HIV/AIDS Primary Care Clinical Guidelines
Cape Metropolitan Area

Second Edition
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This document is dedicated to all those working in the primary health care field who are grappling with the impact of the HIV / AIDS epidemic. Experience has taught me that much can be done with limited resources. The challenge is not to care for all HIV positive people, but to take responsibility for those that come into your sphere of influence.

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CONTENTS:

1) INTRODUCTION:

The following are basic principles and guidelines to assist the primary health care worker in the Cape Metropolitan Area (CMA). The protocol concentrates on the clinical aspects of management only. Health care workers are also encouraged to review pre- and post-test counselling guidelines and counselling skills if they are dealing with HIV positive patients.

1.1) clinical spectrum and management goals for HIV positive patients

Infection with the HIV virus can result in a range of four clinical pictures:

1) infections due to a decreasing immunity
2) symptoms resulting from the chronic viraemia of HIV
3) direct effects of the virus on the skin, bowel and neurological tissues
4) anxiety, depression and other psychological / psychiatric effects of living with HIV

The average time from infection to death in CMA is ten years.

Although HIV anti-viral drugs have been developed, these treatments are not available in the South African public health context. Management therefore centres on:

1) support in terms of psychological needs
2) prevention of infections (prophylaxis / healthy life-style)
3) treatment of infections
4) relief of symptoms
5) support in terms of social needs
6) counselling to prevent transmission to a partner / child

1.2) addressing psychosocial needs

A person with a diagnosis of HIV / AIDS will have some kind of emotional response to that diagnosis - whether it is to deny, be angry, be depressed or accept the diagnosis. He / she will go through similar stages of grieving as does anyone with a terminal illness, but this may be complicated by the stigma and secrecy around HIV infection. Unfortunately, in the South African setting, patients who are HIV positive also often have enormous social needs.

A patient who does not have his/her feelings and pressing social needs addressed will have a mind too busy with feelings and needs to be able to move on and participate fully in the assessment and management of his/her disease. These issues may be addressed by referring the patient to a social worker / counsellor if the health care worker does not feel that s/he has the time or ability to address them him/herself, but this part of the assessment cannot be ignored if you wish to manage your HIV positive patients appropriately.

2) CLINICAL ASSESSMENT OF THE HIV POSITIVE PATIENT:

Before appropriate management can be instituted a proper assessment needs to be done. The assessment consists of two components:

2.1) clinical assessment (staging; assessing intercurrent illnesses)
2.2) appropriate laboratory investigations.

2.1) Clinical Assessment

The clinical assessment consists of taking a history and examining the patient. It aims to assist in the staging of the patient (see appendix for WHO staging system), and in identifying complication arising from the HIV infection. During the history and examination the following conditions which are common in HIV positive patients should be kept in mind:

weight check:	- weight check at each visit is invaluable for reviewing progress. Slow weight loss over months or years is probably due to the HIV infection itself, but more sudden weight loss may signal opportunistic infections e.g. TB
skin:	- seborrhoeic dermatitis, folliculitis, drug reactions (especially to co-trimoxazole), fungal infections, scabies, viral infections (zoster, simplex, molluscum), Kaposi's sarcoma.
mouth and teeth:	- candida, aphthous ulcers, hairy leucoplakia, Kaposi's, herpes.
lymph nodes:	- symmetrical / < 2cm: HIV (shrinking again may be a sign of decreasing immunity); asymmetrical / > 2cm: local skin infections, URTI, TB, secondary syphilis, lymphoma.
eyes:	- retina - cytomegalovirus, toxoplasmosis, herpes zoster; visual field and acuity.
genitals:	- candida, HPV warts, other STD's; women - Ca cervix.
respiratory system:	- bacterial, viral (cytomegalovirus) or parasitic (PCP) pneumonia, TB (may be atypical).
abdomen:	- enlarged liver / spleen (chronic infection or lymphoma).
neurological:	- memory, eye movement, pupil reaction, sensation, meningism, power, reflexes, gait. Meningitis, HIV encephalopathy, peripheral neuropathy, strokes common.
general:	- CVS, extremities, urine.

2.2) Laboratory Investigations

The following are some of the more common laboratory investigations used in HIV / AIDS patients to assist in staging the patient and diagnosing common HIV-related conditions:

Test (nml values) *(hosp. rate Feb 98)*	**Results**	**When to do it**
FBC *(R20,13)* + **differential** *(R12,81)*	Range of changes occur (see below).	Baseline; if clinically indicated.
WCC (4000-10000)	May indicate bacterial / viral / parasitic infection; lymphocyte count of <1250 indicates immune-deficiency and suggests a CD4 count of < 200.	When clinically indicated; TLC can be used instead of the CD4 count as an indicator for starting co-trimoxazole prophylaxis (if <1250).
Platelet Count (140000-440000)	May get ITP in early HIV disease (uncommon).	Bleeding problems, petechiae, bruising.
ESR (0-20)	Raised with infection / lymphoma / increasing HIV activity. Usually high with advanced HIV disease and very high with associated TB.	If clinically indicated. Not very helpful on its own because of its non-specific nature.
CD4 (500 - 1000) *(CD3 / CD4 /CD8 subsets: R195,12)*	The most useful test to determine the immune status. May show a variation from week to week, and is depressed with concomitant TB or viral infections. Opportunistic infections begin at <200, and may be severe at <100. Start co-trimoxazole prophylaxis when <200. CD4 count fluctuates with intercurrent infections.	Baseline; then every six months if affordable or clinically indicated; when <200 then further CD4 counts add little to management unless the patient is on anti-viral therapy.
%CD4 (>30%)	If it drops below 15% it indicates immune-deficiency. %CD4 tends to give a more stable reflection of the immune status as the CD4 count often fluctuates with intercurrent infections.	Useful adjunct to above test, but not necessary on a routine basis.
CD4:CD8 ratio (>1)	If this ratio drops to below one it indicates immune deficiency. If the ratio is > 0.15 but the CD4 count is < 200 then the CD4 count is probably falsely low due to a transient lymphopaenia (e.g. during infections)	Useful adjunct to the CD4 test.

Test (nml values)	**Results**	**When to do it**
RPR (non reactive)	A positive result must always be followed up (see management).	Baseline; presents with other STD; clinical signs of syphilis.
Hepatitis B	Hepatitis B is often associated with HIV infection.	If clinically indicated.
CXR	Useful if pneumonia, TB, PCP or hilar adenopathy is suspected. Also useful with unexplained weight loss or fever.	If clinically indicated. It is sometimes useful to have a baseline CXR for comparative purposes if chest symptoms develop at a later stage.
Total Protein	There is a marked increase in total protein due to polyclonal gamma-globulin increase.	If total protein increase is noted during other investigations, it does not need to be investigated further.
Sputum for AFB's	Direct smears may be negative despite the presence of TB in advanced HIV disease.	Three smears should be sent for AFB's if clinically indicated. If the smears are negative, but suspicion of TB persists, then a culture for AFB's should be sent.
Viral loads	Viral loads give an indication of the risk of progression to AIDS – with a CD4 351-500 the risk of progression to AIDS in the next six years is: <7 000-22% risk of AIDS in 5 years 7 000 to 20 000 - 40% 20 000 to 55 000 - 57% >55 000 - 78%	Expensive, and really only of clinical value for the monitoring of patients able to afford combination anti-retroviral therapy.

Summary table:

Baseline tests:	FBC and diff, CD4 count (see below), VDRL / RPR, PAP smear (women), possibly CXR.
Routine tests:	CD4 count (see below) or WCC+diff done on a six-monthly basis. Some authorities recommend an RPR be done on an annual basis The CDC recommends that a PAP smear be done on an annual basis
CD4 counts:	In the primary care setting CD4 tests are expensive (R218.40). In patients that can easily be clinically staged decisions on management should be based on clinical staging and lymphocyte counts. CD4 counts should only be done on selected patients where the result will assist in a clinical decision that needs to be made and where the patient is likely to be regularly followed up at your facility.

3) CLINICAL MANAGEMENT OF THE HIV POSITIVE ADULT PATIENT:

Appropriate management of the HIV positive patient can take place only if an adequate assessment has been done. Management consists of:

3.1) Management of the patient according to the stage of the disease
3.2) Management of HIV-related conditions.

3.1) Management of the patient according to the stage of the disease

The WHO staging system recognises four stages (see appendix for details). Knowing the stage of the disease assists in counselling and management of the patient

a) First Visit	
clinical:	❑ Take full detailed history of previous illnesses and current symptoms.
examination:	❑ Do full examination of all systems.
laboratory tests:	❑ Before doing baseline tests confirm the HIV status with a second test if this has not been done, or if there is any uncertainty on history that the person is indeed HIV positive. ❑ Baseline tests include FBC and diff; CD4 test (if indicated); RPR or VDRL; possible CXR; PAP smear; plus any other tests that are clinically indicated.
review:	❑ In one week so that results can be acted on and prophylaxis can be instituted if necessary.
prophylaxis:	❑ Co-trimoxazole one daily to all patients who are clinically stage three or four, or patients with a CD4 count < 200 (two daily if patient has had a previous episode of PCP). ❑ PEM (protein energy malnutrition) scheme and vitamins if losing weight, malnourished, or with diarrhoea.

b) Stage 1	(annual risk of progression to AIDS: 5%)
clinical:	❑ the patient is generally asymptomatic (usually CD4 > 350) ❑ the most common clinical problem in this stage is depression
examination:	❑ a full physical examination should be done on a six-monthly basis
laboratory tests:	❑ WCC+diff or CD4 count (if indicated) on a six-monthly / annual basis
prophylaxis:	❑ reinforce healthy lifestyle choices (details in next section)
review:	❑ three to six-monthly basis

c) Stage 2	(annual risk of progression to AIDS: 10%)
clinical:	❑ patient may be suffering from minor weight loss, skin rashes and URTI's - otherwise fully ambulatory
examination:	❑ full physical examination concentrating on the mucocutaneous system
laboratory tests:	❑ WCC+diff or CD4 count (if indicated) on a six-monthly basis
prophylaxis:	❑ reinforce healthy lifestyle choices (details in next section)
review:	❑ three to six-monthly basis

d) Stage 3	(annual risk of progression to AIDS: 25 - 50%)
clinical:	❑ patient is starting to feel ill - sometimes stays in bed because not feeling well. Weight loss, candida, diarrhoea, fever, TB, pneumonia.
	❑ full physical examination at each visit.
examination:	❑ WCC+diff or CD4 count (if indicated) on a six monthly basis / other tests as clinically indicated.
laboratory tests:	
	❑ reinforce healthy lifestyle choices (details in next section) / consider adding multivitamins daily if losing weight or with diarrhoea.
prophylaxis:	❑ *co-trimoxazole one daily to be started at clinical stage three
	❑ three monthly basis / as clinically indicated; if symptomatic.
review:	

e) Stage 4 (AIDS)	(annual risk of progression to AIDS when CD4 < 200: 50%)
clinical:	❑ patient now sick - may be bedridden for most of the day. Severe opportunistic infections may be present that need referral for investigation / treatment (CD4 count usually < 200)
examination:	❑ as clinically indicated.
laboratory tests:	❑ as clinically indicated. CD4 count does not add anything to management once it has fallen below 200.
prophylaxis:	❑ *co-trimoxazole one tablet daily for life once the CD4 count falls below 200 (or TLC falls below 1250) or patient develops clinical AIDS.
	❑ There are no clear guidelines on micro-nutrient supplementation. Low Vitamin A and E levels are associated with increased mortality, but supplementation with vitamins in adults has not been shown to affect outcome.
refer:	❑ If unable to tolerate co-trimoxazole and desensitisation fails: to appropriate referral hospital MOPD / HIV clinic for Dapsone 100 mg three times a week (hospital level EDL).
review:	❑ monthly / as clinically indicated or as symptoms dictate.

