

CD4, viral load & other tests

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CD4, viral load & other tests

This booklet provides information on tests you'll have at your HIV clinic to monitor your health. Some of these tests are to see how HIV is affecting you or how well any treatment you are on is working. Other tests are to monitor your general health. You can expect to have some of these tests every time you have a check-up at your clinic. But other tests will only be undertaken if they are needed.

The information in this booklet isn't intended to replace discussion with your doctor about your HIV treatment and care or test results. However, it may help you to decide what questions you'd like to ask your doctor about your treatment and care.

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Part one: Health monitoring

The importance of regular health monitoring

The outlook has never been better for people with HIV in the UK. The right HIV treatment and care can mean that you have a good chance of living a long and healthy life, with a near-normal life span.

To make sure that you receive the most appropriate treatment and care, it's very important that you go to an HIV clinic for regular check-ups. If you are entitled to National Health Service (NHS) care, then all the treatment and care you receive from your NHS HIV clinic will be free.

In the UK, standards for HIV treatment and care are set and monitored by the British HIV Association (BHIVA), the professional association for HIV doctors and other healthcare professionals. These standards are reviewed regularly. In 2011, BHIVA issued guidelines on the sort of routine monitoring someone living with HIV in the UK should have. You can find out more about these guidelines at www.bhiva.org/monitoring.aspx. The information in this booklet reflects these guidelines.

Types of HIV health monitoring

During your regular check-ups at your HIV clinic, there are a number of ways you and your doctor can check your health. The most common are:

Talking. It is important to be honest with your doctor about how you are feeling, any problems or concerns you have, or any symptoms and side-effects you are experiencing. Your doctor should ask you questions, such as whether you are having any problems taking any anti-HIV drugs you are on or how they make you feel. But it's a good idea to come prepared with anything you've noticed, or are worried or curious about.

Physical examinations. If you mention any symptoms, part of your check-up will involve your doctor looking at your body and examining any unusual signs or symptoms. Your doctor, or another member of the healthcare team, will also regularly check your weight and blood pressure.

Blood tests. Samples of blood will be taken and these will be examined in a laboratory. These tests are used to assess how HIV is affecting you and how well any treatment is working, and to check your general health. Often your doctor will order several different blood tests. It may look like you're having a lot of blood taken, but only about a teaspoon of blood is taken in each test tube.

Occasionally, you may have other types of tests as well.

X-rays, scans and ultrasounds. If you have some specific symptoms, then you may need to have tests such as X-rays, scans or ultrasounds that allow your doctor to see inside your body (see page 48).

Small surgical procedures. For some investigations, it may be necessary to remove a small sample of body tissue for examination in a laboratory. This is called a biopsy and it's normal to have this done using a local anaesthetic (see page 53).

Health monitoring and care from your GP

Your HIV clinic will closely monitor all aspects of your health that are related to HIV. However, it's also important to register with a GP (family doctor), who will be able to look after your general health needs that aren't related to HIV. For example, GPs are well-placed to help with other long-term conditions such as hay fever, asthma and high blood pressure, mental health problems and conditions related to getting older. Your GP may prescribe medication to deal with these conditions; it's important you discuss the possibility of interactions between these and any HIV treatment or other medication you are on.

Health monitoring and care from your GP

You can find out more about common drug interactions in our booklet *Anti-HIV drugs*.

You may have your cardiovascular risk checked at your GP surgery, your annual cervical screening done there, or get any vaccinations you need, including the annual flu vaccination recommended for people with HIV.

Leading a healthy lifestyle is an important way of staying well with HIV. Your GP can help you with things such as eating well and losing weight, doing exercise, stopping smoking and cutting down on alcohol and drug use. Community pharmacies can also offer advice on healthy living, losing weight and stopping smoking.

Telling your GP that you are HIV positive will help them have a full picture of your health to ensure you get the best possible care. For example, they will be able to take HIV into account in assessing any symptoms you have. And, if you are taking anti-HIV drugs, your GP will consider potential interactions with any other medications you need.

You can find your nearest GP on NHS Choices' service finder at www.nhs.uk/servicedirectories, or you can call NHS Direct on 0845 4647, which will be able to provide you with details of GPs in your area. Your HIV clinic may also have a list of GPs.

The website <https://tth.iwantgreatcare.org>, set up in association with the Terrence

Your first visit to an HIV clinic

Higgins Trust, is a place where people can leave anonymous reviews of doctors, dentists and other healthcare providers. You might want to see if any GPs local to you get a positive review about treating people with HIV.

The NHS Patient Advice and Liaison Service (PALS) can provide help and advice on using health services. Visit its website at www.pals.nhs.uk for more information.

Your first visit to an HIV clinic

Your first appointment at a specialist HIV clinic after your diagnosis (or if you change clinic) will involve questions about your health and medical history, a physical examination, and a range of tests.

Your doctor will probably ask you about the following:

- If you currently have any other physical or mental illnesses, or have had any in the past.
- If you currently have any symptoms, either physical or psychological.

Your first visit to an HIV clinic

- If there are health conditions that affect members of your family or illnesses that run in your family; for example, heart disease, diabetes, high blood pressure, mental health problems or cancers.
- If you have a GP and whether they know your HIV status.
- If you are currently taking any medicines or drugs. This includes medicines prescribed by a doctor, those bought over the counter, alternative and herbal remedies, and recreational drugs.
- If you have had any vaccinations.
- If you have any allergies to medicines or food.

- If you smoke or drink alcohol, whether you take any exercise, and what your eating habits are like.

You will be asked about your past and current sexual activity: for example, whether you have a regular partner (and whether they know your HIV status), how many casual partners you have, the gender of your partners, if you have protected sex, and whether you have had any other sexually transmitted infections in the past. This information will help your doctor provide you with information about how you can protect your own health and the health of other people. You will have a full sexual health check as part of this visit.

If relevant, your doctor will also ask you about any children you already have or plans for

Your first visit to an HIV clinic

having a family. Women will need to have a cervical screening (see page 13).

At your first visit, you are likely to have a detailed physical examination. You'll have to remove some clothing for this. If you would prefer this, you can ask for the examination to be conducted by a doctor of the same sex, or for a third person to be present.

Most examinations will include checks on your height, weight, temperature, blood pressure and pulse. Your doctor will look at your whole body, and lightly touch you in various places to feel for any abnormalities, as well as using a stethoscope to listen to your breathing and heartbeat. It's also likely that your doctor will use an instrument to look into your ears, eyes,

and throat. Your mouth and skin will also be checked.

If you report any symptoms, your physical examination will include a more detailed check on these.

After you have been examined, you'll have some tests. These will mostly be done using samples of either blood or urine. Details of these tests are provided in the next section of this booklet, but at an initial visit you should have:

- a CD4 cell count
- a viral load test
- an HIV drug resistance test (see the NAM

Your first visit to an HIV clinic

booklet *Adherence & resistance* for more information on drug resistance)

- liver and kidney function tests
- a test to look at the health of your bones
- tests to measure blood fats (lipids – cholesterol and triglycerides) and sugars
- a test for syphilis and a full sexual health screening
- tests for infections more common in people with HIV, such as hepatitis A, B and C. They might also include other illnesses such as herpes, measles and rubella, so that you can be vaccinated against them if necessary.

