Part One: Introduction to HIV

Section 4: Side effects of ARVs

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HIV i-Base

Treatment training for advocates

Part One: Section 4

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Section 2: Virology, HIV and viral load
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Introduction to this resource

This training resource uses eight work units for the basic course.
The format is very simple.
Other units can be added if they are more appropriate to different situations.
This resource is part of a copyright-free project that is available on the i-Base website to download in various formats, or to work online. As with other treatment information produced by i-Base we encourage translations into other languages.
It is written for people who do not have a scientific background or medical training. For people who already have a basic understanding of the way HIV and treatment works we plan to extend this modules to produce an intermediate course.
Some of the sessions are very short, and have simple questions. This is so that anyone can start learning about treatment, and in turn pass that information on to others.
Even if you are not very academic, and this training is difficult, you can still be a very effective advocate and activist. This training will help you understand the background to treatment issues.
The training material has been written in a way that makes it easier for you to then explain the information again to other people without a medical background.
As community advocates and trainers, it is important to understand and explain things that people may not be initially very interested in. And explain them in a way that makes the new information relevant to getting better care.
Most people don’t want to know about science - they just want to get on with their lives.
But you will need to explain the science behind how things work. It means getting people to believe in things that they can’t see, and getting them to trust in things that are too small to see with their own eyes.
We can’t see a virus, or a CD4 cell or any of the things that are tested in blood with the naked eye. We can’t see whether one pill or another will work better or at all.
But understanding a bit about how treatment works does empower people to have more control over their treatment and their choices.
This course is written by treatment advocates who have had no formal medical training and who are mostly HIV-positive – and we’ve tried to remember the biggest surprises that we found as we developed our own treatment knowledge.
Sometimes it’s the surprises that keep you learning – because they show how different thing are to how you imagined them.
Hopefully some of these will be helpful in developing your own treatment interest – once you start, you realise there is always more to learn.
Introduction to course programme

Sections 1-9 – Introduction to HIV

The first six sections are to introduce the most important aspects of treatment to an intermediate standard.

The aim for each section is to provide a general understanding for each area. This will form the structure for more advanced training and your own research in the future.

Understanding and completing this would enable a good grasp of 90% of the issues involved in HIV and treatment.

Although this course presents a structure for what you need to learn about HIV, the approach to learning will be more practical than just reading or taking notes.

Advocacy is based on a problem-solving. This involves an approach to new information.

You will never reach a point where you suddenly know everything.

You will always need to use research to confirm the things you think that you know, and to find out new things that you don’t.

This is also because information itself changes very quickly.

Each section then has around 15-20 questions that you should be able to answer.

The aim for the first section of basic training is to get familiar with the most important terms and concepts.

You do not need to know everything about each area in detail, and it will be too much to deal with if you try to learn everything straight away.

These first eight sections are to provide the basic structure to build on.
Section 4: Side effects of ARVs

Regular blood tests will check for some side effects. If you have any difficulties make sure your doctor takes these seriously...

Nausea and fatigue can be very serious...

4.1 Introduction
This is a very important section of the training resource. Treatment for most people can become an easy routine part of life so long as any side effects are managed effectively. This can involve treatment for the side effect, dose adjustments or changing to alternative HIV drugs. To get to this stage, you need to take your quality of life seriously, and may need to become active in your own care. A minority of side effects can be extremely serious, and it is important to be able to know which of these are associated with different drugs.

4.2 Aims for section five
This section will provide an overview of the following areas:
• overview of risk of side effects
• difference between major and minor side effects
• how to reduce side effects, including switching treatment
• main side effects linked to WHO combinations
4.3 General questions

What are side effects?
Drugs are generally tested on, and licensed, to help with specific illnesses. When they affect the body in other ways, these are called side effects. They are also called adverse events (a/e's) or drug toxicity.

In this booklet we will focus on unwanted side effects of HIV treatments.

It is important to realise that many of the symptoms of side effects are similar to symptoms of illnesses. Different treatment are needed when related to illnesses.

Why do side effects occur?

