

# MEMORY, ATTENTION, AND LEARNING IN YOUTH BORN WITH HIV

The brain's "default mode network" is a series of connections between different regions of the brain. It is active when a person is awake but at rest (such as when the mind wanders or we daydream). Some youth with HIV may have changes in this part of their brain, making it difficult to pay attention, learn, and remember things. In this study, we looked at the connection between past HIV disease and the brain's activity at rest.

## WHO PARTICIPATED

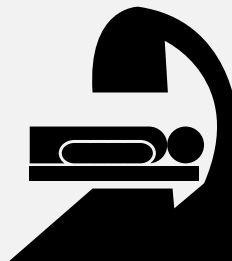
31 youth in AMP



We did brain imaging on 31 youth from one clinical site in AMP. The age of participants ranged from 11 to 20.

## WHAT WE DID

**MRI** stands for "magnetic resonance imaging." It uses a magnetic field and radio waves to create detailed images of the organs and tissues in the body.



We used MRIs to take images of participants' brains while they were at rest (lying awake with their eyes closed) to evaluate the default mode network's activity in the brain. We looked at how well the different regions in the default mode network could communicate.

We analyzed the brain images along with other markers of participants' HIV disease history. These included low CD4 count and high HIV viral load.

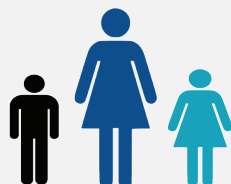
## WHAT WE FOUND



We found that markers of advanced HIV disease in the past were related to brain activity during rest.

Having had a low CD4 count or high viral load in the past seemed to affect different parts of the brain. The parts of the brain that were affected are important for paying attention, learning, and remembering. These findings are similar to those seen in adults with HIV.

## WHAT WE LEARNED



This is the first study to show that youth with a history of more advanced HIV disease have changes in their brain activity at rest. This may be why some youth born with HIV have difficulty with memory and attention. These findings may help future research discover ways to help parents and children deal with these challenges.