



MINISTRY OF HEALTH  
**ZAMBIA**



**NATIONAL PROTOCOL GUIDELINES**  
**INTEGRATED PREVENTION OF**  
**MOTHER-TO-CHILD TRANSMISSION OF**  
**HIV/AIDS**



**National AIDS Council**

## **FOREWORD**

Mother-to-Child Transmission (MTCT) is by far the largest source of HIV infection in children below the age of 15 years. According to UNAIDS estimates, more than 90 percent of children who acquire the virus through Mother-to-Child Transmission, do so before birth, during birth, or through breastfeeding.

Zambia, one of the countries hardest hit by the HIV/AIDS epidemic, has very high HIV prevalence among pregnant women. Data from the 2001/2 Sentinel Surveillance System show that one in every three pregnant women, is HIV infected in the worst most areas. In the absence of any intervention, Mother-to-Child HIV transmission reverses efforts made to improve child survival.

Therefore, the Government of the Republic of Zambia has an obligation, and is committed to providing the country with equitable access to cost effective and quality health care, as close to the family as possible. It is against this background that the Ministry of Health is working to increase access to the prevention of Mother-to-Child transmission of HIV services (PMTCT), for all pregnant women and their families.

This can only be achieved through the expansion and integration of PMTCT services into Maternal and Child Health (MCH). The PMTCT intervention entails among other approaches, the establishment of linkages to other support programmes within the framework of a continuum of care for HIV positive people.

PMTCT interventions are therefore introduced alongside the improvement of overall MCH services which will ensure a reduction in maternal and childhood morbidity and mortality.

PMTCT has been identified as an entry point for care and support services to HIV infected families. Thus, the expansion of the services will play a paramount role in contributing to the achievement of the 3 by 5 World Health Organization (W.H.O) treatment Initiative in the country.

This document has been mainly written for use by health care providers. It gives guidelines on how to implement integrated PMTCT services at health facilities. The document is the first of its kind and will be updated as PMTCT management evolves with changing times, and as need dictates.

Silvia Masebo MP  
***Honourable Minister of Health.***

## **ACKNOWLEDGEMENTS**

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## **ABBREVIATIONS**

ANC	Antenatal care
ARV	Antiretroviral drugs
ZDV	Zidovudine
BD	Bi-daily
CBOH	Central Board of Health
DHS	Demographic and Health Survey
ELISA	Enzyme-Linked Immunosorbent Assay
HAART	Highly Active Antiretroviral Therapy
HB	Haemoglobin
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
IGA	Income generating activities
INH	Isoniazide
IU	International Unit
MCH	Maternal and Child Health
MTCT	Mother to Child Transmission of HIV/AIDS
NVP	Nevirapine
NGO	Non Governmental Organisation
PLWHAs	People Living with AIDS
PMTCT	Prevention of Mother to Child Transmission of HIV/AIDS
RPR	Rapid Plasma Reagin - Syphilis test kit
STI	Sexually Transmitted Infections
TB	Tuberculosis
TT	Tetanus toxoid
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
ZBSS	Zambia Sexual Behaviour Survey

## INTRODUCTION

Data from the 2001/2 Zambia sentinel surveillance system show that HIV prevalence among pregnant women range from 6.7% in rural areas to 31.8% in urban areas. In the absence of intervention to curb transmission to children, studies suggest that the risk of transmission from an HIV infected mother to her child is around 40 percent.

Given the high HIV prevalence and this transmission risk, of the 520,000 babies born annually in Zambia, approximately 41,000 will acquire HIV infection. This translates into about 112 new HIV infections in babies per day. Within the 40 percent overall transmission rate without intervention, five to 10 percent of infected children will be as a result of transmission through pregnancy, 10 to 20 percent during labour, and 5 to 10 percent through breastfeeding.

The implementation of prevention of Mother-to-Child Transmission (PMTCT) of HIV programme, has yielded positive results in developed countries. If the Zambian programme is to have significant impact on childhood HIV infection and the increasing mortality trends, PMTCT services need to be scaled up to all Maternal Child Health (MCH) services in the country.

Scaling up includes improving ANC utilization to 90 percent, acceptance of VCT to 70 percent, and acceptance, adherence to ARV therapy by HIV positive women to 75 percent, and improving the number of deliveries attended by a skilled and trained health worker. The goals of the National PMTCT Strategic Framework 2003-2005 are:

1. To contribute to the improvement in child survival and development through reduction of HIV related infant and childhood morbidity and mortality.
2. To contribute to the decrease in maternal mortality through the strengthening of antenatal, delivery and postpartum care services.
3. To contribute to the improvement of the length and quality of life of HIV positive women and their families through the provision of care and support services.

The Zambia National PMTCT programme uses a four-prong approach to PMTCT adopted from WHO recommendations. Major components include, primary prevention of HIV among young people, women and men, prevention of unwanted pregnancies among HIV positive women, prevention of HIV transmission from infected mothers to their babies, and care and support to HIV infected families.

Expected Outcomes are:

- Strengthening of primary prevention of HIV and STIs among women of childbearing age, their children.
- Decreased maternal, infant and under-five morbidity and mortality through improved service delivery of antenatal, delivery and postpartum services.
- Increased access to contraceptives, double protection, VCT and ARVs.
- Increased access to community based care and support services for those infected or affected by HIV and AIDS.
- Increased health workers capacity to implement integrated reproductive health, HIV/AIDS prevention and care services.
- Increased community capacity to prevent and manage HIV/AIDS issues, particularly PMTCT.

## CHAPTER I

### Counselling and Testing

The first step in the PMTCT programme is for all pregnant women to know their HIV status. The Zambia National PMTCT Programme uses an **opt-out approach** for PMTCT. The opt-out approach means that HIV testing is part of the routine laboratory processes undertaken during all pregnancies (See *Annex II: Ante natal Care Flow Chart with Opt out model on page 33*).

The woman does not have to sign a consent form but only needs to be fully informed of the test. However, it should be stressed that she has the option and right to refuse to take the test. It is recommended that, counselling and testing for HIV, is done prior to other antenatal procedures.

If the facility has a laboratory, the counsellor may not have to perform the HIV test in MCH but may collect blood samples and send them to the laboratory and ensure that results are returned as soon as possible. If tests are done in the MCH 10% of the samples should be sent to the laboratory for **quality control**.

### HIV Counselling

- People who have been trained in HIV counselling as per **Zambia Counselling Council** standards, National PMTCT and VCT programmes should perform counselling.
- Pre-test, post-test and ongoing counselling are normally performed by trained nurses, midwives and Doctors. Trained community counsellors (lay counsellors) however, can assist health workers with pre-test and ongoing counselling, as well as provide psycho-social support to infected persons.
- At the booking visit and subsequent ones, all pregnant women should receive prenatal care and health information that include counselling and testing, and information on Mother-to-Child transmission of HIV, through both group education/discussion sessions and individual counselling.
- In health facilities, where there is a high number of ANC attendees, individual counselling can be performed while the woman is being physically examined and palpated. Ensure privacy is maintained.
- Pregnant women who tested HIV negative early in pregnancy should be offered an opportunity to re-test later during the third trimester or soon after delivery.

## **Group Education/Discussion Session**

*This session should include the following key PMTCT information:*

1. HIV transmission and how to prevent it.
2. Mother-to-Child transmission of HIV and programme measures to reduce it.
3. HIV testing process and the fact that an HIV test is a pre-requisite for enrolment in the PMTCT programme.
4. Importance of encouraging husband/partners to come for counselling and testing.
5. Explanation on confidentiality and shared confidentiality.
6. The implication of a negative result and the meaning of the “window period”.
7. The importance of having HIV negative pregnant women to be re-tested later in the third semester.
8. The implication of a positive result, both for the mother and the child.
9. HIV testing for the baby of the HIV positive mother, as well as her other children if any.
10. Information on the anti-retroviral therapy (ART) programme.

Provide time to answer questions and clarify any information that the audience may not be clear with. Attention should also be paid to recapping or summarising the PMTCT programme and its benefits.

## **Individual pre-test counselling**

After the group information session, each woman is further counselled individually with confidentiality being observed. If you have trained lay counsellors working at your facility, they can assist with this activity.

The counsellor in the individual pre-test counselling session should

- assess if the information provided in the group session has been absorbed
- Answer any questions
- Counsels according to pre-testing counselling format provided during counsellor training
- Records pre-test counselling in the **Counselling Register**. If the woman refuses testing after individual pre-test counselling, this is recorded in the *comments* section of the **Counselling Register**.

## **HIV Testing**

- If a woman consents to HIV testing, direct her to a room or place where a nurse, midwife or a laboratory technician, takes her blood for a rapid HIV screening test.
- The person trained in **rapid HIV testing** takes blood samples and when

indicated, combines it with other tests like RPR, applying National Algorithms for testing. If there is a laboratory and a trained laboratory technician at your station, then use these facilities.

- If the first rapid test is negative, the woman is considered HIV negative.
- If the first rapid test is positive, a second rapid test is done using a different rapid test.
  - If both tests are positive, the woman is HIV positive.
  - If the first test is positive and the second test is negative, the woman is **HIV indeterminate**.
- If her HIV status is indeterminate, a blood sample must be sent to the nearest district laboratory for re-testing by the **ELISA** technique.
- After the test has been performed, the midwife or laboratory technician enters the results in the **Laboratory HIV Test Register**. The register is kept confidential and always remains on site. Test results are given to the **nurse or midwife** for post-test counselling.
- It should not take more than **5-10 minutes** to get the results from an HIV rapid test unless the patient is *HIV indeterminate*. Women therefore should not be sent home without their HIV test results. They should receive their HIV test results **the same day**.

### **HIV Post-test Counselling**

- All women and their partners, regardless of their HIV status should receive post-test counselling in line with the post-test counselling format provided during the counsellor's training.
- If a woman or her partner tested HIV negative, she should receive post-test counselling on *how to maintain the HIV negative status*, with a focus on her health, safer sexual practices, and the high risk of transmission to her baby should she become infected during pregnancy or breast-feeding. The window period should be explained once more and she should receive routine antenatal care.
- If a woman or her partner is tested HIV positive, they are informed about PMTCT and offered an opportunity to join the programme.
- All HIV positive women and their partners, should be clinically tested for CD4 count and based on eligibility criteria, **referred to an ART**

**programme.** If the facility is unable to provide this service, they should be referred to the referral facility where they will be clinically assessed for ART eligibility. Clients who clinically qualify for ART will be offered all other components of the MTCT programme except the short-course ARV. All HIV positive women should also receive routine antenatal care. Clients that do not qualify for ART should be registered in the Pre-ART register, and followed up using national guidelines.

- During post-test counselling and over the next visits, the newly diagnosed HIV positive woman is also provided with:
  - On going counselling which includes: emotional support, assessment of coping, information about existing peer-support groups, appropriate referrals for support and information around positive living (See annex III for more information about positive living).
  - Information about HIV disease, potential health problems and the importance of clinical care for HIV disease
  - Information about ART programme
  - Information about the MTCT Programme and medicines that are offered including potential side effects
  - Counselling about partner identification and disclosure, stigma and discrimination and shared confidentiality. For clients who qualify for PMTCT provide anti retroviral drugs as according to the guidelines in **Table 1 page 7. The grey area shows the FIRST CHOICE regimen** to be followed in Zambia.
  - All regimens are administered by mouth. Paediatric formulations are used for all infant regimens. Efforts must be made to monitor for side effects and support maternal and infant adherence.
  - Remind the mothers that may deliver at home about **ARVS doses for herself** at the beginning of labour, **and for the baby** within 72hours of birth. Request that she goes to the health facility within 72 hours after delivery for the NVP and AZT syrup baby doses and for immunization.
- All women should receive information about husband/partner testing.
- HIV results and the post-test counselling session are recorded in the *Counselling Register*.