* see next page for details

f) Co-trimoxazole prophylaxis:	
when to start:	❑ clinical stage three or four; *CD4 < 200 or TLC < 1250; patient on TB treatment
dosage:	❑ one tablet daily for life; two tablets daily if there has been a previous episode of PCP or toxoplasma encephalitis
what it protects against:	❑ co-trimoxazole protects not only against PCP, but also decreases the incidence of toxoplasmosis, bacterial pneumonia, bacteraemia and Isospora belli diarrhoea - it is a very cost effective intervention
TB and co-trimoxazole:	❑ a recent study in Abidjan, Ivory Coast, shows that adding one double-strength Bactrim tablet to the TB regimen (regardless of clinical stage / CD4 count) reduces mortality by 48% and hospitalisation by 44%. Because other studies have shown single strength co-trimoxazole to be effective for prophylaxis, it is recommended that TB patients in the Western Cape be given one single strength co-trimoxazole tablet daily whilst on TB treatment.
drug reactions:	❑ drug reactions to co-trimoxazole are not uncommon. Because of the effectiveness of the intervention desensitisation to co-trimoxazole should be attempted if a reaction occurs, unless the reaction is severe with mucosal involvement (Stevens-Johnson syndrome)
desensitisation regime:	❑ there are two ways of approaching desensitisation: slowly increasing the dose (with frequent doses) or rechallenging the patient. One trial that compares these two approaches found no difference in outcome. About 70-90 % are successful short term but 10-30% subsequently stop the drug. Reports of serious reactions are rare. Patients should be rechallenged with 480 mg STAT (1 tablet) & observed for an hour. If there is no reaction they should be recommenced on 1 tablet daily & told to stop if the adverse event recurs. If reactions occur they can be treated with steroids or antihistamines.
refer:	❑ dapsone 100 mg three times a week (hospital EDL) can be used as an alternative, but it protects the patient only against PCP. Patients would need to be referred to a hospital HIV / MOPD clinic for this.

* an HIV positive patient with active TB will have a falsely low TLC and CD4 count for the first three months of treatment. If wanting to estimate the degree of immune depression an indication can be obtained by looking at the X-ray – cavitatory disease indicates that immunity is still reasonable, whilst TB that resembles primary (childhood) TB indicates poor immunity

3.2) Management of HIV-related conditions

The following are management guidelines for common HIV-related conditions that might present to a primary care facility. Drugs listed are available on the 1998 National Primary Health Care EDL unless specified.

a) Healthy Living Guidelines:

- educate about preventing HIV transmission to others
- protect against STD's by using condoms
- reliable contraception for women (see page 41)
- stop smoking
- limit alcohol intake
- avoid unnecessary drugs / medication
- increase exercise and relaxation
- reduce stress (counselling / social support)
- healthy diet with fresh foods
- early treatment for medical problems

b) Mucocutaneous Conditions:

seborrhoeic dermatitis (fine scaly rash on hairy areas of face and nasolabial folds)	
if acute, moist or weeping:	❑ flucloxacillin or erythromycin 250 mg four times daily for five to seven days ❑ chlorpheniramine 4 mg three times daily for three to four days, or aterax 10 mg 3x a day or 25 mg at night or promethazine 25 mg nocte ❑ saline dressing daily ❑ avoid soap
if dry, chronic:	❑ aqueous cream or ung emulsificans after bathing ❑ alternate hydrocortisone 1% cream with miconazole 2% cream daily ❑ Selenium sulphide (Selsun) shampoo is indicated for scalp itching, scaling and dandruff: apply weekly by lathering on scalp and rinsing after ten minutes.
refer:	❑ if not clearing up after the third visit or if severe acute weeping.

papular pruritic eruption treatment: (difficult)	❑ an intensely pruritic chronic papular eruption with post-inflammatory pigmentation occurring particularly in African patients ❑ empiric treatment for scabies should be tried: benzyl benzoate lotion 25% on whole body except face x 24 hrs. Repeat after 3-4 days. ❑ chlorpheniramine 4 mg three times daily / promethazine (not on EDL) 25 mg nocte if above fails ❑ aqueous cream may be soothing ❑ 10 % steroid cream (not on EDL) with or without vioform can be tried

herpes simplex medication:	❑ salt water mouthwash (1/2 teaspoon salt in cup of lukewarm water): gargle for one minute twice daily ❑ fluid diet, avoiding acidic foods ❑ paracetamol 4 – 6 hourly ❑ local antiseptic (gentian violet / mercurochrome) ❑ 2% lidocaine gel 3-4 hourly for extensive oral herpes
refer:	❑ if large or persistent (> 1 month - AIDS defining illness) lesions: to appropriate referral hospital HIV, dermatology or MOPD clinic for investigation and possible acyclovir 200 mg 5x daily for 7 to 10 days, or valaciclovir 500 mg 2x daily, or famciclovir 250 mg 3x daily (hospital EDL) ❑ if dehydrated: to appropriate referral hospital for rehydration
prophylaxis:	❑ recurrence is quite common, but prophylaxis is not recommended because it is expensive, and resistance often develops.

herpes zoster treatment:	❑ shingles may take up to four weeks to resolve ❑ local antiseptic (gentian violet / mercurochrome) ❑ analgesia (if with post herpetic neuralgia): low dose amitriptyline 25 to 100 mg at night is the analgesia of choice; carbamazepine 200 - 400 mg 2x a day increasing as necessary to a maximum dose of 1 600 mg daily can be used as an alternative ❑ ibuprofen 400 mg three times a day can be added to the above ❑ treat secondary skin infection if present
refer:	❑ if eye involved: urgent referral to appropriate referral hospital ophthalmology clinic (discuss per telephone first) for IVI acyclovir and topical acyclovir eye drops (hospital EDL) ❑ if extensive / severe (especially if within the first 72 hours): to appropriate referral hospital casualty for possible admission and IVI or oral acyclovir in selected patients

molluscum contagiosum treatment: refer:	❑ if there are just a few discrete lesions then the centre can be removed with a large sterile needle ❑ apply tincture of iodine to core of lesions with applicator ❑ if extensive and unsightly and no response to treatment: appropriate referral hospital dermatology clinic for liquid nitrogen (hospital EDL), 1% phenol (not on EDL) applied to lesion with an earbud, or Vitamin A cream (not on EDL).

folliculitis treatment:	❑ usually a chronic problem ❑ personal hygiene is important ❑ zinc and vioform (not on EDL) or zinc oxide to infected area ❑ erythromycin 250 mg 4x a day for 5 - 7 days if inflamed ❑ check for any abscesses that may need incision and drainage

drug eruptions treatment: refer:	❑ common in HIV positive patients: common offenders include INH, thiacetazone, co-trimoxazole, Dapsone. ❑ stop offending drug if possible ❑ aqueous cream if dry / itchy ❑ local antiseptic (gentian violet / mercurochrome) if blisters are present ❑ promethazine (not on EDL) 25 mg nocte or chlorpheniramine 4 mg 3x daily ❑ see page 12 for desensitisation regimen against co-trimoxazole ❑ if Stevens-Johnson syndrome is suspected (target lesions with mucosal involvement): to appropriate referral hospital casualty for possible admission (may be fatal).

Kaposi's sarcoma investigations: treatment: refer: note:	(AIDS defining) ❑ unnecessary for typical lesions ❑ conservative treatment for local lesions (i.e. just watch) ❑ troublesome oral and perianal lesions: to appropriate referral hospital dermatology clinic for radiotherapy / intralesional vinblastine (hospital EDL) / liquid nitrogen (hospital EDL) ❑ atypical lesions: to appropriate referral hospital dermatology clinic for biopsy ❑ Kaposi's may also infiltrate the chest or abdomen with poor prognosis.

c) GIT conditions:

oral health	❑ good dental hygiene is very important in the HIV positive patient ❑ regular teeth brushing and dental floss use remains the cornerstone of good hygiene practices ❑ chlorhexidine 0.2% gargle is a useful general antiseptic

oral candidiasis treatment: refer: note:	❑ gentian violet 0.5% aqueous solution painted in mouth 3x daily ❑ nystatin oral suspension 100 000 U/ml four times a day (keep in mouth as long as possible before swallowing) ❑ nystatin oral lozenges (100 000 IU) sucked every six hours ❑ if severe or above fails: 2% miconazole oral gel twice daily ❑ continue treatment for two days after apparent "cure" ❑ if above treatment fails: to hospital for Amphotericin B lozenges 4 – 8 times daily (hospital EDL) ❑ if oral candidiasis is associated with pain on swallowing then suspect oesophageal candidiasis

oesophageal candidiasis investigations: treatment: refer:	❑ not necessary if oropharyngeal candida visible ❑ endoscopy if the diagnosis is in doubt ❑ no treatment available at primary care level ❑ refer to appropriate referral hospital for treatment. 'Phone the hospital first and discuss how best to obtain the medication with the medical officer on call – some hospitals do stock the necessary medication: fluconazole 150 mg stat, then 50 mg daily for 2 to 4 weeks (paediatric hospital EDL) or ketoconazole 200 mg 2x daily for four weeks (hospital EDL – suggests ketoconazole 200-400 mg daily for 5 to 7 days)

aphthous ulceration treatment: with secondary infection: if not responding:	❑ Kenalog in orabase topically prn (not on EDL) ❑ local antiseptic (gentian violet 0.5% aqueous solution prn.) ❑ beclomethasone inhaler sprayed onto affected area twice a day ❑ amoxycillin 250 - 500 mg 3x a day for 5 days plus metronidazole 200 mg 3x a day for 5 days ❑ prednisone 40 mg daily for 5 days – consider referring the patient at this stage

oral hairy leucoplakia treatment:	❑ vertical white striations on the side of the tongue ❑ virtually pathognomonic of HIV infection; useful for staging ❑ no treatment necessary

angular stomatitis treatment:	❑ usually due to candidiasis ❑ topical anti-fungal (e.g. nystatin 3x a day) or miconazole oral gel

chronic diarrhoea	
investigations:	❑ up to three stool samples for mc+s (including stains for Isospora belli and cryptosporidium)
treatment:	❑ ensure adequate rehydration (one cup water with 2 teaspoons sugar and a pinch of salt after each loose stool) ❑ treat symptomatically with codeine phosphate (on EDL for chronic pain) 30 mg 6 - 8 hrly or loperamide (only on hospital EDL) two stat then one after each loose stool; not more than six in one day ❑ a course of co-trimoxazole two tablets 2x a day for 7 days can be tried for persistent diarrhoea. If no response then give metronidazole 400 mg 3x a day for 7 days
giardia cultured:	❑ metronidazole 2G daily for three days
Isospora cultured:	❑ co-trimoxazole 4 tablets 2x a day for 2 weeks, then 2 tablets daily for life as prophylaxis.
refer:	❑ if dehydrated / high temperature / ill: to appropriate referral hospital casualty for admission ❑ if significant weight loss or persistent diarrhoea after treatment: to appropriate referral hospital MOPD for sigmoidoscopy / gastroscopy

dysentery	
investigations:	❑ warm stool for microscopy (amoebiasis) ❑ stool mc+s
treatment:	
amoebiasis -	❑ (rare in the Western Cape) metronidazole 400 - 800 mg 3x daily for 5-10 days
other -	❑ ofloxacin (not on EDL) 200 mg 2x daily for 5 days or ciprofloxacin (on EDL for STD's) 500 mg 2x daily for 5 days (can be started empirically)
refer:	❑ if dehydrated / high temperature / ill: to appropriate referral hospital casualty for admission ❑ if persistent: to appropriate referral hospital MOPD clinic for sigmoidoscopy / colonoscopy

d) pulmonary conditions:

TB	
clinically:	❑ sputum negative TB, pleural effusions and extra-pulmonary TB are all more common in HIV positive patients
investigations:	❑ primary level: sputum, CXR, WNAB (pg. 24) of lymph nodes ❑ hospital level: blood culture (only if CD4 count < 100), biopsies (LN's, liver, bone marrow) ❑ often difficult to prove the diagnosis ❑ a trial of two weeks of TB medication can be diagnostic (only start once appropriate specimens for TB have been obtained)
treatment:	❑ follow National TB Guidelines and use appropriate regimen – refer to TB clinic for treatment ❑ consider adding pyridoxine, especially if there is evidence of immune-suppression (peripheral neuropathy more common) ❑ a recent study in Abidjan, Ivory Coast, shows that adding one double strength Bactrim tablet to the TB regimen (regardless of the stage of the HIV disease) reduces mortality by 48% and hospitalisation by 44%. In the Western Cape it is recommended that one single strength co-trimoxazole daily be added to the TB regimen
prophylaxis:	❑ prophylaxis against TB should be considered only in very exceptional circumstances (e.g. someone who has stage four disease and is a contact of an infectious TB patient) - if prophylaxis is started then DOT (supervision) should be arranged for the patient. INH for 6 / 12 months has traditionally been used, but a two-month course of Rifampicin and PZA or Rifampicin with INH have been shown to be as effective.
note:	❑ the CD4 count can be falsely depressed with concomitant TB. A reliable CD4 count can be obtained only after three months of TB treatment has been completed. If the patient has cavitatory disease on X-ray then the immune function can be assumed to be reasonable.

bacterial pneumonia	❑ more common in HIV positive patients, especially with encapsulated bacteria (pneumococcus and haemophilus) ❑ if symptoms present for more than 2 to 4 weeks then consider TB, PCP, fungal pneumonia (cryptococcus, histoplasmosis), or toxoplasma pneumonia
treatment:	❑ amoxycillin 250 mg / 500 mg 3x daily for 10 to 14 days (erythromycin 250 mg / 500 mg 4x daily for 10 days if allergic to penicillin)
refer:	❑ to appropriate referral hospital casualty department if toxic or hypoxic for admission and IVI ampicillin / cephalosporin / gentamicin (hospital EDL)

pulmonary Kaposi's sarcoma	❑ this is nearly always associated with cutaneous or oral KS
clinically:	❑ usually presents with dyspnoea ❑ low grade fever may be present.
investigations:	❑ CXR usually shows a nodular or reticular pattern, often with a pleural effusion ❑ pleural biopsy should be done if a pleural effusion is present ❑ bronchoscopy usually shows typical endobronchial KS, but these may bleed profusely if biopsied ❑ a gallium scan may be useful as it generally shows pulmonary uptake in infectious disorders, but not in KS ❑ definitive diagnosis is not always possible and a presumptive diagnosis may have to be made.
treatment:	❑ systemic chemotherapy or alpha-interferon can induce partial remission, but are generally best avoided as the quality of life is generally poor.
refer:	❑ all patients where the diagnosis is in doubt: to appropriate referral hospital MOPD clinic

PCP	❑ AIDS defining illness; CD4 count usually < 200
clinically:	❑ clinical features: a chest infection with a dry cough and dyspnoea not responding to antibiotics, and associated with few chest signs (may be a few fine crackles) and few X-ray changes.
investigations:	❑ CXR (normal in early disease; later shows diffuse infiltrate) ❑ an exercise test at 90% of maximal heart rate showing a fall in oxygen saturation of > 5% (pulse oximeter) may assist in making the diagnosis, but is not routinely done ❑ sputum tests (sputum often only obtained after nebulisation; copious production of sputum is unlikely in PCP) ❑ bronchoscopy not necessary unless presentation is atypical
treatment:	❑ co-trimoxazole one tablet per day for every five kg weight - divided into 4 doses for 14 to 21 days. Watch for side-effects!
monitoring	❑ response is slow and only seen after 3-5 days
treatment:	❑ side-effects common - treat rash with promethazine (not on EDL) 25 mg bd; or chlorpheniramine 4 mg 3 to 4 times daily; stop co-trimoxazole only if rash is extensive or mucosal involvement develops. ❑ FBC should be sent off 2x a week to check for neutropenia. With moderate neutropenia (>500) reduce the dose by a quarter ❑ if hypoxic: prednisone 40 mg 2x daily for 5 days followed by tapering – these patients should be referred (see below)
refer:	❑ tachypnoeic or hypoxic / vomiting / severe drug reaction: appropriate referral hospital casualty department for admission
prophylaxis:	❑ co-trimoxazole one tablet daily for life to be started when the CD4 count is < 200 or TLC is < 1250 or is clinical stage three or four; co-trimoxazole 2 daily for life after an episode of PCP.

e) neurological conditions:

meningitis clinically: investigations: refer:	❑ common in late HIV infection ❑ patient presents with headache and fever; meningism is not always present ❑ lumbar puncture should be done on all patients with symptoms and a CD4 count < 200 unless contra-indicated (focal signs, raised ICP); LP fluid should be sent for cell count and differential / protein and glucose / Indian ink, ZN and gram stain / mycobacterial, bacterial and fungal culture / cryptococcal antigen test / VDRL (meningitis may be present even when the cell count and diff and protein and glucose levels are normal) ❑ urgently to appropriate referral hospital casualty department for investigation and treatment

pneumococcal meningitis refer:	❑ all cases to appropriate referral hospital casualty department for investigation and treatment.

tuberculous meningitis refer:	❑ common in HIV positive patients ❑ presents in the same way as for HIV negative patients ❑ all suspected cases to appropriate referral hospital casualty department for investigation and treatment

syphilitic meningitis diagnosis: treatment: refer:	❑ common with associated HIV infection (even if syphilis was previously treated). ❑ definite if CSF VDRL / RPR is positive ❑ presumptive with a positive serum TPHA / VDRL / RPR and the presence of otherwise unexplained CSF pleocytosis. ❑ none at primary care level. ❑ all suspected cases: to appropriate referral hospital casualty department for investigation and penicillin G 18 to 24 mu IVI daily for 14 days.

cryptococcal meningitis diagnosis: treatment: refer: prophylaxis:	❑ AIDS defining illness ❑ common in sub-Saharan Africa ❑ positive Indian ink smear (will stay positive for months or years after successful treatment) / culture of cryptococci from CSF / elevated CSF antigen titre. ❑ urine culture for cryptococcus may be positive in about 40% of patients ❑ a raised serum cryptococcal antigen titre is less specific for the diagnosis of cryptococcal meningitis ❑ CXR may also show changes of pulmonary cryptococcosis, but this does not influence management. ❑ none at primary care level ❑ all suspected cases of meningitis to appropriate referral hospital casualty department for investigation ❑ treatment is with amphotericin B (hospital EDL) IVI 0.7 mg / kg daily for at least 4 days until improvement is seen or nephrotoxicity or IV access necessitates a change. Treatment can then be changed to fluconazole (not on EDL) 200 mg daily. ❑ LP should be repeated after 2 weeks and thereafter at weekly intervals until the cryptococcal antigen titre has dropped to 1:8 or less and is stable there, or until there is a negative culture. Fluconazole dosage can then be reduced to fluconazole 100 mg daily for life (fluconazole is not on the primary or hospital level EDL – currently there are discussions as to whether prophylaxis for Cryptococcal meningitis should be given because of the high costs involved.)

painful peripheral neuropathy	❑ if on TB treatment or prophylaxis, add pyridoxine and consider stopping INH for a while ❑ amitriptyline 25 – 100 mg daily can be tried

CMV retinitis fundoscopy: treatment: refer:	❑ presents in late AIDS with visual field loss which progresses to blindness. Patients often complain of seeing “floaters”. ❑ shows “pizza pie” or “veld fire” appearance of exudates and haemorrhages. ❑ none at primary care level ❑ all patients with suspected CMV retinitis: arrange an urgent ophthalmology appointment at appropriate referral hospital ❑ at present there is no treatment available in the Western Cape public sector. (Lifelong IVI ganciclovir or foscarnet can be offered to patients who can afford it)

toxoplasma encephalitis	❑ AIDS defining illness; CD4 count usually < 100
clinically:	❑ presents with focal signs and impaired level of consciousness.
refer:	❑ all suspected cases to appropriate referral hospital casualty department for investigation and treatment. Refer directly to tertiary hospital where CT scan is immediately available if patient with clear neurological signs.
investigations:	❑ urgent CT scan shows ring enhancing lesions, often with surrounding oedema ❑ serological testing for toxoplasmosis is usually IgG positive with an IgM response seldom seen.
treatment:	❑ co-trimoxazole 4 tablet twice daily for one month followed by co-trimoxazole 2 tablets twice daily for three months ❑ steroids should not be used because outcome may be worse with steroids.
side-effects:	❑ bone marrow depression is common so an FBC should be done twice a week. Folic acid 15 mg daily should be given if this occurs
response:	❑ rapid response to treatment with CT scan showing partial or complete resolution after 2 to 3 weeks.
differential diagnosis of ring enhancing lesions:	❑ multiple ring enhancing lesions are almost invariably due to toxoplasmosis ❑ differential includes tuberculoma, cryptococcoma and lymphoma, thus patients not responding to therapy should be investigated further.
prophylaxis:	❑ co-trimoxazole 2 daily

dementia	❑ dementia with no other cause (HIV encephalopathy) is an AIDS defining condition ❑ CNS and other infections must be excluded ❑ consider referral for investigations if appropriate
treatment:	❑ treatment with AZT (not on EDL) is very effective in reversing dementia (not available in the public sector – about R500 a month in the private sector).

f) sexually transmitted diseases:

STD's	❑ common in conjunction with HIV
treatment:	❑ follow syndromic approach treatment guidelines ❑ treatment may need to be prolonged as resolution can be slow ❑ clinical treatment of STD's occurring after HIV diagnosis has been made should be accompanied by counselling and re-education about safe-sex practices.

syphilis treatment:	❑ all patients with primary or secondary disease and all patients with a positive VDRL or TPHA (even if previously treated) should be treated. ❑ ideal treatment consists of procaine penicillin 600 000 u IMI daily for ten days ❑ if not practical then treat with benzathine penicillin 2.4 mu IMI once a week for three weeks ❑ patients allergic to penicillin should be given doxycycline 100 mg 2x a day for 15 to 30 days.

herpes simplex	❑ see pg. 14

g) other:

depression treatment: refer:	❑ common feature in those infected with the HIV virus ❑ arrange counselling ❑ consider starting amitriptyline 25 mg at night. This should be increased over the next few days to 75 mg at night, and can be further increased to a maximum of 150 mg daily depending on clinical response. ❑ the amitriptyline may take 2 to 8 weeks to take effect ❑ continue treatment for at least six months and up to two years after symptoms have ceased. ❑ if evidence of suicidal ideation: to emergency psychiatric facility ❑ if not responding to treatment after 12 weeks: to psychiatric clinic

cardiac conditions refer:	❑ TB pericarditis is more common in HIV positive patients ❑ dilated cardiomyopathy can also occur ❑ if acutely ill or distressed: to appropriate referral hospital casualty department ❑ if stable: to appropriate referral hospital MOPD for an opinion

pyrexia of unknown origin (PUO)	❑ differential diagnosis includes MTB / MOTT; systemic fungal infection (esp. Cryptococcus); bacterial infection (esp. salmonella, strep. pneumoniae, haemophilus influenza, syphilis); viral infection (esp. CMV); protozoal infection (esp. PCP, toxoplasmosis); malignancy (esp. lymphoma); HIV infection itself.
investigation:	❑ FBC; sputum for AFB's; urine / stool culture; CXR.
treatment:	❑ paracetamol for symptomatic relief ❑ consider giving a 10 to 14 day course of antibiotics (co-trimoxazole and amoxycillin are a useful combination) – this is a controversial step
refer:	❑ if toxic: to appropriate referral hospital casualty department ❑ if above investigations unhelpful and patient remains pyrexial: to appropriate referral hospital MOPD for blood culture / LP / bone marrow biopsy / bronchoscopy / ultra-sound or CT scan.

weight loss	❑ differential diagnosis includes TB, diarrhoea, PCP, lymphoma, CMV, HIV infection itself. ❑ the pattern of weight loss is very important – gradual weight loss over months and years is probably due to the HIV virus itself, whereas sudden weight loss may be due to an opportunistic infection
investigations:	❑ CXR, sputum for AFB's, stool culture
treatment:	❑ high calorie and protein diet: ❑ frequent small meals with high energy foods such as mielie meal, potatoes and rice ❑ high protein foods such as eggs, milk, beans, lentils, meat, fish ❑ supplement with PEM scheme if appropriate ❑ multivitamins daily if appropriate

lymphadenopathy	❑ symmetrical generalised lymph nodes (involving particularly cervical, axillary and epitrochlear nodes) 1 cm or less are characteristic of early HIV infection and thus further investigation is generally not necessary; note: subsequent shrinking of these nodes may indicate advancing immunosuppression ❑ if there is a single enlarged lymph node in the cervical, sub-mental or axillary area, particularly if fever or weight loss is present, then further investigation is indicated
investigations:	❑ serological investigations are generally unhelpful

refer:	❑ wide needle aspiration biopsy (WNAB – see below for description of technique) should be done sending one unfixed fresh slide to bacteriology for ZN staining, and at least one fixed slide to cytology ❑ if WNAB is undiagnostic then refer to appropriate referral hospital MOPD clinic for excision biopsy if nodes are accessible, or bone marrow and liver biopsies if nodes are inaccessible (mediastinal, hilar or abdominal).
WNAB technique:	❑ draw a small amount of normal saline through a wide needle into a small syringe and then discard the saline in the syringe (needle bore is now filled with saline). Insert the needle into the lymph node and draw back on the plunger to create a vacuum. Then withdraw and re-insert the needle at different angles through the node maintaining a continuous vacuum pressure and without withdrawing the needle completely. Release the vacuum pressure before withdrawing the needle completely. Remove the syringe from the needle and withdraw the plunger so that there are a few cc's of air in the syringe. Re-attach the syringe and depress the plunger slowly holding the needle over a glass slide (PAP slide can be used). The saline and matter from the node in the needle will be expressed onto the slide that should then be air-dried and sent for microscopy for AFB's. Slides being sent for cytology should be fixed before sending them off.

palliative treatment	Ultimately AIDS is a fatal condition. The following criteria are used at GSH to decide when to stop investigating and actively treating conditions and rather offer palliative treatment:
criteria:	❑ there is no option for accessing antiviral treatment for the patient ❑ the patient has severe immune suppression (CD4 , 50; TLC < 0.75) ❑ the patient has a poor quality of life (e.g. bedridden) or an untreatable AIDS condition (e.g. CMV; extensive Kaposi's sarcoma etc.)
refer:	❑ The philosophy behind palliative care is doing what you can to make your patient comfortable until death. It is essential to do a social assessment at this time and utilise available home-based care or hospice services as appropriate.

4) HIV AND PREGNANT WOMEN:

The risk of transmission of HIV infection from a mother to her baby in the South African context is about 30%. With interventions, this risk can be reduced. It is for this reason that all pregnant women should be offered the opportunity of having an HIV test as early as possible during their pregnancy.

4.1 Background information

MTCT

Mother to child transmission (MTCT) is the most common way that young infants and children are infected with HIV. One third of babies born to HIV infected mothers become HIV infected. Infection occurs during :-

- Pregnancy – 1/3 of infection occurs during pregnancy. The virus passes through the placenta and umbilical cord, or is present in the fluid in the womb (amniotic fluid)
- Delivery and Breastfeeding – 2/3 of babies are infected around the time of delivery or afterwards. About 14% of transmission is through breastfeeding.

Risk Factors

Risk of HIV transmission from mother to child is increased by:-

- Recent infection in the mother – recent infection results in a higher viral load in the blood and body fluids. Prevention of infection during pregnancy and breastfeeding in the uninfected mother is therefore important.
- Advanced HIV disease or AIDS in the mother increases the risk of transmitting HIV to the baby
- Low birth weight and premature babies.

Other risk factors during pregnancy include nutrition status of the mother, in particular severe Vitamin A deficiency. Risk factors during delivery that increase transmission include the length of labour once membranes have been ruptured, delivery method and practices.

Risk Factors associated with feeding include:-

- Advanced HIV disease or AIDS in the mother increases the risk of transmitting HIV to the baby via breastmilk
- Mixed feeding. Recent evidence from Kwazulu Natal suggests that mixed feeding increases the risk of HIV transmission to the baby and must be avoided at all costs. Where breastfeeding is the choice of the mother, she should be counselled to exclusively breastfeed; where formula feeding is the choice the mother must be counselled to not breastfeed as well. Weaning from the breast should not include a period of mixed feeding, and should be an immediate switch from breast to formula and soft foods.
- Duration of breastfeeding – some studies suggest that the risk of HIV transmission continues as long as a baby is breastfed. As the risk of acquiring other illnesses as a result of not breastfeeding decreases after three to six months, the flow diagram suggests weaning at 3 months or as soon as possible

The Mother

A strong emphasis on preventing infection in women before and during pregnancy is needed. Promotion of safe sex practices during pregnancy and breastfeeding should form an important aspect of care of the well pregnant or breastfeeding women.

Increased access to voluntary counselling and testing is important in helping mothers to make informed choices about the pregnancy and infant feeding options.

If a women knows she has HIV infection before pregnancy or is diagnosed early in pregnancy, she needs support and counselling to decide whether to continue with the pregnancy, and continued support during the pregnancy.

4.2 Interventions During Pregnancy

- The woman is entitled to a termination of pregnancy on request if she is less than 12 weeks pregnant. If she is between 12 and 20 weeks pregnant, her HIV status can be used to motivate for termination of pregnancy if this is what she desires. After 20 weeks, termination of pregnancy can be arranged only if the woman's life is endangered by the pregnancy. If the woman has stage four disease she should be counselled that pregnancy may accelerate the course of her disease. Stress management and ongoing counselling should be available.

- HIV infection is associated with lower fertility rates, higher miscarriage rates, and an increased likelihood of prematurity, IUGR, still-births and congenital infections. Pre-term births have a higher risk of MTCT.

- The woman should have a full evaluation to determine the stage of the disease, and appropriate prophylaxis should be instituted. Co-trimoxazole prophylaxis should be continued throughout the pregnancy if indicated, because the benefits outweigh the slight risk to the foetus. Consider administering Hepatitis B and Influenza immunisations.

- Intercurrent infections should be monitored for and treated promptly. Common conditions include oral or vaginal thrush, lymphadenopathy, STD's, TB. STD's or prolonged rupture of membranes can result in chorio-amnionitis and increased MTCT.

- The haemoglobin level should be checked on a monthly basis. Folate / Iron supplementation should be given if appropriate.

- Encourage mothers to eat Vitamin A rich foods, and provide vitamin supplements as indicated by nutrition guidelines. Nutritional support (PEM scheme) should be offered if appropriate

- Counsel on contraception and safer sex practises during and after pregnancy (Ch. 6)

- Counsel on infant feeding options. Refer to flow diagram and appendix (4.2a) for guidance.

For information:

- A double-blind placebo-controlled trial in Tanzania showed that adding multivitamins to the routine regimen of iron and folate in HIV positive women resulted in mothers with higher T-cell counts and haemoglobin levels. Pregnancy outcomes were improved in terms of reducing low birth weights by 44%, pre-term births by 39% and small for gestational age babies by 43%. The clinical finding in respect of vertical transmission and clinical progression to HIV is still being studied.

- Viral load is one of the important determinants of mother to child transmission (MTCT). The use of antiretroviral agents during pregnancy has been shown to decrease MTCT rates through decreasing the viral load at delivery.

- The ACTG076 regimen (AZT 100 mg 5x daily from 14 to 34 weeks onwards; IVI AZT during labour – 2mg/kg loading dose then 1mg/kg thereafter; oral AZT 2 mg / kg 4x daily to the baby for 6 weeks; avoid breast feeding) has been shown to reduce MTCT rates from 25.5% to 8.3%.

- A study in Bangkok showed that the use of AZT 300 mg twice daily from 36 weeks of pregnancy with AZT 300 mg three hourly during labour decreased MTCT rates from 18.9% to 9.4% if the infants were not breast fed. In a similar study in Abidjan where the same regimen was used but the babies were breast-fed the MTCT rates were reduced from 24.9% to 15.7% at three months.

- The PETRA study (ongoing study in South Africa, Tanzania and Uganda) is using AZT plus 3TC in three short-course regimens. Although the results are not available yet, the following is apparent: treatment given only during the period of labour does not appear to be sufficient to have an effect on MTCT; treatment during labour and to the baby for one week post partum shows promise as a short-course option.

