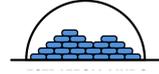


# **BUILDING MY WALL**

Brick by brick

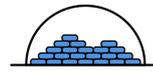


## Objective of this intervention and target population

The objective of this intervention is to provide basic information about the action of the human immune deficiency virus (HIV) within the body and the function of the antiretroviral drugs using familiar language. The use of drawings and metaphors allows for an easy understanding of the health contents that are discussed. The target population is; people who have received a diagnosis of HIV infection recently or any person that may benefit from an educational intervention on adherence.

## Use of the drawing

One of the possible ways to perform this intervention is to suggest that the person draw how he/she imagines the HIV is in his/her body. For this purpose, the person is given a blank sheet of paper and pencils or felt-tip pens of different colours. Once the person has finished the drawing, he/she is asked about its meaning. The person is also asked about how much he/she knows about the virus and antiretroviral drugs. This process allows the health professional to verify the level of information as well as to detect possible incorrect health beliefs. The use of the drawing also permits the person to start creating an image of the virus, something that may be difficult after the diagnosis, especially in those infected in an asymptomatic phase.



## Intervention:

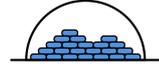
### Building your wall: Brick by brick

#### The immune system: Your invisible shield

Imagine that your body is surrounded by an invisible shield, your **immune system**. This shield acts like an army formed by many soldiers that protect you from the attacks of viruses, bacteria and other damaging agents for your body.

When the HIV virus enters your body, it is unable to reproduce by itself. However, the virus knows that there is some kind of treasure that will let him reproduce inside the **CD4 cells**, which are one of the most important soldiers in our immune system. So, the virus occupies the cell, stealing what it needs from it and, thanks to this, it is able to create copies of itself, which we call **viral load**. This leaves the CD4 cells unable to continue their function of defence. The CD4 cells are eliminated progressively and become fewer each time. If nothing is done, the body becomes more and more vulnerable and it is exposed to different types of illness that use the opportunity to enter it (**opportunistic infections**). These infections appear easily when the CD4 cell count falls below  $200/\text{mm}^3$ . This process of losing cells may last years without having any symptom, depending on different factors; such as your own genes or the type of virus, since some are more aggressive or faster. Also, the virus uses the opportunity to arrive to those places of your body where cells of your immune system repose, like a reserve of "extra" cells. Those places are called **viral reservoirs**. The virus accesses these places to have a reserve from which to emerge, and once it is there, it remains in repose or latent, as it is said.

Thanks to the first blood test, two important questions are answered: how many CD4 cells are still fine and how many copies the virus has been able to create up until now. Until recently, if CD4 cells were above  $350/\text{mm}^3$  the

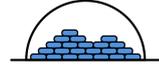


recommendation was to follow medical appointments and perform blood tests to control how and at what speed the cell count was decreasing. However, due to recent studies, the earlier starting of the **antiretroviral treatment** has shown benefits in the long term. This is because the virus creates an inflammatory effect in the body, like feeling the presence of something that does not belong to it naturally. This chronic inflammation may provoke damage over the long term in organs such as the brain, heart or kidneys. Because of this, it is very possible that after the diagnosis doctors will start talking to you about the pills best recommended for you.

### **The antiretroviral drugs: Building a wall to isolate the virus**

Remember that the HIV virus enters the CD4 cells to be able to multiply itself and then leaves the cells. Your medication is able to stop this action. Imagine that with the antiretroviral treatment you raise a wall that leaves the virus isolated. Every time you take a dose of medication, you are putting a brick in this wall that let the CD4 cells be free from the virus attack. If the wall is well built your virus will stop multiplying and your viral load will decrease until becoming undetectable. It is fundamental that this wall is very solid and doesn't have any cracks. The antiretroviral treatments are now so efficient that the only reason for their therapeutic failure, the multiplication of the virus, is to leave holes in this wall and that the virus crosses through to the other side.

Imagine now that you are building that wall. You put the bricks every day but... one day you go to the cinema and you forget, so a hole is created. Two weeks later you are with people who do not know about your illness and you feel embarrassed to take the pills, and so another hole. And one day you feel sad and do not feel like taking the medication... another hole. Well, with only these three holes in a month, you are already at risk that your virus, which is very clever, filters through the wall and occupies your CD4 again. This is called to create **resistance**. The virus mutates and this wall that you built with effort falls and it is necessary to build it again. But the bricks that



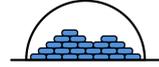
you used before are useless. You may think at the beginning of your treatment that this is not a problem because, now there are so many different types of bricks to be used! But every brick comes from a specific factory (the families of antiretroviral drugs) and sometimes other bricks from that factory become useless for you (**crossed resistance**) and you have to go to get bricks from other factories. Yes, it is true that now there are a lot of bricks but the number of factories is still limited at the moment. So you have to try to ensure that the bricks last as long as possible and that your wall remains firm.

Your viral load is undetectable; your virus has stopped multiplying... How is it possible that with just a few failures of treatment the virus can increase so fast? Where does this virus come from suddenly?

The answer is in the **viral reservoirs** that we described before. Since the process of infection happens there in the earliest stage of infection, although the antiretroviral treatment reduces the concentration of HIV in blood until undetectable levels, the reservoirs of the latent virus remain alive. When we stop the antiretroviral treatment or we miss a few doses, the cells with latent infection of the reservoir are reactivated and start producing the virus again. For this reason, the antiretroviral treatment available until now can not cure the HIV infection.

### **I build my wall. What else can I do? Maybe a beautiful garden...**

With the antiretroviral treatment you will make the HIV virus become smaller and a more comfortable partner in your journey. But the fact that it remains present in your body will cause a prolonged inflammation that may have consequences on your health in the long term, like more possibilities to have cardiovascular problems, or that the bones debilitate earlier, or cognitive impairment. It is like wearing a backpack full of things. And all of us have our own backpack. The HIV will be in your backpack but maybe there are other things that make it heavier and difficult to walk, jump and dance. These other



heavy things can be tobacco, drugs, stress, bad eating habits... So everything you can do to improve your health habits will make the inflammation smaller. If you build a wall and you create a beautiful garden around it you will feel better and your quality of life will be higher.

We encourage you to do it!