

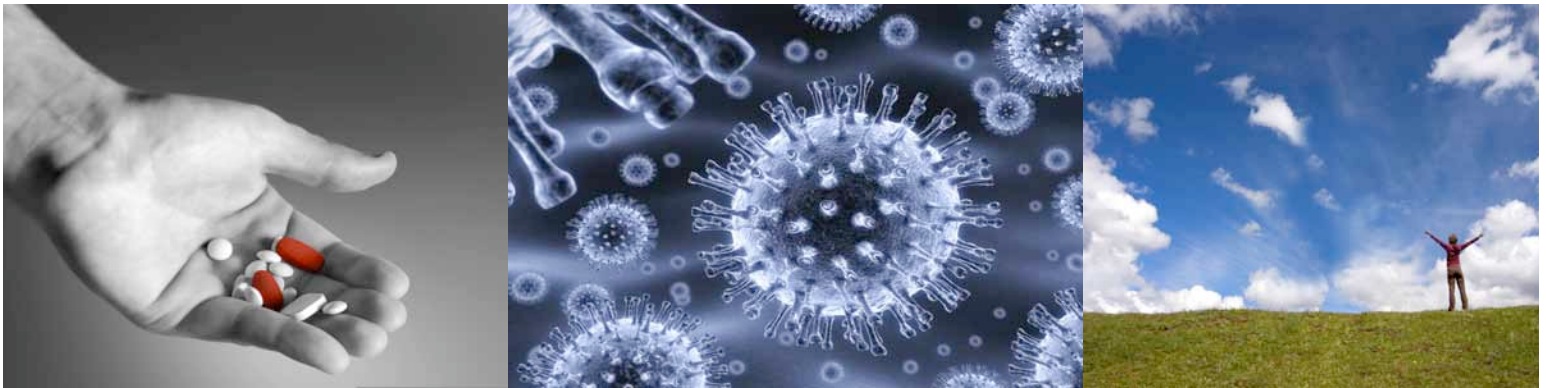


Toronto People With AIDS Foundation

# Treatment Bulletin

## Treatment Adherence: Strategies for Success

November 2010



### Disclaimer

The Treatment Resources Program at the Toronto People With AIDS Foundation provides information and resources to empower people living with HIV/AIDS to be proactive around their health by working in partnership with their health care providers. We do not recommend or promote any treatment in particular. We strongly urge those interested in any specific treatment to consult a wide range of resources, including a qualified medical and/or complementary therapy practitioner who has experience in working with HIV+ individuals.

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*A comprehensive guide to treatment adherence for people living with HIV/AIDS*

## HIV Treatment

The creation of successful HIV treatment has allowed people living with HIV/AIDS (PHAs) to live longer, healthier lives. Although successful, HIV treatment is not without its challenges.

The medications used to treat HIV fall into several different classes, all targeting a different part of the virus and what it does when it enters your body. Many of these medications have side effects that can be unpleasant and have to be taken several times per day. For these reasons and many others, some find HIV treatment difficult to take.

In order to understand why taking medication as prescribed is important, we need to understand how the medication works against HIV.

## How HIV Treatment Works

### *HIV Life Cycle Basics*

When HIV gets into your body, it seeks out specific cells that are part of your immune system, known as CD4 cells. It enters these cells and integrates its own genetic material into the DNA of the cell. The genetic material of the virus is in a different form than our cells. To overcome this challenge the virus copies its genetic material to match that of the cell. It then inserts itself into the cell's DNA, reprogramming it to make more HIV.

When the CD4 cell that is infected receives the signal to become active and multiply, many copies of the genetic material that make an HIV virus are also made, along with viral proteins. Virus particles are then assembled and the virus emerges from the infected cell. Once outside it matures and can now move on to infect other cells.

### *HIV medications*

Medications used to treat HIV are designed to stop the virus at various stages in its life cycle. Treatment regimens are generally composed of 3 medications that act at two or more points in the life cycle of HIV.

