



Discussion Paper

Day One: After You've Tested Positive

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[*Esta información en español \(Spanish Version\)*](#)

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Introduction

A positive HIV antibody test is scary news but it's not a death sentence. Many people are alive and well 15 years or more after becoming HIV positive. A positive test result is an important medical message that may save or extend your life. Whether you took the test or not, sooner or later you would have learned of your HIV infection status. If you learn by testing, you have a chance to slow or prevent some of the possible medical consequences. If you didn't get tested, HIV would announce itself at some point in the form of an infection or damage to your immune system. But if you had waited for the disease to announce itself, many of your best medical options would already be lost.

Most testing services provide counselling to help people handle the news. The real work, however, is up to you. Given the right attitude and the right information, HIV infection can be managed like a chronic illness, one which some people seem able to survive for a long, long time. Getting informed and taking charge of your health will surely help you make the best of your situation. This document can help you with the things you need to do:

- *Developing a strategy for adapting to your new situation*
- *Learning more about HIV and how it can affect you*
- *Understanding medical tests*
- *Finding out about your options for intervention and learn how to use the services of Project Inform*

Reading this *Discussion Paper* is a good first step. It's a little long, but it's worth the time. It's about saving your life.

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I. HIV and the Immune System

AIDS is the most serious form of an illness caused by a virus called the Human Immunodeficiency Virus (HIV). Although it is well established that HIV is the primary cause of AIDS, it not fully understood how it does it. In general, the virus attacks or disables the body's immune system. Over time, if the immune system become seriously damaged, the body loses the ability to combat a variety of illnesses, called *opportunistic infections* (OI's) or conditions. Each new infection further wears down the body's defenses. These infections and cancers, such as pneumocystis pneumonia (PCP) and Kaposi's sarcoma (KS), are the real killers of people with HIV.

This gradual destruction of the immune system, however, doesn't happen the same way in everyone, or at the same pace. In some people, it may not happen at all. In a small percentage of people, infection with HIV leads to destruction of the immune system very rapidly, in just a few years. But others remain well for 10 to 15 years or longer. On average, most people remain well for about 10 years before experiencing the first serious symptoms.

Despite the imperfect picture of how HIV destroys the immune system, a number of things are well established:

- Tests which measure the amount of virus in the bloodstream (called "viral load" tests) can generally predict how quickly HIV will damage the immune system. In effect, viral load tests tell you the expected rate of disease progression - the higher the number, the faster the progression. *Effective treatments are now available which can greatly reduce the level of virus, thus slowing the rate of disease progression.*
- Tests which measure the level of a certain type of white blood cell, called the CD4+ (CD 4 positive) can measure the decline of immune health. Many scientists feel that the CD4+ test tells you how far you have already progressed toward AIDS or AIDS-related infections. *Treatment, however, can prevent or delay many of these infections, as well as slow the decline of the immune system.*
- For long periods, often several years, the body seems to cope effectively with HIV in many people. The number and percentage of CD4+ cells fall, but slowly. During this period, most people suffer no obvious ill effects and feel normal. Despite this, most researchers believe that damage is being done to the immune system in this period. *Many scientists believe that early intervention during this period may have the greatest impact.*
- Without treatment, the body slowly loses its ability to fight infections. Some infections, like pneumocystis pneumonia (PCP), become likely when the CD4+ count falls below 200 or 300. Minor infections can occur at counts higher than 300. Other life-threatening infections become more likely when the count falls below 50 or 100. Once the body loses its ability to fight these infections, it's unclear whether current treatment can restore it.

Disease Progression

HIV is a "spectrum" illness: all who are infected have the same disease, but there are many different stages to it. AIDS is the name given only to the most serious stage of HIV disease. In the least serious stage, people are *HIV seropositive*, meaning they have tested positive on the HIV antibody test but have no symptoms of illness. If left untreated, most of those who are infected generally progress along the spectrum toward AIDS.

