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anti-hiv drugs

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NAM is a charity that publishes information for people affected by HIV and those working with them.

We believe information helps people to make decisions about, and be in control of, their lives, health and treatment options.

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anti-hiv drugs

This booklet is a starting point for anyone who wants to know about treatments for HIV. It provides basic information about the drugs that fight HIV – known as antiretroviral drugs – and deals briefly with dosing, side-effects, drug interactions and drug resistance.

Information contained in this booklet has been reviewed by a panel of medical experts. For full details of side-effects and drug interactions, see the product information leaflets that are produced by drug manufacturers for each drug they produce.

This information was correct at the time of going to press (February 2010). The booklet includes information on drugs which have been licensed in the UK or European Union.

The booklet has been written to help you decide what questions to ask your doctor about any course of treatment you might be considering. We don't intend it to replace discussion with your doctor about your treatment.

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HIV is a virus which attacks the immune system – the body's defence system against infection and illness. If you have HIV, you can take drugs to reduce the level of HIV in your body. By reducing the amount of HIV in your body, you can slow or prevent damage to your immune system. These drugs are not a cure, but they can help you stay well and extend your life. Anti-HIV drugs are known as antiretroviral drugs.

How antiretroviral drugs work

HIV mainly infects cells in the immune system called CD4 cells. Over many years of HIV infection, the number of CD4 cells drops gradually but continually and the immune system is weakened. If nothing is done to slow or halt this destruction of the immune system,

a condition called AIDS (Acquired Immune Deficiency Syndrome) follows, as the immune system is no longer able to fight infections. Antiretroviral drugs work by interrupting this process.

The aim of treatment

An untreated person with HIV may have thousands or even millions of HIV particles in every millilitre of blood. The aim of treatment is to reduce the amount of HIV to very low levels (this is called an 'undetectable' level) – below 50 copies per millilitre of blood, although some HIV treatment centres are now using tests that can measure as low as 40 copies/ml.

To provide you with the best chance of reducing the amount of HIV in your blood to very low

levels, your doctor will recommend that you take a powerful combination of at least three antiretroviral drugs. Once your viral load – the amount of HIV in your blood – has dropped, your immune system should begin to recover and your ability to fight infections is likely to improve.

When to start treatment

It's not known for certain what is the best time to start treatment with anti-HIV drugs. This means you need to weigh up with your doctor the likely benefits and risks for you of starting treatment now as opposed to waiting until later.

However, it's currently recommended in UK HIV treatment guidelines that you start taking

HIV treatment immediately if you are ill because of HIV, or if you have an AIDS-defining illness.

If you do not have any symptoms, then the UK treatment guidelines (published by the British HIV Association, or BHIVA, in 2008) recommend that you start treatment when your CD4 cell count is around 350. Your doctor should start discussing HIV treatment with you when your CD4 cell count is around this figure and you are advised to start treatment as soon as you are ready.

You can find out more about CD4 counts and viral load testing in the NAM booklet *CD4, viral load and other tests*.

Recently infected with HIV?

The six-month period after you are infected with

HIV is called primary HIV infection. There is no clear evidence that taking treatment at this time will increase your chances of living a longer, healthier life. Some doctors believe, however, that treatment at this time may offer a unique chance to control HIV – lost later as your immune system sustains ongoing damage from HIV and becomes less able to attack the virus.

Whatever your CD4 cell count, if you are considering treatment during the period soon after infection, you should start as soon as possible, and certainly within six months of becoming infected with HIV. Clinical trials are underway to assess the effectiveness of taking HIV treatment at this stage and you might want to consider joining one. You can

find out more about what this might involve in NAM's booklet, *Clinical trials*.

The potential benefits of taking treatment at this time need to be weighed against the possibility of side-effects. For example, treatments may reduce your quality of life at a time when HIV would not have.

A very small number of people become really quite ill during primary infection with HIV, and it is recommended that you take HIV treatment at this stage if:

- You develop an AIDS-defining illness.
- You have a brain condition that is connected with HIV.

- You have a CD4 cell count below 200 (the level associated with a real risk of becoming very ill because of HIV) for three months or more.

However, most people do not find out that they have HIV at this very early stage, and may not know until months or even years after infection.

Infected with HIV for six months or more?

Ideally, you should certainly begin treatment before your CD4 count falls below 200. This is because if you start treatment when your CD4 count is under 200, you face a greater risk of ill health, or even death, in the short term, than if you start while your CD4 count is still above 200.

Doctors believe that the long-term effectiveness of HIV treatment is improved if a person starts taking it when their CD4 cell count is around 350. The BHIVA treatment guidelines (published in 2008) recommend that HIV treatment should be started when your CD4 cell count is around 350. Starting treatment at this time will reduce your risk of becoming ill because of HIV, as well as with some other serious illnesses.

It is a good idea to talk to your doctor about your CD4 count and when you should start treatment.

You may also wish to consider starting treatment earlier if you are also infected with the hepatitis C virus, as liver disease becomes

worse when the CD4 cell count is lower. It's also a good idea to start treatment earlier if you have a risk of heart or kidney disease.

If you are advised to start treatment but choose not to, you should review your decision regularly and have your CD4 count and viral load monitored more frequently than usually recommended, say every two months.

Infected with HIV for over six months and ill because of HIV?

Regardless of your CD4 cell count, doctors recommend that you should take HIV treatment if you are becoming ill because of HIV.

If your CD4 cell count is below 200 you should start HIV treatment immediately. This is because you have a risk of developing potentially life-threatening illnesses when your CD4 cell count is this low. You may also need to take small doses of antibiotics to prevent you developing some infections ('prophylaxis') until your CD4 cell count increases to around 250.

But ideally you should start HIV treatment when your CD4 cell count is around 350 – this reduces your risk of becoming ill due to HIV and also means it is less likely you will develop other serious illnesses as well.

A possible exception to this recommendation, however, could be if you have tuberculosis (TB). There are potential interactions between anti-

HIV drugs and a key drug used to treat TB. Because of this, many doctors recommend delaying treatment with anti-HIV drugs until a person has taken at least two months of TB treatment. Similarly, if you become ill with TB while taking HIV treatment, it may be recommended that you stop taking anti-HIV drugs for the first two months of TB treatment.

You can find out more about treatment for people with both HIV and TB in NAM's booklet *HIV & TB*.

The importance of regular check-ups

If you have HIV, you should see a doctor regularly for a check-up. Most people with HIV attend GUM clinics or specialist HIV

clinics that have doctors and other health professionals trained in HIV care. Even if you do not want to take HIV treatment at this stage, regular blood tests will tell you about the health of your immune system and if the disease is progressing.

If you are entitled to free NHS care, this care and the antiretroviral drugs provided through NHS HIV clinics and GUM clinics are free.

Monitoring the safety and effectiveness of HIV treatment

Before you start taking antiretroviral drugs, or before you switch to a new combination, you should have a number of blood tests. Viral load and CD4 tests will tell you how your HIV disease is progressing.

