



**GUIDELINES FOR THE MANAGEMENT  
OF HIV INFECTION AND AIDS**

Second Edition 2004

**NATIONAL HIV/AIDS/STI CONTROL & PREVENTION PROGRAMME  
MINISTRY OF HEALTH  
SULTANATE OF OMAN**

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## **1. GLOBAL SITUATION**

Since the first descriptions of acquired immunodeficiency syndrome (AIDS) in 1981, the human immunodeficiency virus (HIV) infections have emerged as a major public health problem. AIDS has become the most devastating disease humankind has ever faced. Since the epidemic began, more than 65 million people have been affected with the virus. HIV/AIDS is now the leading cause of death in sub Saharan Africa and is the fourth biggest killer worldwide.

At the end of 2003, an estimated 40 million people globally were living with HIV. In many parts of the developing world, majority of the new infections occur in young adults, with young women being especially vulnerable. About one third of those currently living with HIV/AIDS are aged 15- 24. Most of them do not know that they carry the virus. Many millions know nothing or too little about HIV to protect themselves against it. The goal should be to expand the understanding about HIV disease.

## **2. SITUATION IN EASTERN MEDITERRANEAN REGION (EMR)**

14198 AIDS cases were reported in the Region till end of 2003

More than 700, 000 persons were estimated to be living with HIV/AIDS by the end of 2003.

The main factors causing the spread of the epidemic in the EMR include population movement due to war or other reasons, a large proportion of young people in the population, changes in the norms in different communities which entails increase of risky practices, and the complex emergency situations to which several countries of the Region are subjected to. The emerging threat of injecting drug use is also another major factor in the progression of the HIV/AIDS epidemic. This has already resulted in HIV outbreaks in some countries in the Region. Added to these factors are the limited capacities and human resources of national AIDS

programmes and the gaps that exist in blood safety and infection control in some areas

### **3. SITUATION IN OMAN**

In 1984, the first HIV case was reported; subsequently the numbers steadily increased till 1994. However, from 1995 to 1998 there was a decline in the cases. From 1999 to 2003 the situation was stationary i.e. on an average about 80 cases per year were reported. This can be attributed to strong blood safety policies, information, education and communication programme activities, as important tools for the prevention of HIV as well as STI prevention programme that emphasizes promptly identifying person's with STIs, initiating appropriate therapy and ensuring completion of treatment.

By the end of 2003, the male to female ratio was 2.5:1 and 20-44 years was the main age group affected with HIV infection (72.2%). Both sexual transmission (heterosexual and homosexual) and infection through intravenous drug user were the chief modes of transmission accounting for 71.2% in the last 5 years. Unknown cause accounted for 24.5%. Blood transfusion accounted for 1.15% (mainly attributed to earlier years). After 1994 no documented cases through blood transfusion has been reported and transmission from mother to child was about 4%.

### **4. PROGRAMME POLICY**

It is the policy of the Ministry of Health.

- That this manual describes the Ministry of Health Policy and standard procedures for early detection of HIV & AIDS, its treatment, counselling, rehabilitation and referral.
- That an integrated and coordinated strategy be used for prevention and treatment of AIDS in all health care facilities.
- That all diagnosed HIV positive cases be registered at the central and regional level.

- That in each region a focal point be responsible for the HIV/AIDS/STI Prevention and Control programme in addition to his/her regular duties.
- That in each tertiary hospital one doctor (Infectious disease specialist or MOIC or Dermatologist or Clinician) be a focal point in the management of the disease.
- That the HIV/AIDS patient should not be stigmatized (i.e. No sticker in the file or at the patient bed side) or isolated merely because they are HIV-infected.
- That any one who might have had an exposure and the initial results were negative, should take a second test three months after the first test
- That the private practitioners/employers should not be informed directly or indirectly about the HIV results of the patient unless the blood is subjective to ELISA and confirmed with Western Blot (WB) and should refer the patient to the regional counsellors.
- That Information, Education and Communication ( Program be an important medium for the prevention of HIV/AIDS.
- That the counsellors will help in counselling patient and their relatives in their own Wilayats with the assistance of the local Wilayat health authorities.
- That all High Risk Groups will be screened for HIV. These groups are:
  - Thalasaemia or Sickle cell cases
  - Homosexuals (homosexual partners) wherever known.
  - Heterosexuals with multiple partners
  - Patient with Lymphoma, Sarcoma (Hodgkin's)
  - STI Patients at first contact
  - Immunodeficient patients
  - Prisoners

- Drug Addicts
- Tuberculosis patients should be screened for HIV and HIV infected patients should be screened for TB.
- That HIV screening should be done for ALL blood donors.
- That the concept of standard universal precautions (SUP) are strictly followed and adequate infection control procedure adhered to by all health institutions. The underlying concept of standard universal precautions is that all blood and certain body fluids are assumed to be infectious for HIV.
- That all children with HIV positive mothers should be screened by ELISA at 18 months of age or HIV antigen polymerase chain reaction (PCR) at any time.
- That all HIV positive pregnant women should receive antiretroviral prophylaxis (see Page 21).
- That all HIV infected mothers should not breast feed.
- That all HIV infected infants and children should be immunised with all the vaccines of the EPI programmes according to the standardised schedule. Refer to EPI manual for complete details. Only infants with symptomatic HIV infection should not be given BCG and Oral Polio.
- That all HIV infected women of childbearing age should receive tetanus toxoid as per the T.T. schedule.
- That the Ministry of Health should continue to encourage its sister organisation e.g. Sultan Qaboos University Hospital, The Sultan's Armed Forces, The Royal Oman Police, The Palace Medical Services, Petroleum Development Oman and private sectors to implement these standardised procedures in all their health facilities.

## **5. NATIONAL HI V/AIDS PROGRAMME OBJECTIVES:**

- Prevention of HIV Transmission, including transmission by way of blood, sexual, injection, and perinatal transmission.
- Reduction of the morbidity and mortality associated with HIV infection and AIDS.
- Reduction of the impact of HIV infection and AIDS on individuals and their families and communities.

#### APPROACHES & STRATEGIES:

The national HIV/AIDS Prevention & Control Programme aims at achieving the above objectives by a number of implementable strategies, which determine the operational components of the programme.

- Information, Education and Communication

(for prevention of sexual transmission, peer education as an important tool of health education among youth, change of behaviour and support to other strategies).

- Epidemiological and Behaviour Surveillance

(for monitoring of HIV prevalence, transmission incidence and trends for planning of interventions)

- Blood Safety

(for prevention of blood and blood products transmission)

- Case management including clinical treatment support and counselling.

(for reduction of the impact of HIV infection.)

- Programme Management

(for efficient implementation of the entire programme)

### **6. CLINICAL DEFINITION OF HIV INFECTION AND AIDS**

1. WHO staging system for HIV infection and disease in adults and adolescents

## Clinical stage I

1. Asymptomatic
2. Persistent generalized lymphadenopathy Performance scale 1: asymptomatic, normal activity

## Clinical stage II

3. Weight loss, <10% of body weight
4. Minor mucocutaneous manifestations (seborrhoeic dermatitis, pruriting, fungal nail infections, recurrent oral ulcerations, angular cheilitis)
5. Herpes zoster within the last five years
6. Recurrent upper respiratory tract infections (i.e. bacterial sinusitis) And/or performance scale 2: symptomatic, normal activity

## Clinical stage III

7. Weight loss, >10% of body weight
8. Unexplained chronic diarrhoea,> 1 month
9. Unexplained prolonged fever (intermittent or constant),> 1 month
10. Oral candidiasis (thrush)
11. Oral hairy leukoplakia
12. Pulmonary tuberculosis within the past year
13. Severe bacterial infections (i.e. pneumonia, pyomyositis)  
And/performance scale 3: bedridden <50% of the day during the last month

## Clinical stage IV

14. HIV wasting syndrome
15. pneumocystis carinii pneumonia
16. Toxoplasmosis of the brain
17. Cryptosporidiosis with diarrhoea> 1 month



18. Cryptococcosis, extra-pulmonary
19. Cytomegalovirus disease of an organ other than liver, spleen or lymph nodes
20. Herpes simplex virus infection, mucocutaneous > 1 month, or visceral any duration
21. Progressive multifocal leukoencephalopathy
22. Any disseminated endemic mycosis (i.e. histoplasmosis, coccidiomycosis)
23. Candidiasis of the oesophagus, trachea, bronchi or lungs
24. Atypical mycobacteriosis, disseminated
25. Non-typhoid salmonella septicaemia
26. Extra pulmonary tuberculosis
27. Lymphoma
28. Kaposi's sarcoma
29. HIV encephalopathy

And / or performance scale 4: bedridden > 50% of the day during the last month

Note: both definitive and presumptive diagnoses are acceptable.

HIV wasting syndrome: weight loss of > 10% of body weight, plus either unexplained chronic diarrhoea (> 1 month) or chronic weakness and unexplained prolonged fever (>1 month).

HIV encephalopathy: clinical findings of disabling cognitive and/or motor dysfunction interfering with activities of daily living, progressing over weeks to months, in the absence of a concurrent illness or condition other than HIV infection which could explain the findings.

## 2. WHO staging system for HIV infection and disease in **children**

Clinical stage I

1. Asymptomatic

2. Generalized lymphadenopathy Clinical stage II
3. Unexplained chronic diarrhoea
4. Severe persistent or recurrent candidiasis outside the neonatal period
5. Weight loss or failure to thrive
6. Persistent fever
7. Recurrent severe bacterial infections Clinical stage III
8. AIDS-defining opportunistic infections
9. Severe failure to thrive
10. Progressive encephalopathy
11. Malignancy
12. Recurrent septicaemia or meningitis

## **7. MODE OF TRANSMISSION & RISK FACTORS**

HIV is transmitted between humans by three principal routes: sexual contact, parenteral inoculation of infected body fluids, and vertically from an infected mother to her child in utero.

