Indiana Strategic Plan for the Prevention, Care, and Elimination of Viral Hepatitis

Indiana Viral Hepatitis Advisory Council

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Executive Summary

Executive Summary

The Indiana Strategic Plan for the Prevention, Care, and Elimination of Viral Hepatitis serves as a guide toward action for our state. This plan reflects what is possible at the local and state level when adequate resources are available. To date, 1 in 12 individuals worldwide are living with viral hepatitis with approximately 4 million of those individuals living in the United States. These figures continue to grow every day, which emphasizes the importance of this plan.

The mission of the Indiana Viral Hepatitis Advisory Council (IVHAC) is the following:

> ***To reduce the burden of viral hepatitis and its complications among Indiana citizens.***
>
> ***To decrease viral hepatitis transmission and its complications among Indiana citizens through surveillance, education, prevention, and disease management.***

In order to complete our mission, Hoosiers need to realize the resources required to achieve the goals of this plan and seek out those resources. Resources will be needed in the form of time, effort, and funding to carry the plan through the implementation and evaluation phases. Releasing the plan is only the beginning.

We hope readers of this document will use it to educate themselves and their communities about viral hepatitis and to form partnerships to promote the prevention, care, and eradication of these diseases. The following is a comprehensive and important first step towards eliminating viral hepatitis in Indiana. It is the sincere hope of the IVHAC, and the thousands of Indiana citizens living with or affected by viral hepatitis, that this document is a valuable tool to our state.

Glossary of Acronyms

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317 Funds – Federal funds allocated for providing adult vaccinations.

ACIP – Advisory Committee on Immunization Practices

Anti-HAV IgM—hepatitis A immunoglobulin M antibody

Anti-HBc IgM—hepatitis B immunoglobulin M core antibody

Anti-HCV EIA—hepatitis C antibody enzyme immunoassay

APIC—Association of Professionals in Infection Control and Epidemiology

AVHPC – Adult Viral Hepatitis Prevention Coordinator

CBO – Community Based Organization

CDC – Centers for Disease Control and Prevention

CDR – Confidentiality in Reporting of Communicable Diseases

CDRR - 410 IAC 1 – 2.3– Communicable Disease Reporting Rule

CHC – Community Health Center

CHIRP—Children and Hoosier Immunization Registry Program

CLIA—Clinical Laboratory Improvement Amendment (1988)

CSTE - Council for State and Territorial Epidemiologists

DOC – Department of Correction

DOE – Department of Education

ERC – Epidemiology Resource Center

Harm reduction kits – Kits containing materials used in the prevention of the spread of disease. Kits generally include; condoms and lubricant or a "clean" bottle, bleach, bandages, sterile

water, tourniquet, bottle cap or “cooker”, cotton balls, alcohol swabs, and information about safe use of items.

HAV – Hepatitis A virus

HBIG—Hepatitis B Immune Globulin

HBsAg – Hepatitis B surface Antigen

HBV – Hepatitis B virus

HCF – Health Care Facility

HCP – Health Care Provider

HCV - Hepatitis C virus

HDV - Hepatitis D virus

HEV - Hepatitis E virus

HIV – Human Immunodeficiency Virus

IDU – Intravenous drug user

IgG – Immune globulin G

IgM - Immune globulin M

IHAN – Indiana Health Alert Network

I-NEDSS – Indiana National Electronic Disease Surveillance System

ISDH – Indiana State Department of Health

LHD - Local Health Department

MMWR – Morbidity and Mortality Weekly Report

MSM – Men who have sex with men

NASTAD – National Alliance of State and Territorial AIDS Directors

NETSS - National Electronic Telecommunication System

NPO – Non-profit organization

PCR – Polymerase chain reaction

PHB – Perinatal Hepatitis B

RIBA—Recombinant Immunoblot Assay

SID - Surveillance and Investigation Division

STARLIMS – Laboratory Information Management System utilized by the ISDH lab.

STD – Sexually transmitted disease

VA – Veterans' Affairs

VFC – Vaccines for Children Program

VIS – Vaccine Information Sheet

Overview of Viral Hepatitis

Viral Hepatitis an Introduction

Hepatitis, or inflammation of the liver, can be caused by several very different viruses. Symptoms of hepatitis are universal, regardless if caused by an infectious agent or chronic condition, and can include fatigue, anorexia, abdominal pain, fever, diarrhea, vomiting, jaundice, dark urine, and pale clay-colored stools. The mode of transmission, communicability, and incubation period differ greatly with the type of virus.

In the United States, hepatitis A, B, and C are the most common viruses that cause hepatitis and are of great public health significance. Hepatitis A is an acute disease with little to no sequelae but with outbreak capacity. However, hepatitis B and C disease can have a carrier state or become chronic, leading to life-threatening liver conditions.

All hepatitis viruses are reportable in Indiana according to the Communicable Disease Reporting Rule for Physicians, Hospitals, and Laboratories 410 IAC 1-2.3, October 11, 2000. Hepatitis vaccination requirements are in accordance to the 410 IAC 1-1. Vaccination recommendations are published by the Advisory Committee on Immunization Practices (ACIP).

Hepatitis A

Introduction:

Hepatitis A is an acute viral disease of the liver that is transmitted through the fecal-oral route. The virus is excreted in the stool of an infected person and can be passed person-to-person or through contaminated food and water. Hepatitis A rarely causes long-term liver damage or death.

The hepatitis A virus (HAV) is highly contagious and spreads more easily spread in situations where there are poor sanitary conditions, a lack of good personal hygiene, or contact with fecal material, such as in facilities with diapered children or adults. Outbreaks have occurred due to food contaminated by infected food handlers, contaminated water, raw or undercooked shellfish harvested from contaminated waters, contaminated produce, and infected children in day care settings. Very rarely, the hepatitis A virus can be transmitted through blood during viremia, making injection drug users at high risk. Casual contact, as in the usual workplace or school setting, does not spread the virus. However, most cases of hepatitis A have

an unknown exposure, because the time from exposure to the time symptoms begin can be long (range of 15-50 days).

Symptoms of hepatitis A occur suddenly, begin 28-30 days (range of 15-50 days) after exposure, and usually last less than 2 months. The most contagious period is from about 1 week before symptoms begin until 2 weeks after. Some people, especially children, may have no symptoms but can still spread the virus to others. There is no sequalae or long-term carrier state associated with hepatitis A, but sometimes a person can relapse for as long as 12 months.

Death from hepatitis A is rare, 0.1-0.3 %, and is more common in adults over 50. Testing for hepatitis A should not be used for screening purposes as there is no chronic disease and there is a possibility for false-positive hepatitis A IgM laboratory results.

Public Health Significance:

There is no treatment for hepatitis A other than symptom management. People who have had hepatitis A develop lifelong immunity, but effective prevention is available. The hepatitis A 2-dose vaccination series is 100% effective and will provide lifelong protection. Vaccination is recommended by the ACIP for the following high risk populations:

- Children aged 12-23 months
- Children from 24 months to 18 years where older age groups are targeted
- Injection and non-injection drug users
- Men who have Sex with Men (MSM)
- Persons traveling to or working in countries with high to moderate endemicity
- Persons with chronic liver disease
- Persons with clotting factor disorders
- Persons working with HAV infected nonhuman primates or a HAV research laboratory
- Any other person seeking protection from HAV infection

Within 2 weeks of exposure to the HAV, persons can receive post-exposure prophylaxis (PEP) in the form of immune globulin (IG) or the hepatitis A vaccine. IG is 80-90% effective during the 2-week time frame from exposure and provides protection for about 3 months. PPE has not been determined to be effective if given more than 2 weeks following exposure. Persons

recommended for PEP include household members, sexual partners, or day care attendees of infected cases.

