



## Module 4: Specific PMTCT Interventions

- SECTION 1:** Antiretroviral Treatment and Prophylaxis for PMTCT
- SECTION 2:** Antenatal Management of Women who are HIV–Infected and Women with Unknown HIV Status
- SECTION 3:** Management of Labour and Delivery of Women Infected with HIV and Women with Unknown HIV Status
- SECTION 4:** Immediate Postpartum Care of Women who are HIV–Infected and Women with Unknown HIV Status
- SECTION 5:** Immediate Newborn Care of Infants who are HIV–Exposed and Infants with Unknown HIV Status
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### Objectives

**After completing the module, the participant will be able to:**

- Name specific interventions for preventing mother–to–child transmission of HIV infection.
- List locally available and recommended antiretroviral drug regimens.
- Discuss the antenatal management of women infected with HIV.
- Describe the management of labour and delivery in women infected with HIV.
- Discuss the postpartum care of women infected with HIV.
- Describe the obstetric management of women whose HIV status is unknown.
- Explain immediate care of babies born to mothers who are HIV–infected
- Discuss immediate care of babies born to mothers whose HIV status is unknown.

### Introduction

In February 1994, the results of Pediatric AIDS Clinical Trials Group (PACTG) Protocol 076 documented that ZDV chemoprophylaxis could reduce vertical HIV-1 transmission by nearly 70%. Epidemiologic data have since confirmed the efficacy of ZDV for reduction of vertical transmission. In 1999, single dose Nevirapine 200mg given to an HIV-infected mother at the onset of labour plus Nevirapine suspension 2mg/kg given to the baby within 72 hours of delivery (HIVNET 012 Trial) in Uganda, demonstrated 50% reduction of MTCT. The efficacy and low cost of the Nevirapine regimen led to rapid expansion of PMTCT programmes across sub-Saharan Africa where HIV disease

burden is heavy. New recommendations from WHO (2004) emphasise longer combination prophylaxis regimens (HAART), where feasible.

For the successful implementation of PMTCT programmes, the following elements need to be included as part of ANC:

- Health information and education
- Education about safer sex practices and HIV
- HIV testing and counselling
- Partner HIV testing and counselling
- Interventions to reduce the risk of MTCT
- Infant-feeding counselling and support for Safe Motherhood including malaria and TB treatment
- Diagnosis and treatment of sexually transmitted infections (STIs)

**Definitions:**

**ARV treatment** refers to long-term use of antiretroviral drugs to treat maternal HIV/AIDS and prevent MTCT.

**ARV prophylaxis** refers to short-term use of antiretroviral drugs to reduce HIV transmission from mother to baby.

The following sections address the integration of specific PMTCT interventions into the obstetric management of women infected with HIV and women of unknown HIV status.

## SECTION 1: Antiretroviral Treatment and Prophylaxis for the Prevention of MTCT

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### Antiretrovirals (ARVs)

ARV drugs are effective for both treating maternal HIV infection and preventing MTCT. Several antiretroviral regimens reduce the risk of MTCT in both breastfeeding and non-breastfeeding women. The mechanisms by which these regimens prevent or reduce mother-to-child HIV transmission include decreasing viral replication in the mother, leading to a decrease in viral load in the infant and/or prophylaxis during and after exposure to the virus.

Pregnant women, who are HIV-infected and need ARV treatment for their own health, should receive it according to the National treatment guidelines. ARV treatment during pregnancy, when indicated, will improve the health of the woman and decrease the risk of transmission of HIV to the baby.

ARV treatment is recommended in the following situations:

#### **WHO Stage IV disease, irrespective of CD4 cell count**

**WHO Stage III disease** (including but not restricted to HIV wasting, chronic diarrhoea of unknown aetiology, prolonged fever of unknown aetiology, pulmonary TB, recurrent invasive bacterial infections, or recurrent or persistent mucosal candidiasis); **with CD4 cell counts of less than 350/mm<sup>3</sup>**

**WHO Stage I or II disease with CD4 cell counts of 200/mm<sup>3</sup> or lower**

*If CD4 testing is unavailable, it is recommended that ARV treatment be offered to patients with:*

**WHO Stages III and IV disease, irrespective of total lymphocyte count**

**WHO Stage II disease, with a total lymphocyte count of less than or equal to 1,200/mm<sup>3</sup>**

*Patients with WHO stage I disease should not be commenced on ARV treatment in the absence of CD4 testing.*

#### **ARV treatment during pregnancy**

For women diagnosed with HIV during pregnancy and eligible for treatment with ARVs, treatment should be initiated as soon as possible. The start of treatment may be delayed until after the first trimester. However, when the woman is severely ill, the benefits of treatment outweigh any potential risk to the foetus. Efavirenz (EFV), an antiretroviral drug that is considered potentially teratogenic, is not recommended until after the first trimester of pregnancy. It should be avoided in women of childbearing age unless effective contraception can be ensured. *Appendix 4-A* provides guidance for the use of antiretroviral drugs in pregnant women.

### **Pregnant women receiving ARV therapy**

Pregnant women receiving ARV therapy require ongoing care and monitoring within the local HIV/AIDS programme. When co-infection with TB exists, additional drug therapy and clinical management are required to minimise side effects that may occur when ARV drugs are co-administered with TB therapy.

### **ARV prophylaxis**

Women who do not need treatment (i.e., women who are not eligible for treatment based on the criteria above), or do not have access to treatment, should be offered prophylaxis to prevent MTCT using one of a number of ARV regimens known to be effective. ARV prophylaxis regimens vary and are selected based on efficacy, safety, drug resistance, feasibility, and acceptability. Please refer to Appendix 4-A for a complete listing of clinical settings and recommended ARV.

