Practical Pharmacy

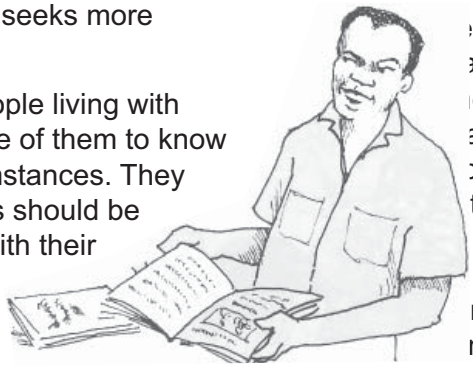
For Developing Countries

NOTE TO OUR READERS: *The goal of **Practical Pharmacy** is to provide accessible and accurate information on medicines issues for front-line health workers who may not have had any pharmaceutical training. Information about HIV and its treatment is complex, can be overwhelming, and is often difficult to simplify. In this issue, we have tried to outline information that health workers can use in their day-to-day interactions with people living with HIV (PLWH). After reading this issue, you will not of course be informed enough to manage HIV treatment regimens, but we hope you will be able to: (1) communicate basic information about HIV and its treatment to your community, and (2) prevent and identify potential medicines-related problems in people living with HIV. We welcome your feedback to know if we have been successful in achieving our goal with this issue. Contact us at practicalpharmacy@gmail.com*

TREATMENT LITERACY FOR PEOPLE LIVING WITH HIV & AIDS

"Most people who test HIV positive have immediate questions and an urgent need for information: What does HIV mean to me and my family? How long will I live? Do I need treatment? Can I get treatment? Will it work? Are there side effects? The process of becoming treatment literate begins when a person asks the very first question: What is HIV? It continues as he or she seeks more information." *(www.i-base.info)*

Treatment literacy empowers people living with HIV and those who help take care of them to know what to do in their specific circumstances. They need to know: how the medicines should be taken; how the treatment fits in with their daily life; the side-effects of the medicine; and how to get what they need from health systems and other support systems.



*Drawing: Petra Rohr-Rouendaal (1997) *Where There Is No Artist: Development Drawings and How to Use Them*

Good treatment information helps people to make informed decisions, to understand the critical importance of adherence to HIV treatment, to recognize the symptoms of advancing HIV disease, and how to manage treatment side effects more effectively when they occur. Treatment literacy is about *what people do with the information they are given*: literacy is achieved with the right support and encouragement *when added* to accurate and accessible information.

atment information can be provided a variety of ways. This can be through gs, photos, booklets, pamphlets, ames, posters, videos, workbooks, olays, fact sheets, role-playing, theatre, film, radio and television broadcasts, and also formal training. Treatment literacy translates medical information into languages nd formats that are accessible to everyone. The information should be easily understood, in appropriate language and easily accessible to the people it is designed for.

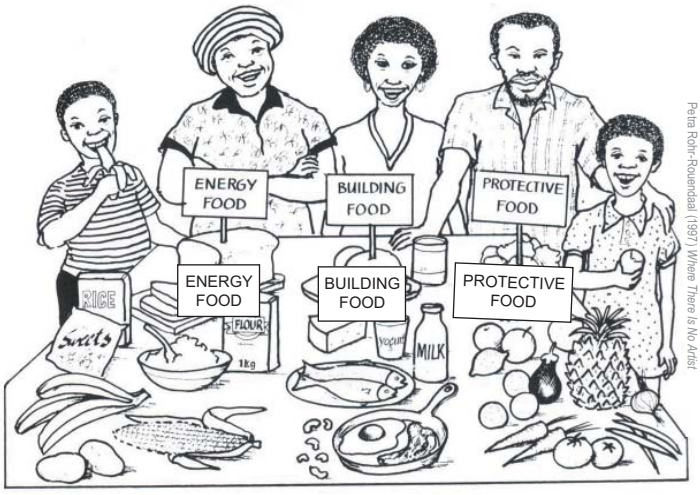
QUICK TIP:

It is a responsibility of healthcare workers and PLWH to learn and understand information about HIV and its treatment. PLWH can obtain information about treatment from health workers, community resource centres, VCT centres, health facilities, internet resources, printed literature such as pamphlets, support groups, expert patients and other sources.

