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VIRAL HEPATITIS AND INJECTION DRUG USERS

In the United States, viral hepatitis is an important public health problem because it causes serious illness, it affects millions, and it has a close connection with HIV. This series of fact sheets addresses viral hepatitis, particularly hepatitis B and C – two important blood-borne infections that have a major impact on injection drug users (IDUs).

The fact sheets in this series are:

- Viral Hepatitis and Injection Drug Users
- Medical Management of Chronic Hepatitis B and Chronic Hepatitis C
- Vaccines to Prevent Hepatitis A and Hepatitis B
- Hepatitis C Virus and HIV Coinfection
- Viral Hepatitis and the Criminal Justice System

See the end of this fact sheet for information on how to get this series and other materials on preventing HIV and other blood-borne infections among IDUs.

<http://www.cdc.gov/idu>

VIRAL HEPATITIS AND INJECTION DRUG USERS

Millions of Americans have viral hepatitis. It is a particularly significant problem among injection drug users (IDUs). Growing awareness of this problem is leading to new initiatives, but efforts to prevent these diseases and reduce their medical, financial, and social costs face challenges.

Viral Hepatitis is an Important Health Issue for the Nation

Hepatitis, literally an “inflammation of the liver,” has a number of causes. Viral infection is one of them. The most common types are hepatitis A, hepatitis B, and hepatitis C.

Viral hepatitis affects millions

Hepatitis C virus (HCV) infection occurs when blood (or to a lesser extent, other body fluids such as semen or vaginal fluid) from an infected person enters the body of an uninfected person. Injection drug use is the major risk factor for HCV infection. About 3.9 million Americans have been infected with HCV and 2.7 million have chronic HCV infection. Hepatitis C disproportionately affects people of color: 3.2% of African Americans and 2.1% of Mexican Americans are infected with HCV, compared to 1.5% of non-Hispanic whites. These numbers underestimate the actual impact because they do not include infections in prisoners or the homeless. In 2000, about 30,000 new infections occurred. Most of these infections occurred among young adults 20-39 years old.

Hepatitis B virus (HBV) infection occurs when blood or body fluids from an infected person enter the body of an

uninfected person. High-risk sexual behaviors (unprotected sex with multiple partners) and injection drug use are the major risk factors. About 5% of people in the U.S. have evidence of past infection with HBV and approximately 1.25 million people have chronic HBV infection. Like hepatitis C, hepatitis B disproportionately affects people of color. An estimated 73,000 new HBV infections occurred in 2000. Most infections occurred in young adults, aged 20-39 years. Hepatitis B can be prevented through immunization.

Hepatitis A virus (HAV) is primarily transmitted through the fecal-oral route, when a person puts something in his or her mouth (such as food or a beverage) that has been contaminated with the feces of a person infected with HAV. Outbreaks occur more easily in overcrowded areas where poor sanitary conditions exist. Outbreaks of hepatitis A also have been reported among IDUs. About one-third of Americans have evidence of past infection with HAV. Hepatitis A can be prevented through immunization.

The medical and health care costs of viral hepatitis are high

Each year, 8,000 to 10,000 people die from the complications of liver disease caused by hepatitis C and about 5,000

die from complications caused by hepatitis B. Chronic liver disease is currently the 10th leading cause of death, and liver failure due to hepatitis C is the leading reason for liver transplants. Annual health care costs and lost wages associated with hepatitis-related liver disease are estimated to be \$600 million for hepatitis C and \$700 million for hepatitis B. The costs to individuals and society of illness related to hepatitis A are also substantial.

Viral hepatitis can be insidious

Frequently, symptoms of newly acquired (acute) infection are mild or nonexistent, so people may not even be diagnosed as having viral hepatitis. Those who do have symptoms might experience “flu-like” symptoms, fatigue, nausea, pain in the upper abdomen, and sometimes jaundice.

People who get HAV infection are able to clear the virus from their bodies and recover fully. They develop a lifelong immunity to the virus. The situation is different with hepatitis B and hepatitis C:

- The majority of people who acquire HBV infection after age 5 are able to clear the virus from their bodies. However, about 2%-6% are not able to clear the virus and go on to become chronically infected. A much higher percentage of those who

acquire HBV infection as infants (90%) or young children (30%) become chronically infected.

- About 75%-85% of people with HCV infection are unable to clear the virus and become chronically infected.

Many people with chronic infection – 60% of those with HBV infection and 70% of those with HCV infection – develop chronic liver disease, a situation in which the virus damages the liver. The damage may progress to severe disease, including cirrhosis, liver cancer, and liver failure. This progressive liver disease usually develops slowly over 20 to 30 years. Because symptoms are so frequently mild or nonexistent, the majority of people with chronic HBV and HCV infections do not know they are infected and can unknowingly transmit the virus to others. For many, signs and symptoms appear only when liver disease is advanced and treatments are less effective.