### **Sexual contact**

Genital-genital intercourse (heterosexual)

Genital-anal intercourse (heterosexual and homosexual)

Genital-oral intercourse

### **Parenteral contact**

Needle stick inoculation of infected HIV human blood or body fluids

Transfusion of infected HIV blood or blood products

Mucocutaneous inoculation of infected HIV human blood or human blood products

Needle sharing (IV drug abuse)

Organ transplantation from HIV infected donors

## **Maternal-infant contact**

Intrauterine transplacental inoculation

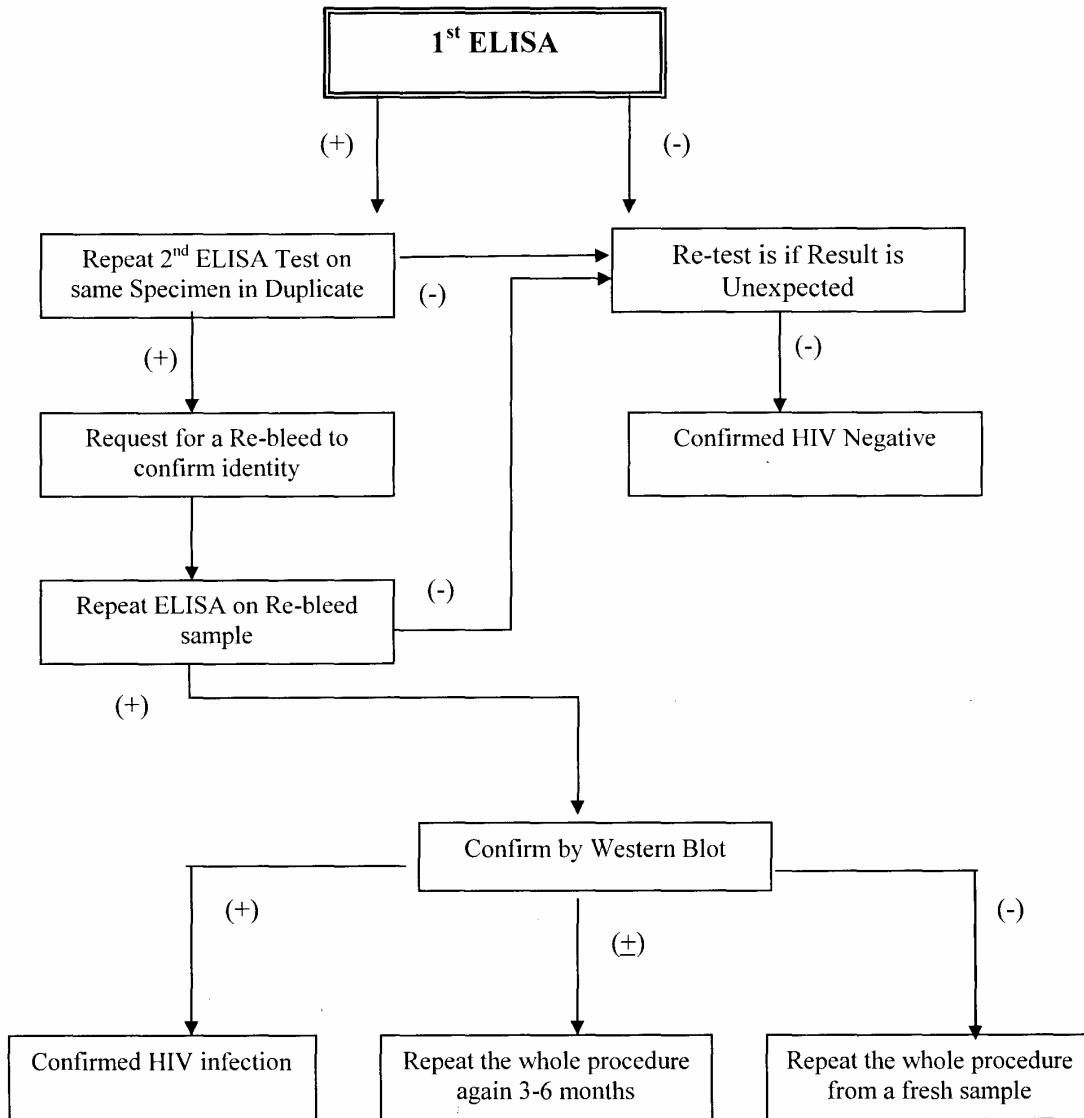
Peripartum inoculation

Breast feeding (from milk).

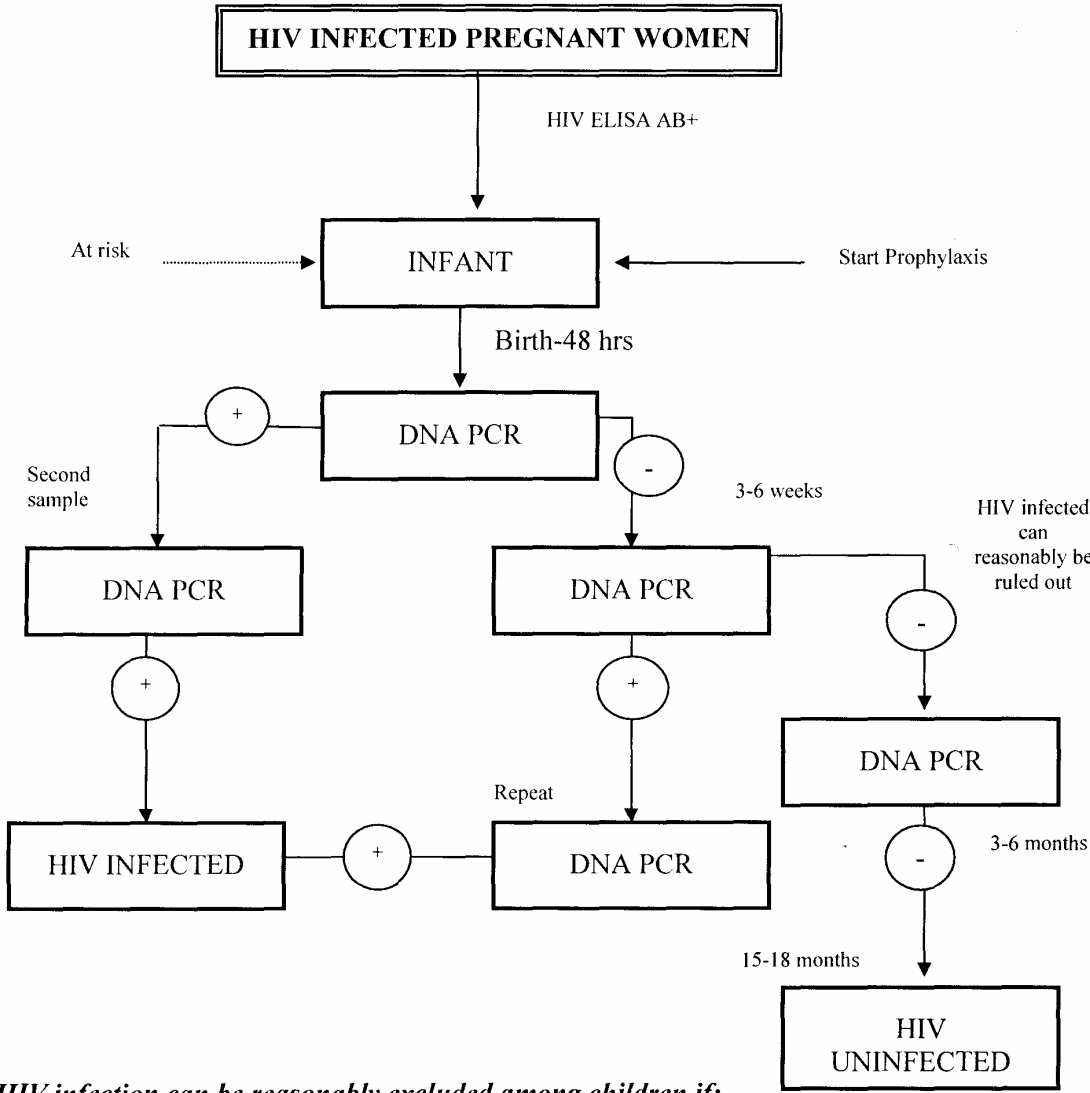
### Screening Test

- The Elisa is a laboratory test to confirm a clinical diagnosis and for screening blood and blood products.
- The sera are screened initially as single specimens by ELISA test. If the test is positive, 2nd Elisa test should be done on same sample in duplicate.
- If one of the two tests results is positive, the serum is considered reactive by Elisa.
- Again, repeat ELISA on a Re-bleed sample, if found reactive confirm by Western Blot Test.
- If the re-bleed is indeterminate, repeat the whole procedure again in 3 to 6 months (see below).

## Human Immuno deficiency Virus (HIV) Testing Algorithm



**Diagnosis of Perinatal HIV-infected infants less than 18 months of age**



*HIV infection can be reasonably excluded among children if:*

- *Two or more negative PCR, two of which are performed at age > 1 month and one of those being performed at age ≥ 4 months.*

HIV can definitely be excluded if

- ELISA test is negative at age 18 months of age in the absence of clinical symptoms and/or signs or hypogammaglobulinemia.

## **8. Management :Isolation And Procedures**

### **STANDARD UNIVERSAL PRECAUTIONS (SUP)**

Universal precautions must be followed at all times.

#### **HAND WASHING**

Hands must be washed:

- Before and after all patient contact
- After removal and disposal of protective clothing
- Immediately when contaminated with blood or other body fluids

Recommended products for this purpose are:

- Liquid soap and water followed by 2 successive 5ml application of Hibisol hand rub
- Hand scrubs are not necessary after normal patient contact

Correct hand washing procedure is essential:

- Wet hands before applying one of the recommended hand washing products.
- Wash hands up to elbows for approximately 2 minutes
- Pay particular attention to the following areas:
  - Palms
  - Back of hand
  - Web spaces between fingers
  - Thumbs
  - Nails and tips of fingers and thumbs

#### **PATIENT HANDLING**

- HIV sero-positive patients who have not developed AIDS do not need to be isolated.

- Single room accommodation is indicated if available when a patient:
  - Is significantly immunocompromised
  - Has severe diarrhea with possible incontinence.
  - Has an open or draining wound containing blood.
  - Is bleeding
  - Has a persistent productive cough and is being evaluated for TB.
  - Has an opportunistic infection such as pulmonary TB
  - Is confused or un-cooperative
  - Is terminally ill.

