

Module A3

Special Issues in Managing Women and Children with HIV Disease



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Session 1: HIV and Pregnancy: Prevention of Mother-to-Child Transmission

This session gives a brief overview of HIV infection and discusses mother-to-child transmission (MTCT), including the factors that may increase transmission, measures that reduce MTCT and the use and limitations of ARV therapy as a preventive measure.

Session 2: Management of HIV Disease in Women

Participants learn about the common manifestations of gynecological problems in HIV-infected women, including common etiological agents, clinical features, management and treatment.

Session 3: Management of HIV Disease in Children

Participants learn about the diagnosis of HIV in children and the management and treatment of HIV-related conditions, including persistent diarrhea, oral thrush, respiratory conditions, persistent or recurring fever, failure to thrive, lymphadenopathy and skin conditions.

SESSION 1 HIV and Pregnancy: Prevention of Mother-to-Child Transmission

PURPOSE

This session gives a brief overview of HIV infection and discusses mother-to-child transmission (MTCT), including the factors that may increase transmission, measures that reduce MTCT and the use and limitations of ARV therapy as a preventive measure.

OBJECTIVES:

By the end of this session, the participants will be able to:

1. Describe the effects of HIV on pregnancy.
2. Discuss MTCT, factors that may increase transmission and measures that reduce transmission.
3. Describe how ART is used for the prevention of MTCT.
4. Describe the various regimens used during pregnancy, intrapartum and postpartum, including short course ART.
5. Discuss the relationship between ART and breast feeding and WHO recommendations.
6. Discuss national guidelines with regard to HIV and infant feeding.

TIME:

1 hour

A. HIV Infection and Pregnancy

1. Introduction:

Each year, worldwide, two million women infected with HIV become pregnant, most of them in poor countries. Between one-quarter and one-third transmit the disease to their newborns, either during labor, during delivery, or while breast-feeding. That translates into about 2,000 new HIV-infected infants each day. Children born to HIV-infected mothers who die are left orphaned and are harder to care for than the HIV-negative infant.

- a. _____percent of women are HIV positive (give country-specific numbers) and prevalence is higher in _____areas.
- b. HIV presentation is the same in both sexes, but the disease has greater implications on a woman's reproductive health—her ability to cope with pregnancy and the possibility of transmission of the virus to her unborn and newborn child.
- c. During the asymptomatic phase of HIV, most women are unaware of their infection until the disease is diagnosed in their infants. This may cause conflict within the family; relatives think she brought in the infection. (PMTCT programs are working to increase women's awareness.)

2. Effects of HIV on pregnancy

- a. Some studies in Africa suggest that HIV may have an adverse affect on fertility in both symptomatic and asymptomatic women. Pregnancy rates are lower and pregnancy loss more common in those who are HIV infected. Others state that fertility is affected only in late HIV disease.
- b. When comparing changes in CD4 count/percentage over time, there is no difference between HIV-positive pregnant and non-pregnant women.
- c. HIV does not seem to be a significant cause of congenital abnormalities or spontaneous abortion.
- d. Pregnancy does not accelerate disease progression in early HIV infection.
- e. Late HIV disease may affect the outcome of pregnancy, that is, poor fetal growth, preterm delivery, low birth weight and prenatal and neonatal death.
- f. Common HIV-related problems are no different in pregnant and non-pregnant women, and both groups should receive the same management (except for drugs that are contraindicated or used with caution, like streptomycin and efavirenz).

B. Mother-to-Child Transmission (MTCT) of HIV

1. Transmission

- a. HIV may be transmitted to the infant during pregnancy, at the time of delivery, and through breast feeding; most transmission is thought to take place during delivery.

For a mother known to be HIV-infected prenatally, the additional risk of transmitting HIV to her infant through breast feeding has been estimated at 14 percent. For mothers who acquire HIV postnatally, the risk is as high as 29 percent. Many studies indicate that the risk of breast milk transmission is higher in the first few months of life, with a subsequent tapering off of risk. However, the risk persists as long as the infant is breast fed. HIV transmission is also higher if the mother has mastitis.

- b. Factors that may increase the risk of transmission:

- High maternal viral load: >5-10,000 copies/ml (at time of seroconversion), and, during late HIV disease, CD4 cell counts <100 cells/mm
- Recurrent STDs
- Malaria interferes with placental functions and eases viral transmission across the placenta
- Vitamin A deficiency
- Preterm delivery
- Firstborn twin
- Infected amniotic fluid (chorioamnionitis) (Limited data; recent studies do not suggest increased risk)
- Vaginal delivery
- Duration of rupture of membranes is longer than four hours
- Placental disruption
- Invasive procedures during delivery (for example, vacuum extraction, episiotomy, use of forceps, fetal scalp monitoring)
- Mechanical nasal suction after delivery
- Breast feeding, and especially mixed feeding

One study suggests that mixed feeding may be a greater risk because the infant has a higher risk of contracting a viral or bacterial GI infection, which then compromises the integrity of the intestinal wall and makes it easier for the HIV virus to pass into the infant's bloodstream.

- c. Measures to reduce MTCT:

- During pregnancy
 - Provide voluntary counseling and HIV testing, plus psychosocial support.
 - Diagnose and provide aggressive treatment of malaria, STDs and other infections as early as possible.
 - Provide basic antenatal care including:
 - Iron supplementation
 - Discussion of MTCT and infant feeding options
 - Starting ART for MTCT (see recommendations below)
 - Information on practicing safer sex
- During labor and delivery
 - Delay rupturing of membranes
 - Do only minimal digital examinations after rupture of membranes
 - Cleanse the vagina with hibitane or other virucides, if available (this procedure is more likely to reduce puerperal sepsis than HIV transmission)
 - Reduce use of assisted delivery with forceps and the like and episiotomies
 - Elective caesarean section has been demonstrated to have a more protective effect against MTCT than vaginal delivery. However, caesarean section has limited applications in resource-constrained settings

where the procedure is associated with increased rates of maternal morbidity and mortality and transmission to health care workers can be an additional risk.

- If not already on ART, give NVP.
- After delivery
 - Avoid mechanical nasal suction.
 - Cleanse the newborn immediately of all maternal secretions and blood.
 - Support safer infant feeding (according to national guidelines about mother's choice to put the infant to breast within 30 minutes of birth).
 - If mother chooses breast feeding, encourage exclusive breast feeding, and advise early cessation (up to six months) or BMS.
 - Advise giving milk substitutes where conditions are suitable, and no breast feeding after six months.
- Current WHO/UNAIDS/UNICEF guidelines recommend that women with HIV infection be fully informed of both risks and benefits of breast feeding and be supported in their decision about feeding practices.
- Safe alternatives may not exist in some resource-limited settings; for example, there may be only unsafe or inadequate water available for mixing formulas. In that case, recommend exclusive breast feeding for the first six months of life.

Comparative risks and benefits of breast feeding and replacement feeding:

- Risks to the infant
 - HIV infection
 - Infection risk persists for as long as the infant is breast feeding
 - Children who receive mixed feeding seem to be at higher risk of HIV infection during the first months of life than children who receive exclusive breast feeding or exclusive replacement feeding.
 - Shortening the period of breast feeding may reduce the risk of HIV transmission; discourage mixed feeding.
 - The alternative of exclusive replacement feeding also has considerable risks.
Studies in Africa indicate that children without HIV infection who receive replacement feeding have 2.5 to 5 times more risk of dying from any cause before the age of 12 months than breast fed children.
- Benefits to the infant
 - The immunological, nutritional, psychosocial and child-spacing benefits are well recognized.
 - Breast milk plays an important role in preventing infections that could accelerate progression of HIV-related diseases in already infected children.