Hepatitis C is a particular concern.

- So many people have been infected with HCV. During the 1960s, 1970s, and early 1980s, the number of new cases every year was very high, averaging an estimated 240,000 per year during the 1980s. Because many were unaware they were infected, the risks of transmitting the infection to others were extremely high. Since then, the incidence of HCV infection has declined dramatically (only 30,000 new infections estimated in 2000). Most of this decline has occurred among IDUs. The reasons are not fully understood but may be due to safer injection practices resulting from intensive HIV prevention programs and to the very high proportion of drug users already infected.
- Most people with HCV infection develop chronic infection, which frequently leads to chronic liver disease.
- The impact of HCV infection may explode over the next 10-20 years. Because it takes 20-30 years for

chronic liver disease, cirrhosis, and liver cancer to develop, it is conservatively estimated that illness and deaths from HCV-related liver disease among the millions of people infected during earlier years will increase 2- to 3-fold over the next two decades. Direct medical costs may range from \$6.5 to \$13.6 billion, with even larger indirect and societal costs.

- No vaccine to prevent HCV infection is available.

Viral Hepatitis is a Very Significant Problem Among IDUs

Because HBV and HCV are transmitted through exposure to infected blood and body fluids, IDUs are at very high risk of acquiring and transmitting both viruses. For example, it is estimated that 60%, or 17,000, of the 30,000 new cases of HCV that occurred in 2000 occurred among IDUs. Is it estimated that 17%, or 13,000 of the 73,000 new cases of hepatitis B that occurred in 2000, occurred among IDUs.

Hepatitis A, B, and C at a Glance

Virus	Risk of Transmission					Course of Infection	Does Protective Immunity Develop?	Vaccine Available?
	<i>Injecting</i>	<i>Transfusion/ Transplant</i>	<i>Sex</i>	<i>Fecal- Oral</i>	<i>Occupational</i>			
A	low*	low	high	high	none	acute → resolved	yes	yes
B	high	low	high	none	high unless immune due to hepatitis B immunization or previous infection	acute → chronic in 90% of infants, 30% in children aged 1-5, 2%-6% of older children and adults	yes	yes
C	high	low	low	none	low	acute → chronic in 75%-85% of adults	no	no

* Hepatitis A outbreaks occur among IDUs; mechanisms of transmission are not known with certainty but are related to poor hygiene and sharing drugs, drug solution, syringes, and drug preparation equipment (water, drug solution containers, cotton filters).

HBV and HCV infections are also acquired relatively rapidly among IDUs. Within 5 years of beginning injection drug use, 50%-70% of IDUs become infected with HBV. Between 50%-80% of IDUs become infected with HCV within 5 years of beginning injection drug use; it is usually the first blood-borne virus they acquire. Several factors favor the rapid spread of HCV infection among IDUs:

- Viral factors – HCV is transmitted efficiently through blood exposure.
- Host factors – A large number of individuals are infected and this provides multiple opportunities for transmission to others.
- IDU factors – IDUs often jointly purchase drugs and prepare the drug solution together; this solution is divided among users. Sharing the drug solution, syringes, or other drug preparation equipment (such as water, drug mixing containers, and cotton filters) all increase the risk of transmission if any of these components are infected with HCV.

Other circumstances also contribute to the heavy impact of viral hepatitis on IDUs:

- IDUs are at very high risk of coinfection with HIV and HCV.
- Many IDUs drink alcohol, which damages the liver and accelerates the progression of liver disease.
- HAV infection can be severe and very dangerous in those who already have liver disease from chronic hepatitis B or chronic hepatitis C.
- Treatment of chronic hepatitis B or chronic hepatitis C can be complicated and adherence difficult for infected IDUs because many have other conditions (HIV, mental illness, alcoholism, other illnesses), are poor, and have unstable living situations. The stigma surrounding injecting drugs

also means that many IDUs are marginalized and have little or no contact with health care providers.

Agencies and Providers Face a Number of Pressing Issues in their Efforts to Address Viral Hepatitis

In many ways, the current challenges of viral hepatitis, especially hepatitis B and hepatitis C, resemble those of HIV in the late 1980s and early 1990s.

