

CD4 and Viral Load

What labs are checked in regards to my HIV?

There are two labs done on a regular basis (every 3-4 months) that check on the HIV in your body and its effects on your body: the **viral load** and the **CD4 count**.

What is a viral load?

HIV reproduces in your bloodstream. The **viral load** is a measure of the amount of HIV virus in your blood, expressed either as a number ranging from 48 to 10,000,000 copies/ml, or as the log of the viral load. The higher the number, the more quickly HIV will hurt your immune system and the more likely you are to feel sick from the HIV infection. Because each virus produces thousands of baby viruses, sometimes the viral load is expressed as a **log**; a log of **X** would mean 10^X , so a log of 2.0 would be 10×10 or 100, a log of 3.0 would be $10 \times 10 \times 10$ or 1000, etc. Therefore a viral load of 100,000 copies/ml could also be called a log of 5.0.

When the viral load gets over 100,000 copies/ml (log 5.0), your medical provider may prescribe medications to fight the HIV. Your HIV medications bring down the viral load, shooting for < 48 copies/ml or “undetectable.” After one month on your medicines, your viral load should decrease by 1.0 log. If you take your HIV medications really well, you should be able to bring the amount of virus down to undetectable by 4-6 months on therapy. This does **not** mean the HIV is gone from your body and you **can** still infect someone else if you share needles or have unsafe sex, plus a mother can pass the virus to her child at birth.

What is a CD4 count?

White blood cells are produced by the body to fight off infection as a part of the immune system. CD4 cells are a type of white blood cell called **lymphocytes** which have a marker on the outside of the cell called a CD4 marker. These are also called “T cells” and occasionally “T helper cells.” These are the cells that HIV infects and destroys. Usual CD4 counts for a newborn baby are around 3000-5000 and for an adolescent or adult about 700-1200 cells/ml. If your count goes below 200 cells/ml, you are diagnosed with AIDS. AIDS is not a different disease than HIV infection, instead it means you can get unusual infections that other people do not get, called “opportunistic infections.”

Usually your medical provider may start medicines to treat your HIV if your CD4 cells go below 350 cells/ml. You want to start medications before your CD4 cells get below 200 because your body responds better to medicines when they are started at above 200 cells/ml. HIV medicines beat down the amount of HIV virus in your body, allowing your body to produce more CD4 cells. The amount of CD4 cells varies and may go up and down like a roller coaster; to determine if a change in CD4 cells is important, your medical provider may refer to the “**CD4 percentage**,” the percentage of lymphocytes with CD4 markers on the surface. For example, if your CD4 count was 400 (18%) and then was 325 (19%) at the next check, the HIV is not getting worse and hurting your immune system more because the CD4 percentage is stable or better. When your CD4 percentage is less than 15%, you can still get opportunistic infections and need to take medications to prevent sickness.

If you have further questions, be sure to talk to your primary care provider or your health educator or nurse.



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