

STRATEGIES FOR MANAGING OPPORTUNISTIC INFECTIONS



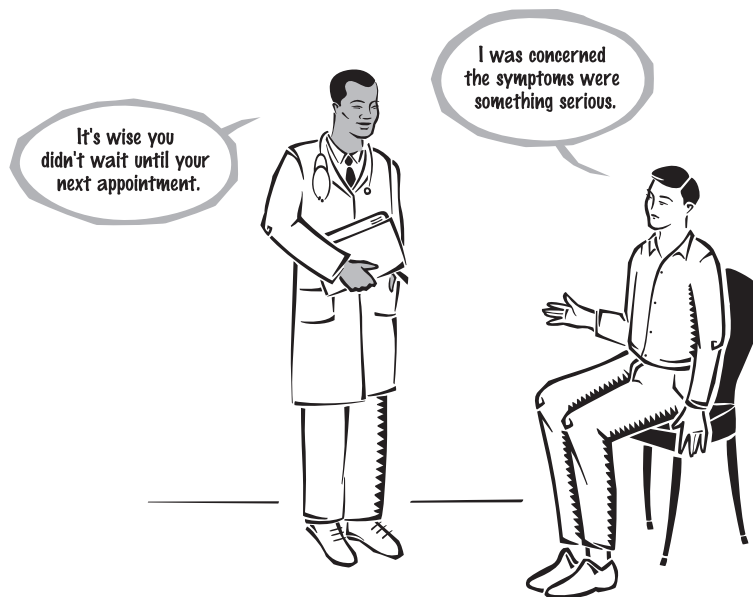
ways to help prevent and treat
opportunistic infections

PUBLISHED BY



PROJECT
INFORM

MAY 2008



HIV (*human immunodeficiency virus*) infects the cells of your body's immune system. It then impairs how they function and eventually kills them over time. This gradually weakens your immune system, and your body then loses its ability to fight disease. While HIV is the cause, most people who die of AIDS do not die of HIV *per se*. They die from the

infections that the body can no longer control due to a weakened immune system. Fairly common infections, which may cause little or no harm in a healthy person, take the *opportunity* of a weakened immune system to cause serious and even life-threatening disease. This is why they're called *opportunistic infections*, or OIs.

Dealing with OIs is an important part of a long-term plan for managing your HIV disease. The text over the next four pages explains in detail the different parts of an OI strategy, which includes:

1. understanding what OIs are,
2. learning how to prevent them,
3. using preventive treatment when needed,
4. treating them as they occur, and
5. using maintenance therapy when needed.



Opportunistic infections and HIV disease

The Centers for Disease Control (CDC) has developed a list of serious and life-threatening diseases, listed in the chart on pages 6 & 7. When these diseases occur in HIV-positive people, they're called *AIDS-defining OIs*. (AIDS is short for *Acquired Immune Deficiency Syndrome*.) So when a person has an AIDS-defining OI, it results in the diagnosis of AIDS for that person. Another way an AIDS diagnosis occurs is when tests that measure your immune system show that you're at serious risk for developing these conditions. Examples of this include CD4 counts below 200 or CD4 percentages below 14%.

OIs can be fairly common infections, like genital herpes. But not everyone with HIV who has a herpes outbreak is deemed to have AIDS. To the contrary, herpes becomes an OI only when it takes advantage of a weakened immune system to become more aggressive, persistent and harder to treat. So, having HIV and genital herpes isn't automatically considered AIDS; *but*, having HIV and a herpes outbreak that persists for a month despite treatment is.

It's important to note that nearly any condition or disease can become *opportunistic* due to a weakened immune system. This is true for people living with cancers or other health problems. But for an OI to be the cause for an AIDS diagnosis, it must be one of the CDC's AIDS-defining diseases in people living with HIV.

However, it's possible for people with HIV to get conditions that are not on the CDC's list. Occasionally the CDC revises its list to include these new conditions. For example, hepatitis C (HCV) disease is not currently an AIDS-defining OI. But more data are showing that people with HIV are at higher risk for more aggressive HCV liver disease. Your first line of defense to many of these conditions is prevention.



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PEOPLE LIVING WITH HIV SHOULD BE SCREENED FOR MANY OPPORTUNISTIC INFECTIONS WHEN THEY FIRST FIND OUT THEY'RE HIV-POSITIVE.