HIV infection sometimes progresses slowly or sometimes quickly. Several long-term studies have researched the rate at which the disease progresses when left untreated. Most conclude that about 50% of HIV infected people progress to AIDS within 10 years of infection, and that about 75% reach AIDS by the 15th year. What all such studies conclude is that HIV is a progressive infection which leads to symptomatic illness in the majority of

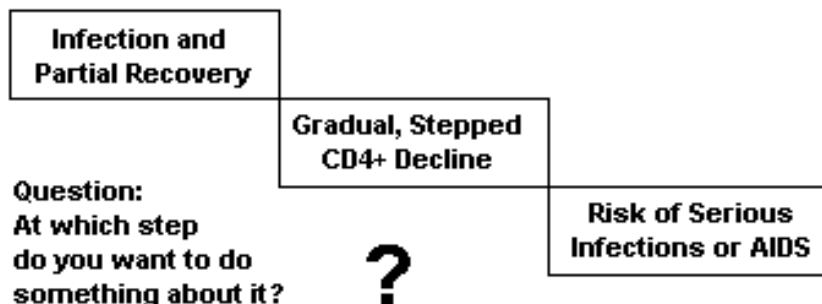
people over time. Children born with HIV and people infected through blood transfusion seem to get sick more quickly. Studies with women and people with hemophilia are inconclusive about the rate of progression. Why people progress at different rates is uncertain. It may be due to differences in the strain of virus a person acquires. Others feel it is influenced by genetic differences in people, and still others suspect that life-style factors make a difference.

The Spectrum of HIV



"Wait and See"

What Happens Without Intervention
(in roughly 85-90% of HIV-infected people)



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II. Monitoring Immune Health

Most of us wait until a disease shows up before doing anything about it - "if it ain't broke, don't fix it." In HIV disease, the immune system starts to "break" immediately, not just when opportunistic infections show up. Thus, monitoring the health of the immune system is critically important. There are two common approaches for doing this - (1) Symptom Observation and (2) Lab Tests. Each has *advantages* and *disadvantages*.

1. Symptom Observation

This approach waits for active infections and disease to occur. In HIV, this means watching out for such things as thrush, pneumocystis, KS lesions, and so on.

Advantages

It is easier to believe and take action when we are faced with an obvious illness. People who feel sick usually want to treat the illness as soon as possible.

Disadvantages

HIV may progress before symptoms appear. By the time symptoms appear, options for treating the problem may be less effective because the body is left with only limited defenses.

2. Lab studies and blood analysis

- a) HIV-antibody testing
- b) CD4+ cell testing
- c) Viral load testing
- d) Basic blood tests

Advantages

Indications of illness show up before illness becomes apparent. The tests enable patient and doctor to act to prevent serious infections before they occur and to act on the basis of hard numbers, not just guesses.

Disadvantages

It is difficult to act on test results, since you often feel fine no matter what the lab numbers say. People who feel healthy may be less motivated to begin treatment. Test results are variable, changing for many reasons.

Because HIV infection can be a life-or-death matter, it is critical to choose the second approach. Taking a preventive approach makes it possible to:

- use treatments when they are most effective
- prevent the most serious infections
- slow the rate of disease progression and permanent damage to the immune system.

Some people say they hesitate to act before they are sick because today's treatments are not perfect, hoping to wait for something better to come along. However, no one knows when perfect treatments will become available. It is now well proven that today's treatments can extend survival time. Although we can't predict the results in every case, we do know what generally happens without treatment.

The purpose of preventive action is to slow the progress of HIV. Once infected, you have one chance to manage HIV disease correctly, so consider your options carefully and learn how to tell if a therapy is working for you. A preventive approach is the one which seems to offer the clearest hope.

CD4+ Testing

For many years, testing the number of CD4+ cells was the most common way to measure the effects of HIV disease. Low numbers of these cells (below 200) accurately predicts the risk of major infections. The meaning of test results in between this critical level of 200 and the normal level of 1000 is unclear. Physicians once typically started treatment for people when the CD4+ was below 500, but this was always an arbitrary number simply selected from clinical trials. By itself, this number doesn't tell us enough about the state of disease. It only shows that the level of CD4+ cells is below normal, to varying degrees. Getting the full picture of HIV disease requires additional tests, especially the Viral Load Test.

CD4+ Cell Ranges		
Low	Medium	High
(under 300)	(300-500)	(500 plus)

High Range: In general, a CD4+ count above 500 suggests no immediate danger, even though it may represent a loss of half the normal CD4+ cell count (1000). The 500 level is sometimes cited as the bottom of the "normal" range, but this can be misleading. While an occasional drop to 500 may be normal, a steady or falling count of

500 or even 600 is not normal and indicates suppressed immunity. At the very least, dietary counseling, nutritional supplements, CD4+ cell monitoring, and periodic use of other tests are recommended in this range, whether or not treatments are used.