Your doctor may also test to see if your HIV has developed resistance to any of the antiretroviral drugs. Clinics also do a genetic test (called HLA-B*5701) to see if you may be more likely to develop an allergic reaction to the anti-HIV drug abacavir (*Ziagen*, also in the combination pills *Kivexa* and *Trizivir*). This test is most accurate in white people; more information is still needed about its accuracy in people of African or Asian origin.

When you start or change a drug combination, a viral load and CD4 count will be done within the first month of treatment. This is to check that the drugs are working. Testing is generally performed every three months, although some doctors may perform tests more often to begin with and less

frequently once you are well established on treatment and doing well.

Once you are on HIV treatment, you may have tests to measure liver and kidney function and fat and sugar levels in your blood, to assess the effects of the drugs on the normal workings of your body.

Your HIV care will also involve a number of other routine tests. These will be to monitor your general health and to see if your treatment is causing any side-effects.

For more information, see the NAM booklet *CD4, viral load and other tests*.

Preparing to start your HIV treatment

Taking antiretroviral therapy is a long-term commitment. Once you start the drugs, it is recommended that you continue treatment for the foreseeable future.

You are more likely to take your HIV treatment correctly if you are involved in the decisions about when to start treatment and about which drugs to start treatment with.

Being honest about your lifestyle with yourself and with your doctor can help ensure that you start on a drug combination that is right for you. So it's a good idea not to make unrealistic demands on yourself, and to think

about how taking medication will fit in with your eating and sleeping patterns, and with your work, family and social life. The chances are that there will be a combination of HIV treatment available that will mean you don't have to change your lifestyle at all, or make only modest alterations to your routine.

Taking your HIV treatment

It is very important not to miss doses of your anti-HIV drugs and to take them exactly as prescribed. If you miss doses, or you do not take the drugs as you are supposed to, the HIV in your body is more likely to develop resistance to them. This will reduce their long-term effectiveness.

To help make sure that you take the right combination of anti-HIV drugs, you should have a test to see if you already have any drug resistance before you start treatment (it is possible to be infected with a strain of HIV that has built-in resistance to some drugs).

If you need to change HIV treatment because your viral load becomes detectable again (see *The aim of treatment*), then your choice of new drugs should be guided by having another resistance test at this stage.

Even if you have resistance to several drugs, it's good to know that important new anti-HIV drugs have become available in the past few years. An undetectable viral load is a realistic objective for nearly all patients,

including those who have taken a lot of different treatments in the past and have drug-resistant virus.

If you are having difficulty sticking to your drug routine, discuss alternative combinations that may be easier to take with your doctor or pharmacist. There are many tips and aids which may improve your ability to take your drugs as required. For more information, speak to your healthcare team, or visit NAM's website for people living with HIV: www.namlife.org.

Further information can also be found in NAM's booklet *Adherence and resistance*.

Side-effects

Quite often people experience side-effects when taking antiretroviral drugs, especially during the first few weeks of treatment. Your doctor can prescribe a number of drugs to help you cope with this initial period.

Side-effects most commonly reported include headache, nausea, diarrhoea, and tiredness. You don't have to 'grin and bear' side-effects – report them, especially rash and fever, to your doctor promptly.

In this booklet, we have listed the more common side-effects – those affecting between 5 and 10% of people during clinical trials done as part of a drug's development.

We've also given details of rarer side-effects if they are potentially dangerous.

You can find out more about side-effects and how to deal with them in NAM's booklet *Side-effects*.

Drug interactions

Taking two or more different drugs together may result in an alteration in the effectiveness (or side-effects) of one or more of the drugs being taken. Some prescription drugs and some drugs you can buy over the counter at a chemist should not be taken in combination with certain antiretrovirals.

It's therefore important that your doctor and pharmacist know about all other medicines and drugs that you are taking – this includes those prescribed by another doctor, over-the-counter

remedies, herbal and alternative treatments, and recreational drugs.

Some antiretroviral drugs lower or increase levels of other antiretroviral drugs. Some interact with other medicines commonly used in the treatment of HIV.

Some drug combinations are contraindicated – which means you definitely should not take them together. Reasons for this include serious side-effects or interactions which make one or both drugs ineffective.

Other interactions are less dangerous, but still need to be taken seriously. Levels of one or both drugs in your blood may be affected and dosing adjustments may be required.

Some drug interactions may mean that you have a greater chance of developing certain side-effects.

Your HIV doctor and pharmacist will check for possible interactions before you start treatment with a new drug.

If any other healthcare professional prescribes you medicine, it's important that they know about the drugs you are taking for your HIV. For example, it's known that treatments for erectile dysfunction such as *Viagra* can interact with protease inhibitors and non-nucleoside reverse transcriptase inhibitors (NNRTIs). These interactions can increase blood levels of *Viagra* and similar drugs, increasing the risk of side-effects.

Some anti-HIV drugs can interact with antihistamines, treatments for indigestion, and statins – drugs that are used to control cholesterol (lipid levels). These treatments can either be prescribed or bought over the counter at high-street chemists. If you are using these drugs, you should tell your HIV doctor or pharmacist so they can check for possible interactions and recommend the most suitable treatment. Or, when you are buying them, you may wish to tell the pharmacist about the anti-HIV drugs you are taking. High-street chemists often have a private area for consultations. Or you could write the name of the drugs down and hand them to him or her. If you do need to mention the name of your anti-HIV drugs, it's very unlikely that anyone around you will recognise what they are used to treat.

Less is known about interactions with recreational drugs. However, if you use recreational drugs, it is sensible to discuss this with your doctor, HIV pharmacist or other healthcare provider.

Antiretrovirals can also interact with herbal and alternative treatments. It is known that the herbal antidepressant St John's wort lowers blood levels of NNRTIs and protease inhibitors. Garlic capsules stop the protease inhibitor saquinavir (*Invirase*) from working properly and it is thought that they could have a similar effect on other protease inhibitors as well. Test-tube studies have indicated that African potato and *Sutherlandia* interfere with the body's ability to process protease inhibitors and NNRTIs.

Interactions can even happen with medicines that are not taken by mouth. For example, ritonavir can interact with inhalers and nasal sprays containing fluticasone (e.g. *Flixotide*, *Seretide* and *Flixonase*), causing serious side-effects.

Make sure you tell your clinic doctor and HIV pharmacist about **all** the medicines you are taking.

This includes prescribed medicines, medicines you buy from a chemist, herbal or traditional medicines, and recreational drugs. Also check before taking anything new (whether you buy it yourself or have it prescribed by a doctor or dentist).

