

Understanding HIV and AIDS



A Guidebook to
HIV & AIDS Prevention



Introduction

While running a clinic that is part of the MOH Anonymous HIV Screening Program, it is inevitable that I end up conducting a fair bit of HIV screening. In the course of my work I have noticed the rising rates of people contracting HIV.

That's is why I decided to publish this eBook to help the community at large to understand more about the importance of HIV screening and HIV treatment. With more awareness people can take precautionary measures to help prevent themselves from being infected with HIV.

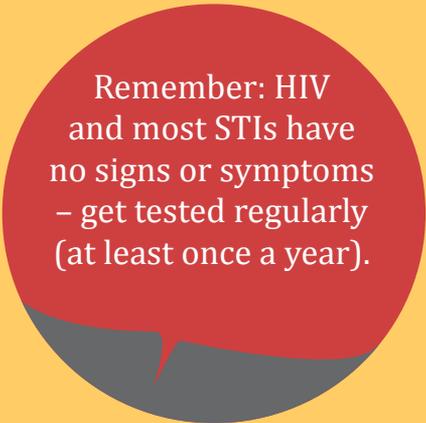
It is very important for people to know their HIV status, as with early detection patients can seek early treatment. And, with treatments patients still can have a normal, healthy and productive life.

I have an active forum and blog (www.askdrtan.com) for Sexual Health, STDs, HIV & AIDs prevention and treatment.

The materials in this book should be used as a guide. Many STIs do NOT cause symptoms and if they do, symptoms may be mild.

Please visit your physician or our doctors at Dr. Tan and Partners clinic at Robertson Quay (Approved Anonymous HIV Screening Clinic), Novena Medical Center and The Bencoolen for more guided tests.

Dr. Tan



**Remember: HIV
and most STIs have
no signs or symptoms
– get tested regularly
(at least once a year).**

Disclaimer:

We have attempted to provide full, accurate and up to date information in this booklet, based on current medical evidence and opinion. However, information and advice may vary from different sources, and over time. If you have any further questions, see your doctor or healthcare provider.

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What is HIV

Human Immunodeficiency Virus (HIV) is a virus that weakens our immune system. Our Immune system protects us from infections, cancer and disease. There is no vaccine or cure yet for HIV infection but with early screening and detection and treatment people living with HIV can still lead normal lives.

When our immune system is so weakened by a HIV infection that is not treated, it can lead to Acquired Immune Deficiency Syndrome (AIDS).

How is HIV Transmitted

HIV is transmitted by body fluids of a HIV +ve person. These body fluids can be transmitted via sexual intercourse, blood transfusion, sharing of infected needles or breastfeeding and therefore HIV infection..

These body fluids are:

- Blood
- Semen (cum)
- Pre-seminal fluid (pre-cum)
- Rectal fluids
- Vaginal fluids
- Breast milk

For transmission to possibly occur, these body fluids must come into contact with damaged tissue or mucous membrane. Mucous membranes are the soft, moist areas just inside the rectum, the vagina or the opening of the penis, and the mouth.

Understanding Window period

The window period is the time between potential exposure to HIV infection and the point when the test will give an accurate result. During the window period a person can be infected with HIV and be infectious but have a negative HIV test

Our immune system produces antibodies to try to fight the HIV infection. It can take between 2 weeks and 3 months for antibodies to appear in the blood. The HIV 4th Generation Test is also called the Combo test or the Duo test can detect most HIV infections as early as 4 weeks.

The Signs & Symptoms of HIV and AIDS

Stage 1: Acute-Retroviral Syndrome

(2 to 6 Weeks after infection)

Symptoms:

- General – Fever, Sweats, Lethargy, Malaise, Swollen lymph nodes, Weight Loss
- Skin – Rash, Ulcers, Sore throat
- Digestive – Nausea, Diarrhea, Loss of Appetite
- Neurological – Headache
- Musculo-Skeletal – Muscle aches, Joint aches

Not everyone will develop all these symptoms. These symptoms can develop in varying combinations.

