

This information sheet is part of Tuomey Industrial Medicine's policy to manage occupational exposures to blood borne pathogens. These policies are designed to quickly evaluate the risk of infection from the exposure, counsel you about recommendations for treatment if needed, monitor you for side effects of treatments (if undertaken), and determine if infection occurs. This may involve testing your blood and that of the source patient and offering appropriate medical treatment.

There are many kinds of exposures, ranging from high risk to low risk, . . . most are low risk. Simply put, most exposures do not result in infection. The risk of infection varies with the type of exposure and factors such as:

- The amount of blood involved in the exposure
- The amount of virus in the patient's blood at the time of exposure
- Whether post exposure treatment was taken.

Many needle sticks and other cuts can be prevented by using medical devices with safety features designed to prevent injuries by using safer techniques (e.g., not recapping needles by hand), and by disposing of used needles in appropriate sharps disposal containers. Many exposures to the eyes, nose, mouth, or skin can be prevented by using appropriate barriers (e.g., gloves, eye and face protection, gowns) when contact with blood is expected.

A. Immediately following an exposure to blood or body fluids:

Remove contaminated clothing

Needle sticks and cuts should be allowed to bleed and washed with soap and water.

Splashes to the nose, mouth, or skin should be flushed with lots of soap and water

Treat large splashes to skin with any available non-caustic antiseptic solution

Eyes should be irrigated with clean water, saline, or sterile irrigants.

B. Following any exposure you should:

Report the exposure to the department (e.g., occupational health, infection control) responsible for managing exposures. Prompt reporting is essential because, in some cases, HIV post exposure treatment may be recommended and it should be started as soon as possible--preferably within 6 hours.

C. If a blood borne pathogen exposure occurred, you will want to review the information in the

Bloodborne Pathogen Employee Packet.

- A. While the risk is very low, it is not zero. HIV infection has been reported after occupational exposures to HIV-infected blood through needle sticks or cuts; splashes in the eyes, nose, or mouth; and skin contact.
- B. Exposures from _____ cause most infections. The average risk of HIV infection after a needle stick/cut exposure to HIV-infected blood is 0.3% (i.e., three-tenths of one percent, or about 1 in 300). Stated another way, 99.7% of needle stick/cut exposures do not lead to infection.
- C. The risk after exposure of the _____ to HIV-infected blood is estimated to be, on average, 0.1% (1 in 1,000).
- D. The risk after exposure of the _____ to HIV-infected blood is estimated to be less than 0.1%. A small amount of blood on intact skin probably poses no risk at all. There have been no cases of HIV transmission documented due to an exposure involving a small amount of blood on intact skin. The risk may be higher if the skin is damaged (e.g., by a recent cut) or if the contact involves a large area of skin or is prolonged.

Risk is _____ if the exposure involves:

- a larger volume of blood. Example; a large bore needle used to draw blood
- a high level of virus. Example, a source-patient near death with AIDS
- penetration of the fluid below the surface of the skin. Example, a deep IM injection

Risk is _____ if the exposure involves:

- a smaller or diluted volume of blood. Example, blood tinged urine
- low viral levels. Example, source is HIV + but with a low viral titer.
- a splash to the skin or mucus membranes rather than a deep IM injection

As of December 1996, CDC had received reports of 52 documented cases and 111 possible cases of occupationally acquired HIV infection among Health Care Workers in the United States. The types of injuries and fluids involved are shown below. Clearly needle sticks involving blood have caused the most transmission of HIV. Only rarely do splashes or fluids other than blood cause HIV.

Needle stick or cuts	45
Eye, nose, or mouth, and/or skin	5
Both injury & mucous membrane	1
Unknown	<u>1</u>
	52

Blood	47
Concentrated virus in a laboratory	3
Visibly bloody fluid	1
Unspecified fluid	<u>1</u>
	52

The 111 possible cases were in health-care workers who reported an occupational exposure to blood, body fluids, or HIV-infected laboratory material, and who did not have any other identifiable

behavioral or transfusion risk for HIV infection. However, for these workers, infection specifically resulting from an occupational exposure was not documented.

Yes. Results from a small number of studies suggest that the use of zidovudine (ZDV) and other antiviral drugs after certain occupational exposures may reduce the chance of HIV transmission. In one study the use of ZDV after HIV exposure from a needle stick or cut reduced the risk of HIV infection by almost 80%.

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These studies suggest that post-exposure treatment may prevent infection with HIV. However, because there have been at least 12 reported cases of ZDV failing to prevent HIV infection in health-care workers, post-exposure treatment will probably not prevent all cases of infection transmission.

No. Because most occupational exposures do not lead to HIV infection, the chance of possible serious side effects (toxicity) from the drugs used to prevent infection may be much greater than the chance of HIV infection from such exposures. Both risk of infection and possible side effects of drugs should be carefully considered when deciding whether to take post-exposure treatment. Exposures with a lower infection risk may not be worth the risk of the side effects associated with these drugs.

If the source individual cannot be identified or tested, decisions regarding follow-up should be based on the exposure risk and whether the source is likely to be a person who is HIV positive. The Blood borne Pathogen Exposure Evaluation Form provides additional information on estimating risk following exposure. Follow-up HIV testing should be available to all workers who are concerned about possible HIV infection through occupational exposure.