HIV treatment and pregnancy

Antiretroviral drugs are now commonly used during pregnancy as an effective means of preventing the transmission of HIV from a mother to her baby. Although the long-term effects on the child are not yet clear, evidence so far suggests that HIV treatment during pregnancy is safe. Taking HIV treatment during pregnancy greatly reduces the risk of passing on HIV to the baby, so the benefits outweigh any risks. Generally, anti-HIV drugs are not used during the first three months of pregnancy unless the woman is already on treatment. Pregnant women usually begin HIV treatment at the beginning of the seventh month of pregnancy, unless they need to take it earlier for their own health.

As a woman's health improves, her fertility may also increase. It is recommended that women considering pregnancy, or women who may conceive, discuss their treatment options with their doctor before conceiving. One reason for this is that some anti-HIV drugs (e.g. efavirenz, *Sustiva*, also in the combination pill *Atripla*) are not usually recommended for women who are planning a pregnancy. You should tell your HIV doctor or another member of your healthcare team immediately if you become pregnant.

Hormonal contraception is less effective in women on many of the anti-HIV drugs due to drug interactions. Other forms of contraception are unaffected by HIV treatment.

There is no evidence that a father's treatment increases the risk of birth defects.

For more information, see the NAM booklet *HIV & women*.

Names of anti-HIV drugs

Pharmaceutical drugs are given several names:

- First, a research name based on its chemical make-up or manufacturer, e.g. DMP266.
- Second, a generic name which is common to all pharmaceuticals with the same chemical make-up, e.g. efavirenz.

- Third, a brand name which belongs to a particular company. A brand name starts with a capital letter and is generally written in italics, e.g. *Sustiva*.

This booklet lists all names a drug has at the start of a drug entry. The most common name for each drug is used in the text.

Types of antiretroviral drugs

There are five main types ('classes') of antiretroviral drugs:

Nucleoside reverse transcriptase inhibitors (NRTIs), which target an HIV protein called reverse transcriptase, and nucleotide reverse transcriptase inhibitors (NtRTIs), which work in a very similar way to NRTIs.

This class of drugs forms the 'backbone' of an HIV treatment combination and is usually taken in a pill that combines a number of drugs.

Non-nucleoside reverse transcriptase inhibitors (NNRTIs), which also target reverse transcriptase, but in a different way to NRTIs and NtRTIs.

Protease inhibitors (PIs), which target an HIV protein called protease.

Fusion and entry inhibitors, which target the point where HIV binds onto cells of the immune system, or bind to the surface of HIV, and prevent the virus from attaching to human cells.

Integrase inhibitors, which target a protein in HIV called integrase, and stop the virus from integrating into human cells.

Each class of drug attacks HIV in a different way. Generally drugs from two (or sometimes three) classes are combined to ensure a powerful attack on HIV.

Nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs/NtRTIs) 17

Most people now take these drugs in a fixed-dose pill that combines a number of drugs. These combination pills are listed first and there are also separate entries on the individual drugs.

Atripla

Atripla provides a complete HIV combination treatment in one pill, taken once a day. It combines 200mg of FTC, 300mg of tenofovir and 600mg of the non-nucleoside reverse transcriptase inhibitor efavirenz. The dose is one pink oval tablet a day.

Side-effects: Nausea and diarrhoea; mood and sleep disturbances (due to efavirenz); headache; changes in kidney function (due

to tenofovir). Most people notice these side-effects soon after starting treatment. They often lessen or go away after the first few weeks of treatment. Your doctor will be able to give you some medicines to help control these.

Rarer side-effects include changes in your bone metabolism and kidney function (both possibly caused by tenofovir). You'll be monitored for these as part of your routine HIV care.

Tips on taking it: Take once a day. In the UK and Europe it is recommended that *Atripla* should be taken on an empty stomach. Many people take this drug at bedtime.

Resistance: Resistance to efavirenz usually causes resistance to another NNRTI called nevirapine. However, a newer NNRTI, etravirine, is still likely to be effective.

Key drug interactions: Antibiotics – close monitoring or dose adjustment needed if taking with clarithromycin, rifabutin or rifampicin.

Antihistamines – do not take with astemizole or terfenadine.

Erectile dysfunction drugs – dose adjustment needed.

Lipid-lowering drugs – close monitoring or dose adjustment needed if taking with atorvastatin, pravastatin or simvastatin.

Combivir

This is AZT and 3TC combined. The dosage is one white tablet (150mg 3TC and 300mg AZT) twice a day.

Side-effects: Nausea and diarrhoea; headache; lipoatrophy, a type of fat loss caused by AZT; for this reason, use of *Combivir* is not recommended if you have other options available. A rare, but possible, side-effect of 3TC is nerve damage in the feet, lower legs, and hands. AZT can also cause anaemia.

Tips on taking it: One tablet twice a day with or without food.

Key drug interactions: Antibiotics – close monitoring or dose adjustment needed if

taking with clarithromycin, dapsone, rifampicin or cotrimoxazole (*Seprin*).

Kivexa

This drug combines 3TC and abacavir. The dosage of *Kivexa* is one orange tablet (600mg abacavir and 300mg 3TC) once a day.

Side-effects: Abacavir can cause a serious hypersensitivity reaction. This is associated with the presence of a particular gene. Before starting treatment with *Kivexa* (or any treatment that contains abacavir) you should have an HLA-B*5701 test to see if you have this gene. If the test is positive you **must not** take *Kivexa*. If the test is negative it is probably safe to take *Kivexa*, but tell your doctor immediately if you develop a rash, fever or headache.

Other side-effects include nausea and diarrhoea; headache; tiredness. Some, but not all, research has linked abacavir with an increased risk of heart attack. For this reason, abacavir might not be a good choice if you have other risk factors for heart disease.

Tips on taking it: Take one tablet, once a day, with or without food.

Key drug interactions: Antibiotics – close monitoring or dose adjustment needed if taking with rifampicin or cotrimoxazole (*Seprin*). Hepatitis C treatment – abacavir may result in reduced levels of ribavirin (a drug used to treat hepatitis C infection).

Trizivir

This drug combines 3TC, abacavir and AZT. The dose is one green tablet (300mg AZT, 150mg 3TC and 300mg abacavir) taken twice a day.

Treatment with *Trizivir* is not generally recommended. By itself, its anti-HIV effect is often not strong enough to suppress viral load to undetectable levels. Furthermore, as it contains AZT, which has been shown to cause lipoatrophy, it should not be used if other treatment options are available.

Side-effects: See the entries on 3TC, abacavir and AZT. Abacavir can cause a serious hypersensitivity reaction. This is associated with the presence of a particular gene. Before

starting treatment with *Trizivir* (or any treatment that contains abacavir) you should have an HLA-B*5701 test to see if you have this gene. If the test is positive you **must not** take *Trizivir*.

Tips on taking it: Take one tablet twice a day, with or without food.

Key drug interactions: See the entries for 3TC, abacavir and AZT.

Truvada

FTC and tenofovir are combined in this pill. The dose is one blue tablet (200mg FTC and 300mg tenofovir) once a day.

Side-effects: See the entries for FTC and tenofovir.