Medium Range: CD4+ counts in this range indicate significant decline of the immune system. However, serious symptoms are uncommon in this range. Some researchers believe this is the optimum time to begin treatment, especially if the viral load test also indicates significant viral activity.

Low Range: CD4+ counts below 300 indicate the greatest risk of infections and according to the 1993 definition of AIDS, a CD4+ count of 200 or less constitutes an AIDS diagnosis. A person with counts below 300 CD4+ may remain stable for many years, especially with careful health management. While some people have warning signs in the form of symptoms before major infections occur, this is not always the case. Some progress directly from apparent health to serious OIs.

It has become common to put people with CD4+ counts below 200 or 300 on preventive treatment against PCP (for example, Bactrim/Septra), along with all people who have already suffered an initial bout of pneumocystis. Prevention strategies for all of the common opportunistic infections are described in the [Project Inform Guide to Opportunistic Infections](#). Regardless of CD4+ cell count, yearly monitoring for tuberculosis is becoming increasingly important.

Viral Load Testing (PCR)

In recent years, tests have become available which directly measure the activity of HIV in the blood. These tests give a more accurate picture of the *rate* of disease progression. There are two commonly available tests for measuring viral load. One is called "quantitative PCR" (or "Q-PCR"), the other "branched DNA" (or "b-DNA"). Though there are small differences between the two tests, they are for practical purposes one and the same.

Viral load testing measures the amount of new virus being produced and released into the bloodstream. Several studies have shown that higher levels of viral load are associated with more rapid disease progression and a greater risk of death. Lower levels are associated with stability and reduced risk of progression, infection, or death. Ideally, an HIV infected person should have no detectable level of virus, which means that the level of virus activity is too low to be measured. Currently available tests measure down as low as 200 to 500 copies of virus, the lowest amount presently measurable. This is associated with the best possible clinical outcome. Higher levels, ranging from several hundred upwards of millions of copies of virus, are associated with higher rates of disease progression. In short, the higher the number, the more rapid the rate of disease progression.

Clinical trials of new drugs use these tests to measure the effect of drugs. A good antiviral drug can quickly reduce the level of virus at least ten fold and often as much as a thousand fold. The goal of therapy is to reduce the viral load to the lowest level detected by the test, usually below 200-500 viral copies.

HIV infected people and their physicians use these tests to make decisions about when and if to use antiviral drugs, and to determine if a drug is working or not. When the virus levels begin to rise again while using a drug, most physicians believe it is time to switch to another drug or combination of drugs.

Recent studies have resolved most doubts about the use of these tests and it is likely that reimbursement for them will improve greatly. At the very least, the test provides a rational basis for deciding when or whether to use antiviral drugs, as well as a tool for determining whether or not an antiviral drug is working.

For more information about using PCR test results, read the Project Inform document entitled "[Diagnostics Fact Sheet](#)."

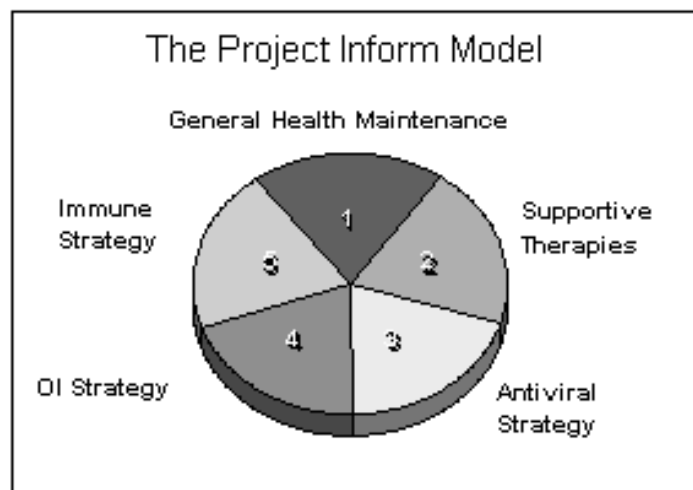
SUMMARY: TESTING

No single test gives a total picture of immune health or disease progression, but CD4+ cell testing and viral load

taken together are very important. As we learn to manage HIV as a chronic illness, these tests provide rational guidance about what treatments to use, when and when not to use them, and how well they are working.

