

Viral load

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Viral load is the term used to describe the amount of HIV in your blood. The more HIV in your blood, the faster your CD4 cells (immune system cells that fight infection) reduce, and the greater your risk of developing symptoms in the next few years.

The result of a viral load test is described as the number of 'copies' of HIV's genetic material (RNA) per millilitre (copies/ml). Normally your doctor will just give your viral load as a number.

There are a number of different viral load tests in use, each using a slightly different technique to measure the number of HIV particles in the blood. All the tests are equally reliable at determining if a viral load is high, medium or low. However, each test has a limit below which it cannot reliably detect HIV. This is referred to as viral load being 'undetectable'.

Undetectable viral load is usually defined as below 50 copies/ml. Until recently, this was the lowest detectable level for tests most commonly used in routine viral load monitoring. There are now some ultra-sensitive tests that can measure below 20 copies/ml.

This does not mean that there is no HIV in the sample, just that the number of copies is somewhere between 0 and 50.

Vaccinations and infections can cause temporary increases in viral load and you and your doctor may sometimes decide to delay a viral load test for a month after the illness or vaccination.

All the viral load tests are equally able to measure types of HIV that are most common around the world.

Viral load tests and people not taking HIV treatment

If you are not taking HIV treatment, your viral load will be monitored at your regular clinic visits because this can provide clues to the likely course of HIV infection if left untreated. Among people with the same CD4 count, those with higher viral loads tend to have more rapid disease progression than those with lower viral loads.

Changes in your viral load over time, along with other indications, particularly your CD4 count and the presence of HIV-related symptoms, can help you decide when to start HIV treatment.

Monitoring treatment

Effective HIV treatment results in a fall in viral load. If you are starting treatment or about to switch treatments, your doctor should perform a viral load test to determine a 'baseline' before starting or changing drugs, followed by a further test four to twelve weeks later to see how much your viral load has gone down.

For most people HIV treatment can reduce the amount of HIV in the body to 'undetectable'. An undetectable viral load is the aim of HIV treatment. It is desirable to have an undetectable viral load as HIV is much less likely to develop resistance to the drugs used to treat it, and also, the risk of becoming ill because of HIV is reduced.

The amount of time it takes to achieve an undetectable viral load can vary and after six months on your first combination your viral load should ideally have gone down to below 50 copies/ml.

The best results of HIV treatment are seen in people who take all doses of their anti-HIV drugs as prescribed. This is sometimes referred to as adherence.

If you're having problems taking your treatment for any reason, it's important to talk to your HIV doctor, or someone else in your healthcare team, for advice and support. You might find our online tool *Talking points* (www.aidsmap.com/talking-points) useful when preparing for an appointment.

Viral load blips

People with undetectable viral loads may experience small increases in their viral load from time to time. These are often called 'blips' and typically the viral load will increase from undetectable up to 100 or 200 copies/ml before going back down to undetectable on the next test. This does not indicate that treatment is failing. However, if viral load increases above 50 but below 500 copies/ml and remains there, this could indicate your treatment is failing and you should discuss with your doctor switching treatment.

Resistance testing

If you are taking HIV treatment and your viral load rises above 200 copies/ml, it may be because your HIV has become resistant to a drug. Resistance tests can be performed to see which of the drugs you are taking the HIV has become resistant to. HIV which has developed resistance to one drug may also be resistant to other similar drugs you have not taken – this is called cross-resistance and a resistance test should also indicate which drugs will be effective for you.

Viral load and HIV transmission

Routine viral load tests only measure the amount of HIV in the blood and not the amount of the virus in the body's cells or the brain or genital fluids. The effects of anti-HIV drugs in these places may vary, and sexually transmitted infections can increase viral load.

There's currently a lot of debate about how infectious somebody with an undetectable viral load is. In January 2008, HIV doctors in Switzerland issued a statement saying that if a person taking HIV treatment has had an undetectable viral load for at least six months, takes their HIV treatment properly and does not have a sexually transmitted infection, then they cannot transmit HIV to their sexual partners. But a lot of other HIV doctors, researchers and prevention workers don't think that there's enough evidence to support this statement, although most agree that people with an undetectable viral load are less infectious.