2. ARV therapy and MTCT

a. Prevention of prenatal transmission

- The use of ARV therapy can reduce MTCT significantly

Studies conducted in industrialized countries in 1994 showed that administering AZT to women from the 14th week of pregnancy and to the newborn during labor decreased the risk of MTCT by nearly 70 percent in the absence of breast feeding.

A shorter regimen of AZT alone, starting from the 36th week of pregnancy, was shown to reduce the risk of transmission of HIV at six months by 50 percent in the nonbreastfeeding population and by 37 percent in those breastfeeding.

A short course of NVP (HIVNET 012 study) has been shown to reduce the risk of transmission and is the protocol most commonly used because clinical trials have demonstrated its efficacy in reducing MTCT, it has a low cost and it is easy to use in MTCT programs. The regimen is:

Intrapartum short course: 200 mg at start of labor or at hospital intrapartum

Postpartum infant: 2mg/kg stat within 48-72 hours

Other trials of short course ARV regimens using a combination of AZT and lamivudine also substantially decrease the risk of transmission (PETRA study).

- Women on treatment with ARVs for HIV infection have very low transmission if viral load is <1000 copies/ml.

b. Women first diagnosed with HIV infection during pregnancy

- Women in the first trimester may consider delaying initiation of ART to avoid potential teratogenic effect.
- Consider severity of maternal HIV disease and potential benefits and risks of delaying ART until after first trimester.
- For women who are severely ill, the benefit of early initiation may outweigh theoretical risk to fetus; in these cases, recommend initiating with drugs such as AZT, 3TC and NVP or NFV.

c. HIV-infected women on ART who become pregnant

- Options are:

Suspend therapy temporarily during first trimester

Continue same therapy

Change to a different regimen

- Issues to consider:

Gestational stage of the pregnancy

Severity of maternal disease

Tolerance of regimen in pregnancy

Potential for adverse fetal effects

Fetus is most susceptible to potential teratogenic effects of drugs during the first 10 weeks of gestation; risks of ART to fetus during this period are unknown.

d. ART and breast feeding

- Women who require ART and who are breast feeding should continue their current ART regimen.
- Efficacy of potent ART taken by the mother solely to prevent postnatal transmission of HIV through breast milk is unknown, but is currently under study.

- e. HIV-infected women who receive short-course ARV prophylaxis to reduce MTCT and require treatment postpartum
- Short-course ARV regimens, which do not fully suppress viral replication, may be associated with development of ARV drug resistance
The Ugandan HIVNET 012 study of single dose intrapartum/newborn NVP for prevention of MTCT found that 19 percent of the women developed resistance to the drug. This was associated with delivery, HIV viral load and CD4 cell count.
 - Based on current information (until further research is done), prior administration of short-course AZT/3TC or single dose NVP for prevention of MTCT should not preclude use of these agents as part of a combination ARV drug regimen initiated for treatment of these women.
- f. Adherence to therapy in pregnancy and postpartum
- Adherence may be more difficult in pregnant and postpartum women than nonpregnant women.
 - Obstacles to adherence may include:
 - Morning sickness and GI upset, which can be further compounded by ARV-associated nausea
 - Fears that ARV drugs might harm fetus
 - If for any reason there is a need to discontinue therapy temporarily during pregnancy, stop and restart all drugs together to reduce the potential for the emergence of resistance.
 - Physical changes of postpartum period, coupled with stresses and demands of caring for a newborn infant, may make adherence to treatment especially difficult after birth.
Providing additional support for maintaining adherence to therapy during ante- and postpartum periods is important.
- g. Recommendations:
- Taking all factors into account, it is important to promote and support exclusive breast feeding for the first six months of life because the serostatus of most mothers is unknown and the benefits to infants outweigh the risks, regardless of the mother's HIV status.
 - The mother should make the final choice about the method of feeding. Whatever her choice may be, health staff should provide support to ensure the optimal nutrition of mother and child. [Refer to national HIV and infant feeding guidelines.]

SESSION 2 Management of HIV Disease in Women

PURPOSE

Participants will learn about the common manifestations of these problems including common etiologies, clinical features, management and treatment.

OBJECTIVES:

By the end of this session, participants will be able to:

1. Describe common manifestations of GYN problems and the various etiological agents that cause them.
2. Describe the clinical features of each infection.
4. Describe the treatment and management of GYN problems.
5. Discuss prevention of OIs in pregnancy.
6. Discuss management and treatment protocols in-country.

TIME:

45 minutes

A. Gynecological Problems and STDs

Introduction:

Gynecological problems are common among women living with HIV/AIDS and may be the presenting sign of immunosuppression in women. HIV/AIDS contributes to the frequency and severity of many gynecological infections, including vaginal candidiasis, herpes simplex, pelvic inflammatory disease and genital warts. Treatment for many of these infections is relatively inexpensive, but women living with HIV/AIDS often require higher doses and longer courses of therapy; they may also suffer from more frequent recurrences.

1. Vaginal discharge

a. Etiology:

- Gonococcal infection
- Chlamydia trachomatis
- Trichomonas vaginalis
- Bacterial vaginosis
- Candidiasis

b. Management and treatment

- General: Follow the national STD management guidelines. Ensure treatment of partners.
- Candidiasis: Patients often get recurrent attacks (even after treatment), and these may become persistent as the HIV disease worsens. If recurrence is very frequent, you may consider regular intermittent treatment.

Treatment includes:

Intravaginal:	Miconazole 200 mg suppository/day x 3days; clotrimazole 100 mg tab vaginal bid x 3days or qd x 7 days; clotrimazole 1 percent cream, miconazole 2 percent cream qd x 7days, or nystatin pessary qd or bid
Oral:	Fluconazole 150 mg po x 1 Ketaconazole 200 mg po/day x 7 days or bid x 3 days

Note: Avoid fluconazole, ketaconazole and itraconazole during pregnancy because of teratogenicity.

Table A3, 2.1: Vaginal Infections

	Bacterial Vaginosis	Vulvovaginal Candidiasis	Trichomoniasis	Gonorrhea	Chlamydia
Causes	Replacement of normal lactobacillus with mixed flora, e.g. gardnerella vaginalis, mycoplasma hominis	Candida albicans	Trichomonas vaginalis	Neisseria gonorrhoea	Chlamydia trachomatis
Clinical Features and Diagnosis	<ul style="list-style-type: none"> • Homogeneous grayish or yellowish discharge • Clue cells on microscopy • Vaginal PH >4.5 • Positive whiff test (i.e. fishy odor of discharge before or after addition of 10 percent KOH) • Diagnosis requires at least three of the above clinical features 	<p>Thick, white discharge with pruritis</p> <p>Vulvar burning, vaginal soreness, dyspareunia, dysuria</p> <p>Diagnosis: clinical symptoms + identification of budding yeast on a wet mount or KOH prep or Gram stain of vaginal discharge</p>	<p>Profuse, malodorous, often frothy, yellow-green discharge and vulvar irritation. May have urinary symptoms and/or dyspareunia</p> <p>Diagnosis: Saline wet mount will show motile trichomonads in positive culture</p>	Commonly asymptomatic	Commonly asymptomatic

Note: The characteristics of vaginal discharge are often not a reliable basis on which to determine etiology of a discharge, except in the case of candidiasis.

2. Lower abdominal pain and fever (PID)

a. Etiology:

- Gonococcal infection
- Chlamydia trachomatis
- Mixed bacterial infections (including anaerobes)
- TB

b. Management and treatment

- Counsel women to report these symptoms right away to ensure prompt diagnosis and treatment.
- Treat bacterial infections aggressively with strong broad spectrum antibiotics, for example, ciprofloxacin 500 bid x one week.
- If STD is the cause, follow the national STD management guidelines; ensure treatment of partners.
- Exclude acute conditions (for example, appendicitis, ectopic pregnancy, and the like)

If patient does not respond to treatment, refer for pregnancy test on blood to exclude ectopic pregnancy with a negative urine pregnancy test and to exclude pelvic abscess or TB.