## **CHAPTER II**

### **Antenatal Care**

Antenatal care aims at making pregnancy and delivery a safe experience for the mother. It is also intended to build the foundation for the delivery of a healthy baby.

#### **Antenatal care services**

These are meant for all pregnant women who should attend at least four visits of focused antenatal care schedules for;

- Clinical screening and examination monitoring of blood pressure, urinalysis, and compulsory weight measurement at every visit.
- Active detection and effective treatment of STIs (RPR for screening and Benzathine Penicillin as treatment). If RPR is done and found negative in the first trimester, repeat at 34 weeks gestation. The repeat of RPR test could be combined with a repeat HIV testing for women found HIV negative earlier in pregnancy.
- Prevention, detection and treatment of anaemia should be strengthened in line with Safe Motherhood guidelines. This should include determination of HB at baseline and subsequent HBs if need be. Systematic de-worming should also be provided together with Ferrous Sulphate and Folic acid.
- Intermittent Presumptive Treatment (IPT) with sulphadoxine-pyremethamine for malaria prophylaxis should be given starting in the second trimester. The IPT should be administered at least after every 4 weeks, although it can also be given even after 8 weeks. It should be ensured that, a woman has at least three doses before delivery. Encourage the use of impregnated mosquito nets by ALL pregnant mothers.
- Multi-vitamin supplementation for the prevention of low birth weight to all antenatal attendees.
- Counselling about infant feeding options including the health benefits and risks of alternative feeding and breastfeeding.
- Information about safer sex during pregnancy, breastfeeding, and double protection in the long-term. This should go with promotion and provision of condoms for all couples to use at all times during pregnancy and breastfeeding.
- Tuberculosis (TB) clinical screening in HIV infected mothers with sputum

smear. If diagnosed positive, refer for appropriate TB care.

**As soon as the woman reaches 32 weeks of pregnancy, or soon after, provide short-course ZDV therapy.**

- The woman can be given her single NVP dose to take home so she can take it at the onset of labour. She should also be told to take ZDV 600mg at the onset of Labour and every 6 hours until delivery (**See table 1 on page 7**).
- If the woman loses her medication, or takes her NVP too early due to false labour, record it in a book and provide her with replacement.
- All pregnant women, especially those on the PMTCT programme are encouraged to deliver at the health facility.
- All Pregnant women meeting the criteria for ART should be treated starting from second trimester. Those on ART prior to pregnancy should continue through out pregnancy. However, if the regimen contains Efavirenz (EFV), this drug should be replaced with another as EFV is associated with teratogenic effects.

### **Documentation and Monitoring**

The following information should be recorded in the safe motherhood delivery registers and under five registers:

- The HIV status of the woman.
- HIV status of the baby.
- The client's choice on refusal or acceptance of short course ARV or ART.

**Note: This information is also recorded in the Special Register and Pre-ART register.**

**TABLE1: Anti-Retroviral Prophylaxis Regimens to Prevent Mother To Child Transmission**

<b>Course</b>	<b>Antenatal</b>	<b>Intrapartum</b>	<b>Postnatal</b>
<b>Zidovudine (ZDV) and Niverapine (NVP)</b>	<b>Mother:</b> ZDV 300mg Twice a day starting at 32 weeks or as soon as possible thereafter	<b>Mother:</b> ZDV 600mg at onset of labour and every 6 hours until delivery.  NVP 200mg single-dose at onset of labour.	<b>Infant:</b> NVP 2mg/kg oral suspension immediately after birth and ZDV 4mg/kg twice a day for 7 days starting immediately after birth.  <b>Mother:</b> ZDV 300mg twice a day for 7 days
		<b>Or</b> ZDV 600 mg at onset of labour and single dose NVP 200 mg at onset of labour.	<b>Or</b> <b>Infant:</b> NVP 2 mg/kg oral suspension immediately after birth.
<b>ZDV</b>	<b>Mother:</b> ZDV 300 mg twice a day starting at 32 weeks or as soon as possible thereafter.	<b>Mother:</b> ZDV 600 mg at onset of labour or ZDV 300 mg at onset of labour and every 3 hours until delivery.	<b>Infant:</b> ZDV 4 mg/kg twice a day for 7 days.  <b>Mother</b> ZDV 300mg twice a day for 7 days
<b>ZDV and NVP</b> when mother has received less than 4 weeks of ZDV or ART before delivery.		<b>Mother:</b> ZDV 600mg at onset of labour and every 6 hours until delivery NVP 200mg single-dose at onset of labour.	<b>Infant:</b> NVP 2 mg/kg oral suspension immediately after birth and ZDV 4 mg/kg twice a day for 14 days.  <b>Mother</b> ZDV 300mg twice a day for 7 days
<b>ZDV and NVP</b> when mother has received no ARV prophylaxis.		<b>Mother</b> ZDV 600mg at onset of labour and every 6 hours until delivery. NVP 200 mg single-dose at onset of labour.	<b>Infant:</b> NVP 2 mg/kg as soon as possible after delivery and ZDV 4 mg/kg twice a day for 28 days. <b>Mother</b> ZDV 300mg twice a day for 7 days
NVP	None	<b>Mother:</b> Single-dose NVP 200 mg at onset of labour.	<b>Infant:</b> NVP 2mg/kg oral suspension immediately after birth.

**Source: Generic Training Package, Pocket Guide, WHO, 2004**

## CHAPTER III

### Intrapartum care

This involves the modification of midwifery and obstetrical practices for the HIV positive woman to reduce the risk of HIV transmission to the infant. Although elective caesarean section (prior to labour) is of value, it is not practically feasible to be routinely offered in Zambia.

However, the following obstetrical practices should be applied to reduce the risk of HIV transmission to the infant:

- Avoiding episiotomy unless medically indicated.
- Avoiding routine rupture of membranes unless medically indicated.
- Avoiding unnecessary suctioning of the neonate as well as other invasive procedures such as intrauterine scalp monitoring.

### Short course ARV during delivery (Check Table 1 on page 7).

In addition to labour ward routine activities, the following should be observed:

- Upon admission, the midwife inquires if the woman took the short course ARV at home.
- If the patient is found to be in labour or to have ruptured membranes but did not take any short course ARV at home, she should be given NVP and ZDV dose immediately.

**NVP 200mg to the mother at onset of labour, and single dose 2mg/kg syrup for the baby within 72 hours of birth**

**ZDV 600mg for the mother at onset of labour, 600mg every 6 hours until delivery, then 300mg twice a day for 7 days and 4mg/kg twice a day for 7 days for baby**

- If the patient does not have the ARVS given to her previously at the health facility, she must be given doses from the Health centre stocks.
- If NVP is re-dispensed, this should be documented together with the reason for re-dispensing. For example, lost, forgot, false labour.
- In the case of false labour or mistaken ruptured membranes, if the patient is evaluated before she has taken her nevirapine, she should be sent home to await more active labour. She should be instructed to continue with ZDV and to take her nevirapine with the onset of stronger and more regular contractions, or upon rupture of membranes.

If the patient is evaluated after she has taken her nevirapine and the 600mg ZDV, but found not to be in true labour, and not to have ruptured membranes, she should be given another nevirapine tablet and sent home to await more active labour. However, ensure that the patient is instructed to take NVP dose if active labour or rupture of membranes occur more than 24 hours after the initial dose. For ZDV, the patient should take the usual dose of 300mg after 12 hrs, and continue with the twice a day regimen. When labour starts, she should move on to the 600mg every 6 hours, until delivery.

A dispensed second dose of NVP to the mother must be recorded accordingly.

- Women can be given NVP at any time during the first stage of labour. It is only too late to give NVP to the woman if the baby's delivery is imminent i.e. if the head is crowning.
- A woman on ART should continue the ART regimen and should **not be dispensed ARVs for PMTCT Prophylaxis**.
- If a mother knows she is HIV positive at delivery but is not in the PMTCT programme, she should be given nevirapine and ZDV, and NVP and ZDV for the baby as long as she has been counselled about the PMTCT programme, including infant feeding practices and the importance of care, follow-up and HIV testing for the baby.

**For a mother who has not taken ARVs or only receives NVP and ZDV during labour, or the mother tests positive soon after delivery the baby should be given:**

**NVP dose immediately after birth**

**AND**

**ZDV 4mg/kg twice daily for 28 days starting immediately after birth**

- If the woman does not know her HIV status and presents in early labour, she should be offered Counselling and Testing and if found positive, spelt out protocol should be followed in giving care.

### **First stage**

- Strictly keep membranes intact for as long as possible to prolong rupture unless otherwise medically indicated.
- Use aseptic techniques including vaginal cleansing with 0.5% chlorhexidine with each vaginal examination.

**Second stage**

- Avoid invasive procedures i.e. episiotomies and instrumental deliveries unless absolutely necessary.

## CHAPTER IV

### Immediate Post-natal Care and Neonatal Care

This refers to the package of services provided to the mother and the infant before they leave the health facility (6 to 48 hours after delivery).

#### Anti-Retroviral Therapy for the Newborns (Check also Table 1 on page 7)

##### **Nevirapine syrup dose:**

- If a baby weighs 2 kg or more (>2000gr) = > give 0.6 ml (6mg).
- If a baby weighs less than 2 kg, dose nevirapine by baby weight => give 0.2 ml/kg (2 mg/kg.)

##### **ZDV syrup dose**

- 4mg/kg twice daily for 7 days

- Nevirapine is given to the baby between 4 and 72 hours after delivery.
- If the baby vomits the drugs within one hour of taking them, a second
- dose should be given and the baby observed for another one hour. **A third dose should not be given.**
- As earlier stated, if the mother did not take nevirapine or took her dose of nevirapine less than two hours prior to delivery, the baby should get two doses of nevirapine. The first should be given within one hour of life, and the second at least four hours after the first dose. The baby should also get the ZDV syrup twice a day for 7 days
- If the baby of an HIV positive mother in the PMTCT programme is born at home or outside the health facility, and presents to the clinic within 72 hours of delivery, and it is established that the mother took ARVs at the onset of labour, nevirapine and ZDV should be given to baby as per regular doses for the baby. The mother should also be given ZDV for 7 days after delivery.

**This should be noted in all Registers including under 5 card.**

- If the baby of an HIV positive mother, in the PMTCT programme is born at home or outside the health facility, and presents to the clinic within 72 hours of delivery, and you establish that the mother did not take ARVs at the onset of labour, the baby gets two doses of nevirapine, the first dose at presentation and a second dose at least 4 hours after the first dose. The baby also gets the regular baby dose of ZDV. **This should be noted in the Registers and under 5 card.**

- If the baby of an HIV positive mother who is not in the PMTCT programme is born at home or outside the health facility, and presents to the clinic within 72 hours of delivery, the baby gets two doses of nevirapine. The first dose is given at presentation, and the second, at least four hours after the first dose. The baby also gets the regular baby dose of ZDV. This should be noted in the Registers and Under 5 Card.