You may have other tests too. Your doctor will calculate your risk of cardiovascular (heart) disease and, if you are over 50, your risk of bone fracture (see page 43). Some people are referred to eye specialists for tests to identify eye infections.

If you have any symptoms, you may be asked to provide other samples. For example, if you have a cough, you may be asked to provide a sputum sample, or if you have diarrhoea, you could be asked to provide a stool sample. These will be checked in a laboratory for signs of infection.

Your clinic will have staff you can talk to about other issues raised by being diagnosed with HIV. Health advisers or other staff can help you

Regular clinic appointments

with concerns you may have, such as disclosing your HIV status or criminalisation of HIV transmission.

If you feel you might need some additional support following your diagnosis (or at any point after that), your clinic will be able to help; it may have specialist services (such as counselling) as part of its services, or be able to refer you to them.

Regular clinic appointments

At each visit you'll have tests to see how HIV is affecting you and to check on your general health. If you're on HIV treatment, the tests will also look at how well the treatment is working. On other occasions, for example if you are feeling unwell or have some symptoms, you might need to have other tests as well.

Generally, you will have two to four visits to your HIV clinic a year for a check-up. The frequency will depend on the health of your immune system and how well any treatment is working, as well as on your general health.

At each of these visits, your doctor will ask

Regular clinic appointments

you about your health and how you are feeling, both physically and emotionally. They will examine you, taking into account any symptoms you may have, and you will have blood tests to look at your liver function.

At least twice a year, you will have your CD4 cell count and viral load measured and be asked about your sexual activity.

At least once a year, you will be weighed, your blood pressure taken, and your body mass index (BMI, a way of checking if your weight is right for your height) calculated. Also yearly, you will have your kidney function monitored, your blood fats and sugars measured and your cardiovascular risk and bone health calculated. You may be tested for hepatitis B and C. You

should be offered a full sexual health screen and women should have a cervical screening every year (see page 13).

You may have some of these tests or examinations more frequently because of your particular circumstances, such as the type of HIV treatment you're on, your family history, or if you have another condition as well as HIV.

As you get ready to start HIV treatment, many of these tests will be done in preparation. These will measure the health of your key organs (such as your liver and kidneys). This can help guide the choice of the best anti-HIV drugs for you and provide baseline information so you can be accurately monitored for possible side-effects. You can find out more about these

Regular clinic appointments

topics in the *Anti-HIV drugs* and *Side-effects* booklets in this series.

You will have a check-up at your clinic two to four weeks after starting HIV treatment to see how you are doing, and at least once a month until you have an undetectable viral load. After you are stable on treatment and your viral load has become undetectable (see page 32), you will have routine clinic visits every three to six months. These will be similar to those you had before starting treatment, but will use the results of the tests to monitor how well your anti-HIV drugs are working and whether you are developing any side-effects. Your doctor will also talk to you about taking your anti-HIV drugs (often called adherence), and whether you are having any difficulty with this.

You can find out more about taking your HIV treatment, and getting help if you need it, in NAM's *Adherence & resistance* booklet.

If your doctor feels you have any symptoms that need exploring further, they may arrange for more tests or, in some cases, refer you to another service for specialist care.

At some clinics (generally larger ones), you may also be offered the opportunity to take part in a clinical trial looking at an aspect of HIV treatment and care. You shouldn't feel any pressure to take part, but you may be interested. If you do take part in a trial, you will probably have some additional monitoring visits to your clinic or the trial centre. You find out more about what taking part in a clinical trial involves at www.aidsmap.com.

Sexual health screening

If you're sexually active it's important to have regular tests for sexually transmitted infections. These tests are available free of charge from specialist sexual health or genitourinary medicine (GUM) clinics.

Your doctor will talk to you about your sexual activity and looking after your sexual health at your routine HIV clinic visits. You should be offered a full sexual health screen every year, or more often if you may be at higher risk of sexually transmitted infections. Your routine monitoring may also include regular blood tests for syphilis.

See NAM's booklet *HIV & sex* for more information on sexual health check-ups and common sexually transmitted infections and their treatment. You can find out where your nearest GUM clinic is on NAM's website at aidsmap.com/e-atlas.

Cervical and anal screening

Infection with certain types of a common virus called human *papillomavirus*, or HPV, can cause cell changes in the cervix that can lead to cervical cancer. All HIV-positive women should have a cervical screening test soon after they are diagnosed with HIV. You should then have a repeat test once a year. (This is more often than for HIV-negative women, who are generally advised to be screened every three to five years. However, the age range for cervical screening for HIV-positive women is the same as that for women without HIV – 25 to 65 years of age.)

Some types of HPV can also cause cell changes in the anus. But the value of regular anal

screening is much less certain, and currently it's not recommended that it be included in routine monitoring, although some clinics may offer it. High-risk types of HPV can also cause vulval, vaginal, penile and some mouth and throat cancers.

Other monitoring tests for these cancers and cell changes include a colposcopy and an anoscopy. A colposcopy examines the cervix with a microscope under a very bright light, while an anoscopy does the same for the examination of the anus. Any abnormal cells can usually be treated under a local anaesthetic, using heat, cold or laser beams to burn away the cells, or electric current to remove them. Most commonly, abnormal cells in the cervix are removed using an electric

current or through minor surgery, known as a cone biopsy, which can both diagnose and treat. The latter might mean you will need a general anaesthetic and possibly an overnight stay in hospital.

Health monitoring during pregnancy

If a woman has HIV, it is possible for it to be passed on to her baby during pregnancy or delivery or through breastfeeding. For this reason, in the UK, all pregnant women have an HIV test as part of routine antenatal care. Once a woman and her healthcare team know that she has HIV, steps can be taken to prevent HIV being passed on to her baby.

HIV treatment is very effective at preventing mother-to-child transmission of HIV. If you are pregnant, your doctor will discuss your HIV treatment options with you. If you are thinking about becoming pregnant, it is important to start discussing this with your healthcare team

Health monitoring during pregnancy

as soon as possible, as they can give you advice on conception and care and treatment during your pregnancy.

If you have an undetectable viral load (see page 32) while you are pregnant and at the time of delivery, then the risk of you passing on HIV to your baby is very low, but it is very important that your health and viral load are monitored while you are pregnant, and that you and your baby receive the right treatment and care during your pregnancy and after you have given birth.

You may have more frequent CD4 cell counts (see page 22), including one just before the baby is born, to help plan your baby's delivery. You are also likely to have more frequent viral

load tests during your pregnancy, especially if you are starting treatment for the first time, to help prevent passing on HIV to your baby.

In addition to your HIV monitoring and antenatal care, you should have a sexual health screen in both your first and your third trimester of pregnancy. This is because some sexually transmitted infections can increase the risk of mother-to-child transmission. You will also be tested for the hepatitis B virus at this screening.

In the UK, it is recommended that women with HIV do not breastfeed their babies. HIV is present in breast milk and HIV can be passed on from mother to child through breastfeeding. Feeding with formula milk

Health monitoring during pregnancy

is safe and there is practical and financial support available to help you do this. Talk to your doctor, midwife, or someone else in your healthcare team, about feeding your baby, especially if you have concerns or questions.