You may find huge pelvic abscesses in immunosuppressed patients following pelvic infection or surgical procedures.

Drainage and appropriate antibiotic therapy to cover aerobic and anaerobic organisms is necessary.

3. Genital sores (ulcers or blisters)

a. Etiology

- Syphilis
- Chancroid
- Lymphogranuloma venereum (LGV)
- Herpes simplex

b. Management and treatment

- If an STD is the cause, follow the national STD management guidelines; ensure treatment of partners.
- Herpes simplex:

Recurrent genital herpes ulcers are very common in patients with HIV; they tend to be more severe and may spread to buttocks and abdomen.

In late HIV disease, lesions become persistent, extensive and extremely painful.

Give supportive treatment: pain relief and gentian violet.

Oral acyclovir 200 mg qid x 5 days reduces pain and promotes healing; in severe cases, you may need to extend treatment for 2-3 weeks.

Note: Oral acyclovir is usually not used to prevent prenatal HSV transmission.

In case of secondary infection, give antibiotics: co-trimoxazole 2 tabs bid or cloxacillin 250 mg qid x 5 days.

4. Genital warts

a. Etiology

- Condylomata acuminata. This should be distinguished from:
- Condylomata lata (from secondary syphilis)

b. Management and treatment

- Tend to be more common and severe in persons with HIV
- Treat with topical podophyllin 20 percent twice a week, or remove by surgery or electro cauterization.
- If caused by secondary syphilis, follow the national STD management guidelines; ensure treatment of partners.
- Counsel on prevention of transmission to partner.

5. Malignancies

a. Etiology

- Cervical cancer, CIN
- Kaposi's sarcoma

b. Management and treatment

- Do not undertake extensive surgical intervention if you can give equally effective treatments, such as radiotherapy.
- If HIV seropositive patients have a severely compromised immunological status, they often do not respond well to cancer surgery, radiotherapy and chemotherapy.

6. Amenorrhea and intermenstrual bleeding

a. Etiology

- Menstrual disturbances are often associated with chronic ill health and are frequent in women with HIV.
- May be linked to general deterioration and weight loss due to HIV disease

b. Management and treatment

- Exclude other causes such as pregnancy, perimenopause, uterine fibrosis, genital tract infections, cervicitis, PID, TB and cancer.
- Menses may return after treatment of other infections and weight gain.
- Best management is to provide counseling and reassurance.
- If the woman is sexually active and not using an effective method of contraception consistently, do a pregnancy test.

Table A3, 2.2: Prevention of OIs in Pregnancy

OI	Prevention Regimen
PCP	<ul style="list-style-type: none"> Use TMP-SMX, with dapsone as the alternative. Because of theoretical concerns for teratogenicity, providers may choose to withhold prophylaxis in the 1st trimester or use aerosolized pentamidine.
Toxoplasmosis	<ul style="list-style-type: none"> Primary prophylaxis: TMP-SMX, with theoretical concerns for teratogenicity in 1st trimester. Avoid pyrimethamine regimens. Secondary prophylaxis: This is a risk/benefit issue with concerns for teratogenicity of pyrimethamine vs. recurrent toxoplasmosis; most clinicians favor continued treatment. A specialist should manage primary toxoplasmosis during pregnancy.
TB	<ul style="list-style-type: none"> INH + pyridoxine regimens are preferred for prophylaxis; some providers avoid INH in first trimester because of theoretical concerns for teratogenicity. Be sure to perform chest x-ray to R/O active TB using lead apron shields for the patient. RIF and RBT appear safe during pregnancy, but experience is limited. Avoid PZA, especially during first trimester.
MAC	<ul style="list-style-type: none"> Primary prophylaxis: azithromycin is preferred, but some providers withhold prophylaxis in 1st trimester; experience with RBT is limited. Clarithromycin is teratogenic in animals; use with caution.
<i>S. pneumoniae</i>	<ul style="list-style-type: none"> May give pneumovax. Because of <i>HIV viral burst</i>, some delay vaccination until after ART.
Fungal infections	<ul style="list-style-type: none"> General: avoid azoles (fluconazole, ketaconazole and itraconazole) because of teratogenicity. Cryptococcosis, histoplasmosis and coccidioidomycosis: for secondary prophylaxis, amphotericin B is preferred instead of azoles, especially during first trimester
CMV	<ul style="list-style-type: none"> Standard recommendations apply
HSV	<ul style="list-style-type: none"> Oral acyclovir during late pregnancy to prevent prenatal HSV transmission is controversial, but usually not used; acyclovir prophylaxis to prevent severe recurrences may be indicated
VZV exposure; Non-immune host	<ul style="list-style-type: none"> VZIG within 96 hrs. of exposure is recommended
Human papilloma virus (HPV)	<ul style="list-style-type: none"> Avoid intravaginal 5 fluorouracil.

SESSION 3 Management of HIV Disease in Children

PURPOSE

In this session, participants will learn about the diagnosis of HIV in children and the management and treatment of HIV-related conditions, including persistent diarrhea, oral thrush, respiratory conditions, persistent or recurring fever, failure to thrive, lymphadenopathy and skin conditions.

OBJECTIVES:

By the end of this session, the participants will be able to:

1. Describe the HIV-related conditions in children and the various etiological agents that cause these conditions.
2. Describe the assessment and management of each condition following the IMCI approach.
3. Discuss preventive measures.
4. Counsel the mother about HIV testing and provide follow-up care.