### **ARV Prophylaxis for PMTCT**

- i. If a woman does not require ARV treatment for her HIV-related disease, the first choice prophylactic regimen for PMTCT is the triple combination of ZDV+3TC+NVP from 2<sup>nd</sup> trimester through delivery.
- ii. Where the above regimen is not available ZDV starting at 28 weeks of gestation, or as soon as possible thereafter until delivery plus single-dose nevirapine (NVP) at the onset of labour for the mother, and single-dose NVP plus 7 days of ZDV for the infant.
- iii. If a pregnant HIV-positive woman presents for the first time in labour give single dose nevirapine 200 mg at onset of labour followed by (zidovudine + lamivudine) for 4 days and nevirapine suspension given as 2mg per/kg body weight given to the baby within 72 hours of delivery plus ZDV 4 mg/kg twice daily for 6 weeks.

### **Drug information**

#### **Zidovudine (ZDV, AZT)**

- Absorbed rapidly and completely after oral administration
- Prenatal and neonatal exposure to ZDV is generally well tolerated
- Anaemia may occur but usually resolves when treatment ends
- May be taken with or without food

#### **Nevirapine (NVP)**

- Absorbed rapidly and completely after oral administration and crosses the placenta quickly
- Long half-life that benefits the infant
- May be taken with or without food
- Hepatotoxicity and skin rash are common side effects

**Lamivudine (3TC)**

- Absorbed rapidly and completely after oral administration
- May safely be taken with other medications that treat HIV-related symptoms
- May be taken with or without food

## **SECTION 2: Antenatal Management of Women who are HIV-Infected and Women with Unknown HIV Status**

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### **Antenatal care**

Antenatal care improves the general health and well being of mothers and their families. Given the rapid spread of HIV infection worldwide, all pregnant women may be considered at risk for acquiring HIV infection. The ANC setting is a main source of health care for women of childbearing age. By integrating PMTCT services into essential ANC services, healthcare programmes can improve care—and pregnancy outcomes—for all their clients.

Antenatal interventions can reduce the risk of MTCT. Good maternal health care helps women with HIV infection stay healthy longer and care for their children better. When mothers die prematurely, their children face higher rates of illness and death.

### **Antenatal care for women infected with HIV**

ANC for women infected with HIV includes the basic services recommended for all pregnant women. However, obstetric and medical care should be expanded to address the specific needs of women infected with HIV. (See Table 4.1)

HIV infection in women of childbearing age presents a great challenge in resource-limited settings. Determining a woman's HIV status is the first step in providing appropriate treatment, care and support services, including access to antiretroviral prophylaxis when indicated. Availability of rapid testing allows women to be tested and receive their HIV test results at the first prenatal visit. When HIV status is known, mothers can be evaluated for ARV eligibility and offered the ARV treatment and prophylaxis indicated if available.

In some situations, because of the lack of accessible testing services or because a woman refuses to be tested, her HIV status may remain unknown. In such circumstances, the woman should be considered at risk for MTCT, and she should be counselled accordingly during ANC. Women of unknown HIV status should be made aware that testing is available at later ANC visits and be reminded of the benefits of knowing their HIV status.

### **Preventing opportunistic infections**

Preventing opportunistic infections (OIs) can reduce rates of illness and death among pregnant women who are HIV-infected. It also can reduce the risk of adverse pregnancy outcomes, such as preterm labour and delivery, which can increase the risk of MTCT.

Healthcare workers should pay special attention to signs and symptoms of possible opportunistic infections and follow protocols for prophylaxis of common problems.

### **Assessment and management of HIV-related illnesses**

HIV-related illnesses can increase the risk of MTCT. Women should be monitored for signs or symptoms of progressive HIV/AIDS.

#### **Recurrent or chronic infection**

Women infected with HIV are susceptible to other infections that can be treated in keeping with local protocols. Examples include the following:

- Malaria
- Recurrent vaginal candidiasis
- Tuberculosis
- Urinary tract infections
- Respiratory infections

#### **Psychosocial and community support**

Pregnancy is a time of unique stress, and healthcare workers may consider assessing the amount of support a woman is receiving from family and friends. Women with HIV usually have additional concerns related to their own health, their child's health, confidentiality, and the possibility that their HIV status might be disclosed to other people. Referrals to AIDS support groups should be made.

<b>Exercise 4.1 Antenatal care: case studies</b>	
<b>Purpose</b>	To review national policies on ANC and PMTCT. To review antenatal management in the context of women who are HIV-infected.
<b>Duration</b>	30 minutes

<b>Activities</b>	<p>Part 1</p> <p>Take a few minutes to become familiar with the national or local policies on ANC and PMTCT.</p> <p>Review the key points of the policies that the facilitator has written on the flipchart.</p> <p>Share your perceptions of how these policies are/are not applied in your clinical setting.</p> <p>Part 2</p> <p>Review copies of the two antenatal case studies, Exercise 3.1, and think about your responses to the questions posed.</p> <p>Share your perceptions on the similarities and differences in these case studies and the situations you encounter in your work setting.</p> <p>Describe HIV/PMTCT–related experiences that you have found challenging in the ANC setting.</p>
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### Case study 1

*Ngozi*, a 22–year–old woman, tested HIV–positive at her first antenatal visit at 24 weeks gestation. At that time, she received post–test counselling and was encouraged to invite her partner for testing. She is now 28 weeks pregnant with her first child.

*What are the ANC management steps that should be taken?*

### Case study 2

You are an antenatal clinic midwife. *Binta*, your patient, is 30 weeks pregnant. When you ask her about her delivery plans, she says that she wants to have the baby at home. She informs you that this is her third child and even though she is HIV–infected, this pregnancy (like her previous two) has been a healthy pregnancy. You can see that she is determined to have a home delivery.

*What do you tell Binta?*

*Consider how you would approach meeting ANC and PMTCT care needs in the context of home delivery. What would your next steps be?*

## **SECTION 3: Management of Labour and Delivery of Women Infected with HIV and Women with Unknown HIV Status**

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Interventions that can reduce MTCT during labour and delivery include the following:  
(See Appendix 4-B)

- Administration of ARV treatment and prophylaxis during labour in accordance with national protocols.
  - Continue ARV treatment/prophylaxis or implement ARV prophylaxis at labour to reduce maternal viral load and provide protection for the infant.
- Use good infection prevention practices for all patient care.
  - Use universal precautions, which include use of protective gear, safe use and disposal of sharps, sterilisation of equipment, and safe disposal of contaminated materials.

