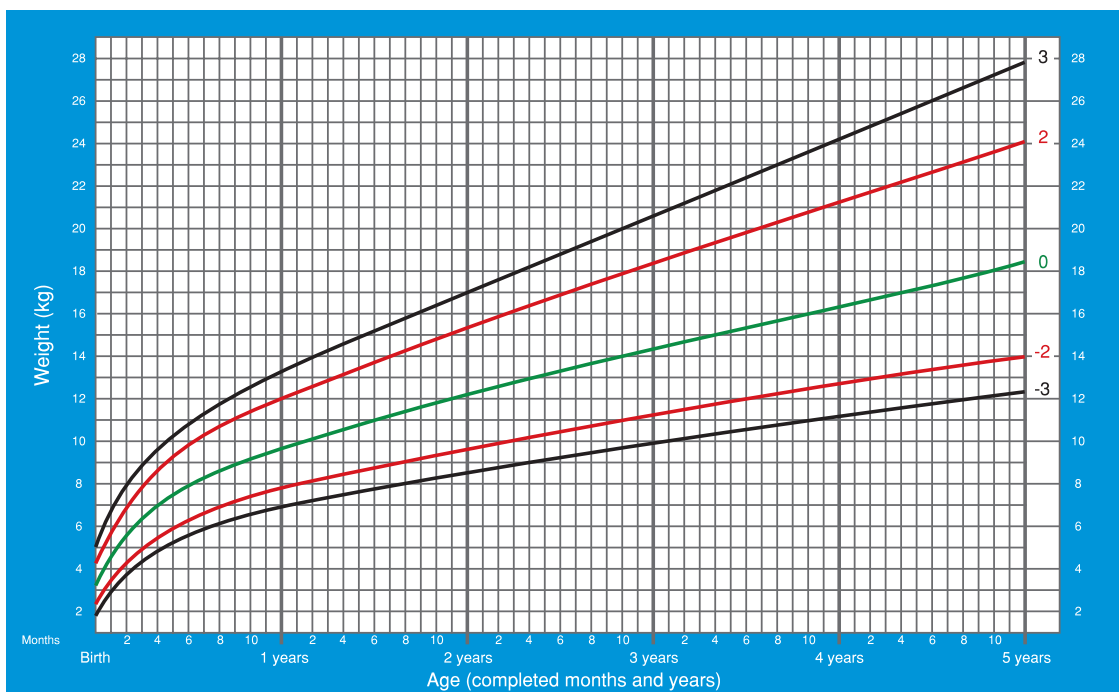


WHO Child Growth Standards



Weight-for-age BOYS

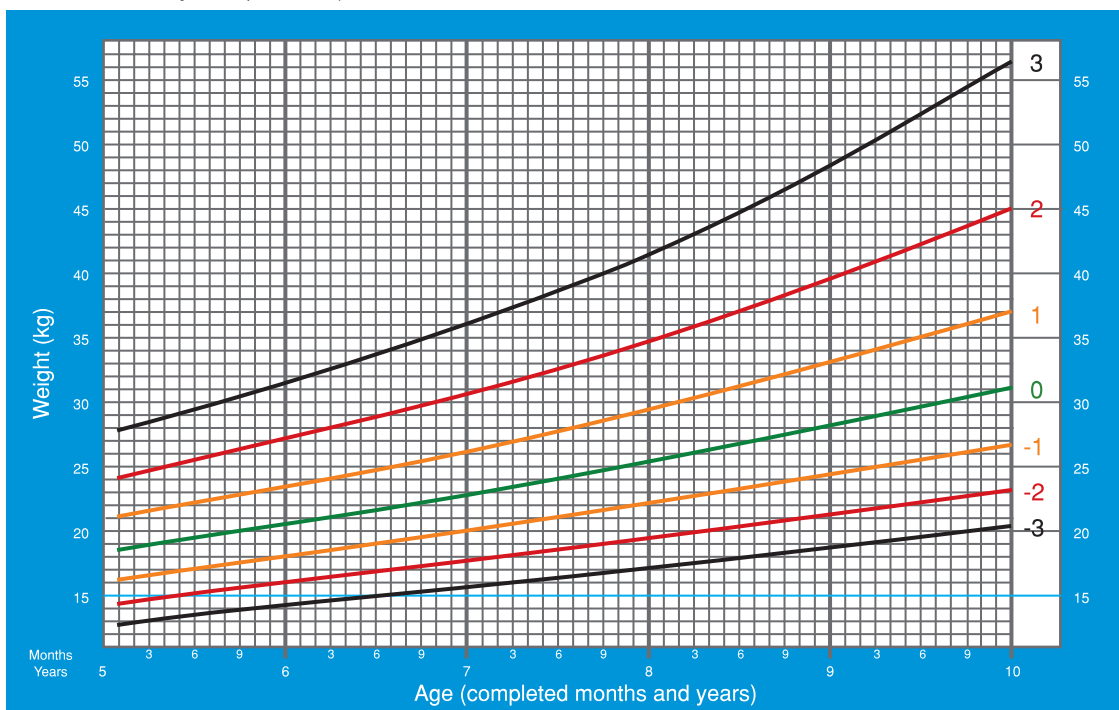
Birth to 5 years (z-scores)