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**NOTE: All information on the HIV status and ARVs dispensed as well as follow up should be recorded in Registers and Under 5 Cards.**

### **B - Immunization for the newborns**

All babies should receive their routine immunization (OPV0 and BCG) in their first hours of life.<sup>1</sup> OPV0 can be given as suggested, or any time up to 14<sup>th</sup> day of birth.

### **C - Feeding Practices**

Current recommendations on infant feeding practices are as follows;

- For mothers who are HIV negative, or who are of unknown status, exclusive breastfeeding up to 6 months, then breastfeeding up to 24 months or beyond.<sup>3</sup>
- HIV positive mothers should be given enough information about advantages and disadvantages of the available options for them to be able to make an informed choice about what might be best for them.
- For mothers who are HIV positive “when replacement feeding is acceptable, feasible, affordable, sustainable and safe”, avoidance of all breastfeeding is recommended.<sup>2</sup> Otherwise, exclusive breastfeeding is recommended for six months with abrupt cessation (See “*Transition from Exclusive Breastfeeding to Exclusive Replacement Feeding*” on page 17). Good replacement feeding should continue for two years or more
- HIV positive mothers, who choose to use replacement feeding should be carefully trained in its preparation. Cup feeding should be demonstrated and started at the health facility, and bottle-feeding discouraged.

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<sup>1</sup> WHO recommends that all vaccines should be given to HIV sero-negative children and to asymptomatic HIV sero-positives. The only vaccines to be withheld from children with symptomatic AIDS are **BCG** and **Yellow Fever** vaccines.

<sup>2</sup> HIV and Infant feeding: Framework for Priority Action

- After six months of age, **all infants** should be given complementary foods made from appropriately prepared and nutrient enriched foods, family foods where preferable, with an increasing frequency over time. For infants who are not breastfed the recommendation is for a minimum of five feeds per day.
- Counselling of the mother regarding the relative risks and benefits of breastfeeding and alternative feeding practices must begin antenatally.
- The mother's choice regarding feeding practices should be known prior to delivery so that proper care can be given to the baby. Mothers opting to formula feed should NOT have their babies latched on to the breast after delivery.

### **Baby Friendly Hospital Initiative in the context of HIV <sup>3</sup>:**

In line with the **Baby Friendly Hospital Initiative**, the recommended practices for all maternity services should be followed with the following:

- A written breastfeeding policy that is routinely communicated to all health care staff in your facility.
- Trained health care staff in skills necessary to implement the policy.
- Informed pregnant women about the benefits and management of breastfeeding.

### **For all HIV negative women, women of unknown status, and HIV positive women who chose to Breastfeed:**

- Help mothers initiate breastfeeding within one and half-hour of birth.
- Show mothers how to breastfeed and how to maintain lactation even if they are to be separated from their infants for certain reasons.
- Newly born infants should not be given any food or drink other than breast milk, unless medically indicated.
- Practice room in- allow mothers and infants to remain together 24hours a day
- Encourage breastfeeding on demand
- Do not give artificial teats or pacifiers, otherwise known as dummies or soothers to breastfeeding infants

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<sup>3</sup> The "Ten Steps" of BFHI: Recommended Practices for Maternity Services Adapted from WHO/UNICEF 1989

- Foster establishment of breastfeeding support groups and refer mothers to them on discharge from the health facility.

## **Options for alternative feeding practices**

### **Home-prepared formula<sup>4</sup>**

- Home-prepared formula can be made with fresh animal milks, dried milk powder or evaporated milk. Preparation of formula with any of these types of milk involves modification to make it suitable for infants. Care is however needed to avoid over concentration or over-dilution.
- Micronutrient supplements are recommended, as animal milks may provide insufficient sugar, iron, and zinc. Besides, they may contain less vitamin A, C and folic acid.
- If micronutrient supplements are unavailable, complementary foods rich in iron, zinc, vitamin A and C, and folic acid, should be introduced at four months of age<sup>5</sup>. However it is unlikely that they will provide sufficient amounts of the required nutrients.
- Home-prepared formula could be considered as an option by HIV positive women when:
  - Commercial infant formula is not available or is too expensive for the family to buy and prepare
  - The supply of animal milk or other milk is reliable and the family can afford it for at least six months
  - The family has the resources to prepare it hygienically and can make the required modifications accurately
  - Micronutrient supplementation is possible

### **Modified animal milks**

- Cow's milk has more protein and greater concentration of sodium, phosphorous and other salts, than breast milk. Modification involves dilution with boiled water to reduce concentration. But since dilution reduces the energy concentration, sugar must be added.
- The milk, water and sugar, should be mixed in the following

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<sup>4</sup> Adapted from Nutrition Essentials: A Guide for Health Managers

<sup>5</sup> A list of food rich in Iron, Zinc, Vitamin A , C, and Calcium is attached in Annex II

proportions and then boiled to make up 150 ml of home prepared formula:

**100 ml of cow's milk, with  
50 ml of boiled water, and  
10 grams (2 teaspoons) of sugar.**

Feeding an infant for six months requires on average 92 litres of animal milk.

**Table 2: How much modified animal milk to feed the baby:**

<b>If baby's weight is</b>	<b>Or baby is</b>	<b>Then tell the mother to:</b>
3 Kg	1 month old	<ul style="list-style-type: none"> <li>▪ Use 450 ml of milk in a 24 hour period.</li> <li>▪ Give about 60 ml of milk per feed.</li> <li>▪ Feed the baby at least 8 times in 24 hours.</li> </ul>
4 kg	2 months old	<ul style="list-style-type: none"> <li>▪ Use 600 ml of milk in a 24 hour period.</li> <li>▪ Give about 90 ml of milk per feed.</li> <li>▪ Feed the baby at least 7 times in 24 hours.</li> </ul>
5 kg	3-4 months	<ul style="list-style-type: none"> <li>▪ Use 750 ml of milk in a 24 hour period.</li> <li>▪ Give about 120ml of milk per feed.</li> <li>▪ Feed the baby at least 6 times in 24 hours.</li> </ul>
6 kg	5-6 months	<ul style="list-style-type: none"> <li>▪ Use 900 ml of milk in a 24 hour period.</li> <li>▪ Give about 150 ml of milk per feed.</li> <li>▪ Feed the baby at least 6 times in 24 hours.</li> </ul>

*Source:* Regional Centre for Quality of Health Care: Counselling Mothers on Infant Feeding for the Prevention of Mother to Child Transmission of HIV, March 2003

Note:

- The amounts above are only a guide as some babies are better feeders than others. An adequately fed baby will gain weight and pass urine 7 to 8 times in a 24 hour period.
- Goat's milk is similar in composition to cow's milk and so needs to be modified in the same way. It is deficient in folic acid which infants need to be given as a micronutrient supplement.

- Mother choosing replacement feeding should be asked to bring bottles or cup to their delivery centres. Cups are preferred to bottles because they are easier to keep clean/sterile.
- At follow-up, the mothers' feeding practices or problems should be discussed.
- In breastfeeding infants, mastitis, cracked and bleeding nipples, greatly increase the risk of HIV transmission to the baby. Mothers should be instructed to come to the health facility if they experience signs of mastitis or nipple problems. Mothers should also be instructed not to breastfeed the baby from the breast with mastitis, or nipple problems. Milk from the affected breast should be manually expressed and thrown away. Breastfeeding can continue in the unaffected breast.
- Since oral lesions on the baby increase the risk of HIV transmission through breastfeeding, replacement feeds are recommended until all oral lesions heal completely.

#### **Expressed and Heat-treated breast-milk: The Holder pasteurisation method<sup>6</sup>**

- Since heat treatment of expressed breast-milk from an HIV positive mother kills the virus in the breast-milk it is nutritionally superior to other milks although it reduces levels of the anti-infective factors.
- To pasteurize the milk in hospital, ensure it is heated to 62.5C for 30 minutes. In a home environment, it can be boiled and then cooled immediately, by putting it in a refrigerator, or standing the container in cold water.
- To minimize contamination, heat-treated breast milk should be put in a sterilized or very clean container and kept in a refrigerator or in a cool place before, and after heat treatment.
- Expressing and heat-treating breast milk is time consuming and women may not find it a practical option for long-term infant feeding at home. However, if they are motivated and have the time, resources and support, they may wish to consider this option. It may be most useful for sick and low birth-weight babies in a hospital setting.

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<sup>6</sup> From HIV and Infant feeding: A guide for health care managers and supervisors, WHO/UNAIDS/UNICEF 1998

### **Transition from Exclusive Breastfeeding to Exclusive Replacement Feeding<sup>7</sup>:**

- Start the transition process at about five months of age.
- Expressed breast-milk: provide counselling and demonstration to help the mother become familiar and comfortable with the technique of expressing breast-milk.
- Accustom the infant to cup-feeding with expressed breast-milk.
  - Have the mother feed expressed breast-milk to the infant by cup between breast-feedings
  - If the infant refuses the expressed breast-milk in a cup, have another caregiver try.
  - If the infant still refuses to take expressed breast-milk, wait until the infant is very hungry and try again.
  - Repeat these steps until the infant readily takes breast-milk from a cup.
  - Once the infant readily takes breast-milk from the cup, eliminate breastfeeding and switch to feeding the infant instead, with a cup of expressed milk.
- Find alternative means to comfort the infant during day and night time.
  - Help the baby to sleep throughout the night to avoid night-time food preparation and feeding.
  - Comfort the infant when he or she wakes up, by rocking, singing, carrying, or practicing infant massage. If comforting alone is insufficient to soothe the infant, have the mother or another caregiver feed the infant with expressed milk in a cup during the night.
- Monitor the infant's urine output. To ensure that the infant is taking in enough milk, monitor urine output during the transition and after the start of replacement feeding
- Start exclusive replacement feeding, eliminate the final breastfeeding and on the same day, begin to feed the infant with breast-milk substitutes. Do not replace milk feedings with family foods until the transition from breastfeeding has been completed and the infant is growing well.
- Provide the mother adequate support and care to avoid complications of early and rapid breastfeeding cessation. Ensure that the following are done:
  - Prevent and treat breast engorgement.

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<sup>7</sup> Adapted from Early Breastfeeding Cessation as an Option for Reducing Postnatal Transmission of HIV in Africa, Piwoz et al. Aug. 2001

- Provide supportive counselling and education on how to feed and care for non-breastfed infants.
- Provide family planning services.

### **Care for the mother**

- A high dose of Vitamin A (200, 000 IU) supplementation for the mother after delivery should be given.
- Promotion and provision of male or female condoms for use irrespective of one's HIV status.
- Counselling on family planning for HIV positive mothers including use of condoms and risk of pregnancy in non-breastfeeding mothers
- Nutrition counselling and support especially for HIV positive mothers.
- Personal hygiene especially after episiotomy

### **Role of Traditional Birth Attendant (TBA)**

- TBAs can play an important role in the delivery of quality PMTCT services. They can help in referring pregnant women to antenatal care services and contribute to follow-up of women in the community enrolled in the programme.
- District health teams should therefore organize PMTCT training for TBAs to equip them with basic knowledge and skills related to HIV/AIDS and PMTCT using the revised TBA Training Programme of **2005**.
- After training, health facility teams should provide support and oversee TBA activities.
- Trained TBAs can, and are expected to help with the following:
  - Identifying all pregnant women in their catchment areas in the community.
  - Referring pregnant women to ANC and encouraging counselling and testing for HIV.
  - Packaging and selling of clean delivery kits (CDKs).
  - Reducing stigma associated with HIV and AIDS.