Preventing infections in the first place

Some OIs can be prevented. For example, people who have never been exposed to herpes can practice safer sex to reduce their risk of getting genital herpes. If you're not infected with the herpes virus, then there's no worry of it becoming an OI or threatening to your health. Project Inform's publication, *Sex and Prevention Concerns for Positive People*, contains information on how you can prevent many of these infections.

You can reduce your risk of some infections by practicing safer sex. Others can be prevented with vaccines. Still others can be avoided by handling and preparing food more safely or by being aware of and avoiding (when possible) the things that cause disease. This might include not handling birds or cats, even those kept as pets. It may also include using gloves when changing cat litter boxes, or having someone else deal with the litter.

Recently, outbreaks of drug-resistant staph skin infections have occurred. This infection can be spread through casual contact. Because these organisms are resistant to drugs, treatment may require intravenous therapy. Some speculate that in urban areas staph infections may be spread through something as simple as sharing equipment at the gym. Doing something as simple as putting a towel on gym equipment before using it, and not using that towel to wipe sweat from your body, may help you prevent a staph infection.

Preventing exposure to organisms is a great way to reduce your risk of getting an OI. In some cases, however, the organisms that cause OIs are in your every day environment. You may not be able to avoid them, or you may have already been exposed to them.

People living with HIV should be screened for many OIs when they first find out they're HIV-positive, as part of their early lab screenings. In some cases, this allows people to know if they're already exposed to an organism and helps them learn how to prevent infections they don't already have. (For more information on these types of lab tests, call Project Inform's hotline at 1-800-822-7422.)

However, in the case of *Pneumocystis jiroveci* pneumonia (also called PCP), it's simply not known how the organism is spread. It's assumed that most people are already infected with it. In that case, preventive treatment is routinely used if your immune system weakens and as the risk for PCP increases. PCP remains the leading cause of death of people with AIDS in the US and is largely preventable.



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Treating infections as they occur

Project Inform’s *Opportunistic Infections Chart* sums up the Federal Guidelines for treating major OIs. Because HIV replicates more as your immune system battles infections, treating them as they occur is critical not only in dealing with the infections, but also curbing further damage to the immune system by HIV. This is true whether or not the infection is an actual OI. When it comes to OIs, however, and many issues in later-stage HIV disease, diagnosing some infections can be difficult.

One of the biggest challenges in treating OIs is early diagnosis, before they’re able to take hold in different organs like the lungs, colon, brain, bone marrow, etc. The earlier something is diagnosed and treated, the more likely treatment will be successful and result in full recovery. This means regular checkups by your doctor (at least every three months) and talking to him or her about your symptoms.

If you experience any new or unusual symptoms and are between doctor visits, make an appointment. Don’t wait three months to have something looked at. Keep a health journal or diary, or merely write on a calendar when a new or unusual symptom occurs and record how long it remains. This may help your doctor figure out if a symptom is a drug side effect, a sign of an OI or something else.

Many OIs have the same symptoms, and some infections may be masking others. So, initial treatment may only deal with part of a problem, but not the whole problem. Dealing successfully with multiple infections may take diligence on your part when seeing many doctors and specialists. It’s ideal to have your primary doctor take charge, talking with your other doctors to make sure they’re talking to each other.

The hardest part of dealing with multiple conditions is that doctors often aren’t very good about talking to each other. It can easily become a full time job juggling your appointments as your different doctors order many different lab tests. It’s your primary doctor’s job to manage all of this, even when he or she is busy. Especially when many problems occur together, preparing for your appointments, writing down your questions beforehand, and having someone like an advocate with you to record the answers is strongly encouraged.

Once a condition is diagnosed, completing your treatment is vital. Also, drugs that treat some OIs may interact with your HIV meds. Any time a new treatment is added to your regimen, it’s wise for you and your doctor to assess whether it’s safe to use with your other meds and make any necessary dose adjustments.

THE EARLIER SOMETHING IS DIAGNOSED AND TREATED, THE MORE LIKELY TREATMENT WILL BE SUCCESSFUL AND RESULT IN FULL RECOVERY.

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Preventive treatment for OIs

OIs are generally not a problem for people whose CD4 cell counts remain stable above 200. It is extremely rare for people living with HIV to die

of AIDS when their CD4 counts are above 200. However, as CD4 counts decline your risk for getting OIs increases.

Perhaps the best strategy for preventing OIs is to keep your CD4 counts above 200. Therefore, the Federal Guidelines for using HIV therapy recommend that people consider starting HIV therapy when their CD4 counts are 350 or below. They also strongly recommend treating anyone with symptoms of HIV disease (regardless of CD4 counts) and anyone with CD4 counts of 200 or below. This is because HIV therapy stops HIV from destroying immune cells, preventing the further decline of the immune system.