WHO Child Growth Standards

Weight-for-age BOYS

5 to 10 years (z-scores)



2007 WHO Reference



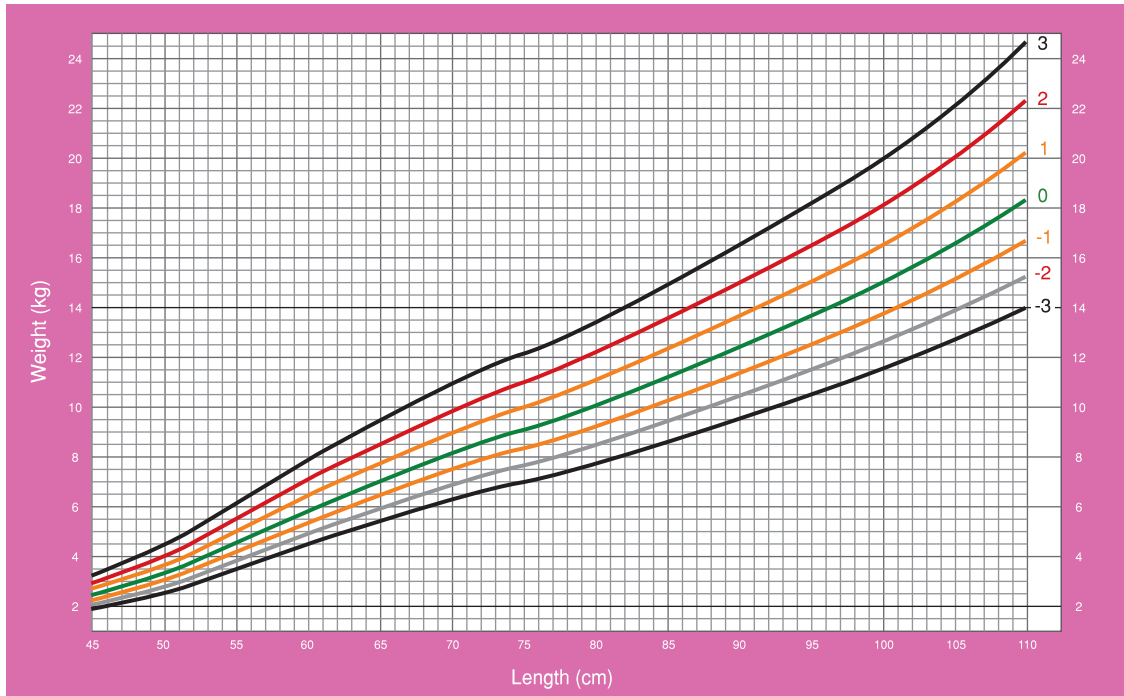


Weight-for-Length/Height Charts – 0-5 years girls and boys

Weight-for-length GIRLS



Birth to 2 years (z-scores)