The most common symptoms are fever, sore throat, rash and swollen lymph nodes.

Stage Two: Chronic HIV Infection

(After 6 Weeks or longer)

Symptoms:

- Experience no HIV-related symptoms, or only mild ones.

Early detection and treatment of HIV can prevent opportunistic infections.

The virus is living and reproducing in a person's body and attacking the immune system of that person.

Early detections and treatments can help slow or stop the progress of HIV to AIDS.

Final Stage: AIDS (Acquired Immunodeficiency Syndrome)

Transition from the clinical latency stage to AIDS.

Symptoms:

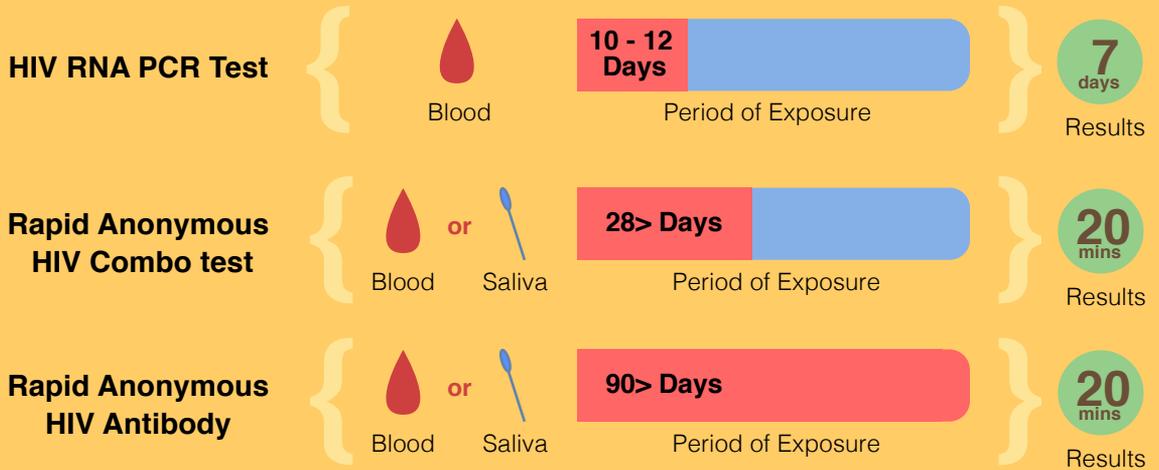
- Rapid weight loss
- Recurring fever
- Profuse night sweats
- Extreme and unexplained tiredness
- Prolonged swelling of the lymph glands in the armpits, groin, or neck
- Diarrhea that lasts for more than a week
- Sores of the mouth, anus, or genitals
- Pneumonia (Lung Infection)
- Red, brown, pink, or purplish blotches on the skin or inside the mouth or nose
- Memory loss
- Depression

You are also considered to have progressed to AIDS if you develop one or more opportunistic illnesses, regardless of your CD4 count.

Without treatment, people who progress to AIDS typically survive about 8 - 10 years.

Each of these symptoms can be related to other illnesses. The only way to know for sure if you are infected with HIV is to get tested.

Types of Test



The new HIV testing guidelines recommend the HIV Combo Test even for exposures 3 months or more ago.

The HIV 4th Generation Test is also called the Combo test or the Duo test. It tests for both the HIV antibodies as well as the antigens in the blood. It can be done as a rapid test i.e. you can get the results in 20 minutes.

These tests are available at our clinic.

Test and Window period

- If you are within the first 10 days of possible HIV infection (aka the Eclipse Period), don't bother doing any tests. There are NO tests that are accurate.
- At day 10, the HIV-1 RNA PCR can detect HIV Viruses in the blood.
- Remember that the RNA PCR test has a high chance of giving a false positive result. If the RNA PCR test gives a report of less than 5000 viral copies per ml, it is likely a false positive.
- Also, the viral load may drop to an undetectable level upon full sero-conversion. This is because the body's immune system may have suppressed the infection to a point where there is not enough HIV virus in the blood for the RNA PCR test to detect.