The Indiana State Department of Health (ISDH) provides PEP for those recommended contacts of infected cases. The ISDH stockpiles thousands of doses of IG for a mass prophylaxis event, but does not yet carry hepatitis A vaccine. IG costs roughly $22 per dose and can be difficult to obtain in large quantities due to low production levels. In 2006, an unvaccinated Allen County food handler developed hepatitis A after recent international travel. The mass PEP event in Allen County is one example of the costs associated with a hepatitis A infected food handler. The Allen County Health Department (ACHD) and the ISDH put a mass prophylaxis plan into action within 24 hours of notification. The ACHD provided 4,077 does of IG to patrons of the restaurant over a 1 week period. The approximate costs of the PEP event totaled $22,335 for Allen County and $89,694 for the ISDH (IG only).

Hepatitis A can be prevented by learning more about traveling to endemic areas, practicing good hand hygiene, washing all raw produce prior to consumption, not consuming raw shellfish, and drinking only treated water. If a person has symptoms of diarrhea, vomiting, and/or jaundice, they should not prepare food and should avoid contact with others (particularly in day care, health care, food handling, and untreated water settings).

Surveillance:

Hepatitis A cases have declined since the simultaneous peak use and licensure of the hepatitis A vaccine in 1995. According to the MMWR on Surveillance for Acute Viral Hepatitis - 2006, a total of 3,579 acute symptomatic cases were reported, with a national incidence of 1.2 per 100,000 populations. Once asymptomatic cases and the effect of underreporting are factored in, it is estimated there were 32,000 acute infections in 2006. Due to childhood vaccination, the rates of hepatitis A have dropped to the lowest rates on record for children aged <5 years. Hepatitis A continues to be a public health concern among MSM, with a male to female ratio of 1.18:1.

The current legislation restricts individuals from participation in high risk settings during the infectious period of hepatitis A. Currently the ISDH does not require hepatitis A vaccination for day care facilities, schools, or other high risk groups.

In Indiana, the 10-year trend of hepatitis A decreased from 329 cases in 1997 to 33 cases in 2006. Many cases have unknown exposures, while some reported traveling internationally. In 2007, Indiana suffered its first outbreak of hepatitis A in an elementary school, with 5 children becoming ill nearly one month after the index case. Children of this age were not recommended for PEP according to the CDC.

Hepatitis B

Introduction:

Hepatitis B is a serious viral disease of the liver transmitted through parenteral or mucosal exposure to the blood or body fluids (semen, vaginal secretions, and saliva) of an infected person. The incubation period of hepatitis B virus ranges from 6 weeks to 6 months, with average of 120 days. The variation is related to the amount of virus, the mode of transmission and host factors. The hepatitis B virus is 100 times more infectious than HIV. All persons who are HBsAg positive are potentially infectious. Transmission of hepatitis B virus occurs through sexual or household contact with an infected person, injection drug use, perinatal transmission from mother to infant, and nosocomial exposure.

Acute hepatitis B illness is characterized by nausea, anorexia, fever, malaise, headache, myalgia, right upper quadrant abdominal pain, dark urine, skin rash and jaundice. Approximately 50% of adults with acute infection are asymptomatic. Persons with chronic infection are often asymptomatic as well, and because they were not aware they are infected, they are thus capable of infecting others.

Most adult acute hepatitis B infection results in complete recovery, eliminating the HBsAg from the blood and immunity from future infection by producing anti-HBs. Chronic infection is associated with an increased risk for chronic liver disease, cirrhosis, liver failure, hepatocellular carcinoma, and death.

There is no specific treatment of acute hepatitis B infection other than supportive. Chronic hepatitis B is treatable with medication. While these treatments do not provide a complete cure, they do reduce hepatitis B viral replication and the risk of progression to serious liver damage.

Immunization with hepatitis B vaccine is the most effective means of preventing hepatitis B infection and its consequences.

Public Health Significance:

In 1991, the CDC published Hepatitis B Virus a Comprehensive Strategy for eliminating transmission in the United States through universal childhood vaccination. These were recommendations of the Advisory Committee on Immunization Practices (ACIP). The strategy includes: universal vaccination of infants beginning at birth, routine screening of all pregnant women for hepatitis B infection and immunoprophylaxis to infants born to infected women or women of unknown status, routine vaccination of previously unvaccinated children and adolescents, and the vaccination of high- risk adults. ACIP updated strategies on December 23, 2005 and December 8, 2006.

After three intramuscular doses of hepatitis B vaccine, more than 90% of healthy adults and more than 95% of infants, children, and adolescents will develop adequate antibody responses. The dosage of vaccine varies dependent on the age of the recipient and type of vaccine.

Post-exposure prophylaxis with hepatitis B vaccine may be started at the same time as treatment with hepatitis B immune globulin (HBIG). Indications for prophylaxis may include: infants born to HBsAg positive mothers, women whose HBsAg status is unknown at delivery, sexual contacts of persons with acute infection, household contacts of persons with acute infection, and after percutaneous or mucous membrane exposure. Management of the exposed person depends on the HBsAg status of the source, the vaccination and anti-HBs response status of the exposed person.

Risk for hepatitis B infection varies with occupation, lifestyle, or environment where there is contact with blood from infected persons. Populations at high risk for hepatitis B infection include: immigrants from areas with endemic rates, institutionalized developmentally disabled, illicit parenteral drug users, homosexually active men, hemodialysis patients, and household contacts. Intermediate risk includes: incarcerated individuals, health care workers, staff for the developmentally disabled, and heterosexuals with multiple partners.

On September 19, 2008, the CDC published "Recommendations for Identification and Public Health Management of Persons with Chronic Hepatitis B Virus Infection". This document updates and expands previous CDC guidelines for HBsAg testing and includes new recommendations for public health evaluation and management of those chronically infected and their contacts.

Surveillance:

The following is the CDC surveillance for acute hepatitis B in the United States for 2006: a total of 4,713 acute cases were reported, 77% exhibited jaundice, 40% were hospitalized, and 0.8% resulted in death. The overall incidence (1.6 cases per 100,000 populations) was the lowest ever reported, representing a decline of 81% since 1990. Rates declined in all age groups, with the highest rate reported in persons aged 25-44 years and the lowest among persons aged <15 years. The rate for males (2.0 cases per 100,000 populations) continued higher than for females (1.1 cases per 100,000 populations). All racial/ethnic population rates continue to decline with the highest rate reported for non-Hispanic blacks (2.3 cases per 100,000 populations). One third acute hepatitis B cases reported at least one sexual risk factor (8% sexual contact with person known to have hepatitis B, 34% multiple sex partners, and 15% MSM). Since 2001, the number of cases reporting sexual risk or intravenous drug users (IDU) has increased and transmission attributed to blood transfusions or dialysis has declined. In 2006, there were 80 confirmed cases of acute hepatitis B in Indiana and no cases resulted in death.

