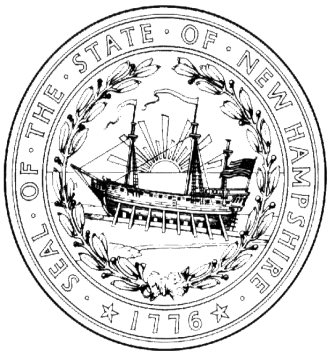

State of New Hampshire
Viral Hepatitis Prevention and Control Plan

Prepared by
New Hampshire Department of Health and Human Services
Communicable Disease Control

Reviewed by
New Hampshire Communicable Disease Epidemic Control Committee
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For additional copies of this Plan go to: www.dhhs.state.nh.us, click on "communicable disease information"

For further information or for assistance in implementing aspects of this plan, please contact the NH DHHS Viral Hepatitis Coordinator at 603-271-5720

Abbreviations Used in This Document

AIDS	Acquired Immunodeficiency Syndrome
Anti-Hbc	Antibody to Hepatitis B Core Antigen
BHFA	NH Bureau of Health Facilities Administration
CDC	U.S. Centers for Disease Control and Prevention
CDCS	DHHS, Communicable Disease Control Section
CDECC	NH Communicable Disease Epidemic Control Committee
CDSS	DHHS, Communicable Disease Surveillance Section
DHHS	NH Department of Health and Human Services
DOC	NH Department of Correctional Facilities
DOS	NH Department of Safety
DPHS	DHHS, Division of Public Health Services
EIA	Enzyme immunoassay
ELISA	Enzyme-linked immunosorbent assay
HAART	Highly Active Antiretroviral Therapy
HAV	Hepatitis A virus
HBIG	Hepatitis B immune globulin
HbSAg	Hepatitis B surface antigen
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HCW	Health care worker
HIV	Human immunodeficiency virus
IDSA	Infectious Disease Society of America
IDU	Injection drug user
IG	Immune Globulin
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IP	DHHS Immunization Program
MMWR	Morbidity & Mortality Weekly Report
MOAMOU	Memorandum of AgreementMemorandum of Understanding
MSM	Men who have sex with men
NH	New Hampshire
NHANES	National Health and Nutrition Examination Survey
NHHA	New Hampshire Hospital Association
NIOSH	National Institute of Occupational Safety & Health
OSHA	Occupational Safety and Health Administration
PCR	Polymerase chain reaction
PEG	Polyethylene Glycol
PHL	DHHS, Public Health Laboratories
PIO	DHHS, Public Information Office
RIBA	Recombinant Immunoblast Assay
STD	Sexually Transmitted Disease
U.S.	United States
USPHS	U.S. Public Health Service
VHPC	Viral Hepatitis Prevention Coordinator

I. Introduction

The New Hampshire *Viral Hepatitis Prevention and Control Plan* identifies strategies for the prevention and control of viral hepatitis infection. The plan focuses on the integration of prevention activities into existing programs and services and identifies goals aimed at health education directed toward health care providers, high-risk populations and the general public. The primary activities are grouped into four focus areas: 1) Prevention, 2) Education and Training, 3) Medical and Case Management, and 4) Surveillance. This plan does not estimate cost, propose funding strategies or provide evaluation methods, but rather provides a framework for state and local agencies to develop and implement viral hepatitis prevention activities as resources become available.

The strategic priorities of the plan are to substantially increase awareness and knowledge about viral hepatitis through increased access to screening, testing, counseling, vaccination, referral, and treatment. As funding becomes available, activities that may improve viral hepatitis surveillance are identified to generate data to support primary and secondary prevention efforts and promote discussions with policymakers on funding priorities. The plan's long-term goal is to prevent the spread of viral hepatitis infection and to improve services to those already infected in New Hampshire.

New Hampshire DHHS Role and Responsibilities

The role of New Hampshire Department of Health and Human Services (DHHS) is to provide recommendations to help control the emergence of viral hepatitis and to identify and respond to viral hepatitis-related threats to New Hampshire citizens.