If you decide to breastfeed, the risk of passing on HIV to your baby is lower if your viral load has been undetectable at every test. You should talk to your healthcare team about your decision, have a viral load test every month while you are breastfeeding and your baby should be tested for HIV each month. Your healthcare team will talk to you about the safest way to breastfeed your baby. Breast feeding if you have a detectable viral load puts your baby at significant risk of HIV infection.

Your baby will have HIV tests the day after he or she is born, and at six and twelve weeks after birth. If these tests are negative, your baby is very likely to be HIV-negative. He or she will have a final HIV antibody test at 18 months to confirm his/her status.

With the right treatment and care during pregnancy, delivery and after the birth, the risk of passing HIV on to your baby is very low – under 1%.

Health monitoring in older age

As we age, the risks of developing certain health problems increase. Some common conditions associated with being older (generally being over 50) include type 2 diabetes, heart disease and cancer.

Having HIV can increase the chances of developing some of these age-related conditions, as can the long-term effects of being on HIV treatment. Your HIV clinic visits will include tests to monitor for these conditions – see the next section, *Common tests*, for more information on when you might have these tests and what they involve.

Your GP (see page 3) has an important role to play in monitoring your health, especially as you get older. There are a number of health problems that you may be screened for as you get older, especially if you have certain symptoms. For example, women aged 50 to 70 will be invited to regular breast screening appointments, and everyone over 60 is screened for bowel cancer every two years (over 50 in Scotland). Your GP may also suggest more regular checks to monitor your health, especially of your heart and kidneys, and to test you for diabetes. They may also discuss the possibility of screening for prostate cancer with older men.

Seeking medical advice between clinic appointments

In between your regular clinic appointments, you may want to seek medical advice if you notice changes in your health or new symptoms.

HIV clinics vary slightly in what action they advise if you are concerned about your health. You should be told what to do in this situation at your first clinic appointment; otherwise, ask your doctor or another member of your healthcare team.

Some clinics advise people to contact their HIV clinic if they think the symptoms may be HIV-related. Staff will help you decide whether you can wait until your next scheduled appointment, need an appointment sooner, or need emergency treatment. Others recommend contacting a GP first (see page 3).

For non-HIV-related health problems, you should contact your GP. It's not always easy to tell if a new symptom is related to HIV. If you are not sure, contact your GP first to discuss the best action to take.

Generally, these symptoms or health changes will not be signs of a serious medical condition, but there are certain symptoms to look out for and contact your GP or clinic. These include:

Seeking medical advice between clinic appointments

- prolonged fevers and sweats
- swollen glands
- significant, unintentional weight loss
- changes in your vision
- prolonged vomiting or diarrhoea
- significant amounts of blood in your faeces or vomit
- severe headaches.

In some situations, you should take immediate action (by going to your nearest Accident & Emergency department), including if:

- you have very severe stomach or chest pain
- you are having difficulty breathing
- you are feeling anxious or depressed, and thinking of harming or killing yourself.

Rarely, some anti-HIV drugs can cause severe allergic reactions. If you have recently started a new HIV treatment regimen, and you develop certain symptoms, you should contact your HIV clinic immediately, or A&E if out of hours. Your clinic will explain what to look out for, and you can find out more in NAM's booklet *Anti-HIV drugs*.

If you don't need an emergency appointment at your clinic, it's a good idea to keep a record of the symptoms or side-effects you've experienced, so you can talk to your doctor about them at your next regular appointment.

Part two: Common tests

Blood tests

Some tests give a straightforward result, such as showing the presence of an infection. But others need to be looked at in combination with other aspects of your health and lifestyle.

Many blood tests have a 'normal' or 'standard' range of results. It's important to remember that 'normal' can vary depending on a whole range of factors, including age, weight, gender, time of day the test is performed, and test method. The 'normal' range gives an indication of the results that would typically be seen in the general population. A small proportion of people in the general population may have results outside this range, even if they have no underlying health problems. If your test result

is outside the normal range, it may only mean that it would be a good idea to investigate further.

Your doctor will always look at your results based on you as an individual and take your characteristics and situation into account in deciding what to do next. Sometimes that might simply be to repeat the test, or watch and wait for any further change.

Blood tests to monitor your HIV - CD4 cell count and viral load

There are two key blood tests that monitor how HIV is affecting you.

Your CD4 cell count gives an indication of the health of your immune system.

CD4 cell counts

Your viral load measures how much HIV there is in your blood.

Looking at the results of these tests will help you and your doctor make important decisions, such as when to start HIV treatment, and to monitor how well your anti-HIV drugs are working.

CD4 cell counts

CD4 cells (sometimes called T-cells, or helper cells) are white blood cells that organise your immune system's response to infections.

Your CD4 cell count is the measurement of the number of blood cells in a cubic millimetre of blood (a very small blood sample), not your whole body. Your doctor will probably just talk about your CD4 cell count as a number.

The CD4 cell count of a person not infected with HIV can be between 500 and 1500. But CD4 cell counts can vary a lot between people. Your own CD4 cell count can also vary and can go up and down in response to different factors. For example:

CD4 cell counts

- Women have higher CD4 cell counts than men (by about 100).
- Women's CD4 cell counts go up and down during the menstrual cycle.
- Oral contraceptives can lower a woman's CD4 cell count.
- Smokers tend to have higher CD4 cell counts (by about 140).

None of these factors seem to make any difference to how well your immune system can fight infections.

Only a small proportion of your body's CD4 cells are in the blood. The rest are in other

organs, such as the spleen, and in lymph nodes. Variations in CD4 cell counts might be due to the movement of CD4 cells between blood and tissue.

So, rather than attach too much significance to an individual test result, it makes good sense to monitor any trends in changes to your CD4 cell count over time. It's best to have your CD4 count measured at the same clinic and at roughly the same time of day wherever possible. If you have another infection, such as the flu or an outbreak of herpes, talk to your clinic about whether it is best to delay your CD4 count until you are feeling better. If you get a result that is very different to expected, your doctor may want to repeat the test to check whether the first result was a laboratory error.

CD4 cell counts

Soon after infection with HIV, your CD4 cell count probably dropped sharply, before stabilising. Even while you are well and have no obvious symptoms of HIV, millions of CD4 cells are infected by HIV and lost every day, and millions more are produced to replace them. Without treatment, an HIV-positive person's CD4 count will fall over time.

A CD4 cell count between 200 and 500 indicates that some damage to your immune system has occurred.

It is particularly important to have your CD4 cell count carefully monitored as it gets closer to 350.

Having your CD4 cell count monitored

It's recommended you have at least two CD4 cell counts done when you are first diagnosed with HIV. These results give you a 'baseline' level, so you and your doctor can assess changes in the future. These tests are likely to happen at your first HIV clinic visit and then at your first follow-up visit, between one and three months apart.

If you have a relatively high CD4 count, no symptoms and you are not taking anti-HIV drugs, your CD4 count will only be measured once every three or four months (or every six months if it is very high).

However, if your count has been falling rapidly or getting close to the level at which it's

CD4 cell counts

recommended you start treatment (currently 350 for most people) or you are taking part in a clinical trial, your doctor may suggest that your CD4 count is monitored more often.