Awareness of viral hepatitis as an important public health issue is growing, but agencies, providers, community-based organizations, and others who work with those at risk must address several key issues:

- **Prevention.** Viral hepatitis is not inevitable for IDUs and others at risk. All three strains of viral hepatitis can be prevented. HAV and HBV infections can be prevented through immunization. All IDUs should be immunized against HAV and HBV infections unless they have already had the infection. Reducing or eliminating high-risk sexual and drug-use behaviors can help prevent HAV, HBV, and HCV infections. Substance abuse treatment is an important way to help IDUs reduce or eliminate drug use.
- **Transmission.** Because symptoms of viral hepatitis are often mild or non-existent, many people do not know they're infected. This means that a very large pool of individuals with chronic HBV and HCV infections may not be using any measures to reduce the possibility of transmitting these infections to others.
- **Treatment.** Antiviral therapies for chronic hepatitis B and chronic hepatitis C are expensive, only moderately effective, and not appropriate for everyone infected with these viruses. Determining whether to begin treatment, and monitoring and adjusting treatment over time for those who do begin antiviral therapy can be difficult.

- **Capacity.** Currently, public health agencies, community-based organizations, and health care professionals are limited in their ability to respond to needs in viral hepatitis. For example, fewer than half of state and local public health laboratories are able to perform tests to determine HCV infection. Many health care facilities (such as emergency rooms) that treat IDUs and others at increased risk do not routinely provide immunizations against hepatitis A and hepatitis B. In addition, primary care physicians may not have the training or expertise to diagnose or medically manage chronic hepatitis B or chronic hepatitis C. Staff of HIV and sexually transmitted disease (STD) clinics, substance abuse treatment programs, and correctional facilities have limited training and expertise in viral hepatitis issues.
- **Education.** The need to educate, train, and reach the general public, groups at increased risk, and health care professionals is enormous. This effort needs to:
 - > improve the understanding of viral hepatitis and its risk factors so that individuals can reduce their chances of acquiring or transmitting the infections and providers can better serve infected and at-risk individuals;
 - > encourage high-risk groups to be tested for HCV infection, receive pre- and post-test counseling, and receive medical treatment if appropriate;
 - > improve hepatitis A and hepatitis B immunization rates by encouraging high-risk groups to get vaccinated;
 - > integrate viral hepatitis prevention messages and interventions into existing HIV, STD, substance abuse treatment, and criminal justice initiatives; and
 - > work to reduce bias and stigma toward groups at increased risk of infection.

The National Hepatitis C Prevention Strategy is One Key Response

In 2001, in collaboration with other federal, state, and private sector agencies, the Centers for Disease Control and Prevention (CDC) launched the National Hepatitis C Prevention Strategy. This effort is aimed at lowering the incidence of acute HCV infections in the U.S. and reducing the disease burden from chronic hepatitis C. The principal components of this effort are:

- education of health care and public health professionals;
- education of the public and individuals at increased risk of infection;
- clinical and public health activities to identify, counsel, and test persons at risk and to improve medical evaluations and referrals to care;
- outreach and community-based prevention programs;
- surveillance to monitor viral hepatitis trends; and
- research.

For more information about the Strategy, visit: http://www.cdc.gov/ncidod/diseases/hepatitis/spotlights/c_strategy.htm

To Learn More About This Topic

Visit websites of the CDC (www.cdc.gov/idu) and the Academy for Educational Development (www.healthstrategies.org/pubs/publications.htm) for these and related materials:

- *Preventing Blood-borne Infections Among Injection Drug Users: A Comprehensive Approach*, which provides extensive background information on HIV and viral hepatitis infection in IDUs and the legal, social, and policy environment, and describes strategies and principles of a comprehensive approach to addressing these issues.

- *Interventions to Increase IDUs' Access to Sterile Syringes*, a series of six fact sheets.
- *Drug Use, HIV, and the Criminal Justice System*, a series of eight fact sheets.
- *Substance Abuse Treatment and Injection Drug Users*, a series of six fact sheets.

Visit the CDC's **Viral Hepatitis website** (www.cdc.gov/hepatitis) for information materials and on-line training for health professionals.

Visit these websites for additional information on viral hepatitis:

- The American Liver Foundation: www.liverfoundation.org/
- The National Institute of Diabetes & Digestive & Kidney Diseases: www.niddk.nih.gov/health/digest/pubs/hep/index.htm
- Hepatitis Foundation International: www.hepfi.org/
- Hepatitis C Support Project: www.hcvadvocate.org/
- National AIDS Treatment Advocacy Project: www.natap.org/

Check out these sources of information:

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Through the Academy for Educational Development (AED), IDU-related technical assistance is available to health departments funded by CDC to conduct HIV prevention and to HIV prevention community planning groups (CPGs). For more information, contact your CDC HIV prevention project officer at (404) 639-5230 or AED at (202) 884-8952.