- Supporting adherence to short-course ARVs and ensure that these are taken at the onset of labour.
- Ensure that the newborn baby is taken to the health facility for medical assessment, timely administration of short-course ARV syrups for those on the PMTCT programme, and for immunization.
- Support optimum infant feeding practices
- Encourage and support women to come back for postnatal check ups and services, especially if a mother is HIV positive.

## **CHAPTER V**

### **Post-natal Check-ups**

The purpose of this, ideally, one to six weeks after delivery, is to ascertain the health status of the mother and the baby. It is also an opportunity to do the following

- Initiate family planning
- Continue with immunisation.
- Provide nutrition counselling, both for the mother and child
- Monitoring the baby's growth
- Starting PCP prophylactic treatment for the baby.

#### **The following activities should be enhanced:**

1. Double protection using condom and any other family planning method for couples irrespective of their HIV status.
2. Growth monitoring for all infants and nutrition counselling for all mothers.
3. Feeding decisions to be reinforced and supported. Mothers and partners should be referred to a local mother support group.
4. Monitoring of adverse ARV drug reaction both in mothers and babies.
5. Breast conditions should be identified early and treated accordingly.
6. Appointment for HIV testing of the baby.

#### **Home Deliveries**

- All home deliveries should be encouraged to visit health facilities within 72 hours of delivery to ensure mothers enrolled onto the programme have access to ARV treatment for their babies, and to access OPV 0 and BCG vaccinations.
- Birth Attendants have a key role to play by ensuring a clean and safe delivery, as well as timely referral to the nearest health centre.

## CHAPTER VI

### **Follow-up: Paediatric HIV Care and Long Term Support to Mothers**

All babies who are born to HIV positive mothers are ***HIV-exposed***. The majority of the paediatric components of PMTCT are implemented in the under-five clinics during the first 18 months of the baby's life as part of routine care. The paediatric component of MTCT includes:

- Administration of the paediatric PMTCT package.
- Monitoring adherence to chosen infant feeding practice and provision of necessary support. HIV positive mothers who opted for breastfeeding should be supported during safe transition.
- Dispensing of **Cotrimoxazole** to prevent Pneumocystis Carinii Pneumonia (PCP).
- Frequent clinical visits to monitor for clinical signs of HIV infection and provide routine paediatric care including immunisations.

#### **HIV Testing**

**For babies with access to Infant HIV Diagnosis, do PCR at 6weeks. And if the first result is positive, repeat PCR at 10 weeks (See table 4 on page 26).**

**For babies with no access to Infant HIV Diagnosis, test the baby at 9 months with re-testing of babies at 18 months using rapid tests.**

- HIV positive mothers should also be monitored at all baby contacts including during immunization and clinic visits.
- Referral mechanisms and procedures for babies and mothers needing additional clinical care should be determined. Mothers should be provided with appropriate patient education materials.
- An expanded role for trained community counsellors might be considered: community counsellors could provide on-going counselling for mothers, follow-up of defaulters, and sensitization of community to the importance of HIV testing.
- HIV testing for the brothers and sisters of HIV exposed infants as well as children presenting with clinical signs of HIV infection through the counselling and testing services, may be considered. Partners or husbands of HIV positive women should also be offered HIV testing.

### **Pneumocystis Carinii (PCP) Prophylaxis with Cotrimoxazole for babies**

- PCP is the leading killer of HIV infected babies. Primary prophylaxis against Pneumocystis Carinii should therefore be provided through the use of oral cotrimoxazole suspension for at least the first year of life.
- Cotrimoxazole is given to **all HIV-exposed babies** i.e. all babies born from HIV positive mothers **starting at six weeks** of life and continues until at least 12 months if the baby still tests HIV positive.
- Cotrimoxazole can be stopped if the baby tests HIV negative and is not breastfeeding.
- Cotrimoxazole can also be stopped if the baby is HIV positive but has no symptoms and is doing well at 12 months, or better still, has CD4  $\geq$  15%. (check WHO recommendation).
- Cotrimoxazole is continued beyond 12 months if the baby is HIV positive and has symptoms of HIV such as: growth faltering, recurrent bacterial infections, pneumonia, thrush, severe nappy rash, or has had PCP.
- Cotrimoxazole is dosed by weight, and given daily. The following is the once a day dosage. If given twice a day (bd), the dose should be divided by half.

**Table 3: Cotrimoxazole Administration in HIV Exposed infants**

<b>Weight</b>	<b>Daily Dose</b>	<b>(100ml) Bottles needed per month</b>
<b>&lt; 5kg</b>	<b>5 ml</b>	<b>0.5</b>
<b>5-9.9 kg</b>	<b>7.5 ml</b>	<b>1</b>
<b>10-14.9 kg</b>	<b>10ml</b>	<b>1.5</b>
<b>15-19.9 kg</b>	<b>15 ml (1.5 tabs)</b>	<b>2</b>
<b>&gt; 20 kg</b>	<b>20ml (2tabs)</b>	<b>2.5</b>

- Allergic reactions are rare but can present as generalized body rashes. If a rash occurs, refer baby the same day, to an experienced HIV clinician for evaluation and possible switching to Dapsone (2 mg/kg daily).
- A blistering rash involving skin, mouth, red eyes (if scabies or impetigo are ruled-out), is a medical emergency. Cotrimoxazole is stopped and the baby should immediately be referred to a District or tertiary

hospital. Thus, switching to Dapsone will be required.

- Medicine is kept in a cool place and refrigerated if possible. Mothers are asked to bring the baby's medicine bottle to each clinic visit so compliance can be assessed.
- Dispensing of cotrimoxazole to mothers should be made as easy as possible with consideration being given to fast-tracking the distribution in a well coordinated manner with routine immunization visits, starting at six weeks. Cotrimoxazole administration is documented in the **Under-five register**.

### **Clinical evaluation and follow-up of babies**

All children should be registered at birth, and protected from violence, abuse and neglect.

1. Follow-ups on HIV exposed babies should be frequent.

Nurses and other health workers should educate mothers and other caregivers on the importance of the following:

- Prompt screening and seeking treatment and management of opportunistic infections.
- Adequate basic hygiene, both personal and environmental.
- Nutritional education for caretakers and communities.
- Promotion of the use of Insecticide Treated Nets for children.
- Parent and community education for prompt treatment of illness as per IMCI guidelines.
- Community education for integrated approach to Early Childhood Development, which creates a foundation of support for children, their caregivers, and the community;
  - a. Discarding harmful cultural care practices.
  - b. Registering all children at birth.
  - c. Protecting children from violence, abuse and neglect.
  - d. Giving love and psychosocial care and support to children for their early learning.

2. MCH nurses should see babies at one and six weeks and then every four to six weeks, coordinated with the immunisation schedule. The suggested visit schedule for the first year of life is:

**Weeks:** 6, 10, 14 and 18.

**And months:** 6, 9, 12, 15 and 18.

This schedule can be increased if and when need arises.

3. Adherence to growth monitoring and promotion, in addition to early referral for any growth faltering children born to HIV infected women. Growth faltering is one of the earliest signs of HIV/AIDS infection or tuberculosis.

At monitoring visits, the MCH nurse should assess the following clinical conditions:

- Growth faltering.
- Oral thrush or sores and nappy rash.
- Fevers, if the baby is floppy or irritable.
- Asks about inter-current illnesses
- Ask about diarrhoea and coughs
- Asks about TB contacts.

If they are present, the baby is referred to the HIV clinician, or to District Hospital.

The Health worker also assesses;

- The mother's coping and general health. He/she encourages clinic visits for the mother, and participation in support groups.
- Feeding practices, and problems
- Adherence to cotrimoxazole
- Adherence to immunizations, as per paediatric schedules.
- The need for de-worming treatment should also be emphasised and considered every six months starting at one year of age using Mebendazole.

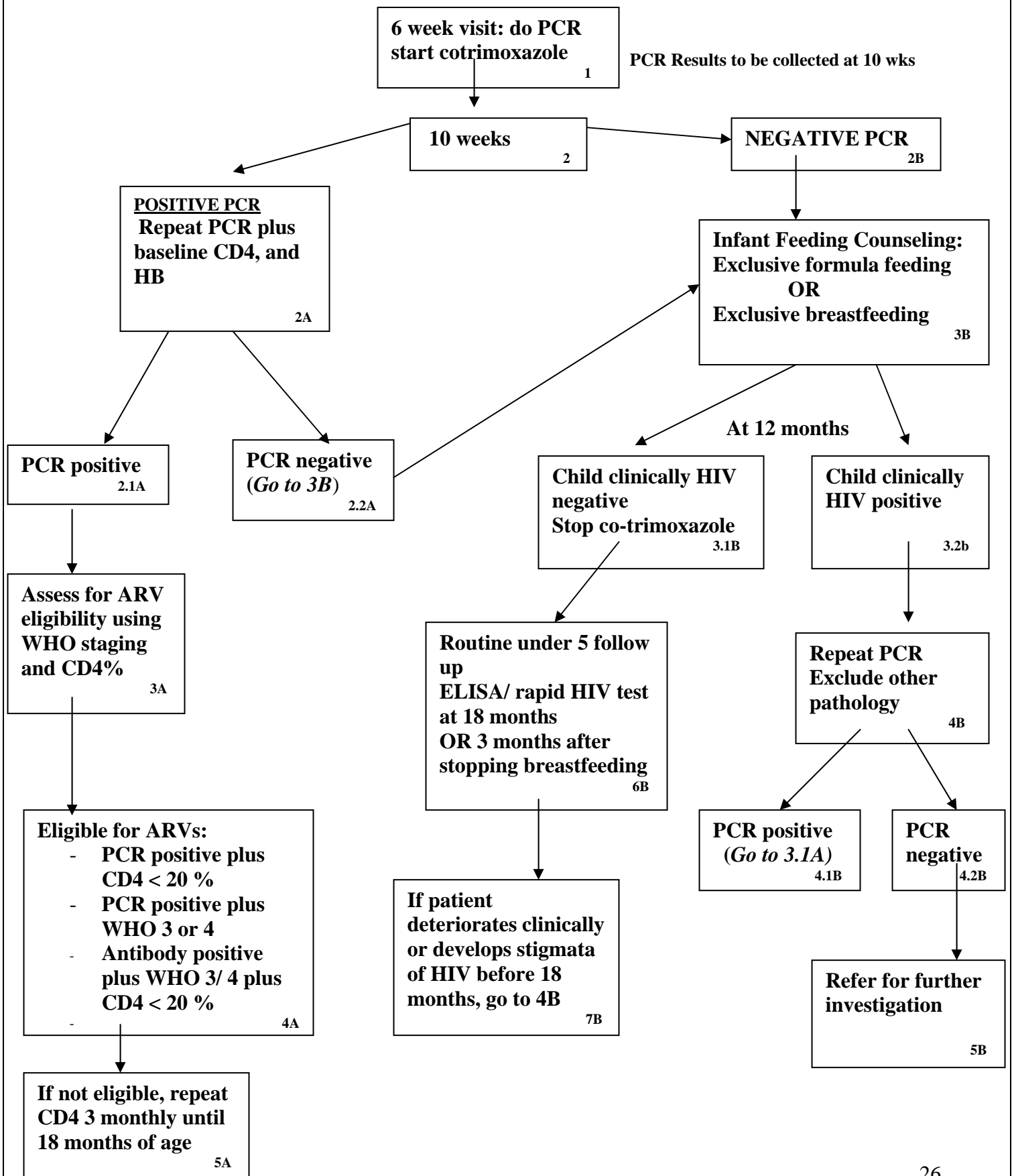
### **HIV testing for babies**

**For babies with access to Infant HIV diagnosis see table 4 26 on page**

1. All babies should be tested at **9 months** using the rapid HIV testing method as for adults. Blood can be obtained via heel sticks. The nine-month visit can be co-ordinated with the OPV4 immunization visit.
2. At 9 months or at any age, an HIV negative test means the baby is uninfected-unless the baby is being breast-fed. An HIV negative baby can be "graduated" from the MTCT programme.
3. For babies with a positive HIV test at 9 months, parents should be told that this may be a "false positive" result because some babies are slow in clearing their maternal antibodies. Thus, such babies will need to be re-tested at **18 months**.