Practical Pharmacy aims to ensure the safe and rational use of medicines world-wide by increasing knowledge and understanding of medicine management and supply and improving work practices. It has been written for individual health workers who may have no specific pharmacy qualifications and as a resource for training activities.
To receive Practical Pharmacy by email, send an email to practicalpharmacy@gmail.com

HEALTHY EATING FOR PEOPLE LIVING WITH HIV OR AIDS

Good nutrition is important for everyone, especially for people living with HIV or AIDS. If a person has HIV but has not yet developed AIDS, good nutrition can help him or her stay healthy longer. Poor nutrition worsens the effects of HIV because it makes a person's immune system even weaker.



Petra Rohr-Rouendaal (1997) *Where There Is No Artist*

A "balanced" diet means eating food from the different food groups:

- **Starchy foods** (carbohydrates) include bread, cassava, cereals, millet, maizemeal (cornmeal), potatoes, pasta, rice, and yams. Carbohydrates give the body energy and some should be eaten at every meal.
- **Fruit and vegetables** such as spinach and other leafy green vegetables, carrots, cabbage, oranges, tomatoes, mangoes, melons, avocados, grapes, pawpaws and pineapples give the body vitamins, minerals, fiber and energy. They can be processed and taken as juice.
- **Proteins** are foods that build the body. These include meat, poultry, fish, eggs, beans, nuts, egusi, and dairy products such as milk, cheese, ghee and yoghurt. Dairy products also contain calcium.
- **Fats** such as cooking oils, butter, margarine, meat, oily fish like Nile perch, trout, salmon and mackerel, nuts and other protein-based foods provide energy, essential fatty acids and the fat-soluble vitamins A, D, E and K. They also provide calcium and phosphate. Too much fat can be dangerous for health, however, and most of the fat intake should be from fish and vegetable sources like nuts.

Food for people on treatment

If a person living with HIV is on antiretroviral therapy (ART), good nutrition may enhance the effectiveness of the medicines. As with any person with HIV, someone taking ARV treatment should, as far as possible, eat a balanced diet. That means food that includes plenty of green vegetables, proteins, starches and fruit. Some fat is also necessary in the diet to help maintain health and to assist in absorbing some ARVs into the body.

A person taking ARVs should seek advice from a support group, health worker or nutrionist to work out the best possible diet within their resources. There could be specific dietary recommendations for the medicines they are taking. See the chart on page 6 of this newsletter to understand specific food requirements when certain ARVs are taken.

Effects of ARV treatment on a person's eating

Several ARV medicines cause side effects that affect a person's ability to eat. Some of these effects might disappear quickly but others might last a long time. If any side effects last for a long time, a person should see their doctor or health worker. This is because the side effects might be due to another health problem or require a change in the ARV treatment.

Some simple actions that can be taken to combat some of the side effects of ARVs, for example:

Side effect	What a person can do
Nausea	Eat small meals and drink plenty of liquid to help the food go down
Diarrhea	Use some anti-diarrhea medicine and drink plenty of fluids
Bad taste	Try other foods. Avoid bad-tasting foods
Dry mouth	Eat foods that are liquid or wet such as soups, which are easier to swallow. Chew gum, because it can increase the amount of saliva in the mouth
Sore mouth or difficulty chewing	Eat foods that are liquid or wet, because they are easier to swallow

(www.aidsalliance.org/graphics/secretariat/publications/FS08.doc)

"HIV causes poor nutrition. Poor nutrition makes HIV worse. A vicious cycle. HIV reduces the absorption of food, which weakens the body's ability to resist all kinds of diseases. Poorly nourished people are much more likely to get severe diarrhea, TB and other infections."

(From Treatment Action Campaign pamphlet "Talk About Nutrition")

QUICK TIP:

Community mobilization and participation in ART is essential for maximum adherence and the best treatment outcomes.