When isolation precautions are necessary the following steps should be taken:

- A notice stating “standard Universal Precaution” should be placed on the outside of the door.
- HIV stickers should “NOT” be placed on the outside or inside of the patient’s file.
- Temperature and treatment charts should be kept outside the patient’s room.
- Staff who has eczema or broken skin, which cannot be adequately protected by latex gloves or waterproof dressings, should be excluded from caring for AIDS patients.
- Staff with open cuts, fresh abrasions must be covered with a waterproof dressing.
- Staff must wear protective clothing when in contact/dealing with body fluids or contaminated equipment from HIV positive patients.
- Eye protection and a face mask is a must, a visor must be worn when aerosol or splash contamination with body fluids is a

possibility, such as by dentists or staffs who have sustained contact with coughing or intubated patients or while doing procedures like Brochoscopy.

- A Visor must be worn when LP is performed.
- Venepuncture must only be performed by a Medical Officer or suitably qualified experienced technical staff.
- Injections must only be given by qualified members of staff.

### **HANDLING OF CONTAMINATED FLUIDS /EQUIPMENTS:**

- Wear protective clothing.
- Specimens:
  - Attach “Standard Universal Precaution” sticker to each container and laboratory Form.
  - Enclose specimen in a clear plastic bag.
  - Place “bagged” specimen inside a second clear plastic bag with the laboratory request Form.
  - Affix “Standard Universal Precaution” sticker to outside of second bag.
  - Transport specimen to laboratory following Ministry of Health policy procedure for hazardous specimens.
- Excreta:
  - Urine and feces can be disposed off in the usual manner.
  - When emptying bedpans & urinals care should be taken to avoid splash or spillage.
- Vomit:
  - Vomit can be disposed of via the sluice hopper.
  - Care should be taken to avoid splash or spillage.
- Sputum:



- Sputum should be, “double bagged” in YELLOW plastic bags and disposed of by incineration.
- Endo-tracheal suction/oral suction/saliva ejection (dental department):
- Fluid from suction jars can be emptied into the sluice hopper Care should be taken to avoid splash or spillage.
- Decontaminate equipment used as per Ministry of Health procedure. (See disposal of contaminated equipment)
- Dispose of protective clothing as clinical waste.
- Wash hands.

### **GUIDELINES FOR MEDICAL OFFICER PHLEBOTOMIST AND NURSE WHEN TAKING BLOOD FROM AN AIDS PATIENTS.**

- Venepuncture must only be performed by a Medical Officer or a trained and experienced technical staff.
- Assemble all equipment needed.
- Mediswabs I Spint Swabs
- Syringes and needles
- Specimen containers with “Standard Universal Precautions” labels attached
- Sharps box. This should be placed within arms reach.
- Waterproof dressing (plaster)
- Plastic specimen transport bags
- Cover any cuts or lesions on your hands and forearms with a water proof dressing.
- Wear a disposable latex glove. Clean the site with betadine or mediswabs and cover with a fresh swab or gauze when withdrawing the needle.

- After the specimen has been obtained cover puncture with a waterproof dressing (plaster).
- The vacutanier blood collecting system should be used.
- If the vacutanier system is not available, carefully transfer blood from the syringe to the appropriate bottle. **DO NOT RE-SHEATH NEEDLE.**
- Place needle into sharps box by your side immediately. **DO NOT HAND THE NEEDLE TO ANOTHER PERSON.**
- Check to see if there has been any accidental blood spillage during the procedure. If yes, deal with it in a manner described on SP
- Dispose off gloves into clinical waste yellow plastic bag and send for incineration.
- Wash hands.
- Ensure “Standard Universal Precaution” labels have been affixed to all specimens and investigation request forms.
- Transport specimens to the laboratory following MOH procedure for hazardous specimens (see collection and transport of specimen).

Disposable items should be used whenever possible.

#### DISPOSAL OF SHARPS

- Needles, syringes, scalpel blades and other sharps must be disposed off immediately after use into a puncture resistant container or “Sharps Bin”
- Ensure that the “Sharps Bin” is correctly assembled.
- Print the date that the “Sharps Bin” comes into use clearly on the side.
- Discontinue using “Sharps Bin” when 3/4 full.
- Do not keep the same “Sharps Bin” in use for more than 1 week.
- NEVER re-sheath or re-cap needles after use.

- Whenever possible place the complete needle-syringe unit in the “Sharps Bin” provided.
- If the needle must be removed (i.e. for blood samples) wear gloves, detach the needle CAREFULLY using forceps and place it in the “Sharps Bin” immediately.
- Use disposable scalpels whenever possible and place in “Sharps Bin” immediately after use.
- When Bard Parker (BP) handles are used the disposable blade should be attached and detached using an artery forceps. The blade should be placed in a “Sharps Bin” immediately after use.
- All “Sharps Bin” should be incinerated after use.

### **DISPOSAL OF INFECTED CLINICAL WASTE**

- All waste from HIV seropositive and AIDS patients must be treated as infected waste.
- Disposable plastic aprons and gloves must be worn when handling infected material.
- Dispose off infected items as follows:
  - Place into a disposable YELLOW plastic bag and seal.
  - Place this inside a second YELLOW plastic bag and seal.
  - Affix “STANDARD UNIVERSAL PRECAUTION” label to outside of YELLOW plastic bag in a prominent position.
  - Remove protective clothing and dispose of as clinical waste.
  - Wash hands.
  - Make arrangements for collection and disposal of bagged waste.
- All waste in YELLOW plastic bags should be sent for incineration.

### **DISPOSAL OF CONTAMINATED LINEN**

- AU linen from I-IV seropositive and AIDS patients must be treated as infected linen.

- Disposable plastic apron and gloves must be worn when handling infected linen.
- Grossly contaminated heavily blood soaked linen must be carried to the sluice area to be bagged. It should be placed in the appropriate water-soluble laundry bag at the bedside and sealed. This water-soluble bag is then placed in double yellow bags and incinerated.
- Affix “Standard Universal Precaution” label to the outside of the bag in a prominent position. It should be sent to the laundry immediately.
- The infected/contaminated linen is not handled by laundry staff It is put into the washing machine with very high temperature 71°C for 25 minutes.
- After placing the linen in the appropriate bags remove the protective clothing and dispose off as clinical waste.
- Wash hands.

### **ROUTINE CLEANING:**

- Protective clothing must be worn during routine cleaning procedures.
- Surfaces not visibly contaminated should be cleaned daily or as required with hot water and detergent.
- Visibly contaminated surfaces should be treated as spillages.
- Toilets and hand basins are cleaned daily or as required with detergent. Bedpans and urinals should be cleaned immediately and placed in bedpan disinfected or cleansed with precept solution or Hycolin 2%.
- Bathing area should be cleaned daily or as required with detergent.
- Sluice hopper should be cleaned after disposal of contaminated or potentially contaminated with solution I O,000ppm or precept and left to dry.

- If ordinary feeding utensils are used they should be washed thoroughly with soap and water and dried after use.

### **TERMINAL DISINFECTION OF EQUIPMENT AND ISOLATION AREAS:**

- All rubbish, dressings, etc. should be promptly removed to the sluice, and disposed off as infected waste.
- Bed linen and other fabrics such as curtains should be sent to the laundry for treatment as infected fabrics. The plastic covers of mattresses and pillows should be washed with phenolic disinfectant (e.g. 2% stericol).
- Wash basins, toilets, showers, floors, shelves, curtain rails and other horizontal surfaces should be washed with detergent and hot water
- If surfaces are visibly contaminated with blood or body fluid should be treated as per spillages.
- Walls should be cleaned only if they are visibly soiled.

### **SPILLAGES:**

- Someone should be left at the site of spill whilst the equipment needed is collected.
- Equipment required:
- Protective clothing: disposable plastic apron and disposable gloves (add gown, goggles and filter type face mask if splash contamination possible).
- Paper towels.
- 2 yellow disposable plastic bags.
- Jug containing precept solution in a concentration of 10,000 ppm i.e. 18x0.5g precept tablets dissolved in 500mls of water, or Hypochloride solution 10,000 ppm available solution.
- Clearly label “STANDARD UNIVERSAL PRECAUTION” (S.U.P)

- Wear protective clothing.
- Cover spill with paper towels.
- Gently pour Milton or Precept solution over paper towels to “soak”.
- Leave treated spillage untouched for 30 minutes.
- Clear up spillage using paper towels, put soiled material directly into disposable yellow plastic bag.
- Wipe over cleared area with more Milton solution or precept solution using paper towels.
- Dispose off apron and gloves into yellow plastic bag and seal.
- Place 1st yellow plastic bag (containing infected waste) into the 2nd yellow plastic bag and seal.
- Affix “ STANDARD UNIVERSAL PRECAUTION “label to the outside of the yellow plastic bag in a prominent position.
- Wash hands.
- Make arrangements for collection and disposal by incineration or burning

### **DISPOSAL, DISINFECTION & STERILIZATION OF CONTAMINATED EQUIPMENT**

- Use disposable items whenever possible and dispose of as clinical waste.
- Wear protective clothing when dealing with contaminated equipment.
- Upon completion of procedure dispose of protective clothing as clinical waste.

### **INSTRUMENTS:**

- Stainless steel & polypropylene instruments, bowls, kidney dishes etc.
- Clean the instruments with running water and dry.

- Place them in an autoclavable disposal bag. Secure the neck of the bag for transportation.
- Arrange transportation of contaminated items to CSSD for decontamination and sterilization.

### **FIBROPTIC ENDOSCOPES:**

- Immediately after use immerse for wash with detergent and water and then immerse for 60 minutes in freshly activated buffered glutaraldehyde 2% (Cidex). Then rinse in distilled water for 20 minutes.
- Wash thoroughly with detergent and warm water. Irrigate air channels well. Rinse thoroughly and dry.
- Full protective clothing, including eye protection, should be worn and the room should be well ventilated when using glutaraldehyde.

### **ANAESTHETIC EQUIPMENT:**

- Masks, mouth, oral and nasopharyngeal airway, Y pieces and corrugated tubing from anaesthetic machines or ventilators if not disposable should be thoroughly washed and

a) Sent for autoclaving OR

b) Soaked in glutaraldehyde (2% Cidex) for 60 minutes and then rinsed in distilled water.

- Endotracheal tubes should be disposable.