Responsibilities of NH DHHS include the following:

- Encourage education and training for healthcare providers and communities.
- Provide and update recommendations as appropriate.
- Advise regarding any additions/changes to the Reportable Disease List.
- Provide data and statistical reports on the occurrence of reportable viral hepatitis in New Hampshire.
- Track and respond to outbreaks of viral hepatitis.

Local and regional health departments will conduct educational campaigns for viral hepatitis prevention.

Vision, Mission, Goal

Vision
To achieve high quality of life and minimize the burden of acute and chronic infections and diseases related to viral hepatitis infection among the citizens of New Hampshire.

Mission
To decrease the incidence of hepatitis A, B, and C infections and to improve the quality of life of those chronically infected with hepatitis B and C.

Goal
Implement a statewide-integrated strategy for the prevention and control of viral hepatitis infection by joining efforts with existing programs and initiatives targeting high-risk populations.

II. Overview of Viral Hepatitis

Viral hepatitis is liver inflammation caused by viruses. Specific hepatitis viruses have been labeled A, B, C, D and E. This plan will focus on the three types that account for the majority of viral hepatitis cases: hepatitis A virus (HAV), hepatitis B virus (HBV), and hepatitis C virus (HCV). While Hepatitis A is an acute disease caused by HAV infection, HBV or HCV can produce a chronic infection, which may lead to death from chronic liver disease or hepatocellular carcinoma.

A. Hepatitis A Overview

Hepatitis A is caused by an infection with the Hepatitis A virus (HAV). HAV infection continues to be one of the most frequently reported vaccine-preventable diseases in the United States. According to the National Health and Nutrition Examination Survey (NHANES) III, about one third (31.3%) of the U.S. population has serologic evidence of ever having had HAV infection.[25] In 2006, 3,579 acute symptomatic cases of hepatitis A were reported to the U.S. Centers for Disease Control and Prevention (CDC); the lowest rate ever recorded. Hepatitis A rates in the United States have declined by 89% since the hepatitis A vaccine first became available in 1995, when over 30,000 acute symptomatic cases were reported.[25]

Hepatitis A is reportable in New Hampshire. In 2005, New Hampshire experienced an increase in HAV cases. A total of 82 cases were reported, most of which appeared to be related to injection drug use (IDU). Prior to 2005, the risk factors identified in New Hampshire cases mirrored national statistics, and international travel was the greatest known risk factor. In 2004, the percentage of reported HAV cases with IDU as a known risk factor was 8%, while in 2005 that figure rose to 64% of cases linked to IDU. NH has not experienced another large outbreak since that time. From 2003-2007, an average of 32 cases were reported each year. The majority of these cases with a known risk factor were attributed to international travel.

1. Clinical Signs and Symptoms

The incubation period for HAV infection ranges from 15-50 days with an average of 28-30 days. HAV infection may be asymptomatic or its clinical manifestations may range in severity from a mild illness lasting 1-2 weeks to a severely disabling disease lasting several months. Clinical manifestations of HAV infection most often include fever, malaise, anorexia, nausea, abdominal discomfort, dark urine and jaundice. Persons who are asymptomatic may still shed the virus and adults tend to have symptoms more often than children.

2. Diagnosis

The most common serological test to diagnose acute HAV infection is the HAV Immunoglobulin M antibody test. The test is usually positive within 5-10 days before symptom onset, because of the presence of antibodies, which remain present for approximately six months. The HAV Immunoglobulin G antibody test is an indication of either past infection or past immunization. It is present early in the course of HAV infection and remains detectable and provides lifelong protection against HAV.

3. Transmission

Hepatitis A is transmitted in several different ways, but the most common route is fecal-oral, even in microscopic amounts. This can occur by putting something in the mouth that has been contaminated by the feces of a person with HAV infection, or through close person-to-person contact such as HAV infected household or sexual contacts. Hepatitis A may be spread through contaminated food or water, specifically when an infected food handler directly handles uncooked or cooked foods. This type of transmission most often occurs due to poor hand washing by the infected food handler. HAV transmission can also occur as a result of blood exposures during injecting drug use. Hepatitis A is rarely transmitted through blood or blood products due to screening of blood products for HAV.