Although drugs are designed to work against specific illnesses, they sometimes interfere with other ways that your body works.

It is difficult enough to develop a drug that works against HIV, and any drug that reaches the market has undergone a lot of research trying to minimise toxicity. Often, very promising drugs have their development stopped because of toxicity. The aim is always to develop safer and more tolerable, as well as better drugs.

Most people – people living with HIV, doctors and researchers – recognise that the current drugs available to treat HIV are far from perfect and hopefully new drugs in the future will be easier to tolerate.

Do all drugs have side effects?

Most drugs have side effects of some sorts, although in the majority of cases they are mild and easily manageable.

Sometimes side effects are so mild that they are rarely noticed. Sometimes they only affect a small proportion of people that use the drug.

Sometimes side effects only become apparent after the drugs have been licensed and approved, when many more people use them over a much longer period than the original studies.

All drugs have side effects, but not all people taking drugs will experience the same effects and to the same extent.

The leaflet included in the packaging with your drugs (called the Summary of Product Characteristics, SPC) lists all the reported range of possible side effects associated with each drug. This booklet also includes other useful information including how the drug needs to be taken, possible interactions with other medications, etc.

How are side effects for drugs reported?

When drugs are first studied, every side effect that occurs is recorded, even if it only affects a few people, and even if it cannot be directly linked to the drug being studied. This means that if you look at the SPC leaflet you usually find a long list of potential side effects.

Side effects that are serious or occur most frequently are also usually discussed in more detail.

If side effects only become apparent after the drug has been approved, as with lipodystrophy, the SPC may not have this information and the leaflet will usually be changed later to reflect this.
Starting treatment for the first time

Risk of side effects can be a big worry if you are about to start HIV treatment for the first time. It will help if you know what to expect from different drugs before choosing your combination.

Ask for information about each of the drugs you might take, including the likelihood of side effects occurring. For example, what percentage of people had side effects related to those drugs and how serious they were?

You may be asked to consider entering a study looking at side effects in different combinations and these studies are important to define the extent of side effects in different combinations.

Can I change drugs easily?

If starting treatment for the first time, you will usually have a lot of flexibility in choosing and changing drugs until you find a combination that works and is tolerable.

There are already 20 approved ARV drugs, and while you can’t quite mix and match them all, you have a lot of choice. If one or more of the drugs in your combination are difficult to tolerate, you can change it for another.

Often people are not given a choice when starting treatment. However, the fewer drugs you have used previously, the more choice you have to change.

If you change a drug because of tolerability, you can usually go back and use it later if you need to. Just because you used a drug once, doesn’t mean you have ‘used up your option’ of using it again in the future. The only drug you can not do this with is abacavir. If you have a hypersensitivity reaction to abacavir you must never take it again.

Sometimes side effects improve after the first few weeks or months, but sometimes they don’t. Read the sections on individual side effects for more recommendations for how long you should put up with them before changing.

You do not have to continue with a drug to prove anything to yourself or to please your doctor. If you know something is wrong, ask your doctor to change it to something else. Some drugs are just not for everyone.

Can I predict the side effects I may get?

Generally you cannot predict how difficult or easy you will find it to take any particular drug beforehand. Sometimes, if you already have similar symptoms related to the side effects, these may make the risk of side effects greater.

For example, if results of routine liver tests show that you have raised liver enzymes, this may increase higher still if you use nevirapine. If you have high cholesterol or triglycerides before treatment, these are more likely to increase if you use protease inhibitors.

Are side effects different in men and women?

Many trials in the past enrolled far too few women to be able to study differences adequately. Sometimes differences in side effects between men and women are reported later.

Women have shown higher rates of side effects in some nevirapine studies (both liver toxicity and rash), which highlights the importance of careful monitoring.

With lipodystrophy (fat loss in your arms, legs or face; or fat gain in abdomen, breasts, and shoulders), women are more likely to report symptoms of fat accumulation rather than fat loss.
What about side effects and adherence?
Whether you are starting your first treatment or have been using HIV drugs for a long time, your doctor should have talked to you about the importance of adherence. This is the term that describes taking the meds in your combination exactly as they are prescribed - i.e. on time and following any diet advice. There is special section about adherence and side effects in Section 3.

