

HIV · Human Immunodeficiency Virus

A plain-English guide for you and your family

WHAT IS HAPPENING

Your immune system has a team of white blood cells that fight germs. CD4 T cells are the quarterback — they spot the invader, call the play, and tell the rest of the team what to do. HIV is a virus that gets into those CD4 cells, uses them like a copy machine to make more virus, then bursts the cell open and kills it. At first, you might feel like you have mono — fever, sore throat, rash, swollen glands — for a few weeks. That is your body sounding the alarm. Then the virus goes quiet and hides in your lymph nodes and keeps copying slowly for years, killing more CD4 cells every day. If untreated, your CD4 count eventually drops so low that your body cannot fight off infections that healthy people brush off easily — pneumonia from a fungus, diarrhea that won't stop, or brain infections. That stage is called AIDS. But here is the good news: daily pills called ART stop the virus from copying. The virus level drops so low that tests can't find it (undetectable), your CD4 count climbs back up, and you stay healthy. Undetectable means you cannot pass HIV to others, even during sex. You take the medicine every day, see your doctor regularly, and live a normal lifespan. The key is starting treatment early and sticking with it.

What you might feel

- Fever and flu-like illness 2–4 weeks after exposure (acute retroviral syndrome)
- Widespread rash (trunk, face, arms, legs)
- Sore throat and painful mouth sores
- Swollen lymph nodes in the neck, armpits, or groin
- Night sweats and muscle aches
- Diarrhea
- Headache and confusion (less common, serious)
- No symptoms for years (chronic HIV without treatment)
- Frequent infections, weight loss, and fatigue (AIDS stage)

Call the doctor right away if...

- Fever, rash, and sore throat 2–4 weeks after unprotected sex or needle sharing — do not dismiss as 'just a virus'; test for acute HIV with HIV RNA or combination antigen/antibody test.
- Sudden confusion, severe headache, or stiff neck in someone with HIV — may be meningitis or brain infection from the virus or an opportunistic germ.
- CD4 count below 200 or unusual infections (thrush in the mouth, pneumonia from *Pneumocystis*, vision changes) — signals AIDS and needs urgent treatment and infection prevention.

What the care team will do

- Check vital signs and oxygen saturation every 4 hours and watch for fever above 100.4°F or oxygen below 92 percent
- Give antiretroviral therapy (ART) at the same time every day and teach the patient never to skip doses
- Give trimethoprim-sulfamethoxazole prevention (prophylaxis) once daily if CD4 count is below 200 cells per microliter
- Assess mouth and skin daily for white patches, purple spots, or new rashes
- Use strict standard precautions with gloves for blood and body fluid contact, and dispose of needles in sharps containers immediately
- Monitor weight weekly and ask about diarrhea lasting more than 2 days
- Teach the patient that viral load (amount of virus in blood) should become undetectable in 3 to 6 months with daily ART
- Screen for depression and suicidal thoughts at every visit using direct questions

Medicines you may be given — and why

Bictegravir / emtricitabine / tenofovir alafenamide (Biktarvy)

This single pill combines three medicines that block HIV at two different steps inside the infected cell. Bictegravir stops integrase (the enzyme HIV uses to stitch its genes into your cell's DNA), so the virus can't hijack the cell's machinery. Emtricitabine and tenofovir both jam reverse transcriptase (the enzyme that copies HIV's RNA into DNA), so the virus can't make the DNA copy it needs in the first place. Together they keep HIV from multiplying, which lets your CD4 count (infection-fighting white blood cells) climb back up and keeps the amount of virus in your blood so low that tests can't detect it.

Dolutegravir / abacavir / lamivudine (Triumeq)

Another single-tablet regimen that blocks HIV at two steps. Dolutegravir jams integrase (the scissors-and-glue enzyme that splices viral DNA into your chromosomes). Abacavir and lamivudine both block reverse transcriptase (the copier that turns HIV's RNA into DNA). Together they stop the virus from multiplying, drive viral load down to undetectable, and let CD4 counts recover.

Dolutegravir / lamivudine (Dovato)

A simplified two-drug regimen (instead of the usual three) for people with no resistance and viral load under 500,000. Dolutegravir blocks integrase; lamivudine blocks reverse transcriptase. The pair keeps HIV suppressed while exposing you to one fewer drug, which may mean fewer long-term side effects.

Trimethoprim-sulfamethoxazole (Bactrim, Septra)

Used to PREVENT *Pneumocystis jirovecii* pneumonia (PCP, a dangerous lung infection) and toxoplasmosis (a brain parasite infection) when your CD4 count is below 200. The two drugs together block two steps in how bacteria and parasites make folic acid (a vitamin they need to multiply). Your own cells get folic acid from food, so the medicine targets the germ without starving you.

Azithromycin (Zithromax)

Used to PREVENT *Mycobacterium avium* complex (MAC, bacteria that cause fever, weight loss, and diarrhea) when CD4 is below 50. Azithromycin binds to the ribosome (the protein-making factory) inside MAC bacteria and stops it from building the proteins the bacteria need to survive.

Emtricitabine / tenofovir disoproxil fumarate (Truvada) for PrEP

For people who do NOT have HIV but are at high risk (for example, a partner with HIV, injection drug use, or sex without condoms with partners of unknown status). If HIV enters your body, these two drugs block reverse transcriptase so the virus can't make the DNA copy it needs to establish infection. Taking the pill daily keeps drug levels high enough in blood and genital/rectal tissue to stop HIV before it can take hold.

Emtricitabine / tenofovir alafenamide (Descovy) for PrEP

Works the same way as Truvada for PrEP — blocks reverse transcriptase so HIV can't copy its RNA into DNA — but uses a newer form of tenofovir that reaches higher levels inside cells with a lower dose, which is easier on kidneys and bones. Approved for PrEP in people assigned male at birth (cisgender men and transgender women) and for transgender men who have receptive

vaginal sex. Not yet approved for cisgender women assigned female at birth because studies in that group are still ongoing.

Cabotegravir long-acting injection (Apretude) for PrEP

A shot given every two months (after two initial monthly shots) that keeps protective levels of cabotegravir in your body to block HIV integrase. If HIV gets in, it can't stitch its genes into your cells, so the infection never establishes. This option is for people who find daily pills hard to remember or prefer an injection.

Zidovudine (AZT, Retrovir) for mother-to-child transmission prevention

Given to pregnant women with HIV (as part of their ART regimen) and to newborns for the first 4–6 weeks of life to block any virus that might pass from mother to baby during pregnancy, labor, or delivery. Zidovudine gets into cells and jams reverse transcriptase so HIV can't copy itself. When the mother's viral load is undetectable on ART, transmission risk drops below 1 %; zidovudine for the baby adds an extra layer of protection in the first weeks.

Raltegravir (Isentress) or other potent ART for post-exposure prevention (prophylaxis) (PEP)

Started within 72 hours (ideally within hours) after a high-risk exposure to HIV (for example, needle stick, condom break with a partner who has HIV, sexual assault). A 28-day course of three-drug ART stops the virus before it can spread from the initial entry site to the rest of your body. The drugs block different steps in the HIV life cycle so any virus that got in cannot copy itself and establish a permanent reservoir.

Where this information comes from

- CDC HIV Testing Guidelines
- DHHS Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents with HIV (2024)
- WHO Consolidated Guidelines on HIV Prevention, Testing, Treatment, and Care
- AMA HIV/AIDS Resource Center

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