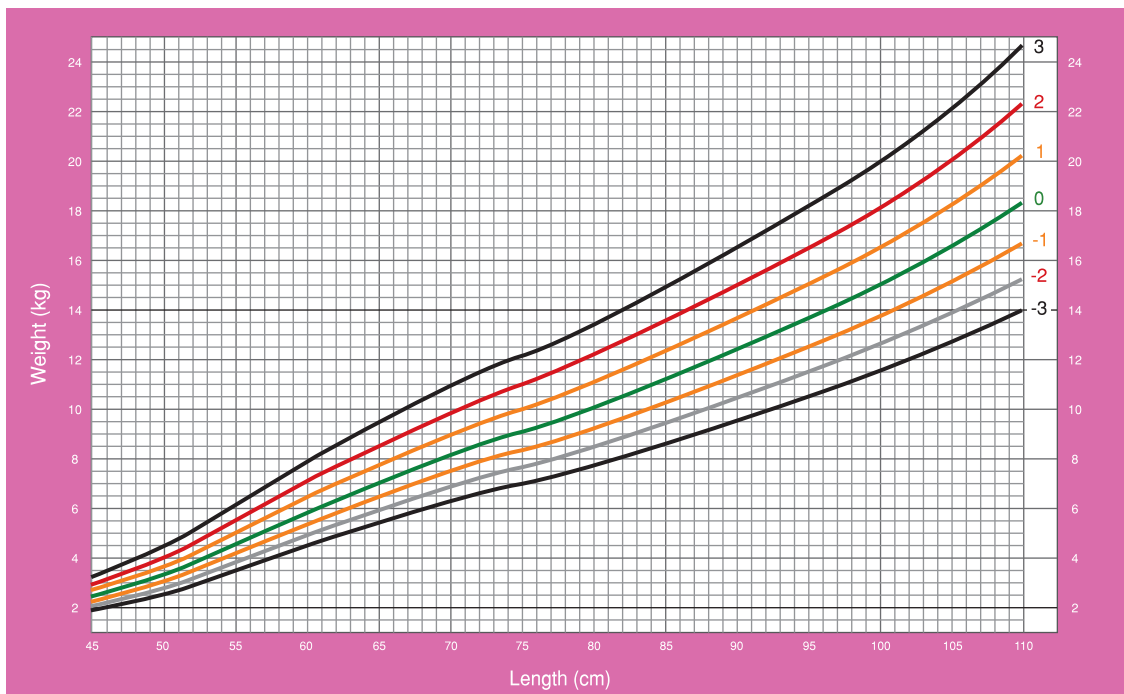


WHO Child Growth Standards

Weight-for-length GIRLS



Birth to 2 years (z-scores)