Getting your doctor to do something...
Unfortunately it is true that:
* some doctors generally think that their patients overestimate side effects. Doctors generally think that their patients exaggerate side effects, and that they are not really as bad as their patients say.

It is also true that:
* most patients actually underestimate side effects. Patients generally say that side effects are less inconvenient or less difficult than they really are, or often forget to mention them at all.

This means there can be a big difference between what is actually going on and what doctors think is going on – and this is why side effects are often under treated.

What happens if side effects persist?
If the first treatment you are given to help with a side effect does not work, there are usually others that you can use that may be more tolerable.

This is why we have listed a range of options, including alternative treatments, for each of the main symptoms. If one doesn’t work – try the other options. Changing or stopping treatment are important options that you can discuss with your doctor.

4.4 General side effects
Nausea (feeling sick), diarrhoea and tiredness are the most common general side effects. These often become easier after the first few weeks. Very rarely, nausea and tiredness can be very serious. This is why you should tell your doctor of any problems.

Ask your doctor or pharmacist for anti-nausea and diarrhoea medications when you first start therapy so you can use these if you need them. If these medications aren’t effective, ask your clinic for stronger or more effective drugs. If this still doesn’t help you may be able to change to a different treatment.
### 4.5 Side effects associated with WHO combinations

The following pages deal in more detail with more serious side effects that are particularly associated with drugs recommended as first-line treatment in WHO guidelines. These are summarised in the table below, and more detail is provided in the text afterwards.

**Table 1: Serious side effects from WHO recommended first-line combinations**

_Symptoms in bold are urgent to describe to your doctor._

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Side Effect</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>d4T</td>
<td>Peripheral neuropathy (PN)</td>
<td>Loss of feeling (numbness) OR pain in fingers and/or toes</td>
</tr>
<tr>
<td>(stavudine)</td>
<td>Lactic acidosis</td>
<td>Feeling sick, vomiting, no appetite, extreme tiredness</td>
</tr>
<tr>
<td></td>
<td>Lipoatrophy</td>
<td>Loss of fat in face, arms, legs or buttocks. Veins become more prominent.</td>
</tr>
<tr>
<td>3TC</td>
<td>Hair loss (rare)</td>
<td>Hair thinning or falling out</td>
</tr>
<tr>
<td>(lamivudine)</td>
<td>PN (rare)</td>
<td>Loss of feeling (numbness) OR pain in fingers and/or toes</td>
</tr>
<tr>
<td>AZT</td>
<td>Anaemia</td>
<td>Feeling tired or weak</td>
</tr>
<tr>
<td>(zidovudine)</td>
<td>Lipoatrophy</td>
<td>Loss of fat in face, arms, legs or buttocks. Veins become more prominent.</td>
</tr>
<tr>
<td>nevirapine</td>
<td>Liver toxicity</td>
<td>Feeling sick, vomiting, poor appetite, yellow eyes or skin, light coloured stool or dark coloured urine, tenderness or swelling in your liver</td>
</tr>
<tr>
<td></td>
<td>Rash</td>
<td>Redness or small rash on skin</td>
</tr>
<tr>
<td></td>
<td>Severe rash</td>
<td>Any rash over more than 10% of body, any broken skin</td>
</tr>
<tr>
<td>efavirenz</td>
<td>CNS side effects</td>
<td>Mood changes, feeling disorientated or anxious, vivid or disturbing dreams, change in sleep pattern. <em>If severe then urgent to see doctor.</em></td>
</tr>
<tr>
<td></td>
<td>Liver toxicity</td>
<td>Feeling sick, vomiting, poor appetite, yellow eyes or skin, light coloured stool or dark coloured urine, tenderness or swelling in your liver</td>
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<td>Severe rash</td>
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</tr>
</tbody>
</table>
• **Liver toxicity: nevirapine, efavirenz**

Although liver toxicity with nevirapine (or efavirenz) is not very common it can be very serious and life-threatening if it does occur. Less than 5% people have to change treatment for this reason, but because nevirapine is included in Fixed Dose Combinations (FDCs) it is very important to know about these symptoms.