### **LARYNGOSCOPES AND BLADES:**

- The blade should be replaced with a sterile blade after each use. It should be thoroughly cleaned and:

• a) sent to CSSD for autoclaving (Remove bulb and batteries) OR

• b) Soaked in 2% glutaraldehyde (Cidex) for 60 minutes (Remove bulb and batteries) and rinse thoroughly in sterile water and dry.

- Any instrument or appliance which has been in contact with the patient's oropharyngeal or other secretions should not be returned

to the “CLEAN” anaesthetist’s trolley where it may contaminate other clean instruments.

### **BOWLS:**

- Bowls used for bed baths etc. should be washed with liquid detergent and dried.

### **BEDPANS & URINALS:**

- These can be treated in the normal way, i.e. cleaned and rinsed and placed in the bedpan disinfectant. Make sure the door is securely closed before operating the bedpan disinfectant.
- Where there is no bedpan disinfectant, the bedpan or urinal should:
  - Be emptied via the sluice hopper.
  - Washed with detergent and hot water then dried.
  - Wiped over with a solution of precept 10,000 ppm or Hycolin 2% and left to dry.
  - The sluice hopper should be cleaned with hot water and detergent

### **THERMOMETERS:**

- Disinfect in the usual manner, wash with detergent and water and wipe with 70% spirit.

### **STETHOSCOPE:**

- Terminally disinfect by wiping with detergent and water and wipe with 70% spirit.

### **SPHYGMOMANOMETER:**

- Terminally disinfect by wiping metal and rubber parts with 70% spirit. The fabric armband can be laundered if necessary.

### **VOMIT BOWLS:**

- Wash with detergent and hot water, then dry.
- Wipe with Hycolin 2%



- If stainless steel then it can be sent for autoclaving in CSSD.

## **9. Clinical Management :Antenatal Care**

### MANAGEMENT OF HIV-POSITIVE PATIENTS

#### ROUTINE LAB TESTING FOR HIV-POSITIVE PATIENTS:

<u>Test</u>	<u>Frequency</u>	<u>Comment</u>
CBC	3-6 months	Monthly if on anti-retroviral for three months then every three months once patient is stable on treatment.
VDRL, HBsAg, Anti-HCV	X 1 initially	
Chest X-ray	Optional unless Mantoux positive or pulmonary symptoms present.	
Chemistry panel	3 months	if on anti-retrovirals Specify: creatinine (if the person is on indinavir), glucose, SGPT (if the person is on nevirapine), cholesterol. Triglycerides Other tests as needed
Pap smear	repeat every 6 months then annually	
PPD	X 1 initially	
CD4	a) 6 months	Person is not on antiretroviral therapy
	b) 4 months	CD4 less than 350
	c) 3-4 months	HAART initially
	d) 6-12 months	HAART and CD4 stable
Viral load estimation x 1		initiation of HAART then once a year.

### **TREATMENT:**

When to initiate treatment: Specific anti retroviral treatment

- Symptomatic HIV disease

- In asymptomatic patients, Patient with <200 CD4 cells! mm3 OR Viral load estimation > 50,000 copies/ml<sup>3</sup>

Essential conditions:

- Patient is motivated and compliant.
- Drug supply is regularly available.

## **RECOMMENDED HAART REGIMEN**

### **STANDARD FIRST LINE REGIMEN**

1. AZT+3TC 1xBD

2. Efavirenz 600 mg OD.

In case of side-effects or intolerance to the regimen, consult HIV Specialist Al Nahdhal Royal

Hospital

Note: Other regimens using non-nucleoside reverse transcriptase inhibitors are also available. Consult HIV Specialist Al Nahdha/Royal Hospital See Appendix 1 for more information on antiretroviral drugs combination and Appendix 2 for ARV formulations and doses.

**MONOTHERAPY** :- contraindicated except to prevent vertical transmission during pregnancy

**PROPHYLAXIS & TREATMENT OF OPPORTUNISTIC INFECTIONS** Refer to Appendix 3 and 4.

**VACCINATION / IMMUNISATION OF HIV-INFECTED ADULTS & ADOLESCENTS**

Refer to Appendix 5

## **MANAGING HIV/ AIDS INFECTED PREGNANT WOMEN:**

Screening during pregnancy for HIV should be done in:

- Women who have clinical signs and symptoms suggestive of HIV infection.

- Women whose husband/child has positive serological test for HIV.
- Women with history of S.T.I
- Women with history of recurrent vaginitis.
- Women with history of blood transfusion outside Oman or in Oman before 1991.

### **1. Pregnancy with positive test for HIV with clinical stage I.**

\* Explain to her:

- What a positive test means, definite risk of her developing AIDS and its manifestations.
- The importance of simple hygiene.
- Need for maintaining her nutrition, monitoring her and her baby's well being.
- Use of condom, avoiding any further exposure to STI's. Preventing infection to spouse, if he is HIV negative.
- Avoidance of sex even with condom use, in the presence of any ulcerative lesion in genital area.
- Screening of the contacts and their management with counselling and if any treatment necessary.
- Avoidance of future pregnancies, available contraceptives and their use following delivery.
- Immunization as appropriate.
- To come for regular antenatal check ups.
- To be on watch for appearance of non-specific symptoms like weakness, fatigue, failure to gain weight or loss of weight, fever, persistent cough or diarrhoea and report to physician immediately.

### **2. Pregnancy with Clinical Stage II-IV**

These women will be very sick and may require treatment for several associated opportunistic infections. They will require consultation with physician and other specialist

- As for management of antenatal care is concerned, it is the same as for those with Clinical Stage I.

### **DELIVERY CARE**

- All women with or without suspicion of HI V/AIDS OR those proved to be serologically positive or those suffering from obvious AIDS will require similar precautions by health care providers while handling them during delivery.
- Use of simple universal precautions for all cases during delivery, resuscitation or wherever any contact with body fluids, blood products, any secretions is anticipated will prevent transmission in the handlers both from known cases as well as those who are serologically negative (still in window period). All women suffering from HIV/AIDS should receive similar care. They would need more psychological, emotional, social and physical support all throughout their pregnancy, delivery, postpartum and interconceptional period.
- Plan for hospital delivery. Cesarean section is strongly recommended.
- Maintain hydration during delivery.
- Be prepared for the resuscitation of baby.
- Avoid-
- Amniotomy
- Fetal scalp electrodes
- Fetal Blood sampling

### **PRECAUTIONS FOR THE HEALTH CARE PROVIDERS DURING DELIVERY:**

- Wash hands after removing gloves with soap and water.

- Wear gloves while touching blood, body fluids, while doing amniotomy, pelvic examination and handling of placenta.
- If there are any exposed wounds cover them with watertight dressings.
- Wear plastic apron or gowns.
- Wear a Perspex visor or eye protection and facemask.
- In case of splashes of blood or amniotic fluid or any other secretions on exposed part of body like eyes, mouth, wash it immediately with plenty of water.
- Wear gloves while collecting the blood specimen or starting an intravenous line.
- Avoid needle stick injuries, while suturing episiotomy or tears, use needle holder, do not feel for the tip of needle, keep the free hand away from the piercing end of needle in the area under suturing.
- Do not recap the used needles, throw them in puncture resistant containers along with the syringes without separating the two.
- Wash hands after removing gloves with soap and water, also wash all body surface exposed to blood or any body fluids.
- In case of any injury occurring during any of procedures, allow it to bleed then wash it with soap and water and dress. Incident report should be notified to the concerned department.

### **PRECAUTIONS DURING CARE OF NEW BORN:**

- All universal precautions should be taken, all infants should be regarded as infectious.
- Wear gloves and gown or apron while cutting the cord, a slight delay in clamping the cord will reduce the splashing of blood.
- Do not milk the blood from the cord, fasten the specimen bottle with rubber stopper tightly, to avoid spillage.

- Wear gloves while cleaning the blood or amniotic fluid from the body of the newborn.
- While suctioning the baby use suction bulb if available, otherwise use mucus extractor with a trap.
- While resuscitating the baby, do not do mouth-to-mouth resuscitation. Use mouth to mask or bag to mask resuscitation to avoid back contamination.
- Wear gloves while handling blood specimens.
- All reusable instruments and resuscitation apparatus should be appropriately sterilized.
- Mother's should be explained the importance of nutrition, prompt treatment for the infections, risks of infections and need for regular checks

## **INTERVENTIONS TO REDUCE VERTICAL TRANSMISSION:**

### **ANTIRETRO VIRAL THERAPY:**

1. Criteria for giving antiretroviral (HAART) therapy to the HIV positive pregnant:

- Symptomatic patients.
- CD4 count <200/mm

All regimens may be used. The Only drug not recommended in pregnancy is Efavirenz.

2. Regimen to be followed for asymptomatic patients with CD4 count >200/mm

- Zidovudine 200mg po 3x / day initiated at 14-34 weeks gestation and continued for remainder of pregnancy.
- During labour ZDV 2.0 mg/Kg loading dose IV over one hour, followed by infusion of 1.0 mg/Kg/hr during delivery.

- HIV positive mother presenting for the first time in labour, give nevirapine 200mg oral at start of labour and nevirapine 2mg/kg to infant at birth.
- Cleansing of birth canal with either chlorhexidine or benzalkonium chloride.
- Refrain from breast-feeding with provision of breast milk substitute and education on the preparation of the formula.

## **10. Clinical Management: Paediatric patients**

### **MANAGEMENT OF A BABY BORN TO HIV POSITIVE MOTHER:**

(Consultation with pediatric HIV specialist is strongly recommended)

- Follow the algorithm for the diagnosis of perinatal HIV infection (page 8)
- Start AZT for the baby (syrup 2 mg/kg/dose Q6H) for first 6 weeks of life starting 8-12 hours after birth.
- No breast feeding-start artificial feed.
- Once AZT course is over, start on Septrin prophylaxis (as per dose schedule attached). Septrin should be continued throughout the first year of life unless HIV is ruled out.
- The aim should be to make an early diagnosis so that appropriate treatment can be started in infected cases.
- Once diagnosis is established, or if HIV infection can not be ruled out, continue septrin prophylaxis which was started earlier.