OPPORTUNISTIC INFECTIONS AND THEIR MANAGEMENT

AIDS is caused by HIV. Once inside the body, HIV infects and destroys crucial immune system cells, called CD4 cells. As more and more CD4 cells are destroyed, the immune system weakens and loses its ability to protect the person from bacteria, viruses, fungi, and other germs which cause infections. In PLWH, these infections are called Opportunistic Infections or OIs. The OIs differ with the CD4 levels.

People do not get sick from, or die of, HIV *directly*. They get sick and can die from the OIs associated with AIDS – indeed AIDS is the end stage of HIV infection, as defined by specific OIs. Therefore, all efforts must be made to prevent and treat OIs. The following chart outlines the most common OIs and their recommended treatments and the next chart focuses specifically on the important role of cotrimoxazole in preventing OIs.

Most common OIs and recommended treatments

OI	Symptoms	Diagnosis	Treatment	Is there a recommended prophylaxis?
Tuberculosis (TB)	Cough, night sweats, chills, weight loss, fever, fatigue for 2-3 weeks	Sputum test under microscope; chest X-ray	Check your national treatment guidelines and Essential Medicines List!	In some countries isoniazid prophylaxis ***may be*** recommended
Pneumocystis carinii pneumonia (PCP)	Sudden onset of fever, dry cough, chest tightness, difficulty breathing, tiredness, night sweats	Sputum test under microscope; chest X-ray	Cotrimoxazole (sulfamethoxazole / trimethoprim)	YES, cotrimoxazole should be given to all PLWH (see more detail in the chart on page 4)
Bacterial pneumonias / chest infections	Sudden onset of high fever, cough with sputum, chest pain	Chest X-ray; blood culture; sputum culture	Depends on the bacteria, but often amoxicillin or erythromycin will be recommended	YES, cotrimoxazole reduces the risk of pneumonia
Toxoplasmosis (most commonly encephalitis, an infection of the brain)	Headache, fever, confusion, seizures, abnormal behaviour, coma	Blood test, brain scan, brain biopsy – such tests are very rarely accessible in developing countries therefore diagnosis is made based on the symptoms	Pyrimethamine + folinic acid + sulfadiazine (followed by lifelong prophylaxis)	YES, after treatment for the first episode ends. Cotrimoxazole (see above) reduces toxo risk.
Cryptococcal meningitis	Headache not relieved by painkiller (main symptom); also fever, tiredness, stiff neck, nausea, vomiting, confusion, visual problems	Spinal fluid test	Fluconazole (followed by lifelong prophylaxis)	YES, after treatment for the first episode ends
Oral candidiasis / thrush	Mouth: white patches or red spots, sore throat, pain when swallowing, nausea, no appetite Throat: as above, with severe pain and inability to eat	Signs and symptoms	Mouth: nystatin suspension or lozenges or miconazole patches / gel Throat: fluconazole	Depends on the severity / frequency of the infections
Diarrhea	2 - 3 or more loose stool per day	Stool sample	Depends on the cause Bacterial: cotrimoxazole, ciprofloxacin, doxycycline Parasitic: metronidazole Loperamide to help control the symptom (diarrhea) Fluid intake and ORS	Cotrimoxazole (see above) reduces episodes of diarrhea
Genital herpes	Painful blisters, sores in and around the genitals, buttocks, thighs		Acyclovir (also famciclovir, valacyclovir but not usually available in developing countries)	Recommended for some people
Vaginal candidiasis (thrush)	Itchiness, burning, abnormal vaginal discharge		Clotrimazole (fluconazole for those who do not respond to clotrimazole)	No

Cotrimoxazole: a crucial medicine for PLWHs

Cotrimoxazole is a combination antibiotic (sulfamethoxazole / trimethoprim) which is widely available in generic form, inexpensive and generally quite safe. In PLWH, it is recommended for the prevention of certain pneumonias and has the benefit of preventing other OIs including toxoplasmosis, some forms of diarrhea, and even malaria. The following is a summary of the most recent guidelines for the use of cotrimoxazole:

Treatment guidelines for cotrimoxazole

<table>
<tr><th>Who should receive cotrimoxazole?</th><th>Recommendations / comments</th><th>Dosage (age based)</th><th>Side effects</th></tr>
<tr><td>Infants who have been exposed to HIV</td><td>Recommended for all HIV-exposed infants starting at 4 – 6 weeks and continuing until HIV infection can be excluded</td><td rowspan="6"><6 months: 100mg sulfamethoxazole / 20mg trimethoprim (= 2.5mL suspension)

6 months – 5 years: 200mg sulfamethoxazole / 40mg trimethoprim (= 5mL suspension)

6 – 14 years: 400mg sulfamethoxazole 80mg trimethoprim (1 single strength tablet)

>14 years: 800mg sulfamethoxazole / 160mg trimethoprim (2 single strength tablets or 1 double strength tablet)</td><td rowspan="6">Although relatively uncommon, side effects do occur. If they are not severe, cotrimoxazole should be continued.

Cotrimoxazole can be temporarily interrupted (e.g. for 2 weeks) and then desensitization can be tried if feasible.

The side effects to be aware of are:
• Skin rash (ranging from mild to severe)
• Liver toxicity
• Decreased blood counts (due to toxicity to the bone marrow)

With the most severe skin reactions, cotrimoxazole must be stopped and not tried again. In this case, the recommended alternative medicine is dapsone.</td></tr>
<tr><td>HIV-exposed breastfeeding children of any age</td><td>Should be continued until HIV infection can be excluded at least 6 weeks after the child has been completely weaned from breast milk</td></tr>
<tr><td>Infants and children confirmed to be living with HIV</td><td>All children younger than 1 year should receive cotrimoxazole prophylaxis.
From 1 – 4 years, it is recommended for children with symptoms of HIV (WHO stage 2, 3, or 4) or any WHO stage with low CD4%.
Five years and above, follow adult recommendations.</td></tr>
<tr><td>Infants and children with a history of Pneumocystis Carinii Pneumonia</td><td>Cotrimoxazole prophylaxis recommended</td></tr>
<tr><td>Adults and adolescents living with HIV</td><td>Options for giving cotrimoxazole:
• WHO stage 2, 3, or 4
• Any WHO clinical stage and CD4<350
• WHO stage 3 or 4 regardless of CD4 count
• Universal cotrimoxazole for everyone living with HIV at any CD4 count or clinical stage

There are cases in which discontinuation is considered (e.g. severe side effects, good response to ARVs) but the general recommendation is to continue cotrimoxazole for life, especially in settings where malaria is common.</td></tr>
<tr><td>HIV+ pregnant women / HIV+ breastfeeding women</td><td>Women who meet the criteria for cotrimoxazole prophylaxis should begin it / continue it throughout their pregnancy and during breastfeeding</td></tr>
</table>

ANTIRETROVIRAL MEDICINES FOR HIV

ARVs are medicines used for the treatment of infection by HIV. They are not a cure for HIV, because they do not remove the virus from the body. ARVs slow down the virus from duplicating itself, but the HIV remains in the body, even if it is at low or "undetectable" levels. A person on ARVs can still infect someone else with HIV, regardless of how low the level of HIV is in their body.

It takes time for HIV to damage the immune system. Many people will stay well without any symptoms, infections, or treatment for up to ten years after infection. When the immune system does become damaged then treatment with ARVs should begin. HIV continually kills CD4 cells in the blood and the amount of damage to the immune system is measured using the CD4 count. Over time, the body cannot replace these lost CD4 cells and their number declines. When this happens the body will be more susceptible to infections. Normal CD4 counts vary but are around 1000, and the body starts to get more frequent infections at a CD4 of about 400. Around a CD4 count of 200, the body becomes susceptible to many unusual infections. In PLWH the CD4 count is used to determine the stage of HIV infection.

Different ARVs affect various stages of the HIV life cycle. ARVs don't work when they are used alone. They are ***always*** given in combination: at least three different ARVs are used together and they should preferably be from at least two different groups. Resistance develops quickly if just one ARV is used, putting the person at risk of treatment failure, both immediately and in the future when other ARVs are tried.

ARVs are defined as essential medicines by the WHO, and as such are included in the model essential medicines list (EML). If they are not yet on your country's EML, you should lobby to get them added. ARVs have greatly reduced the number of AIDS-related deaths and illnesses in every country in which they have been used.

