Maintaining Your Health

Your Immune System

Your body’s immune system contains white blood cells (WBC’s) that fight infection. Normally, when a foreign virus, bacteria or parasite enters your body, your immune system goes into “high alert” and destroys the organism to maintain a healthy state. When your immune system is working well, it sends the WBC’s to fight the invading germs and prevent infections.

Lymphocytes are a special type of white blood cell that fights viruses and makes antibodies. T-lymphocytes are involved in directly fighting viruses or other invading germs. B-lymphocytes produce antibodies to the germs, so that once your immune system has attacked a germ once, it doesn’t have to do it again; it can just send the antibodies to do the job.

Your CD4 Cells

In HIV, it is the T-lymphocytes that are affected by the virus. T-lymphocytes have markers on their surface called “CD markers”. The CD4 lymphocytes (helper cells) and the CD8 lymphocytes (fighter cells) are both affected by HIV.

Normally, CD4 cells coordinate your immune response, like a quarterback of your football team, and instruct the CD8 cells and B-lymphocytes on how to destroy the invading germs. In HIV infection, the HIV attacks and destroys the CD4 cells (quarterbacks) and forces them to replicate, or make other copies of the virus, which go on to attack other CD4 cells. The rest of the immune system struggles to fight infection, but like a football team without a quarterback, the immune response is not as strong or coordinated as usual.

As the HIV continues to reproduce itself, the number of CD4 cells begin to fall and the immune system weakens as time passes. At the HIV Care Program, we will measure your CD4 count regularly to monitor your immune system and get a sense of how well it is working.

Because CD4 cells are slowly destroyed over a number of years, a person with HIV infection may remain healthy for many years.

Treatments and therapies that slow down HIV also protect your immune system, keeping you healthier, longer. It is only when the number of CD4 cells become very low that serious infections can occur.

What do the numbers mean?

We use the following guide to explain CD4 counts:

<table>
<thead>
<tr>
<th>CD4 count</th>
<th>What it means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 500</td>
<td>Healthy immune not likely to have symptoms or infections.</td>
</tr>
<tr>
<td>200-500</td>
<td>Moderate immune weakness, risk of infections</td>
</tr>
<tr>
<td>Less than 200</td>
<td>Immune weak, risk of serious infections</td>
</tr>
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</table>
**Does a low CD4 count mean AIDS?**

In Canada, the CD4 count is not used to determine whether a person has “AIDS”. A person with HIV is said to have AIDS when he/she develops one of a list of more than 20 “AIDS-defining” illnesses or conditions. These include such things as Pneumocystis Carinii Pneumonia (PCP), Tuberculosis (TB) and Cytomegalovirus (CMV). These conditions don’t normally appear until the CD4 count falls below 200.

In the United States, however, people with CD4 counts below 200 are classified as having AIDS.

**Your Viral Load**

The HIV viral load is the amount of HIV measured in your blood. Viral load test helps you and your doctor decide whether medications should be used to slow down the HIV (lower the amount of virus in your blood). The viral load test can also measure whether medications you might be taking are working against the virus.

In Ontario, the viral load test can measure in the range of less than 50 copies/ml (undetectable) to over 500,000 copies. Copies/ml simply means the number of HIV viruses in one millilitre of your blood. An undetectable viral load means that medication and/or your immune system are controlling the virus. However, people with undetectable viral loads are still infected and capable of passing the virus on to others.

The viral load is often compared to a train travelling along a track. The higher the viral load, the faster your train is travelling along. We want to slow your train down and get the virus under control! Treatments will be offered to lower your viral load as low as possible.

<table>
<thead>
<tr>
<th>Viral Load Result</th>
<th>What it Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50 copies/ml</td>
<td>Virus is <strong>undetectable</strong>, under control</td>
</tr>
<tr>
<td>50-10,000 copies/ml</td>
<td>Viral load is <strong>low</strong>, slowly replicating</td>
</tr>
<tr>
<td>10,000-100,000 copies/ml</td>
<td>Viral load is <strong>high</strong>, virus is quickly replicating</td>
</tr>
</tbody>
</table>

At the HIV Care Program, viral load tests and CD4 counts are usually done every three months and your family doctor will also receive a copy of the results.

**The Stages of HIV Infection**

The move from initially becoming infected with HIV to developing AIDS can take many years and is different from one person to another, depending on many factors. Some people progress from HIV to AIDS within the first five years of infection, while others can remain very healthy for 15 years or longer.

**Primary HIV infection (Seroconversion):**

This refers to the time when you are first infected with HIV. During this time, the immune system recognizes the invader and sends its fighter cells to attack the virus. Antibodies are produced during this fight. These antibodies are usually produced within 6-12 weeks in most people.