Tips on taking it: Take once a day. Taking with food increases absorption.

Key drug interactions: See the entries for FTC and tenofovir.

3TC

Names: 3TC, lamivudine, *Epivir*

Approved dosage: 300mg daily, as one white 150mg tablet twice a day, two white 150mg tablets once a day or one larger, grey 300mg tablet once a day. The dose may be altered if you have impaired kidney function. Also available in a combined form with AZT called *Combivir* and in a combined form with AZT and abacavir called *Trizivir*. 3TC and abacavir are also available in a combined

formulation called *Kivexa*. *Combivir* and *Trizivir* are both taken as one tablet twice a day and *Kivexa* is taken as one tablet once a day.

Children: Approved for use in children. Liquid suspension available.

Tips on taking it: Take with or without food.

Common side-effects: Nausea, headache, tiredness, diarrhoea, abdominal pain and rash.

Rare side-effects: A rare, but possible, side-effect of 3TC is nerve damage in the feet, lower legs and hands.

Abacavir

Names: Abacavir, *Ziagen*

Approved dosage: 600mg daily, either as one 300mg yellow tablet twice daily or two 300mg tablets once a day. Abacavir and 3TC are also available in a combined formulation called *Kivexa*. The combined *Kivexa* pill contains 600mg of abacavir and 300mg of 3TC and the dose is one tablet, taken once daily. Also available in a combined form with AZT and 3TC called *Trizivir*, taken as one tablet twice daily.

Children: Liquid formulation available.

Tips on taking it: Take with or without food.

Common side-effects: Nausea and vomiting, diarrhoea, and headache.

Important warning: An allergic reaction (often involving fever and rash) occurs in approximately 5% of people taking abacavir, usually within four weeks of starting the drug. See your doctor immediately if you develop a rash, fever, shortness of breath or abdominal pain while on abacavir. You should never retry abacavir, or take *Trizivir* or *Kivexa* if you have had an allergic reaction to abacavir previously. Your clinic should conduct a genetic test (called a HLA-B*5701 test) to see if you are likely to have an allergic reaction to abacavir. If this test is positive you **must not** take abacavir. If it is negative, it is highly unlikely that an allergic reaction will occur, but you should still report symptoms like a

fever, rash or headache to your doctor immediately.

Key drug interactions: Abacavir may result in reduced levels of ribavirin (a drug used to treat hepatitis C infection).

AZT

Names: AZT, zidovudine, *Retrovir*

Approved dosage: One white and blue 250mg capsule taken twice a day. A 100mg capsule is available for dose variations. Also available in a combined tablet with 3TC called *Combivir*, taken twice a day, and in a combined tablet with 3TC and abacavir, called *Trizivir*, taken twice a day.

Children: Approved for use in children. Liquid formulation available.

Tips on taking it: Take with or after food to reduce nausea.

Common side-effects: Nausea, dizziness, vomiting, diarrhoea, muscle aches and headache. Lipoatrophy, a type of fat loss, may be a long-term side-effect of AZT. For this reason treatment with AZT is not recommended if you have other treatment options available to you.

Key drug interactions: Do not take with d4T. Drug levels may be affected if methadone, phenytoin or probenecid are taken with AZT. Doses of clarithromycin and AZT should be taken one hour apart.

d4T

Names: d4T, stavudine, *Zerit*, *Zerit PRC*

Approved dosage: For people over 60kg (9½ stone): one dark orange 40mg capsule twice a day; for people under 60kg: usually one light and dark orange 30mg capsule twice a day. *Note:* people with impaired kidney function or peripheral neuropathy may take 15 or 20mg twice a day. d4T is available as 40mg, 30mg, 20mg and 15mg capsules.

Children: Approved for use in children. d4T comes in a powder form which is made into a liquid.

Tips on taking it: Although the product information advises taking d4T on an empty stomach, this does not affect absorption of the drug and it is possible to take with or without food. However, taking it with food reduces nausea.

Common side-effects: Peripheral neuropathy, headache, nausea, diarrhoea or constipation, lipodystrophy, fatigue, depression and rash. Fat loss (lipoatrophy) has been recognised as a long-term side-effect of d4T. For this reason d4T is not recommended if you have other treatment options available to you.

Rare side-effects include: Pancreatitis and liver problems.

Key drug interactions: Do not take with AZT or ddI. Drugs that may cause peripheral neuropathy or pancreatitis (e.g. ddI) may increase the risk of these side-effects.

ddI

ddI is available in two formulations, as a tablet and capsule. Advice on taking ddI differs depending upon which formulation you are taking, so it is very important to check that you are following the advice that relates to the form you are taking.

ddI tablet

Names: ddl, didanosine, *Videx*

Approved dosage: For people over 60kg (9½ stone): two white, orange-flavoured

200mg tablets once daily; for people under 60kg: one large white, orange-flavoured 200mg tablet plus two large white, orange-flavoured 25mg tablets once daily.

Note: people who have kidney or liver abnormalities may be advised by their doctor to take a lower dose.

Children: Approved for use in children.

Liquid formulation available (not licensed in the UK).

Tips on taking it: Take on an empty stomach to maximise the amount of ddI that gets into your blood. Take ddI tablets or liquid at least two hours after eating and wait another half an hour before eating again. During this fasting period avoid fruit juices (except clear

apple juice), fizzy drinks and milk. Smoking may also reduce the absorption of ddI. Crush and dissolve ddI tablets in cold water or clear apple juice. If you take a dose first thing in the morning, dissolve your dose the night before and leave in the fridge. Pill-crushers are available from pharmacies.

Side-effects: Diarrhoea, peripheral neuropathy, rash, fatigue, nausea, vomiting and abdominal pain, and pancreatitis.

Key drug interactions: ddI tablets should be taken at least two hours apart from any medicines which carry the warning 'not to be taken at the same time of day as indigestion remedies', as the effectiveness of these other medicines may be reduced. Examples of drugs

which should not be taken at the same time as ddI tablets are atazanavir, itraconazole, ketoconazole, indinavir, ciprofloxacin, valganciclovir, tetracycline antibiotics and delavirdine (an NNRTI, not licensed in the UK). Do not take with allopurinol or intravenous pentamidine. Drugs such as H2 blockers, omeprazole, rifampicin and rifabutin may increase the risk of pancreatitis. ddI tablets should not be taken at the same time of day as some other medications. For example, ddI tablets and protease inhibitors must be taken at least one hour apart. Tenofovir increases ddI levels and should only be taken in combination with ddI if no other options are available. If you do need to take ddI and tenofovir, you should be very closely monitored by your clinic. In this case the ddI

dose will usually be reduced (250mg for weight >60kg, 200mg for weight <60kg) and the ddI and tenofovir can be taken together, with or without food.

ddI capsule

Names: ddI EC capsules, didanosine enteric coated, *Videx EC*

Approved dosage: For people over 60kg (9½ stone): one 400mg white capsule once a day, or one 200mg capsule twice a day; for people under 60kg: one 250mg capsule once a day or one 125mg capsule twice daily.