4. Babies testing positive at 9 months are entered into the Special register and under 5 cards to facilitate further follow-up.
5. At 18 months, all remaining HIV positive babies should be re-tested. By 18 months, **all uninfected babies will test HIV negative and HIV infected babies will test HIV positive.** An HIV positive test for a baby who is 18 months or older confirms HIV infection.
6. Breast-fed babies can contract the infection from breast milk. All breastfed babies even if testing negative at 9 or 18 months, should be re-tested 3 months after weaning off from breast-milk in cases where breast-feeding has continued for longer.
7. All test results should be recorded in the Special register and Under 5 cards.

**Table 4: PCR testing in HIV Exposed Infants**



### **Long term support for HIV positive mothers after the delivery period**

As much as possible, a comprehensive package of care and support should be provided to HIV positive women and their families. At 6 week review of the mother and baby, or when mother brings baby for vaccination, refer mother back to the HIV clinician for further follow up.

This support should include:

- Pneumocystis Carinii Pneumonia prophylaxis with Cotrimoxazole as per national guidelines.
- Prompt screening, treatment and management of opportunistic infection.
- Good referral networks for mothers to access all care available to HIV infected people including HAART if applicable through the ARV programme.
- Psycho-social support to mothers and their families: Referrals should be made to community-based groups such as PLWHAs, peer support groups, post-test clubs, legal services, churches, and faith-based organisations and legal counsellors. Income Generating Activities (IGAs) have the potential to promote sustainability of the programme. This is an area that should be continually advocated for and promoted
- When making referrals, women should be given the name of the organisation, an address, and a contact person. A short referral note should also be provided.
- Continued education and counselling of mothers and their partners on vital aspects of PMTCT. Issues to address should include the risks of HIV positive women getting pregnant, medical care, good nutrition, infant feeding, and prevention of STIs as well as promotion of safer sex practices.

## **CHAPTER VII**

### **Care for Health Workers and Community Health Providers**

#### **Using Universal Precautions**

1. Use **Universal Precautions** for all patients
2. When drawing blood.
  - Use gloves
  - No recapping of needles
  - Dispose in sharp box (puncture resistant)
3. Safe disposal of waste contaminated with blood or body fluids
4. Proper handling of soiled linen.
5. Proper disinfection of instruments and other contaminated equipment as per national guidelines on infection
6. Use protective barriers (gloves, aprons, masks, and plastic bags) to avoid direct contact with blood or body fluids.

#### **Post-Exposure Prophylaxis (PEP)**

- Immediately wash with soap and water, any wound or skin site in contact with infected blood or fluid, then irrigate with sterile physiological saline or mild disinfectant.
- Rinse eyes or exposed mucous membrane thoroughly with clear water or saline.
- Report immediately to the person in-charge of PEP and follow **national PEP protocol**.

#### **Care for HIV infected Staff**

- Encourage off-site testing for all staff and confidentiality
- Create a supportive environment for HIV prevention and care among staff.

#### **Recognize and prevent burnout**

Indicators of burnout include:

- Irritability, anger.
- Poor sleep.
- Poor concentration.
- Avoidance of patients and problems – withdrawal from others.
- Fatigue.
- Emotional numbing – lack of pleasure.

- Resorting to alcohol or drugs.
- In survivors of multiple loss – afraid to grieve.

### **Handling/Preventing burnout**

Be sure that you have the skills and resources required to care for the patient and family grappling with burnout. Do the following:

- Define for yourself what is meaningful and valued in care giving.
- Discuss your problems with someone else.
- Be aware of what causes stress and avoid it.
- Use strategies that focus on problems, rather than emotions.
- Change approach to care giving.
- Divide tasks into manageable parts.
- Learn how to adjust the pace of care-giving.
- Ask others to help.
- Encourage self-care by the patient.
- Use relaxation techniques.
- Take care of your life outside care-giving-socialise.
- Develop your own psycho-social support network such as caregiver support groups.
- Take care of your own health.
- Take time off on a regular basis.
- Be aware that you can't do every thing and therefore need help.
- Include in your work a time to discuss patients together.
- Share problems with your colleagues.
- Organise social events.

## CHAPTER VIII

### MONITORING AND EVALUATION

Quarterly PMTCT reports will be prepared from Health facilities through the PMTCT/VCT data management system which is sent to the DHMO. DHMO in turn submits consolidated PMTCT district reports to the Provincial Health Office Data Management Specialist who in turn submit provincial reports to the Ministry of Health. DMS and CCS should provide support supervision to health facilities implementing PMTCT.

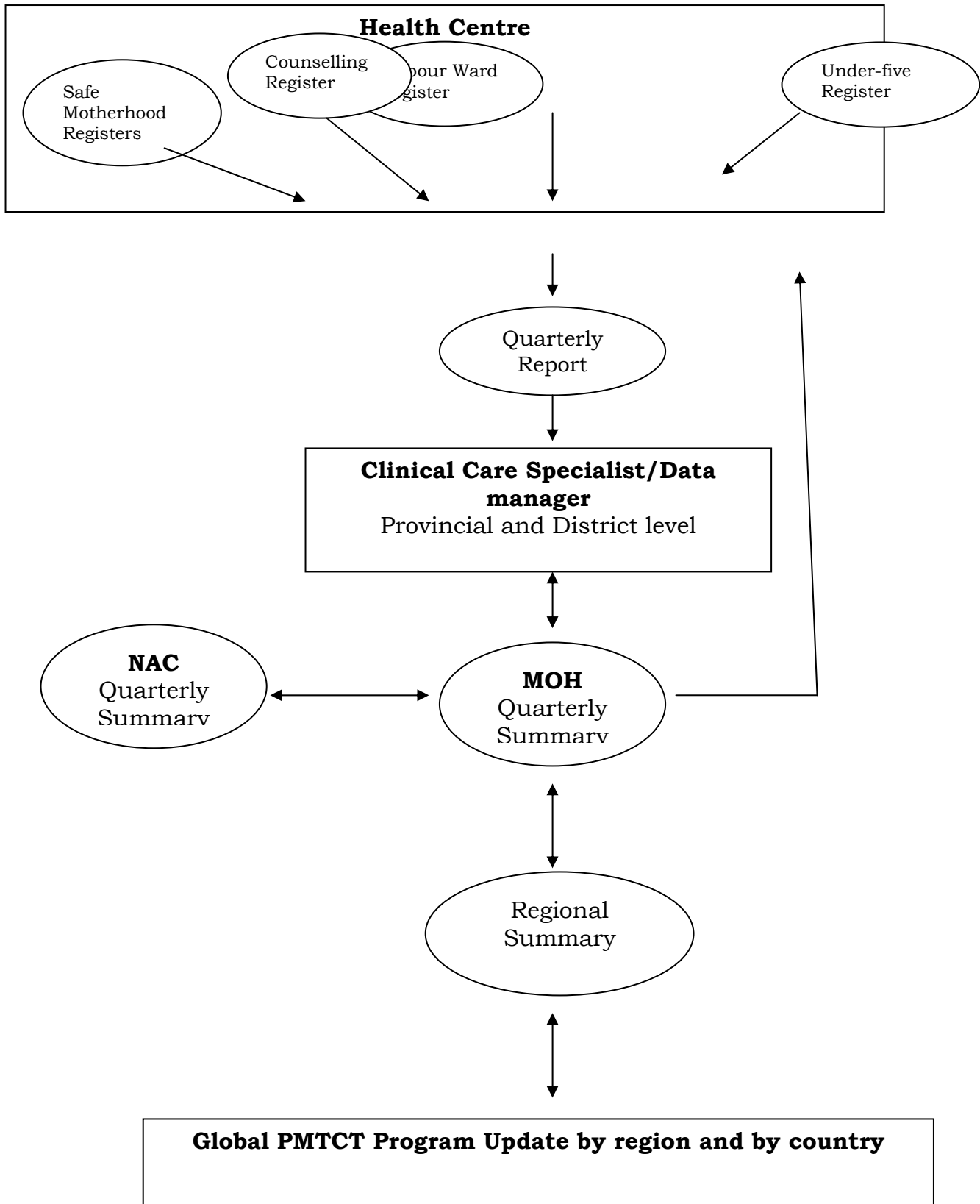
PMTCT information is entered in mothers' cards, Special registers, Under 5 cards and Pre-ART registers. The current minimum standard indicators to be monitored on a quarterly basis are as in table 5 below.

**Table 5: PMTCT Indicators**

*Indicators:*

1. Number of sites providing PMTCT.
2. Number of providers trained in PMTCT.
3. Number of districts providing PMTCT.
4. Number of first ANC attendants.
5. Number ANC attendants tested.
6. Number of deliveries.
7. Number (%) of women/couples pre-test counselled.
8. Number (%) of women/couples HIV/AIDS tested.
9. Number (%) of women/couples testing positive.
10. Number of pregnant women aged 15-19 HIV/AIDS tested.
11. Number of pregnant women aged 15-19 who test HIV/AIDS positive.
12. Number (%) of women/couples post test counselled.
13. Number of women who received ARV for PMTCT.
14. Number of women who receive HAART.
15. Number of babies who receive ARVs at birth.
16. Number of PMTCT babies tested using PCR.
17. Number of PMTCT babies tested using PCR who test positive.
18. Number of PMTCT babies with failure to thrive and test positive before 6 months.
19. Number of PMTCT babies who test positive at 9 months.
20. Number of PMTCT babies who tested positive at 9 months, who also test positive at 18 months.
21. % of PMTCT babies that are positive at 18 months.
22. Number of women who choose to exclusively breastfeed up to 6 months.
23. Number of women who choose to exclusively use replacement feeding.