Hepatitis C

Introduction:

Hepatitis C is the leading chronic bloodborne infection in the United States. The incubation period for hepatitis C ranges from 2 weeks to 6 months with an average of 6-9 weeks. The hepatitis C virus (HCV) is transmitted by exposure to blood or body fluids. Transmission is highest among IV drug users, combat veterans and health care workers. Chronic carriers are normally asymptomatic.

Clinically defined cases of acute hepatitis C do not often occur. Eighty-five percent of infected individuals will be asymptomatic for decades. Twenty percent of cases will develop serious liver damage such as cirrhosis from hepatitis C, and 5% of those will develop liver

cancer. HCV infection is the number one cause of all liver transplants. Approximately, 8,000-10,000 people die each year as a result of complications from hepatitis C.

Public Health Significance:

Reducing the burden of HCV infection and HCV-related disease in the United States requires implementation of primary prevention activities that reduce risks for contracting HCV infection and secondary prevention activities that reduce risks for liver and other chronic diseases in HCV-infected persons. In addition, surveillance and evaluation activities are required to determine the effectiveness of prevention programs in reducing incidence of disease, identifying persons infected with HCV, providing appropriate medical follow-up, and promoting healthy lifestyles and behaviors.

Primary prevention activities can reduce or eliminate potential risk for HCV transmission from a) blood, blood components, and plasma derivatives; b) such high-risk activities as injecting-drug use and sex with multiple partners; and c) percutaneous exposures to blood in health care and other settings (i.e., tattooing and body piercing). Immunization against HCV is not available; therefore, identifying persons at risk but not infected with HCV provides opportunity for counseling on how to reduce their risk for becoming infected. People who test positive for hepatitis C are recommended to get the hepatitis A and B vaccines. Recommended standard treatment for hepatitis C is ribavarin combined with interferon treatment.

Surveillance:

Nationally, surveillance for HCV-related chronic liver disease can provide information to measure the burden of disease, determine natural history and risk factors, and evaluate the effect of therapeutic and prevention measures on incidence and severity of disease. Until recently, no such surveillance existed, but a newly established sentinel surveillance pilot program for physician-diagnosed chronic liver disease will provide baseline data and a template for a comprehensive sentinel surveillance system for chronic liver disease. As the primary source of data regarding the incidence and natural history of chronic liver disease, this network will be pivotal for monitoring the effects of education, counseling, other prevention programs, and newly developed therapies on the burden of the disease.

Indiana has been conducting surveillance on acute and chronic cases of hepatitis C that were lab reported since the latter part of 1997. On October 11, 2000, mandatory reporting of HCV results by laboratories took effect. In 2006, risk factor data collection began through voluntary investigations. This has given Indiana an idea of the burden of what population groups are at risk and risk factors that are most responsible for the disease in Indiana. The investigation of chronic cases is voluntary in Indiana due to lack of funding. Hepatitis C epidemiology would benefit from funding for staffing resources of state and local jurisdictions.

The total acute and chronic reports of HCV for the 5 year period, 2002-2006, were 27,578. Efforts were made in 2005 and 2006 to reduce the number of duplicated reports counted as cases. In 2005, there were 5,370 reported cases of hepatitis C in Indiana with 75 Indiana counties reporting at least one case of hepatitis C. This was a rate of 85.62 cases per 100,000 populations. There was a decrease in hepatitis C reported cases in 2006 with a total of 4,723, with 3 acute cases.

Indiana Viral Hepatitis Action Committee

A Collaborative Action Plan

History and Process

In 2006, Indiana State Health Commissioner, Judy Monroe, M.D., collaborated with a number of partner agencies and community organizations to convene what would be known as the Indiana Viral Hepatitis Advisory Council or IVHAC in response to the estimated one in twelve people worldwide living with viral hepatitis. The IVHAC membership was represented by a diverse group of professionals from around the state committed to eliminating viral hepatitis through education, prevention, and care of those living with these diseases. Documents that guided the IVHAC process include: the Iowa Department of Public Health Viral Hepatitis Plan 2004, Wisconsin Hepatitis Strategic Plan 2003, Eliminating Hepatitis: A Call to Action April 2006, National Viral Hepatitis Roundtable Plan to Eliminate Viral Hepatitis, and Raising the Profile, Raising Your Voice: A Primer on Viral Hepatitis Policy Making and Programs at the Federal Level, National Alliance of State and Territorial AIDS Directors (NASTAD) May 2007. Early in the process, the Council established the following mission and vision statement to guide them throughout the strategic planning process:

To reduce the burden of viral hepatitis and its complications among Indiana citizens.

To decrease viral hepatitis transmission and its complications in Indiana citizens surveillance, education, prevention, and disease management.

The IVHAC met bi-monthly with early meetings dedicated to educating the membership about viral hepatitis and the strategic planning process. Later meetings focused on completion of the strategic plan. Training the council received included: a comprehensive overview of viral hepatitis A, B,C, D, and E, goals of the Indiana Perinatal Hepatitis B and Adult Viral Hepatitis Prevention Programs, current recommendations for scheduling, cost, current funding, and other factors associated with hepatitis B and C immunizations, information about needle/syringe exchange, Department of Correction policies around viral hepatitis, viral hepatitis treatment, the roles of public health and medicine in the prevention and treatment of viral hepatitis, and an introduction to Gastroenterology and Hepatology. The IVHAC membership utilized this training, the most current epidemiological data, and completed plans from other states to draft a framework and construct a strategic plan addressing the unique and evolving needs of the citizens of Indiana.

The following plan provides a comprehensive and important first step towards eliminating viral hepatitis in our state, our nation, and the world. It is the sincere hope of the IVHAC and the thousands of Indiana citizens living with or affected by viral hepatitis that the reader takes this document and uses it as a tool to educate themselves and the public about viral hepatitis and to facilitate partnerships for the purpose of providing for the prevention, care, and eradication of the viral hepatidites.

The plan is presented through the division of four principles. Each principle is then condensed into goals, then objectives, and finally action items. The four principles of the plan are; I.) Surveillance, II.) Prevention & Education, III.) Comprehensive Care, IV.) Grants, Legislation, and Policy Development.

- **Principle 1: Surveillance**

  Goal 1: Maintain surveillance of acute viral hepatitis cases.

  - *Objective 1*: The Surveillance and Investigation Division (SID) will analyze reported cases of viral hepatitis according to Council for State and Territorial Epidemiologists (CSTE) approved case definitions.
    - Action Items:
      1. All confirmed acute reports shall be submitted electronically to the Centers for Disease Control and Prevention (CDC) via the National Electronic Telecommunications System (NETSS) and will transition into Indiana National Electronic Disease Surveillance System (I-NEDSS) which includes all required data.
      2. Surveillance shall detect outbreaks.
      3. Surveillance shall identify the need of postexposure prophylaxis.
      4. Risks factors shall be analyzed annually.
  - *Objective 2*: The confirmed viral hepatitis cases reported shall be compiled in an annual report by the SID.
    - Action Items:
      1. Surveillance data shall provide information regarding trends in the incidence.
      2. The SID will provide surveillance data to the Adult Viral Hepatitis Prevention Coordinator (AVHPC) for the development of prevention strategies.
  - *Objective 3*: Post the SID annual viral hepatitis report on the Indiana State Department of Health (ISDH) web site.

- Action Item:
    1. Report shall be made available to health care providers (HCPs), policymakers, and Indiana residents.