There are also Federal Guidelines for preventing and treating HIV-related OIs. A summary of these guidelines is available in Project Inform's publication, *Opportunistic Infections Chart*.

In general, if CD4 counts fall to 200 or below (or CD4 percentage below 14%), people are at increased risk for PCP. Preventive therapy is advised. For people with other symptoms of HIV infection, especially repeated fungal (*candida*) infections, PCP preventive therapy is often started when CD4 counts are higher, around 300. If CD4 counts fall to the 100–150 range, preventive therapy for toxoplasmosis is recommended for people who are positive for it. If CD4 counts fall to 50 or below, preventive therapy for MAC and CMV is advised. For people who suspect they've been exposed to tuberculosis, preventive therapy is warranted.

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Maintenance therapy

After treating an OI, it's sometimes necessary to take medications for life to prevent it from coming back.

This is called *maintenance therapy*. In some cases, maintenance therapy may be stopped if a person's immune system recovers and sustains its control of HIV with the use of HIV therapy. The guidelines around starting and stopping maintenance therapy are outlined in Project Inform's publication, *Opportunistic Infections Chart*.

Some people with repeated herpes outbreaks will take long-term anti-herpes drugs to prevent them from coming back. Similarly, some people troubled with repeated fungal infections will take long-term anti-fungal drugs. However, in both cases maintenance therapy is somewhat controversial. This is because these organisms can develop resistance to the drugs, leaving few treatment options if or when a serious infection occurs.

When herpes or fungal infections continue to happen, it may come down to a quality of life issue. Long-term therapy may be the only viable option for a person. Carefully weighing the risks and benefits of these approaches is critical to making the right choice. Some will choose to risk losing viable treatment options to ease the problems of recurrent infections. Others will simply choose to treat these infections as they happen in hopes of preserving the benefits of therapy.

List of AIDS-defining OIs from the Centers for Disease Control

Opportunistic infection		What causes it; things to know
Candidiasis (thrush) of the throat (esophagus, trachea) or lungs		Fungal infection. Most people already have candida in their body. Generally the body keeps it under control. Sugars (including alcohol) are food for candida. There may be ways to adjust diet to help prevent candida from becoming problematic.
Cervical cancer, invasive and/or recurrent		Cancer/Viral infection. Often caused by human papilloma virus (HPV), the virus that causes anal and genital warts. Safer sex may help reduce the risk of HPV infection, but many women are infected with HPV even though they may have never had genital warts. Regular GYN exams are important for checking for cervical cancer.
Coccidioidomycosis, outside the lungs and/or throughout the body		Fungal infection. Found in soil in the southwestern US. Likely passed through the air or wind, in dust and dirt, but not from person to person. A fairly large outbreak followed the Northridge earthquake in southern California and was likely due to dirt and dust in the air. Most problematic in Kern and Tulare counties and San Joaquin Valley in California.
Cryptococcosis, outside the lungs		Fungal infection. Found in soil, associated with bird droppings in the soil. Likely passed through the air or wind, not person to person. Avoid handling birds, even as pets, and avoid areas with lots of bird droppings.
Cryptosporidiosis with diarrhea that lasts longer than one month		Parasite. Found in feces of many species; may contaminate drinking water. Prevent infection from humans by avoiding feces (diapers, sex with direct oral/anal contact). Often exposure from animals occurs from fecal contamination of water. Avoid drinking from rivers and streams. When appropriate, drink bottled water and or use filters on tap water that can filter out crypto.
Cytomegalovirus (CMV) disease of an organ other than the liver, spleen or lymph nodes, including in the eye (CMV retinitis)		Viral infection. Most (50–85%) people likely infected already. CMV is passed through close contact (sex, saliva, urine and other body fluids) and from mother to child (during pregnancy and breast-feeding). If not infected, safer sex may help prevent it.
Herpes simplex virus (HSV) outbreak lasting over one month, or HSV infections in the lungs/throat		Viral infection. Genital herpes is passed sexually. Safer sex can decrease risk of infection. Oral-to-genital spread of herpes possible.
Histoplasmosis, outside the lungs and/or throughout the body		Fungal infection. Found in soil in eastern and central US. Grows in soil contaminated with bat or bird droppings. Can pass through the air when contaminated soil is disturbed—as in exploring caves. Not passed from person to person.
HIV encephalopathy (“HIV dementia” or “AIDS dementia”)		Viral infection. Caused by HIV. Possibly preventable by using anti-HIV drugs that cross the blood-brain barrier.
HIV wasting syndrome		Viral infection. Caused by HIV, inflammation or as a result from OIs. Possibly preventable, to some degree, by improving nutrition.