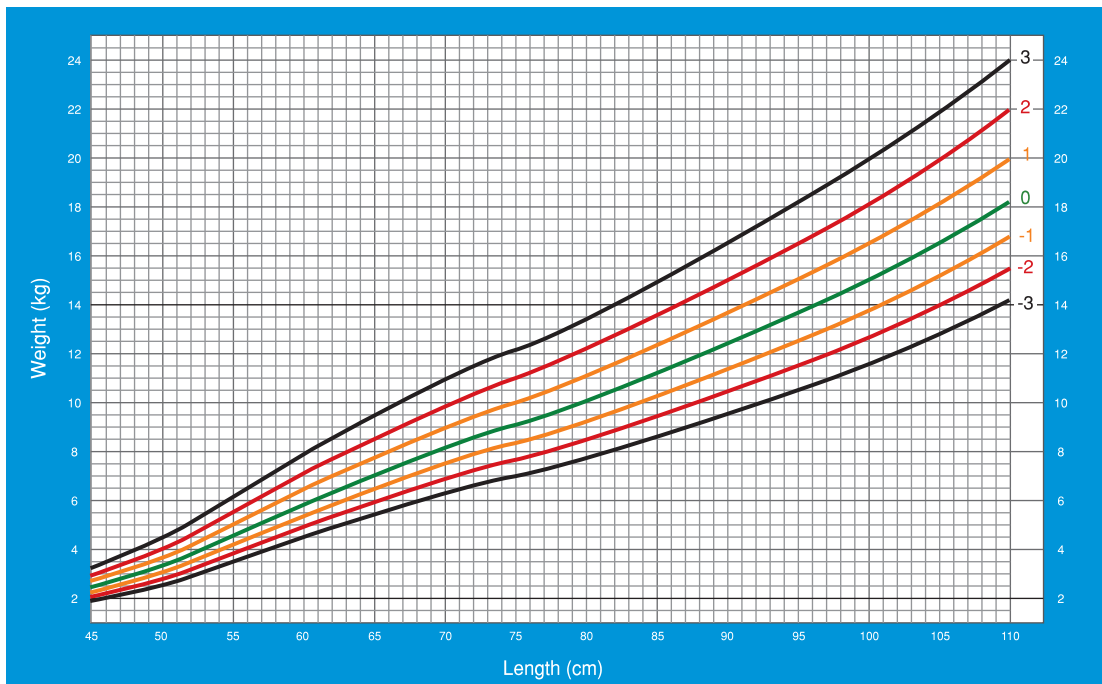
WHO Child Growth Standards





Weight-for-length BOYS

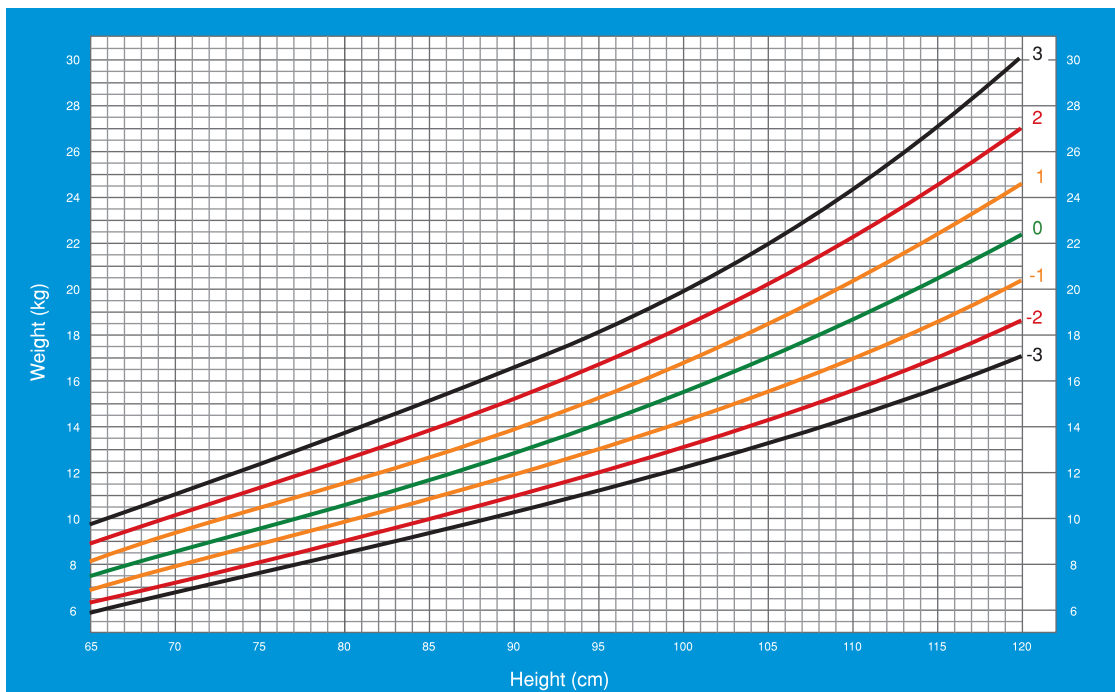
Birth to 2 years (z-scores)



WHO Child Growth Standards

Weight-for-Height BOYS

2 to 5 years (z-scores)