How do ARVs work against HIV?
Different groups of ARVs have different ways of working and are complementary in their effect of preventing HIV from entering the CD4 cells, multiplying inside the CD4 cells, and leaving the CD4 cells.

What is first-line treatment regimen?
The standard combination of ARVs that should be prescribed for a person with HIV who has never had ARVs before. There are recommended regimens outlined in the charts below, but national treatment guidelines for HIV should be used to understand the various regimens for your country.

Why must ARVs be taken for life?
If ARVs are stopped, HIV begins to adapt and re-establish itself inside the CD4 cells and multiply.

What are the benefits of ARVs for people living with HIV?

- Less sickness
- Returning to a normal lifestyle, able to work again
- A woman living with HIV can have a baby with a reduced risk of transmission

From: AIDS Alliance Community Engagement for ART Trainers Manual (www.aidsalliance.org/sw31860.asp)

QUICK TIP:

ARVs are essential medicines and should be accessible to all who need them.

***Reminder: Common acronyms for dosing**

OD	Once daily
BID	Twice daily
TID	Three times a day
QID	Four times a day
QXH	Every X hours (e.g. Q8H = every 8 hours)

When to start ARVs in adults and adolescents – with or without a CD4 test (WHO 2006)

Clinical stage of HIV infection	If CD4 testing is not available	If CD4 (cells/mm³) testing is available
1 (Asymptomatic)	Do not treat	Begin ARVs if CD4 is less than 200
2 (Mild)	Do not treat	
3 (Advanced)	Begin ARVs	Consider ARVs if CD4 is less than 350 Begin ARVs before CD4 drops below 200
4 (Severe)	Begin ARVs	Begin ARVs regardless of CD4 result

When to start ARVs in children

The decision making process for beginning ARVs in infants and children is slightly different from that of adults. While both clinical signs and laboratory testing are used to make the decision, the laboratory results in children are quite different from those in adults, and different methodologies and readings are used. Readers needing more technical details are invited to send their request to *Practical Pharmacy* by email (practicalpharmacy@gmail.com) or to refer to the WHO and / or CDC guidelines which are listed in the references at the end of this edition.

Reference chart for ARVs: adults

Name of Medicine (also known as…)	Formulation issues	Usual dose for HIV treatment		Food issues	Practical issues
NRTIs (Nucleoside Reverse Transcriptase Inhibitors)					
Lamivudine (3TC)	No issue	150mg twice daily **or** 300mg once daily		No issue	Never used together with FTC
Tenofovir (TDF)	No issue	300mg once daily		With food	
Emtracitabine (FTC)	No issue	200mg once daily		No issue	Never used together with 3TC
Abacavir (ABC)	No issue	300mg BID **or** 600mg once daily		No issue	
Zidovudine (AZT)	No issue	250 - 300mg twice daily		No issue	Never used with d4T
Didanosine (ddI)	Buffered tablets or enteric-coated (EC) capsules	<60kg: 250mg once daily (adjusted if used with TDF)	>60kg: 400mg once daily (adjusted if used with TDF)	Buffered ddI and ddI-EC should be taken on an empty stomach: do not eat for 2hrs before and 1hr after the dose (not necessary for children)	▪ Not recommended to use with d4T (***especially*** during pregnancy) ▪ The reconstituted buffered powder should be refrigerated
Stavudine (d4T)	No issue	<60kg: 30mg BID	>60kg: 40mg BID	No issue	▪ Never used with AZT; not recommended to used with ddI (***especially*** during pregnancy) ▪ Oral solution, once reconstituted, should be refrigerated and is stable for 30 days
NNRTIs (non-Nucleoside Reverse Transcriptase Inhibitors)					
Efavirenz (EFV)	No issue	600mg once daily (usually taken at bedtime to minimise side effects)		Not with a high fat meal	Avoid in pregnancy
Nevirapine (NVP)	No issue	200mg once daily for 2 weeks to start, **then** the full dose is 200mg BID		No issue	Women with *a CD4 count > 250* ***when starting treatment*** should be monitored carefully for liver side effects because of a higher risk of liver damage
PROTEASE INHIBITORS (PIs) – most are recommended to be given in combination with ritonavir "boosting" (in second line regimens)					
Nelfinavir (NFV)	Tablets 250mg	1250 mg (= 5 tablets) BID		Take with food	High doses are needed in young children
Lopinavir / ritonavir (LPV/r)	<u>Capsules</u> LPV 133.3mg / r 33.3mg per capsule	▪ 3 capsules (= 400 / 100mg) twice daily ▪ 4 capsules (= 533 / 133mg) twice daily when combined with EFV or NVP		Take with food	Capsules must be refrigerated until dispensed, and then they are stable at room temperature for up to two months
	<u>Heat stable tablets</u> LPV 200mg / r 50mg	▪ 2 or 3 tablets twice daily depending on treatment history		No issue	
Indinavir (IDV) + ritonavir	No issue	800 mg + 100mg BID or 800mg + 200mg BID or 400mg + 400mg BID (*depends on use of EFV or NVP*)		Increase daily fluid intake: 1.5 litres per day is recommended. Not with a high fat meal.	<u>Ritonavir capsules</u> must be refrigerated until dispensed, and then they are stable at room temperature for 30 days <u>Ritonavir solution</u> should ***not*** be refrigerated
Saquinavir (SQV) + ritonavir	No issue	1000mg + 100mg BID		Take with food	
Fosamprenavir (FPV) + ritonavir	Not readily accessible in developing countries	700mg + 100mg BID		Take with food	
Atazanavir (ATV) + ritonavir	Not readily accessible in developing countries	300mg + 100mg once daily		Take with food	
Tipranavir + ritonavir	Not readily accessible in developing countries	500mg + 200mg BID		Take with food	