4. At-Risk Persons

The following persons are at risk for contracting HAV infection:

- Household contacts of infected persons
- Sexual contacts of infected persons
- Persons, especially children, living in areas with increased rates of hepatitis A during the baseline period of 1987-1997
- Travelers to countries where hepatitis A is common, such as Central and South America, Africa, Middle East, Asia, and the Western Pacific
- Men who have sex with men (MSM)
- Users of injection and non-injection drugs
- Health-care and public safety workers with exposure to blood

5. Treatment

There are no specific medicines or antibiotics that can be used to cure HAV infection once the symptoms appear. Immune globulin (IG) or Hepatitis A vaccine can be used for exposures.

6. Prevention

Hepatitis A vaccine, proper sanitation, and good personal hygiene (e.g., hand washing) are the best protection against HAV infection.

B. Hepatitis B Overview

Hepatitis B is a serious disease caused by the hepatitis B virus (HBV), which attacks the liver. It is estimated that 1.25 million Americans are chronically infected, of whom 20-30% acquired their infection in childhood. The number of new (acute) infections per year has declined from an average of 260,000 in the 1980s to about 60,000 in 2004. The highest rate of acute infection occurs in 20 to 49 year-olds. The greatest decline has occurred among children and adolescents, which is attributed to routine hepatitis B vaccination.[3] Chronic HBV infection is responsible for most of the morbidity and mortality due to hepatitis B, including chronic hepatitis, cirrhosis, hepatocellular carcinoma, and death. Chronic active hepatitis B develops in over 25% of HBV carriers and often results in cirrhosis. An estimated 1,000-5,000 persons die each year in the U.S. from HBV related liver cancer.

Hepatitis B is reportable in New Hampshire. Since 2004, there has been a decrease in acute hepatitis B cases. There were 44 cases reported that year. From 2003-2007, an average of 23

acute cases were reported each year. The highest rate of acute infection occurred in 20 to 49 year-olds. In addition, from 2004-2007, an average of 30 hepatitis B positive pregnant women were identified and tracked through the NH DHHS Perinatal Hepatitis B program.

1. Clinical Signs and Symptoms

The incubation period for hepatitis B ranges from 45 to 160 days with an average of 120 days. Approximately 30% of infected individuals may experience few or no symptoms, and children are less likely to have symptoms than adults. Individuals who do have symptoms experience jaundice, fatigue, abdominal pain, loss of appetite, nausea, vomiting and joint pain. HBV infection can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death.

2. Diagnosis

Serologic testing is required to make the diagnosis of HBV infection. Hepatitis B surface antigen (HBsAg) is present in both acute and chronic infection. The presence of IgM antibody to hepatitis B core antigen (IgM anti-HBc), along with clinical symptoms, is diagnostic of acute HBV infection. Antibody to HBsAg (anti-HBs) is produced following a resolved infection and is the only HBV marker found following vaccination. The presence of HBsAg with a negative test for IgM anti-HBc may be indicative of chronic HBV infection, but further testing is needed to confirm the diagnosis if clinical suspicion is high. The presence of hepatitis B core antibody anti-HBc may indicate either acute, resolved, chronic infection, or a false positive result. Individuals with hepatitis B may also have elevated liver function tests, especially during the acute phase of illness.

3. Transmission

HBV is found in blood and certain body fluids, such as serum, semen, vaginal secretions, and saliva, of persons infected with HBV. Person-to-person spread of HBV can occur among those living with someone chronically infected with hepatitis B. HBV is mainly spread by sexual contact with an infected person, sharing needles during injection drug use; occupational needle sticks or sharps exposure, or transmission from an infected mother to her baby during birth.

4. At-Risk Persons

The following persons are at risk for contracting HBV infection:

- Persons with multiple sex partners or diagnosis of a sexually transmitted disease
- Men who have sex with men (MSM)
- Sexual contacts of infected persons
- Injection drug users
- Household contacts of chronically infected persons
- Infants born to infected mothers
- Immigrants from areas with high rates of HBV infection
- Health-care and public safety workers with exposure to blood
- Hemodialysis patients

5. Treatment

There is no specific therapy for the acute HBV infection; however, medications (i.e., Adefovir dipivoxil, interferon alfa-2b, pegylated interferon alfa-2a, lamivudine, entecavir, and telbivudine)

have been approved for treatment of chronic infection in certain individuals. Medical evaluation by a physician experienced in the management of chronic liver disease should be done to determine whether or not treatment is appropriate.