4.3 Interventions During Delivery

- 50% - 70% of HIV transmission from mother to baby occurs during the delivery. There is an increased risk of transmission if the baby is premature, rupture of membranes exceeds four hours, or if the mother has a low CD4 count.
- Staff should use universal precautions at all times.
- For vaginal delivery the membranes should not be ruptured artificially.
- The vagina should be douched with an appropriate antiseptic (e.g. chlorhexidine) before delivery. The cleansing of the birth canal not only reduces vertical transmission if rupture of membranes is longer than four hours, but also reduces subsequent admission of both mother and baby with post-partum infections.
- Scalp electrodes and scalp blood sampling should be avoided where possible.
- If an assisted delivery is necessary, then forceps rather than vacuum extraction should be used.
- An episiotomy should be avoided where possible.
- Avoid unnecessary / vigorous suctioning of the infant's respiratory tract at delivery.
- Wipe the infant clean to remove maternal fluids as soon as possible after birth.

For information:

- Delivery by Caesarean section has been shown to decrease the chance of HIV transmission from mother to baby by about 50%, although recovery from surgery may be slower in HIV positive women. Prophylactic antibiotics should be prescribed post-operatively. Caesarean section is not routinely available to HIV positive pregnant women in the public sector

4.4 Interventions After Delivery

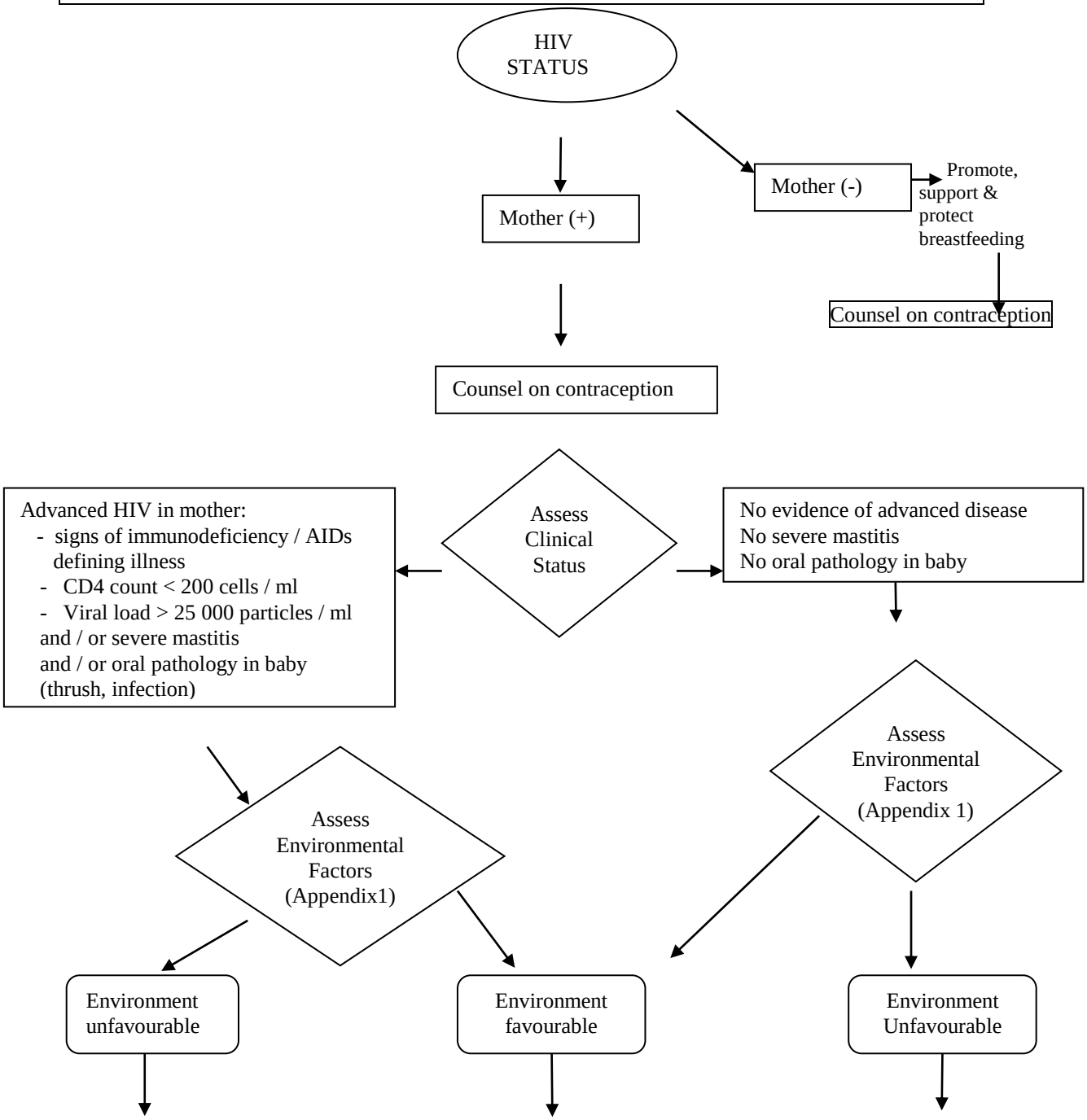
- The mother should be monitored for postnatal infections (UTI / URTI / LRTI / caesarean section wound infection), which are common.
- The mother should be counselled and started on effective contraception.
- The mother must be counselled about infant feeding options, and supported. Refer to flow diagram on page 31.

- Suppress lactation if necessary. Bromocryptine 1 b.d. x 5 or 7 days. Ensure access to formula feeds.

For information:

- The baby can be treated with AZT 2 mg / kg 4x daily for six weeks in an attempt to reduce the risk of the baby becoming HIV positive.

FLOW DIAGRAM ON INFANT FEEDING ADVICE FOR HIV INFECTED MOTHERS



Counsel on infant feeding in order of preference:-

1. Modified cows milk / heat treated Expressed breast milk 2. Exclusive breastfeeding for 3 Months (after treating mastitis / Oral pathology in baby) 3. Formula feeds*	1. Formula feeds* 2. Heat treated expressed breast milk and / or modified cows milk 3. Exclusive breastfeeding for 3 months	1. Exclusive breastfeeding for 3 months 2. Modified cows milk and / or heat treated expressed breast milk. 3. Formula feeds*

*Cup feeding recommended in preference to bottle feeds. Regular follow-ups at clinic advised.

 Commence soft feeds and formula and wean immediately from the breast to avoid mixed feeding.

The final choice is the mother's and will depend on a wide range of factors in her own environment

INFANT FEEDING GUIDELINES FOR HIV POSITIVE MOTHERS

(To be used with flow diagram)

Environmental Factors

If uncertain, ask an environmental health officer to do a home or area visit.

	FAVOURABLE	UNFAVOURABLE
WATER ACCESS	clean reticulated (tap) water in home or within 200m	reticulated water more than 200m from home; other forms of water supply
SANITATION	full flush sewerage septic tank VIP (ventilated pit latrine) Pit latrine -all of above on own stand or shared by 4 or fewer households	any system shared by more than 4 households
FUEL BURNING	electricity paraffin oil burner/ gas	wood or coal (if easily available then may consider as favourable)

Equipment needs for formula feeding

Cup feeding is the safest method of providing formula feeds (pamphlet available from CMC Resource Centre)

- feeding cup (or 2) or 3 bottles and teats
- bottlebrush
- cleaning detergent
- soap for hand-washing
- bowl and/or jug for hand washing
- pot for boiling water and fuel burner
- unperfumed Jik and a sterilising container
- clean, safe storage place for formula and equipment

Advice for mothers

Hygiene factors

Σ store water in a clean sealed container
Σ boil (and cool) water for feeds
Σ clean and sterilise equipment
Σ wash hands before preparation of feeds, as well as after ablutions and changing diapers

Preparation and storage of feed (give mother pamphlet to take home)

Σ how to measure feeds
Σ how to mix feeds
Σ do's and don'ts of storing formula - dry formula as well as prepared formula

Follow up

Σ make appointments for regular follow up - ensure growth monitoring of baby
Σ for breastfeeding mothers advise on signs of oral pathology in baby, or mastitis in mother and to return to clinic immediately if suspected
Σ for formula feeding, advise re diarhoeal disease and ORS - and to return to clinic if baby develops diarrhea or if she has any other concerns/problems with formula feeding.
Σ counsel mother on family planning and use of condoms

5) HIV AND CHILDREN:

5.1) Making the diagnosis of HIV infection in children

a) Management of the Infant Born to an HIV Positive Mother

The baby born to an HIV positive mother has about a 30% chance of being infected. Reliable PCR testing for the HIV status of the child can be done only at three months of age, although a PCR test may show a positive result as early as six weeks of age. Waiting for the child to be old enough for HIV testing can be stressful for the mother / parents of the child. Management involves:

- Counselling mother / parents about the risks of HIV infection in the infant
- education about the risks of breast-feeding (see under HIV and pregnant woman)
- regular monitoring of growth and development of the baby
- completing the immunisation schedule
- counselling the mother / parents and testing the child for HIV infection when the child is old enough.

b) When to Test

The ELISA HIV test measures the presence of antibodies to the HIV virus, the assumption being that if the body has formed antibodies to the HIV virus, the body must be infected with the virus. However, a mother who is HIV positive will pass her antibodies to her baby without necessarily passing the virus to the baby. Thus an Elisa HIV test will be positive because of the presence of the mother's antibodies in the baby's blood, regardless of whether the baby is infected with the virus or not. With time, the presence of the mother's antibodies decreases, and should become undetectable by 18 months. This means that a child with a positive ELISA HIV test after 18 months of age must be making his / her own antibodies, and thus must be infected with the HIV virus. An ELISA HIV test that is negative before 18 months of age can be taken as confirmation that the child is not infected with HIV (may become negative from about nine months of age).

The Polymerase Chain Reaction (PCR) test, on the other hand, tests for evidence of the virus itself. *(SAIMR price – R314.08).* Although a positive test may show as early as six weeks of age, a negative result can only be considered to be reliable if done at or after three months of age, and if the mother has not been breast-feeding the baby. Blood must be sent off in an EDTA (purple top) tube. (Other tests that are sometimes done are the P24 antigen assay or a viral culture.)

If the mother is known to be HIV positive, the baby shows clinical signs and symptoms of being infected, and HIV testing is not readily available, then the baby should be treated as an assumed HIV positive baby.

c) Whom to Test

1) If the mother is known to be HIV positive her child can reliably be tested for the presence of infection at three months of age with a PCR (R314.08) test (if not being breast-fed). Preferably, an ELISA test (R27.04) should be used at 18 months of age for cost reasons.