If you are within the first 3 days of possible HIV infection please see us about PEP.

HIV 4th Generation Test Singapore

The HIV 4th Generation Test is one of the most accurate and fastest way to determine if a person has been infected with HIV or not.

The HIV 4th Generation Test is also called the Combo test or the Duo test.

It tests for both the HIV antibodies as well as the antigens in the blood. It can be done as a rapid test i.e. you can get the results in 20 minutes.

Antibodies are produced by the body when it is infected with the HIV virus. There are many different types of antibodies. The one that is produced the earliest is called the IgM antibody. This can be produced as early as 20 days post exposure. 3rd and 4th Generation HIV tests can detect the IgM antibody.

Antigens are bits of the HIV virus shell that can be found in the blood as early as 14 days post exposure. The 4th Generation test can detect the presence of this antigen.

If the test detects either the presence of HIV antibodies or antigens, it means the patient is most likely infected with HIV. This has to be confirmed with another ELISA test. We always do at least 2 tests before diagnosing a person as HIV +ve.

Officially it is conclusive at 28 days post exposure. However, from current scientific data, we know that when the test is done at 20 days post exposure, it is already as good as 100% accurate. Personally I have tested patients +ve for HIV at only 14 days post exposure with this test.

The US CDC recommends the HIV 4th Generation test for all HIV screening. This is because it is more accurate, has a shorter window period and can pick up rare cases of sero-negative infections.

The HIV 4th Generation test can detect HIV infections in very rare cases of people who are infected with HIV but never produce any anti-bodies. These are called sero-negative infections and happen in about 1 in 1 million people.

You can walk in our clinics at Robertson Walk, Bencoolen Street or Novena Medical Center anytime during our opening hours for this test. It only requires a finger-prick of blood and 20 minutes to get results.

Anonymous HIV Testing

Not all clinics are allowed to conduct anonymous HIV tests. This is because according to the Infectious Diseases Act, all medical personnel are required to inform MOH of the details of any person they know or suspect of being infected with HIV.

Our clinic at Robertson Walk is mandated by MOH as a official Anonymous HIV Testing Clinic

All Our Friendly Doctors are fully certified and trained in advance HIV testing.

STEP 1: RECEPTION

1. Just walk into our clinic Robertson Walk.
2. Let our staff you are here for the '3 step test'*.
3. You will be given Anonymous HIV Test (AHT) Registration Form.
4. The form does not require any personal details from you

1

STEP 2: SEE OUR DOCTORS

5. The doctor will see you in his or her room.
6. You will have a private consultation with the doctor
7. Doctor will proceed with the HIV Test

2

STEP 3: RESULT and POST-RESULTS CONSULTATION

8. After 20 minutes your results will be ready
9. Doctor will discuss the results of the test with you

3

What is the Our "3 Step Test"?

- the Oraquick Advance HIV 1/2 Test,
- the Determine HIV 1/2 Test and
- the SD Bioline HIV Combo test.

Remember: HIV and most STIs have no signs or symptoms – get tested regularly (at least once a year).

How to Protect yourself from STDs & HIV

Use a Condom:

Condoms prevent sexual bodily fluids or blood to pass from one person to another.

With correct and consistent condom use, Latex condoms are highly effective at preventing the transmission of HIV and some other sexually transmitted diseases. "Natural" or lambskin condoms do not provide sufficient protection against HIV infection.

Sharing Needles and Syringes:

Transmission occurs when a person uses the same syringe with a HIV+ve person without first cleaning it. The reuse of a blood-contaminated needles or syringes by another person can be an effective means of transmission because a large quantity of blood can be injected directly into the bloodstream.

Although HIV does not generally survive well outside the body, it can survive for long periods of time (over 28 days) if hermetically sealed in syringe.

Regularly get tested for STIs & HIV:

Know your HIV status. Everyone should be tested for HIV at least once. If you are at increased risk for HIV, you may need to get tested for HIV more than once a year.

If you have HIV, you can get medical care, treatment, and supportive services to help you stay healthy and reduce your risk of transmitting the virus to others.