If you have a rash with nevirapine, it is important that you have a blood test to check whether your liver is being affected. These tests are usually for levels of liver enzymes called ALT or AST.

If this is not available, other symptoms include:
- Feeling sick (nausea) or being sick (vomiting)
- Poor appetite
- If your eyes or skin looks more yellow
- Light coloured stool or dark coloured urine
- Tenderness or swelling in your liver - your liver is just below your stomach

If you have any of these symptoms, you should contact your doctor straight away.

Liver toxicity usually occurs in the first 6 weeks of treatment, but can also occur later. If you are co-infected with hepatitis then the risk of liver toxicity is much higher, and another choice of drug would be more appropriate.

• **Rash: nevirapine, efavirenz**

About 10-15% people who use nevirapine or efavirenz get a low level rash that is not serious, and about 5% people discontinue the drug because of this.

However, 2-3% people can be at risk of a much more serious rash, especially using nevirapine.

Nevirapine should be given at a reduced dose of 200mg once-daily for the first two weeks that it is used. If there is no rash at the end of these two weeks then the dose increases to 200mg every 12 hours.

The nevirapine dose should NEVER be increased if you still have a rash.

If the rash covers more than 10% of your body or breaks the skin at all, you must see your doctor immediately. In these rare cases, nevirapine has to be stopped very quickly to reduce the risk of a severe reaction that can be fatal.

The staggered dose is just as important with Fixed Dose Combinations, but sometimes in practice it is ignored.

This is something you should check and ask your doctor about.
• **Peripheral neuropathy: d4T, rarely 3TC**

Peripheral neuropathy is the term for damage to the nerves in your hands or feet. Sometimes this starts as a tingling or numbness, but if it is allowed to develop it can become very painful and permanent and move up your limbs.

Although it is sometimes caused by HIV, it can also be a side effect from some HIV drugs. It is also more likely if you start treatment with a very low CD4 count. The main drugs linked to neuropathy are ddC (which is rarely used), d4T, ddl and to a lesser extent, 3TC.

d4T is one of the drugs in Triomune, and d4T is currently recommended in first-line therapy in many countries.

This means that you have to be very aware of any tingling or pain in your hands or feet and report this to your doctor.

Because there is no cure for neuropathy, the best choice is to stop using d4T and change it to another drug.

Many people are also able to reduce the dose of just the d4T part of your combination. Triomune for example comes with a dose of either 30mg or 40mg of d4T. If you can get each drug prescribed separately, then you may be able to reduce to dose even further to 20mg twice a day.

Reducing the dose of d4T can be enough to stop further nerve damage.

If neuropathy continues and there are no other treatment choices, then it may be better to stop your treatment for a period. You could only do this if you are doing well now and your lowest ever CD4 count never dropped much below 200 cells/mm³. You could restart treatment later if you need it again or when an alternative ARV becomes available.

Neuropathy can reverse by itself when you stop the drug that is causing it, but only if you stop the drug before serious damage has been caused. You and your doctor should manage this important side effect very carefully.
**Lipodystrophy: d4T, AZT, nevirapine, efavirenz, protease inhibitors**

Lipodystrophy refers to changes in fat cells and the distribution of body fat. This can result in losing fat from your arms, legs and face or gaining fat in your abdomen, breasts or shoulders. It also includes changes in blood fat and blood sugar levels.

Different drugs may be responsible for fat gain than those responsible for fat loss. Fat accumulation, to the stomach or breasts and/or across the shoulders, has been more linked to protease inhibitors and NNRTIs. Fat loss, from arms, legs, face and buttocks, has been linked mainly to d4T, and to a lesser extent to AZT.

d4T and AZT are both drugs that are included in recommended first line therapy in the WHO guidelines.

We do not know what causes lipodystrophy. Symptoms can occur rarely in HIV-positive people who are not on treatment. Lipodystrophy usually, but not always, develops slowly over many months or years.