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III. Intervention Against HIV



There are several types of intervention which you can take against HIV. Many are useful, but no one of them alone is sufficient. Unfortunately, some of these approaches are promoted with religious fervor, to the exclusion of the others. The best overall approach may be one which is inclusive, combining the best of each of the five types of intervention.

1. General Health Maintenance

This means doing all of the things normally recommended for leading a healthy life: proper nutrition and nutritional support; adequate rest; avoidance of alcohol, smoking, drugs, and unnecessary stress; exercise and fresh air. In short, all the things our mothers always recommended. Taken alone, good health maintenance won't prevent progression to AIDS or cure it, but it will give each person the best fighting chance he or she has. A good defense builds upon a solid foundation.

2. Supportive Therapies

This category, sometimes called a holistic approach, can include various supplementary approaches, such as: stress reduction; massage; visualization, yoga and relaxation techniques; psychological and spiritual support; natural medicines; and many others. Many of these can be helpful in dealing with symptoms of illness, drug side effects, and keeping one's peace of mind. Taken alone, however, they won't solve the problem. Unfortunately, some practitioners of complimentary approaches become dogmatic, urging their use to the exclusion of all others, even the medicines recommended by physicians. When presented in this manner, this approach can be harmful and may discourage one from getting necessary medical attention. The best practitioners see these as complimentary rather than alternative therapies and work in conjunction with physicians.

3. Antiviral Strategy

HIV attacks and misdirects the immune system. Medicines can help slow the spread of the offending virus. The best known antiviral medications are "nucleoside analogue" drugs like AZT, ddI, ddC, d4T, 3TC. More recently,

a new class of drugs called "protease inhibitors" has been made available. This includes drugs like saquinavir, indinavir, ritonavir, and nelfinavir. The most recent of all are "non-nucleoside reverse transcriptase inhibitor" (NNRTI) drugs like nevirapine and delavirdine. The challenge of using these drugs is knowing when and how much to use and how to combine them. Used alone, none of these drugs will work for long, but used together in rational combinations, they can suppress HIV for many years and lengthen life.

A complete description of all the antiviral drugs and their use is available in the [Antiviral Strategies Discussion Paper](#).

4. Immune Modulating Strategy

The goal of immune modulating medications is to increase the number or function of lost cells, such as CD4+ cells, to restore the balance of the various components of the immune system, or to diminish harmful activities caused by infected cells.

Because the immune system is sometimes suppressed, sometimes overactive, and sometimes misdirected in HIV, it makes sense to seek out medicines which might help correct some of these problems. This is easy to describe but difficult to do. Many researchers feel that we don't yet know enough about the immune system to try to regulate it. Some therapies have been shown to influence the immune system in studies, and similar claims have been made about some natural products. There is great popular appeal to the notion that we should somehow "*boost the immune system*" to help the body naturally regulate itself against HIV. For the most part, this is little more than an empty advertising slogan as there is little evidence that anyone really knows how to do this. Moreover, the body's natural defenses almost always seem to fail in the fight against HIV. Perhaps even more than the other types of intervention, it would be unrealistic to expect this approach alone to solve the problems of HIV.

In developing these types of therapies it is difficult to predict the overall effect because of the highly interdependent nature of most immune functions. Improving one area may harm another. At this point, there is no clear or simple strategy for addressing the defects of the immune system in HIV infection. Some of the most complete information on immune therapies is available in Project Inform documents such as the [Project Immune Restoration Discussion Paper](#).

5. Opportunistic Infection Strategy

Once the immune system has failed to a significant degree, it becomes necessary to try to prevent the occurrence of the most common opportunistic infections, or prevent their return after a first occurrence.

OI prevention or "prophylaxis" should be considered when CD4+ counts are in or nearing a danger zone (for example, the risk of PCP becomes high at CD4+ count of 300 or below, and the risk of CMV and MAI increase rapidly when the CD4+ falls below 100).

Careful and timely use of medication can prevent PCP altogether. As the incidence of tuberculosis (TB) rises among HIV+ people, testing and possibly preventive treatment is recommended. Similar preventive treatment is rapidly becoming available for other infections as well.