### **MANAGEMENT OF HIV INFECTED INFANTS AND CHILDREN DIAGNOSED BEYOND THE NEONATAL PERIOD:**

Initial Laboratory work-up of paediatric HIV patient:

- Hb, MCV, Total WBC with differential count, Platelets, G6PD

- CD4 count & percentage, CD8 count & percentage, CD4:CD8 ratio, Total lymphocyte count (CD3)

- LFT, Hep. B, Hep. C, Urea/Creatinine
- Serum Immunoglobulin levels: IgG, IgM, IgA
- TORCH screening
- Mantoux test
- Chest X-ray
- ECG
- CT head if CNS involvement is suspected

NB: These investigations may have to be repeated depending on the individual case eg. vertical transmission, symptomatic patient, presence of other risk factors.

## **PREVENTION OF OPPORTUNISTIC INFECTIONS**

>Pneumocystis carinii is by far the most common opportunistic infection in HIV infected children.

>Indication of Pneumocystis carinii Prophylaxis (PCP)



Age/HIV Infection Status	PCP	CD4 Monitoring
Birth to 4-6 weeks HIV exposed	No Prophylaxis	3 months
4-6 weeks to 4 months HIV exposed	Prophylaxis	3 months
4-12 months - HIV infected or indeterminate	Prophylaxis	6, 9 and 12 months
- HIV infection reasonably excluded	No Prophylaxis	None
1-5 year HIV infected	Prophylaxis if: - CD4-count is <500 cells/l - CD4-Percentage is <15 %	Every 3-4 months
6-12 year HIV infected	Prophylaxis if: - CD4-count is <200 cells/ l - CD4- percentage is <15%	Every 3-4 months

More frequent monitoring (eg. monthly) is recommended for children whose CD4 counts or percentages are approaching the threshold at which prophylaxis is recommended.

- Children 1-2 years of age who were receiving PCP prophylaxis and had a CD4 count of < 750 cells/ l or percentage of < 15% at <12 months of age should continue prophylaxis.

- Prophylaxis should be considered on a case by-case basis for children who might otherwise be

at risk for PCP, such as children with rapidly declining CD4 counts or percentages, or children

with category conditions. Children who have had PCP should receive lifelong PCP prophylaxis.

Recommended regimen (children > 1 month of age):

- Trimethoprim/sulfamethoxazole (TMP-SMX) 150mg TMP/M2/day or 5 mg /kg/day once daily 3 consecutive days per week (e.g. Saturday, Sunday, Monday).
- For alternative regimens, consult pediatric HIV specialist.

## **PREVENTION OF OPPORTUNISTIC INFECTIONS**

>Mycobacterium tuberculosis

If Mantoux is > 5 mm, INH 10 mg/kg/day P.O is given for 9-12 months, in the absence of clinical or radiological features suggestive of TB

>Toxoplasma gondii

If CD4 count is less than 100, TMP.SMX - same dosage schedule as for PCP.

>Mycobacterium avium complex

Clarithromycin 7.5 mg/kg/dose P.O bid to be given to infected children:

<12 months old if CD4 < 750/L

1-2 years old if CD4 <500/L

2-6 years old if CD4 <750/L

> 6 years old if CD4 <500/L

## **TREATMENT OF OTHER OPPORTUNISTIC INFECTION IN CHILDREN:**

Consult pediatric HIV Specialist (Royal Hospital).

## **IMMUNISATION FOR HIV INFECTED CHILDREN**

- All HIV infected children should be immunised with all the vaccines of EPI programme according to the standard schedule. However, symptomatic children should not be given BCG or OPV (IPV should be given)
- Other live vaccines should not be given. For Varicella vaccine, consultation with HIV specialist is recommended
- PneumoVac vaccine should be given at 2 years of age, followed by booster 3-5 years later. Younger children can be given Pneumococcal conjugate vaccine.

- After measles exposure, gamma globulin prophylaxis should be given irrespective of vaccination status.

## **II TO INITIATE ANTIRETRO VIRAL THERAPY IN CHILDREN**

- Clinical symptoms associated with HIV infection (i.e., clinical categories A, B, or C, c.f.

Appendix 6)

- Evidence of immune suppression, indicated by CD4+ T cell absolute number or percentage (i.e., immune category 2 & 3, c.f. Appendix 7).
- Age <12 months — regardless of clinical, immunologic, or virologic status

## **RECOMMENDED ANTIRETRO VIRAL REGIMENS FOR INITIAL TREATMENT OF HIV INFECTED INFANTS AND CHILDREN:**

(For doses c.f. Appendix 8)

<b>First-line Regimen</b>	<b>Alternative Regimen</b>
AZT Or D4T	AZT or D4T
<b>Plus</b>	<b>Plus</b>
3TC	<b>3TC</b>
<b>Plus</b>	<b>Plus</b>
Nelfinavir Or Lopinavir/Ritonavir	Efavirenz (in children > 3 years of age) Nevirapine (in children < 3 years of age)

For alternative regimens, consultation with pediatric HIV specialist is recommended.

## **HIV TESTING**

- All patients suspected of AIDS or having the risk factors should have their blood taken and tested for HIV.
- The request must contain the full name of the patient, address, ID card if possible hospital and contact address of the doctor in charge or Consultant. Failure to do so will cause delay in reporting to the concerned doctor.
- All positive reports will be sent to the Focal Point Physician at the hospital and the Regional Focal Point (See the names & addresses of Focal Point Appendix 9), in a confidential envelope.

### **INTIMATION OF A CASE**

- HIV infection, AIDS are notifiable conditions required to be mandatory reported on form PR-83.

- All confirmed HIV positive cases should be reported immediately to:

Control of HIV/AIDS/STI Section.

Department of Communicable Disease Surveillance & Control (DCDSC),

Directorate General of Health Affairs, HQ.

Post Box No. 393, P.C. 113 Muscat. Tel No: 607082 Fax No: 699809

- The reporting form with any other medical reports should be sent in a confidential cover to the above address.
- The Medical Officer in charge of the hospital or the Consultant in charge should take the responsibility of notifying the I-HV/AIDS/STI Programme of the existence of an AIDS/HIV patient. He should also preserve the confidentiality and identity of the patient and their contacts.

## **11. REFERRAL OF PATIENTS TO OTHER DEPARTMENTS**

- The doctor in charge or Consultant responsible must ensure that a patient be sent to the f Theatre, Dental, Endoscopy, Cardiac Catheterisation, X-ray etc. or for any specialised treatment or investigation if required and that the Unit concerned has been notified well in advance. This also applies to any movement of an HIV positive patient from one area to another.
- Patient Transfer to Other Hospitals & Ambulance Procedure: Transfer of patients to the main referral hospitals for further treatment must be arranged only after discussing with the Medical Officer In-charge (MOIC) and after contacting and informing the Hospital and Consultant in charge.
- The patient may be considered as infected but not highly infectious. Special precautions need to be taken by the ambulance service only if the patient is bleeding or having productive cough or incontinent feces.

## **SCREENING OF FAMILY MEMBERS AND FOLLOW UP OF PATIENTS**

The focal point of an HIV confirmed or AIDS diagnosed patient is responsible to ensure that:

- All the family members have been screened (i.e. mother, husband, wife and children less than 12 years).
- Appropriate advice and counselling has been given to the patient and the relatives by the most senior doctor! counsellor who is familiar with the patient.
- The patient is followed up at regular intervals as with long term follow up of any other patient.
- If the patient at the time of diagnosis is not contactable the doctor in charge may liaise with the authorities of the local hospital (i.e. the Medical Officer in-charge, the Senior Administration Officer, and the counsellor) near the patient's home. The local authorities

would be able to trace the patient and the family members in their area provided the full name and correct contactable address has been given.

- Periodic reporting on the status of the patient every six months should be done and sent to the programme manager. If death has occurred it should be reported immediately to the address given above with the probable cause of death.

## **12. ACCIDENTS INOCULATION INJURIES:**

- Particular care must be taken to AVOID AT ALL COSTS accidental inoculation injuries with blood contaminated sharps standard universal precautions must be taken at all times to avoid personal contamination with blood, excretions or secretions from ANY PATIENT including HIV seropositive patients.

### **INTERVENTIONS TO REDUCE TRANSMISSION.**

- Needle Stick Injuries:
  - Squeeze the wound to make it bleed.
  - Wash the injury site for 5 minutes in running water using Hibiscrub or Betadine surgical scrub.
- Mucous Membrane Contamination:
  - Splashes in the mouth should be washed out using copious amounts of water.
  - Splashes into eyes should be immediately irrigated with either water or normal saline
- Contamination Of Unheated Skin Wounds Or Eczema:
  - Wash the contaminated area for 5 minutes in running water using Hibiscrub or Betadine surgical scrub.

## **MANAGEMENT OF ACCIDENTS AND INJURIES:**

### **Reporting:**

- Consult HIV specialist immediately

- Report all accidents immediately and notify the Nursing Officer on duty, Matron or the MOIC or the focal point of STI/HI V/AIDS program.
- Fill in an accident/incident form and forward to Matron or MOIC or the focal point.

Testing:

- Collect blood for HIV and Hepatitis B & C serology from the source
- Collect blood for HIV and Hepatitis B & C serology in addition to CBC, Urea, Creatinine, Bilirubin and Liver enzymes from the Health Care Worker with accidental inoculation injury.

**POST-EXPOSURE PROPHYLAXIS (PEP) FOLLOWING ACCIDENTAL INOCULATION INJURY FROM HIV POSITIVE PATIENT**

+ Assess the severity of the inoculation injury. If the injury is severe, offer P.E.P as soon as possible, and up to 72 hours. After 72 hours, prophylaxis is not offered.

+ The following regimen is recommended:

- o AZT300mg bd, lamuvidine 150mg bd and indinavir 800mg tds in combination for one month.
- o If HIV infected source has had AZT treatment before, substitute AZT with Stuvadine30- 40 mg bd.

**FURTHER MANAGEMENT:**

- During the follow up period (12 weeks) the patient must:
- Either avoid sex (preferably) or use condoms
- Avoid pregnancy.
- Avoid blood donations.
- Report any fever immediately to physician in-charge

- ELIZA to be done at 6, 12 weeks and 6 months post exposure.

## Section 8: Collection & Transport of Lab. Specimens

All biological specimens from all suspected or confirmed cases of HIV I AIDS individuals are assumed to be potentially infectious and must be handled with the utmost caution.