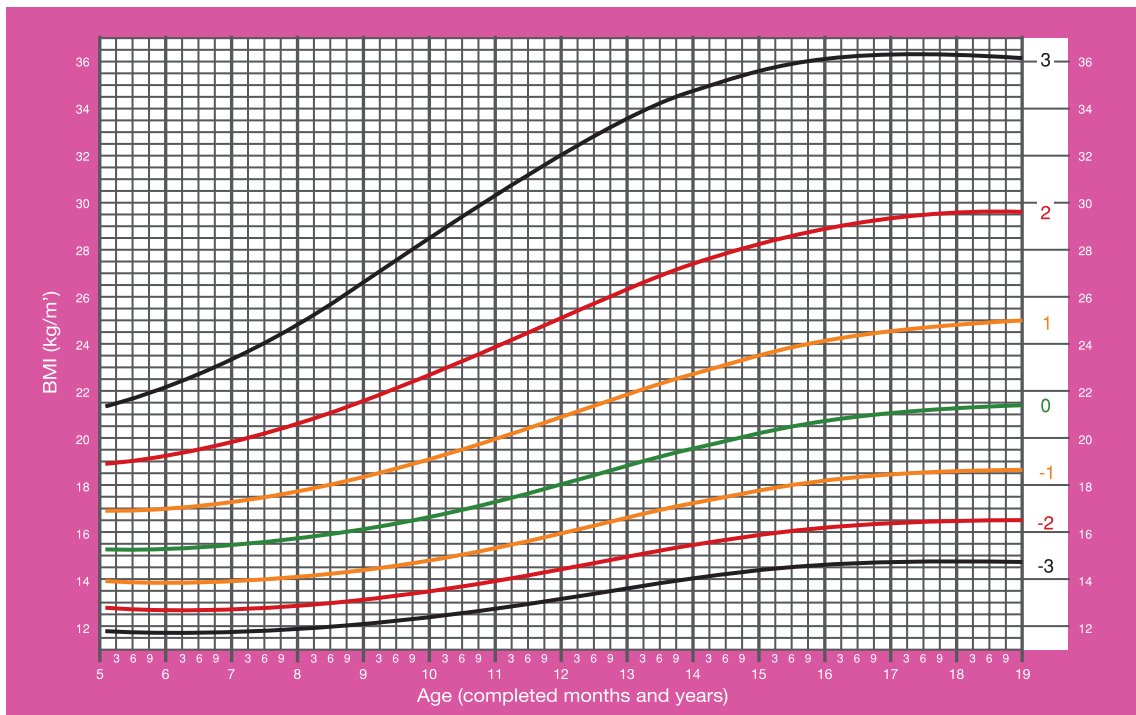
WHO Child Growth Standards





BMI-for-age GIRLS

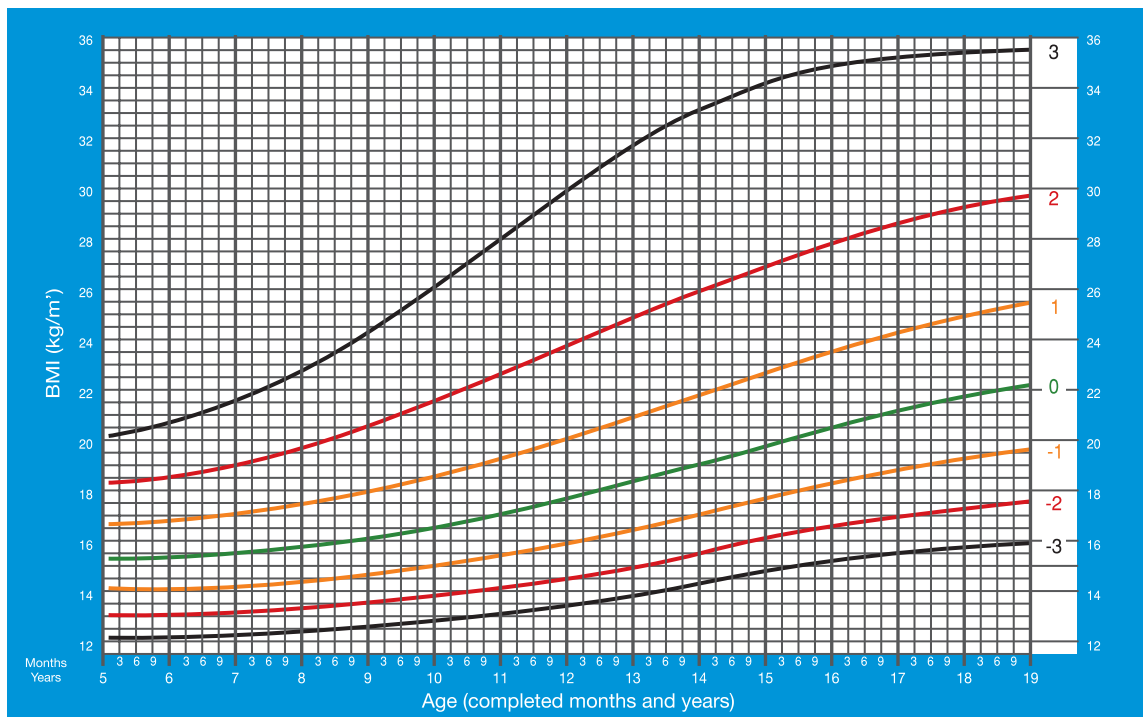
5 to 19 years (z-scores)