Note: people who have kidney or liver abnormalities may be advised by their doctor to take a lower dose.

Children: ddI EC is approved for use in children.

Tips on taking it: Take with water on an empty stomach to maximise the amount of ddI EC that gets into your blood. Take ddI EC capsules at least two hours before and at least two hours after food. Some people find taking the capsules before bedtime is more convenient. During this fasting period, avoid all liquids except water.

Common side-effects: Diarrhoea, peripheral neuropathy, rash, fatigue, nausea, vomiting and abdominal pain.

Rare side-effects include: Pancreatitis and liver problems, particularly with long-term use.

Key drug interactions: It is okay to take ddI EC at the same time as other antiretrovirals as long as they do not need to be taken with food. ddI EC does not interact with medicines that should not be taken at the same time as indigestion remedies.

Tenofovir increases ddI levels and should only be taken in combination with ddI if no other options are available. If you do need to take ddI and tenofovir, you should be very closely monitored by your clinic. In this case the ddI dose will usually be reduced and the ddI and tenofovir can be taken together, with or without food.

FTC

Names: FTC, emtricitabine, *Emtriva*

Approved dosage: One blue and white 200mg capsule once a day. FTC is also available in a combination tablet with tenofovir called *Truvada*. This is taken once a day and consists of 200mg of FTC and 300mg of tenofovir. Also in a combination tablet with tenofovir and efavirenz called *Atripla*. This is taken once a day and consists of 200mg of FTC, 300mg of tenofovir and 600mg of efavirenz.

Note: people who have kidney abnormalities may be advised by their doctor to take a lower dose.

Children: Approved for use by children aged four months and over.

Tips on taking it: Can be taken with or without food. *Atripla* should be taken on an empty stomach.

Common side-effects: Headache, diarrhoea, nausea and rash.

Tenofovir

Names: Tenofovir, *Viread*

Approved dosage: One blue, pear-shaped film-coated 300mg tablet daily. Dose may be adjusted if kidney function impaired. Also available in a combination tablet with FTC called *Truvada*. This is taken once a day and consists of 300mg of tenofovir and 200mg of FTC. Also in a combination tablet with FTC and efavirenz called *Atripla*. This tablet is

taken once a day and consists of 300mg of tenofovir, 200mg of FTC and 600mg of efavirenz.

Tips on taking it: Take with food, to increase absorption. However, recommendations in the US say the drug can be taken with or without food. *Atripla* should be taken on an empty stomach.

Common side-effects: Nausea, diarrhoea, flatulence, dizziness and vomiting.

Rare side-effects: Changes in bone metabolism and kidney function. You'll be monitored for these as part of your routine HIV care.

Key drug interactions: Tenofovir increases levels of ddI. Should only be used with atazanavir if it is boosted by ritonavir.

30 Non-nucleoside reverse transcriptase inhibitors (NNRTIs)

Efavirenz

Names: Efavirenz, *Sustiva*

Approved dosage: One dark yellow 600mg tablet once a day or three dark yellow 200mg capsules once a day. Efavirenz is also available in a combination tablet with FTC and tenofovir (*Atripla*). This is taken once a day and consists of 600mg efavirenz, 200mg of FTC and 300mg of tenofovir.

Children: Approved for use in children aged three years and above, who weigh more than 13kg. Oral solution available (but note that the dose of the solution is different from the dose of the tablets or capsules).

Tips on taking it: Recommended to take on an empty stomach. Avoid taking it with a high fat meal which may increase absorption. If efavirenz causes confusion or dizziness, take before going to bed.

Common side-effects: Dizziness, headache, sleep disturbances, diarrhoea, nausea, vomiting, rash and psychological effects (these are most commonly experienced during the first four weeks of treatment and include feeling 'out of sorts', confusion, abnormal dreams, disturbance in attention, and depression. In most cases these side-effects go away by themselves and it isn't necessary to stop taking efavirenz).

Rare side-effects: Stevens-Johnson Syndrome (very rare), disturbance in liver function tests,

aches and pains, and severe psychological symptoms including paranoia and suicidal thoughts.

Resistance to efavirenz: Is likely to cause resistance to delavirdine (an NNRTI that is not licensed for use in the UK) and nevirapine.

Key drug interactions: Alters blood levels of protease inhibitors. Do not take efavirenz with St John's wort, ginkgo biloba, astemizole, triazolam and midazolam. Efavirenz may affect drug levels of *Viagra*, *Cialis*, *Levitra*, *Zyban* or rifabutin and so dose adjustments are needed. Dose adjustment is also necessary if taken with clarithromycin and rifampicin. Do not take with simvastatin.

Brain: Efavirenz crosses the blood-brain barrier and has some action against HIV in the brain and the central nervous system.

Pregnancy: Efavirenz is not recommended during pregnancy or in women planning pregnancy due to a theoretical risk of nervous system abnormalities in the infant. If you become pregnant while taking efavirenz continue taking your medication and contact your clinic for advice.

Etravirine

Names: TMC-125, etravirine, *Intence*.

Approved dose: Two 100mg white tablets twice a day. An alternative dose is 400mg (four 100mg tablets) once a day. Take with food.

Common side-effects: Rash, especially during the first two weeks of treatment.

Rare allergic reaction: A few cases of very serious allergic reactions to etravirine have been reported. Physical symptoms include rash, fever, general malaise, fatigue, muscle or joint aches, blisters, oral lesions and conjunctivitis. If you develop these symptoms whilst taking this drug you should contact your HIV clinic immediately or A&E if out of hours.

Resistance: Etravirine works well in patients who have resistance to other NNRTIs.

Drug interactions: Do not take with tipranavir/ritonavir, fosamprenavir/ritonavir,

atazanavir/ritonavir, full-dose ritonavir, or other NNRTIs. Caution needed if taken with lopinavir/ritonavir, saquinavir/ritonavir, or maraviroc. Etravirine should not be taken with the anti-TB drugs rifabutin or rifampicin, nor with the herbal antidepressant, St John's wort.

Nevirapine

Names: Nevirapine, *Viramune*

Approved dosage: One white 200mg tablet once a day for the first two weeks and then one 200mg tablet twice a day thereafter. Men should not start treatment with nevirapine if their CD4 cell count is above 400, and women should not start treatment with nevirapine if their CD4 cell count is above 250, as this increases the risk of potentially dangerous side-effects.

Experimental dosage: Two white 200mg tablets once a day. This is not normally recommended within the first two months of starting nevirapine.

Children: Syrup available.

Tips on taking it: Take with or without food.

Common side-effects: Headache, rash (usually in the first six weeks of treatment), fatigue, liver problems (usually in the first six weeks of treatment), muscle pain and nausea. During the first six weeks of treatment with nevirapine the health of your liver will be intensively monitored and you will be advised to have liver function tests every one to two weeks.