Early symptoms may reverse if you switch to different HIV drugs. Exercise and dietary changes can also help. Careful body measurements by a dietician, by DEXA scan, or photographs can monitor changes.

Regular blood tests will check for other side effects. If you have any difficulties, make sure your doctor takes them seriously and does something about it.
• **Mood changes, paranoia, strange dreams, nervousness:**
  Efavirenz
  Efavirenz is linked to one set of side effects that are different to all the other drugs. This is because it can affect your mood and feelings. You may feel disoriented or anxious when you start taking efavirenz and you may have vivid or disturbing dreams. This is a side effect of this drug.

  Most people get some changes when they first start to take efavirenz, but this also reduces after the first few weeks, and is much easier to manage.

  However, some people get very serious problems and should contact their doctor to switch to another drug. Efavirenz can make your worries or depression worse and you need to be aware of this if you start a combination that includes this drug.

• **Anaemia: AZT**
  Anaemia is a shortage of oxygen-carrying red blood cells whose symptoms are extreme tiredness, and it is caused by AZT’s effect on bone marrow.

  Lower doses of AZT may be just as effective against HIV, but this is not possible in the currently available Fixed Dose Combinations.

  If you are using AZT and become extremely tired or weak, you need to see your doctor who should perform a blood test or change this treatment.

• **Lactic acidosis: d4T, ddi, AZT**
  Lactic acidosis is a term for a dangerous build up of lactate in the blood. The symptoms include feeling sick and/or very tired and muscle weakness. The risk of lactic acidosis is much higher when d4T is used with ddi - and these two drugs are not recommended to be used together in most guidelines.

  If you have these symptoms, it is essential to contact your doctor.

### 4.6 Other side effects

This booklet has focused on the more serious side effects that also occur more rarely. However anything that makes you feel unwell - even if they are not classed as serious is something you should tell your doctor about.

If you are using drugs that are not included in the WHO first line recommended combinations then use the internet to find out information about the drugs you will be using. Sites with good information (in English) on other drugs include:

  - Basic easily explained factsheets on every drug
    - [www.aidsinfonet.org](http://www.aidsinfonet.org)

  - More detailed factsheets:

Website of the European regulatory agency. This site is very difficult to navigate but it includes the full prescribing information for every EU-approved drugs in different European languages.

  - [www.emea.eu.int](http://www.emea.eu.int)
4.7 How to report side effects

If you want your doctor to be able to understand your side effects and how they are affecting you, you will need to be able to describe them very clearly.

This will be important for your doctor to check for other causes (ie that diarrhoea is not related to food poisoning or low sex drive to low testosterone levels).

The best way to do this is to keep a side effects diary from when you start a new treatment until you next see your doctor.

Information about how to describe symptoms is given in detail in the following sections. It generally includes information about the following areas:

Frequency:
- How often do you get symptoms?
- Once or twice a week? Once every day, or 5 – 10 times a day etc?
- Do they occur at night as well as during the day?

Duration:
- How long do the symptoms last?
- If you feel sick or get headaches, do they last for 20 minutes or for 3 – 4 hours, or for different times?
- Is there a pattern to when they occur – ie when you take your medications or at a regular time afterwards?

Severity:
- How bad are the symptoms?
- Often it helps to rate them on a scale (from 1 for very minor to 10 for very severe).
- A scale is a useful tool for describing anything that involves pain.
- Recording how severe side effects are when they occur is better than recording them later.
- Have you noticed anything that helps to reduce or stop them.

Quality of life:
This can really help your doctor understand how difficult the side effects are for you. Many people put up with chronic diarrhoea without explaining to their doctor that it stops them ever going to the pub or the cinema.

If you are feeling more anxious or nervous, are not sleeping properly, have a lower sex drive, have experienced taste changes, or are too nauseous to eat proper meals, it is important that your doctor understands this.

Symptoms of lipodystrophy are difficult to evaluate. Although minor changes may not be a problem, some people find that more severe symptoms can change their whole outlook on life, and become a cause for underlying depression.

If side effects are affecting adherence (ie you are not taking all your meds at the correct time) and how you take your treatment, you must tell your doctor about this.