<p>Isosporiasis with diarrhea that lasts more than one month</p>	<p>Parasite. Found in feces, may contaminate food or drinking water. Most common in tropical and subtropical region of the US. Prevent infection from humans by avoiding feces (diapers, sex with direct oral/anal contact). Often exposure from animals occurs from fecal contamination of water. Avoid drinking from rivers and streams. When appropriate, drink bottled water or use filters on tap water. Cook food thoroughly.</p>
<p>Kaposi's sarcoma (KS)</p>	<p>Cancer/viral infection: Caused by human herpes virus 8 (HHV8 or KSHV). How it is passed is unknown, but believed to be passed through close sexual contact and from mother to child. Practicing safer sex may help avoid infection.</p>
<p>Lymphoma of the brain</p>	<p>Cancer. Unknown cause, but Epstein Barr Virus (EBV) may play role in risk for lymphoma.</p>
<p>Lymphoma – Burkitt or non-Burkitt type</p>	<p>Cancer. Unknown cause.</p>
<p>Lymphoma – immunoblastic type</p>	<p>Cancer. Unknown cause.</p>
<p>Mycobacterium tuberculosis (TB) disease</p>	<p>Bacterial infection. Passed through the air, can be passed from person to person by close contact, kissing or saliva. Transmission may occur very casually, especially in closed-in spaces like low income housing, shelters, jails or other places with close living quarters.</p>
<p>Mycobacterium avium complex (MAC) or M. kansasii disease, outside the lungs and/or throughout the body</p>	<p>Bacterial infection. Found everywhere in the environment—soil, food and animals. Avoid handling soil, carefully handle and prepare food. Difficult, perhaps impossible, to prevent exposure as it's in so many places in the environment.</p>
<p>Mycobacterium disease of unknown type, outside the lungs and/or throughout the body</p>	<p>Bacterial infections. Likely found in soil, food and animals. May be difficult to prevent exposure.</p>
<p>Pneumocystis carinii pneumonia (PCP)</p>	<p>Likely caused by a fungus, <i>Pneumocystis jiroveci</i>, found in many places in the environment. Likely not preventable except with therapy when risk for OI increases.</p>
<p>Pneumonia, recurrent</p>	<p>Bacterial infections. Likely caused by blood exposure to bacteria. Most common in injection drug users. May be airborne and exposure may occur through casual contact/saliva.</p>
<p>Progressive multifocal leukoencephalopathy (PML)</p>	<p>Viral infection. Caused by the JC virus. Most people likely already infected. Causes disease in about 1% of people with HIV. Its cause in some but not in others is not well understood. Possibly passed through sexual contact, mother to child, etc.</p>
<p>Salmonella septicemia, recurrent</p>	<p>Parasite. Some forms likely passed through contaminated poultry (chicken, etc.). Also found in water, soil, kitchen surfaces, animal feces, raw eggs, raw meat (particularly chicken, pig and fish) and on certain animals (reptiles).</p>
<p>Toxoplasmosis of the brain in people older than one month of age</p>	<p>Parasite. Cats and birds are major sources of infection. Indoor cats less of risk, but toxo-negative cats that go outside can carry it back in. Cat feces should be avoided (use gloves to change litter). Avoid handling birds. Toxo also found in undercooked meats.</p>

A final word on strategies for managing opportunistic infections

Regardless of where you're at in your HIV disease, there are things that you can do to prevent and treat OIs. Preventing OIs applies to people at all stages of HIV disease. It includes:

- › maintaining good immune health,
- › using HIV therapy properly to preserve the immune system and allow for its recovery,
- › preventing infections by the organisms that cause OIs when possible,
- › using treatments when needed to prevent OIs, and
- › using treatments when needed to prevent OIs from coming back.

A plan for treating OIs includes:

- › Seeing your doctor regularly. This generally means every three months; or twice a year for people with good immune health; or monthly for people dealing with complications. A doctor experienced in HIV disease who has treated people living with HIV is better able to recognize and treat OIs and should be more familiar with preventive therapy.
- › Telling your doctor(s) about all the symptoms you have so they can diagnose problems early.
- › Treating infections as they occur (aggressively), completing treatment and using maintenance therapy when needed. This may include the need for life-long maintenance therapy.

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