**Table 6: Reporting System Flow Chart:**



# ANNEXES

## Annex I: Nevirapine Baby Dose Preparation:

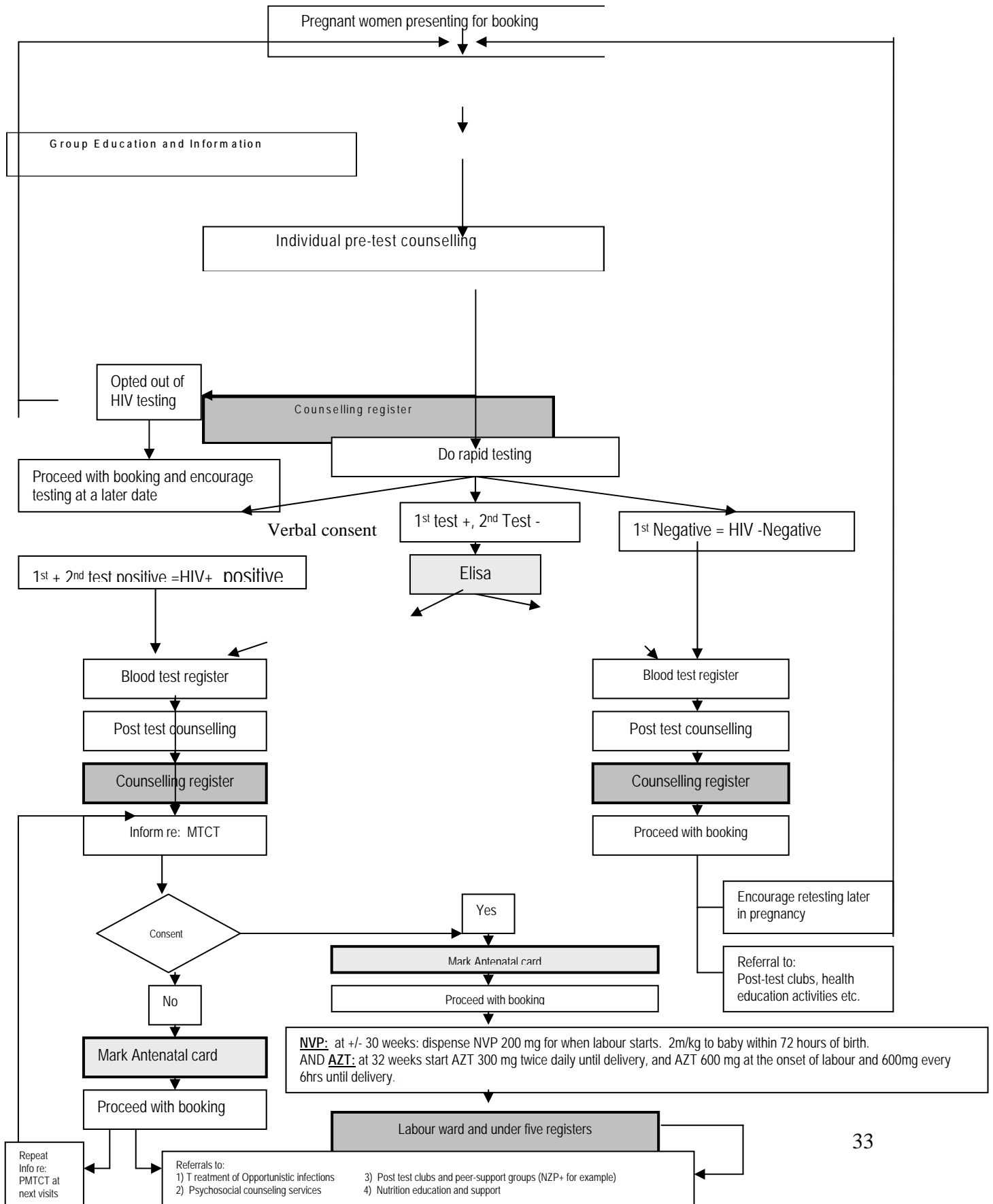
### **Nevirapine Baby Dose Preparation:**

- The oral suspension does not require mixing.
- Gently shake the Viramune® suspension by inverting the bottle several times. The bottle should not be shaken vigorously.
- The dose should be administered using a calibrated oral syringe. A hypodermic syringe may also be used for oral administration if the needle has been removed. The syringe should hold a maximum total volume of 3 ml or less to ensure accuracy.
- Ideally, a new syringe should be used for each patient. Used syringes should be discarded to avoid contamination of the Viramune® multiple dose bottle and the spread of infections between patients.
- If a new syringe is not available, the used syringe should be cleaned and disinfected according to local procedures prior to each use.
- Since multiple patients will receive medication from the same bottle of Viramune®, the suspension should be measured by pouring a small amount into a cup. The suspension should then be drawn into the oral syringe and administered orally. The remainder of the Viramune® in the cup should not be returned to the bottle and should be discarded. To avoid contamination, the syringe should not be placed directly into the bottle.
- Viramune® suspension does contain preservative to minimize the possibility of harmful microbial growth in the open bottle.

### **Nevirapine Syrup Storage:**

- The bottle should be recapped and tightly sealed immediately following each use.
- The bottle should be stored at 15°C-30°C (59°F-86°F) or room temperature
- The bottle should be labelled with the date on which it was opened. Based on results from a retrospective analysis of clinical samples returned from a MTCT prevention trial conducted in

## ANNEX II - Antenatal Care Flow Chart with opt-out model



## **Annex III - Sources of Iron and Iron Absorption**

The amount of iron that a child absorbs from food depends on:

- The amount of iron in the food
- The type of iron (iron from meat and fish is better absorbed than iron from plants, milk and eggs)
- The types of other foods present in the same meal (some *promote* iron absorption and others *interfere*).
- Whether the child is anaemic (more iron is absorbed if anaemic).

<b>Examples of foods high in Iron</b>	
High iron, good absorption	High Iron poor absorption
Liver of all kinds Other organs/offal, especially red organs and blood Flesh of animals, especially red meats Flesh of birds, especially dark meat Foods fortified with iron such as infant formula	Egg yolk Pulses Dark-green leaves

The amount of iron absorbed from eggs, milk and plant foods is:

- Increased by eating at the same meal:
  - Foods rich in vitamin C
  - Flesh and organs/offals of animals, birds
  - Fish
- Decreased by drinking
  - Teas and coffee

Eating foods rich in vitamin C at the same meal is the best way to improve the absorption of iron from eggs, milk and plant foods. Foods rich in Vitamin C include guava, mango, orange and other citrus fruits, paw-paw and pineapple

## **Annex IV – Good Sources of Important Nutrients**

Young children, like everyone else need many different nutrients for growth and development, to provide energy and to keep healthy. The following foods are good sources of iron zinc and vitamin A.

### **Zinc:**

- Liver and offal of all kinds
- Foods prepared with blood
- Flesh of animals, birds and fish
- Egg yolk

### **Vitamin A:**

- Breast milk
- Liver of all kinds
- Egg yolk
- Orange-coloured fruits: mango, paw-paw, passion fruit (but not oranges). The darker the colour, the more vitamin A
- Orange-coloured vegetables – carrot, pumpkin, yellow sweet potato, red/orange peppers (but not tomatoes). The darker the colour, the more vitamin A
- Dark-green leaves – spinach, cassava leaves, sweet potato leaves (kalembula), pumpkin leaves (chibwabwa). The darker the green the more vitamin A.

### **Vitamin C:** (Cooking destroys some vitamin C)

- Fresh fruit – guava, lemon, oranges, paw-paw, banana, passion fruit, mangoes
- Tomatoes, peppers
- Green leaves and vegetables – spinach, cassava leaves, sweet potato leaves, cabbage, broccoli, cauliflower
- Fresh starchy roots and fruits are good sources if large amounts are eaten\_ potato, sweet potato.

### **Calcium:**

- Milk and milk products – cheese, yoghurt
- Fish eaten with bones – small whole fish, pounded dried fish (kapenta), canned fish

## **Annex V – Positive living for PLHA<sup>h</sup>**

People with HIV can live full and healthy lives if they take care of themselves and access treatment.

Nurses and community health workers/counsellors should do the following:

- ***Advise how to prevent other infections***
  - Avoid STIs and re-infection with other strains of HIV
  - Use safe and chlorinated drinking water – drink boiled water or tea when possible
  - Store water in container which prevents contamination ( use spigot, do not dip hand or used cup into the water)
  - Eat well cooked food
  - Wash fruits and vegetables with chlorinated water especially for lettuce)
  - Practice good hand washing – especially after toilet of themselves or others. Caregivers and patient should wash hands often: after using toilet; before preparing food, after sneeze or cough, after touching your genitals, after handling garbage, after touching any blood, semen, vaginal fluids and faeces
  - HIV patients should have a local antiseptic (such as gentian violet or chlorhexidine) at home to apply to minor wounds after washing.
  - Use insecticide-treated bed net to prevent malaria
- ***Encourage physical activity as appropriate***
  - Help patient develop his or her own programme.
  - Exercise can make the person feel better and maintain muscle tone.
  - Physical activity is important to prevent weight loss.
    - It stimulates appetite
    - Reduces nausea
    - Improves functioning of the digestive system
    - Strengthen muscles
- ***Advise to avoid harmful or ineffective expensive treatment or food supplements***
- ***Support Nutrition***
  - ***Advise on nutrition***
    - Food to stimulate weight gain should have high protein, fat and carbohydrate content and include:  
Avocados, coconut, full-cream milk powder, yoghurt or sour milk, soya products, cheese, meat, fish, chicken, ground nuts, nuts and seeds, dried fruit, egg, beans, lentils, potatoes, sweet potatoes, bananas, cassava, millet, sorghum, oats, rice, wheat, and maize

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<sup>h</sup> WHO Chronic HIV Care and HIV therapy

- Avoid refined sugar and sweets as these increase the risk of dental and oral problems
- Some tips to facilitate adequate intake and digestion of food: squeeze fresh lemon juice over fatty foods like meat, chicken and nuts  
Add the grated skin of oranges and lemons to fatty foods  
To help digest meat, eat papaya with the meat  
Eat many small meals a day and chew food well  
Drink between meals not with meals  
Eat fermented or sour foods such as sour milk, sour porridge etc.
- Avoid excessive alcohol/drugs.

Have peer demonstrate preparation of nutritious food

## Annex VI: Annex V: WHO Staging System for HIV Infection and Disease

a) Interim Revised WHO clinical staging of HIV/AIDS for adults and adolescents (for persons aged 15 years or more with positive HIV antibody test or other laboratory evidence of HIV infection)<sup>i</sup>

**Table 1. Revised WHO clinical staging of HIV/AIDS for adults and adolescents**

<b>Primary HIV infection</b>
Unrecognized
Acute retroviral syndrome
<b>Clinical stage 1</b>
Asymptomatic
Persistent generalized lymphadenopathy (PGL)
<b>Clinical stage 2</b>
Moderate unexplained weight loss (<10% of presumed or measured body weight)
Recurrent upper respiratory tract infections (URTIs) (sinusitis, bronchitis, otitis media, pharyngitis)
Herpes zoster
Angular cheilitis
Recurrent oral ulcerations
Papular pruritic eruptions
Seborrhoeic dermatitis
Fungal nail infections of fingers
<b>Clinical stage 3</b>
<b>Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations</b>
Severe weight loss (>10% of presumed or measured body weight)
Unexplained chronic diarrhoea for longer than one month
Unexplained persistent fever (intermittent or constant for longer than one month)
Oral candidiasis
Oral hairy leukoplakia
Pulmonary tuberculosis (TB) diagnosed in last two years
Severe presumed bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteraemia)
Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis
<i>Conditions where confirmatory diagnostic testing is necessary</i>
Unexplained anaemia (<8 g/dl), and or neutropenia (<1000/mm <sup>3</sup> ) and or thrombocytopenia (<50 000/ mm <sup>3</sup> ) for more than one month
<b>Clinical stage 4</b>
<b>Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations</b>
HIV wasting syndrome
Pneumocystis pneumonia
Recurrent severe or radiological bacterial pneumonia
Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration)
Oesophageal candidiasis
Extrapulmonary TB
Kaposi's sarcoma
Central nervous system (CNS) toxoplasmosis
HIV encephalopathy
<b>Conditions where confirmatory diagnostic testing is necessary:</b>
Extrapulmonary cryptococcosis including meningitis
Disseminated non-tuberculous mycobacteria infection
Progressive multifocal leukoencephalopathy (PML)
Candida of trachea, bronchi or lungs
Cryptosporidiosis
Isosporiasis

<sup>i</sup> All clinical events or conditions referred to are described in the Annexes. The UN defines adolescents as persons aged 10–19 years but, in the present document, the category of adults and adolescents comprises people aged 15 years and over for surveillance purposes.