6. Prevention

Hepatitis B vaccine is available for all age groups and is the most effective means of preventing HBV infection. Additional measures include the correct use of latex condoms, which may reduce sexual transmission, and avoidance of illicit drug use. Pregnant women should be tested for hepatitis B surface antigen with each pregnancy, and infants born to HBV-infected mothers should be given hepatitis B immune globulin (HBIG) and hepatitis B vaccine within 12 hours of birth.

C. Hepatitis C Overview

Hepatitis C is a liver disease caused by an infection with the hepatitis C virus (HCV). It is the most common chronic blood-borne infection in the United States. It is believed that HCV infections account for most of what was previously known as non-A, non-B viral hepatitis. HCV infection is the leading cause of liver transplants in the United States. According to the CDC, it is estimated that 170 million people worldwide and 4.1 million (1.6%) Americans have been infected with HCV, of whom 3.2 million are chronically infected.[5] There are about 35,000 to 185,000 new cases a year in the United States. Each year 10,000-20,000 deaths in the United States are from HCV, and expectations are that this number will increase.[5]

Currently in New Hampshire, HCV infection is not reportable. Seroprevalence data suggest high positivity among the incarcerated population and among HIV/STD clinic patients.[3] The CDC estimates that 1.6% of Americans are infected; therefore, we can estimate that 20,800 New Hampshire citizens are living with HCV infection based on the 2008 population estimate of 1.3 million persons.[5]

1. Clinical Signs and Symptoms

The incubation period for hepatitis C infection ranges from 14-180 days, with an average of 45 days. The majority of individuals infected with hepatitis C do not have symptoms. When symptoms are present, they include jaundice, fatigue, dark urine, abdominal pain, loss of appetite and nausea. Of those infected, 70-85% will become chronically infected. About 15-30% of patients exposed will clear the virus without treatment. Complications from HCV infection include cirrhosis and hepatocellular carcinoma. Five to 20% of individuals infected with HCV will develop cirrhosis as a complication of HCV infection. Approximately 80% of individuals with HCV infection have no symptoms, thus the disease is infrequently diagnosed.

2. Diagnosis

The laboratory diagnosis of HCV infection is based principally on two main types of testing for the detection of the anti-HCV antibody: enzyme immunoassay (EIA) and recombinant immunoblot assay (RIBA). In most cases, the EIA serves as screening test, and the RIBA test is used to confirm the presence of antibodies to the HCV virus. Although these tests are useful in detecting antibodies for hepatitis C virus, a positive hepatitis C antibody does not distinguish active from resolved infection. Real-time polymerase chain reaction (PCR) testing is being used to determine the presence of HCV RNA and a positive HCV RNA in the serum confirms the

diagnosis of active hepatitis C. This type of viral testing may be either qualitative or quantitative. If viral loads (the amount of virus circulating in the blood) are below certain values, these tests may elicit a false negative test result. Thus, it is recommended that if clinical suspicion is high repeat testing to confirm infection.

3. Transmission

Hepatitis C is a blood-borne pathogen and is transmitted primarily by percutaneous (any medical procedure where access to inner organs or other tissue is done via needle-puncture of the skin) exposure to blood. IDU currently accounts for most HCV transmission in the U.S. and has accounted for a substantial proportion of HCV infections in past decades. Other factors associated with transmission include receiving a transfusion or organ transplant before 1992, receiving long-term hemodialysis, or receiving clotting factor produced before 1987. HCV is less efficiently transmitted between sexual partners or from mother to infant. The estimated seroprevalence of HCV infection among long-term spouses of patients with chronic HCV is 1.5%. The average rate of HCV infection is 5% among infants born to HCV-positive women and 14% among infants born to women co-infected with HCV and human immunodeficiency virus (HIV).