Goal 2: Improve the quality, accuracy, and the timeliness of acute viral hepatitis reporting.

- *Objective 1:* The SID shall educate local health departments (LHDs) regarding case definitions for acute and chronic viral hepatitis infections.
    - Action Items:
        1. Reference the Communicable Disease Reporting Rule 410 IAC 1-2.3 regarding clinical and laboratory criteria required for specific diagnosis of viral hepatitis.
        2. The SID shall provide LHDs with the "Epi Reference Manual for Disease Investigations" detailing investigative methods for viral hepatitis.
        3. Incorporate reporting procedures and interpretation of hepatitis laboratory results in newsletters and other educational materials available to HCPs.
- *Objective 2:* LHDs shall inform HCPs of serology markers indicating viral hepatitis results referenced by the CDC case definitions and 410 IAC 1-2.3.
    - Action Items:
        1. LHDs shall encourage reporting on ISDH Confidential Report of Communicable Diseases (CDRs) by HCPs for each reportable hepatitis lab marker.
        2. LHDs shall educate HCPs on non-reportable lab markers.
        3. LHDs shall communicate with HCPs the importance of ordering correct laboratory tests.
- *Objective 3:* Increase laboratory reporting of positive viral hepatitis test results to ISDH according to 410 IAC 1-2.3.
    - Action Items:

1. The SID shall educate laboratories on the importance and necessity of the reporting requirements in the 410 IAC 1-2.3.
2. The SID shall increase laboratory compliance by requiring demographic fields for submission to ISDH laboratories through the Indiana State Laboratory, laboratory information management system (STARLIMS) and I-NEDSS.

- *Objective 4:* Enhance the ISDH CDR form and all of the viral hepatitis case investigation forms upon implementation of I-NEDSS.
    - Action Item:
        1. Promote significant involvement between all partners during piloting and testing phase allowing I-NEDSS team to implement suggested improvements to final product.
- *Objective 5*: Increase the reporting and investigating of viral hepatitis cases to ISDH from correctional facilities.
    - Action Items:
        1. Enhance the ISDH laboratory submission form required for submission to STARLIMS.
        2. Encourage correctional facilities to conduct passive surveillance to control the spread of viral hepatitis.

<u>Goal 3:</u> Increase the identification of chronic hepatitis B and C cases.

- *Objective 1*: Encourage the voluntary reporting of chronic hepatitis C cases and mandatory reporting of acute hepatitis C cases.
    - Action Items:
        1. The Hepatitis C Epidemiologist shall conduct regional education.
        2. The ISDH Labs shall report hepatitis C total tested from correctional facilities so an estimated burden of disease can be calculated.

- *Objective 2:* Encourage HCP reporting of chronic hepatitis B cases.
    - Action Item:
        1. Surveillance for chronic disease is needed to identify the burden of chronic viral hepatitis B infections.

Goal 4: Improve communication between ISDH program areas SID, HIV and PHB.

- *Objective 1:* SID to communicate HBsAg positive results of pregnant and or child-bearing age females to the perinatal hepatitis B (PHB) program.
    - Action Item:
        1. SID to develop protocol for notification among program areas.
- *Objective 2:* Human Immunodeficiency Virus (HIV) to communicate co-infections of hepatitis B and C to SID.
    - Action Item:
        1. HIV to develop protocol for notification among program areas.

Principle 2: Prevention and Education

Goal 1: Increase knowledge and awareness of prevention, testing, and care of viral hepatitis among Indiana residents.

- *Objective 1*: Develop and disperse educational and training programs from state and local health departments regarding viral hepatitis disease, risk factors, and disease management.
    - Action Items:
        1. Provide education and training opportunities for HCPs on the necessity of hepatitis screening, interpretation of tests, referrals to specialists, and vaccination among high risk populations.
        2. Educate social workers and health care personnel to assist patients and their family members to cope during care and treatment of viral hepatitis therefore, reducing the stigma of persons diagnosed with hepatitis B and C.

3. Provide education and training opportunities for school nurses through the Indiana Department of Education (DOE) so Indiana children can be educated in all grade levels on high risk behaviors.
4. Post cases studies for education and training to HCPs on the web, regarding disease management and treatment for chronic hepatitis.

- *Objective 2:* Develop culturally sensitive and age-appropriate educational information about viral hepatitis disease, risk factors, and management.
    - Action Items:
        1. Provide quick fact sheets containing concise information and guidance on the ISDH web site, at community health events, and through additional venues as identified.
        2. Focus on peer education for adolescents and young adults (19-25 age group is high risk population for hepatitis C) www.hepcchallenge.org .
        3. Encourage the DOEs bloodborne pathogen curriculum in schools.

Objective 3: Collaborate between ISDH, LHDs, Indiana Chapter of the American Liver Foundation and community organizations to develop statewide educational events.

- Action Item:
    1. Issue media releases and ISDH Web site announcements regarding viral hepatitis events.
        - Hepatitis Prevention Awareness month (May).
        - Annual Indiana HepFest.
        - World Hepatitis Awareness day (May 19th).
        - Regional viral hepatitis awareness and education events.
        - Prescription of the month (by ISDH State Health Commissioner).

- *Objective 4*: Maintain open communication with research entities regarding development of new treatments and vaccinations.
    - Action Item:
        1. Invite the research entities to the annual Hepatitis Summit.

Goal 2: Increase awareness about viral hepatitis among high risk groups with the use of educational opportunities and materials.

Healthy People 2010, CDC, and the ISDH have identified the following groups as most at risk of becoming infected with hepatitis B and/or hepatitis C: injection drug users (IDUs), men who have sex with men (MSMs), persons with a current sexually transmitted disease (STD), persons with multiple sex partners, long-term hemodialysis patients, incarcerated persons, and household and sexual partners of infected persons.

- *Objective 1*: The AVHPC will work with internal and external partners to provide and develop as needed, age–specific, culturally appropriate viral hepatitis prevention information materials and training and education opportunities targeted to high risk individuals through a variety of settings.
    - Action Items:
        1. Identify partners serving individuals at high risk and establish a method of information distribution appropriate to each at risk population.
        2. The AVHPC will participate in health fairs and community events targeted to high risk and the general population.

Goal 3: Provide education programs for food handlers regarding risks of transmission and prevention of hepatitis A, including the benefit of vaccination.

- *Objective 1*: Provide food safety awareness, education, and training to food service staff, students, faculty, and parents including effective hand washing practices.
    - Action Items:

1. Identify partners who provide culinary education and collaborate to provide ongoing education regarding food safety and effective hand washing practices.
2. Provide the ISDH Retail Food Code regarding symptomatic food handlers and a Hepatitis A Fact Sheet to entities applying for a liquor license.
   www.in.gov/isdh/21367.htm
3. Create a presentation available to educate food handlers on HAV infection and associated prevention measures.
4. Collaborate with the Restaurant and Hospitality Association of Indiana (ServSafe and Education First) during training of certified food handlers.
   www.indianarestaurants.org/
5. Cooperate with additional trade association and training organizations in their efforts with the certification of food handlers listed at;
   http://www.in.gov/isdh/21375.htm
6. Determine if hepatitis A vaccination of food handlers is cost effective in Indiana.

Goal 4: Maintain or decrease the Indiana incidence of acute hepatitis A and B cases through immunization.