2007 WHO Reference

BMI-for-age BOYS

5 to 19 years (z-scores)



2007 WHO Reference



Annex-VII: List of Reference for Enquiries in Nutrition, Assessment and Growth in HIV Children



Institution/State	Contact person	Contact details/ phone/ mobile /fax/ email
Bairamji Jijibhai Medical College (BJMC); Ahmadabad; Gujarat	Dr. B.D. Mankad	Phone: 09427024651; 9427225587; 079-22683721 Email: artcentre.ahmedabad@gmail.com; bdmankad@yahoo.com
Bowring and Lady Curzon Hospital; Bangalore; Karnataka	Dr. Prabhakar B.	Phone: 09448530033; 080-25320219 Email: bowringart@yahoo.com; s.gowdar@yahoo.com
Banaras Hindu University (BHU) Institute of Medical Sciences; Varanasi; Uttar Pradesh	Dr Shyam Sundar	Phone: 09453048500; 91-542-2309493 Email: drshyamsundar@hotmail.com
Calcutta School of Tropical Medicine (STM); Kolkata; West Bengal	Dr. S. K. Guha	Phone: 033-2241-4900 / 4065 /4429 ext. 213; (M) 09831234802 Email: drskguha@vsnl.net
Government Gandhi General Hospital; Hyderabad Andhra Pradesh	Dr. E. A. Ashok Kumar	Phone: 09849902979; 040-64527214; Email: artgandhi_04@rediff.com; artcentre_chest@yahoo.com
Government Hospital of Thoracic Medicine (GHTM); Tambaram; Tamil Nadu	Dr. K. Raja	Phone: 09444442945 ; (0) 044-22368450 Email: thoracic@vsnl.com
Maulana Azad Medical College (MAMC); New Delhi	Dr. Richa Dewan	Phone: 9810301848; 011 23236437 Email: rdewan3@gmail.com
Post Graduate Institute of Medical Education & Research (PGIMER); Chandigarh	Dr. Aman Sharma	Phone: 0981421979; 0172-2756979; 2747857 Email: art_pgi_chandigarh@yahoo.com ; Dr. Aman - amansharma74@gmail.com
Regional Institute of Medical Sciences (RIMS); Imphal; Manipur	Dr. M. Kulo Chandra	Phone: 0612171286; 0385-2412300 Email: art.rims@yahoo.com
Sir J.J. Hospital; Mumbai; Maharashtra	Dr. Alka Deshpande	Phone: 09869168886 ; 022-23703695 Email: alakadeshpande@rediffmail.com; coeinhiv.jjh@gmail.com
Institute of Child Health (ICH); Chennai Tamil Nadu	Dr Umakantan	Phone: 044-65553138 Dr. Umakantan - 09941409584 Email: chennaiichart@gmail.com
Indira Gandhi Institute of Child Health (IGICH); Bangalore	Dr. Govindraj	Phone: 080-26645377; 09449033243 Email: igich.art@gmail.com; drgovindraj@yahoo.co.in
Jawaharlal Nehru Hospital; Imphal; Manipur	Dr. Apabi Hijam	Phone: 09856539635 Email: artjnh@rediffmail.com; drapabi@rediffmail.com
Kalawati Saran Children Hospital; Regional Paediatric ART Center	Dr. Jadish Chandra	Phone: 09968568905; Email: artcenterksch@gmail.com; jchandra55@gmail.com
L.T.M. Medical College and Hospital Sion; Mumbai Maharashtra	Dr. Mamta Manglani	Phone: 022-24015997; 09821322071 Email: rpac_sion@yahoo.co.in; mmanglani@hotmail.com



Medical College & Hospital; Kolkata; West Bengal	Dr. Sukanta Chatterjee	Phone: 033 22573294; 09830275685 Email: rpcmchkolkata@gmail.com
Niloufer Hospital; Hyderabad; Andhra Pradesh	Dr. Hima Bindu Singh	Phone: 098490 24007; 09849024007 Email: artpaediatrics@yahoo.com; dr.himabindusingh@yahoo.com



