



THE TACTICAL EDGE

WINTER, 1995

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HIV AND HEPATITIS B

Tactical Silent Enemies

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Introduction

It is estimated that 1 to 1.5 million Americans are infected with HIV, "Human Immunodeficiency Virus." The World Health Organization estimates that by the year 2000, 30 to 40 million people worldwide will have contracted the virus. Hardly a day passes that law enforcement personnel do not come in contact with crime victims and suspects that are infected with diseases. Law enforcement officers have an extremely remote chance of contracting any disease while in the line of duty. Nonetheless, it is important for tactical officers to be informed and be aware of bloodborne pathogens.

Bloodborne pathogens are simply "germs." These germs in medical terms are called viruses and bacteria. The **virus** is a tiny living parasite which invades cells and alters their chemistry so that the cells are compelled to produce more virus particles. Viruses cause many diseases, including colds and the flu. **Bacteria** on the other hand are microscopic organisms composed of a single cell. It is the spread of these viruses and bacteria that cause an infection in the body. These germs can live in the air, on surfaces and within the human body in what is known as body fluids (i.e., blood, urine and saliva).

The body has an amazing ability to stop germs from entering by way of the skin. The skin is perhaps the most important defense system, but the mucous membranes (thin layers that line all of the body openings) also form barriers against germs. However, bacteria and viruses can easily pass into the body through cuts, puncture wounds or scrapes that are in the skin or the mucous membranes.

Once inside the body, the bacteria and viruses can live and multiply in body fluids. The body's immune system normally defends against them, but if the germs are very strong and the body is weak, or lacks resistance to the particular germ, the defenses can fail. The viruses and bacteria can then multiply and cause infection and disease.

Understanding HIV Infection

AIDS, or **Acquired Immune Deficiency Syndrome**, is actually the last

stage of a disease process caused by **HIV** (human immunodeficiency virus). After the virus enters the body, it attacks the cells of the immune system, which normally defend the body against disease. The virus destroys their ability to fight other invading viruses or bacteria. The infected person may have no symptoms for years, but eventually symptoms appear as the immune system weakens.

Mode of Transmission

The virus is transmitted from one person to another usually by sex or by sharing needles during IV drug abuse.

HIV enters a very special type of immune cell called a **T-cell**, where the virus can hide from the antibodies. HIV, for reasons not understood, can lie quietly for an indefinite period of time causing no symptoms. It then becomes active, manufacturing many copies of itself. After the virus reproduces itself, the new viruses burst from the T-cell and go on to infect other immune cells. As more and more immune cells are destroyed, the body becomes more vulnerable to other infections.

Opportunistic Infections

In time, the virus destroys almost



Multiple "track marks" in an IV drug user. This individual is at high risk for HIV and Hepatitis B. The officer should utilize Universal Precautions. All photos courtesy the authors.

During sex, HIV in the semen, vaginal fluid or blood of an infected person then travels to the bloodstream of another through the tissue lining the rectum, penis or vagina or mouth. In the case of IV drug use, HIV enters the bloodstream through a puncture made by the needle with infected blood. HIV may also be transmitted through blood transfusions, or from a mother to her child during pregnancy, birth or rarely during breast-feeding.

HIV Attacks The Immune System

Once HIV enters the bloodstream, the immune system attempts to fight the virus by developing what are called **antibodies** to destroy it. However,

all of the disease-fighting cells of the immune system, giving a number of uncommon infections the opportunity to overwhelm the body. When these so-called opportunistic infections appear, the person is considered to have AIDS. The most frequent of these diseases are Pneumocystis Pneumonia, a severe lung infection, and Kaposi's sarcoma, a previously rare cancer.

Risk Factors

Scientific evidence has demonstrated that unlike many other viruses, such as those that cause the common cold, the virus that causes AIDS is **not** spread through casual everyday con-

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tact. You don't have to worry that you will get AIDS through touching an infected person or crime victim. In addition, there is no evidence that the virus is spread by sharing equipment, such as telephones, computers, cups, doorknobs, or bathrooms. Since HIV is not passed through the air, it is not spread through coughing or sneezing.

Hepatitis B Virus

Hepatitis B is another virus that



Latex rubber gloves should be worn while at scenes such as this of a suicide victim, where large amounts of blood, body fluids and flesh are present.



"Skin popping" in a heroin user. This individual is also at high risk for HIV and Hepatitis B infection.

causes an infection. In contrast to HIV, which causes infection in only about 1 in 250 body fluid exposure incidents, Hepatitis B may cause infection in up to 1 of 3 exposures. This time the virus attacks the liver. The disease is widespread, with over 300,000 people in the

United States becoming infected every year. Many of them become seriously ill, and some even die.

Hepatitis B is far more contagious than HIV. Hepatitis B virus can live longer outside the body than the AIDS virus.

Mode of Transmission


Hepatitis B is spread primarily through blood and body fluids that contain blood. While on duty, the disease can be contracted through accidental needle sticks while searching a suspect, car or residence. Transmission may also be through open wounds or breaks in the skin, or through splashes of body fluids to mucous membranes.