- *Objective 1*: Continue and enhance the availability of the Vaccines for Children (VFC) Program and the 317 Immunization grant program.
  - Action Item:
    1. Identify state funding sources to support immunization services.
- *Objective 2*: Incorporate hepatitis A and B immunizations for Indiana residents diagnosed with hepatitis C infection as a standard of care.
  - Action Item:

1. Provide education and training to health care providers around the benefits and risks associated with incorporating hepatitis A and B vaccinations into the standard of care of those living with hepatitis C infection.

- *Objective 3*: The ISDH will develop adult immunization policies and prioritize sites to incorporate hepatitis A and B immunizations in existing programs.
    - Action Items:
        1. Identify state funding sources to support immunization services.
        2. The Immunization Program will continue to supply federal and state purchased vaccine to those enrolled in VFC and 317 programs.
- *Objective 4*: Encourage the use of the Children and Hoosiers Immunization Registry Program (CHIRP) among HCPs to record and track hepatitis A and B immunizations.
    - Action Items;
        1. Educate HCPs to the benefits of utilizing the CHIRP system to track immunizations for all patients.
        2. Require public sector sites that receive vaccine from the ISDH Immunization Program to use CHIRP to record and track patient immunizations.

Goal 5*:* Maintain the AVHPC position and Adult Viral Hepatitis Prevention Program at ISDH to enhance viral hepatitis prevention and control activities.

- *Objective 1*: Maintain federal funding.
    - Action Items:
        1. Complete federal interim and annual progress reports as indicated.

2. Complete all other federal applications for funding as indicated.

- *Objective 2*: Establish state funding supporting the Adult Viral Hepatitis Prevention Program.
    - Action Items:
        1. Support the establishment of a state line item funding viral hepatitis prevention.
        2. Support legislation for the establishment of a state line item funding viral hepatitis prevention.
        3. Provide ongoing support for maintaining state funding for viral hepatitis prevention.
- *Objective 3*: Investigate and apply for grants and other funding opportunities supporting viral hepatitis prevention.
    - Action Item:
        1. ISDH viral hepatitis staff will investigate and apply for all appropriate funds supporting viral hepatitis prevention.

Goal 6: Support HIV/AIDS, STD, substance abuse, mental health, correctional, and primary care facilities in identifying and offering counseling and testing for HBV and HCV to Indiana residents.

- *Objective 1*: Establish and enhance current training and education opportunities for providers of HIV/AIDS, STD, substance abuse, mental health, correction, and primary care facilities in identifying and offering HBV and HCV counseling and testing to Indiana residents.
    - Action Items:
        1. Establish and enhance partnerships with entities with the ability to provide counseling and testing for HBV and HCV.

2. Require and provide training and education to partners around integrating viral hepatitis counseling and testing and serology interpretation into current practices.
3. Monitor partners offering counseling and testing of viral hepatitis to ensure quality and appropriateness of testing.

Goal 7: Establish a needle exchange and disposal programs to reduce viral hepatitis and other bloodborne, illness causing pathogens.

- *Objective 1:* The ISDH HIV/STD/Viral Hepatitis program will identify and partner with stakeholders in support of needle exchange and disposal programs.
    - Action Items:
        1. Coordination of a comprehensive and concise message around needle exchange and disposal programs.
        2. The partners/stakeholders will educate state policy makers with scientifically established research that indicate that needle exchange and disposal program are effective.

Goal 8: Early prevention of infant and childhood acquisition of HBV.

- *Objective 1:* Test all pregnant females for hepatitis B surface antigen HBsAg before delivery.
    - Action Items:
        1. Test once during the 1st trimester and test high risk women again in the 3rd trimester with every pregnancy.
        2. Educate HCPs regarding the current CDC guidelines for management for perinatal hepatitis B.
        3. Ensure the public health case management regarding HBsAg positive pregnant female is conducted.
- *Objective 2:* Administer HBIG at birth to infants born to HBsAg positive mothers.

- Action Items:
    1. Ensure HCF policies and HCPs standing orders require administration of HBIG and 1st dose of hepatitis B vaccine.
    2. Encourage HCF policies to include quality control for HCPs that do not follow the recommended guidelines.

- *Objective 3:* Ensure all newborns receive the first dose of hepatitis B vaccine before hospital discharge.
    - Action Items:
        1. Ensure HCF policies and HCPs standing orders require administration of 1st dose of hepatitis B vaccine to all newborns, regardless of the mother's status.
        2. Document the vaccination in the medical record and Indiana immunization registry, if available.
        3. Remind HCPs to provide vaccine information sheet (VIS) on hepatitis B and document the distribution.
        4. The hospital shall provide the vaccination record upon release.
- *Objective 4:* Ensure sharing of vaccination information between HCPs and care givers to ensure the infant completes the hepatitis B immunization series.
    - Action Items:
        1. The HCF shall enter the birth dose and the HCP shall enter each additional dose into CHIRP.
        2. HCP will update the vaccination record and provide to the care givers at each dose.
        3. Educate the care givers of timely completion of the vaccination series.

- **Principle 3: Comprehensive Care**
    - <u>Goal 1:</u> Advocate for comprehensive preventative medical services among Indiana residents infected with viral hepatitis.

- *Objective 1:* Integrate viral hepatitis prevention activities into existing public health programs (HIV/AIDS, STD, TB, Immunizations, and Refugee).
    - Action Items:
        1. Identify partnerships between private care and public health.
        2. Advocate for care coordination and services among all populations in need to reduce complications among cases of chronic viral hepatitis.
        3. Integration of immunization and testing in health care facilities (HCFs).
        4. Maintain and disseminate the ISDH Viral Hepatitis Manual.
        5. Provide Hepatitis B and C treatment for the indigent or without health insurance.
- *Objective 2:* Support harm reduction activities to reduce morbidity, mortality, and transmission.
    - Action Items:
        1. Incorporate needle exchange programs.
        2. Make referrals to needle exchange programs.
        3. Integration of harm reduction kits into STD clinics, community based organizations (CBOs), Methadone clinics, community health centers (CHCs), and similar entities.
        4. Provide condoms at no cost or low cost.
- *Objective 3:* Increase awareness of support groups for the family members and significant others of hepatitis cases.
    - Action Items:
        1. Refer and provide contact information to hepatitis support groups.

2. Produce a statewide directory of hepatitis support groups.

- *Objective 4*: Provide incentive for HCPs to continue caring for viral hepatitis cases.
    - Action Item:
        1. Non-monetary Viral Hepatitis recognition award(s)
- *Objective 5:* Expand information networks for HCPs treating the disease based on current best practice.
    - Action Item:
        1. Provide education to HCP regarding improvement in access to care through;
            - ISDH Viral Hepatitis Web Site
            - Webinars
            - List serve

- <u>Goal 2:</u> Integrate hepatitis B and C testing, care, and treatment into the correctional environment.
    - Objective 1: Encourage continuity of care of incarcerated persons being released with viral hepatitis.
        - Action Items:
            1. Maintain testing for hepatitis C in state correctional facilities.
            2. Advocate for hepatitis B and C testing in the county jails.
            3. Advocate for hepatitis B testing in state correctional facilities.
            4. Provide multi-disciplinary coordination of reentry services within 60-90 days prior to release.
            5. Partner with recidivism programs to test inmates following release.
- <u>Goal 3:</u> Encourage viral hepatitis awareness groups to ask insurance companies, Medicare, and Medicaid to provide viral hepatitis immunization and disease management.