Rare side-effects include: Stevens-Johnson Syndrome.

Resistance to nevirapine: Is likely to cause resistance to delavirdine (an NNRTI that is not licensed in the UK) and efavirenz.

Key drug interactions: Nevirapine may reduce levels of a number of drugs including atazanavir/ritonavir, lopinavir/ritonavir, ketoconazole and erectile dysfunction remedies. Nevirapine may reduce the effectiveness of oral contraceptives. Nevirapine may worsen side-effects of clarithromycin and erythromycin. Do not take with St John's wort.

34 Protease inhibitors

Atazanavir

Names: Atazanavir, *Reyataz*

Approved dosage: 300mg (two light and dark blue 150mg capsules) plus one cream-coloured 100mg ritonavir capsule taken together once a day. If the combination also contains efavirenz or nevirapine the dose is 400mg (two turquoise 200mg capsules) plus one 100mg ritonavir capsule taken together once a day.

Tips on taking it: Take with a snack to improve absorption.

Common side-effects: Non-dangerous yellowing of the skin caused by increased levels of bilirubin, peripheral neuropathy, headache,

insomnia, vomiting, diarrhoea, abdominal pain, nausea, indigestion, rash, tiredness.

Rare side-effects: Abnormal liver function, kidney stones and pancreatitis.

Key drug interactions: When taken with efavirenz or tenofovir, levels of atazanavir drop. However, adding 100mg of ritonavir counters this. Take ddI tablets at least two hours before or one hour after atazanavir (not necessary if taking *Videx EC* capsules). Doses of the anti-TB drug rifabutin should be reduced by 75%. Reduce doses of clarithromycin by half if taken at the same time as atazanavir. Reduce doses of treatments for erectile dysfunction by half. Don't take with St John's wort. Don't take

antacids within four hours of atazanavir. Don't take lansoprazole, omeprazole, rifampicin, phenytoin, carbamazepine or simvastatin with atazanavir. Take ranitidine once a day only, twelve hours apart from atazanavir (for example, take atazanavir in the morning and ranitidine at night).

Darunavir

Names: Darunavir, *Prezista*

Approved dosage: 600mg (two orange 300mg tablets) plus one 100mg cream-coloured ritonavir capsule taken together twice a day.

Tips on taking it: Must be taken with food to improve absorption.

Common side-effects: Diarrhoea, nausea, rash and headache.

Resistance to darunavir: The drug works well in many people with resistance to other protease inhibitors. However, resistance to amprenavir/fosamprenavir can reduce the effectiveness of darunavir.

Key drug interactions: Astemizole; carbamazepine; dihydroergotamine; ergometrine; ergotamine tartrate; St John's wort; midazolam; phenytoin; pimozide; rifampicin; and simvastatin. Careful monitoring required if taken with methadone, rifabutin, *Viagra*, *Cialis* or *Levitra*.

Fosamprenavir

Names: Fosamprenavir, *Telzir*

Approved dosage: One pink 700mg tablet with one cream-coloured 100mg capsule of ritonavir twice daily.

Tips on taking it: Take with or without food.

Common side-effects: Diarrhoea, increased blood fats, nausea, vomiting, pain in the stomach, rash, headache, feeling dizzy, tiredness, changes in liver and pancreas function.

Rare side-effects include: Changes in cholesterol levels, Stevens-Johnson Syndrome.

Resistance to fosamprenavir: Is likely to cause resistance to ritonavir, and possibly also to saquinavir, indinavir and nelfinavir.

Key drug interactions: *Viagra, Cialis, Levitra, Zyban, simvastatin.*

Indinavir

Names: Indinavir, *Crixivan*

Approved dosage: 800mg (two cream-coloured 400mg capsules) every eight hours.

Experimental dosage: Two 400mg capsules of indinavir and 100mg of ritonavir twice a day. Alternatively, two 400mg capsules of indinavir and 200mg of ritonavir twice a day (other

doses have been used in conjunction with drug-level monitoring studies).

Tips on taking it: If indinavir is taken with ritonavir, there are no food restrictions. When indinavir is taken without ritonavir it should ideally be taken on an empty stomach (avoiding food for two hours before and one hour after each dose). Alternatively it can be taken with a light, low-fat snack, e.g. 30g cereal with 100g skimmed milk or a tea or coffee with sugar and skimmed milk plus one biscuit, or two small slices of toast with low-fat spread and 15g of jam per slice. For more suggestions, see NAM's *Nutrition* booklet, or discuss your options with an HIV dietitian or pharmacist. Drink 1.5 litres of water or a non-caffeinated drink throughout the day in addition to your usual fluid intake, to

reduce the risk of kidney stones. Indinavir must be stored with a desiccant to keep the capsules dry. Can be kept in a dosette box without a desiccant for up to three days.

Common side-effects: Headache, dizziness, nausea, vomiting, diarrhoea, rash, kidney stones, fatigue, strange tastes in the mouth, abdominal pain, sleep disturbance, flatulence, dry mouth, acid regurgitation, in-growing toenails, dry skin and muscle pain.

Rare side-effects include: Diabetes and liver abnormalities.

Resistance to indinavir: Causes resistance to ritonavir, and is likely to cause resistance to saquinavir, nelfinavir and fosamprenavir.

Key drug interactions: Do not take indinavir with St John's wort, terfenadine, astemizole, cisapride, alprazolam, pimozone, rifampicin, amiodarone, quinidine and ergot alkaloids. Careful monitoring and dose adjustments may be needed if indinavir is taken with drugs including: rifabutin, ketoconazole, NNRTIs, *Viagra*, *Cialis*, *Levitra* and simvastatin. Large doses of vitamin C have been shown to reduce indinavir concentrations in the blood.

Lopinavir/ritonavir (as *Kaletra*)

Names: Lopinavir/ritonavir, *Kaletra*

Note: Lopinavir is only available in combination with ritonavir.

Approved dosage: 400mg lopinavir plus 100mg ritonavir, in tablets containing 200mg

lopinavir and 50mg ritonavir so two yellow tablets are required twice daily. There is now also a once-daily dose of *Kaletra* consisting of four tablets once a day, for patients who are starting treatment for the first time.

Children: A tablet containing 100mg of lopinavir and 25mg of ritonavir is available for use in children. Liquid formulation also available.

Tips on taking it: The tablet can be taken with or without food, but must not be broken, chewed or crushed.

Common side-effects: Diarrhoea, insomnia, headache, nausea, vomiting, abdominal pain, abnormal stools, indigestion, flatulence,

rash, feeling weak and changes in blood fats and sugars.

Rare side-effects include: Abnormal kidney or liver function.

Resistance to lopinavir/ritonavir: Likely cross-resistance with indinavir and ritonavir and, to some extent, fosamprenavir. High-level resistance to other protease inhibitors may reduce the effectiveness of lopinavir/ritonavir.