ARVs in children

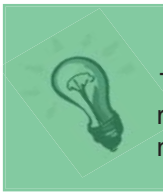
There are separate recommendations for regimens for children. Many people believe that dosing ARVs for children is complicated. Although extra care is indeed required to ensure children receive the correct doses of ARVs, the doses are easily calculated based on weight bands and / or Body Surface Area. Given the various weight bands for infants and children for each ARV, the actual dosing charts are too lengthy to include in *Practical Pharmacy* but they are available to you as a separate document upon request. Or for more information, please refer to WHO Paediatric and Infant Guidelines 2006 for these detailed dosing tables. The Columbia University and Baylor College of Medicine also have useful ARV dosing charts for children.

QUICK TIP:

ART is highly efficacious in infants and children and specific guidelines have been developed to assit health workers to scale-up treatment for these populations. Paediatric formulations are becoming more and more available

Recommended triple therapy combinations

	ART first line	ART second line (eg. after failure of first line)
Adults	AZT (or d4T) + 3TC (or FTC) + EFV (or NVP)	ddI + ABC + PI/r **or** TDF + ABC + PI/r **or** TDF + 3TC (±AZT) + PI/r
	TDF + 3TC (or FTC) + EFV (or NVP)	ddI + ABC + PI/r **or** ddI + 3TC (±AZT) + PI/r
	ABC + 3TC + EFV (or NVP)	ddI + 3TC (±AZT) + PI/r **or** TDF + 3TC (±AZT) + PI/r
	AZT (or d4T) + 3TC + TDF (or ABC)	EFV (or NVP) ± ddI + PI/r
Children	AZT + 3TC + NVP (or EFV)	ddI + ABC + LPV/R (**or** SQV/r **or** NFV)
	D4T + 3TC + NVP (or EFV)	ddI + ABC + LPV/R (**or** SQV/r **or** NFV)
	ABC + 3TC + NVP (or EFV)	ddI + AZT + LPV/R (**or** SQV/r **or** NFV)
	alternate: AZT (or d4T) + 3TC + ABC	ddI + EFV (or NVP) + LPV/R (**or** SQV/r **or** NFV)
	NOTE: EFV not for children < 3yrs	**NOTE:** SQV/r should not be used in children < 25kg



QUICK TIP:

There are medicines which interact with ARVs and OI medicines and these should be researched when starting and stopping any new medicine as dosage adjustment may be needed (See Medicines Interactions' in the reference table on page 9)