### *Classes of medications:*

*Entry inhibitors* prevent the virus from binding to and entering an uninfected CD4 cell. They can do this in several ways – by binding to either the virus or the cell itself at the usual attachment site used for entry.

*Nucleoside Reverse Transcriptase Inhibitors (NRTI's or "Nukes") and Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI's or "non-Nukes")* act by preventing HIV from making copies of its genetic material so that it can be integrated into the cell's DNA. This makes the virus unable to make copies of itself.

*Integrase Inhibitors* act by preventing the newly formed viral double stranded DNA from integrating into the host cell DNA.

*Protease Inhibitors* act on the enzymes created when the virus is inside the cell. When the proteins that are usually found inside the virus are made, they are formed in one long chain. In order to work, they need to be cut into their individual proteins. Protease Inhibitors bind to where the protein cutting occurs and keeps it from being able to form working individual proteins.

## What Does Adherence Mean?

Adherence means taking your medication the way the doctor prescribed and the way it was meant to be taken. This could mean several things:

- Taking your medication on time
- Taking the right number of pills
- Taking the medication with or without food, as recommended
- Avoiding taking your medication with things that may interfere with it

There are studies that suggest that 95% adherence to HIV treatment is needed in order for the medication to work effectively. For example, this might mean that you could incorrectly take or miss one of your doses per month without any unnecessary anxiety. You should, however, always strive to take all of your doses if possible.

### Why is Adherence Important?

Adherence is important because HIV medication needs to be in your blood at a certain level to keep the virus from making copies of itself. When a dose is missed, the level can drop below what is needed to do this. With repeated missed doses and low drug levels in the blood, the virus begins to start replicating again. This can result in viral load increases and CD4 count decreases.

Another significant concern with missed doses of HIV medications and increasing levels of HIV virus in the blood is virus mutations and drug resistance. When the virus is allowed to grow with medication levels that are not high enough to suppress it, the virus can change and adapt to grow even when that medication taken correctly. This is known as drug resistance and means the medication will no longer work. When HIV medication no longer works effectively to suppress HIV virus replication, it is referred to as treatment failure and may mean switching to a different drug.

HIV can become resistant other medications that work in the same way, even if you have never taken them. This is called cross-resistance and is a problem because it limits the amount of options that you have for treatment.

### Resistance Testing

Your doctor can do a blood test to see if the HIV virus that you have is resistant to any of the HIV medications they are considering prescribing. This is known as resistance testing. There are a few ways to check for resistance, but the most commonly used test is called a genotype test. When HIV becomes resistant to a medication is it because of changes, or mutations, that occur in its genetic material. These changes occur because the virus is making so many copies of itself that mistakes are inevitable. If one of those changes makes the virus able to withstand the effects of medications, then resistance occurs. Genotype testing looks for specific changes in the HIV that you are infected with that are known to be resistant to particular medications.

Resistance testing is usually done when someone is beginning treatment or if the medication that they are taking stops working and a change in medications is necessary. It is important to get tested before you begin treatment for the first time since the virus you are infected with may already be resistant, even if you have never taken medication. Testing for resistance allows your doctor to choose a treatment regimen that will be the most effective for you.

### Why do people have difficulty adhering?

There are many reasons why people have difficulty taking their medications, and the reasons may be different for each person. Here are some reasons why people may have difficulty sticking with their treatment regimens.

- Side Effects:* For many people the side effects that can occur with taking certain HIV medications are difficult and can interfere with your ability to take them. For some, gastrointestinal issues such as nausea and vomiting make it physically hard to take medications. Fatigue may cause you to sleep through your next dose. For others, the idea of taking something that makes you feel worse can be psychologically difficult.

- Forgetfulness:* It is difficult to introduce a new routine and natural that you may forget to take your medication at times. For some, cognitive changes (both associated with HIV and not) can be a contributing factor to forgetting to take your medications. There are many factors that contribute to forgetting to take your medication, and it is important that if this is happening to you that you identify what the reason is.