- Identification of HIV specimens: All containers and associated request forms must be labelled “STANDARD UNIVERSAL PRECAUTION”. The form should contain the name of the responsible Consultant or the Doctor in charge and telephone number. Failure to do so may cause delay in the notification of the results.
- Collection of specimens: Containers must be robust, intact, possess a sound screw cap and liner and be leak proof in transit. Other approved containers, as used for biochemistry and haematology specimens, would also be satisfactory. Each must be prominently labelled “STANDARD UNIVERSAL PRECAUTION”. Venepuncture must be done only by suitably experienced medical personnel. Gloves and a disposable plastic apron must be worn during collection of blood.
- When transferring sample to a container the needle must first be removed, immediately dropped into a “Sharps Container” followed by the syringe.
- Internal Transport of specimens: Securely capped specimen containers should be placed in separate self-sealing specimen bags with the request form inserted into the separate pocket to avoid contamination.
- External Transport of specimens: Specimen containers must be packed in the laboratory in accordance with regulations as defined by the Director of Laboratory services, Ministry of Health. The container, request form and self-sealing envelop must bear a prominent BIOHAZARD STICKER. The outer wrapping must bear a caution” STANDARD UNIVERSAL PRECAUTION



“label. The recipient must be informed by telephone prior to dispatch.

### **13. Counselling**

HIV/AIDS counselling is an ongoing dialogue and relationship between client or patient and counsellor, with the aims of preventing the transmission of HIV infection and providing psychosocial support to those already affected.

In order to achieve these objectives, the counsellor seeks to help infected people make decisions about their life, boost their self-confidence, and improve family and community relationship and quality of life. HIV/AIDS counselling also provides support to the families and loved ones of infected people, so that they in turn can provide encouragement and care for those with HIV infection.

#### **TARGET GROUP:**

- All I—IIV confirmed positive or diagnosed AIDS patients
- People worried that they might be infected with HIV
- People being considered and tested for HIV
- People who have been tested for HIV (with or without infection)
- People who choose not to be tested despite past or current risk behaviour
- People who are unaware of the risks for HIV involved in specific behaviour in which they have previously, or are currently engaged.
- Family/relatives of HIV patients

#### **PLACE**

Both prevention-related and supportive counselling can take place in health care clinics, sexually transmitted disease centres, antenatal and postnatal clinics, family planning clinics, community

health centres, schools, mosques, all health outreach facilities and any other suitable location.

## **PROVIDERS**

- Counsellors need not be formal health care providers: teachers, health educators, religious and community leaders, youth group workers and members of self-help groups can also provide preventive and supportive counselling.
- Counselling people about HIV infection is important because:
  - Infection with HIV is lifelong
  - A person can avoid acquiring HIV infection or transmitting it to others by changing behaviour.
  - Counsellors names and addresses (See Appendix 10)

## **THE MAIN FUNCTIONS OF COUNSELLING**

### Prevention

- Determine whether the behaviour of an individual involves a high risk of HIV infection.
- Help people understand the risks associated with their behaviour.
- Define with them how their life-style and self-image are linked to this behaviour:
  - Help individuals to change their behaviour.
  - To introduce and sustain the modified behaviour.

## **PRE-TEST AND POST-TEST COUNSELLING**

Undergoing a test for HIV infection is likely to be an important step in a person's life, and should

always be accompanied by counselling

The aim of pre-test counselling

- Counselling before the test should provide individuals who are considering being tested with information on the technical aspects of screening and the possible personal, medical, social,

psychological, and legal implications of being diagnosed as either HIV positive or HIV negative.

- Testing for HIV infection should be organised in a way that minimizes the possibility of disclosure of information or of discrimination. In screening, the rights of the individual must also be recognised and respected. Counselling should actively endorse and encourage those rights, both for those being tested and for those with access to the records and results. Confidentiality should be ensured in every instance.

#### Issues in pre-test counselling

Pre-test counselling should focus on two main topics: first, the client's personal history and risk of being or having been exposed to HIV: second, assessment of the client's understanding of HIV/AIDS and previous experience in dealing with crisis situations.

The following aspects require consideration:

#### Assessment of risk

- Frequency and type of sexual behaviour, specific sexual practices, in particular, high-risk practices such as vaginal and anal intercourse without use of condoms, unprotected sexual relations with prostitutes.
- Being part of a group with known high prevalence of HIV infection or with known high risk life-styles, for example, users of intravenous drugs, male and female prostitutes and their clients, prisoners, and homosexual and bisexual men.
- Having received a blood transfusion, organ transplant, or blood or body products.
- Having been exposed to possibly non-sterile invasive procedures.

#### Assessment of psychosocial factors and knowledge

- What does the client know about the test and its uses?
- Has the client considered what to do or how he/she would react if the result is positive, or if it is negative?

- The initial counselling should include a discussion and assessment of the client's understanding of (a) the meaning and potential consequences of a positive or a negative result, and (b) how a change in behaviour can reduce the likelihood of infection or transmission to others.
- Pre-test counselling should include a careful consideration of the person's ability to cope with the diagnosis and the changes that may need to be made in response to it.
- When asking about personal history, it is important to remember that the client:
  - may be too anxious to absorb fully what the counsellor says
  - may have unrealistic expectations about the test; and
  - may not realize why questions are being asked about private behaviour and therefore be reluctant to answer.

## **COUNSELLING AFTER HIV TESTING OR SCREENING**

Counselling after testing will depend on the outcome of the test, which may be a negative result, a positive result, or an equivocal result.

### a ) Counselling after a negative result

- It is very important to discuss carefully the meaning of a negative result (whether this was anticipated or not). The news of being uninfected is likely to produce a feeling of relief or euphoria, but the following points should be emphasized.
- Following possible recent exposure to HIV, there is a "window" period of about 3 months during which a negative test result cannot be considered reliable. The test may have to be repeated at 3 months.
- Further exposure to HIV infection can be prevented only by avoiding high-risk behaviour. Safer sex and avoidance of needle-

sharing must be fully explained in a way that is understood and permits appropriate choices to be made.

- Other information on control and avoidance of HIV infection, including the development of positive health behaviour, should be provided.

#### b ) Counselling after a positive result

People diagnosed as having HIV infection or disease should be told as soon as possible. The first discussion should be private and confidential, and then the client should be given time to absorb the news. After a period of preliminary adjustment, the client should be given a clear, factual explanation of what the news means. The patient should be told that the identification of the result is a positive step in planning future health care. At this time it should be stated that treatment of HIV/AIDS has improved greatly in recent years and the goal is to keep the HIV positive individual in good health and out of the hospital.

- Counselling and support are most needed when reactions to the news of HIV infection or disease appear. Some reactions may initially be very intense. It is important to remember that such response are usually a normal reaction to life-threatening news and as such should be anticipated.

- The patient should be told that it is essential he or she advise the spouse (or parents) of the I infection status as soon as possible. The counsellor should offer to be present to explain the facts to the spouse/parent

### **COUNSELLING AFTER AN EQUIVOCAL SEROLOGICAL (ELISA) TEST RESULT**

- The patient should not be told that the ELISA test is equivocal. If the Western blot is negative after an equivocal ELISA, the patient is considered not to be infected. Occasional weekly positive ELISA tests occur in such conditions as lupus erythematosus etc.

#### **14. PROCEDURES FOLLOWING DEATH.**

- Staff must wear protective clothing.
- The body must not be handled unnecessarily.
- Remove all mechanical aids, straighten the body, close the eyes and mouth.
- Remove any drainage tubes, drips etc.
- Cover all wounds with a light dressing and seal with sleek or another type of waterproof dressing.
- Pack any leaking orifices.
- Wash only those parts of the body that are grossly soiled.
- Place a disposable gown on the body.
- Prepare identification labels (1 luggage label & 2 adhesive labels) as follows:
  - a. Name
  - b. Hospital Number
  - c. Affix a bio-hazard sticker or clearly label “**STANDARD UNIVERSAL PRECAUTION**”.
- Attach luggage label to the right great toe, place one adhesive label on the gown at chest level.
- Wrap the body in an impermeable sheet and place in a body bag.
- Affix final adhesive label to outside of body bag in a prominent position.
- Dispose of all linen as for contaminated linen.
- Dispose of all “rubbish” **AS INFECTED CLINICAL WASTE.**
- Dispose of protective clothing as clinical waste.
- Wash hands.
- Make arrangements for collection of the body.

- Terminally disinfect any equipment used as per Ministry of Health procedure.
- Arrange for terminal disinfection of bed space.

## **15. Appendixes**

### **Major Potential Toxicities of First-Line ARV Regimens and Recommended Drug Substitutions.**

<b>Regimen</b>	<b>Toxicity</b>	<b>Drug substitution</b>
<b>ZDV/3TC/EFV</b>	<ul style="list-style-type: none"> <li>• ZDV-related persistent GI intolerance or severe haematological toxicity</li> <li>• EFV-related persistent CNS toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Switch ZDV d4T</li> <li>• Switch EFV NVP</li> </ul>
<b>d4T/3TC/EFV</b>	<ul style="list-style-type: none"> <li>• d4T-related neuropathy or pancreatitis</li> <li>• d4T-related lipoatrophy</li> <li>• EFV-related persistent CNS toxicity</li> </ul>	<ul style="list-style-type: none"> <li>• Switch d4T ZDV</li> <li>• Switch d4T TDF or ABC<sup>a</sup></li> <li>• Switch EFV NVP</li> </ul>
<b>ZDV/3TC/NVP</b>	<ul style="list-style-type: none"> <li>• ZDV-related persistent GI intolerance or severe haematological toxicity</li> <li>• NVP-related severe hepatotoxicity</li> <li>• NVP-related severe rash (but not life-threatening)</li> <li>• NVP-related life-threatening rash (Stevens-Johnson syndrome)</li> </ul>	<ul style="list-style-type: none"> <li>• Switch ZDV d4T</li> <li>• Switch NVP EFV (except in pregnancy; in this situation switch to NFV, LPV/r or ABC)</li> <li>• Switch NVP EFV</li> <li>• Switch NVP PI<sup>b</sup></li> </ul>
<b>d4T/3TC/NVP</b>	<ul style="list-style-type: none"> <li>• d4T-related neuropathy or pancreatitis</li> <li>• d4T-related lipoatrophy</li> <li>• NVP-related severe hepatotoxicity</li> <li>• NVP-related severe rash (but not life-threatening)</li> <li>• NVP-related life-threatening rash (Stevens-Johnson syndrome)</li> </ul>	<ul style="list-style-type: none"> <li>• Switch d4T ZDV</li> <li>• Switch d4T TDF or ABC<sup>a</sup></li> <li>• Switch NVP EFV (except in pregnancy)</li> <li>• Switch NVP EFV</li> <li>• Switch NVP PI<sup>b</sup></li> </ul>

a Switching off d4T typically does not reverse lipoatrophy but may slow its progression. TDF and ABC can be considered as alternatives but availability is currently limited in resource constrained settings. In the absence of TDF or ABC availability, ddl or ZDV are additional alternatives to consider.

b P1 can be LPV/r or SQV/r. IDV/r or NFV can be considered as alternatives.

