

Viral load

Viral load tests count the number of HIV particles in a sample of blood. The result of a viral load test is described as the number of 'copies' of HIV RNA per millilitre (copies/ml). 10,000 copies/ml or lower is generally considered 'low' and 50,000 copies/ml or greater is 'high'.

Each test has a limit below which it cannot reliably detect HIV RNA. For tests used in the past this limit was 400 or 500 copies. However, 'ultrasensitive' tests with a lower limit of 50 copies are now more widely used. Any sample with HIV levels below this threshold is said to have a viral load that is 'below the limit of detection', or simply 'undetectable'. This does not necessarily mean that there is no HIV in that sample; just that in the case of tests with a lower limit of 50 copies the number is somewhere between zero and 49.

If you currently have an active infection or recently received a vaccination, you may have a temporary increase in your viral load. In these cases it is best to leave a couple of months before having your viral load measured.

All viral load tests are now equally accurate at measuring types of HIV which are common in Africa and Asia. In the past, some tests couldn't always pick up these HIV strains.

Assessing prognosis

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

Changes in your viral load over time, along with other indicators such as your CD4 count and symptoms, can help you to decide whether or not to start anti-HIV treatment.

Monitoring treatment

Treatment with an effective anti-HIV regimen results in a fall in viral load. If you are starting treatment, or switching from one regimen to another, you should have a 'baseline' viral load test before you start or change drugs, followed by a second test a month or so

later. The difference between the two may indicate the short-term anti-viral effects of the drugs.

According to current medical practice, your next viral load test should be twelve weeks after starting your new combination, and subsequent tests should then recur every twelve weeks. Additional tests may be needed from time to time, for example if you develop symptoms.

For some people, drug combinations can reduce viral load to below the limits of detection, even among people with low CD4 counts or who have taken anti-HIV drugs before. If your viral load is 'undetectable', HIV may be less likely to develop resistance to the drugs. It is recommended that an initial combination should lower viral load below 50 copies by 24 weeks after starting it. Subsequent combinations are less likely to meet this goal.

Routine viral load testing does not measure the amount of HIV inside cells, or in other body compartments beyond the blood, such as genital fluids or the brain, and the effects of anti-HIV drugs in these places may vary. It's important to remember therefore that HIV virus transmission is still possible in spite of its 'undetectable' status.

If you are taking anti-HIV drugs correctly but your viral load starts to rise again, this probably indicates that the drugs' antiviral effects are waning, perhaps due to resistance or because you are not absorbing them properly. Doctors differ in their view of how quickly you should switch to a new combination if your viral load begins to rise.

Some argue that the aim of treatment should always be to achieve and maintain undetectable viral load because the risk of resistance to drugs being taken increases as long as viral load is detectable. Others are concerned that with today's drugs this is unachievable for many people and will encourage them to change drugs too rapidly, until eventually they may run out of options.