- Objective 1: Encourage insurance companies, Medicare, and Medicaid to provide coverage according to ACIP.
    - Action Item:
        1. Encourage combination vaccines.

Principle 4: Grants, Legislation, and Policy Development

- Goal 1: Seek grants to fund viral hepatitis A, B, and C screening, counseling, and behavior modification in high risk groups.
    - *Objective 1*: Obtaining grant funding by utilizing the ISDH Grants Office and those at the local level.
        - Action Items:
            1. Identify, compile, and communicate via the ISDH web site available grants and submission requirements for viral hepatitis partners.
            2. Identify grant writers and encourage free trainings.
            3. Encourage viral hepatitis partners to notify the ISDH Viral Hepatitis Coordinator of submitted grant applications and awards.
            4. Post the list of grant applications and awards on the website.
    - *Objective 2*: Improve funding of public health and CBO providing care for substance abusers with chronic viral hepatitis.
        - Action Item:
            1. Identify educational resources and current efforts.
- Goal 2: Investigate the need for a hepatitis A immunization requirement for elementary school children and food handlers, with the potential for legislative change.
    - *Objective 1*: Establish a hepatitis A vaccination as a legislative priority when the cost effectiveness, risk benefit, and disease burden warrant a required immunization.

- Action Items:
    1. Develop a cost-analysis study for Indiana including the primary and secondary benefits.
    2. Support future CDC recommendations regarding hepatitis A vaccination by age or risk groups.

- Goal 3: Advocate for state funding and policy initiatives for immunization.
    - *Objective 1*: Seek funding to provide HAV and HBV immunization.
        - Action Items:
            1. Review the testing, vaccination, and treatment processes of other states.
            2. Provide demographics of viral hepatitis data to viral hepatitis awareness groups.
- Goal 4: Increase Indiana legislators' knowledge and awareness of the prevalence of viral hepatitis disease, including the financial, human, and medical burden throughout Indiana.
        - *Objective 1*: Provide legislators with the tools and knowledge necessary to make informed decisions around viral hepatitis, including but not limited to concise: national, state, and local surveillance data, peer reviewed journals, and testimonials.
        - Action Items:
            1. Raise awareness of necessity to address funding.
            2. Host an annual "Hepatitis on the Hill Day" during Hepatitis Awareness Month in May.
- Goal 5: Advocate for state funding and a policy initiative to make treatment services and pharmaceuticals agents available to treat appropriate candidates.
    - *Objective 1:* Provide treatment services and pharmaceutical agents to those candidates for which treatment would not otherwise be available.
        - Action Item:

1. Educate Indiana legislators using scientific-based data related to programs that make pharmaceutical agents available to those infected.

Appendices

Appendix A: Hepatitis A (HAV) Fact Sheet

What is hepatitis A?

Hepatitis (hep-ah-TY-tiss) A is a vaccine-preventable inflammation of the liver caused by the hepatitis A virus, which is found in the stool of an infected person. Hepatitis A virus is not found in animals. There are several other very different "hepatitis" viruses that cause the same symptoms but are completely unrelated diseases. Hepatitis A rarely causes long-term liver damage or death. On average, 70 cases of hepatitis A are reported in Indiana each year.

How is hepatitis A spread?

Hepatitis A virus is passed in the stool, and people become infected by having contact with the stool of an infected person (fecal-oral route). For this reason, the virus is more easily spread in areas where there are poor sanitary conditions or where good personal hygiene is not observed. Persons are at risk for hepatitis A infection if they have:

• Exposure to contaminated food or water:
o Consuming untreated water.
o Consuming food prepared by an infected person.
o Consuming raw produce or raw shellfish (e.g., oysters).
o Traveling to countries where hepatitis A is common and where there is little clean water or proper sewage disposal.

• Exposure to the stool or blood of an infected person, who is a(n):
o Household member or sexual partner (men who have sex with men are at higher risk).
o Child or staff member of a daycare center (including centers for the disabled).
o Resident or staff member of a health care center.
o Injection drug user.

Casual contact, as in the usual workplace or school setting, does not spread the virus. However, most cases of hepatitis A have an unknown exposure, because the time from exposure to the time symptoms begin can be long (range of 15-50 days). Outbreaks have occurred in all of the higher risk settings listed above.

What are the symptoms of hepatitis A?

- Diarrhea
- Nausea
- Vomiting
- Tiredness
- Stomach pain
- Fever
- Dark urine
- Pale, clay-colored stool
- Loss of appetite
- Yellowing of skin and eyeballs (jaundice)

Symptoms usually occur suddenly. People are most contagious from about 2 weeks before symptoms begin until 2 weeks after. Some people, especially children, may have no symptoms

but can still spread the virus to others. Symptoms usually begin 28-30 days (range of 15-50 days) after exposure and usually last less than 2 months. Sometimes a person can recover and become ill again (relapse) for as long as 12 months. However, people will eventually recover, and there is no long-term carrier state with hepatitis A infection. Death from hepatitis A is rare, 0.1-0.3 percent, but is more common in adults over 50.

How do I know if I have hepatitis A?

A person having diarrhea lasting more than 24 hours or having jaundice should consult a health care provider immediately. The health care provider may collect a blood sample to test for hepatitis A.

How is hepatitis A treated?

There is no specific treatment for hepatitis A other than treating symptoms. People who have had hepatitis A develop lifelong immunity and cannot get hepatitis A again. Hepatitis A can be effectively prevented. Within 2 weeks of exposure to hepatitis A, persons can get hepatitis A immune globulin (Ig). Ig is 80-90 percent effective during the 2-week time frame from exposure and provides protection for about 3 months. Ig is not effective if given more than 2 weeks following exposure. In place of Ig, persons can also get the first dose of hepatitis A vaccine. This 2-dose vaccination series will provide 100 percent lifelong protection once completed.

Is hepatitis A a reportable disease?

Yes. Health care providers and laboratories must immediately report the disease to the local health department (LHD) or the Indiana State Department of Health (ISDH). The LHD will contact all cases diagnosed with hepatitis A, so a possible exposure can be determined to help prevent others from becoming ill.

How can hepatitis A be prevented?

In general, hepatitis A can be prevented by strictly adhering to the following guidelines:

• Vaccination:
o Hepatitis A vaccine is given as 2 doses separated by 6 months. The vaccine should be given according to the Recommended Childhood and Adolescent and Adult Immunization schedules published by the ACIP (Advisory Committee on Immunization Practices).
o Hepatitis A vaccine should be given to persons traveling to a country where the risk of exposure is high.

• Practice good hygiene:
o Thoroughly wash hands with soap and water after using the restroom; after assisting someone with diarrhea and/or vomiting; after swimming; and before, during, and after food preparation (please refer to Quick Facts about Hand Washing).
o Clean food preparation work surfaces, equipment, and utensils with soap and water

before, during, and after food preparation.

• Eat safe foods and drink safe water (Remember: Contaminated foods may look and smell normal):
o Wash all produce before eating raw or cooking.
o Use treated water for washing, cooking, and drinking.
o Avoid swallowing untreated water.