2) Clinical indications that indicate the need to test for the HIV status of the child (or alternately the mother):

- failure to thrive
- recurrent diarrhoeal disease
- recurrent candidiasis
- lymphadenopathy with or without hepatosplenomegaly and parotid enlargement
- recurrent severe infections (e.g. pneumonia)
- TB that is atypical, severe, or doesn't respond to treatment
- severe dermatitis, especially seborrhoeic dermatitis, in young infants
- infections with unusual organisms (including suspected PCP or LIP)
- anaemia and thrombocytopaenia

d) WHO Criteria for the Clinical Diagnosis of AIDS in Children

The child is considered to have AIDS if two major and two minor criteria are present in the absence of any known cause of immune-deficiency:

Major Citeria:

- failure to thrive
- prolonged fever for longer than one month
- chronic diarrhoea for longer than one month

Minor Criteria:

- chronic cough for longer than one month
- persistent generalised lymphadenopathy
- recurrent infections
- chronic dermatitis
- recurrent oral thrush
- mother is HIV antibody positive

5.2) Management of the HIV positive child

a) Prognosis

75% of HIV positive children in Africa will die before their fifth birthday. The average age of developing AIDS is nine months. The development of AIDS is dependent on a number of factors including:

- viral load
- the virulence of the virus
- the nutritional status of the child
- the child's immune response to infection with the virus
- concurrent infections
- socio-economic factors

In general, the younger the child develops HIV related symptoms, the poorer the prognosis.

b) General Management

Management should emphasise the following:

- regular medical and growth checks
- recognising and treating infections
- preventing opportunistic infections
- counselling and support for the mother
- ensuring that the child is immunised

c) Immunisation Schedule

The normal immunisation schedule should be followed except that:

- the BCG should not be given to children with *symptomatic* HIV infection
- measles immunisation should not be given if the child is ill
- if available Hib and influenza (on an annual basis) vaccinations should be administered.

d) Nutritional Management

Poor nutrition weakens the immune system and predisposes the child to opportunistic infections. HIV positive children are at increased risk of malnutrition for many reasons: decreased intake due to oral thrush, oral disease, or anorexia associated with illness; increased loss of nutrients due to malabsorption, diarrhoea, HIV enteropathy, and the altered metabolism due to infection with the HIV virus. The following steps should thus be taken to optimise the child's nutritional status:

- Ensure adequate nutrient intake - monitor growth carefully and supplement food given if necessary.
- Prompt treatment of opportunistic infections (e.g. candida, ascaris).
- Ensure adequate intake of micronutrients - especially Vitamin A that has been shown to boost immune function and reduce morbidity. A study in Tanzania showed that vitamin A reduced the all cause mortality by 49% in a group of HIV positive children
- High dose Vitamin A should be given as a stat dose on a six-monthly basis in the following doses:
  - < 6 months 50 000 IU
  - 6 - 12 months 100 000 IU
  - > 12 months 200 000 IU
- Because an overdose of Vitamin A can be dangerous it is essential that when the stat dose is given it is recorded on the road to health card and the mother is informed.
- Children who are anaemic should receive iron and folate supplementation.

e) Laboratory Tests

test	**results**
FBC +differential	range of changes occur (see below)
haemoglobin	often reduced with HIV infection
neutrophils	often reduced with HIV infection
TLC	reduced with immune deficiency
CD4 Count	normal readings vary with age as follows: 1 - 6 months: 1100 - 5300 cells / mm3 7 - 12 months: 950 - 5300 cells / mm3 13 - 24 months: 750 - 4500 cells / mm3 2 - 6 years: 500 - 3000 cells / mm3 any child with a CD4 count < 400 cells / mm3 is severely immuno-deficient

test	results
% CD4	average readings vary with age as follows: 1 - 6 months: 51% 7 - 12 months: 47% 13 - 24 months: 45% 2 - 6 years: 42% % CD4 reading decreases with advancing HIV infection
CD4:CD8 ratio	average CD4:CD8 ratios vary with age as follows: 1 - 6 months: 2.2 7 - 12 months: 2.1 13 - 24 months: 2.0 2 - 6 years: 1.4 CD4:CD8 ratios decrease with advancing HIV infection
gamma-globulins	usually elevated with HIV infection
P24 antigen	present in advanced HIV infection

Note: there are no routine tests done on an HIV positive child. Blood tests are done only if clinically indicated. Co-trimoxazole prophylaxis is given to all HIV positive children regardless of immune status (see pg. 34 for details). A CD4 count should be done only if knowing the degree of immune suppression will assist in diagnostic or treatment decisions.

Immune Suppression	**Age of Child**					
	<12 months		**1 - 5 years**		**6 - 12 years**	
	CD4	**%T cells**	**CD4**	**%T cells**	**CD4**	**%T cells**
no suppression	> 1 500	> 25	> 1 000	> 25	> 500	> 25
moderate suppression	750 - 1 499	15 - 24	500 - 999	15 - 24	200 - 499	15 - 24
severe suppression	< 750	< 15	< 500	< 15	< 200	< 15

5.3 Prophylaxis

a) PCP Prophylaxis

Children are at greatest risk of contracting PCP at 3 – 6 months of age. The PCP prophylaxis not only reduces PCP and early deaths, but also reduces bacterial infections such as sepsis, pneumonia, otitis media, sinusitis and cellulitis.

Co-trimoxazole prophylaxis should be instituted in all children known to be HIV positive when there is advanced or symptomatic disease, or if the child is less than a year old (start at 4 - 6 weeks of age). In children born to HIV positive mothers, prophylaxis should be started from 4 to 6 weeks of age and continued until an HIV positive diagnosis can be excluded, or until the child is a year old with no symptoms. If CD4 counts are indicated then prophylaxis can be started when the CD4 count is below the age adjusted normal values.

Use co-trimoxazole in doses according to weight (RXH recommendations):

- <5.0 kg: 5 ml
- 5.0 – 9.9 kg: 7.5 ml
- 10.0 to 14.9 kg: 10 ml
- 15.0 – 21.9 kg: 15 ml or 1.5 single strength tablets
- > 21.9 kg: 20 ml or 2 single strength tablets

The co-trimoxazole should be administered three times a week either on consecutive days (e.g. Monday, Tuesday and Wednesday) or on alternate days (e.g. Monday, Wednesday and Friday). The dose should be divided into a twice daily dose where possible.

b) Tuberculosis Prophylaxis

All children in contact with a sputum positive tuberculosis patient should be screened for active disease. If active disease is excluded all children under the age of five years should be referred to the TB clinic for prophylaxis according to the SA Tuberculosis Control Programme Guidelines.

c) Measles and Chicken pox Prophylaxis

HIV positive children can be referred for prophylactic immunoglobulin (0.5 ml / kg – hospital EDL) or zoster immunoglobulin (0.15 ml / kg – hospital EDL) if they have been exposed to measles (within 5 days) or chicken pox (within 3 days). It is recommended that you ‘phone and discuss the child with a specialist to confirm the necessity for prophylaxis before referring the child.

d) Vitamin A Supplementation

A study done in Tanzania showed that giving Vitamin A supplementation to HIV positive children reduced all cause mortality by 49% ($p<0.04$). Amongst the HIV positive children on placebo, 21% died due to diarrhoea compared to none dying from diarrhoea in the Vitamin A group ($p<0.003$). Vitamin A is a cheap and effective intervention that should be used routinely.

- High dose Vitamin A should be given as a stat dose on a six-monthly basis in the following doses:
  - < 6 months 50 000 IU
  - 6 - 12 months 100 000 IU
  - > 12 months 200 000 IU
- Because an overdose of Vitamin A can be dangerous it is essential that when the stat dose is given it is recorded on the road to health card.

5.4) Treatment of common clinical problems

a) oral health:

oral thrush treatment: refer: prophylaxis:	❑ gentian violet 0.5% painted in mouth three to four times daily ❑ nystatin oral suspension 1 - 2 ml in mouth 4 to 6 times daily ❑ if no response try 2% miconazole oral gel twice daily ❑ if resistant to treatment to appropriate referral hospital paediatric clinic for: - fluconazole (hospital EDL) 3 mg / kg daily orally for 7 days - ketoconazole (adult hospital EDL) 3 - 6 mg / kg daily orally for 7 days ❑ if recurrent then the gentian violet or nystatin should be used on a daily basis to prevent recurrence.

oral ulceration treatment: if severe / not responding:	❑ common problem ❑ liquid diet whilst child finds eating difficult ❑ use topical agents like gentian violet or glycerine (not on EDL) 3 - 4 times a day ❑ paracetamol four hourly ❑ 2% lidocaine gel 3-4 hourly if necessary ❑ regular mouth washing with salt water (1/2 teaspoon salt in a cup of warm water) or 0.2% chlorhexidine digluconate mouthwash ❑ use a broad spectrum antibiotic (e.g. amoxycillin or erythromycin) plus metronidazole ❑ add nystatin oral suspension if superadded candidiasis suspected

b) respiratory conditions:

pneumonia causative agents: treatment: refer:	❑ pneumococcal and haemophilus influenzae are common ❑ PCP in children with severe immuno-deficiency ❑ amoxycillin is the first choice of antibiotic treatment ❑ other antibiotics to consider are: - for pneumococcal: penicillin / erythromycin / cephalosporin (hospital EDL) - for haemophilus: co-trimoxazole / ampicillin, chloramphenicol, cefuroxime (hospital EDL) ❑ if distressed or if PCP / LIP suspected: to appropriate referral hospital casualty department.

PCP	❑ one of the common severe opportunistic infections found in children with HIV infection. PCP should be suspected with the following: sudden onset of fever, tachypnoea, cyanosis and diffuse interstitial infiltrated on X-ray.
refer:	❑ all suspected cases to the appropriate referral hospital casualty department (very poor prognosis)
treatment:	❑ co-trimoxazole (20 mg / kg / day of the trimethoprim component) in four divided doses for 14 to 21 days. ❑ prednisone (2 mg / kg / day) ❑ often ampicillin (hospital EDL), gentamicin (hospital EDL) or cefuroxime (hospital EDL) are added because in 50 - 75% of cases there may be concomitant bacterial infection.

lymphoid interstitial pneumonitis (LIP)	❑ an unusual respiratory disease of unknown aetiology found in HIV infected children. The child usually develops an ongoing cough, mild tachypnoea and mild wheezing. CXR usually shows reticular or nodular interstitial infiltrates and mediastinal adenopathy.
treatment:	❑ prednisone 2 mg / kg / day for 10 to 14 days
refer:	❑ all suspected cases for investigation and management.

chronic lung disease	❑ many HIV positive children develop chronic lung disease. They may have clubbing, and often have mild or intermittent symptoms and signs. Chest X-ray changes may be severe and long-standing. The aetiology is unclear, and probably multifactorial.
treatment:	❑ symptomatic treatment: - bronchodilators for wheezing - physiotherapy for bronchiectasis - antibiotics for acute exacerbations

TB	
TB contact:	❑ If there is a sputum positive TB patient in the house and active disease is excluded in the child then prophylaxis should be given according to the SA Tuberculosis Control Guidelines (regimen 5 or 6 – refer to TB clinic)
Tuberculin test +:	❑ If the child is less than five years old and tuberculin test positive with a normal X-ray, then the child should have three months of supervised treatment with INH / Rifampicin / PZA (refer to TB clinic)
TB:	❑ If the child is diagnosed with TB then the appropriate treatment regimen (3 or 4) should be used as for an HIV negative child. Always have a high index of suspicion for TB.