Key drug interactions: Due to the presence of ritonavir, avoid all drugs that negatively interact with ritonavir (see ritonavir entry). Efavirenz and nevirapine reduce levels of lopinavir/ritonavir and dose adjustments are

recommended. Do not take with St John's wort. Monitoring and dose adjustment may be necessary when lopinavir/ritonavir is taken in conjunction with amiodarone, bepredil, quinidine, systemic lidocaine, warfarin, calcium channel blockers, *Viagra*, *Cialis*, *Levitra*, *Zyban*, tacrolimus, cyclosporin, methadone, rifabutin, rifampicin, oral contraceptives, ketoconazole, intraconazole and simvastatin.

Nelfinavir

Names: Nelfinavir, *Viracept*

Approved dosage: Five blue 250mg tablets twice a day, or three blue 250mg tablets three times a day.

Children: Nelfinavir is approved for use in children. Available in powder form.

Tips on taking it: It is very important that you take nelfinavir with food to increase absorption.

Common side-effects: Diarrhoea, nausea, flatulence, rash and metabolic abnormalities.

Rare side-effects include: Jaundice and diabetes.

Resistance to nelfinavir: Is likely to cause resistance to saquinavir and may cause resistance to ritonavir and indinavir.

Key drug interactions: Careful monitoring and dose adjustments may be needed if nelfinavir is taken with drugs including: oral contraceptives, rifabutin, methadone, carbamazepine, phenytoin, *Viagra*, *Cialis*, *Zyban*, *Levitra* and some lipid-lowering drugs. Do not take nelfinavir with terfenadine, rifampicin, astemizole, cisapride, pimozone, amiodarone, quinidine, midazole, triazolam, simvastatin, ergot alkaloids or St John's wort.

Ritonavir

Names: Ritonavir, *Norvir*

Approved dosage: Ritonavir is mainly used in small doses (usually 100mg or 200mg once or twice daily) to 'boost' other protease inhibitors. It has been approved for use in this

way in the following doses: ritonavir/ atazanavir 100/300mg once daily; ritonavir/fosamprenavir 100/700mg twice daily; ritonavir/darunavir 100mg/600mg twice daily; ritonavir/lopinavir 100mg/400mg twice daily; ritonavir/saquinavir 100mg/1000mg twice daily; ritonavir/tipranavir 200mg/500mg twice daily. Ritonavir is also approved for use as a single protease inhibitor at a dose of 600mg twice a day (six 100mg cream-coloured capsules). However it is very rarely used in this way.

Tips on taking it: Take with food to reduce nausea. Ritonavir capsules should be stored in a fridge, but can be kept at room temperature for up to 30 days. A new

heat-stable ritonavir tablet was approved in February 2010. Ritonavir liquid should always be stored at room temperature.

Common side-effects: Diarrhoea, stomach pain, nausea, vomiting, weakness, taste abnormalities, loss of appetite, numbness around the mouth, metabolic abnormalities.

Resistance to ritonavir: Causes resistance to indinavir and is likely to mean some resistance to nelfinavir, saquinavir and fosamprenavir.

Key drug interactions: Ritonavir interacts with many other medications. Consult your doctor or HIV pharmacist before taking any other drugs with ritonavir (including

inhalers, medicines bought from a high-street chemist, herbal preparations and recreational drugs). Do not take ritonavir with piroxicam, dextropropoxyphene, pethidine; amiodarone, encainide, flecainide, propafenone, quinidine, *Zyban*, astemizole, terfenadine, clozapine, pimozide, alprazolam, clorazepate, diazepam, estazolam, bepridil, cisapride; fluorazepam, midazolam, triazolam, zolpidem, *Viagra*, *Cialis*, *Levitra* or St John's wort.

Saquinavir

Names: Saquinavir, *Invirase*

Approved dosage: Two orange 500mg tablets (or five yellow and green 200mg capsules) together with one 100mg capsule of ritonavir twice a day.

Children: Saquinavir is not approved for use in children.

Tips on taking it: Take saquinavir within two hours of a full meal to increase absorption.

Common side-effects: Fatigue, anaemia, nausea, vomiting, and metabolic disorders.

Rare side-effects: Diabetes and Stevens-Johnson Syndrome.

Resistance to saquinavir: May mean resistance to nelfinavir, indinavir and ritonavir.

Key drug interactions: Do not take with rifampicin, rifabutin, astemizole, terfenadine,

cisapride or St John's wort. Careful monitoring and dose adjustments may be needed if taking saquinavir with many other drugs including: NNRTIs, methadone, anti-arrhythmics, some antidepressants, some anticonvulsants, some lipid-lowering drugs, dapsone, ergotamine, dihydroergotamine, dexamethasone, *Viagra*, *Cialis* and *Levitra*. Do not take with garlic supplements.

Tipranavir

Names: Tipranavir, *Aptivus*

Approved dosage: Two 250mg pink capsules together with 200mg (two 100mg cream-coloured capsules) ritonavir, twice daily.

Tips on taking it: To be taken with food. Tipranavir capsules should be stored in the fridge, but can be kept at room temperature (below 25 degrees C) for up to 60 days.

Common side-effects: Diarrhoea, nausea, vomiting, abdominal pain, flatulence, tiredness, headache, increased blood fats, liver abnormalities and rash.

Rare side-effects: Diabetes and kidney problems.

Resistance to tipranavir: Test-tube studies report that resistance to tipranavir is slow to develop, and that there is no clear pattern of cross-resistance to currently available protease inhibitors.

Key drug interactions: Rifampicin, cisapride, pimozide, sertindole, triazolam, ergot derivatives, astemizole, terfenadine, simvastatin, lovastatin, amiodarone, bepridil, flecainide, propafenone, quinidine and St John's wort. Take special care with *Viagra*, *Cialis* and *Levitra*, disulfiram, fluticasone, atorvastatin and metronidazole.

Tipranavir may also interact with other types of medicines, which may lead to a loss of effectiveness of these medicines. These include the morphine-substitute methadone and oral contraceptives. If you are using oral contraceptives to prevent pregnancy you should use an additional or different type of contraception.

If you are taking ddI EC, it should be taken at least two hours apart from tipranavir.

T-20

Names: T-20, enfuvirtide, *Fuzeon*

Approved dosage: 90mg (given as a 1ml injection under the skin) twice a day. The drug has to be made up from powder.

Tips on taking it: Extensive support and advice is available to people prescribed T-20. Doses can be prepared within 24 hours of use, so two doses can be prepared together. T-20 can be injected into the thigh, arm or abdomen. A different injection site should be used each day to reduce problems with injection-site reactions. Massage, angle and speed of injection can all help to reduce the risk of these.