After you start HIV treatment for the first time, you will usually have a CD4 cell count about a month later, and then every three months. Once you have an undetectable viral load (see page 32) and your CD4 cell count has started to increase, your doctor may suggest doing a CD4 cell count every six months. You can expect to have it checked more frequently if you have symptoms or become unwell.

Monitoring your CD4 cell count will help you and your doctor make important decisions about your HIV treatment and care.

CD4 cell count above 350 – monitor, and start treatment in some circumstances

If your CD4 cell count is above 350, generally you won't need to be on HIV treatment. Your CD4 cell count will be monitored regularly, probably every four to six months. As your CD4 cell count starts to approach 350, your doctor may want to monitor you every three months.

In some situations, your doctor may recommend you start treatment when your CD4 cell count is still above 350. These include:

- If you are also infected with the hepatitis B or C viruses, as liver disease becomes worse when the CD4 cell count is lower.
- If you have heart problems or kidney disease.

CD4 cell counts

- If you are having treatment for cancer.
- If you are older (for example, over 50).
- If you want to start treatment because you are concerned about the risk of passing on HIV to someone else (treatment reduces the risk of HIV being passed on).
- If you are ill because of HIV.
- In some cases, if it is clear you have been very recently infected with HIV.

CD4 cell count of 350 – start HIV treatment

If your CD4 cell count falls to 350, it will usually be recommended that you start taking HIV treatment. Starting HIV treatment when your

CD4 cell count is around 350 has been shown to have a number of advantages compared to waiting until your CD4 cell count is lower. The immune system is more likely to recover to levels normal for their age in people who start treatment when their CD4 cell count is around 350.

Starting treatment when your CD4 cell count is around 350 also means that you are very unlikely to become ill because of HIV. It has also been shown to reduce your risk of developing other serious illnesses as well, such as kidney and liver disease, as well as some cancers.

Your doctor will start talking to you about treatment when your CD4 cell count approaches 350. You may have more frequent CD4 cell counts during this time.

CD4 cell counts

CD4 cell count of 200 or below – start HIV treatment and take other treatment to prevent infections

If your CD4 cell count is 200 or below, it is recommended you start treatment as soon as possible. A CD4 cell count of this level means that you are at risk of developing some serious illnesses.

You may also need to start taking other treatment to reduce the risk of these illnesses developing. This is called prophylaxis. The type of prophylaxis you'll take will depend on your CD4 cell count. Your doctor will tell you when you can safely stop taking prophylaxis. This is generally once your CD4 cell count increases, usually to above 200, and stays above that for a period. For example, you might be given

antibiotics (such as cotrimoxazole [*Septtrin*] or dapsone) to prevent you developing PCP, a type of pneumonia.

You may have some additional tests if you have a lower CD4 cell count. This might include being tested for some infections and conditions, and can include screening for tuberculosis (TB). People from countries with a high incidence of TB will be screened for it whatever their CD4 cell count.

For more information on starting HIV treatment, see the NAM booklet *Anti-HIV drugs*.

Your CD4 cell count when you're taking HIV treatment

Once you start taking HIV treatment, and

CD4 cell counts

your viral load starts to fall, your CD4 cell count is likely to increase gradually. The rate at which this happens can vary a lot between individuals. In some people, it can take months or even years for their CD4 cell count to climb towards normal levels for people of their age. If you started treatment with a low CD4 cell count, it's more likely to take a long time for your CD4 cell count to go up. But it's good to know that even quite small increases in your CD4 cell count can have big health benefits.

Your doctor will monitor your CD4 cell count, along with your viral load, every three months once you are on treatment. Once you have an undetectable viral load (see page 32) and your CD4 cell count has started to go up, your doctor may suggest monitoring every six months.

CD4 percentage

In addition to using a test to count the number of CD4 cells, doctors sometimes measure the proportion of all white blood cells that are CD4 cells. This is called a CD4 cell percentage. Although it's not recommended that CD4 percentages are used as a general indicator of the health of an adult's immune system, there can be situations where it is a useful measurement. For example, if your CD4 percentage is very different to your CD4 cell count, it might be a sign of another health problem.

One circumstance when your doctor might measure your CD4 cell percentage could be if there is a big variation in your CD4 cell count between one test and the next.

Viral load

Viral load is the term used to describe the amount of HIV in your blood. The more HIV there is in your blood (and therefore the higher your viral load), then the faster your CD4 cell count will fall, and the greater your risk of becoming ill because of HIV.

Viral load tests measure the amount of HIV's genetic material in a blood sample. The results of a viral load test are described as the number of copies of HIV RNA in a millilitre of blood. But your doctor will normally just talk about your viral load as a number. For example, a viral load of 10,000 would be considered low; 100,000 would be considered high. Viral load changes can be very large, so they are sometimes quantified using the

powers of ten, or 'log scale'. A 1-log change is the same as a ten-fold change (so 5000 to 50,000 or vice versa); a 2-log change is a one hundred-fold change and is written as 10^2 .

Your viral load if you are not taking HIV treatment

You should have your viral load measured when you are first diagnosed with HIV. If it is known that you have very recently become HIV positive (a period known as primary infection), you will have it measured three to six months later to determine your viral load 'set point' – the level of your viral load once it stabilises when the period of primary infection is over.

Your viral load will be monitored at your regular HIV clinic appointments – generally twice a

Viral load

year if you don't have any symptoms. This is because the level of your viral load can provide important information about the way that HIV might affect your health if it is left untreated. Amongst people with the same CD4 cell count, those with a high viral load tend to lose CD4 cells and become ill faster.

When you're not taking HIV treatment, the level of your viral load can fluctuate between tests. Often increases in your viral load are nothing to worry about. Even a doubling in your viral load might not be significant.

Vaccinations, such as a flu injection, and infections can cause a temporary increase in your viral load. Talk to your doctor about whether you should delay your next viral load

test – sometimes it is recommended to wait at least one month after having a vaccination or getting over an infection.

Like your CD4 count, it's best to look at the trend in your viral load over time. When viral load results over several months show a continuing increase, or when the increase is greater than threefold, there may be a cause for concern.

For example, an increase from 5000 to 15,000 shouldn't cause you to worry when you are not on treatment. A rise from 50,000 to 100,000 may not be significant, but a rise from 5000 to 25,000 is likely to be significant. This result suggests your viral load is five times the level it was at your last viral load test.

Viral load

Your doctor will probably want to confirm this trend with a repeat test.

When you're thinking about starting HIV treatment, one of the factors your doctor will discuss with you is your viral load. As mentioned earlier, it is recommended that people start HIV treatment when their CD4 cell count is around 350. Your viral load can also be a factor in choosing which anti-HIV drugs you start treatment with.

You'll have a viral load test just before you start HIV treatment.

Viral load if you are taking HIV treatment

Your viral load should start to fall once you start HIV treatment. Taking your treatment in the right way, every day, gives it the best chance of

working. If you're having difficulty taking your treatment, for any reason, it is really important to talk to your doctor or another member of your healthcare team about it.

Your doctor will check your viral load within a month of starting treatment, and again three months after starting. Your viral load four weeks after starting HIV treatment is a good indicator of whether it will become undetectable on this combination of anti-HIV drugs.

The aim of HIV treatment is an undetectable viral load (see overleaf). Your viral load should have fallen to undetectable levels within three to six months of starting HIV treatment. If this doesn't happen, your doctor will talk to you about possible reasons for this and next steps.