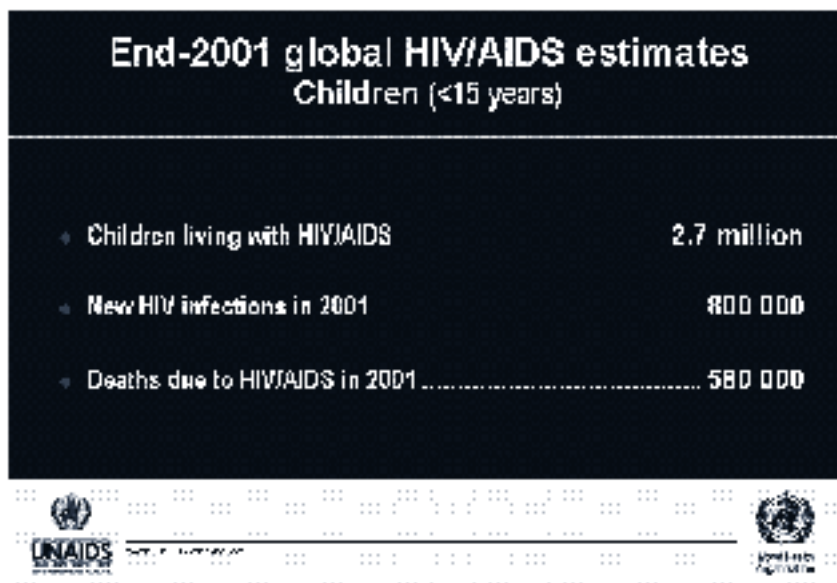
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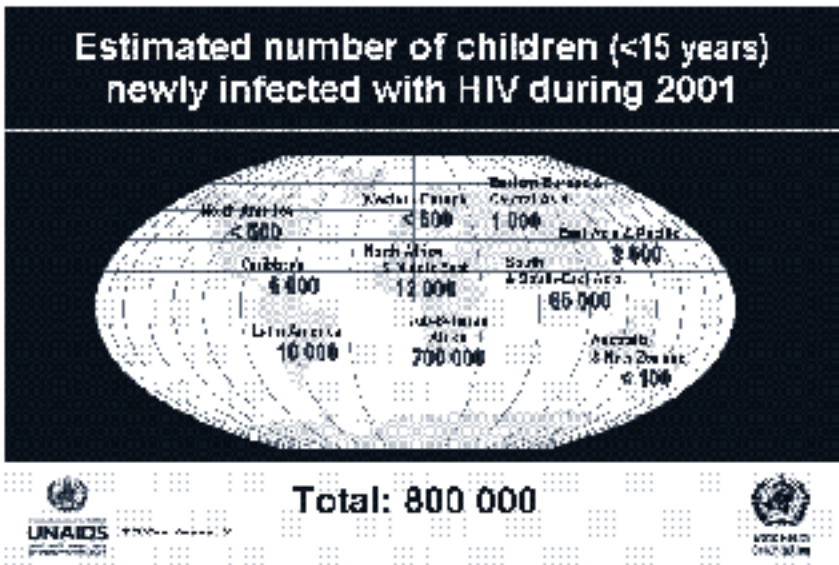
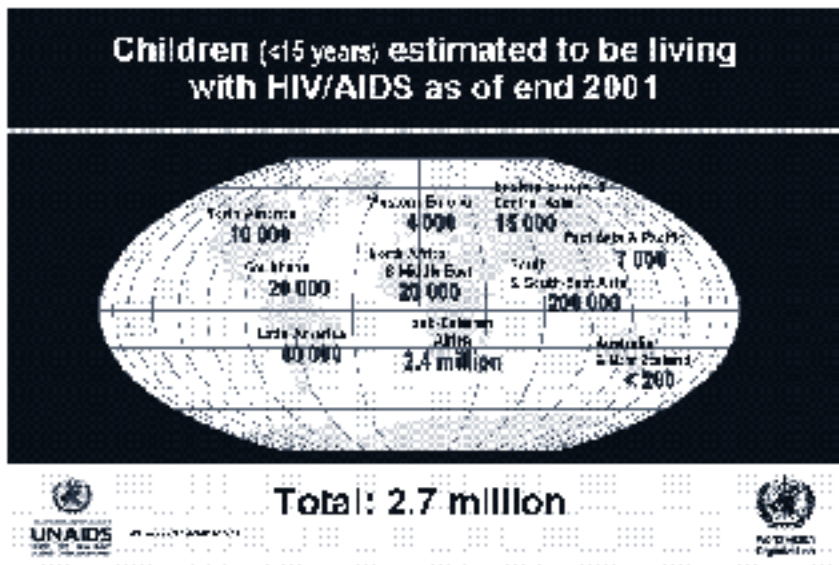
3 hours using case studies; 2 hours and 15 minutes without

A. Overview

1. Dimensions of the problem

The following slides from WHO depict the situation of children and HIV/AIDS in the world.





Global summary of the HIV/AIDS epidemic, December 2001

Number of people living with HIV/AIDS	Total	40 million
	Adults	37.2 million
	Women	17.0 million
	Children under-15 years	2.7 million
People newly infected with HIV in 2001	Total	6 million
	Adults	4.9 million
	Women	1.8 million
	Children under-15 years	800 000
AIDS deaths in 2001	Total	3 million
	Adults	2.4 million
	Women	1.1 million
	Children under-15 years	580 000



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About 14 000 new HIV infections a day in 2001

- More than 95% are in developing countries
- 2000 are in children under 15 years of age
- About 12 000 are in persons aged 15 to 49 years, of whom:
 - almost 50% are women
 - about 50% are 15–24 year olds



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2. Consequences:

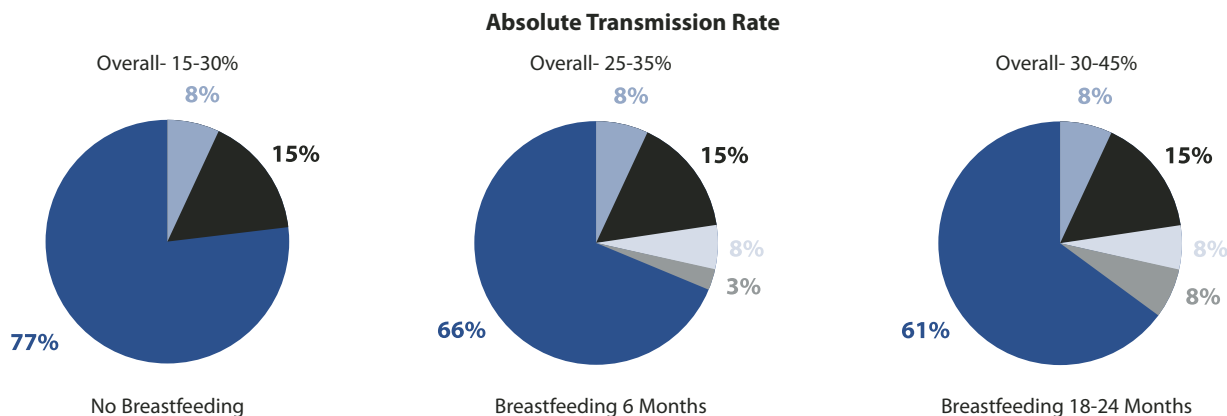
- a. One of the biggest challenges we face with HIV-infected children is identifying them early and giving proper care and support to them and their families.
 - 75 percent of children living with HIV/AIDS present with symptoms in the first or second year of life (most often at the primary level clinic).
 - 40-80 percent of HIV-infected children die before two years of age.
 - Most children living with HIV/AIDS die of common childhood illnesses rather than AIDS.
 - 80 percent of infant deaths occur in the home.

B. How children become infected with HIV and the course of the disease

1. Modes of infection

- a. The vast majority of HIV-positive children are infected vertically, that is, the virus is transmitted from the mother during pregnancy, labor, delivery or breastfeeding.
- b. The HIV antibodies to HIV of infected mothers pass through the placenta during pregnancy. Therefore, all children born to HIV-positive mothers have a positive reaction to any test that relies on HIV antibodies.
- c. However, only about one-third of these infants will actually be HIV infected.
- d. Because maternal antibodies can be detected in an infant’s blood up to 18 months after birth, the ELISA, rapid and Western blot serum tests will be positive, whether the infant is infected or not.
- e. Published estimates of MTCT rates of HIV-1 range from 15-45 percent, depending on whether or not the child is breast fed and the length of breast feeding (see chart below). Most infections seem to occur during labor and delivery. The transmission rate from breast feeding is estimated at 3.2 percent per year of breast feeding after four months of age; 5 percent of breast milk transmission occurs in the first months of life. The following Table A3, 3.1 is a simplified representation of rates and timing of MTCT:

Table A3, 3.1: Timing of HIV-1 Perinatal Transmission in Untreated Mothers & Infants (de Cock, JAMA 2000; 283:1175)



2. The natural course of HIV disease in children

- a. HIV RNA levels in perinatally-infected infants are generally low at birth (<10,000 copies/ml), increase to high values by age two months and then decrease slowly after the first year.
- b. CD4 cell count and percentage values in healthy infants who are not infected are considerably higher than those observed in uninfected adults and slowly decline to adult values by age six years.
- c. Although the CD4 absolute number that identifies a specific level of immune suppression changes with age, the CD4 percentage that defines each immunologic category does not. Thus, a change in CD4 percentage, not the number, may be a better marker of identifying disease progression in children.
- d. CD4 cell values can be associated with considerable variation because of minor infections and are therefore best measured when patients are clinically stable.