(For additional information, see *Module 7: Safety and Supportive Care in the Work Environment*.)

- Minimise the number of vaginal examinations.
  - Perform vaginal examination only when absolutely necessary and with appropriate clean technique.
- Avoidance of prolonged labour.
  - Consider using oxytocin to shorten labour when appropriate.
  - Use non-invasive foetal monitoring to assess need for early intervention.
- Avoidance of routine rupture of membranes.
  - Use a partogram to measure the progress of labour.
  - Avoid artificial rupture of membranes, unless necessary.
- Avoid unnecessary trauma during delivery.
  - Avoid invasive procedures, including foetal scalp electrodes or foetal scalp blood sampling.
  - Avoid episiotomy.
  - Minimise the use of forceps or vacuum extractors.
- Minimise the risk of postpartum haemorrhage.
  - Actively manage the third stage of labour.
  - Give oxytocin immediately after delivery.
  - Use controlled cord traction.
  - Perform uterine massage.
  - Repair genital tract lacerations.
  - Carefully remove all products of conception.
- Use safe transfusion practices.
  - Minimise the use of blood transfusions.
  - Use only blood screened for HIV, and hepatitis B and C.

## **Considerations regarding mode of delivery**

- Caesarean section, when performed before the onset of labour or rupture of membranes, has been associated with reduced MTCT.
- Consider the benefits and risks of vaginal delivery versus elective caesarean section, including the safety of the blood supply and the risk of complications.

## **Strategies to reduce MTCT risk in women with unknown HIV status**

In some cases, a woman presents to the health service at the time of labour without knowing her HIV status. She may not have received ANC or been offered HIV testing and counselling, she may have refused HIV testing, or may not have received her test result. In order to prevent MTCT in women with unknown HIV status the following steps should be taken:

- **Testing and counselling during labour**
  - Offer rapid HIV testing with right to refuse.
  - Mention benefits of the HIV test; If positive, ARVs can be administered for PMTCT and referral for treatment and care can be made.
  - Describe the testing process.
  - Provide post-test counselling.

It may be difficult to offer counselling or obtain informed consent during labour. The healthcare worker should remain sensitive and supportive to the woman. Rapid testing can be done in labour with post-test counselling provided after delivery.

- **Providing ARVs during labour and immediately postpartum**

ARV prophylaxis can be provided to the mother who is HIV-infected and the infant to prevent MTCT. (See Appendix 4-A for the complete listing of recommended regimens.)

<b>Exercise 4.2 Labour and delivery ARV prophylaxis: case studies</b>	
<b>Purpose</b>	To review national policies on testing and counselling during labour. To discuss administering ARV prophylaxis during labour and delivery.
<b>Duration</b>	25 minutes
<b>Activities</b>	<p>Part 1</p> <ul style="list-style-type: none"> <li>▪ Take a few minutes to become familiar with the national policies on testing and counselling in labour and on ARV prophylaxis.</li> <li>▪ Review the key points written on the flipchart.</li> <li>▪ Comment on how these policies are applied in your clinical setting and share the challenges and obstacles you face when applying these policies in your practice.</li> </ul> <p>Part 2</p> <ul style="list-style-type: none"> <li>▪ Review the 2 case studies below.</li> <li>▪ Think about the questions posed in the case studies and participate in the group discussion to answer the questions.</li> <li>▪ Review the key points written on the flipchart.</li> <li>▪ Share your perspective on the similarities and differences in these case studies and the situations you encounter in your clinical setting.</li> </ul> <p>Describe challenging HIV/PMTCT experiences in the labour and delivery care setting.</p>

### **Case study 1**

Bimbo arrives at the labour and delivery unit. This is her first baby. She hands you her ANC card, which indicates that she was tested during pregnancy and is infected with HIV. Her water broke 4 hours ago and her contractions are now less than 3 minutes apart. Bimbo earlier received a NVP tablet to take at home. When you examine her, you find that she is 5 centimetres dilated.

*After providing general support during labour, what is your first priority?*

*If you discover that she has not taken her NVP tablet, what do you do?*

### **Case study 2**

Deborah arrives to deliver. This is her fourth child and she tells you that she has had a good pregnancy. Deborah has received no antenatal care and was never tested for HIV. At this time, her contractions are regular and about 2 minutes apart. During your examination, you find that she is 7 centimetres dilated.

*Considering the national policy on testing and counselling during labour and delivery, what are your next steps?*

## **SECTION 4: Immediate Postpartum Care of Women who are HIV–Infected and Women with Unknown HIV Status**

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### **Postpartum care of women infected with HIV**

When providing postpartum care to women infected with HIV, healthcare workers may follow routine protocols, but several areas require additional attention (See Appendix 4-C):

#### **Continuing care**

Encourage and make plans for continued health care in the following areas:

- Routine gynaecologic care, including pap smears.
- Ongoing treatment, care and support including nutritional support.
- Treatment and monitoring of TB and malaria.
- Referral for antiretroviral treatment (or treatment eligibility)
- Referral for prophylaxis and treatment of OIs.

*(For additional information, see Module 6, Linkages to Treatment, Care and Support for Mothers and Families with HIV Infection.)*

#### **Newborn feeding**

- Ensure that the mother chooses feeding options before she leaves the facility or hospital after delivery.
- Support the mother's choice of feeding option for her baby *(See Module 5, Infant feeding in the Context of HIV Infection, for additional information)*.
- Provide training and observe proper feeding technique prior to discharge.