Visceral herpes simplex infection  
Cytomegalovirus (CMV) infection (retinitis or of an organ other than liver, spleen or lymph nodes)  
Any disseminated mycosis (e.g. histoplasmosis, coccidiomycosis, penicilliosis)  
Recurrent non-typhoidal salmonella septicaemia  
Lymphoma (cerebral or B cell non-Hodgkin)  
Invasive cervical carcinoma  
Visceral leishmaniasis

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## **Immunological staging of HIV infection**

Clinical staging can be used effectively without access to CD4 or other laboratory testing. However, CD4 testing is useful for determining the degree of immunocompromise, and where CD4 facilities are available should be used to support and reinforce clinical decision-making. Data on CD4 levels are not a prerequisite for starting ART and should only be used in conjunction with clinical stage. Table 2 presents CD4 levels in relation to the severity of immunosuppression.

For clinical purposes long term prognosis has been shown to be related to the nadir or lowest-ever value of CD4. It should be noted that the immunological staging of disease reverses with successful ART.

**Table 2. CD4 levels in relation to the severity of immunosuppression**

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Not considered to have significant immunosuppression	>500/mm <sup>3</sup>
Evidence of mild immunosuppression	350–499/mm <sup>3</sup>
Evidence of advanced immunosuppression	200–349/mm <sup>3</sup>
Evidence of severe immunosuppression	<200/mm <sup>3</sup>

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## **Implications for clinical and immunological criteria for initiating ART in adults and adolescents**

There is strong evidence for the clinical benefit of ART in adults with advanced HIV/AIDS as determined clinically or immunologically. The precise clinical and or immunological criteria for initiating ART is usually outlined in national treatment guidelines. Existing WHO recommendations are provided on a WHO web site (2).

**Table 3. Clinical and immunological criteria for initiating ART in adults and adolescents**

<b>Clinical stage</b>	<b>ART</b>
4	Treat.
3	Consider treatment: CD4, if available, can guide the urgency with which ART should be started.
1 or 2	Only if CD4 <200/mm <sup>3</sup> .

CD4 can be used to monitor responses to treatment, although they are not essential. Absolute CD4 values also fluctuate with intercurrent illness and with physiological and test variability, so the trend over two or three repeated measurements is usually more informative than individual values. Note: that during the course of acute HIV infection the CD4 count may reach very low levels and then recover.

## **Annex VI: WHO Staging System for HIV Infection and Disease continued**

### **b) Interim Revised WHO clinical staging of HIV/AIDS for infants and children (for persons aged under 15 years with confirmed laboratory evidence of HIV infection: HIV antibody if aged 18 months and above; virological or P24 antigen testing if aged under 18 months)<sup>10</sup>**

**Table 4. Revised WHO clinical staging of HIV/AIDS for infants and children**

#### **Clinical Stage 1**

Asymptomatic  
PGL

#### **Clinical Stage 2**

Hepatosplenomegaly  
Papular pruritic eruptions  
Seborrhoeic dermatitis  
Extensive human papilloma virus infection  
Extensive molluscum contagiosum  
Fungal nail infections  
Recurrent oral ulcerations  
Lineal gingival erythema (LGE)  
Angular cheilitis  
Parotid enlargement  
Herpes zoster  
Recurrent or chronic URTIs (otitis media, otorrhoea, sinusitis)

#### **Clinical Stage 3**

##### ***Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations***

Moderate unexplained malnutrition not adequately responding to standard therapy  
Unexplained persistent diarrhoea (14 days or more )  
Unexplained persistent fever (intermittent or constant, for longer than one month)  
Oral candidiasis (outside neonatal period )  
Oral hairy leukoplakia  
Acute necrotizing ulcerative gingivitis/periodontitis  
Pulmonary TB  
Severe recurrent presumed bacterial pneumonia

##### **I. Conditions where confirmatory diagnostic testing is necessary**

Lymphoid interstitial pneumonitis (LIP)  
Unexplained anaemia (<8g/dl), and or neutropenia (<1000/mm<sup>3</sup>) and or thrombocytopenia (<50 000/ mm<sup>3</sup>) for more than one month  
Chronic HIV-associated lung disease including bronchiectasis

#### **Clinical Stage 4**

##### ***Conditions where a presumptive diagnosis can be made on the basis of clinical signs or simple investigations***

Unexplained severe wasting or severe malnutrition not adequately responding to standard therapy  
Pneumocystis pneumonia  
Recurrent severe presumed bacterial infections (e.g. empyema, pyomyositis, bone or joint infection, meningitis, but excluding pneumonia)  
Chronic herpes simplex infection; (orolabial or cutaneous of more than one month's duration)  
Extrapulmonary TB  
Kaposi's sarcoma  
Oesophageal candidiasis  
CNS toxoplasmosis (outside the neonatal period)  
HIV encephalopathy

##### ***Conditions where confirmatory diagnostic testing is necessary***

CMV infection (CMV retinitis or infection of organs other than liver, spleen or lymph nodes; onset at the age one month or more)  
Extrapulmonary cryptococcosis including meningitis

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<sup>10</sup> All clinical events or conditions referred to are described in the Annexes.

Any disseminated endemic mycosis (e.g. extrapulmonary histoplasmosis, coccidiomycosis, penicilliosis)  
 Cryptosporidiosis  
 Isosporiasis  
 Disseminated non-tuberculous mycobacteria infection  
 Candida of trachea, bronchi or lungs  
 Visceral herpes simplex infection  
 Acquired HIV associated rectal fistula  
 Cerebral or B cell non-Hodgkin lymphoma  
 Progressive multifocal leukoencephalopathy (PML)  
 HIV-associated cardiomyopathy or HIV-associated nephropathy

### Immunological categories for paediatric HIV infection

Immunological staging for children is also possible. The absolute CD4 count and the percentage values in healthy infants who are not infected with HIV are considerably higher than those observed in uninfected adults, and slowly decline to adult values by the age of 6 years. In considering absolute counts or percentages, therefore, age must be taken into account as a variable. The absolute CD4 count associated with a specific level of immunosuppression tend to change with age, whereas the CD4 percentage related to immunological damage does not vary as much. Currently, therefore, the measurement of the CD4 percentage is recommended in younger children. CD4 testing is not essential for the initiation of ART, and should only be used in conjunction with clinical stage. As for adults, immunological staging assists clinical decision-making and provides a link with monitoring and surveillance definitions. It is usually reversed by successful ART.

**Table 5. CD4 levels in relation to the severity of immunosuppression**

Immune status	Age		
	Up to 12 months	13 -59 months	5 years or over
Not considered to have significant immunosuppression	>35%	>25%	>500/mm <sup>3</sup>
Evidence of mild immunosuppression	25–34%	20–24%	350–499/mm <sup>3</sup>
Evidence of advanced immunosuppression	20–24%	15–19%	200–349/mm <sup>3</sup>
Evidence of severe immunosuppression	<20%	<15%	<200/mm <sup>3</sup>

### Implications for clinical and immunological criteria for initiating ART

Although there are concerns about the early use of ART in asymptomatic infants, all children with stage 3 or stage 4 disease (advanced HIV defined clinically) should start ART following discussion with their families. There is very strong evidence for the clinical benefit of ART in children with advanced HIV/AIDS. For older children some clinical conditions, e.g. LIP, appear to have a more stable clinical course, although there are few data on cohorts from African settings. Because of the revisions in clinical staging these recommendations should replace those provided in the 2003 WHO reference guide (2).

**Table 6. Clinical and immunological criteria for initiating ART in infants and children**

Clinical stages	ART
4	Treat
Presumptive stage 4	Treat
3	Consider treatment for all ages. Children aged under 2 years usually require ART. CD4 %, if available should be used to guide decisions on ART
1 and 2	Usually only where CD4 available.
	Under 12 months: CD4 % <20
	13-59 months : CD4 % <15
	5 years or over CD4 < 200/mm <sup>3</sup>

Note: co-trimoxazole prophylaxis should be given to all HIV-exposed infants until HIV infection is definitively excluded, to all symptomatic HIV-infected children and to asymptomatic children with immunological evidence of immunosuppression

CD4 can be used to monitor responses to treatment, although it is not essential. Absolute CD4 values also fluctuate with intercurrent illness and with physiological and test variability, so the trend over two or three repeated measurements is usually more informative than individual values.

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## Annex VII: CDC AIDS Surveillance Case Definition

### a) Adolescents and Adults

Clinical Categories			
CD4 Cell Categories	A	B	C*
<b>Mm<sup>3</sup> (%)</b>	<b>Asymptomatic, PGL or Acute HIV Infection</b>	<b>Symptomatic<sup>†</sup> (not A or C)</b>	<b>AIDS Indicator Condition (1987)</b>
<b>1: &gt;500/mm<sup>3</sup> (≥29%)</b>	A1	B1	C1
<b>2: 200–499/mm<sup>3</sup> (14–28%)</b>	A2	B2	C2
<b>3: &lt;200/mm<sup>3</sup> (&lt;14%)</b>	A3	B3	C3
<p>* All patients in categories A3, B3 and C1-3 are defined as having AIDS, based on the presence of an AIDS-indicator condition (see the following table) and/or a CD4 cell count of less than 200/mm<sup>3</sup>.</p> <p><sup>†</sup> Symptomatic conditions not included in Category C that are: a) attributed to HIV infection or indicative of a defect in cell-mediated immunity or b) considered to have a clinical course or management that is complicated by HIV infection. Examples of B conditions include but are not limited to bacillary angiomatosis; thrush; vulvovaginal candidiasis that is persistent, frequent or poorly responsive to therapy; cervical dysplasia (moderate or severe); cervical carcinoma in situ; constitutional symptoms such as fever (38.5° C) or diarrhoea lasting longer than 1 month; oral hairy leukoplakia; herpes zoster involving two episodes or more than 1 dermatome; idiopathic thrombocytopenic purpura (ITP); listeriosis; pelvic inflammatory disease (PID) (especially if complicated by a tubo-ovarian abscess); and peripheral neuropathy.</p>			

### b) Infants and Children

#### Immunologic categories based on age-specific CD4 counts and percent of total lymphocytes

Immunologic category	<12 mos	1–5 yrs	6–12 yrs
	uL (%)	uL (%)	uL (%)
1: No evidence of suppression	≥ 1,500 (> 25)	≥ 1,000 (> 25)	≥ 500 (> 25)
2: Evidence of moderate suppression	750–1,499 (15–24)	500–999 (15–24)	200–499 (15–24)
3: Severe suppression	< 750 (<15)	< 500 (<15)	< 200 (<15)

### c) Clinical categories for children with HIV infection

#### CATEGORY N: NOT SYMPTOMATIC

Children who have no signs or symptoms considered to be the result of HIV infection or who have only one of the conditions listed in Category A.

