

## HIV CD4+ 200

When HIV patients have CD4+ counts of less than 200 cell/microL, this is diagnostic of AIDS and these patients are susceptible to opportunistic infections by herpes simplex virus (HSV) and progressive multifocal leukoencephalopathy (PML) from JC virus infection. Pneumocystis pneumonia is a fungal infection caused by pneumocystis jiroveci, which also affects patients at CD4+ counts below 200 cells/microL. Additionally, these patients may begin to display signs and symptoms of HIV dementia and histoplasmosis.



PLAY PICMONIC

### Signs and Symptoms

#### Herpes Simplex Virus (HSV)

##### Harp-virus

Patients with CD4+ levels below 200 cells/microL are at increased risk for reactivation herpes simplex virus, or HSV. This can manifest as cold sores or genital herpes outbreaks in those who have latent infections.

#### JC Virus

##### JC-on-a-Penny

JC Virus is a polyomavirus which is estimated to have infected 70-90% of the world's population. When HIV-infected patients have their CD4+ count drop below 200 cells/microL, this virus is reactivated. This can subsequently cause progressive multifocal leukoencephalopathy, or PML.

#### Progressive Multifocal Leukoencephalopathy (PML)

##### PML-brain

Progressive multifocal leukoencephalopathy, or PML, is a rare disease leading to inflammation of the white matter of the brain in multiple locations. This disease is caused by JC virus, which is a polyomavirus which affects HIV patients with CD4+ counts below 200 cells/microL.

#### Pneumocystis Pneumonia

##### Nude-Mona Sisters

An opportunistic fungal infection which can infect patients with CD4+ counts below 200 cells/microL is Pneumocystis jirovecii, formerly known as Pneumocystis carinii prior to discovery that it could cause disease in human hosts. This leads to pneumocystis pneumonia, which presents with fever, nonproductive cough, shortness of breath and night sweats. On chest x-ray, there is increased opacification of bilateral lung bases. This fungal infection demonstrates a characteristic "ground glass" appearance on chest imaging.

#### (HIV) Dementia

##### Demented-D Man

When CD4+ counts get below 200 cells/microL, patients may display symptoms of HIV dementia, or HIV-associated neurocognitive disorder. This manifests as disabling cognitive impairment accompanied by motor dysfunction, speech problems and behavioral change.

## Histoplasmosis

[History-channel on Plasma-TV](#)

Patients with CD4<sup>+</sup> counts below 200 cells/microL can develop histoplasmosis, a fungal infection caused by *Histoplasma capsulatum*. This opportunistic infection presents with fever, weight loss, fatigue, dyspnea, cough, nausea, vomiting and diarrhea. Histoplasmosis has varying presentations, and we typically see respiratory involvement if the patient's CD4<sup>+</sup> count is below 300, while in patients with CD4<sup>+</sup> counts below 150, there is a high risk of systemic disease. Diagnostically, oval yeast cells are found within macrophages of these patients.