In advanced HIV disease, an infected person often must try to treat or prevent several different opportunistic infections at the same time. This can lead to difficult choices, since many medications can interact with each other. Four Project Inform publications can help sort this out:

- (1) The [Project Inform Guide to Opportunistic Infections](#)
- (2) The [Project Inform Drug Interaction Chart](#)
- (3) The [Project Inform Guide to Gynecological Manifestations and Women's Opportunistic Infections](#).

(4) [*The HIV Drug Book*](#)

The key to successful intervention is comprehensive inclusion - doing all of the things that makes sense in your individual situation. The biggest mistake is to dogmatically choose one approach over the others. HIV is not a political debate or a matter of opinion - it is a life threatening illness. Every decision about treatment has consequences. Each infected person has little room for mistakes. It makes no sense to bet your life on any single philosophy of medicine.

Resistance develops more rapidly in people with detectable viral loads. Studies have shown that there is a correlation between low viral loads and duration of response as it is more difficult for the virus to mutate. It is still not known whether amprenavir will be cross-resistant (when resistance to one drug results in resistance to others) with the other protease inhibitors.

When to Start Treatment

The earliest possible treatment is recommended for illnesses. Biologically, there is little reason to think that HIV is any different. In fact, early treatment may be even more important because of the seriousness of the disease. But just what "early" means in the case of HIV disease is not so clear.

Starting points for antiviral medications are the subject of a great deal of debate and theory. Some people believe that antiviral medication is appropriate immediately upon learning of the infection, whether or not the CD4+ count is falling, viral load is high or rising, or whether symptoms are evident. Waiting might only let the infection progress and spreads to other parts of the body.

At the most optimistic extreme, some researchers are testing whether beginning treatment almost immediately after infection might someday literally "eradicate" HIV infection. While this is an exciting hope, no one has yet successfully "eradicated" HIV. To be fair, no recently infected patients have undergone treatment for the time expected to be required for this to happen. If the hope of "eradication" is someday proven true, then all the debates about when to start treatment will end. In the meantime, eradication is a concept, not a proven reality. Those who believe eradication is possible argue for the earliest possible treatment.

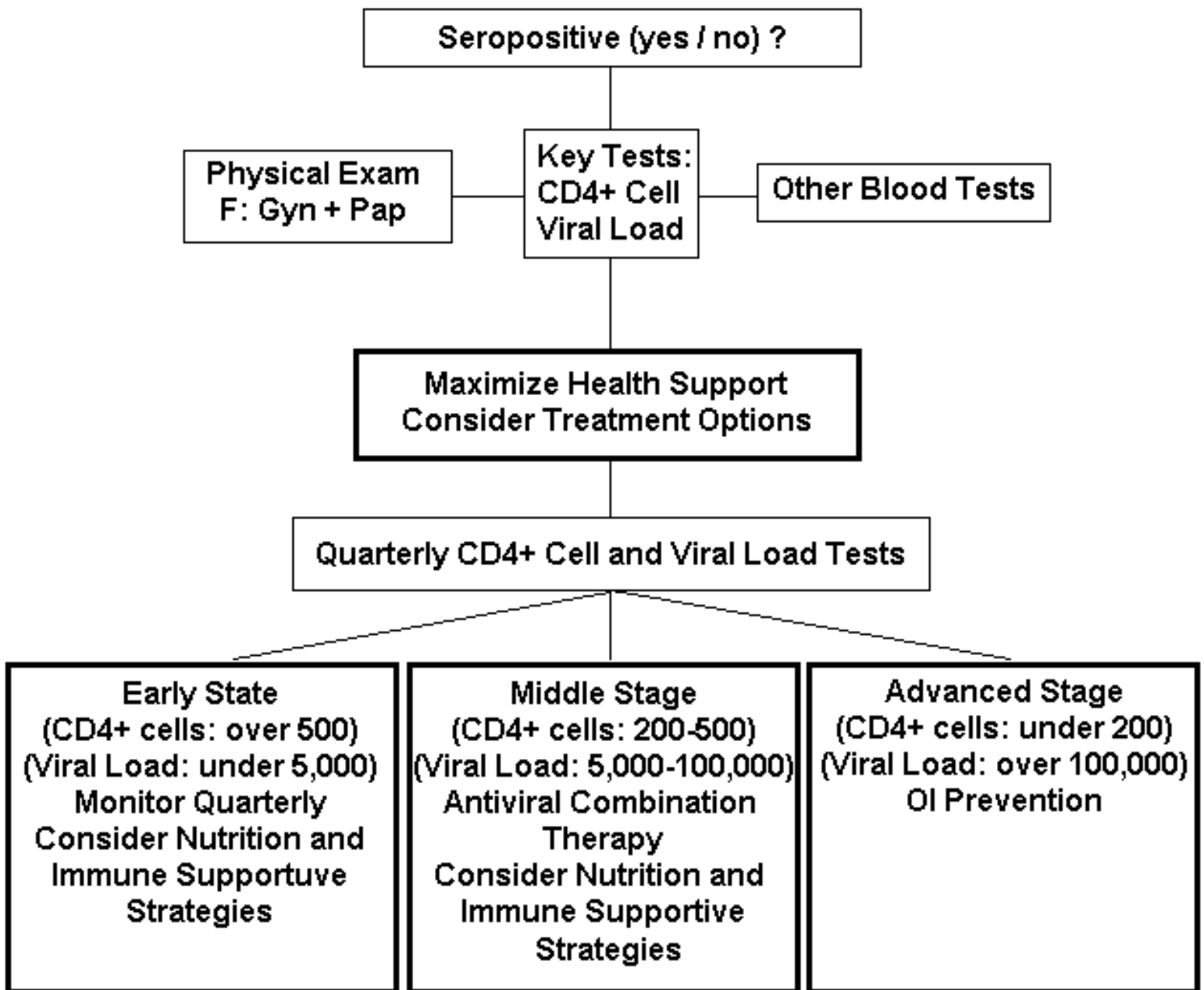
A second argument in favor of early treatment is that this may prevent the loss of critical cells in the immune system. But since we don't know exactly when the loss of such cells occurs, it is still hard to know "when" is the right time to start.