• Protect others:
o Persons with diarrhea and/or vomiting should not prepare food or provide health care for others and should limit direct contact with others as much as possible.
o Persons with diarrhea and/or vomiting should not attend a daycare facility or school.
o Persons with diarrhea, vomiting, and/or jaundice shall be excluded from employment involving food handling (Indiana Retail Food Establishment Sanitation Requirements, 410 IAC 7-24-122).
o Do not change diapers near recreational water.
o Do not go swimming or use hot tubs if you have diarrhea and for at least two weeks after diarrhea stops.

• Safe travel outside of the United States:
o Drink bottled beverages and water, even when brushing teeth.
o Do not eat uncooked fruits or vegetables unless you peel them yourself.
o Do not eat foods or beverages from street vendors.
o Do not consume local water or ice.

Last Updated: October 18, 2007

Indiana State
Department of Health

Appendix B: Hepatitis B (HBV) Fact Sheet

What is hepatitis B?

Hepatitis B is a serious disease of the liver caused by the hepatitis B virus. Most people will recover without any complications. However, some people develop chronic (long-term) hepatitis B infection. In some people with chronic infections, hepatitis B can lead to severe illness, liver cancer, liver failure, and sometimes death.

How is hepatitis B spread?

Hepatitis B virus is spread when blood or certain body fluids, such as semen and vaginal secretions, from an infected person enter the body of a non-infected person. Some examples include:

- Having unprotected sex
- Sharing needles or "works" used to inject drugs
- Sharing personal care items, such as razors or toothbrushes
- Being born to an infected mother
- Using nonsterile needles and equipment during body piercing, tattooing, or acupuncture

Who is at risk for hepatitis B?

You get hepatitis B by direct contact with blood or certain body fluids of a person who has hepatitis B. Your risk is higher for hepatitis B if you:

- Are born to a mother who has hepatitis B
- Live in the same house with someone who has a chronic hepatitis infection
- Have unprotected sex with a person who has hepatitis B
- Have sex with more than one person in a six-month period
- Are a man who has sex with men
- Are an injection drug user
- Are a health care or public safety worker
- Were born or have parents who were born in Southeast Asia, Africa, the Amazon Basin in South America, the Pacific Islands, Eastern Europe, or the Middle East
- Are a resident or work in a home for the developmentally disabled
- Are a hemodialysis patient

How do I know if I have hepatitis B?

See your health care provider. Blood tests will determine if you are infected with hepatitis B. Follow-up blood tests are necessary to determine if the disease is still present. Chronic hepatitis B is diagnosed by two positive blood tests at least six months apart. Chronic infection may last for a lifetime.

What are the symptoms of hepatitis B?

Hepatitis B is known as a "silent infection," because you may have very mild or no symptoms. Symptoms appear six weeks to six months after exposure. Symptoms may include:

- Yellowing of the eyes or skin (jaundice)
- Lack of appetite
- Nausea and vomiting
- Fever
- Abdominal pain
- Joint pain
- Tiredness
- Dark urine
- Pale (clay-colored) stool

How can hepatitis B be treated?

In most people, the infection will clear itself. People with chronic infection should see their health care provider to determine if the disease is getting worse. Medications are available for the treatment of chronic hepatitis B, and your health care provider can decide which one is right for you. It is important to avoid further injury to your liver by:

- Avoiding alcoholic drinks
- Avoiding raw seafood
- Getting vaccinated for hepatitis A

How is hepatitis B prevented?

A safe and effective vaccine can prevent hepatitis B infection. It is recommended for all children from birth to 18 years and adults at risk for hepatitis B. See your health care provider for more information on hepatitis B vaccine.

Other ways to prevent hepatitis B infection include:

- Use latex condoms if you have sex with more than one partner.
- Get tested for hepatitis B if you are pregnant.
- Avoid injection drug use. If you do inject drugs, do not share drugs, needles, syringes, cookers, cotton, water or rinse cups.
- Do not share razors, toothbrushes, or other personal care items.
- If you are infected with hepatitis B, do not donate blood, organs, semen, or tissue.

Last Updated: March 26, 2007

Indiana State
Department of Health

Appendix C: Hepatitis C (HCV) Fact Sheet

What is hepatitis C?

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV). The disease progresses over years, even decades, and can lead to cirrhosis (liver scarring), liver cancer, and liver failure. It is the most common bloodborne disease in the United States and the leading cause of liver transplants. It is estimated that 1.8 percent of the population, or more than 4.1 million Americans, have the disease.

What are the symptoms of hepatitis C?

Symptoms may include:

- Jaundice (yellowing of skin or eyes)
- Loss of appetite
- Weight loss
- Nausea and vomiting
- Fever
- Tiredness
- Headache
- Stomach pain
- Dark urine

Symptoms usually appear 2 weeks to 6 months after exposure; however, most people (as many as 80%) experience no symptoms or vague symptoms. It is important to remember that asymptomatic individuals can still infect others. About 85 percent of people who become infected with HCV will become chronic (long-term) carriers.

How is hepatitis C spread?

HCV is spread primarily by direct contact with human blood and body fluids. HCV is not spread by casual contact, such as touching or sharing eating and drinking utensils. You may have been exposed to HCV if:

- You ever injected street drugs, as the needles and/or other drug "works" used to prepare or inject the drug(s) may have been contaminated with blood.
- You received blood, blood products, or solid organ transplants before 1992 from a donor whose blood contained HCV. (Blood has been screened for HCV since 1992.)
- You ever received long-term kidney dialysis.
- You were ever a health care worker who had frequent contact with blood or had an accidental needle stick injury.
- Your mother had HCV at the time she gave birth to you. During birth, her blood may have gotten into your body.
- You ever shared personal items, such as razors or toothbrushes, with someone who had HCV.
- You ever had sex with someone who had HCV.
- You ever received a tattoo from a noncommercial or unregulated facility that may have used dirty needles or poor sanitary practices.

Who is at risk for HCV?

- IV drug users
- Health care workers
- People who have multiple sex partners
- Homeless people
- Military veterans

How will I know if I have hepatitis C?

See your health care provider. Hepatitis C is diagnosed through blood tests, and your health care provider may recommend that you be tested for hepatitis C based on your symptoms (if any) and any risk factors you may have.

How is hepatitis C treated?

The Food and Drug Administration (FDA) has approved treatments including interferon or a combination therapy of ribavarin and interferon as the most current standard of treatment. Your health care provider will decide which treatment options are best for you.

Is there a vaccine for hepatitis C?

Currently, there is no vaccine for hepatitis C. However, if you have hepatitis C, you should be vaccinated against hepatitis A and hepatitis B to prevent those infections.

Last Updated: June 19, 2007

Indiana State
Department of Health

Appendix D: Hepatitis D (HDV) Fact Sheet

What is hepatitis D?

Hepatitis D is a serious disease of the liver caused by the hepatitis D virus. You must already be infected with the hepatitis B virus to become infected with hepatitis D (please refer to Quick Facts about Hepatitis B). You may recover from an acute case of hepatitis D, or you may develop chronic hepatitis D. Chronic hepatitis D can lead to liver failure or cirrhosis.

How is hepatitis D spread?

Hepatitis D can only occur along with hepatitis B infection. These viruses are spread when blood or certain body fluids, such as semen and vaginal secretions, from an infected person enter the body of a non-infected person. Some examples include:

- Having unprotected sex
- Sharing needles or "works" used to inject drugs
- Sharing personal care items, such as toothbrushes or razors
- Being born to an infected mother

An infected person with no symptoms can still spread hepatitis D to others.