If an HIV test is done within the first few weeks of being exposed to HIV, a person might test negative for HIV antibodies at this time. This is what is called a **window period**. The window period is when you’ve been infected with HIV, but your body hasn’t started producing antibodies to it. For most people, the window between infection and producing antibodies is 6-12 weeks. You can pass the virus onto others during this time.
During primary infection, you might recall you didn’t feel well. Some people experience fatigue, swollen glands (lymph nodes), night sweats, fever, diarrhea and rash. Many people recall this period as like having a bad flu.

**Asymptomatic HIV Infection:**

Early in the course of HIV infection and while the immune system is still healthy, most people will experience asymptomatic HIV infection. This is when a person is HIV positive but feels well and has no signs or symptoms of illness. CD4 counts begin to slowly decrease without any physical signs of infection. This stage may last for 10 or more years.

**Symptomatic HIV Infection:**

Over time and a number of years, as your CD4 count falls and your body’s immune system is weakened, you may develop symptoms that something is wrong. These symptoms can include fever, swollen glands, night sweats, weight loss, oral thrush, chronic diarrhea and vaginal yeast infections. This is called symptomatic HIV infection. It is a clear sign that your immune system is starting to weaken because of HIV, and that your body needs additional help in fighting the virus.

**AIDS:**

AIDS stands for Acquired Immunodeficiency Syndrome and is not a disease but a combination of specific illnesses or conditions. People with AIDS are living much longer now as knowledge about the disease increases and treatments for HIV and AIDS-related illnesses are improved. Many AIDS-related infections can be treated and people with AIDS can live for many years after their first AIDS-defining illness.

**Maintaining Your Health**

As your CD4 count falls and your immune system becomes weaker, you may begin to experience complications or symptoms that need to be followed closely. Usually, you will be seen in the clinic every three months for assessment and bloodwork (viral load, CD4 count, and other tests). If you have any of the problems listed below or if you feel ill, they may need to be treated by your doctor, but are not necessarily signs that you have AIDS.

**Symptom Monitoring:**

We want to hear from you between clinic visits if you have

- **Fever**s that are above 38.5°C or 100°F for more than two days or on a daily basis
- **Night sweats** (waking up with your pajamas and sheets drenched)
- Persistent **diarrhea**
- **Weight loss**, when you have not tried to lose weight.
- **Shortness of breath** or **coughing**
- **White patches in your mouth** or discomfort with hot or cold foods
- Having **trouble swallowing** or a sore throat
- Noticing changes in your **appetite**
- **Irregular menstrual periods** and abdominal pain that does not go away
- **Vaginal yeast infections** that do not go away after treatment
- **Anxious** or feeling **depressed** (trouble sleeping, poor appetite, loss of interest in your daily activities, friendships, or family, feeling lonely, thinking about dying or committing suicide, feeling panic)
**Immunizations:**

In addition to ordering bloodwork we offer an immunization program. Immunizations offer protection against viruses and bacteria. You will be offered:

- An annual flu shot (in the fall)
- A vaccine against bacterial pneumonia (Pneumovax)
- Hepatitis B vaccine
- Any other immunizations you may require.

**TB Testing:**

One of the other tests we offer is TB skin test. This test tells us whether you have been exposed to Tuberculosis, a bacteria that lives in the air we breathe. Finding out about whether you have been exposed to TB offers a chance for preventing the infection from causing serious disease.

TB skin testing is routinely done on one of your first visits and again as required.

**Routine PAP Tests/Gynecological Care:**

A regular internal exam for women with HIV infection is important. Exams can identify infections and abnormalities that may require treatment.

Women with HIV may experience an increase in the number of yeast infections. Any signs of vaginal infections, such as pain, burning, itching or foul-smelling discharge, should be reported to the HIV Care Program, your family doctor, or gynecologist for prompt treatment.

Many HIV-positive women have reported menstrual changes such as increased or decreased menstrual flow and irregular periods. Keep a diary if you are concerned and report any changes to us.

A number of studies have shown a higher rate of abnormal PAP smears in HIV positive women compared to HIV negative women, due to the presence of Human Papilloma Virus (HPV) and other infections. HPV is the virus that causes genital warts.

It is recommended that PAP smears and gynecological exams be done every 6 months so that complications can be detected early and monitored regularly. There are gynecologists who are familiar with HIV/AIDS. Please speak with a member of the HIV Care Program about finding a gynecologist.

**Birth Control:**

Notify the HIV Care Program nurse, pharmacist or your doctor if you are taking birth control pills. They may interact with certain HIV medications or other antibiotics.

Although the use of birth control pills, IUD’s and diaphragms will all help to prevent getting pregnant, they will **not** protect against HIV and other STD’s. Using condoms, along with the pill, will reduce the risk of both pregnancy and other infections. In addition to getting free condoms, your local Public Health Unit may also be able to provide low cost birth control and free medications to treat certain sexually transmitted diseases. If you become pregnant please notify the clinic immediately.