Viral load

Once you have an undetectable viral load, you will have your viral load monitored every three to four months. If you have had an undetectable viral load for some time and are doing well on treatment, your doctor may offer you the option to have your viral load measured every six months.

Undetectable viral load

All viral load tests have a cut-off point below which they cannot reliably detect HIV. This is called the limit of detection. Tests used most commonly in the UK have a lower limit of detection of either 40 or 50 copies/ml, but there are some very sensitive tests that can measure below 20 copies/ml. If your viral load is below 50, it is usually said to be undetectable. The aim of HIV treatment is to reach an undetectable viral load.

But just because the level of HIV is too low to be measured doesn't mean that HIV has disappeared completely from your body. It might still be present in the blood, but in amounts too low to be measured. Viral load tests only measure levels of HIV in the blood, which may be different to the viral load in other parts of your body, for example in your genital fluids, gut or lymph nodes.

Why it's good to have an undetectable viral load

Having an undetectable viral load is important for a number of reasons.

First of all, because your immune system is able to recover and become stronger, it means that you have a very low risk of becoming ill

Viral load

because of HIV. It also reduces your risk of developing some other serious illnesses as well. There is some evidence that the presence of HIV (especially a higher viral load) can increase the risk of cardiovascular disease (illnesses such as heart disease and stroke).

Secondly, having an undetectable viral load means that the risk of HIV becoming resistant to the anti-HIV drugs you are taking is very small.

Finally, having an undetectable viral load reduces the risk of passing on HIV to someone else. This is discussed in more detail later in this booklet (see page 35).

Detectable viral load if you are taking HIV treatment

If your viral load hasn't fallen to undetectable levels within three to six months of starting HIV treatment, then your doctor will talk to you about your current treatment. They may ask some detailed questions about how and when you take your anti-HIV drugs and whether you have taken any other drugs – including prescription, over-the-counter, herbal or recreational drugs – at the same time. This is because not taking treatment regularly, or interactions with other drugs, can cause the levels of anti-HIV drugs in your body to be too low to work. You may have a blood test to look at the level of anti-HIV drugs in your blood and to see if your HIV has developed resistance to any drugs.

Viral load

Then they will discuss the options with you. This may involve changing your anti-HIV drugs to find a combination that works for you.

Having a detectable viral load when you are taking HIV treatment can mean that your HIV will become resistant not only to the anti-HIV drugs you are taking, but also to other similar anti-HIV drugs as well.

If you are taking HIV treatment and have had an undetectable viral load, and then you have a test that shows a detectable viral load, you will need to have another test to confirm the result. It may just be what is called a viral load 'blip'.

If later tests still show your viral load has become detectable again, you will probably

need to change your HIV treatment. Your doctor will discuss your options with you.

Viral load blips

People with an undetectable viral load sometimes experience what are called 'blips' in their viral load. Their viral load increases from undetectable to a low but detectable level before becoming undetectable again on the next test.

Viral load blips do not necessarily show that your HIV treatment is no longer working.

There are a number of theories about the reasons for blips. These include variations in the laboratory processes, or having an infection like a cold or the flu.

Viral load

If your viral load stays above detectable on two consecutive tests, or possibly if you have fairly frequent blips, your doctor will want to discuss possible causes and whether you need to change your treatment.

Viral load and sexual transmission of HIV

If you have a high viral load in your blood, then you might also have a high viral load in other body fluids, including your semen or vaginal fluid. People with high viral loads are more infectious and can pass HIV on more easily.

As well as reducing viral load in your blood, HIV treatment also reduces viral load in other body fluids, such as semen and vaginal fluid.

There's been a lot of debate about how infectious someone is to their sexual partner if they are on HIV treatment and have an undetectable viral load .

It is clear that having an undetectable viral load when taking HIV treatment can greatly reduce the risk of HIV being passed on (sometimes called 'treatment as prevention'). But, as yet, we don't know whether having an undetectable viral load **completely** removes the risk of passing on HIV. Having an undetectable viral load in a blood test does not necessarily mean viral load would be undetectable in semen, vaginal fluids or breast milk. Viral load could fluctuate between tests and other factors can affect infectiousness. For example, sexually transmitted infections may cause virus levels to rise.

Viral load

This is a controversial subject and new information is becoming available all the time.

You can keep up with the latest research into viral load and infectiousness on NAM's website, aidsmap.com.

Looking at CD4 and viral load together

If you're not currently taking HIV treatment, looking at your viral load and CD4 cell count can help predict your risk of becoming ill because of HIV in the future. While your CD4 cell count is the main indicator your doctor will use to help monitor the health of your immune system, viral load testing can also provide important information.

Among people with the same CD4 cell counts,

research has shown that those with a higher viral load tend to develop symptoms more quickly than those with a lower viral load.

In addition, among people with the same viral load, those with lower CD4 cell counts tend to become ill more quickly.

Other blood tests

Every time you visit your clinic for a check-up you'll have some blood tests. As well as being used to monitor your CD4 cell count and viral load, these will help your clinic monitor your general health. HIV infection and HIV treatment can sometimes cause changes in your body, affecting aspects of your health such as your liver or kidney function, your blood fats (lipids – cholesterol and triglycerides), and your bone health.

Monitoring these sorts of changes is important, as indications that you are developing some health problems, or are at high risk of them, can be a reason to start treatment early. Your doctor will tell you if they think this is the case.

If you're taking HIV treatment, monitoring tests can also give an indication of whether you're developing side-effects. There's a lot more information on side-effects in the NAM booklet, *Side-effects*.

Some tests can also tell if you have certain infections.

A lot of the tests discussed below are routine – that means that you'll have them every time you have blood tests at your clinic or on a regular basis, such as once a year. Some others you'll only have if they are needed.

It's generally best to look at the trend in results over time rather than focusing too much on one result. Your doctor will discuss the results

Other blood tests

of your blood tests with you to help decide the best course of treatment. Your doctor may not always discuss the results of tests if they are normal, but you can ask for more information.

The tests described below have been grouped together according to what they are looking at.

We haven't provided information on the normal ranges of such results. This is because these can differ depending on all sorts of factors, including your age, your gender, and even the measurements used by the testing laboratory.

Blood chemistry

A full blood count will include:

- a red blood cell count. This measures haemoglobin, the substance that allows your red blood cells to carry oxygen around your body. If your haemoglobin is too low you are said to have anaemia. Haemoglobin levels are often a bit lower in people with HIV and anaemia is more common than in the general population.
- a platelet count. These cells clot the blood. People with HIV often have fewer platelets than average, although this generally doesn't cause problems.
- a white blood cell count. This is a measure of

Other blood tests

the total number of white blood cells. These cells are part of the immune system and defend against infections. People with HIV often have slightly lower levels but, again, this isn't usually a problem.

You should have a full blood count when you are first diagnosed with HIV and again when you start HIV treatment; generally, you will also have a full blood count every year. You may have one more often if you are unwell or if you are taking AZT (zidovudine, *Retrovir*).