#### **Signs and symptoms of postnatal infection**

- Review the following symptoms of infection before the new mother leaves the clinic or hospital and provide her with information on where to seek treatment for:
- Pain during urination
- Fever
- Foul smelling lochia
- Cough, sputum, shortness of breath
- Redness, pain, pus, or drainage from incision or episiotomy
- Severe lower abdominal tenderness

#### **Education:**

- Instruct the mother on perineal and breast care
- Ensure that the mother knows how to dispose of potentially infectious materials such as lochia and blood–stained sanitary pads

### **Family planning**

Contraception and child spacing should be discussed with every woman during antenatal care and again in the immediate postpartum period. The main family planning goals for the woman who is HIV–infected are:

- Preventing unintended pregnancy
- Appropriate child spacing, which can help reduce maternal and infant morbidity and mortality

### **Postpartum care of women with unknown HIV status**

Women whose HIV status is unknown should receive the same postpartum care as other. They should be encouraged to be tested for HIV and to follow national recommendations for feeding their infants.

### **HIV testing after delivery can assist women infected with HIV to:**

- Initiate post–exposure ARV prophylaxis for the infant
- Choose safer infant–feeding options

<b>Exercise 4.3: Immediate postpartum care of women who are HIV-infected: case studies</b>	
<b>Purpose</b>	To review postnatal management of the woman with HIV infection.
<b>Duration</b>	25 minutes
<b>Activities</b>	<ul style="list-style-type: none"> <li>▪ Take a few minutes to become familiar with the national policies on postpartum care.</li> <li>▪ Review the case studies below on immediate postpartum care of women infected with HIV and women with unknown HIV status.</li> <li>▪ Think about the questions posed in the case studies and participate in the group discussion to answer the questions.</li> <li>▪ Review the key points written on the flipchart.</li> <li>▪ Share your perspective on the similarities and differences in these case studies and the situations you encounter in your clinical setting.</li> </ul> <p>Describe experiences that you have found challenging in the postnatal care setting.</p>

### **Case study 1**

Deborah presented to the labour and delivery ward without having had an HIV test during her pregnancy. The result of the rapid HIV test performed during labour was positive. When told of the test result, Deborah became upset but agreed to take the NVP tablet. Subsequently, she had an uneventful labour and delivered a 2.4 kg healthy boy she named William. Although breast milk substitute is available at the clinic, Deborah is determined to breastfeed her baby. It is now two hours after her delivery and she is resting. Her mother and husband are staying with her.

1. What postpartum care does she require?
2. What HIV-specific services does she need?
3. What can you accomplish before she leaves the facility in 24 hours?

### **Case study 2**

Bimbo, who is HIV-positive, has been following the ZDV and NVP regimen for herself and her child. After a short labour, she delivered a 2 kg girl named Yetunde. Bimbo has chosen to use breast milk substitute; she will be discharged in 48 hours.

1. What postpartum care does she require?
2. What HIV-specific services does she need?
3. What can you do to support her infant-feeding choice?
4. What services can you provide to her before she leaves in 48 hours?
5. What continuing support do you anticipate providing to her?

## SECTION 5: Immediate Newborn Care of Infants who are HIV–Exposed and Infants Born to Mothers with Unknown HIV Status

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### Immediate newborn care

- Maintain universal precautions throughout care and treatment.
- Clamp cord immediately after birth, and avoid milking the cord. Cover the cord with gloved hand or gauze before cutting.
- Wipe infant’s mouth and nostrils with gauze when the head is delivered.
- Use suction only when meconium–stained liquid is present. Use either mechanical suction at less than 100 mm Hg pressure or bulb suction, rather than mouth–operated suction.
- Wipe the infant dry with a towel.
- Determine the mother’s feeding choice. If she is using breast milk substitute, place the infant on her body for skin–to–skin contact and provide help with the first feeding. If she is breastfeeding, place the infant on the mother’s breast.
- Wear gloves when giving injections, and clean all injection sites with surgical spirits. Dispose of all needles according to facility policy.
- Administer vitamin K, silver nitrate eye ointment, and Bacille Calmette Guérin (BCG) according to national guidelines.

### ARV prophylaxis

ARV prophylaxis should be administered to the newborn according to the National PMTCT guidelines. (See Appendix 4-A)

### Follow–up newborn care

Care of the newborn baby should follow standard practices (See Appendix 4-D). Care for babies exposed to HIV should follow the approach described in *Module 6, Linkages to Treatment, Care and Social Support for Mothers and Families with HIV Infection*.

### Infants born to mothers with unknown HIV status

In the immediate postpartum period, the goal is to reduce MTCT by minimising newborn exposure to maternal blood and body fluids.

<b>Exercise 4.4 Immediate newborn care of infants who are HIV-exposed: case studies</b>	
<b>Purpose</b>	To review ARV prophylaxis and newborn care of infants who are HIV-exposed.
<b>Duration</b>	25 minutes
<b>Activities</b>	<p>Take a few minutes to become familiar with the national policies on newborn care of infants exposed to HIV.</p> <p>Read the 2 case studies below on immediate newborn care of infants exposed to HIV.</p> <p>Discuss your responses with other participants in the large group discussion.</p>

### Case study 1

Deborah has just delivered her son, William. She tested HIV–positive during labour.

1. What HIV–specific infant interventions are required after the birth?
2. What are the components of follow–up care for William?
3. How can you help Deborah manage ongoing HIV–related care for herself and her infant?

### Case study 2

Yetunde, the newborn daughter of Bimbo (who is HIV–positive), is irritable and cries often. Bimbo’s mother–in–law, who is visiting her at the facility and will be helping care for the infant after discharge, is worried. You overhear her repeatedly telling Bimbo that the baby needs breast milk and that the breast milk substitute is not satisfying the baby.

1. What can you do to help Bimbo at this stressful time?
2. What support will Bimbo need from the PMTCT programme to continue using breast milk substitute after discharge?

### Home birth case study

Binta was diagnosed as HIV–positive during her one ANC visit prior to delivery at home. She has returned to the health centre 6 days after the birth of Mairo, her daughter. The baby appears to be happy, well hydrated, and thriving. Binta remains convinced she is not infected with HIV and that the baby is not at risk. In fact, she did not give the NVP syrup to Mairo because the baby “didn’t need it” and Binta is breastfeeding her daughter.