A Potent Virus

Once inside the body, the Hepatitis B virus infects the liver. The liver's ability to clean the blood of toxic materials, to produce a variety of necessary chemicals for the body, and to store and release sugar, vitamins and minerals is affected. This condition is known as **Hepatitis**, and may lead to chronic liver disease or liver cancer. In some people, the virus causes no symptoms or a mild flu-like illness. In others, it causes death. The Hepatitis B virus is a strong virus that resists the usual practices of hygiene. It is far more difficult to kill outside the body than the AIDS virus, and it can live for over a week in dried blood or saliva on clothing or surfaces.

Potential Lifelong Problem

Symptoms range from fever, aching muscles, and loss of appetite to more severe symptoms, like prolonged nau-




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sea and vomiting and yellowing of the skin, called jaundice. Symptoms may appear several weeks to months after exposure, and the disease can be infectious weeks before symptoms appear. Many people recover within six months and become immune to Hepatitis B. Those that are not so lucky and don't become immune may become carriers. The disease may clear after a few years, or the person may become a carrier for life, with or without symptoms, and able to transmit the disease to others.

Prevention

Hepatitis B can easily be prevented by using precautions when dealing with high-risk suspects, and by utilizing vaccines that help the body create antibodies to fight the virus. Since March 6, 1992, the Federal Occupational Safety and Health Administration (OSHA) requires that law enforcement agencies offer the vaccination against Hepatitis B to all officers who may have contact with body fluids while on the job, at no cost to the officer.

There are no drugs that cure Hepatitis. No antibiotics are known to kill the virus-causing disease. Based on current medical knowledge, the Hepatitis vaccine provides protection against illness and development of the carrier state. This protection lasts nine years, or perhaps longer.

Universal Precautions

The concept of Universal Precautions recommends that all blood and potentially infectious materials other than blood must be treated as if infected. It is impossible for law enforcement officers to determine whether a suspect or crime victim's blood is infected. With HIV in particular, there is a period between infection and the development of the antibody during which the virus cannot be detected by current laboratory methods. Thus, even a newly tested person with a negative result may actually carry the virus.

The FBI Hepatitis B and AIDS Survey

In 1989, the Federal Bureau of Investigation began conducting a nationwide study to determine if, and how often, police officers contracted either the HIV or Hepatitis B virus while performing their duties. FBI personnel conducted the study confidentially, and requested only the number of cases reported by law enforcement agencies and the circumstances by which the officers acquired the infections. The reporting law enforcement agency then made the determination as to whether the case actually constituted an occupational on-

duty transmission.

The study, however, may not have included all cases of AIDS or Hepatitis B since strict confidentiality and privacy laws prohibit some jurisdictions from disclosing the occurrence of certain types of diseases. In addition, it could not be proven absolutely that the officers were not infected off duty. The FBI stated that their study should not necessarily be considered scientifically valid in all cases.

Summary of the AIDS Cases

Of the 7 police officers who contract-

ed AIDS occupationally between 1981 and 1991, 3 absorbed infected blood through cuts, wounds, or scrapes on the skin; 2 officers acquired AIDS from needle stick injuries; 1 from a blood transfusion and 1 from undescribed circumstances.

Summary of the Hepatitis B Cases

A total of 31 officers contracted Hepatitis B occupationally from 1981 to 1991, 8 from absorbing infected blood through cuts, wounds or scrapes on the skin; 6 from needle stick injuries; 6

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from being bitten by suspects; and 11 in undescribed circumstances. The remaining cases occurred under previously mentioned circumstances.

FBI Study Results

The results of the study indicated that law enforcement officers have a greater chance of contracting the Hepatitis B virus than HIV. Also, law enforcement officers have an extremely small chance of contracting any disease on the job, including Hepatitis B and AIDS. Officers have a greater chance of being killed by a criminal in the line of duty, or even in an automobile accident, than dying from an infectious disease contracted on the job.

Tactical Field Precautions and Personal Protective Equipment

Since the symptoms of AIDS and Hepatitis B may be absent in suspects, always take precautions. Try to anticipate contact with blood and body fluids by thinking ahead.

- **Wash Your Hands** thoroughly if you come in contact with any blood or body fluid. Work up a good lather, clean thoroughly between fingers and around nails, and rinse well.

- **Wear Latex Rubber Gloves** any time you expect to come in contact with body fluids, mucous membranes, or broken skin. Change gloves between suspects and dispose of the gloves properly.

- **Take Care of Your Hands**, because broken or raw skin gives the virus an opportunity to enter and infect you.

- **Dispose of Needles** properly by placing them in a puncture-resistant

container. If you find syringes during a search, do not recap, bend, break, or remove needles by hand.

- **Wear Protective Barriers** like masks and eyewear during law enforcement procedures with a suspect where your eyes, nose, or mouth might be splashed by body fluids. These barriers can help protect your mucous membranes.

After An Exposure

If you have had a possible exposure, follow your departmental procedures. Report the incident even if you have been vaccinated. When an exposure incident occurs, we recommend the following for immediate action:

- Attempt to cleanse the area of exposure to minimize the chance of infection.
- Notify your team leader or commander.
- Notify your team physician to begin medical treatment and evaluation.

Conclusion

As tactical law enforcement officers, we must accept responsibility for preventing Hepatitis B and AIDS in the tactical environment. By taking precautions, tactical officers can be a role model for other law enforcement personnel and exemplify our value for health and the health of fellow team members.

About the Authors

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The victim of a knife fight. Officers should take precautions when handling these cases due to open bleeding wounds.