If you are pregnant and find that you have HIV, treatments are available to reduce the chance that your baby will have HIV.

Sticking to the Right Sexual Partner

Abstain from sexual activity or be in a long-term mutually monogamous relationship with an uninfected partner.

Limit your number of sex partners. The fewer partners you have, the less likely you are to encounter someone who is infected with HIV or another STD.

HIV Post Exposure Prophylaxis (PEP)

HIV Post Exposure Prophylaxis (PEP) is a medicine given to people who are at high risk of getting HIV. They are up to 99% effective in preventing a HIV infection.

When you have been exposed to potentially HIV infected body fluids and your exposure was less than 72 hours ago, see your doctor immediately about starting PEP.

Factors that can increase the risk of HIV infection include:

- Condom Break
- Presence of Blood (e.g. Menses)
- Presence of Cuts
- Presence of Ulcers
- You are not Circumcised

These medicines have to be started within 72 hours after possible infection/exposure. They are taken twice a day for 1 month.

The side effects vary from person to person and also depend on which medicines are used.



If you are within the first 3 days of possible HIV infection please see us about PEP.

Tablets to prevent HIV – PrEP

PrEP is simply a tablet taken daily that reduces a person's risk of contracting HIV. It's that simple. The tablet most studied for use as PrEP contains 2 medicines and its called TRUVADA®.

We must bear in mind that like every other method of HIV prevention, PrEP is not failsafe. It is one of the many weapons in our current arsenal to reduce the burden of HIV on the world. Other prevention methods include:

- Consistent and correct condom use.
- Access to treatment. Treatment as prevention.
- Education.
- Male circumcision.

What are the side effects of PrEP?

Minor side effects such as nausea, headache and weight loss are possible. Major side effects like effects on the kidney and bone density are rare.

In my personal experience prescribing PrEP, I have not come across anything more than some minor nausea.

Newly Diagnosed

For a long while now, we have been focussing on HIV diagnosis and helping people overcome the various misunderstandings and misinformation about excluding a HIV infection.

However, more and more we find that people who are diagnosed with HIV often find themselves at a lost and searching for information. Often it is the unknown that scares and worries us the most. So the more you know, the less scared or anxious you will be.

For this section, I would like to give some practical tips to a person who has just found out he/she has HIV.

First of all, yes it is a lot to deal with. If you are feeling scared and overwhelmed, that is completely natural. If it helps, just allow yourself to be overwhelmed for a while. Stay in your room, cry, stare at the ceiling or just lie there and let it overcome you.

**{ But at the end of all of that, you must realize this one important fact:
YOU WILL BE OK. }**

Try to put aside all your concerns about telling family and friends and your job etc. Focus on yourself. What is going to happen to you physically from now on?

The fact is you have an incurable disease. But then so do people with cancer and the one big difference is you are going to live a lot longer than the person with cancer. You are more like someone who has been diagnosed with Diabetes or High Blood Pressure. These are incurable disease too. But they can be controlled.

That's right. Just like someone with Diabetes, if you, with HIV, listen to your doctor and stay with treatment, you will lead a normal life span. In other words, you will live as long as someone without HIV. The other good news is during these years, you will feel healthy and well.

So you will live long and healthy except you need to swallow some pills everyday. Not sounding so bad now is it?

So now what do you actually need to do? First of all pull yourself together. The time to be overwhelmed is over. Now is the time to take charge and face this problem head on.

First thing you need to do is to arrange to see a HIV specialist. That will be your first step in a lifetime of treatment. A long and healthy lifetime.

**{ *Check Out our
Hotline Page (20)
for more information* }**

Treatment for HIV

Currently, there are no known vaccines or cures for HIV. However, there are medicines available that can control the virus.

If the HIV infection is left untreated, it will destroy your immune system. When your immune system is too weak, you develop AIDS. This is when you will get very sick from infections that you should have been easily able to fight off if you had a healthy immune system.

Also, since your immune system also protects you from cancers, you may also start to develop different sorts of cancers.