1. Is this a typical response in your setting?
2. What services would you offer this mother?
3. What follow–up and referrals are necessary for this mother and her infant?
4. How will you deal with her denial of her diagnosis and risk for her infant?

#### Module 4: Key Points

- Integrating PMTCT services into the essential package of ANC services promotes improved care for all pregnant women and provides the best opportunity for a successful PMTCT programme.
- Specific interventions to reduce MTCT include ARV treatment and prophylaxis, safer delivery procedures, and counselling and support for safe infant feeding.
- Using antiretroviral drugs for treatment and prophylaxis reduces the risk of MTCT. Longer–course combination regimens are more effective, but short–course prophylaxis regimens may be more feasible in some resource–constrained settings.
- The prevention and treatment of TB and malaria are part of comprehensive care for mothers infected with HIV and their infants.
- Safer delivery procedures include avoiding unnecessary invasive obstetrical procedures and offering the option of elective caesarean section when safe and feasible.
- Infant–feeding options to minimise the risk of MTCT require support and guidance throughout ANC, labour and delivery and postpartum.

## APPENDIX 4-A

## Antiretroviral prophylaxis regimens in different clinical settings

HIV-related treatment, care and support must be provided during the antenatal, intrapartum and postpartum periods. All HIV-exposed infants should be followed-up for diagnosis of HIV, prophylaxis of opportunistic infection, and treatment, care and support.

All regimens are administered by mouth. Paediatric formulations are needed for all infant regimens. Efforts must be made to monitor for side effects and support maternal infant adherence.

### Clinical Setting I

Recommendations for pregnant HIV-seropositive women who meet WHO criteria for ART are as follows:

<p><b>Pregnant woman who is HAART eligible, but not currently on ART</b></p> <p>.</p> <p><b>Infant</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 6 weeks</li> <li>Alternative (less effective)</li> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 1 week</li> </ul> <p>*PI (in decreasing order of preference)-Nelfinavir, saquinavir/r, indinavir/r, lopinavir/r</p> <p>** Alpha response-check viral load about one month after starting treatment. A viral load drop that is <math>\geq 1.0 \log_{10}</math> suggests that the treatment is</p>	<p><u>Mother (regimens are in decreasing order of preference)</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Delay the initiation of ART until <i>after the first trimester</i>, unless benefits outweigh risks</li> <li><input type="checkbox"/> Include ZDV in the regimen whenever possible (avoid ZDV if hemoglobin is <math>&lt;8\text{g/dL}</math>)</li> </ul> <p><b><u>CD4 count is <math>&lt; 250 \text{ cells/mm}^3</math></u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Nevirapine + 2 NRTIs</li> <li><input type="checkbox"/> PI* plus 2 NRTIs</li> <li><input type="checkbox"/> EFV + 2 NRTIs in the <b><u>third trimester only</u></b>, if patient has nevirapine toxicity and there is no available PI</li> </ul> <p><b><u>CD4 count <math>&gt; 250 \text{ cells/mm}^3</math></u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Avoid nevirapine if possible. If used (NVP + 2 NRTIs), closely monitor for hepatotoxicity and systemic toxicity</li> <li><input type="checkbox"/> <input type="checkbox"/> P I* + 2 NRTIs</li> <li><input type="checkbox"/> <input type="checkbox"/> EFV + 2 NRTIs in the <b><u>third trimester only</u></b>, if there is no available PI*</li> </ul> <p><b><u>Previous clinical or virologic failure on NNRTI-containing regimen</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> PI* + 2 NRTIs</li> <li><input type="checkbox"/> Zidovudine + lamivudine + abacavir</li> <li><input type="checkbox"/> Zidovudine + lamivudine + tenofovir</li> </ul> <p><b><u>Previous single-dose nevirapine</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> PI* + 2 NRTIs</li> <li><input type="checkbox"/> NVP + 2NRTIs (follow CD4 guidelines above, and monitor closely for virologic failure with alpha response**)</li> <li><input type="checkbox"/> EFV + 2 NRTIs (<b><u>third trimester only, and</u></b> monitor closely for virologic failure with alpha response**)</li> <li><input type="checkbox"/> Zidovudine + lamivudine + abacavir</li> <li><input type="checkbox"/> Zidovudine + lamivudine + tenofovir</li> </ul> <p>See Table of NRTI combinations below.</p>
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very likely to succeed	Avoid ZDV if hemoglobin is < 8g/dL
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### Clinical Setting II

Recommendations for pregnant HIV-seropositive women who do not meet the criteria for ART are as follows:

<p><u>Pregnant mother not eligible for HAART for her own disease (Preferred regimen)</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Initiate HAART <i>after the first trimester</i> for PMTCT. Follow guidelines for HAART-eligible mothers.</li> <li><input type="checkbox"/> If mother chooses to breastfeed, continue HAART for the period of breastfeeding, which should not exceed 6 months.</li> <li><input type="checkbox"/> If mother chooses to use breast milk substitute, and nevirapine or efavirenz are part of the HAART regimen, stop these drugs immediately, and continue the 2NRTIs for 1 week</li> </ul> <p>Avoid ZDV if hemoglobin is &lt;8g/dL</p> <p><u>Infant</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 6 weeks</li> </ul> <p>Alternative (less effective)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 1 week</li> </ul>	<p><u>Pregnant mother not eligible for HAART for her own disease (less effective alternative)</u></p> <p><u>Mother</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ZDV from week 28, continue during labour, plus single-dose NVP at onset of labour</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ZDV+ 3TC from week 34-36 plus single dose NVP at onset of labour</li> </ul> <p>Avoid ZDV if haemoglobin is &lt;8g/dL</p> <p><u>Infant</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 6 weeks</li> </ul> <p>Alternative (less effective)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 1 week</li> </ul>
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### Clinical Setting III

Recommendations for pregnant HIV-seropositive women on ART are as follows:

<p><b>Mother receiving HAART at the time of current pregnancy</b></p>	<p><u>Mother</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> HIV-1 infected women receiving HAART in whom pregnancy is identified should continue therapy. *Zidovudine should be a component of the regimen whenever possible (avoid if haemoglobin is &lt; 8 g/dL).</li> <li><input type="checkbox"/> Efavirenz is contraindicated in the first trimester, and it should be replaced with NVP.</li> </ul> <p>*see Table of NRTI combinations</p> <p><u>Infant</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 6 weeks</li> </ul> <p>Alternative (less effective)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 1 week</li> </ul>
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#### Clinical Setting IV

Recommendations for HIV-seropositive women who are diagnosed or seen for the first time in labour are as follows:

<b>HIV-infected patient who presents in labour</b>	<p><u>Mother</u> Single-dose NVP followed by (zidovudine + lamivudine) for 4 days. Mother should be seen within 5 days of delivery.</p> <ul style="list-style-type: none"><li><input type="checkbox"/> If mother chooses to breastfeed, recommend HAART (follow guidelines for HAART eligible mothers)</li><li><input type="checkbox"/> If mother chooses to formula feed, determine if mother is eligible for HAART for her own disease, and follow appropriate guidelines.</li></ul> <p><u>Infant</u></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 6 weeks</li></ul> <p>Alternative (less effective)</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 1 week</li></ul>
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#### Clinical Setting V

Recommendations for pregnant HIV-seropositive mothers who present after delivery are as follows:

<b>HIV-infected mother who presents after delivery</b>	<p><u>Mother</u></p> <ul style="list-style-type: none"><li><input type="checkbox"/> If mother chooses to breastfeed, recommend HAART (follow guidelines for HAART eligible mothers)</li><li><input type="checkbox"/> If mother chooses to formula feed, determine if mother is eligible for HAART for her own disease, and follow appropriate guidelines.</li></ul> <p><u>Infant*</u></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 6 weeks</li></ul> <p>Alternative (less effective)</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 1 week</li></ul> <p>* If mother presents after one week of delivery, give infant ZDV for 6 weeks (no single dose nevirapine).</p>
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## Clinical Setting VI

Recommendations for pregnant HIV-seropositive patients who are co-infected with tuberculosis are as follows:

<b>Pregnant woman with active tuberculosis</b>	<p><u>Mother (regimens are in decreasing order of preference)</u></p> <p>Delay treatment until third trimester, if possible.</p> <p><u>If treatment is initiated in second trimester</u></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Zidovudine + lamivudine + abacavir</li><li><input type="checkbox"/> Ritonavir-boosted PI* + 2 NRTIs (change <b>rifampin to low dose rifabutin</b>)</li><li><input type="checkbox"/> Zidovudine + lamivudine + tenofovir</li></ul> <p><u>If treatment is initiated in third trimester</u></p> <ul style="list-style-type: none"><li><input type="checkbox"/> EFV (800 mg) + 2NRTIs</li><li><input type="checkbox"/> Zidovudine + lamivudine + abacavir</li><li><input type="checkbox"/> Ritonavir-boosted PI* + 2 NRTIs (change <b>rifampin to low-dose rifabutin</b>)</li><li><input type="checkbox"/> Zidovudine + lamivudine + tenofovir</li></ul> <p>Avoid ZDV if haemoglobin is &lt; 8 g/dL</p> <p>See Table of NRTI combinations below</p> <p>* saquinavir/r or lopinavir/r</p> <p><u>Infant</u></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 6 weeks</li></ul> <p>Alternative (less effective)</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Single-dose NVP as soon as possible after birth, plus ZDV for 1 week</li></ul>
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## Clinical Setting VII

HIV-infected women with indication for ART, but required drugs are not available:  
All efforts should be made to ensure that all pregnant women who need ART have access to it.

## Clinical Setting VIII

For breastfeeding mothers, ART should be continued during the period of breastfeeding and discontinued after cessation of breastfeeding, which should not exceed 6 months.

### Table of NRTI combinations

- ◆ Preferred: zidovudine + lamivudine

Alternatives:

- ◆ ZDV + abacavir, ZDV + ddI, ZDV + tenofovir, ZDV + emtricitabine
- ◆ stavudine + lamivudine, stavudine + emtricitabine, stavudine + abacavir, stavudine + tenofovir
- ◆ abacavir + lamivudine, abacavir + emtricitabine, tenofovir + emtricitabine, tenofovir + lamivudine

## CONTRAINDICATED COMBINATIONS

Drugs	Potential problems
*Stavudine + didanosine (use with caution if other options are unavailable)	<ul style="list-style-type: none"><li>• Increased toxicity, including neuropathy, pancreatitis and lactic acidosis.</li><li>• Fatal cases of lactic acidosis with steatohepatitis have been reported in pregnant women.</li></ul>
Zidovudine + stavudine	Antagonistic effect; should never be used together
Tenofovir + didanosine	Risk of early virologic failure and decline in CD4 count in patients who achieve virologic suppression
Lamivudine + emtricitabine	Similar drugs; no added benefit
Tenofovir + abacavir	Suboptimal effect

## APPENDIX 4-B INTRA-PARTUM CARE FOR HIV-POSITIVE WOMEN

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### 2.4 Intra-partum Care

It is important that HIV positive women are not isolated or treated differently from other women in labour. Universal precautions [section 4] should be applied by all health workers on all women in labour irrespective of their HIV status.

#### 2.4.1 Factors Associated with increased Risk of MTCT

- Rupture of membranes
- Episiotomy
- Vaginal delivery
- Intra-partum haemorrhage
- Invasive fetal monitoring procedures such as scalp electrodes and fetal blood sampling.
- Instrumental delivery such as vacuum extraction and forceps.
- Twin deliveries: First twins have higher risk of transmission than second born twins.

#### 2.4.2 Counselling and Testing in Labour

Midwives should verify the HIV status of all women who are admitted to the labour ward by checking on the Mother's Card and/or by asking the mother whether she has been tested for HIV infection. The management of those who are HIV positive is discussed below.