c) diarrhoeal disease:

diarrhoea / dysentery	
causative agents:	❑ protozoal infections (giardia, entamoeba); bacterial infections (salmonella, shigella, campylobacter); viral infections (rotavirus, cytomegalovirus); fungi (candidiasis); worm infestations.
treatment:	❑ make sure the mother understands the importance of rehydrating the child. Teach her to make oral rehydration solution (1 litre water, 8 teaspoons sugar, ½ teaspoon of salt) and how to use it. ❑ nutritional supplementation for prolonged diarrhoea ❑ if the diarrhoea is bloody then give a course of nalidixic acid (hospital EDL) or co-trimoxazole ❑ other antibiotics which may be useful include ampicillin (hospital EDL), chloramphenicol (hospital EDL), erythromycin ❑ metronidazole (30 mg / kg / day in three daily doses for five days) should be used if giardia or amoebiasis is suspected ❑ mebendazole should be given for worm infestation: 1-2 years 100 mg twice daily for three days; >2 years 100 mg twice daily for three days of 500 mg stat.
refer:	❑ if dehydrated or if dysentery persists to appropriate referral hospital casualty for intravenous rehydration.

d) dermatological conditions:

scabies	
treatment:	❑ 25% benzyl benzoate (ascabiol) for 12 hours or 1% gamma benzene hexachloride (Gambex - not on EDL) for 8 hours
children < 1 year:	❑ 2.5% sulphur ointment (not on EDL) 3 x daily for 3 days is preferable in children < one year. Otherwise ascabiol diluted 1:2 or 1:4 or monosulfiram 5% (tetmosol) soap can be used
other:	❑ other household contacts should be screened and treated where appropriate ❑ bedding and clothing should be washed and ironed, or hung out in the sun. The mattress should be put in the sun.

impetigo	
treatment:	❑ hygiene, proper washing, cut fingernails, soak crusts off in soapy water ❑ 10% polyvidone iodine solution three times daily or zinc oxide / zinc and vioform (not on EDL) cream twice daily ❑ antibiotics indicated only if the child is pyrexial, there is underlying lymphadenopathy, or the lesions are resistant to treatment. (1st line – amoxycillin for 10 days, 2nd line - flucloxacillin or erythromycin for 10 days)

eczema treatment: refer:	❑ seborrhoeic dermatitis is particularly common in young infants ❑ avoid soap and expose affected areas to sunlight ❑ aqueous cream instead of soap for washing; use as a moisturiser on dry areas ❑ zinc oxide cream twice daily. If not responding then use a 1% hydrocortisone cream twice daily ❑ promethazine (not on EDL) or chlorpheniramine at night in children greater than 18 months of age if itching and discomfort are severe ❑ cut nails short and put socks over the child's hands at night if scratching occurs during sleep ❑ if no response to treatment after two weeks to appropriate referral hospital paediatric / dermatology clinic

ringworm treatment: refer:	❑ this is a chronic fungal infection that produces a ring lesion with a red and scaly circumference ❑ Whitfield's (benzoic acid with salicylic acid) ointment twice daily for 2 to 4 weeks for body lesions ❑ If Whitfield's unsuccessful try 2% miconazole cream ❑ for scalp lesions give griseofulvin 10 mg / kg / day for eight weeks ❑ if not responding to treatment refer to appropriate referral hospital paediatric clinic for possible ketoconazole treatment (hospital EDL)

herpes zoster refer: prophylaxis:	(Chicken pox or Shingles) - potentially lethal in the HIV positive child ❑ all cases to hospital for assessment and possible treatment with acyclovir (hospital EDL) / valaciclovir or famciclovir (not on EDL) ❑ children who have been exposed to herpes zoster can be referred for prophylaxis (see page 34 for details)

herpes simplex treatment: refer:	❑ local antiseptic (mercurochrome / gentian violet) ❑ analgesia (paracetamol) ❑ all children with disseminated or severe herpes simplex to appropriate referral hospital casualty for admission and acyclovir (hospital EDL) treatment.

e) other conditions:

failure to thrive management: treatment:	❑ common causes include diarrhoea, TB, recurrent infection and HIV infection itself ❑ examine and investigate for underlying causes ❑ treatment of any underlying conditions ❑ nutritional and vitamin supplements (see under nutrition)

anaemia treatment: refer:	❑ elemental iron 2 mg / kg / day in three divided doses plus folate 2.5 mg once a week ❑ repeat haemoglobin level after a month to check for a response to treatment ❑ if severe anaemia (Hb < 8 gm / dL), if concomitant bleeding problems, or if not responding to treatment: to appropriate referral hospital paediatric clinic for investigation and management.

6. HIV INFECTION AND CONTRACEPTION:

a) Introduction

Adequate counselling about contraception is important. The proper use of contraception can prevent unwanted pregnancies and HIV infected babies, as well as optimising the woman's health. A woman should be counselled about the risks of pregnancy:

- she cannot fall pregnant without unprotected intercourse. This may expose her to other infections, and may expose her partner, if uninfected, to contracting the HIV virus;
- if she does fall pregnant her baby might be infected with the virus;
- if she does fall pregnant and her HIV infection is relatively advanced, then pregnancy may accelerate the course of the disease.

b) Condoms

Condoms are the only form of contraception that will not only protect against pregnancy, but will also protect against both transmission of the HIV virus and other STD's. However, it also has a higher failure rate than other forms of family planning, especially if used incorrectly or intermittently. Used in conjunction with spermicides condoms are more effective in preventing pregnancy, and may be more effective in preventing the transmission of the HIV virus. The woman may wish to combine the use of condoms with another form of contraception.

c) Intrauterine contraceptive device (IUCD)

The IUCD is not a good choice of contraception for the HIV positive woman. It is known to be associated with an increased risk of pelvic inflammatory disease (PID) to which the HIV positive woman is already vulnerable. It may also increase the chances of transmission of the HIV virus through the string causing minor abrasions on the partner's penis, and through increasing menstrual blood flow.

d) Oral contraception

Whilst this is usually a reliable form of contraception, and may provide slight protection against the development of PID, it interacts with most antibiotics to become less potent, which may result in contraceptive failure. It would appear not to increase or decrease the transmission of the HIV virus. Concomitant condom use should still be encouraged.

e) Progesterone injections

This is a reliable form of contraception. However, it may theoretically increase the chance of transmission of the HIV virus by 'thinning' the vaginal wall. Concomitant condom use should still be encouraged.

f) Sterilisation

This provides excellent protection from further pregnancies. However, if done when the HIV infection is advanced, there is an increased risk of post-operative complications. Condom use should still be encouraged.

Appendix 1 - World Health Staging System

Stage one / performance scale one (asymptomatic normal activity)
1. Asymptomatic (ASY)
2. Persistent generalised lymphadenopathy (PGL)
3. Acute retroviral infection (seroconversion illness) (ARI)

Stage two / performance scale two (symptoms but fully ambulatory)
4. Unintentional weight loss < 10% of body weight (WL4)
5. Minor mucocutaneous (e.g. Seborrhoea, prurigo, fungal-nail, oral ulcers, angular cheilitis) (MMC)
6. Herpes Zoster within the last five years (HZV)
7. Recurrent upper respiratory tract infection (e.g. Bacterial sinusitis) (URTI)

Stage three / performance scale three (bedridden < 50% of normal daytime)
8. Unintentional weight loss > 10% of body weight (WL8)
9. Chronic diarrhoea > one month (DIA)
10. Prolonged fever > one month (PYR)
11. Oral candidiasis (ORC)
12. Oral Hairy Leucoplakia (HLP)
13. Pulmonary TB in last year (PTB)
14. Severe bacterial infections (pneumonia, pyomyositis) (BAC)
15. Vulvovaginal Candida > 1 month / poor response to therapy (VVC)

Stage four / performance scale four (bedridden >50% of daytime in prior month)
16. HIV wasting (8+9 or 10) (CAC)
17. Pneumocystis pneumonia (proven: PCP, presumptive: PPCP)
18. CNS toxoplasmosis (TOXO)
19. Cryptosporidiosis + diarrhoea > one month (CRS)
20. Isosporiasis + diarrhoea (ISO)
21. Cryptococcus - non pulmonary (CRC)
22. Cytomegalovirus infection other than liver, spleen or lymph node (CMV)
23. Herpes simplex infection; visceral or > 1 month mucocutaneous (HSV)
24. Progressive multifocal leucoencephalopathy (PML)
25. Disseminated mycosis (MYC)
26. Candida oesophageal / tracheal / pulmonary (OEC)
27. Atypical Mycobacteriosis disseminated (MOTT)
28. Non-Typhoidal Salmonella septicaemia (SAL)
29. Extra-Pulmonary Tuberculosis (ETB)
30. Lymphoma (LYM)
31. Kaposi's Sarcoma (KS)
32. HIV Encephalopathy (ADC)

Appendix 2 - Clinical Categories for Children with HIV Infection (CDC)

Category N: Not Symptomatic
Children who have no signs or symptoms considered to be the result of HIV infection, or who have only one of the conditions listed in Category A

Category A: Mildly Symptomatic
Children with 2 or more of the conditions listed below, but none of the conditions listed in Categories B and C.

- Lymphadenopathy (>0.5 cm at more than two sites)
- Hepatomegaly
- Splenomegaly
- Dermatitis
- Parotitis
- Recurrent or persistent upper respiratory infection, sinusitis, or otitis media

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

- Anaemia (<8 gm / dL), neutropaenia (< 1 000 / mm^3) or thrombocytopaenia (< 100 000 mm^3) persisting > 30 days
- Bacterial meningitis, pneumonia, or sepsis (single episode)
- Oropharyngeal candidiasis persisting > 2 months in children > 6 months of age
- Cardiomyopathy
- Cytomegalovirus infection, with onset before one month of age
- Diarrhoea, recurrent or chronic
- Hepatitis
- Herpes Simplex Virus (HSV) stomatitis, recurrent (more than 2 episodes in a year)
- HSV bronchitis, pneumonitis, or oesophagitis with onset before one month of age
- Herpes Zoster (shingles) involving more than one dermatome or at least two distinct episodes
- Leiomyosarcoma
- Lymphoid Interstitial Pneumonia (LIP) or pulmonary lymphoid hyperplasia complex
- Nephropathy
- Nocardiosis
- Persistent fever (> one month)
- Toxoplasmosis, onset before one month of age
- Varicella, disseminated (complicated chicken pox)