**1 Recommended Second-line regimens in adults and adolescents in the event of treatment failure of first-line ARV regimens.**

<b>For failure on:</b>	<b>Change to:</b>
<b>d4T or ZDV</b> + <b>3TC</b> + <b>NVP or EFV</b>	<b>TDF or ABC</b> + <b>ddl<sup>a</sup></b> + <b>LPV/r or SQV/r<sup>b</sup></b>

a Dose of ddl should be reduced from 400 mg to 250 mg when coadministered with TDF.

b LPV/r and SQV/r require secure cold chain. NFV can be considered as an alternative in resource limited settings without cold chain.

**Appendix – 2 SUMMARY OF ARV DRUGS FORMULATIONS & DOSES FOR THE TREATMENT HIV/AIDS PATIENTS**

<b>Name of Drug</b>	<b>Formulations</b>	<b>Pharmacokinetic data available</b>	<b>Age (WEIGHT), DOSE* and DOSE frequency</b>	<b>Other comments</b>
Zidovudine (ZDV)	Syrup: 10 mg/ml Capsules: 100 mg; 250 mg Tablet: 300 mg	All ages	<4 weeks: 4 mg/kg/dose twice daily.  4 weeks to 13 yrs: 180 mg/m <sup>2</sup> /dose twice daily  Maximum dose:  ≥ 13 yrs: 300 mg/dose twice daily	Large volume of syrup not well tolerated in older children  Needs storage in glass jars and is light sensitive.  Can give with food  Doses of 600 mg/m <sup>2</sup> /dose twice daily required for HIV encephalopathy  Do not use with d4T (antagonistic antiretroviral effect)
Lamivudine (3TC)	Oral solution: 10 mg/ml Tablet: 150 mg	All ages	< 30 days: 2 mg/kg/dose twice daily  ≥ 30 days or < 60 kg: 4 mg/kg/dose twice daily  Maximum dose: > 60 kg: 150 mg/dose twice daily	Well tolerated  Can give with food  Store solution at room temperature (use within one month of opening)
Fixed-dose combination of ZDV plus 3TC	No liquid available Tablet: 300 mg ZDV plus 150 mg 3TC	Adolescents And adults	Maximum dose: > 13 yrs or > 60 kg: 1 tablet/dose twice daily	Tablet should not be split



Appendix -2 SUMMARY OF ARV DRUGS FORMULATIONS & DOSES FOR THE TREATMENT OF HIV/AIDS PATIENTS (contd)

Name of Drug	Formulations	Pharmacokinetic data available	Age (WEIGHT), DOSE* and DOSE frequency	Other comments
Nevirapine (NVP)	Oral suspension: 10 mg/ml  Tablet: 200 mg	All ages	15 to 30 days: 5 mg/kg/dose once daily x 2 weeks, then 120 mg/ m <sup>2</sup> /dose twice daily x 2 weeks, then 200 mg/ m <sup>2</sup> /dose twice daily.  > 30 days to 13 yrs: 120 mg/ ml/dose twice daily for 2 weeks, then 200 mg/ ml/dose twice daily  Maximum dose:  > 13 yrs: 200 mg/dose once daily for first 2 weeks, then 200 mg/dose twice daily	If rifampicin coadministration, increase NVP dose by – 30%, or avoid use  Store suspension at room temperature; must shake well  Can give with food <b>MUST WARN PARENTS ABOUT RASH.</b> Do not dose escalate if rash occurs (If mild/moderate rash, hold drug; when rash cleared, restart dosing from beginning of dose escalation; if severe rash, discontinue drug)  Drug interactions
Elavirenz (EFZ)	Syrup: 30 mg/ml (note: syrup requires higher doses than capsules, see dosing chart)  Capsules: 50 mg, 100 mg, 200mg	Only for children over 3 years	Capsule (liquid) dose for > 3 yrs: 10 to 15 kg: 200 mg (270 mg = 9 ml) once daily  15 to <20 kg: 250 mg (300 mg = 10 ml) once daily  20 to <25 kg: 300 mg (360 mg = 12 ml) once daily  25 to <33 kg : 350 mg (450 mg = 15 ml) once daily  33 to < 40 kg: 400 mg (510 mg = 17 ml) once daily  Maximum dose: ≥ 40 kg: 600 mg once daily	Capsules may be opened and added to food but have very peppery taste; however, can mix with sweet foods or jam to disguise taste

Appendix-2 SUMMARY OF ARV DRUGS FORMULATIONS & DOSES FOR THE TREATMENT OF HIV/AIDS PATIENTS (contd)

Name of Drug	Formulations	Pharmacokinetic data available	Age (WEIGHT), DOSE* and DOSE frequency	Other comments
Stavudine (d4T)	Oral solution: 1 mg/ml  Capsules: 15 mg, 20 mg, 30 mg, 40 mg	All ages	<30 kg: 1 mg/kg/dose twice daily 30 to 60 kg: 30 mg/dose twice daily  Maximum dose: > 60 kg: 40 mg/ dose twice daily	Large volume of solution  Keep solution refrigerated; stable for 30 days; must shake well. Needs to be stored in glass bottles  Capsules opened up and mixed with small amount of food are well tolerated (stable in solution for 24 hours if kept refrigerated)  Do not use with AZT (antagonistic antiretroviral effect)
Didanosine (ddl, dideoxyinosine)	Oral suspension pediatric powder/water: 10 mg/ml.  Chewable tablets: 25 mg; 50 mg; 100 mg; 150 mg; 200 mg  Enteric-coated beadlets in capsules: 125 mg; 200 mg; 250 mg; 400 mg	All ages	< 3 mos: 50 mg/ m <sup>2</sup> /dose twice daily  3 mos to < 13 yrs: 90 mg/ m <sup>2</sup> /dose twice daily or 240 mg/ m <sup>2</sup> /dose once daily  Maximum dose: ≥ 13 years or > 60 kg; 200 mg/dose twice daily or 400 mg once daily	Keeps suspension refrigerated; stable for 30 days; must shake well  Ideally taken 1 hour or 2 hours after food; may be less important in children  Enteric-coated beadlets in capsules can be opened and sprinkled on small amount of food

Name of Drug	Formulations	Pharmacokinetic data available	Age (WEIGHT), DOSE* and DOSE frequency	Other comments
<b>Nelfinavir (NFV)</b>	Power for oral suspension (mix with liquid): 200 mg per level teaspoon (50 mg per 1.25 ml scoop): 5ml  Tablet: 250 mg (tablets can be halved; can be crushed and added to food or dissolved in water)	All ages  However, extensive pharmacokinetic variability in infants, with requirement for very high doses in infants <1 yr	<1 yr: 40-50 mg/kg/dose three times daily of 65-75 mg/kg/dose twice daily  >1yr to <13 yrs: 55 to 65 mg/kg/ dose twice daily  Maximum dose: ≥ 13 yrs: 1250 mg/ dose twice daily	Powder is sweet, faintly bitter, but gritty and hard to dissolve; must be reconstituted immediately prior to administration in water, milk, formula, pudding, etc. – do not use acidic food or juice (increases bitter taste)  Because of difficulties with use of powder, use of crushed tablets preferred (even for infants) if appropriate dose can be given  Powder and tablets can be stored at room temperature  Take with food  Drug interactions (less than ritonavir-containing protease inhibitors)
<b>Lopinavir/ritonavir, (LPV/r)</b>	Oral solution: 80mg/ml lopinavir plus 20 mg/ml ritonavir  Capsules: 133.3 mg lopinavir plus 33.3 mg ritonavir	6 months of age or older	>6 months to 13 yrs: 225 mg/m <sup>2</sup> LPV/57.5/m <sup>2</sup> ritonavir twice daily  or weight-based dosing: 7-15 kg: 12mg/kg LPV/3 mg/kg ritonavir/dose twice daily  15-40 kg: 10 mg/kg lopinavir/5mg/kg ritonavir twice daily  Maximum dose: 40 kg: 400 mg LPV/100 mg ritonavir (3 capsules or 5 ml) twice daily	Preferably oral solution and capsules should be refrigerated; however, can store at room temperature up to 25°C (77°F) for 2 months  Liquid formulation has low volume but bitter taste  Preferably needs to be refrigerated  Capsules large  Should be taken with food  Drug interactions

Name of Drug	Formulations	Pharmacokinetic data available	Age (WEIGHT), DOSE* and DOSE frequency	Other comments
<b>Abacavir (ABC)</b>	Oral solution: 20 mg/ml Tablet: 300 mg	Over age 3 months	<16 years or ≤ 37.5 kg: 8 mg/kg/ dose twice daily  Maximum dose: > 16 years or >37.5 kg: 300 mg/dose twice daily	Syrup well tolerated or can crush tablet  Can give with food  MUST WARN PARENTS ABOUT HYPERSENSITIVITY REACTION.  ABC should stopped permanently if hypersensitivity reaction
<b>Tenofovir (TDF)</b>				
<b>Indinavir / ritonavir (IDV/r)</b>				
<b>Lopinavir/ ritonavir (LPV/r)</b>				
<b>Saquinavir/ ritonavir (SQV/r)</b>				
Refer to HIV Specialist (Paed), Royal Hospital or HIV Specialist, Al Nahdha Hospital.				

a These dosages are in common clinical use. The dosages featured in this table were selected based on the best available clinical evidence. Dosages that can be given on

a once or twice daily basis were preferred in order to enhance adherence to therapy. The doses listed are those for individuals with normal renal and hepatic function. Product specific information should be consulted for dose adjustments that may be indicated with renal or hepatic dysfunction or for potential drug interactions with other HIV and non-HIV medications.

b This dosage regimen is in common clinical use. Other IDV/r dosage regimens that range from 800 mg/ 200 mg bid to 400 mg/100 mg bid are also in clinical usage.