Those who are unaware of their HIV status and are in early labour or being admitted for other conditions are candidates for counselling and rapid testing for HIV in the labour ward. A large proportion of women delivering in health institution in Nigeria do not book for antenatal care in the same institution, it is therefore recommended that routine HIV testing in early labour with the right to opt out be offered to these women. If this is not appropriate because of active labour or other reasons, the midwife should plan to provide counselling and offer testing at the earliest possible time after delivery.

#### 2.4.3 Specific Management of HIV Positive Pregnant Women

##### 2.4.3.1 *Prophylactic Antiretroviral therapies.*

Prophylactic ART is recommended for all HIV positive pregnant women. The detailed recommendations are found in section 3.

##### 2.4.3.2 *Mode of delivery*

*Elective Caesarean Section (CS):*

In the absence of ART elective CS before the onset of labour or rupture of membranes reduces the risk of transmission by 50% as compared to vaginal delivery. Where CS is performed (elective or emergency) in HIV positive women, they should receive prophylactic antibiotics. If CS is performed after prolonged labour or prolonged rupture of membranes, longer courses of antibiotics should be considered.

### ***Vaginal delivery***

#### *(a) Management of labour*

Labour management should follow normal obstetric guidelines in most respects. Women do not need to be isolated, but staff must use universal precautions with all patients (see modifications of routine labour care above). Analgesia should be given in labour, if required and epidural analgesia is not contraindicated.

#### *(b) Support during labour*

Emotional support during labour is important for all women, and may be even more necessary for an HIV-infected woman who is concerned about her condition and the risk of transmission to the child. This may be made worse by her fear of stigmatization and discrimination by medical staff, or because she has not disclosed her status to her partner or family members. Whenever possible, during labour, HIV positive women should have the option to have a companion of their choice who knows their HIV status and can provide supportive companionship. Where this is not possible labour ward staff must be sensitive to the fears and concerns of the HIV positive mother about her infection, and how much she had told any of her companions.

### **Box 2.2 Interventions for safe vaginal delivery**

#### **Interventions during labour/delivery**

- Perform vaginal cleansing with chlorhexidine 0.25%.
- Avoid episiotomies unless absolutely necessary.
- Avoid assisted delivery unless absolutely necessary.
- Clamp cord immediately after baby is delivered and avoid milking the cord.
- Cut cord under cover of a lightly wrapped gauze swab to avoid blood spurting.
- If the mother has decided not to breastfeed, place the baby on the mother's body for skin-to-skin contact.
- If the mother has decided to breastfeed, help her attach and position the baby to her breast

#### **Interventions after delivery**

- Wipe baby's mouth and nostrils with gauze at delivery of the head.
- All babies, regardless of HIV status of mother should be handled with gloves until maternal blood and secretions are washed off
- All babies, irrespective of their HIV status should be kept warm after delivery.

- Immediately after birth, baby should be washed with warm chlorhexidine solution or wiped dry with a towel or surgical cloth to remove maternal body fluids.
- There should be no suction of the newborn with a nasogastric tube unless there is meconium-stained liquor. Where suctioning is required, it is better to use a mechanical suction unit (at a pressure below 100mmHg) or bulb suction, if possible, rather than mouth operated suction.
- Vitamin K and BCG should be administered, ensuring injection safety.
- Infant should receive 1% Silver nitrate or tetracycline eye ointment

(c) *Induction of labour*

Labour is often induced by one or a combination of the following: Oil and enema, artificial rupture of membrane (ARM), oxytocin therapy, and prostaglandins. As prolonged rupture of membranes is associated with increased risk of transmission, careful assessment of the need for and the desirability of induction rather than CS are necessary. Where induction of labour is chosen, membranes should be left intact for as long as possible. Oxytocin should not be used with intact membranes.

(d) *Delivery*

Delivery should be conducted using standard practice while avoiding unnecessary trauma or prolongation of the second stage.

**2.4.3.3 Activities for optimal obstetric practices**

- Train health workers in safe delivery techniques and life-saving skills for mothers and infants
- Provide safe delivery kits and essential obstetric drugs
- Provide a safe delivery infrastructure with a water source, good drainage, electricity, delivery beds covered with a waterproof material, antiseptics, gloves, and other materials required for a hygienic delivery environment
- Ensure a safe blood supply
- Provide community education about the importance of antenatal care and deliveries.

## APPENDIX 4-C IMMEDIATE POSTPARTUM CARE

### 2.5 Post-Partum Care

#### 2.5.1 Immediate Post-Partum care

The post-partum period in the health facility is an opportunity to educate all patients about HIV, to provide counselling and testing if this was not carried out previously, and to reinforce the education provided during the antenatal period. This should be done in a private place so that the discussion can be confidential. Both HIV infected and uninfected mothers should receive this education and counselling before discharge. Emphasis should also be made on the need for good hygiene to prevent infection.

##### 2.5.1.1 *HIV-Negative Mothers*

- Reinforce and support breastfeeding
- Discuss sexual activity in the postpartum period and protection against HIV infection
- Discuss couple or partner Testing and Counselling
- Discuss contraception and provide condoms where appropriate
- Educate and reinforce about infant care
- Complete mother care sections on education and counselling, delivery and postnatal exam
- Schedule post-natal visit.

##### 2.5.1.2 *HIV-positive mothers*

- Review and support infant feeding choices
- Discuss couple or partner Testing and Counselling
- Discuss sexual activity in the postpartum period and protection of partners against HIV infection.
- Discuss contraception and provide condoms where appropriate
- Give infant antiretrovirals (see Section 3)
- Educate and reinforce infant care
- Review infection prevention and discuss prompt medical attention
- Complete Mother Care sessions and education and counselling, delivery and postnatal exam.
- Schedule post-natal visit

##### 2.5.1.3 *Mothers whose HIV status is unknown*

- Provide counselling and testing as soon as possible after birth (see Sections 2.1 and 2.2)
- Follow instructions for immediate post exposure prophylaxis with an appropriate ARV regimen for infants of mothers who are HIV positive (see Section 3.2)
- Complete education and counselling as above before discharge.