Table A3, 3.2: HIV Pediatric Classification System Immune Categories Based on Age-specific CD Cell Count and Percentage

Immune category	Child's Age					
	<12 months		1-5 years		6-12 years	
	No./ml	(%)	No./ml	(%)	No./ml	(%)
Category 1: No suppression	>1,500	(>25%)	>1,000	(>25%)	>500	(>25%)
Category 2: Moderate suppression	750-1,499	(15-24%)	500-999	(15-24%)	200-499	(15-24%)
Category 3: Severe suppression	<750	(<15%)	<500	(<15%)	<200	(<15%)

Source: CDC 1994

- e. A small proportion of infants who are infected early in pregnancy progress more rapidly to advanced HIV disease because of a disruption of the thymus, where CD4 and CD8 cells are produced. These children have low CD4 and CD8 cell counts. As a result, their immune system cannot respond to HIV infection. This means that infants under six months who present with symptoms of HIV disease usually have a shorter survival period than older children.

C. Clinical presentation: when to suspect HIV

1. Introduction

The clinical expression of HIV infection in children is highly variable. Some HIV-positive children develop severe HIV-related signs and symptoms in the first year of life; these are associated with a high mortality. Other HIV-positive children may remain asymptomatic or mildly symptomatic for more than a year and may survive for several years.

2. Suspect HIV if any of the following signs are present:

- a. Signs that are uncommon in HIV-negative children
 - Recurrent infection: three or more severe episodes of a bacterial and/or viral infection (such as pneumonia, meningitis, sepsis, cellulitis) in the past 12 months
 - Oral thrush: punctate or diffuse erythema and white-beige pseudomembranous plaques on the oral mucosa. After the neonatal period, the presence of oral thrush—without antibiotic treatment, or lasting over 30 days despite treatment, or recurring—is highly suggestive of HIV infection.
 - Chronic parotitis: the presence of unilateral or bilateral parotid swelling (just in front of the ear) for >14 days, with or without associated pain or fever
 - Generalized lymphadenopathy: the presence of enlarged lymph nodes in two or more extra-inguinal regions without any apparent underlying cause
 - Hepatosplenomegaly in the absence of concurrent viral infections such as cytomegalovirus (CMV)
 - Persistent and/or recurrent fever: fever (>38°C) lasting seven days or occurring more than once over a period of seven days
 - Neurological dysfunction: progressive neurological impairment, microcephaly, delay in achieving developmental milestones, hypertonia or mental confusion
 - Herpes zoster (shingles): painful rash with blisters confined to one dermatome on one side
 - HIV dermatitis: erythematous papular rash

- b. Signs common in HIV-infected children, but also common in ill non-HIV-infected children
 - Chronic otitis media: ear discharge lasting 14 days or longer
 - Persistent diarrhea: diarrhea lasting 14 days or longer

 - Failure to thrive: weight loss or a gradual but steady deterioration in weight gain from the expected growth, as indicated in the child's growth card. Suspect HIV particularly in breast fed infants <6 months old who fail to thrive.

- c. Signs or conditions very specific to HIV-infected children
 - Strongly suspect HIV infection if any of the following are present:
 - Pneumocystis pneumonia (PCP)
 - Esophageal candidiasis
 - Lymphoid interstitial pneumonia (LIP)
 - Shingles across several dermatomes
 - Kaposi's sarcoma

These conditions are very specific to HIV-infected children. However, the diagnosis is often very difficult where diagnostic facilities are limited.

3. Classification of signs and symptoms according to the WHO Staging System for HIV Infection and Disease in Children

Clinical Stage I

1. Asymptomatic
2. Generalized lymphadenopathy

Clinical Stage II

3. Unexplained chronic diarrhea for more than 30 days
4. Severe persistent or recurrent candidiasis outside the neonatal period
5. Weight loss or failure to thrive
6. Persistent fever for more than 30 days
7. Recurrent severe bacterial infections

Clinical Stage III

8. AIDS-defining OI
9. Severe failure to thrive
10. Progressive encephalopathy
11. Malignancy
12. Recurrent septicemia or meningitis

D. Diagnosis and management

Many HIV-positive children die from common childhood illnesses rather than from HIV/AIDS. Most of these deaths are preventable by early diagnosis and correct management. Effective management of these conditions can make an important contribution to the quality of life of HIV-positive children. In particular, these children have a greater risk of pneumococcal infections and pulmonary tuberculosis, as well as unusual opportunistic infections, which respond poorly to therapy.

One approach to early diagnosis and management is through the integration of HIV into the WHO Integrated Management of Childhood Diseases (IMCI) model. IMCI is an integrated approach to child health that focuses on the well-being of the whole child. A mother or other caretaker may bring a sick child to the clinic for a particular problem or symptom. If the child is assessed only for that particular problem or symptom, other signs of disease may be overlooked. The child might have pneumonia, diarrhea, malaria, measles or malnutrition, as well as HIV. These diseases can cause death or disability in young children if they are not diagnosed and treated.

1. Respiratory conditions

- a. Definition: Child with symptomatic HIV infection and respiratory symptoms of difficulty breathing and/or persistent or worsening cough
- b. Etiology:
 - Infections: Bacteria
Viral
Parasitic
Pneumocystis carinii pneumonia (PCP)
 - Mycobacteria: M. Tuberculosis
Atypical mycobacteria
 - Fungi: Candidiasis
 - Malignancies: Kaposi’s sarcoma
Lymphoma
 - Other: Lymphocytic interstitial pneumonitis (LIP), bronchiectasis and chronic lung disease
- c. IMCI—assess and classify (suggested entry points for HIV are in boldface)

Assess	Classify
Ask: does the child have cough or difficulty breathing?	
<i>If yes, ask:</i> <ul style="list-style-type: none"> • For how long? • More than one episode in the last three months? <i>If yes, check for possible symptomatic infection.</i>	Cough or difficulty breathing Persistent or worsening cough

Assess the severity of respiratory distress based on age and clinical examination, as follows:

Clinical Assessment of Respiratory Distress	
All children under 2 months of age: refer if respiratory rate is >60 or chest in drawing (with or without cyanosis)	
Children older than 2 months of age:	
Clinical Signs	Classify as
No chest in drawing and no fast breathing	Upper respiratory tract infection or bronchitis (no pneumonia)
Fast breathing, but no chest indrawing: <1 year: Respiratory rate: 50 or more 1-2 yrs: Respiratory rate: 40 or more	Pneumonia Pneumonia
Fast breathing and chest indrawing, with or without central cyanosis	Severe pneumonia

d. Management and treatment (level 1)

- If child has mild dyspnea, is not undernourished and is more than 2 months old, treat with antibiotics: amoxicillin 50 mg/kg/day in 4 doses x 5 days

Advise mother to:

- Continue breast feeding the child
- Give extra fluids
- Prevent child from chilling
- Return immediately if child's condition worsens

Reassess child after three days:

- If improved, complete treatment and follow-up, as needed
- If not improved, refer to level 2

- Refer the child for further assessment and management and evaluation if:

Child has chronic cough (lasting longer than 15 days) or pneumonia that does not respond to treatment quickly (within three days)

Child is in severe respiratory distress (see chart above)

In infants below two months of age, pneumonia is always a severe condition and requires admission.

If child has severe dyspnea, oxygen therapy is crucial. Start on antibiotics immediately, if transport may be delayed, give ampicillin 50 mg/kg IV stat.

Child is severely undernourished (treat as severe pneumonia)

e. Management and treatment (level 2)

- If in respiratory distress upon admission, start supportive treatment including oxygen, sufficient fluids, clear airway and so on.
- Perform chest x-rays and other tests:
 - Sputum: microscopy, culture, AFB stain, ESR, WBC
 - Blood culture, if fever is present

- Start treatment based on presumptive diagnosis from chest x-rays and substantiated by ZN stain of gastric aspirate, microscopy of pleural effusion and so on.
If child has severe dyspnea, severe malnutrition and is under two months old, admit to hospital; give supportive care and treat with antibiotics.