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The specific drugs recommended as of September 1998 are to be taken for four weeks and are as follows:

1. Retrovir 100 mg 2 t.i.d
2. Epivir 150 mg 1 b.i.d
3. Crixivan 400mg 2 q8h

The recommendations for these drugs are intended to provide guidance to clinicians and may be modified on a case-by-case basis. Whenever possible, consulting an expert with experience in the use of antiviral drugs is advised, especially if a recommended drug is not available, if the source patient's virus is likely to be resistant to one or more recommended drugs, or if the drugs are poorly tolerated.

Treatment should be started promptly, preferably within 4-8 hours, after the exposure. Although animal studies suggest that treatment is not effective when started more than 24-36 hours after exposure, it is not known if this time frame is the same for humans. Starting treatment after a longer period (for example, 1-2 weeks) may be considered for the highest risk exposures; even if HIV infection is not prevented, early treatment of initial HIV infection may lessen the severity of symptoms and delay the onset of AIDS.

The optimal course of treatment is unknown; because 4 weeks of ZDV appears to provide protection against HIV infection, if tolerated, treatment should probably be taken for 4 weeks.

No. The FDA has approved these drugs for the treatment of HIV infection, but not for preventing infection. However, physicians may prescribe any approved drug when, in their professional judgment, the use of the drug is warranted.

Most of the information known about the safety and side effects of these drugs is based on studies of their use in HIV-infected individuals. For these individuals, ZDV and 3TC have usually been well tolerated when taken in the doses recommended. There is less information about IDV, but it also may be well tolerated when used for a short period. IDV should not be used in combination with certain other drugs, including some prescription antihistamines (consult your health-care provider). Some of the more frequent side effects reported in HIV-infected patients include the following:

- Upset stomach (for example, nausea, vomiting, diarrhea), tiredness, or headache for people taking ZDV
- Upset stomach and, in rare instances, pancreatitis for people taking 3TC
- Jaundice and kidney stones in people taking IDV, although these side effects are infrequent when IDV is taken for less than one month. The risk of kidney stones may be reduced by drinking 48 oz of fluid per 24-hour period.

There is some information about ZDV use by health-care workers as post exposure treatment. ZDV is usually tolerated, but reported side effects have included upset stomach, tiredness, and headache, all of which stopped when the drug was stopped. There is little information on the side effects of 3TC or IDV in uninfected individuals.

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Based on limited information, ZDV taken in the second and third trimesters of pregnancy has not caused serious side effects in mothers or infants. There is very little information on the safety of ZDV when taken during the first trimester or on the safety of other antiviral drugs taken during pregnancy. If you are pregnant at the time you have an occupational exposure to HIV, you should consult a physician about the use antiviral drugs for post exposure treatment.

- A. You should be tested for HIV antibody as soon as possible after exposure (baseline), and periodically for at least 6 months after the exposure (e.g., at 6 weeks, 12 weeks, and 6 months).
- B. If you take antiviral drugs for post exposure treatment, you should be checked for drug toxicity, including a complete blood count and kidney and liver function tests just before starting treatment and 2 weeks after starting treatment.
- C. You should report any sudden or severe flu-like illness that occurs during the follow-up period, especially if it involves fever, rash, muscle aches, tiredness, malaise, or swollen glands. Such an illness or symptoms may suggest HIV infection, drug reaction, or other medical conditions.
- D. You should contact your health-care provider if you have any questions or problems during the follow-up period.

During the follow-up period, especially the first 6-12 weeks when most infected persons are expected to show signs of infection, you should follow recommendations for preventing transmission of HIV. These include refraining from blood, semen, or organ donation and abstaining from sexual intercourse. If you choose to have sexual intercourse, using a latex condom consistently and correctly may reduce the risk of HIV transmission. In addition, women should not breast-feed infants during the follow-up period to prevent exposing their infants to HIV in breast milk.

What is being done to learn more about the use of antiviral drugs for treatment after an occupational exposure to HIV? Because information is limited about the side effects/toxicity of antiviral drugs in uninfected people, like you, the Centers for Disease Control and Prevention, Glaxo Wellcome Inc.,

and Merck & Co., Inc., have begun the HIV Postexposure Prophylaxis (PEP) Registry, to collect information about the safety, tolerability, and outcome of taking antiviral drugs for post exposure treatment.

If you give permission, your health-care provider will provide information to the Registry about the exposure, the antiviral drugs taken, abnormal laboratory findings, and physical symptoms associated with the use of these drugs. Participation is voluntary and confidential. No information that would identify you will be collected.

Ask your health-care provider; he or she can obtain information about the Registry by calling toll-free 1-888-PEP4HIV-(1-888-737-4448).

Information specialists who staff the CDC National AIDS Hotline (1-800-342-2437) can answer questions or provide information on HIV infection and AIDS and the resources available in your area. The AIDS Treatment Information Service (1-800-933-4313) can also be contacted for information on the clinical treatment of HIV/AIDS. For free copies of printed material on HIV infection and AIDS, please call or write to: CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; Telephone 1-800-458-5231, Internet address: < <http://cdcnac.aspensys.com:86> >.

This information sheet, with minor variations, is similar to the information sheet that was posted on the internet by the Centers for Disease Control: <http://www.cdc.gov/ncidod/hip/Blood/faq.htm>