Blood fats or lipids

Cholesterol and triglycerides are blood fats, often called lipids. There are two types of cholesterol – low-density lipoprotein (LDL) cholesterol (sometimes called 'bad

cholesterol') and high-density lipoprotein (HDL) cholesterol (sometimes called 'good cholesterol'). HIV is linked with increased levels of triglycerides and LDL cholesterol and lower levels of HDL cholesterol, and some anti-HIV drugs can affect lipid levels.

High lipids have been linked to an increased risk of cardiovascular disease (illnesses such as heart disease and stroke). Having low levels of HDL cholesterol has also been linked to cardiovascular problems and can be a marker of a risk of other serious illnesses as well.

You should have your lipids measured when you are first diagnosed with HIV, before you start treatment, and any time you need to change treatment.

Other blood tests

Otherwise, at least once a year at a clinic appointment, you should be tested for:

- Total cholesterol. This is a measure of the total level of cholesterol in your blood.
- Levels of LDL cholesterol.
- Levels of HDL cholesterol.
- Levels of triglycerides.

Your doctor will ask you to come for a blood test in the morning and they will explain that you should not eat anything before having this test, as the test needs to be done after you have fasted.

Your doctor will look at your lipid levels in relation to whether there are other factors that might put you at higher risk of cardiovascular disease, such as your age, smoking, having a

family history of heart disease, or having high blood pressure or diabetes.

If your cholesterol or triglyceride levels are too high, your doctor will talk to you about how you can lower them. This is likely to start with lifestyle changes, such as changing your eating habits and losing weight, increasing exercise or stopping smoking. But there are also drugs that lower cholesterol (statins) and triglycerides (fibrates) as well.

The results of your lipid tests can also help you and your doctor choose the most suitable anti-HIV drugs for you.

If you have symptoms of certain conditions, blood samples may also be measured to

Other blood tests

check levels of the enzymes amylase, creatine kinase, lactate dehydrogenase and lactate. Abnormal levels of amylase can be a warning sign that you are at risk of the very serious side-effect pancreatitis. This can be caused by some anti-HIV drugs in the nucleoside reverse transcriptase inhibitor (NRTI) class. Abnormal levels of lactate can be a sign of the rare, but very serious, side-effect lactic acidosis. This can also be caused by NRTI drugs. For more information, see the NAM booklet *Side-effects*.

Resistance tests

When you are first diagnosed with HIV, you should have a resistance test. The test you have at this time provides information on any resistance to certain drugs present in the strain of HIV you have.

You will have a resistance test before you start HIV treatment if you didn't have one when you were first diagnosed, or if there are signs that you might have been exposed to another strain of HIV (sometimes called reinfection or superinfection). This could include a sudden rise in your viral load or a sudden fall in your CD4 cell count.

You will also have a resistance test if you need to change your anti-HIV drugs because you have developed a detectable viral load again.

These are blood tests that can help you and your doctor decide which anti-HIV drugs will work best for you.

For more information, see the NAM booklet *Adherence & resistance*.

Other tests

Blood pressure

Blood pressure is the force that the beating heart causes in the arteries, veins, and blood vessels that carry blood around the body. Blood pressure is measured in two parts: one when the heart is beating and pumping blood (also called systolic blood pressure), and then when it is relaxing and refilling with blood (also called diastolic blood pressure).

If you have high blood pressure, your heart has to work harder to pump blood around your body. This can increase your risk of heart disease, which can cause heart attack and stroke. Blood pressure increases as you get older, but can also increase if you are overweight or if you smoke.

Because of the association between HIV and increased rates of some risk factors for heart disease, it is important that you have your blood pressure monitored regularly. You should have your blood pressure taken when you are first diagnosed with HIV, at your routine HIV clinic visits, when you start HIV treatment, and then – once you are stable on treatment – every year.

You will often also have your weight, height, waist circumference and body mass index (BMI) measured at the same time. Working out your BMI can provide an approximate idea of how healthy your body weight is. This is calculated using your height and weight. These measurements also help calculate your risk of heart disease and other health problems.

Other tests

Bone health

HIV can cause a thinning of the bones, and loss of bone density is also a possible side-effect of anti-HIV drugs. However, the most significant factors affecting bone health in people with HIV are those that affect everyone: being older; reduced hormone production (such as after menopause, for women); being underweight; or a high alcohol intake.

You should have your risk factors for low bone density assessed when you are first diagnosed with HIV and again before you start HIV treatment. Risk assessments should be done every three years for people on HIV treatment and people aged 50 and over.

Blood tests looking at the chemistry of your blood can sometimes help indicate the health of your bones, looking at levels of calcium and phosphate, for example. You will have this checked at your regular clinic appointments.

If you are 65 or older (for a woman), or 70 or older (for a man), you will have your bone mineral density checked using a DEXA scan (see page 49). You might be recommended to have a DEXA scan sooner if your doctor thinks you are at higher risk of bone problems, especially if you are aged over 50.

Diabetes

Diabetes is a disease where the amount of glucose (blood sugar) in the body is too high because the body cannot process it properly.

Other tests

Diabetes exists in two forms: Type 1, which usually occurs earlier in life; and Type 2, which usually develops as a person gets older (generally over 40 – although it can appear earlier, especially in people of Asian and African-Caribbean origin).

Some anti-HIV drugs have been associated with an increased risk of Type 2 diabetes; the risk is lower with the drugs most commonly used in the UK today. The risk of developing Type 2 diabetes also increases with age for everyone, and it is linked with being overweight.

Blood tests can be used to see if you have diabetes or have an increased risk of developing it. Some of the tests and measurements done to monitor the health of your cardiovascular

system (heart) can also indicate whether you might be at risk of developing diabetes.

A 'dipstick', a small strip dipped in a sample of your urine, can indicate if there is glucose in your urine. If this test shows that you do, you will have the level of glucose in your blood measured. This is usually done by having a blood test done in the morning before you have eaten anything.

If you do have diabetes, this condition will be managed by your GP.

Kidney tests

Having healthy kidneys is important to everyone. HIV itself can damage your kidneys, and some anti-HIV drugs can also cause side-

Other tests

effects that affect the kidneys. So monitoring the health of your kidneys is an important part of your HIV care. Tests will measure a number of proteins, minerals and waste products your kidneys are removing from your body.

You should have your kidney (often called 'renal') function checked when you are first diagnosed with HIV, when you start HIV treatment, and then once a year after that. Renal monitoring is done more often if someone becomes seriously ill.

If you are taking the anti-HIV drug tenofovir (*Viread*, also in the combination pills *Truvada*, *Atripla* and *Eviplera*), which is known to cause kidney problems in some people, you will have your kidney function checked at each of your clinic visits.

A 'dipstick', a small strip dipped in a sample of your urine, will monitor levels of protein in your urine. Blood tests can monitor other indicators of kidney function. The key one is the estimated glomerular filtration rate, or eGFR, which measures creatinine in your blood, but you should also have the ratio of protein to creatinine in your urine measured once a year.

Liver tests

Having a healthy liver is important for people with HIV as it plays a vital part in processing anti-HIV drugs. In addition, liver disease is a significant cause of illness and death in people with HIV. So it's very important that you have regular blood tests to monitor the function of your liver.

Other tests

The range of tests you'll have will check levels of enzymes in your liver. These include:

- Alanine aminotransferase (ALT).
- Aspartate aminotransferase (AST).
- Alkaline phosphatase (ALP).
- Gamma glutamyl transferase (GGT).
- Bilirubin.
- Albumin.