Some side effects of first-line ARVs and recommended substitutions

ARV	Side effect (severe enough to change medicines)	Suggested substitute
ABC	Hypersensitivity reaction (fever, rash, headache, sore throat, diarrhea, stomach pain, tiredness, nausea, vomiting, aches that get worse every day)	AZT or TDF or d4T
AZT	Severe anemia or neutropenia (low red or white blood cells) Severe GI intolerance (nausea / vomiting / stomach pain)	TDF or d4T or ABC
	Lactic acidosis (feeling sick, vomiting, having no appetite, feeling extremely tired, muscle weakness, weight loss)	TDF or ABC
d4T	Lactic acidosis Loss of fat (in face, arms, legs or buttocks)	TDF or ABC
	Peripheral neuropathy (pain, numbness, or tingling in the hands and feet)	AZT or TDF or ABC
TDF	Kidney toxicity	AZT or ABC or d4T
EFV	Persistent / severe hallucinations, nightmares, mood changes, or mental illness	NVP or TDF or ABC (or any PI)
	Potential to harm the unborn baby in the first trimester of pregnancy	NVP or ABC (or any PI)
NVP	Hepatitis (liver toxicity: feeling sick, vomiting, swelling / pain in the liver, yellowing of skin or eyes, light-colour stool or dark-colour urine)	EFV or TDF or ABC (or any PI)
	Hypersensitivity reaction (fever, rash, headache, etc)	TDF or ABC (or any PI)
	Severe or life-threatening rash	

Recommendations may be different if someone also needs to take treatment for TB

CD4 cell count (cells/mm³)	When to start ART when someone needs TB medicines	Which ART regimen to use when person also on TB medicines
Less than 200	As soon as TB treatment is tolerated (usually 2 – 8 weeks after starting TB medicines)	EFV + 2 NRTIs NVP + 2 NRTIs♣ 3 NRTIs (AZT+3TC+ABC [or TDF]) SQV/r + 2 NRTIs** Lop/r + extra ritonavir + 2 NRTIs**
200 – 350	8 weeks after TB medicines start	
Greater than 350	Delay ARVs *unless* other stage 3 or 4 OIs are present	
Not available	As soon as TB treatment is tolerated (usually 2 – 8 weeks after starting TB medicines)	

♣ *NVP and rifampicin should be used together only with caution due to possible decreased NVP levels and / or added risk of liver side effects*
** *PIs and rifampicin should be used together only with caution due to increased chance of liver side effects*

Fixed Dose Combination (FDC) tablets

FDCs include more than one active medicine inside one tablet. FDCs offer many potential advantages over individually-administered ARV tablets including improved adherence, lower price, and more efficient stocking and storing. FDCs are used in other treatments including for TB, hypertension, and malaria for the same beneficial reasons.The following ARVs are currently available as FDCs:

Two-medicine FDCs		Three-medicine FDCs
ABC / 3TC AZT / 3TC d4T / 3TC	LPV / r TDF / FTC	d4T / 3TC / NVP TDF / FTC / EFV AZT / 3TC / NVP 3TC / AZT / ABC

Specific FDCs for ***children*** are soon becoming available, but meanwhile, it has been acknowledged that the pragmatic approach of splitting adult FDCs in half – while not optimal – has been shown to give adequate pharmacokinetic and clinical results in children. Your country may have guidelines or a specific policy on this issue.

ADHERENCE COUNSELLING

"Adherence" means a person takes their medicines regularly, accurately, and appropriately. With ARVs, it is crucial that people learn about and understand how to use their medicines. If people do not take their medicines as prescribed, there is a real risk that:

- ✘ the medicines will not work properly,
- ✘ strains of HIV may develop which are resistant to those medicines.