A side effects diary is included in Section 4.9.

Use this for any changes that you notice after you start treatment.

Take this diary with you when you see your doctor at your next appointment.
### 4.8 How side effects are graded

Most information about the risk of side effects comes from the original studies when the drugs were first being developed. This is why it is very important to report to your doctor all side effects if you take part in any trials.

These studies collect information about frequency and severity of all side effects – although studies for new HIV drugs generally only use small groups of people for relatively short periods of time.

Some side effects only become apparent after the drugs have been approved and have been used by thousands more people over a longer period of time.

Knowing what the risk of side effects are for a particular drug – ie what percentage of people get these side effects – can help you to make an informed decision about which drugs to choose. Where a side effect is very common, knowing what percentage of people who needed to change therapy because of it, is useful too.

More accurate information may be provided by your doctor, or from a community treatment organisation. It is usually also included in the information that you should get with all HIV drugs.

Although there are slightly different details for reporting the severity of each side effect, they are graded from 1 to 4. Grade 1 is very mild and grade 4 is very serious – life threatening or requiring hospitalisation.

#### Grade 1 (Mild):
- Transient (goes away after a short time) or mild discomfort; no limitation in activity; no medical intervention/therapy required.

#### Grade 2 (Moderate):
- Your daily activity is affected mildly to moderately – some assistance may be needed; no or minimal medical intervention/therapy required.

#### Grade 3 (Severe):
- Your daily activity is markedly reduced – some assistance usually required; medical intervention/therapy required, hospitalisation or hospice care possible.

#### Grade 4 (Potentially life threatening):
- Extreme limitation to daily activity, significant assistance required; significant medical intervention/therapy, hospitalisation or hospice care very likely.

A general indication of grading (based on US NIH Division of AIDS) is shown below together with specific details for some of the most common side effects.

<table>
<thead>
<tr>
<th>Side effect</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoea</td>
<td>3–4 loose stools a day OR mild diarrhoea lasting less than one week</td>
<td>5–7 loose stool a day OR diarrhoea lasting more than one week</td>
<td>Bloody diarrhoea OR over 7 loose stools a day OR needing IV treatment OR feeling dizzy when standing</td>
<td>Hospitalisation required (possible also for Grade 3)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Normal activity reduced by less than 25%</td>
<td>Normal activity reduced by 25–50 %</td>
<td>Normal activity reduced by over 50 %; cannot work</td>
<td>Unable to care for yourself</td>
</tr>
<tr>
<td>Liver toxicity:</td>
<td>AST or ALT levels 1.25–2.5 Upper Limit Normal</td>
<td>&gt;2.5–5.0 ULN</td>
<td>5.0–7.5 ULN</td>
<td>&gt; 7.5 ULN</td>
</tr>
<tr>
<td>Mood disturbance</td>
<td>Mild anxiety, able to continue daily tasks</td>
<td>Moderate anxiety/disturbance, interfering with ability to work, etc</td>
<td>Severe mood changes requiring medical treatment</td>
<td>Acute psychosis, suicidal thoughts</td>
</tr>
<tr>
<td>Nausea</td>
<td>Mild OR transient reasonable food intake</td>
<td>Moderate discomfort OR intake decreased for less than 3 days</td>
<td>Severe discomfort OR minimal food intake for more than 3 days</td>
<td>Hospitalisation required</td>
</tr>
<tr>
<td>Rash</td>
<td>Redness or itchy skin on part or whole body</td>
<td>Rash that breaks skin, hard or soft pimples OR light peeling/scaling</td>
<td>Blistering, open ulcers, wet peeling, serious rash over large areas</td>
<td>Severe rash, Stevens Johnson syndrome. Severe broken skin, etc</td>
</tr>
<tr>
<td>Vomiting</td>
<td>2–3 episodes a day OR mild vomiting for less than one week</td>
<td>4–5 episodes a day OR mild vomiting for more than one week</td>
<td>Severe vomiting of all food and fluids over 24 hours OR needing IV treatment OR feeling dizzy when standing</td>
<td>Hospitalisation for IV treatment (possibly also for Grade 3)</td>
</tr>
</tbody>
</table>
4.9 Side Effects Diary

Use this page to record any changes in your health that could be related to side effects.