You should have your liver function checked when you are first diagnosed with HIV, at each of your routine HIV clinic appointments and if you become ill.

Liver problems can be a side-effect of a number of anti-HIV drugs. These include the non-nucleoside reverse transcriptase

inhibitor, nevirapine (*Viramune* and *Viramune prolonged-release*), some protease inhibitors and, more rarely, efavirenz (*Sustiva*, also in the combination pill *Atripla*). Atazanavir (*Reyataz*) can increase the amount of bilirubin in your blood. In some people, this can cause a yellowing of the skin and the whites of the eyes, which is not harmful.

A number of medicines used to treat other infections that people with HIV are vulnerable to can also cause liver problems, as can statins, used to treat high cholesterol, and drugs used to treat tuberculosis (TB).

You will have more regular liver function tests if you have recently started HIV treatment (after one month and three months), and will

Other tests

be monitored every two weeks for the first two months if you have started treatment with the anti-HIV drug nevirapine (*Viramune*).

If your liver function tests show any abnormalities, especially if they continue, your doctor will suggest you have further tests to see if you might have another health problem affecting your liver.

Some viruses can cause liver disease and are common in people with HIV. Hepatitis A can cause a short illness. But infection with hepatitis B or hepatitis C (or both) can cause long-term, serious liver disease. Vaccines are available against hepatitis A and hepatitis B and it's recommended that everyone with HIV should receive them.

You should be tested at regular intervals to see if your vaccinations against hepatitis A and B are working. You should also be tested soon after your diagnosis with HIV to see if you've been infected with hepatitis B or C, and should have regular tests after this if you're at risk of contracting hepatitis B or C.

Your doctor is likely to monitor your liver function particularly closely if you are also infected with hepatitis B virus or hepatitis C virus. Many people with HIV only discovered that they were infected with either (or both) hepatitis B or C because they had an abnormal liver function test result and were tested for the presence of these viruses.

Other tests

See NAM's booklet *HIV & hepatitis* for more information.

Liver function tests can give an indication if you have the rare, but very serious, side-effect lactic acidosis. This can be caused by drugs in the nucleoside reverse transcriptase inhibitor (NRTI) class. See the NAM booklet *Side-effects* for more information.

Investigations

If you have particular symptoms or are unwell, then your doctor might request additional tests to try and find out the cause. Some of the more common of these are described here.

Samples

On occasion you may be asked to provide a urine, stool or sputum sample. These will be looked at in a laboratory to see if there are any infections or other abnormalities.

X-rays, scans and ultrasounds

These are generally painless, non-invasive ways of seeing different parts of the body.

X-rays have a number of uses and are often used to check for broken bones or problems within the chest or abdominal cavities.

Looking at an X-ray can help your doctor diagnose a number of illnesses. Chest X-rays are quite a common procedure used to look at the heart, lungs and chest wall. They can help

Other tests

diagnose the cause of various symptoms, such as coughs or shortness of breath. Your doctor may ask you to have a chest X-ray if they suspect you have a chest infection or tuberculosis (TB).

Sometimes your doctor may recommend a scan. There are two main types of scan:

- a CT (computerised tomography) scan, sometimes called a CAT scan, and
- an MRI (magnetic resonance imaging) scan.

CT scans allow a more detailed view of lots of different tissue types in the body, including lungs, bones, soft tissues and blood vessels.

MRI scans can be used to diagnose health conditions that affect organs, tissue and

bone. An MRI scan can be used to investigate almost any part of the body. It can look at the brain and spinal cord, bones and joints, the heart and blood vessels and internal organs, such as the lungs and liver, amongst other things.

MRI scans are sometimes used to look at HIV's effects on the brain and changes in body fat distribution. If you are having an MRI scan, you may be given a liquid called a 'contrast agent' (either by drinking it or having it via an intravenous drip), that highlights specific areas of the body in the scan.

Another type of scan is a DEXA (dual X-ray absorptiometry) scan. It's useful for diagnosing thinning bones and for looking for the fat loss that some older anti-HIV drugs can cause.

Other tests

An ultrasound uses high frequency sound waves to create an image of part of the inside of the body. It is used most often to examine the chest or stomach area. It involves having an instrument placed against the surface of the abdomen and moved around the area. It's used to check on the development of a baby in the womb and can also be used to help diagnose problems with organs such as the heart, liver, stomach, kidneys, pancreas and spleen.

A specialised type of ultrasound scan can be used to check the health of the liver. It is called a *Fibroscan* and involves having an instrument placed against the abdomen over the liver.

Other procedures

If your doctor feels they need more information to diagnose or treat a health problem you have, they may recommend you have other procedures done. Some of these can be a bit more invasive, but generally don't involve surgical procedures or need you to stay in hospital. They are usually carried out during an outpatient appointment and you can go home afterwards.

If you are offered a sedative, you may have to wait at the hospital a bit longer before you can leave. You will be advised not to drive, nor to go back to work that day. You may need to have someone to take you home and stay with you for some hours after the procedure.

Other tests

Bronchoscopy

This can be used to investigate chest problems. Your doctor may suggest this if you have a cough, are short of breath, or have had an abnormal chest X-ray.

It involves the use of a bronchoscope – a flexible tube that has a light and camera on it and allows a doctor to look at your bronchial tree (breathing tubes) and lungs.

Before you have a bronchoscopy, you'll be offered some sedation, such as diazepam (*Valium*), and have a local anaesthetic sprayed onto the back of your throat. The bronchoscope is then passed through a nostril and down into the lungs. Fluid is washed down to obtain samples that can be used to diagnose

lung infections such as TB or pneumonia.

A small sample of tissue (a biopsy) may also be removed during the procedure, for examination in a laboratory.

Endoscopy

An endoscope is also a tube with a light and a camera attached. It is used to look at different parts of the body. It is normally put in through an opening such as the mouth or the anus.

The most common use for an endoscope is to do a gastroscopy, used to investigate problems with the gullet, stomach or bowel. Your doctor might recommend a gastroscopy if you often have indigestion or heartburn, vomiting, stomach pain or difficulty swallowing.

Other tests

The endoscope is passed through the mouth, down the gullet and into the stomach.

It's important not to eat or drink for some hours before this procedure as the stomach has to be empty. You will be told how long to fast for.

You will be given the choice of a sedative before the procedure, a local anaesthetic spray, or both. The procedure is generally painless but might be uncomfortable at the moment you swallow the tube.

Colonoscopy

This test can be used to investigate problems in your colon, or large intestine (bowel), such as bad diarrhoea or bleeding.

It involves the use of a colonoscope. This is a thin flexible instrument with a light and a camera on it that allows a doctor to look at the rectum and colon. It can also be used to take tissue samples (biopsies) that can be examined in a laboratory.

You may need to be on a particular diet for a day or two beforehand, or you may be asked not to eat anything for some hours. You'll be asked to take a laxative before the procedure. The colonoscope is passed up through the anus into the rectum and into the colon. It is not painful, although some people find it uncomfortable. You will usually be given a sedative to help you relax.

Biopsy

A biopsy can help diagnose some symptoms or illnesses further if the procedures described above are not adequate. A biopsy involves having a small amount of tissue removed that is then examined in a laboratory.