4. At-Risk Persons

The following persons are at risk for HCV infection:

- Intravenous drug users
- Individuals who received a blood transfusion/organ donation prior to 1992
- Individuals who received clotting factors before 1987
- Long-term hemodialysis patients
- Health-care and public safety workers with exposure to blood

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5. Injection Drug Users

In the U.S., millions of people have viral hepatitis.[4] It is a particularly significant problem among IDUs. It is estimated that 60%, or 17,000, of the 30,000 new cases of HCV in 2000 occurred among IDUs. HCV infection tends to be the first blood-borne disease IDUs acquire. CDC estimates that within 5 years after beginning to inject drugs, 50% to 80% of IDUs become infected with HCV.[22]

The rapid spread of HCV infection among IDUs is due to several factors:

- Blood is an efficient route of transmission
- Many individuals are infected; this provides an ongoing source for new infections
- Often IDUs share drugs and drug preparation materials, such as syringes, solutions, mixing containers, and cotton filters

6. Incarcerated Persons

Persons incarcerated in correctional systems comprise approximately 0.7% of the U.S. population and have a disproportionately greater burden of infectious diseases.[9] An estimated 15% to 40% of incarcerated persons in the U.S. are infected with HCV, and the number of released inmates with chronic hepatitis C infection is 1.4 million.[16] Given that the leading risk factor for acquiring HCV infection is injection drug use, a contributing factor is that in the last 20

years, the number of people incarcerated for drug-related offenses has increased from 40,000 to 450,000.

To reduce risk factors for infection with HCV, the focus must be on behavioral interventions. To prevent further disease transmission and to reduce liver disease progression, identifying HCV chronically infected persons is key. This offers the opportunity to initiate counseling, treatment, and vaccination for hepatitis A and B.

7. Treatment

There are six genotypes of HCV infection. The genotype is an important factor in determining treatment and evaluating response to treatment. The treatment of choice for HCV infection is often combination therapy with interferon and ribavirin. The highest response rates are achieved with pegylated interferon in combination with ribavirin. Pegylation is the process of attaching one or more chains of a substance called polyethylene glycol (also known as PEG) to a protein molecule such as interferon. Since the body does not react to PEG, it helps provide a protective barrier around an attached protein so that it can survive in the body longer. Pegylated interferon is injected once a week, while the traditional interferon needs to be injected three times a week.

8. Prevention

Recommended methods of prevention and control include raising awareness about the epidemic to the public and health care professionals, as well as education revolving around prevention, early detection, and medical management of the disease. Currently, there is no vaccine to prevent hepatitis C infection, which leaves behavior change as the most viable option for preventing new infections while limiting the spread of the disease.

9. Co-Infection with Hepatitis C Virus and Human Immunodeficiency Virus

Co-infection with HCV and HIV is a significant problem within the United States. It is estimated that one-quarter of the people infected with HIV also have HCV.[12] This is mainly due to the fact that both viruses are blood-borne and present in similar populations. It is estimated that 50% to 90% of IDUs with HIV also have HCV infection.[4] Co-infection is also common in hemophilia patients who received clotting products made before 1987, which is the year inactivation of both viruses began. The U.S. Public Health Service Infectious Disease Society of America (USPHS/ IDSA) issued guidelines to screen all HIV-infected persons for HCV infection.

With the introduction of highly active antiretroviral therapy (HAART) in the mid-1990s for HIV treatment, the number of deaths from Acquired Immunodeficiency Syndrome (AIDS) has decreased. People with HIV are living longer and those with HCV co-infection may live the 20-30 years it takes to develop complications from HCV infection, such as cirrhosis, liver cancer, and end-stage liver disease. Studies have shown that HIV infection in a person who is also infected with HCV results in higher levels of HCV in the blood, more rapid progression to HCV-related liver disease, and increased risk for cirrhosis and liver cancer.

III. Viral Hepatitis Program Activities in New Hampshire

The New Hampshire DHHS Communicable Disease Control Section is committed to supporting the development of a comprehensive program of prevention, control and surveillance of viral hepatitis in New Hampshire. DHHS has the support of the CDC through technical support and grant funding. The CDC provides clear guidelines on hepatitis prevention planning, implementation, and management. While New Hampshire is a low incidence state for viral hepatitis, the small size of the state and collaboration among key state agencies serves to promote a unified response to viral hepatitis prevention.