You may not get any side effects but if you do, then this diary will be useful. The most common side effects are listed below but include others even if they are not listed here.

1. Tingling or pain in hands/feet
2. Pain in hands/feet
3. Nausea/vomiting
4. Headache
5. Feeling tired
6. Dry skin
7. Rash
8. Diarrhoea
9. Stomach pains
10. Hair loss
11. Body shape changes
12. Weight gain
13. Weight loss
14. Changes in taste or appetite
15. Sexual problems
16. Sleep disturbance
17. Vivid dreaming
18. Feeling anxious/nervous
19. Changes to your eyesight
20. Mood swings
21. Feeling depressed
22. Other(s) specify

Side effect symptom | Day | Time(s) | Scale: 1 = very mild 5 = very bad
--- | --- | --- | ---

Other comments and questions to ask your doctor:
### 4.10 Glossary: Section 4

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>anaemia</td>
<td>low or reduced red blood cells - this reduces the amount of oxygen distributed to the body</td>
</tr>
<tr>
<td>ALT</td>
<td>alanine transaminase - a liver enzyme which, if raised, can be an indication of liver disease or liver toxicity</td>
</tr>
<tr>
<td>AST</td>
<td>aspartate transaminase - a liver enzyme which, if raised, can be an indication of liver disease or liver toxicity</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System. Consists of the brain and the spinal cord - the parts of the body that process and conduct sensory information</td>
</tr>
<tr>
<td>DEXA scan</td>
<td>Dual Energy X-ray Absorptometry, is a type of X-ray that can measure the proportion of fat, muscle and bone in a body and can also measure bone mineral density</td>
</tr>
<tr>
<td>liver toxicity</td>
<td>side effects that damage the liver or reduce liver function</td>
</tr>
<tr>
<td>side effects</td>
<td>secondary effect of a drug other than the reason it is prescribed. Side effects are usually related to negative effects. Some side effects can be positive and lead to new uses for that drug</td>
</tr>
<tr>
<td>SPC</td>
<td>Summary of Product Characteristics - the leaflet included in the packaging with your drugs</td>
</tr>
<tr>
<td>Stevens Johnson syndrome (SJS)</td>
<td>Severe life-threatening skin reaction</td>
</tr>
<tr>
<td>toxicity</td>
<td>harmful effects of a substance</td>
</tr>
<tr>
<td>ULN</td>
<td>Upper Limit of Normal</td>
</tr>
</tbody>
</table>
Section 4: Side effects of ARVs

4.11 Questions: Section 4

1. What are side effects?
2. Are side effects different in men and women?
3. Should you stop your treatment, or change it because of side effects? Give examples of each situation.
4. Which are the mildest and the most serious grades for side effects?
5. What is the difference between lipodystrophy and lipoatrophy?
6. What is peripheral neuropathy?
7. Which drug/drugs are most commonly associated with peripheral neuropathy?
8. Which is the medication from the ARVs that is most common associated with anaemia?
9. Which drug/drugs are most commonly associated with liver toxicity?
10. Name two symptoms associated with liver toxicity.
11. Which drug/drugs are most commonly associated with serious rash?
12. How is a ‘severe rash’ defined?
13. Give an example of any two grade 4 side effects.
14. When is the risk of lactic acidosis higher?
15. Which medication is associated with mood changes, paranoia and strange dreams?
4.12 Course evaluation for Section 4

Please take a few minutes to complete this evaluation. Any comments are appreciated, including on the usefulness of the evaluation.

Session One:

How much of the information was new? None 1 2 3 4 5 All

How useful was the source material? Very 1 2 3 4 5 Not

How much support time did you need in 1-2-1 questions?

Were you given enough support for this section?

Did you find better internet sites for information, if so, which ones?

Did the questions relate to the information you found yourself?

What was your pass rate?

Sit the test again in one week to see how much you remember.

Did your pass rate improve?