However, with current modern medicines for HIV, we can keep the infection under control such that you may never develop AIDS. In fact, current evidence shows that people living with HIV and under treatment can live just as long as someone without HIV.

People living with HIV can lead very healthy and productive lives. This is very different from 30 years ago when HIV was a death sentence. Nowadays, HIV is treated more like a chronic disease like Diabetes.

Now every who is diagnosed with HIV need to start taking medicines immediately. Usually Doctors will wait till your immune system is weaker before starting you on medicines.

How strong or weak your immune system is is determined by your CD4 cell count. However, there are also instances where starting treatment early has benefits. You need to discuss this with your doctor.

Once your Doctor decides that you need to start treatment, you will be given tablets. Most HIV patients will need to take at least 3 different medicines to keep their infection under control.

These medicines are called ARTs (Anti-Retroviral Therapy). However, since tablets these days can combine up to 4 different medicines into a single tablet, you may just end up having to take only 1 or 2 tablets per day. Once you start on these medicines, you will have to take them for long term maybe even for life.

These medicines suppress the HIV virus and allows your immune system to recover. If your immune system is already very weak when you see your doctor, you may be given special antibiotics to protect you from infection while your immune system recovers.

Most patients who are living with HIV and are on treatment lead very healthy and productive lives.

{ You can still pursue all your life goals. }

HIV Cure

We currently have a lot of medicines used to treat HIV. They work in a variety of ways. Some block the HIV virus from entering the cell. Some stop the HIV virus from copying itself. Some block the HIV virus from joining with our cell's DNA. All these things achieve one common goal. They interrupt the HIV life cycle so that it cannot reproduce and infect other cells. Our immune system then comes in and kills whatever virus is left floating about.

So with the current medicines we have, we can actually kill the HIV virus. So why is HIV still incurable?

This is because during the first few weeks when a person is infected with HIV, a lot of the virus goes into hiding in many different cells in the body. This is called the infection reservoir. The problem is when the HIV is in hiding, the medicines cannot get to it to kill it. So even though the medicines we have can eradicate HIV floating in the blood, more HIV viruses will then come out of their hiding place to keep the infection going.

Some very smart mathematicians calculated that if a person gets infected with HIV and starts taking the medicines when he is 30 years old, all of the virus would have come out of hiding and get killed when he reaches 120 years old. So effectively by then, this person will be cured of HIV.

So the trick to curing HIV is really not how to kill the virus (we already know how to do that), the trick is to lure the virus out of their hiding place.

In medical circles, this is called the “kick and kill” approach. We kick the HIV out of their hiding places and then kill them.

During the 20th International AIDS Conference held in 2014, a paper was presented on an anti-cancer drug that seemed to be able to kick the HIV out of its hiding place! Studies are still going on but we remain hopeful. Also hopefully we can find even more medicines that can kick the HIV out of hiding. I heard of a company studying some bee venom that can also do it but I have yet to see any detailed reports.

Meanwhile, please remember that although HIV cannot be cured, it can be controlled very well. People infected with HIV live normal life spans. In fact they live very healthy and productive lives. Like I said in my previous article, it may be worse to have Diabetes than HIV.

Of course, ideally you do not want to get infected with HIV in the first place. So remember:

- Always use condoms
- Do not share needles
- If you get into an accident (eg condom broke) please see us about PEP
- If you feel you might be getting into risky situations, please see us about PrEP

And remember to always go for regular HIV testing.

AIDS Phobia – The new HIV?

While running a clinic that is part of the MOH anonymous HIV screening program, it is inevitable that I end up conducting a fair bit of HIV screening. In the course of my work I have noticed what I feel is a worrying trend of an increasing number of young Singaporeans with what is described as AIDS Phobia. It is an excessive and irrational fear of HIV/AIDS that is affecting their lives and function. A short history of HIV in Singapore will help us better understand the emergence of this consequence.