Antibiotic treatment by age:

0-3 months	Ampicillin 50-100 mg/kg/day IV in 4 doses PLUS gentamycin 4 mg/kg/day IV as single dose
4 months-5 years	Ampicillin 50-100 mg/kg/day IV in 4 doses OR cefuroxime 50 mg/kg/day IV in 3 doses
>5 years	Penicillin 50,000-100,000 IU/kg/day IV in 4 doses OR cloxacillin 50-100 mg/day in 4 doses, if x-ray is suggestive of staphylococcus

- f. In making a presumptive diagnosis, consider the information presented in Table A3, 3.3, below:
- If improved after seven days, follow up as needed.
 - If not improved after seven days, reevaluate.
Repeat earlier performed tests.
 - If further evaluation does not result in a final diagnosis and/or cough persists for longer than 30 days, consider a therapeutic trial of TB treatment.
- g. Comments: Many HIV-infected children have recurrent respiratory problems. Give supportive treatment with adequate feeding, sufficient fluids and management of nasal secretions. Follow up with child, as needed.

Table A3, 3.3: Disease Features, Diagnosis and Treatment in Children with HIV

Disease	Distinctive Features	Clinical Presentation	Diagnosis	Treatment
<i>Pneumocystis carinii pneumonia (PCP)</i>	<p>One of the common OIs occurring in children with HIV</p> <p>Occurs frequently in children under 1 yr of age and has a very poor prognosis</p>	Characterized by sudden onset of fever and tachypnea	Diffuse interstitial infiltrate on x-ray	<p>Treat with co-trimoxazole 20 mg/kg per day of trimethoprim component divided in 4 doses for 14-21 days.</p> <p>WHO recommends that all infants born to HIV-infected mothers receive cotrimoxazole prophylaxis from 4-6 weeks, for at least the first 6 months (and ideally for the first 12 months) of life to prevent PCP, or until HIV diagnosis is made at 18 months if only serological testing is available.</p>
<i>Lymphoid interstitial pneumonia (LIP)</i>	<p>A slowly progressive interstitial lung disease of unknown etiology occurring commonly in HIV- infected children above the age of 1 yr</p> <p>Usually has a good prognosis</p>	Characterized by mild tachypnea and clubbing, wheezing, lymphadenopathy and parotid enlargement.	Bilateral reticular nodular infiltrates and mediastinal lymphadenopathy on x-ray, which can be confused with military TB or PCP	<p>No specific therapy is available, but steroids may be helpful; prednisone 2mg/kg/day for 10-14 days.</p> <p>Bronchodilators given as metered dose inhalers (or through spacer devices for younger children) may also be helpful.</p>
Tuberculosis	Close contact with a TB-infected adult	<p>Failure to thrive</p> <p>Fever for more than one month</p>	<p>Repeated abnormal chest x-ray shows no improvement after 2 weeks despite antibiotic therapy</p> <p>Tine test (grade II or Mantoux >5mm) is considered positive in HIV infected children*</p>	<p>Same as in adults</p> <p>See Module A2, Session 3, Table on TB treatment according to WHO guidelines.</p>

* A negative Mantoux does not exclude TB and may be negative in the presence of TB because of underlying immunosuppression (HIV), overwhelming TB disease, malnutrition, incorrectly done test or recent measles infection. When in doubt about the diagnosis of TB, give a trial of anti-TB therapy and document response to treatment by weight gain and resolution of symptoms.

2. Persistent diarrhea

- a. Definition: Persistent liquid stools for more than 14 days
- b. Etiology: A pathogen will be identified in only 15-50 percent of the cases

Protozoal	Giardia lamblia E. histolytica Cryptosporidium Isospora belli
Bacterial	Salmonella (non-typhoid) Campylobacter jejuni Enterotoxogenic E.coli (ETEC) Mycobacterium (atypical TB) Yersinia enterocolitica
Viral	Rotavirus Cytomegalovirus HIV/AIDS enteropathy
Helminthic	Strongyloides
Fungal	Candida infection

When a child also has a fever, look for other causes of diarrhea such as malaria, pneumonia and otitis; treat as indicated.

- c. IMCI—assess and classify (suggested entry points for HIV are in boldface)

Assess	Classify
Ask: Does the child have diarrhea?	
If yes, ask: <ul style="list-style-type: none"> • For how long? Number of days? • Is there blood in the stools? • Had diarrhea for more than 14 days in the last three months? <i>If yes, check for possible symptomatic infection</i>	Diarrhea Persistent diarrhea in last three months

d. Management and treatment (level 1=at home/local clinic)

- Prevent dehydration and maintain hydration: give ORS even if child is not dehydrated
- Maintain nutrition:
 - Advise the mother to breast feed more frequently, and continue feeding the child.
 - Maintain caloric intake.
 - You may give multivitamins to ensure sufficient vitamin intake (and to increase the appetite of the child).
- If the child has diarrhea with blood and fever, treat with nalidixic acid (50 mg/kg/per day divided into 4 doses). If child has had antimicrobial treatment within the previous 3 months, do not give nalidixic acid, but consider referral.
- Improvement is defined as:
 - Child is clearly better with no signs of dehydration AND
 - Fewer stools than before AND
 - No fever and less blood in stool (if present)
- If no improvement after five days, stop all antimicrobial treatment. In areas where strongyloides is prevalent, consider giving albendazole (200 mg x 3 days; repeat after three weeks). If the child is not improving, maintain hydration and nutrition and consider referral.
- If the child is not severely ill, that is, has no bloody stool, no fever, is not dehydrated and not malnourished, observe the child for 10 days and maintain hydration and nutrition.

e. Management and treatment (level 2=referred to hospital)

- Maintain hydration (oral or IV) as indicated.
- Test or check:
 - Stool cultures for ova and parasites
 - Fecal smears for blood and neutrophils, which would indicate a bacterial infection, E. histolytic, ulcerative colitis or clostridium difficile.
 - Fever: fever and/or bloody stools are more indicative of bacterial infections. Exclude pneumonia, otitis and so on, and if found, treat appropriately. If living in an endemic area, treat for malaria during malaria season.
 - Malnutrition: malnutrition puts an HIV-infected child at risk of dying from persistent diarrhea
- Treatment
- Further evaluations: exclude lactose intolerance, TB, typhoid, urinary tract infections and so on.

E. histolytica	Metronidazole 10 mg/kg tid x 10 days
G. Lamblia	Metronidazole 10 mg/kg tid x 5 days
Isospora belli	Co-trimoxazole for 3 weeks: children 1-5 yrs: 5 ml of syrup bid children 6-12: 1 tab bid
Cryptosporidium	No proven effective treatment; give supportive care
Helminth infections	Albendazole single dose: 200 mg for children under 2 years 400 mg for children 2 years and older

3. Persistent or recurrent fever

- a. Definition: Fever as the only obvious clinical presentation in an HIV-infected child and is defined as a body temperature of >37.5° C for more than one episode during a five-day period.
- b. Etiology: Fever is common among HIV-infected pediatric patients. May be a consequence of common childhood illnesses, endemic diseases, serious bacterial or opportunistic infections, carcinomas and/or HIV itself. May be a fever of unknown origin (FUO) and should be investigated in the same fashion as the child without HIV and FUO
- c. IMCI—assess and classify (suggested entry points for HIV are in boldface)

Assess	Classify
Ask: Does the child have a fever?	
If yes, ask: <ul style="list-style-type: none"> • For how long? Number of days? • More than one episode in the last 5 days? <i>If yes, check for possible symptomatic infection</i> 	Fever of unknown origin (If no other obvious cause i.e., malaria, measles)