Common side-effects: Injection-site reaction (rarely a reason to stop treatment), possibly involving an itchy rash, swollen red or puffy skin, hardening of the skin, or cysts; also, diarrhoea, nausea, sinusitis, skin problems, influenza, ear infection, decreased appetite, anorexia, anxiety, nightmare, irritability, peripheral neuropathy, conjunctivitis, vertigo, nasal congestion, pancreatitis, gastro-oesophageal reflux disease, muscle pain, flu-like illness, weakness. For reasons that aren't properly understood, stomach problems that some protease inhibitors cause are less likely to occur in people taking T-20.

Rare side-effects: Abscesses at the injection site and rare hypersensitivity

reaction involving difficulty breathing, fever, chills, skin rash and low blood-pressure.

Resistance to T-20: Resistance to T-20 develops rapidly if an undetectable viral load is not achieved; however, people who are resistant to T-20 may still get some continuing benefit from it.

Key drug interactions: No significant interactions recorded.

Maraviroc

Names: Maraviroc, *Celsentri*

Approved dosage: 300mg as two oval blue 150mg pills twice daily when combined with any NRTIs, with raltegravir, tipranavir/ritonavir or efavirenz or nevirapine. 150mg as one oval blue 150mg pill twice daily when combined with all other protease inhibitors. 600mg as four blue oval 150mg pills twice daily when combined with the NNRTI etravirine (*Intelence*).

Tips on taking it: Maraviroc should only be used by people with a type of HIV called CCR5-tropic HIV. Not everybody who has taken a lot of anti-HIV drugs and who has resistant virus will have this type of HIV. Your

HIV clinic should carry out a test called a tropism test to see if you have CCR5-tropic HIV before prescribing the drug. Take with or without food.

Common side-effects: Liver toxicities, abdominal pain, cough, upper respiratory tract infections, sore muscles.

Resistance to maraviroc: Resistance to maraviroc is still being studied and appears to occur in a different way to other anti-HIV drugs.

Key drug interactions: Dose adjustment needed with some anti-HIV drugs (see section on dosage above). Limited information about interactions with other medicines.

Raltegravir

Names: Raltegravir, *Isentress*

Dose: One oval pink 400mg tablet twice daily.

Tips on taking it: Take with or without food.

Common side-effects: Diarrhoea, nausea and headache.

Key drug interactions: Can affect blood levels of tipranavir/ritonavir and atazanavir/ritonavir, but it is not necessary to adjust drug doses because of this. Raltegravir should be dosed at 800mg twice daily when used with the TB drug rifampicin.

48 Summary

- Anti-HIV drugs prevent HIV from damaging your immune system, and so prevent ill health and prolong lives.
- The best time to begin anti-HIV drugs is not known. Decisions are guided mainly by the CD4 count and any symptoms that you may have. It is currently recommended that treatment starts before the CD4 count falls below 350.
- Combinations of at least three anti-HIV drugs provide the best chance of reducing the amount of HIV in your blood to very low levels.
- Taking your anti-HIV drugs as prescribed is extremely important, as this will prolong the benefit you will get from them, and reduce the risk of resistance to the drugs developing.
- Tell a member of your HIV healthcare team (doctor, nurse or pharmacist) if you are having problems, including side-effects, with your anti-HIV drugs. Make sure they know about any other medicines you are taking (including those bought from a chemist, herbal preparations and recreational drugs).

adherence The act of taking treatment exactly as prescribed, i.e. at the right times, with or without food as needed.

antiretroviral A medicine that acts against retroviruses such as HIV.

CD4 A molecule on the surface of some white blood cells onto which HIV can bind. The CD4 cell count roughly reflects the state of the immune system.

immune system The body's mechanisms for fighting infection and getting rid of cells that are not working properly.

lipodystrophy A disruption in the way the body produces, uses and stores fat.

opportunistic infection Specific infections that cause disease in someone with a damaged immune system.

regimen A drug or treatment combination and the way it is taken.

resistance A drug-resistant HIV strain is one that is less susceptible to the effects of one or more anti-HIV drugs.

undetectable viral load A level of viral load too low to be picked up by the viral load test being used.

viral load Measurement of the amount of virus in a sample. HIV viral load in the blood is checked to see if treatments are working.

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As a result of reading this resource have you learnt anything about HIV, your health and treatment?

- I have learnt nothing new
- I have learnt something but it's not particularly useful to me
- I have learnt something that is useful to me
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Please tell us in your own words what you have learnt:

.....

.....

.....

As a result of reading this resource I am more likely to:
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- Discuss my treatment and care with my healthcare team
- Feel more confident talking to my healthcare team
- Feel better equipped to take decisions regarding my treatment and care
- Feel more informed about HIV treatment and living well with HIV
- Find other information and support, if I need it
- None of the above

Please tell us if there is anything else you are more likely to do or feel as a result of reading this booklet:

.....

.....

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Please tear off this page and post it to: NAM, FREEPOST LON17995 London, SW9 6BR.

Alternatively you can complete the questionnaire at www.aidsmap.com/feedback.

We would like to ask you a few more questions. You don't have to answer these, but if you do, it will help us make sure our information is relevant and useful to our readers.

Please circle the description that best describes you

- I am: male / female / transgender
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- (If positive) I think I got HIV as a result of: sex between men and women / sex between men / injecting drugs /
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other / don't know / rather not say
- I work: in the HIV field / not in the HIV field / I do not work at the moment
- I got this booklet from: nurse / doctor / clinic / THT's HIV Health Support Service /
support group / friend / family member / NAM /
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If you have any other comments on the content of this booklet please email info@nam.org.uk

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from the Terrence Higgins Trust

telephone 0845 1221 200

opening hours Monday-Friday, 10am-10pm
Saturday & Sunday, 12pm-6pm

African AIDS Helpline

telephone 0800 0967 500

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	nelfinavir <i>Viracept</i>	39
	ritonavir <i>Norvir</i>	40
	saquinavir <i>Invirase</i>	42
	tipranavir <i>Aptivus</i>	43

NRTIs / NtRTI

	name	page
	3TC lamivudine, <i>Epivir</i>	21
	abacavir <i>Ziagen</i>	22
	AZT zidovudine, <i>Retrovir</i>	23
	d4T stavudine, <i>Zerit</i>	24
	ddI didanosine, <i>Videx, VidexEC</i>	25
	FTC emtricitabine, <i>Emtriva</i>	28
	tenofovir <i>Viread</i>	29

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NNRTIs

	name	page
	efavirenz <i>Sustiva</i>	30
	etravirine <i>Intencele</i>	31
	nevirapine <i>Viramune</i>	32







Fusion and entry inhibitors

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	T-20 enfuvirtide, <i>Fuzeon</i> not to size	45
	maraviroc <i>Celsentri</i>	46

Integrase inhibitors

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	raltegravir <i>Isentress</i>	47

Combination tablets

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	Atripla efavirenz, tenofovir and FTC	17
	Combivir AZT and 3TC	18
	Kaletra lopinavir and ritonavir	38
	Kivexa 3TC and abacavir	19
	Trizivir AZT, 3TC and abacavir	20
	Truvada FTC and tenofovir	20