Both the hard-gel and soft-gel capsule formulations can be used when SQV is combined with RTV.

d Dosage adjustments when combined with an NNRTI is indicated but a formal recommendation cannot be made at this time. One consideration is to increase the RTV component to 200 mg bid when EFZ or NVP is used concomitantly. More drug interaction data are needed.

**APPENDIX-3 Prevention of Opportunistic Infections in HIV/AIDS Adolescents and Adults**

<i>Condition</i>	<i>When to start</i>	<i>First choice</i>	<i>Alternative</i>
<i>Pneumocystis carinii</i> pneumonia (PCP)	CD4 < 200 TLC < 1200	-TMP-SMX 1 forte /day -TMP-SMX 1 simple/day	-Dapsone 100 mg/d -Aerosolized pentamidine 300 mg/mth -TMP-SMX 1 forte 3x/week
TB (See Clinical Algorithm) Annexure-2	-PPD > 5mm -Prior exposure -Exposure	-INH 300 mg/day + Vitamin B6 20 mg/day for 12 months -INH 900 mg + Vit B6 40 mg 2x/wk  (Appendix 6)	<b>If HAART:</b> Rifabutin 300 mg/day + PZA 15-20 mg/kg/day x 2 mths <b>No HAART:</b> Rifampin 600 mg/day for 4 months Or PZA 15-20 mg/kg/day + Rifampin 600 mg/day x 2 mths
<i>Toxoplasma gondii</i>	CD4 < 100	TMP-SMX 1 forte/day	Dapsone 50 mg/d+ Pyrimethamine 50 mg/wk+ Leucovorin 25 mg/wk
<i>Strep. Pneumoniae</i>	CD4 > 200	Pneumococcal vaccine	
Typhoid fever	All persons	-Typhoid inactivated vaccine or -Typhoid polysaccharide vaccine	
<i>Mycobacterium avium</i> complex	CD4 < 50	-Azithromycin 1200 mg/wk -Clarithromycin 500 mg bd	-Rifabutin 300 mg/day -Azithromycin 1200 mg/wk + Rifabutin 300 mg/day
Cryptococcosis	Primary not recommended. Secondary prophylaxis only	Fluconazole 200mg/day	Itraconazole 200 mg/day
Histoplasmosis	CD4 < 100 in endemic areas. And Secondary prophylaxis.	Itraconazole 200mg/day	
Coccidioidomycosis	Primary not recommended. Secondary prophylaxis only	-Fluconazole 400mg/d -Itraconazole 200mg bd	
Influenza	Everybody	Flu vaccine yearly every October	
Hepatitis B	All with negative markers	HBV vaccine 3 doses	
Varicella zoster	Not recommended unless significant exposure	VZIG (Varicella zoster immune globulin) 6.25 ml IM within 96 hours of exposure	
Cytomegalovirus	Primary not recommended. Maintenance therapy if CD4 <200.	Gancyclovir 1gx tds until CD4 raised	Foscarnet Sodium 30-35mg/kg/per week in 3 doses

**APPENDIX –4**

**GUIDELINES FOR THE TREATMENT OF OPPORTUNISTIC INFECTIONS IN HIV/AIDS ADOLESCENTS AND ADULTS**

<u>INFECTION</u>	<u>DRUG</u>	<u>DOSE</u>	<u>ROUTE</u>	<u>DURATION</u>
1. Candidiasis	Nystatin or Ketoconazole Fluconazole	100000 UNITS 3 TIMES DAILY 200mg ONCE A DAY 100mg Once a day	Local Oral Oral	7 – 14 days 7 – 14 days 9 – 14 days
2. Tuberculosis Initial Phase	Ethambutol +Isoniazid +Rifampicin +Pyrazinamide	15mg/kg/daily 5mg/kg/daily 10mg/kg/daily 25mg/kg/daily	Oral Oral Oral Oral	2 Months
Continuation Phase	a) Isoniazid +Ethambuto OR b) Isoniazid +Rifampicin	5mg/kg/daily 15mg/kg/daily  5mg/kg/daily 10mg/kg/daily	Oral Oral  Oral Oral	4 Months  4 Months
Maintenance Phase	Isoniazid + Rifampicin	5mg/kg daily 10 mg/kg daily	Oral Oral	Until CD4 > 200 and patient asymptomatic
3) <i>Pneumocystis carinii</i> pneumonia (PCP)	a) Trimethoprim  +Sulfamethoxazole  b) Pentamidine  c) Dapsone + Trimethoprim	15 - 20mg/kg/per day 3-4 dose 75-100mg/kg/per day in 3-4 doses  4mg/kg/daily  100mg once a day 15-20mg/kg per day in 3-4 days	Oral / IV  Oral / IV  IV Oral Oral / IV	14-21 days  14-21 days 14-21 days 14-21 daysR
Maintenance	a) Trimethoprim  +Sulfamethoxazole  b) Trimethoprim  +Sulfamethoxazole  c) Pentamidine  d) Dapsone  +Trimethoprim  e) Sulfadoxine  + Pyrimethamine + Sulfadiazine	160mg once a day 800mg once a day  160mg twice a day for 2 days / week 800mg twice a day for 2 days / week  300mg once a month 100mg twice a week 300mg twice a week 500mg once a week 25mg once a week 100mg /kg /per day in 4 doses	Oral Oral  Oral  IV or inhalation Oral  Oral  Oral Oral / IV	For life  For Life  For Life For Life For Life  For Life

**APPENDIX – 4 GUIDELINES FOR THE TREATMENT OF OPPORTUNISTIC INFECTIONS IN HIV/AIDS ADOLESCENTS AND ADULTS (contd)**

<u>INFECTION</u>	<u>DRUG</u>	<u>DOSE</u>	<u>ROUTE</u>	<u>DURATION</u>
4. Toxoplasmosis	a) Pyrimethamin + folinic acid Or	200 mg loading and then 75mg daily 7.5 mg once a day	Oral Oral	28 days 28 days
	b) Pyrimethamine + Clindamycin Or	folinic acid as above 600 mg 4 times a day	Oral / IV	
	c) Trimethoprim + Or	Sulfmethoxazole as for PCP		28 days
	d) Pyrimethamine + Clarithromycin Or	Folinic acid as above 1 g 12 hourly	Oral	28 days 28 days
	Dapsone + Azithromycin	100 mg 24 hourly 1200 mg 24 hourly	Oral Oral	
Maintenance	a) Pyrimethamine + Sulfadiazine + Folinic acid Or	25 gm 24 hourly 500 mg 4 days a week 7.5 mg 24 hourly	Oral Oral Oral	For Life For Life
	b) Pyriethamine + Clindamycin	7.5 mg 24 hourly Folinic acid as above	Oral Oral	
	c) Pyrimethamine + Sulfadoxin Or	600 mg 4 times a day 25 mg 4 times a day	Oral Oral	For Life
	d) Pyrimethamine + Dapsone	500 mg 3 times per week 50 mg daily	Oral Oral	
	e) Pyrimethamine	100 mg twice daily 50 mg daily	Oral	For Life
5. Cryptococcosis	a) Amphoterician B + Flucytosine Or	0.7mg/kg/per day 100mg/kg/per day	IV Oral IV	6 weeks
Maintenance	a) Fluconazole + Flucytosine Or	200-400 mg daily 100 mg/kg/per day	Oral	10-12 weeks
	b) Fluconazole Or	800 mg loading, then 400 mg daily	Oral Oral/IV	For life
	c) Amphotericine B	200-400 mg daily 1 mg/kg/weekly	Oral IV	10-12 weeks For life

**APPENDIX – 4 GUIDELINES FOR THE TREATMENT OF OPPORTUNISTIC INFECTIONS IN HIV/AIDS ADOLESCENTS AND ADULTS (contd)**

<b>INFECTION</b>	<b>DRUG</b>	<b>DOSE</b>	<b>ROUTE</b>	<b>DURATION</b>	
6.Cytomegalovirus	a) Ganciclovir Or	5mg/kg/every 12 hours	IV	14-21 days	
	b) Foscarnet Sodium Or	90mg/kg/every 12 hours	IV	14-21 days	
	Adjunct a) Ganciclovir + b) Foscarnet Sodium	as above 200-2000 mg twice weekly	Intravitreally	14-21 days	
	Maintenance	a) Ganciclovir Or	1200-2400 mg twice daily	Intravitreally	14-21 days
		b) Foscarnet Sodium	30-35mg/kg/per week in 3-7 doses	IV	14-21 days
		a) Ganciclovir Or	1-2g 3 times daily	Oral	For life
		b) Ganciclovir Or	19-120mg/kg/per week in 5-7 doses	IV	For life
		c) Foscarnet Sodium	200-2000mg twice weekly	Intravitreally	14-21 days
		a) Ganciclovir Or b) Foscarnet Sodium	1200-2400 mg twice daily	Intravitreally	14-21 days
	Maintenance	a) Trimethoprim +Sulfamethoxazole	160mg once a day 800mg once a day	Oral Oral	For life
b) Trimethoprim  +Sulfamethoxazole		160mg twice a day for 2 days / week	Oral	For Life	
		800mg twice a day for 2 days / week	Oral	For Life	
c) Pentamidine		300mg once a month 100mg twice a week	IV or inhalation	For Life	
d) Dapsone  +Trimethoprim		300mg twice a week 500mg once a week	Oral	For Life	
		25mg once a week	Oral		
e) Sulfadoxine  + Pyrimethamine + Sulfadiazine		100mg /kg /per day in 4 doses	Oral  Oral Oral / IV	For Life	

**Appendix -5 RECOMMENDATIONS FOR VACCINATION OF HIV-INFECTED  
ADULTS & ADOLESCENTS**

**Routine**

Hepatitis B (if at risk)

Pneumococcal (all, once)

Influenza (all, annually, before influenza season)

**Non-Routine**

*Use if indicated*

Diphtheria

Tetanus

Enhanced inactivated polio vaccine

Cholera

Plague

Inactivated typhoid vaccine

Anthrax

**Contraindicated**

BCG

Oral polio vaccine

Vaccinia

Ty21a typhoid

Yellow fever