1985 was the year HIV first reared its ugly head in Singapore. Back then the medical community was brimming with confidence some might even say complacency, over our seemingly unstoppable successes against infectious diseases. From the advent of Penicillin to the eradication of smallpox, we were basking in the glory of our victories. No one even heard of the concept of the superbug and MRSA was but a mild irritant. Then this contagious and deadly disease that we had nothing against came.

All our antibiotics were utterly useless and vaccine development met with failure after failure. It chewed through the very thing that helps us fight infections, our immune system. This left HIV sufferers vulnerable to bacteria that the healthy would normally brush off without a second thought. We saw patients literally dissolving around us and there was nothing we could do.

We quickly fell back on age old proven strategies to combat an infectious disease, epidemiology and education, isolation and prevention. An initial trend that was established found that HIV was more prevalent amongst homosexual men. It was also found to be spread amongst drug users who shared needles. This quickly established a notion in the conservative majority that HIV was a disease of the sexually or socially deviant. Education was focused on a campaign of fear. HIV is incurable, HIV is contagious, HIV is invisible. These were the catchphrases of the times.

Perhaps our efforts were too effective. Even at this day and age, misconceptions, incorrect ideas and social stigmas are as rampant despite our efforts at re-educating the public. This has led to the emergence of this new phenomenon. It has many names: AIDS phobia, AIDS anxiety, FRAIDS (fear of AIDS) etc. Psychologists argue over its technical definition. Is it a phobia? Delusion? OCD? Paranoia? Hypochondriasis?

Whatever you wish to call it, it is a problem that is growing in size.

The internet is awash with examples of people not daring to go home for months because they are convinced they have HIV and will spread it to their family. And of people who bathe in the dark afraid of spotting lesions of their skin that are caused by HIV. And of people who wash themselves with bleach everyday to prevent HIV. All of them have had multiple tests for HIV and were found to be negative. In medical parlance they are known as the 'worried well.'

I read with interest a report from China earlier were many people claimed to be suffering from a mysterious AIDS like illness. They were convinced the medical authorities were lying to them about their negative HIV tests.

A few eminent experts stepped up and termed this crisis 'prostitute guilt.' I personally find it amazing how a new term can be conjured up to explain away the problem simultaneously placing the blame squarely on the heads of the patients. These poor souls are blamed for taking up precious medical resources unnecessarily and their underlying psychological illnesses are left to gnaw away at them.

I can however completely empathize with the Chinese medical authorities. In the course of my work I have encountered many patients suffering from this so-called AIDS phobia. It is challenging and extremely time consuming to help them and treat them. Each consultation becomes wearying task of addressing repeated fears and doubts, of reassurance, support and encouragement and of answering the same oft repeated questions.

I had a patient who, when he came to me, had been regular testing himself for HIV for the past 1 year. After each test he would feel relieved but within a few days, he would inevitably find another reason to believe he has HIV. Any and all symptoms he interprets as caused by HIV from the mundane (my tongue looks white) to the ridiculous (my semen smells like the prostitute). Despite numerous efforts to get him to seek and start psychological help, he was adamant in his pursuit for a diagnosis of HIV. He is of a group of patients who I describe as 'wanting to test till they are positive'.

Fortunately most of my patients who suffer from AIDS phobia are hardly as recalcitrant. They have insight to the fact that their fears are irrational and respond very well to treatment.

So here we are stuck in this conundrum. We want everyone 'at risk' to test regularly for HIV yet we do not want people to worry excessively about it. This places serious challenges in public education campaigns as we struggle with the balance of instilling concern, awareness and just the right dose of fear. We want patient to trusts our tests yet understand the window period. All this is made even more exigent by the deluge of information on the internet which is generic at best and outright lies at its most awful.

Of course the focus of our efforts should remain on creating awareness, pushing education and eventually, we hope, to eliminate HIV from our shores. But in our pursuit of this admirable quest, we should not forget this group of people who also suffer from HIV albeit from a completely different angle. Moreover, the majority of such sufferers are prime active economic contributors and the loss of their economic efficiency would mean a blow to our economic capability.

I hope we can strive to increase the awareness of this condition among Singaporeans and our primary care doctors. We can all guard against it by educating ourselves on the facts of HIV, trusting our Doctors and our tests and being more aware.