- d. Management and treatment (level 1)
 - If the child is acutely or seriously ill and has a temperature of 39° C or higher:
 - Treat with antimalarials (in endemic areas) according to national guidelines.
 - For possible septicemia, start treatment with antibiotics:
 - Give ampicillin 50 mg/kg IV STAT.
 - Refer immediately to nearest health facility with greater diagnostic capacity (level 2).
 - If not acutely or seriously ill:
 - Thoroughly examine child for possible localized infections, such as skin infections, abscesses and the like, and give specific treatment.
 - Consider malaria as a possibility, if in an endemic area, and treat according to national guidelines.
 - If no cause of fever is identified, treat empirically with ampicillin 50 mg/kg/qid for 5 days for possible occult infections, such as UTIs, otitis media and so on.
 - If the child still has fever, but is clinically stable (is attentive, eats and drinks satisfactorily), then presume HIV itself is the cause. Consider treatment with antipyretics and maintain hydration and nutrition. Follow up as needed.
 - If not clinically stable or you suspect a serious infection (for example, osteomyelitis or endocarditis) requiring prolonged course of antibiotics, refer to level 2.

e. Management and treatment (level 2)

- If child is acutely or seriously ill with a temperature of 39° C or higher:
 - Admit to hospital
 - Investigate for possible cause:
 - Blood slides for malaria parasites
 - Examine CSF
 - Blood culture to diagnose meningitis and sepsis
 - Treat with broad spectrum antibiotics for presumed sepsis or meningitis: give ampicillin 200 mg/kg/day 6 hourly for 10 days PLUS chloramphenicol 100 mg/kg/day 6 hourly.
 - Treat for malaria, even if blood slides are negative, according to national guidelines.
- If not acutely or seriously ill, investigate to identify possible cause of fever. Tests include:
 - Malaria slides White blood cell count Stool microscopy
 - Blood culture Urinalysis Widal
 - Chest x-ray CSF Ultrasound
- For many HIV-infected children with fever and no local findings, HIV may be the cause. However, you should consider other conditions:
 - Occult bacterial infections: chronic sinusitis, otitis media, UTIs, osteomyelitis, abscess, salmonella, syphilis, liver abscess and endocarditis
 - Mycobacterial infection: M. tuberculosis, M. avium
 - Fungal infections: Candida
 - Chronic viral infections: MCV, EBV
 - Parasitic infections: malaria, toxoplasma
 - Neoplasms: lymphoma, Kaposi's sarcoma, smooth muscle tumors
- If you find no source of fever, treat empirically with amoxicillin 50 mg/kg qid x 5 days.
- If fever resolves, follow up as needed.
- If fever persists, but child is clinically stable, presume HIV-associated fever; treat with antipyretics, and maintain hydration.
- If not clinically stable, repeat investigations. If no yield, most likely cause is HIV-associated fever.

4. Ear Problems

- IMCI (suggested entry points for HIV are in boldface)
- Management and treatment is the same as for any child presenting with an ear problem.

Assess	Classify
Ask: Does the child have a ear problem?	
If yes, ask: <ul style="list-style-type: none"> • Is there ear pain? • Is there ear discharge? • If yes, for how long? Number of days? • Discharge any time in the past? <i>If yes, check for possible symptomatic infection</i>	Ear infection in the past

5. Failure to thrive (FTT)

- a. Definition: FTT should be suspected when a child deviates from his/her own apparent path of growth or from the normal growth patterns for his/her age. Severe forms of malnutrition, such as kwashiorkor and marasmus, may occur as a result of FTT.
- b. Etiology: May be a result of imbalance in food intake, food losses and body requirements. Contributing causes may be vomiting, diarrhea, oral thrush, pneumonia, mouth ulcers or neurological diseases.
- c. IMCI (Suggested entry points for HIV are in boldface.)

THEN CHECK FOR MALNUTRITION AND ANEMIA	
Ask: • Has the infant lost weight?	<ul style="list-style-type: none"> • Look for visible, severe wasting • Look for pallor • Look for edema of both feet • Determine weight for age <ul style="list-style-type: none"> Very low Not very low • Growth faltering below yellow row

- d. Management and treatment (level 1)
 - Important to take a detailed feeding and social history to assess caloric intake and social conditions (especially to determine if the mother is the caretaker of the child).
 - Determine the degree of FTT and possible contributing illnesses
 - Weigh the child and chart the weight; do a complete physical examination.
 - If prior weights are available, define points on a growth curve to assess severity.
 - If not available, FTT is defined as:
 - Mild to moderate: Weight is 60-80 percent of normal weight for age
 - Severe: Weight is lower than 60 percent of expected weight for age, OR weight is 60-80 percent of weight for age if edema is present.
 - To assess as precisely as possible, ask the mother to describe exactly what food the child is taking, how much and how often.
 - Give feeding advice to the mother about breast feeding, weaning and other foods. It is important to increase the caloric intake through a balanced diet.
 - If possible, have the mother record exactly what the child eats and any problems she may encounter.
 - Do a home visit to assess availability of dietary resources at home and in the community.
 - Consider supplementing the diet with:
 - Vitamin A according to national guidelines (at nine months of age and every six months thereafter)
 - Iodine, which is adequately contained in iodized salt
 - Iron, if evidence of anemia
 - Multivitamins that include zinc
 - Evaluate dietary trial after seven days
 - If improved, continue treatment until resolved, and follow up as needed.
 - Improvement is defined as weight gain and increased alertness of child and/or loss of edema (if present).
 - If no improvement, refer to level 2.
 - If poor diet does not seem to be the cause, determine contributing causes and treat appropriately.
 - If cause cannot be determined or if treatment fails, refer to level 2.

- d. Management and treatment (level 2)
- Assess eating habits as above, and do appropriate tests to determine contributing causes; treat accordingly.
 - If child does not improve, consider admission for trial nasogastric feeding, especially if home dietary trial failed.
 - If child shows no improvement and no underlying cause can be determined, investigate for endocrine disorders, renal failure CNS disease and chronic infections.
- e. Comments: Many HIV-infected children show FTT without identifiable cause (including poor diet) and despite adequate caloric intake. This is thought to be the result of HIV itself.

6. Oral thrush

- a. Definition:
- Presumptive: Presence of characteristic white plaques on oral mucus, usually located on palate, which often bleed when removed. In some cases, it may present only as a red mucosal surface.
 - Definitive: Candida spores or pseudohyphae in mouth scrapings
- b. Etiology: Candida infection
- c. Management and treatment (level 1)
- In HIV-infected patients, oral thrush may extend into the esophagus. Look for signs and symptoms of esophageal candidiasis:
 - Pain on swallowing, reluctance to take food, salivation, crying during feeding, weight loss. If untreated, the condition may alter eating habits and add to poor nutrition of child.
 - Severe oral thrush (plaques on tongue, soft and hard palates, extending to pharynx) is highly indicative of esophageal thrush, even in the absence of pain on swallowing.
 - For presumed oral thrush only, treat with nystatin suspension 500,000 IU tid x 5 days or tablets if suspension is not available.
 - Follow up as needed; patient may need prolonged or prophylactic treatment with nystatin once or twice daily.
 - If no improvement, and for presumed esophageal candidiasis, refer for further investigation and treatment.
- d. Management and treatment for severe oral thrush (level 2)
- Treat with ketoconazole 3-6 mg/kg daily x 5 days.
 - Avoid use in presence of active liver disease and for patients receiving rifampicin.
 - If child is breast feeding, the nipples of the mother are often infected; instruct to apply gentian violet on nipples before breast feeding.
 - Exclude candidiasis of the perineal area. If available, apply clotrimazole 1 percent; if not available, give nystatin po, as above.
- e. Comments: Recurrence of oral thrush and esophageal candidiasis is very common. Recent use of antibiotics is an important predisposing factor. Esophageal lesions heal slowly, although symptomatic response is usually prompt. Prolonged treatment is often required.

b. Etiology:

- Prurigo and nonspecific dermatitis
- Drug reactions to sulfas, TB drugs and other medications
- Bacterial: furunculosis, impetigo, pyoderma, folliculitis and abscesses
- Viral: chicken pox, herpes zoster, herpes simplex (usually the result of HIV-1 affecting mouth and lips) and molluscum contagiosum
- Fungal: candida and dermatophytosis
- Other: scabies, atopic dermatitis, seborrheic dermatitis and Kaposi's sarcoma

c. Management and treatment is the same as for adults.