#### CATEGORY A: MILDLY SYMPTOMATIC

Children with two or more of the conditions listed below but none of the conditions listed in Categories B and C.

- Lymphadenopathy (≥ 0.5 cm at more than two sites; bilateral = one site)

- Hepatomegaly
- Splenomegaly
- Dermatitis
- Parotitis
- Recurrent or persistent upper respiratory infection, sinusitis, or otitis media

**CATEGORY B: MODERATELY SYMPTOMATIC**

**Children who have symptomatic conditions other than those listed for Category A or C that are attributed to HIV infection. Examples of conditions in clinical Category B include but are not limited to:**

Anemia (<8 gm/dL), neutropenia (<1,000/mm<sup>3</sup>), or thrombocytopenia (<100,000/mm<sup>3</sup>) persisting ≥ 30 days

- Bacterial meningitis, pneumonia, or sepsis (single episode)
- Candidiasis, oropharyngeal (thrush), persisting (>2 months) in children >6 months of age
- Cardiomyopathy
- Cytomegalovirus infection, with onset before 1 month of age
- Diarrhea, recurrent or chronic
- Hepatitis
- Herpes simplex virus (HSV) stomatitis, recurrent (more than two episodes within 1 year)
- HSV bronchitis, pneumonitis, or esophagitis with onset before 1 month of age
- Herpes zoster (shingles) involving at least two distinct episodes or more than one dermatome
- Leiomyosarcoma
- Lymphoid interstitial pneumonia (LIP) or pulmonary lymphoid hyperplasia complex
- Nephropathy
- Nocardiosis
- Persistent fever (lasting >1 month)
- Toxoplasmosis, onset before 1 month of age
- Varicella, disseminated (complicated chickenpox)

**CATEGORY C: SEVERELY SYMPTOMATIC**

Serious bacterial infections, multiple or recurrent (ie, any combination of at least two culture-confirmed infections within a 2-year period), of the following types: septicemia, pneumonia, meningitis, bone or joint infection, or abscess of an internal organ or body cavity (excluding otitis media, superficial skin or mucosal abscesses, and indwelling catheter-related infections)

- Candidiasis, esophageal or pulmonary (bronchi, trachea, lungs)
- Coccidioidomycosis, disseminated (at site other than or in addition to lungs or cervical or hilar lymph nodes)
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis or isosporiasis with diarrhea persisting >1 month
- Cytomegalovirus disease with onset of symptoms at age >1 month (at a site other than liver, spleen, or lymph nodes)
- Encephalopathy (at least one of the following progressive findings present for at least 2 months in the absence of a concurrent illness other than HIV infection that could explain the findings): a) failure to attain or loss of developmental milestones or loss of intellectual ability, verified by standard developmental scale or neuropsychological tests; b) impaired brain growth or acquired microcephaly demonstrated by head circumference measurements or brain atrophy demonstrated by computerised tomography or magnetic resonance imaging (serial imaging is required for children <2 years of age); c) acquired symmetric motor deficit manifested by two or more of the following: paresis, pathologic reflexes, ataxia, or gait disturbance
- Herpes simplex virus infection causing a mucocutaneous ulcer that persists for >1 month; or bronchitis, pneumonitis, or esophagitis for any duration affecting a child >1 month of age
- Histoplasmosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)
- Kaposi's sarcoma
- Lymphoma, primary, in brain

- Lymphoma, small, noncleaved cell (Burkett's), or immunoblastic or large cell lymphoma of B-cell or unknown immunologic phenotype
- *Mycobacterium tuberculosis*, disseminated or extrapulmonary
- *Mycobacterium*, other species or unidentified species, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
- *Mycobacterium avium complex* or *Mycobacterium kansasii*, disseminated (at site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
- *Pneumocystis carinii* pneumonia
- Progressive multifocal leukoencephalopathy
- Salmonella (nontyphoid) septicemia, recurrent
- Toxoplasmosis of the brain with onset at >1 month of age
- Wasting syndrome in the absence of a concurrent illness other than HIV infection that could explain the following findings:
  - a) persistent weight loss >10% of baseline OR
  - b) downward crossing of at least two of the following percentile lines on the weight-for-age chart (eg, 95th, 75th, 50th, 25th, 5th) in a child  $\geq$  1 year of age OR
  - c) <5th percentile on weight-for-height chart on two consecutive measurements,  $\geq$ 30 days apart PLUS
    - a) chronic diarrhoea (ie, at least two loose stools per day for >30 days) OR
    - b) documented fever (for >30 days, intermittent or constant)

## Annex VIII: Clinical situations and recommendations for the use of antiretroviral drugs in pregnant women and women of child-bearing potential in resource-constrained settings

Clinical Situation	Recommendation
<b>A:</b> HIV-infected women with indications for initiating ARV treatment <sup>1</sup> who may become pregnant	First-line regimens: D4T + 3TC + NVP or ZDV + 3TC + NVP Efavirenz (EFV) should be avoided in women of childbearing age, unless effective contraception can be assured. Exclude pregnancy before starting treatment with EFV.
<b>B:</b> HIV-infected women receiving ARV treatment who become pregnant	<p><b>Women</b></p> <ul style="list-style-type: none"> <li>Continue the current ARV regimen<sup>2</sup> unless it contains EFV. If it does, substitution with a NVP or a PI should be considered if in the 1<sup>st</sup> trimester.</li> <li>Continue the same ARV regimen during the intrapartum period and after delivery.</li> </ul> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>If born to women receiving either 1st or 2nd-line ARV regimens: 1-week ZDV OR single-dose NVP OR 1-week ZDV and single dose NVP.</li> </ul>
<b>C:</b> HIV-infected pregnant women with indications for ARV treatment <sup>1</sup>	<p><b>Women</b></p> <ul style="list-style-type: none"> <li>Follow the treatment guidelines as for non-pregnant adults except that EFV should not be given in the 1<sup>st</sup> trimester.</li> <li>First line regimens D4T + 3TC + NVP or ZDV + 3TC + NVP</li> <li>Consider delaying therapy until after the 1st trimester, although in severely ill women the benefits of early therapy clearly outweigh the potential risks.</li> </ul> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>1-week ZDV OR single-dose NVP OR 1-week ZDV and single-dose NVP.</li> </ul>
<b>D:</b> HIV-infected pregnant women without indications for ARV treatment <sup>1</sup>	<p>First-choice regimen: ZDV and NVP</p> <p><b>Women</b></p> <ul style="list-style-type: none"> <li>ZDV starting at 28 weeks or as soon as possible thereafter. Continue ZDV at the same dose in labour. In addition, women should receive single-dose NVP at the onset of labour.</li> </ul> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>Single-dose NVP and 1-week ZDV<sup>3</sup></li> </ul> <hr/> <p>Alternative regimen: ZDV only</p> <p><b>Women</b></p> <ul style="list-style-type: none"> <li>ZDV starting at 28 weeks or as soon as possible thereafter. Continue in labour.</li> </ul> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>1-week ZDV<sup>3</sup></li> </ul> <hr/> <p>Alternative regimen: ZDV + 3TC</p> <p><b>Women</b></p> <ul style="list-style-type: none"> <li>ZDV + 3TC starting at 36 weeks or as soon as possible thereafter. Continue in labour and for 1 week postpartum.</li> </ul> <p><b>Infants</b></p> <ul style="list-style-type: none"> <li>1-week ZDV + 3TC</li> </ul>

Clinical Situation	Recommendation
<b>E:</b> HIV-infected pregnant women with indications for starting ARV treatment <sup>1</sup> but treatment is not yet available	Follow the recommendations in Situation D, but preferably use the most efficacious regimen that is available and feasible.

## Clinical situations and recommendations for the use of antiretroviral drugs in pregnant women and women of child-bearing potential in resource-constrained settings

(continued)

Clinical Situation	Recommendation
<b>F:</b> HIV-infected pregnant women with active tuberculosis	<ul style="list-style-type: none"> <li>▪ If ARV treatment is initiated, consider<sup>4</sup>: (ZDV or d4T) + 3TC + SQV/r.</li> <li>▪ If treatment is initiated in the 3<sup>rd</sup> trimester (ZDV or d4T) + 3TC +EFV can be considered.</li> <li>▪ If ARV treatment is not initiated, follow the recommendations in Situation D.</li> </ul>
<b>G:</b> Pregnant women of unknown HIV status at the time of labour or women in labour known to be HIV-infected who have not received ARV drugs before labour	<p>If there is time, offer HIV testing and counselling to women of unknown status and if positive, initiate intrapartum ARV prophylaxis.</p> <p><b>Women</b></p> <ul style="list-style-type: none"> <li>▪ Single-dose NVP. If in advanced labour do not give the dose but follow the recommendations in Situation H</li> </ul> <p><b>Women</b></p> <ul style="list-style-type: none"> <li>▪ ZDV + 3TC in labour and 1-week ZDV + 3TC postpartum</li> <li>▪ 1-week ZDV+3TC</li> </ul> <p>If there is insufficient time for HIV testing and counselling during labour, then offer testing and counselling as soon as possible postpartum. Follow the recommendations in Situation H for women testing positive postpartum.</p>
<b>H:</b> Infants born to HIV-infected women who have not received any ARV drugs	<p><b>Infants</b></p> <ul style="list-style-type: none"> <li>▪ Single-dose NVP as soon as possible after birth and 1-week ZDV</li> </ul> <p>If the regimen is started more than 2 days after birth, it is unlikely to be effective.</p>

<sup>1</sup> WHO recommendations for initiating ARV treatment in HIV-infected adolescents and adults. If CD4 testing is available it is recommended to offer ARV treatment to patients with: WHO Stage IV disease irrespective of CD4 cell count, WHO Stage III disease with consideration of using CD4 cell counts less than 350 10<sup>6</sup> cells/L to assist decision-making and WHO Stage I and II disease in the presence of a CD4 cell count less than 200 10<sup>6</sup> cells/L. If CD4 testing is unavailable, it is recommended to offer ARV treatment to patients with WHO Stage III and IV disease irrespective of total lymphocyte count or WHO Stage II disease with a total lymphocyte count less than 1200 10<sup>6</sup> cells/L.

<sup>2</sup> **Conduct clinical and laboratory monitoring as outlined in the 2003 revised WHO treatment guidelines.**

<sup>3</sup> **Continuing the infant on ZDV for four to six weeks can be considered if the woman received antepartum ARV drugs for less than four weeks.**

<sup>4</sup> ABC can be used in place of SQV/r; however, experience with ABC during pregnancy is limited. In the rifampicin-free continuation phase of tuberculosis treatment, an NVP-containing ARV regimen can be initiated.

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NOTE: HIV/AIDS is a dynamic field. As thus, the management protocols will be updated on a regular basis, as need arises. Should you have any question on this protocol or would like to provide any feedback, please send your comments/questions to:

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