More on HIV: Types, Subtypes, Groups and Strains

I often get questions from people worried about having some 'strange strain' of HIV that cannot be picked up by tests.

Let's take a step back and try to understand all this rather confusing terms of Types, Subtypes, Groups and Strains of HIV and see if it can shed any light on such concerns.

Scientists love to categorize things into neat little boxes. This is no different for living things. The science of taxonomy is an interesting one.

Lets starts with viruses. We all know what viruses are. There are many different Families of viruses. What we are interested in is the Family Retroviridae. In this family, we further sub classify into Sub-Families like Orthoretroviridae. Which we then sub classify into Genus like Lentivirus and again into Species like the Primate Lentivirus Group. Into this neat little box that we have made, lies the HIV virus. i.e. HIV = Family Retroviridae, Sub-Family Orthoretroviridae, Genus Lentivirus, Species Primate Lentivirus Group. The Simian Immunodeficiency Virus also fits into this box but this is just trivia.

There are 2 Types of HIV, Type 1 and 2. They are similar in many ways except for geographical distribution, ease of transmission and speed of disease progression. HIV type 1 is further classified into Groups (M, N, O, P) and subtypes (A, B, C, D, F, G, H, J, K, CRFs). CRF is an acronym that stands for Circulating Recombinant Forms. They are basically products of different HIV subtypes combining together. HIV is classified as such according to their genetic makeup.

So aside from an overwhelming level of complexity that gives scientists a really big kick; what exactly is the use of classifying HIV down to such a degree? The real difference it makes is in people who live with the HIV virus. Knowing exactly the type, group and subtype of HIV we are dealing with makes a big difference in treatment and monitoring.

But what does it mean for people who do not have HIV? Or who have been exposed to HIV and are testing for it?

The fact is types, groups and subtypes of HIV are rather geographically distinct. Knowing which predominates in a particular area will help policy makers decide on the appropriate HIV screening tools. Thankfully, most modern tests are able to pick up all forms of HIV. Our clinic uses the Determine and Oraquick rapid tests which are able to test for both HIV Type 1 and 2 and even the dreaded Type 1 O Group.

Although it looks all neat and nice now, the fact remains that science is an ever changing field. No doubt there will be more discoveries of new subtypes and CRFs. We can only hope that testing technology will be able to keep up.

HIV risk / Risk of HIV Infection / Transmission

Female-to-Male Transmission	1 in 700 to 1 in 3,000
Male-to-Female Transmission	1 in 200 to 1 in 2,000
Male-to-Male Transmission	1 in 10 to 1 in 1,000

* This figure was quoted from a study done in 2005 published in the Journal of Clinical Infectious Diseases.

Factors that Increase the Risk of HIV Transmission

Oral Contraceptives	2.5-4.5	Lack of Circumcision	5.4-8.2
Gonorrhoea infection of the Cervix	1.8-4.5	Genital Ulcers	2.6-4.7
Candida Vaginitis	3.3-3.6	Sex during Menses	3.4-2
Genital Ulcers	2.0-4.0	HSV	6-16.8
HSV	2-2.5		
Vitamin A Deficiency	2.5		
Male-to-Female Transmission Relative Risk		Female-to-Male Transmission Relative Risk	

So if you are a man and you are not circumcised, have genital ulcers caused by Herpes type 2 and have sex with a HIV +ve woman during her menses, you really have your odds stacked against you. But the ladies really have it rough. Even a common vaginal fungal infection will increase their risk of contracting HIV.

What is interesting is that there is no mention of other STDs like Gonorrhoea and Chlamydia etc. There is a mention however that a woman with cervicitis has more HIV viral DNA in her vaginal secretions (higher risk for men). Since most cervicitis are caused by an STD, this suggests that if a woman has an STD, her male partner is at a higher risk of contracting HIV. Similarly, men with Gonococcal Urethritis have more HIV viral DNA in their semen. This increases the risk of transferring HIV to their partner.

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