Some researchers prefer to withhold treatment until later in the course of disease. They believe it is best to save the drugs for later when the virus is more active or when the immune system shows obvious damage. They fear that treating too early it may "use up" the medicines before they are most critically needed, or that people will experience long-term toxicity from the drugs. Since none of the current medications can be used indefinitely, this argument cannot be casually dismissed. Even these researchers, however, believe it wise to start before there is evidence of major damage to the immune system. Just "when" that occurs is unclear.

The only way we will get clear answers to these questions is when more clinical trials are completed. In the meantime, the question remains a matter of personal choice. For information about starting treatments based on viral load test results, read the Project Inform document on viral load.

Almost all researchers agree that it is necessary to start antivirals when symptoms are present, when the CD4+ count is falling, or the viral load is high.

Project Inform Treatment Strategy



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IV. Available Treatments

Project Inform provides information on the use of the best proven HIV treatments. These and any other treatments should only be used under the care of an experienced physician. We encourage patients and physicians to enter into collaborative relationships with shared responsibility for achieving and maintaining health. Treatment should always be accompanied by monitoring which evaluates the success or failure of treatment. Both patient and physician should be prepared to adjust strategy based on the results of the monitoring process. This model of flexible, monitored treatment used in the context of a collaborative doctor/patient relationship is the key to managing HIV as a chronic illness.

Complete information on treatments currently viewed as helpful is readily available, along with *discussion papers* on related topics. Just ask for the basic "treatment package." The latest information on these and other important treatment issues is available through the Project Inform Hotline.

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The Bottom Line

- HIV Infection is not a death sentence; you'll be OK for quite some time, no matter what happens.
- You can gain power over HIV by learning how it operates.
- Learn to monitor your health; understand the common lab tests.
- Get acquainted with the Project Inform 5-step model.
- Get informed about your treatment options.
- Develop a treatment strategy that makes sense for you.

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Related Information Available through the Project Inform National HIV/AIDS Information Hotline

- [The Doctor, Patient and HIV Discussion Paper](#)
- [The Diagnostics Fact Sheet](#)
- [The Project Immune Restoration Discussion Paper](#)
- [The Nutrition and Weight Loss Fact Sheet](#)
- [The Antiviral Strategies Discussion Paper](#)
- Fact Sheets on individual antiviral drugs including [AZT](#), [ddC](#), [ddI](#), [d4T](#), [3TC](#), and the [Protease Inhibitors](#).
- Materials on individual opportunistic infections.

Call the Hotline at 1-800-822-7422, Monday through Friday, 9 AM to 5 PM and Saturday 10 AM to 4 PM Pacific Time for these and other materials.

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