- *Busy lifestyles:* Especially in North America, we tend to live very busy lifestyles. Having to juggle multiple responsibilities (work, family, school, relationships, doctors visits, day-to-day tasks) can be difficult and having to manage a medication schedule in addition can seem overwhelming.
- *Fear of disclosure:* Taking medication in front of others may make some people anxious and uncomfortable, particularly if they are not comfortable disclosing their status to others. Being in a social situation at a time when medication is scheduled to be taken may cause some to skip their dose for fear of uncomfortable questions.
- *Substance use:* Substance use can have a significant impact on medication adherence. While using drugs or alcohol, many will forget to take their medication. Many people are also concerned about interactions between their medications and recreational drugs or alcohol they use and so will abstain from taking their medication at times when they plan to use.

## *Strategies for Adherence:*

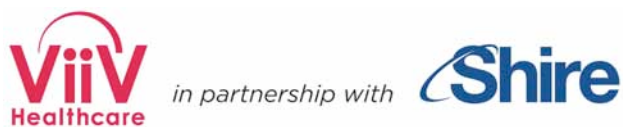
- Be prepared ahead of time, before you start medication, for any possible side effect you make experience. Talk to your doctor, pharmacist, nurse, or local AIDS Service Organization (ASO) about what to expect and what things you can do to manage side effects as they appear. This may make it easier for you to take your medication.
- If the side effects don't clear, don't be afraid to talk to your doctor about switching regimens.
- Consider a "dry run" before starting your treatment regimens using jelly beans, mints, or other candy. This can help you to develop a routine and also help to identify any areas of difficulty that you can discuss with your doctor.
- Use alarms or timers to help you remember when to take your medication. If you have a close friend or relative who you feel comfortable disclosing to, you can also ask them to give you reminder call until you get the hang of things.
- Keep a log or diary of the medication you take and check off whenever you take your medication. This way you can track if you already took your dose, missed a dose, and potentially decreases the chances of medication errors.
- Take your medication at the same time each day, ideally at a time when you are at the same place each day. The easiest place to do this may be at home. If your schedule is varied you may want to consider taking your medication with you.
- If you work and have to take your medication during the day, consider keeping a supply of medication in your office, or in your bag or briefcase.
- Pill boxes are a great option for transporting and keeping track of your doses for the day! Put the entire week's worth of medication in the pill box to help you stay on track.
- If you are concerned about taking medication when you are around people, you can try excusing yourself to a place where you can take your medication privately, such as a bathroom. Depending on your treatment regimen, you may be able to take your medication at a time when you generally know you'll be at home (e.g. in the morning) and so can avoid having to take medication in social situations.
- Plan ahead for any changes in routine, such as vacations
- Keep track of your medication supply so you can get a refill before you run out. If your prescription will run out before your next visit, call your doctor's office and let them know. This will avoid you being left without medication over a weekend when doctors' offices and pharmacies may be closed.
- Be honest with your doctor about your substance use and find out if your medications interact with the drugs or alcohol you are using. If they do, speak with your doctor about what options are available to you.
- Finally, if you have trouble remembering to take your medication, even after trying several strategies, consider talking to your doctor about switching regimens to one that might be easier for you to take. There are options!

## Acknowledgements

This treatment bulletin was written and designed by Jennifer Grochocinski, ND, Treatment Resources Coordinator at the Toronto People With AIDS Foundation (PWA)

PWA thanks Melissa Egan and the Canadian AIDS Treatment Information Exchange (CATIE) for reviewing the content of this treatment bulletin to ensure accuracy.

PWA also thanks Bristol-Myers Squibb, Gilead, ViiV Healthcare in partnership with Shire Canada, Merck, and Tibotec for supporting PWA's Treatment Bulletins.



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### Mission

The Toronto People With AIDS Foundation exists to promote the health and well-being of all people living with HIV/AIDS by providing accessible, direct, and practical support services