Currently in New Hampshire, the DHHS STD/HIV Section conducts viral hepatitis prevention activities, including education, vaccination, and testing at 24 clinics statewide. All sites offer hepatitis HAV/HBV vaccinations to all unvaccinated clients age 19 and older. Clinics routinely offer HCV testing to high-risk persons (IDUs). HBV antibody testing is offered to high-risk persons (IDUs, MSM, household contacts of cases) either before vaccine is given or during the same clinic visit that the first dose of vaccine is given. Additional doses are not to be given if client is confirmed HBV positive. The Immunization Section and the STD/HIV Section distributes HAV/HBV vaccines to 33 facilities throughout the state. These facilities include: 24 publicly funded STD/HIV clinics, 6 county correctional facilities, the state prison facility, and 2 city public health departments.

There are several non-profit HIV/AIDS/Hepatitis organizations that support hundreds of HIV- and HCV-infected individuals and their affected family members. Services include case management, support groups, assistance with transportation to medical appointments, and emergency financial help for housing, food, clothing, and medical needs.

The NH DHHS Public Health Laboratories (PHL) and the New Hampshire Department of Correctional Facilities (DOC) has a collaborative working relationship. New Hampshire DHHS and DOC have joined efforts to address the incarcerated population burdened with hepatitis infections. The PHL performs all testing for HCV, which has recently included genomic sequencing.

The PHL provides experienced technical staff and the resource capacity to perform approved tests for the diagnosis of HAV infection (HAV total and HAV IgM), HBV infection (HBsAg, total anti-HBc, IgM anti-HBc, and anti-HBs), and HCV infection (ELISA, RIBA, PCR, and genomic sequencing). The New Hampshire PHL Virology and Molecular Diagnostics Section is a valuable resource to healthcare providers, and provides quality services to a variety of agencies throughout the State.

DHHS has an established Perinatal Hepatitis B Program. The primary objective is to prevent transmission of the hepatitis B virus from a hepatitis B-positive pregnant woman to her infant.

The program goals are:

- Promote screening of all pregnant women for hepatitis B surface antigen (HBsAg)
- Ensure that all laboratories, hospitals, and prenatal care providers are aware of the need to report HBsAg-positive test results to the New Hampshire DHHS (per RSA-141: C)

- Identify and track hepatitis B-positive pregnant women, their infants, and household/sexual contacts
- Ensure that all infants born to hepatitis B positive mothers receive hepatitis B vaccine and hepatitis B immune globulin at birth, complete the three-dose hepatitis B vaccine series, and have post-vaccination blood testing done to show that they are protected
- Ensure that household/sexual contacts of hepatitis B positive pregnant women are identified, have a blood test if their hepatitis B status is unknown, and receive hepatitis B vaccine, if needed
- Provide educational materials to hepatitis B positive pregnant women
- Provide current recommendations and guidelines to prenatal and pediatric healthcare providers and hospital maternity nurse managers

IV. Strategic Plan Recommendations

1. Prevention

Primary prevention of infection with hepatitis viruses can be achieved either through immunization (i.e., HAV or HBV) or behavioral interventions to reduce risk factors for infection. Secondary prevention attempts to reduce the risk of transmission from those infected to those not infected. Tertiary prevention focuses on persons already infected with hepatitis and includes appropriate medical management and counseling (i.e., avoid alcohol, vaccination if indicated), in order to prevent further damage to the liver and reduce the risk of chronic liver disease.

Effective methods of prevention include:

- Raise awareness about viral hepatitis infection and promote the adoption of safe behaviors at appropriate locations
- Immunize high-risk populations for hepatitis A and B
- Screen and test blood, plasma, organ, tissue, and semen donors
- Offer harm-reduction programs among high-risk populations
- Adopt and practice standard infection control practices in healthcare settings
- Routinely screen, test and counsel high-risk individuals: injection drug users, recipients of clotting factors made before 1987, recipients of blood and/or solid organs before 1992, people who have ever been on long-term kidney dialysis, and people with undiagnosed liver problems
- Counsel, test, and refer individuals for substance abuse treatment and disease management, as appropriate

Suggested Action Steps

Step 1: Create and implement a consumer media campaign to increase awareness and provide risk reduction information regarding viral hepatitis.