E. HIV infection and immunization**1. Check that all children are fully immunized according to their age.**

- a. Children who have, or are suspected of having, HIV infection but are not yet symptomatic should receive all appropriate vaccines (according to the national EPI program schedule), including BCG and, where relevant, yellow fever vaccine. Because most HIV-positive children have an effective immune response in the first year of life, give immunization as early as possible after the recommended age of vaccination.
- b. Children with symptomatic HIV infection (including AIDS) should receive measles, DPT and hepatitis B if locally relevant. Children with HIV should not receive oral polio vaccine (OPV). An alternative to oral polio vaccine is a different vaccine called inactivated polio vaccine (IPV). This is given by injection. Do **not** give BCG and yellow fever vaccines to children with symptomatic HIV infection.
- c. Give all children with HIV infection (regardless of whether or not they are symptomatic) a dose of measles vaccine at the age of six months, as well as the standard dose at nine months.

2. General guidelines for immunizing HIV-infected children and adults:

	Vaccine	Asymptomatic HIV Infection	Symptomatic HIV Infection
Infants	BCG	Yes	No
	DPT	Yes	Yes
	Polio	Yes	Yes
	Measles	Yes	Yes
	Yellow Fever	Yes	No
Women of childbearing age	Tetanus toxoid	Yes	Yes

F. Counseling the mother

a. HIV testing and counseling

- If there are reasons to suspect HIV infection (based on clinical signs or diagnoses in the family), and the child's HIV status is unknown, test the child for HIV, where possible.
- Transplacental maternal antibodies interfere with conventional serological testing in children aged >18 months. If the child is suspected of having HIV infection on clinical grounds, offer the mother counseling, followed by HIV testing of both mother and child. This also provides an opportunity for clinical assessment to rule out other HIV-associated and potentially treatable clinical problems, such as tuberculosis. In the very uncommon event that you know that the mother became infected after delivery, the presence of antibodies in the first year of life is indicative of HIV infection in the infant.
- Both pretest and post-test counseling should accompany any HIV testing. Pretest counseling should include securing informed consent before any tests proceed. Even in high prevalence countries, HIV remains an extremely stigmatizing condition and the mother (or both partners) may feel reluctant to undergo testing
- HIV counseling should take account of the child as part of a family. This should include the psychological implications of HIV for the child, mother, father and other family members. Counseling should stress that, although cure is currently not possible, there is much that can be done to improve the quality and duration of the child's life and the mother's relationship with the child. Counseling should make it clear that the staff want to help, and that the mother should not be frightened of going to a health center or hospital early in an illness, if only to ask questions.
- Counseling requires time and has to be done by trained staff. All health workers at the first referral level should be trained in the principles of HIV counseling and be able to carry it out. However, if staff at the first referral level have not been trained, seek assistance from other sources, such as local community AIDS support organizations.
- Stress confidentiality of HIV testing and counseling. However, you could encourage mothers to find at least one other person, preferably within the family, with whom they can talk about this problem.

b. Indications for counseling

- 1) For a child with unknown HIV status presenting with clinical signs of HIV infection and/or risk factors (such as a mother or sibling with HIV/AIDS), follow these steps:
 - (a) Decide if you will do the counseling or if you will refer the child.
 - (b) If you are doing the counseling, make time for the counseling session. Take advice from local people experienced in counseling so that any advice given is consistent with what the mother will receive from professional counselors at a later stage.
 - (c) Where available, arrange for an HIV test to confirm the clinical diagnosis, alert the mother to HIV-related problems and discuss prevention of future mother-to-child transmissions (including, where possible, prevention using antiretrovirals).
Note: If HIV testing is not available, discuss the presumptive diagnosis of HIV infection in the light of the existing signs, symptoms and risk factors.
 - (d) If counseling is not being carried out at the hospital, explain to the parent why you are referring them elsewhere for counseling.

- 2) For a child known to be HIV-positive and responding poorly to treatment or needing further investigations, discuss the following in the counseling sessions:
 - (a) Parents' understanding of HIV infection
 - (b) Management of current problems
 - (c) Need to refer to a higher level, if necessary
 - (d) Support from community-based groups, if available

- 3) For a child known to be HIV-positive who has responded well to treatment and is to be discharged (or referred to a community-based care program for psychosocial support), discuss the following in the counseling sessions:
 - (a) Reason for referral to a community-based care program, if appropriate
 - (b) Follow-up care
 - (c) Risk factors for future illness
 - (d) Immunization and HIV

G. Follow-up

a. Discharge from hospital

Manage serious illnesses in HIV-positive children as for any other children. However, HIV-infected children may respond slowly or incompletely to the usual treatment. They may have persistent fever, persistent diarrhea and chronic cough. If the general condition of these children is good, they do not need to stay in the hospital, but can be seen regularly as outpatients.

b. Referral

If your hospital does not have available facilities, consider referring a child suspected to have HIV infection:

- For HIV testing with pre- and post-test counseling
- To another center or hospital for further investigations or second-line treatment, if there has been little or no response to treatment
- To a trained counselor for HIV and infant feeding counseling, if the local health worker cannot do this
- To a community home-based care program, a community institution-based voluntary counseling and testing center or a community-based social support program for further counseling and continuing psychosocial support

Discuss with the mother or caregiver the reason for referring the child, as well as the services available at the referral site. The referral note should be comprehensive, concise and clear, while maintaining confidentiality, with a request for written feedback on the child's condition.

c. Clinical follow-up

Children who are known or suspected to be HIV-positive should, when not ill, attend well-baby clinics like any other children. It is important that they receive prompt treatment of common childhood infections. In addition, they need regular clinical follow-up at first-level facilities at least twice a year, to monitor:

- Their clinical condition
- Growth
- Nutritional intake
- Immunization status
- Psychosocial support (where possible, give this through community-based programs)

In a child with repeated serious infections, consider antibiotic prophylaxis. Research on the benefits of prophylaxis with cotrimoxazole (trimethoprim 5 mg/kg, sulfamethoxazole 25 mg/kg, twice a day for three days per week) conducted mainly in industrially developed countries has shown that it reduces the incidence of PCP and bacterial infection in HIV-positive children. The decision to start prophylaxis should take into account national guidelines (which consider the cost of prophylaxis and the possible impact on development of cotrimoxazole resistance) and the availability of an adequate supply of the drug over a long period of treatment.

H. Summary

A 10-Point Approach for the Management of Children Infected with HIV

1. Early diagnosis: the two common approaches include clinical methods (based on WHO staging I-III and CDC classification A, B, C) and laboratory methods (based on antibody tests for over those 18 and DNA/RNA tests for younger children). There are advantages and shortcomings to each approach.
2. PCP prophylaxis
3. Growth monitoring
4. Nutritional supplementation
5. Treatment of acute illnesses
6. Treatment of opportunistic infections: bacterial, TB, oral and esophageal candida, and dermatophytes
7. The need and importance of psychosocial support and adolescent care, including the issue of timely disclosure to HIV-infected adolescents
8. Immunizations
9. Antiretroviral therapy, becoming increasingly accessible to the poor
10. Care for HIV/AIDS-infected mothers

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PART A: MODULE A3

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