In the immediate postpartum period, there is need to perform routine physical examination with particular emphasis on the vital signs, detection of anaemia, breast examination, abdominal examination and perineal/lochia examination. HIV-infected women are more prone to post-natal infections, including: Urinary tract infections, chest infections (e.g. pneumonia), infected episiotomy, post-partum sepsis, Caesarean section and wound sepsis. Therefore, health workers should be aware of this and observe for signs of infection.

For HIV-positive mothers, the following are also essential:

#### **2.5.1.4 Breast care**

(i) A woman who is not breastfeeding

She should use a firm brassier to limit milk production and support the breast. Bromocriptine therapy to limit milk production may be necessary in such cases.

(ii) A breastfeeding woman

Cracked nipples, mastitis and breast abscess increase the risk of breast milk transmission of HIV. Cracked nipples are often caused by poor attachment of the baby on the breast, candida infection, frequent washing of the nipples, and application of abrasive creams and lotions.

Prevention of cracked nipples includes:

- Making sure that there is good breastfeeding technique with the baby latching on the areola and the nipple
- Prompt treatment of vaginal thrush or infant oral thrush
- The mothers washing her breast once a day and avoid use of creams and lotions on the nipples

A mother should be shown how to put a finger on the baby's mouth to remove a baby from the breast without traumatizing her nipples. She should also be instructed to smear her nipples with breast milk after feeds and air-dry her breasts. Women should be encouraged to seek health care promptly if they have nipple discomfort when they are breastfeeding. Baby should not be fed on a breast with mastitis or breast abscess. The mother should be advised to express the milk and heat treat it before feeding the infant by cup and spoon.

#### **2.5.1.5 Care of the perineum**

- Emphasize on good perineal hygiene and proper handling of body fluids.
- Avoid contaminating the baby with body fluids or bedding soiled with lochia
- Bed sharing in hospital should be discouraged
- Sitz bath: In the past sitz baths have been encouraged for the management of episiotomies. Local experience is that it is difficult to keep the basins clean and they become a source of contamination. It is better to clean with a clean cloth soaked in warm saline.

### **2.5.1.6 Contraception and reproductive health care**

Appropriate family planning methods should be discussed during antenatal period and again before discharge home. In those areas where prolonged exclusive breastfeeding is the norm, some women may rely on lactational amenorrhoea (LAM) as a contraceptive method, and this will be lost with changes in infant feeding. Some women may have a period of abstinence after the birth of the child, and may not wish to start contraceptive use before this. They should be given information about how and where to obtain contraception when they wish it.

Suitable family planning methods are:

#### *Hormonal*

- Combined oral contraceptive pills.
- Progestogen-only pills
- Injectable progestogen (DMPA or noristerate/NET-EN)
- Progestogen implants (such as Norplant)

Note: these do not protect against HIV/AIDS

#### *Barrier methods*

- Female condoms
- Male condoms
- Diaphragms, used with spermicides,

Note: these provide contraception and protect against HIV/AIDS

#### *Intra-uterine contraceptive devices (IUCD or IUD).*

##### *Sterilisation:*

This is suitable for HIV positive women and their partners who do not wish to have more children.

#### *Emergency contraception*

This is especially important where barrier methods are being used as the primary contraceptive method, and women should be told about the possibility of using emergency contraception if the condom breaks or slips.

### **2.5.1.7 Cervical Screening**

HIV-positive women have a higher risk of cervical dysplasia and malignancy. Therefore, they should have a cervical smear, if possible at a postnatal check-up and at least annually. In women with CD4+ counts below 200cells/ $\mu$ l or who have symptoms of AIDS, a six-monthly smear should be advised. Where these facilities are not available, such patients should be appropriately referred.

Follow-up

- Post natal follow-up is best provided as a comprehensive package by the child welfare provider, paediatric, adult HIV physician and family planning provider.
- The postnatal period is the beginning of the ongoing care and support for women with HIV infection, especially where the diagnosis was first made during pregnancy.
- Even where antiretroviral treatment is not available, women should be given information on maintaining her own health and how and where to seek treatment if needed.
- Advice on the need for prophylactic treatment for Pneumocystis carinii pneumonia (PCP) and tuberculosis if indicated by the clinical stage of the disease.
- Link clients to a community based support group for ongoing counseling and other support services

#### **2.5.1.8 Referral after postnatal care**

All HIV-infected women should be referred to the adult ART Clinic after postnatal visit.

#### **2.5.1.9 Post Abortion Care**

HIV-positive women are more likely to have spontaneous abortions. There may also be rare occasions where termination of pregnancy is performed for medical indications, in accordance with Nigerian laws.

In most cases, the HIV status of the woman will not be known. Health workers should be aware of the possibility of HIV and look for clinical signs and symptoms related to HIV.

Where the woman is known to be HIV-positive, consider the use of prophylactic antibiotics after uterine evacuation and ensure that there is family planning counseling available and the provision of a method as required, as well as access to HIV counselling.

They should be counselled about possible problems, such as infection or bleeding, which may occur after the procedure.

## APPENDIX 4-D IMMEDIATE NEWBORN CARE

### Immediate Interventions after delivery for the newborn

- Maintain universal precautions throughout care and treatment.
- Wipe baby's mouth and nostrils with gauze at delivery of the head.
- All babies, regardless of HIV status of mother, should be handled with gloves until maternal blood and secretions are washed off.
- All babies, irrespective of their HIV status, should be kept warm after delivery.
- Immediately after birth, baby should be washed with warm chlorhexidine solution or wiped dry with a towel or surgical cloth to remove maternal body fluids.
- There should be no suction of the newborn with a nasogastric tube unless there is meconium stained liquor. Where suctioning is required, it is better to use a mechanical suction unit (at a pressure below 100mmHg) or bulb suction, if possible, rather than mouth operated suction.
- Vitamin K and BCG should be administered, ensuring injection safety.
- Infant should receive 1% silver nitrate or tetracycline eye ointment as prophylaxis against ophthalmia neonatorum.
- If the mother is HIV-positive, avoid putting the infant to the mother's breast unless the decision to breastfeed was made before delivery.