1.1. Organize special events/activities yearly in May for "hepatitis awareness month."
1.2. Identify high-risk populations and create marketing strategies.
1.3. Distribute written and verbal messages through appropriate means.
1.4. Collaborate with the HIV/STD program to integrate viral hepatitis with the HIV/STD hotline, to establish a HIV/STD/Viral Hepatitis Hotline.

Step 2: Provide at-risk individuals access to HBV and HCV screening and testing.

2.1. Assess current hepatitis services and identify gaps among agencies providing testing.
2.2. Expand existing screening and testing efforts at various facilities that target populations at risk for viral hepatitis (STD, HIV, inmates, IDUs, MSMs).
2.3. Provide technical assistance to providers and agencies as necessary to provide screening and testing services.

2.4. Ensure that all licensed New Hampshire obstetricians and pediatric healthcare providers have access to the current national guidelines for screening high-risk pregnant woman and children born to hepatitis B and C mothers.
2.5. Provide educational materials to health professionals to distribute in facilities to increase hepatitis awareness.
2.6. Continue to support the New Hampshire PHL to provide testing services for viral hepatitis.

Step 3: Immunize high-risk populations for hepatitis A and B.

3.1. Expand existing vaccination efforts at various facilities that target populations at risk for viral hepatitis (STD, HIV, inmates, IDUs, MSMs, persons with chronic liver disease).
3.2. Assess current services and identify gaps among agencies providing vaccinations.
3.3. Provide technical assistance to providers and agencies to acquire resources necessary to provide vaccination services.
3.4. Provide educational materials to health professionals to distribute in facilities to promote vaccine awareness, inquiry, and requests among consumers.

Step 4: Improve access to sterile syringes, in conjunction with prevention education and outreach services.

4.1. Expand access to sterile syringes available through New Hampshire pharmacies, which allows the sale of ten or fewer syringes without a prescription.
4.2. Collaborate with New Hampshire Board of Pharmacy to increase pharmacy participation.
4.3. Provide technical assistance to pharmacy personnel as necessary to assist in their efforts to fulfill requirements to provide purchasers with information on safe disposal of syringes.

Step 5: Healthcare facilities, public safety organizations, and employers will implement and maintain appropriate infection control practices as determined by their industry standards.

5.1. Provide guidance and education regarding protocols as necessary.
5.2. New Hampshire Bureau of Health Facilities Administration (BHFA), National Institute for Occupational Safety and Health (NIOSH), and Occupational Safety and Health Administration (OSHA), will ensure compliance with standards for blood-borne pathogen training and control.

Step 6: Strengthen collaboration among state agencies, community-based organizations, and private stakeholders to prevent the spread of viral hepatitis.

6.1. Review existing prevention services among agencies and identify barriers to providing hepatitis interventions to high-risk populations.
6.2. Establish a New Hampshire Adult Viral Hepatitis Advisory Group to advise on interventions and programs at quarterly meetings.

6.3. Collaborate with community-based organizations and private sector organizations to integrate hepatitis interventions to high-risk populations.
6.4. Provide guidance and technical assistance on hepatitis prevention interventions to advocacy groups, community-based organizations, and health professionals.

2. Public Education and Professional Training

The goal of education and training is to create awareness, increase knowledge, and improve attitudes and practices that aid in the prevention and control of viral hepatitis among health professionals, high-risk populations, and the general public.

Suggested Action Steps

Step 1: Integrate viral hepatitis education into other appropriate health education materials, curricula, and protocols.

1.1. Review existing educational materials (i.e., booklets, brochures, fact sheets) within the State pertaining to HIV, STDs, Drug/Alcohol, and infection control, and incorporate viral hepatitis information where appropriate.
1.2. Collaborate with programs serving high-risk populations to encourage the incorporation of viral hepatitis prevention messages and interventions into existing prevention curricula, procedures and protocols.

Step 2: Provide educational opportunities for health professionals on screening, testing, diagnosis, transmission, symptoms, and disease management for those infected with viral hepatitis and for at-risk populations.

2.1. Provide educational programs, in-service trainings and materials targeting primary care providers (i.e., physicians, nurse practitioners, and physician assistants).
2.2. Provide educational programs, in-service trainings, and materials targeting other health professionals (i.e., health educators, HIV/STD counselors, substance abuse counselors, case managers, support group leaders, and correctional facility personnel).