Sometimes a biopsy is taken when having another investigation, for example, a bronchoscopy or endoscopy. At other times, it will be taken by using a hypodermic needle or it will be necessary to have a small surgical procedure after having a local anaesthetic.

Biopsies can be done on a wide range of organs, including the skin, the liver, kidneys, bone marrow, the intestines, the rectum and the cervix.

Summary

- Your CD4 cell count gives an indication of the health of your immune system.
- Monitoring your CD4 cell count can help you and your doctor decide when you need to start HIV treatment.
- Viral load is the term used to describe the amount of HIV in your blood.
- CD4 cell counts and viral load can vary naturally – you and your doctor will look at trends, not single results.
- The aim of HIV treatment is a viral load which is so low that it cannot be detected by currently available tests.
- Having a high viral load increases the risk of passing HIV on to your baby during pregnancy and childbirth, and increases the risk of HIV transmission to your sexual partner(s).
- Your HIV clinic will perform blood tests regularly to monitor your CD4 count, your viral load and other indicators of your health.

Summary

- Test results can take many different forms and lots of factors affect them. Your doctor will look at them in relation to you, your health and your lifestyle.
- If either you or your doctor are concerned about particular test results, or if you are experiencing symptoms or side-effects, you may have other blood tests, scans or investigations done. These will provide more information to help guide decisions about your health and treatment.
- Your doctor and the person performing the tests should explain these to you, and you should be able to ask any questions you have before they begin.

Glossary

anoscopy A procedure to examine the anal canal.

biopsy Removing a small sample of body tissue for examination in a laboratory.

colposcopy A procedure to examine the cervix.

CD4 A molecule on the surface of some cells onto which HIV can bind. The CD4 count roughly reflects the health of someone's immune system.

cervix The neck of the womb.

human papillomavirus (HPV) a very common infection, which can be sexually transmitted. It is often symptomless and harmless, but some strains can cause warts, and some strains can lead to certain cancers.

immune system The body's mechanism for fighting infections.

prophylaxis A treatment taken to reduce the risk of an illness developing.

viral load Measurement of the amount of virus in a sample. HIV viral load shows the extent to which HIV is reproducing in the body.

Talking points

A checklist for you and your doctor



Talking points is designed to help people with HIV prepare for their doctor's appointments, and support them to participate in decisions about their treatment.

Users are invited to answer a series of questions about their health, building a personalised checklist of important issues to talk to their doctor about when considering their treatment options.

Give it a go today.

 www.aidsmap.com/talking-points

This booklet is part of NAM's information series for HIV-positive people. The whole series is freely available on our website, **www.aidsmap.com**, as well as our other resources, news, FAQs, and information on HIV services.

The screenshot shows the AIDSmap website interface. At the top, the browser address bar displays "http://www.aidsmap.com". The website logo "nam aidsmap" is prominent, with the tagline "HIV & AIDS - sharing knowledge, changing lives" below it. A search bar is located in the top right corner. A navigation menu includes links for Home, News, HIV Basics, Topics, Resources, Translations, E-atlas, and About us, along with a Donate button featuring a ribbon icon. A main banner states: "NAM works to change lives by sharing information about HIV and AIDS. We believe independent, clear and accurate information is vital in the fight against HIV and AIDS. More about us >".

The main content area features a large section for the "International AIDS Society Conference". It includes a grid of photos of delegates and a text block: "Delegates making their way back from Rome are leaving with a sense of optimism, as scientific breakthroughs demonstrate the efficacy of a range of prevention approaches. But there are challenges ahead for the global HIV community in applying the lessons learned from the conference." Below this, there are three bullet points: "Read NAM's daily conference bulletins", "Revolutionary and luminary: meet Eric Fleutolet", and "Get all of our news from the conference".

To the right of the main content are several interactive buttons: "Sign up for our emails" (with an envelope icon), "Recently diagnosed" (with question mark icons), "Find an HIV service" (with a world map icon), "Our resources" (with a folder icon), and "Connect with NAM" (with social media icons for Twitter and Facebook).

At the bottom, there is a row of five smaller article thumbnails with titles: "International AIDS Society Conference", "Paying people to be healthy", "Task shifting of care", "No one forced into treatment", and "Preventing HIV".

Keep yourself up to date – get more from NAM

HIV Treatment Update

NAM's quarterly newsletter keeps you up to date with the latest news and developments about HIV, to help you talk to your doctor, and make decisions about your health and treatment.



HIV Weekly

NAM's weekly email round-up of the latest HIV news. Sign up today at www.aidsmap.com/bulletins for straightforward news reporting and easy-to-read summaries of the latest HIV research.



To subscribe to either of these publications, please use the form on the reverse

To read previous copies of HTU visit www.aidsmap.com/htu
or for general HIV news www.aidsmap.com/news

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We need your help - please, please help support NAM's work by returning this form.

At NAM, we really value feedback - it is used to help us keep our resources useful to you and others.

How useful was this booklet to you?

Very useful

Useful

Not very useful

Not at all useful

Has this booklet helped you make decisions about your health and treatment?

Yes, very much

Yes

A little bit

No

Has this booklet made you feel more informed about key issues?

Yes, very much

Yes

A little bit

No

Has this booklet made you feel more confident when talking to your healthcare team/doctor/GP?

Yes, very much

Yes

A little bit

No

Please turn over 



In your own words tell us how this booklet has helped you



Are there other topics that booklets like this should cover?
Please give details.



This questionnaire is anonymous and confidential.

NAM is a charity, returning this form is a simple and easy way for you to support our work so in turn we can continue to support you and others with free, useful, independent information. Thank you for taking the time to help us.

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



HIV helplines

THT Direct

From the Terrence Higgins Trust

Telephone 0808 802 1221

Opening hours Monday-Friday, 10am-10pm

Saturday & Sunday, 12pm-6pm

I Do It Right

Telephone 0800 0967 500

Opening hours Monday-Friday, 10am-6pm

HIV i-Base Treatment Phonenumber

Telephone 0808 800 6013

Opening hours Monday-Wednesday, 12pm-4pm

NAM information series for HIV-positive people - visit www.aidsmap.com/booklets

The booklet series includes: ● Adherence & resistance ● Anti-HIV drugs ● HIV & children ● HIV & hepatitis ● HIV, mental health & emotional wellbeing ● HIV & sex ● HIV, stigma & discrimination ● HIV & TB ● HIV & women ● Nutrition ● Side-effects

More from NAM

aidsmap.com

NAM's website aidsmap.com hosts a huge range of useful resources on key HIV topics. With booklets, factsheets, frequently asked questions about HIV, news and a map of local services, you can keep up to date and find information to support the decisions you make about your treatment and health. It is a reliable source of independent information that you can trust.

NAM supports THT in providing one-to-one and group skills sessions on health and treatments to people living with HIV. Call THT Direct for details.

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Call NAM on 020 3242 0820.

About NAM

NAM is a charity that works to change lives by sharing information about HIV & AIDS. We believe that independent, clear, accurate information is vital to those living with HIV.

Please help us

If you would like to support our work and help us to continue to provide resources like this one, please donate today at www.aidsmap.com/donate or call us on 020 3242 0820.



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