Category C: Severely Symptomatic

- Serious bacterial infections, multiple or recurrent (i.e. any combination of at least two culture-confirmed infections within a two year period) of the following types: septicaemia, pneumonia, meningitis, bone or joint infection, or abscess of an internal organ or body cavity (excluding otitis media, superficial skin or mucosal abscesses, and indwelling catheter related infections).
- Candidiasis, oesophageal or pulmonary (bronchi, trachea, lungs)
- Coccidioidomycosis, disseminated (at site other than or in addition to lungs or cervical or hilar lymph nodes)
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis or Isosporiasis with diarrhoea persisting > one month
- Cytomegalovirus disease with onset of symptoms at age > one month (at a site other than liver, spleen or lymph nodes)
- Encephalopathy (at least one of the following progressive findings present for at least two months in the absence of a concurrent illness other than HIV infection that could explain the findings):
  a) failure to attain or loss of developmental milestones or loss of intellectual ability, verified by standard developmental scale or neuropsychological tests
  b) impaired brain growth or acquired microcephaly demonstrated by head circumference measurements or brain atrophy demonstrated by CT or MRI imaging
  c) acquired symmetric motor deficit manifested by two or more of the following: paresis, pathologic reflexes, ataxia, gait disturbances
- Herpes Simplex Virus infection causing a mucocutaneous ulcer that persists for > one month; or bronchitis, pneumonitis , or oesophagitis for any duration affecting a child > one month of age
- Histoplasmosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)
- Kaposi's sarcoma
- Lymphoma, primary, in brain
- Lymphoma, small, noncleaved cell (Burkitt's), or immunoblastic or large cell lymphoma of B-cell or unknown immunologic phenotype
- Mycobacterium tuberculosis, disseminated or extrapulmonary
- Mycobacterium, other species or unidentified species, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
- Mycobacterium avium complex or Mycobacterium kansaii, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)
- Pneumocystis Carinii pneumonia (PCP)
- Progressive multifocal leukoencephalopathy
- Salmonella (non-typhoid) septicaemia, recurrent
- Toxoplasmosis of the brain with onset > one month of age
- Wasting syndrome in the absence of a concurrent illness that could explain the following findings:
  a) persistent weight loss > 10% of baseline OR;
  b) downward crossing of at least two centile lines on the weight-for-age chart (e.g. 95th, 75th, 50th, 25th, 5th) in a child > one year of age OR;
  c) <5th percentile on weight-for-height chart on two consecutive measurements 230 days apart; PLUS:
  - chronic diarrhoea (i.e. at least two loose stools per day for 30 days) OR;
  - documented fever (For > 30 days, intermittent or constant)

Appendix 3 - SAIMR State Laboratory Prices – June 1999

HIV tests	
HIV (rapid screen)	R 39.54
HIV (Western Blot)	R239.20
HIV (ELISA)	R 27.04
HIV PCR	R314.08

Haematology tests	
FBC	R 22.88
Differential	R 14.56
ESR	R 8.32
Lymphocyte subsets (CD3, CD4, CD8)	R218.40

Syphilis tests	
RPR (qualitative)	R 8.32
RPR (quantitative)	R 14.56

Urine mc+s (no growth)	
microscopy	R 14.56
culture	R 20.80
viable count	R 4.16

Urine mc+s (growth)	
gram stain of isolate	R 14.56
biochemical identification	R 12.48
antibiotic sensitivity	R 29.12
serotyping streptococci	R 29.12

Stool mc+s (adult no growth)	
- anaerobic culture	R 22.88
- campylobacter	R 39.52
- parasitology	R 16.64

Stool mc+s (< 2 years no growth)	
- aerobic culture	R 22.88
- campylobacter	R 39.52
- parasitology	R 16.64
- fungal culture	R 16.64
- staph culture	R 8.32

Stool mc+s (all ages – growth)	
- gram stain of isolate	R 14.56
- biochemical identification	R 12.48
- antibiotic sensitivity	R 29.12
- serotyping shigella	R 12.48
- serotyping salmonella	R 33.28

Appendix 4 - List of abbreviations

Abbreviation	
AIDS	Acquired Immune Deficiency Syndrome
AZT	Zidovudine - antiretroviral drug
BCG	Bacillus Calmette-Guerin - vaccination against TB
Ca	Cancer
CD4 cells	T-helper lymphocytes which have a surface molecule called cluster designation 4 – important for immune functioning
CD4 count	Laboratory test used to measure the degree of immune-deficiency in HIV infection
CDC	Centre of Disease Control - America
CMC	Cape Metropolitan Council
CMV	Cytomegalovirus
CSF	Cerebro-Spinal Fluid
CT	Computed Tamography
CVS	Cardiovascular System
CXR	Chest X-ray
EDL	Essential Drug List (1998 primary care and hospital level editions)
EDTA	Ethyline Diamine Tetra-Acetic Acid – additive to 'purple top tube' to prevent blood clotting
ELISA	Enzyme-Linked Immunosorbent Assay
ESR	Erythrocyte Sedimentation Rate
FBC	Full Blood Count
GIT	Gastrointestinal Tract
GSH	Groote Schuur Hospital
gm / Dl	grams per decilitre
Hb	Haemoglobin
Hib	Haemophilus Influenza Vaccination
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
INH	Isoniazid - anti tuberculous drug
IU	International Units
IUCD	Intra-uterine Contraceptive Device
IUGR	Intra-uterine Growth Retardation

IV	Intravenous
IVI	Intravenous Infusion
kg	kilogram
KS	Kaposi's Sarcoma
LIP	Lymphoid Interstitial Pneumonia
LP	Lumbar Puncture
LRTI	Lower Respiratory Tract Infection
mc+s	microscopy, culture and sensitivity
mg	milligrams
MTCT	Mother to Child Transmission
MOPD	Medical Out Patient Department
PCP	Pneumocystis Carinii Pneumonia
PCR	Polymerase Chain Reaction
PEM scheme	Protein Energy Malnutrition scheme
PID	Pelvic Inflammatory Disease
PUO	Pyrexia of Unknown Origin
RPR	Rapid Plasma Reagin - screening test for syphilis infection
SA	South Africa
SAIMR	South African Institute of Medical Research
SPM	South Peninsula Municipality
STD	Sexually Transmitted Disease
TB	Tuberculosis
TLC	Total Lymphocyte Count
TPHA	Treponemal Passive Haemagglutination Test - laboratory test for syphilis infection (treponemal test); used to confirm low titre VDRL / RPR tests are not false positive reactions.
URTI	Upper Respiratory Tract Infection
UTI	Urinary Tract Infection
VDRL	Non-treponemal screening test for syphilis infection
VHW	Victoria Hospital, Wynberg
WCC	White Cell Count
WHO	World Health Organisation
WNAB	Wide Needle Aspiration Biopsy
ZN	Ziehl Nielson - stain used when looking for TB under the microscope

Appendix 5 - Drug Lists for Adults and Paediatrics

Adults: protocol also includes all STD and TB medication as per the primary EDL 1998

Acyclovir (hospital EDL)	14
Amitriptyline (primary EDL)	14, 21, 23
Amoxycillin (primary EDL)	16, 18, 24
Amphotericin B IVI (hospital EDL)	21
Amphotericin B lozenges (hospital EDL)	16
Ampicillin IVI (hospital EDL)	18
Aqueous cream (primary EDL)	13
AZT (not on EDL)	22
Beclomethasone inhaler (primary EDL)	16
Benzyl benzoate lotion – 25% (primary EDL)	14
Carbamazepine (primary EDL)	14
Cephalosporin IVI (hospital EDL)	18
Chlorhexidine – 0.2% (primary EDL)	16
Chlorpheniramine (primary EDL)	13, 14, 19
Ciprofloxacin (primary EDL)	17
Codeine phosphate (primary EDL)	17
Co-trimoxazole (primary EDL)	12, 17, 18, 19, 22, 24
Dapsone (hospital EDL)	12
Erythromycin (primary EDL)	13, 15, 18
Famciclovir (hospital EDL)	14
Flucloxacillin (primary EDL)	13
Fluconazole (paediatric hospital EDL)	16, 21
Folic acid (primary EDL)	22
Gentamicin IVI (hospital EDL)	18
Gentian violet – 0.5% (primary EDL)	14, 16
Hydrocortisone cream – 1% (primary EDL)	13
Hydrocortisone cream – 10% (not on EDL)	14
Ibuprofen (primary EDL)	14
Kenalog in orabase (not on EDL)	16
Ketoconazole (hospital EDL)	16
Lidocaine gel – 2% (primary EDL)	14
Liquid nitrogen (hospital EDL)	15
Loperamide (hospital EDL)	17
Mercurochrome (not on EDL)	14
Metronidazole (primary EDL)	16, 17
Miconazole cream – 2% (primary EDL)	13
Miconazole oral gel – 2% (primary EDL)	16, 17
Nystatin cream (primary EDL)	17
Nystatin oral lozenges (primary EDL)	16
Nystatin oral suspension (primary EDL)	16
Ofloxacin (not on EDL)	17
Paracetamol (primary EDL)	14
Phenol – 1% (not on EDL)	15
Prednisone (primary EDL)	16, 19
Promethazine (not on EDL)	13, 14, 15, 19
Pyridoxine (primary EDL)	18
Selenium sulphide – 2% (primary EDL)	13
Tincture of iodine (primary EDL)	15

Valaciclovir (hospital EDL)	14
Vinblastine (hospital EDL)	15
Vitamin A cream (not on EDL)	15
Zinc and vioform (not on EDL)	15
Zinc oxide	15

Paediatrics: protocol also includes all immunisation and TB medication as per the primary EDL 1998

Acyclovir (hospital EDL)	39
Amoxycillin (primary EDL)	36, 38
Ampicillin (hospital EDL)	36, 37, 38
Aqueous cream (primary EDL)	39
Benzoic acid 6% and salicylic acid 3% (Whitfield's) (primary EDL)	39
Benzyl benzoate 25% (primary EDL)	38
Cefuroxime (hospital EDL)	36, 37
Cephalosporin (hospital EDL)	36
Chloramphenicol (hospital EDL)	36, 38
Chlorhexadine digluconate 0.2% (primary EDL)	36
Chlorpheniramine (primary EDL)	39
Co-trimoxazole (primary EDL)	34, 38
Elemental iron (primary EDL)	40
Erythromycin (primary EDL)	36, 38
Flucloxacillin (primary EDL)	38
Fluconazole (paediatric hospital EDL)	36
Folate (primary EDL)	40
Gentamicin (hospital EDL)	37
Gentian violet – 0.5% (primary EDL)	36
Glycerine (not on EDL)	36
Griseofulvin (primary EDL)	39
Hydrocortisone 1% (primary EDL)	39
Immunoglobulin (paediatric hospital EDL)	34
Ketoconazole (adult hospital EDL)	36
Ketoconazole (hospital EDL)	39
Lidocaine gel 2% (primary EDL)	36
Mebendazole (primary EDL)	38
Metronidazole (primary EDL)	36, 38
Miconazole 2% oral gel (primary EDL)	36
Miconazole cream 2% (primary EDL)	39
Monosulfiram 5% soap (Tetmasol) (primary EDL)	38
Multivitamins (primary EDL)	40
Nalidixic acid (hospital EDL)	37
Nystatin suspension (primary EDL)	36
Oral Rehydration Fluid (primary EDL)	37
Paracetamol (primary EDL)	36
Paracetamol (primary EDL)	39
Penicillin (primary EDL)	36
Polyvidone iodine 10% (primary EDL)	38
Prednisone (primary EDL)	37
Promethazine (not on EDL)	39
Sulphur ointment 2.5% (not on EDL)	38
Vitamin A (primary EDL)	35
Zinc and Vioform (not on EDL)	38
Zinc oxide (primary EDL)	38, 39
Zoster immunoglobulin (paediatric hospital EDL)	34

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