Who is at risk for hepatitis D?

Your risk for hepatitis D is higher if you:

- Have hepatitis B
- Are an injection drug user
- Have unprotected sex with an infected person
- Are a man who has sex with men
- Are a hemodialysis patient
- Are a health care or public safety worker
- Are born to an infected mother
- Immigrated from southern Italy, eastern Europe, South America, Africa, or the Middle East

How will I know if I have hepatitis D?

See your health care provider. Blood tests will determine if you are infected with hepatitis D.

What are the symptoms of hepatitis D?

Symptoms may include:

- Yellowing of the eyes or skin (jaundice)
- Tiredness
- Lack of appetite
- Nausea and vomiting
- Abdominal pain
- Dark urine
- Joint pain
- Fever

How is hepatitis D treated?

See your health care provider. Supportive care is the treatment for acute hepatitis D. Chronic hepatitis D treatment includes interferon-alfa and, possibly for severe infection, liver transplant.

How is hepatitis D prevented?

A safe and effective vaccine can prevent hepatitis B infection. See your health care provider.

Other ways to help prevent hepatitis D infection include:

- Keep all cuts or open skin wounds covered with a bandage.
- Do not share any blood-testing devices, needles, or other injection drug equipment.
- If you are infected, do not donate blood, organs, semen, or tissue.
- Do not share toothbrushes, razors, or other personal care items.
- Inform all of your health care providers that you are infected with hepatitis D.
- Inform your sex partners that you are infected with hepatitis D and they should be tested.
- Ensure that anyone living in your household receives hepatitis B vaccination.

Last Updated: April 17, 2007

Indiana State
Department of Health

Appendix E: Hepatitis E (HEV) Fact Sheet

What is hepatitis E?

Hepatitis (hep-ah-TY-tiss) E is an inflammation of the liver caused by the hepatitis E virus, which is found in the stool of an infected person. There are several other very different "hepatitis" viruses that cause the same symptoms but are completely unrelated diseases. Hepatitis E rarely causes long-term liver damage or death but can cause very serious infection in pregnant women, especially during the third trimester (last three months of pregnancy). Hepatitis E is extremely rare in the United States and is almost always related to travel to a country where hepatitis E is common, e.g., Mexico, Africa, the Middle East, India, and China.

How is hepatitis E spread?

Hepatitis E virus is passed in the stool, and people become infected by having contact with the stool of an infected person (fecal-oral route). Most outbreaks have been associated with contaminated drinking water. For this reason, the virus is more easily spread in areas where there are poor sanitary conditions or where good personal hygiene is not observed.

Persons are at risk for hepatitis E infection if they have:

- Exposure to contaminated food or water:
    - Consuming untreated water.
    - Consuming food prepared by an infected person.
    - Consuming raw produce or raw shellfish (e.g., oysters).
    - Traveling to countries where hepatitis E is common and where there is little clean water or proper sewage disposal.
- Exposure to the stool or blood of an infected person, who is a:
    - Household member or sexual partner (men who have sex with men are at higher risk).
    - Child or staff member of a daycare center (including centers for the disabled).
    - Resident or staff member of a health care center.

Casual contact, as in the usual workplace or school setting, does not spread the virus. However, most cases of hepatitis E have an unknown exposure, because the time from exposure to the time symptoms begin can be long (range of 15-64 days).

What are the symptoms of hepatitis E?

- Diarrhea
- Nausea
- Vomiting
- Tiredness
- Stomach pain
- Fever
- Dark urine
- Pale, clay-colored stool
- Loss of appetite
- Yellowing of skin and eyeballs (jaundice)

Symptoms usually occur suddenly. Some people, especially children, may have no symptoms but can still spread the virus to others.

Symptoms usually begin 26-42 days (range of 15-64 days) after exposure. Death from hepatitis E is rare but may be as high as 20 percent among pregnant women in their third trimester. Premature deliveries due to infection have a 33 percent infant mortality rate. People are most contagious from about 2 weeks before symptoms begin until 2 weeks after.

How do I know if I have hepatitis E?

A person having diarrhea lasting more than 24 hours or having jaundice should consult a health care provider immediately. The health care provider may collect a blood sample to test for hepatitis E.

How is hepatitis E treated?

There is no cure for hepatitis E. However, people who have had hepatitis E develop lifelong immunity to the virus. Unlike hepatitis A, there is no vaccine or immune globulin (Ig) to prevent infection.

How can hepatitis E be prevented?

- Practice good hygiene:
    - Thoroughly wash hands with soap and water after using the restroom; after assisting someone with diarrhea and/or vomiting; after swimming; and before, during, and after food preparation (please refer to Quick Facts about Hand Washing).
    - Clean food preparation work surfaces, equipment, and utensils with soap and water before, during, and after food preparation.
- Eat safe foods and drink safe water (Remember: Contaminated foods may look and smell normal):
    - Wash all produce before eating raw or cooking.
    - Use treated water for washing, cooking, and drinking.
    - Avoid swallowing untreated water.
- Protect others:
    - Persons with diarrhea and/or vomiting should not prepare food or provide health care for others and should limit direct contact with others as much as possible.
    - Persons with diarrhea and/or vomiting should not attend a daycare facility or school.
    - Persons with diarrhea, vomiting, and/or jaundice shall be excluded from employment involving food handling (Indiana Retail Food Establishment Sanitation Requirements, 410 IAC 7-24-122).
    - Do not change diapers near recreational water.
    - Do not go swimming or use hot tubs if you have diarrhea and for at least two weeks after diarrhea stops.

- Safe travel outside of the United States:
    - Drink bottled beverages and water, even when brushing teeth.
    - Do not eat uncooked fruits or vegetables unless you peel them yourself.
    - Do not eat foods or beverages from street vendors.
    - Do not consume local water or ice.

Last Updated: October 18, 2007

Indiana State
Department of Health

Appendix F: Additional Resources

American Liver Foundation
75 Maiden Lane
Suite 603
New York, New York 10038
(212) 668-1000
www.liverfoundation.org/

American Liver Foundation Indiana Chapter
921 East 86th Street, Suite 150,
Indianapolis, IN 46240
(317) 635-5074
www.liverfoundation.org
Indiana@liverfoundation.org

Centers for Disease Control and Prevention
National Center for HIV/STD, Viral Hepatitis, STD, and TB Prevention
Division of Viral Hepatitis
1600 Clifton Road
Atlanta, Georgia 30333
(404) 639-3311
www.cdc.gov/hepatitis/

Hepatitis B Foundation
3805 Old East Road
Doylestown, PA 18902
(215) 489-4900
www.hepb.org

Hepatitis Foundation International
504 Blick Drive
Silver Spring, MD 20904
(301) 622-4200
www.hepfi.org/index.htm

Hepatitis Web Study
depts.washington.edu/hepstudy/index.html

Indiana State Department of Health
2 North Meridian Street
Indianapolis, Indiana 46204
(317) 233-1325
www.statehealth.IN.gov

Immunization Action Coalition
1573 Selby Avenue
Suite 234
St. Paul, MN 55104
(651) 647-9009
www.immunize.org/

National Association of State and Territorial AIDS Directors
444 North Capitol Street, NW • Suite 339
Washington D.C. 20001
(202) 434-8090
www.nastad.org/