The following recommendations are commonly made to promote adherence among people in need of ARVs— before treatment starts:

- ✓ Assess whether the person is ready to receive this treatment. Check whether they understand how to take the medicines. If the person is a child, assess whether their caregiver understands how to give the medicines, how many times a day, etc.
- ✓ Pinpoint the type of support that the person will need in order to best encourage their adherence. This type of support could include a "treatment buddy" (someone else who is receiving treatment and / or with whom the person can relate); nutritional support to ensure the person knows how to eat a good diet; support peer group; transport to attend clinics; etc.
- ✓ Find out whether the person knows what they need to know about the importance of taking their medicines as prescribed and the dangers of not doing so. Tell them about possible side-effects of the medicines and how to deal with them.

Petra Rohr-Rouendaal (1997) *Where There Is No Artist*

After treatment starts:

- ✓ Keep educating and reminding the person (or primary carer if the person on ARVs is a child) of the importance of taking medicines as prescribed.
- ✓ Check whether they have the necessary social support to help them take their medicines as prescribed.
- ✓ Use reminders to help the person remember when to take their medicine.

Although the adherence can be quite difficult to ***assess***, it is a critical part of a successful treatment program. Possible methods for assessing include pill counts, supportive interviews, or questionnaires (using open ended questions instead of those with simply "yes" or "no" answers).

QUICK TIP:

Adherence is enhanced when ARVs are provided free of charge, while cost sharing can worsen longterm adherence especially for the poor and vulnerable.

REFERENCES

Topic	Title / Author	Where to find it
Opportunistic Infections (OIs)	Guidelines to Opportunistic Infections associated with HIV and AIDS (TAC, 2001)	http://www.tac.org.za/Documents/Literacy/oidoc/oidoc.pdf
	Guidelines on co-trimoxazole prophylaxis for HIV-related infections among children, adolescents an adults in resource-limited settings: Recommendations for a public health approach (WHO, 2006)	http://www.who.int/hiv/pub/guidelines/ctx/en/index.html
Antiretrovirals (ARVs)	Introduction to Combination Therapy (i-base, 2006)	www.i-base.org.uk/pdf/guides/2006/starting-jun06.pdf
	ARVs in our lives (TAC, 2006)	http://www.tac.org.za/documents/arvsinourlives.pdf
	ART Fact Sheets (International HIV/AIDS Alliance, 2006)	www.aidsalliance.org/sw19588.asp
	ARV Therapy for HIV Infection in Adults and Adolescents in Resource-Limited Settings: Towards Universal Access (WHO, 2006)	http://www.who.int/hiv/pub/guidelines/adult/en/index.html
	Charts and Tables of Antiretroviral Drugs (University of California San Francisco, 2006)	http://hivinsite.ucsf.edu/tables
Pediatrics	Antiretroviral Therapy of HIV Infection in infants and children in resource-limited settings: Towards universal access (WHO)	http://www.who.int/hiv/pub/guidelines/art/en/index.html
	Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection (NIH [USA], 2006)	http://aidsinfo.nih.gov/contentfiles/PediatricGuidelines.pdf
Nutrition	Talk about Nutrition (TAC, 2006)	http://www.tac.org.za/Documents/Literacy/NutritionFactSheet.pdf
	Nutrition in Comprehensive HIV Care (Family Health International, 2007)	www.fhi.org/en/HIVAIDS/pub/fact/hivcare.htm
	Food for people on people on treatment (International HIV/AIDS Alliance, 2005)	http://www.aidsalliance.org/graphics/secretariat/publications/FS08.doc
	Handbook: Developing and Applying National Guidelines on Nutrition and HIV/AIDS.	http://www.fantaproject.org/downloads/pdfs/rcqhc.03.pdf
Treatment Literacy (TL)	Treatment Literacy: empowering communities to access AIDS treatment (Healthlink, 2006)	www.healthlink.org.uk/PDFs/arv.pdf
	Why we must provide HIV treatment information, A report of the Global treatment literacy meeting organised by the Treatment Action Campaign (TAC) and HIV i-Base (2006)	http://www.i-base.info/pdf/reports/2006/TL-Report.pdf
	Community Engagement for ART Trainers Manual (International HIV/AIDS Alliance, 2006)	www.aidsalliance.org/sw31860.asp
Medicines interactions	Database of Antireroviral Drug Interactions (University of California San Francisco)	http://hivinsite.ucsf.edu/insite?page=ar-00-02