Step 3: Educate at-risk populations and promote the need for hepatitis C testing and hepatitis A and B vaccination.

3.1. Survey community-based and private sector agencies to assess current hepatitis services.
3.2. Collaborate with agencies to develop educational programs and interventions.
3.3. Develop and disseminate educational materials to promote hepatitis C testing and hepatitis A and B vaccination.
3.4. Provide training and guidance to agencies to facilitate promotion of hepatitis education.

Step 4: Educate the general public on viral hepatitis prevention and control measures.

4.1. Update and disseminate viral hepatitis A, B, and C fact sheets.
4.2. Disseminate the *New Hampshire Viral Hepatitis Prevention and Control Plan*.

4.3. Update the DHHS Viral Hepatitis Website page to include all New Hampshire Hepatitis Program materials and appropriate links to resources (i.e., education, advocacy, testing sites, substance abuse treatment facilities, treating physicians).
4.4. Develop an STD/HIV/Viral Hepatitis Resource Directory to identify and share sources of information on Programs and Services in New Hampshire (i.e., support groups, counseling, testing and vaccination sites, substance abuse treatment facilities, and treating physicians).

Step 5: Target efforts toward specific at-risk populations on viral hepatitis prevention and control measures.

5.1. Provide educational materials (i.e., brochures, videos) targeting specific populations (i.e. youth, inmates, IDUs, infected persons).
5.2. Establish partnerships and collaborate with New Hampshire Department of Education, high schools, universities, and colleges to integrate prevention messages into curricula where appropriate.
5.3. Provide technical assistance and trainings to organizations (i.e., schools, correctional facilities, STD/HIV clinics, substance abuse clinics, private practitioners) to facilitate viral hepatitis education.

3. Medical and Case Management

Tertiary prevention and long-term care consist of effective medical management of advanced liver disease and rehabilitation of patients who develop complications. The goal is to limit the disease burden from chronic hepatitis. Chronic HBV or HCV infection is a life-altering event for the affected individual and can also have a great impact on his/her family, friends, and employers. The limitation of infrastructure and resources cause further distress, underscoring the need to strengthen clinical and support infrastructure.

Suggested Action Steps

Step 1: Integrate viral hepatitis education, counseling, and referral services into existing programs serving at-risk populations.

1.1. Assess current hepatitis services offered by agencies serving high-risk populations.
1.2. Provide training and technical assistance to facilities to ensure consumers receive appropriate education and referral for medical treatment and risk reduction.
1.3. Provide consumers with educational materials on measures to prevent liver complications and other associated chronic diseases.
1.4. Encourage the incorporation of viral hepatitis prevention messages and interventions into existing procedures and protocols of programs serving high-risk populations.

Step 2: Provide access for those living with chronic hepatitis to quality medical treatment.

2.1. Increase the number of physicians who are experienced in treating hepatitis and chronic liver disease in New Hampshire.
2.2. Identify and recruit local providers.
2.3. Advocate for drug and medical care assistance for patients living with chronic hepatitis.
2.4. Promote awareness among policymakers of the need for funding for HCV treatment.
2.5. Educate physicians and infected individuals regarding funding sources for treatment.
2.6. Promote awareness among health professionals and infected individuals of the need for hepatitis A and B vaccination.

Step 3: Provide access to behavioral health services for those living with chronic hepatitis.

3.1. Increase awareness of the need for expanded behavioral health services.
3.2. Assess current behavioral health services offered among stakeholders and identify barriers.
3.3. Encourage collaboration of stakeholders to integrate and promote behavioral health services for individuals with chronic viral hepatitis.

Step 4: Promote self-advocacy among individuals diagnosed with chronic viral hepatitis.

4.1. Provide guidance and technical assistance to facilities to develop, institute, and promote participation in viral hepatitis support groups.
4.2. Educate consumers regarding available services by collaborating with healthcare providers and hepatitis testing sites to provide newly diagnosed individuals with a New Hampshire Viral Hepatitis Resource Directory.

4. Surveillance and Research

Surveillance involves the collection and analysis and dissemination of hepatitis data. The purpose of establishing a surveillance system is to support primary and secondary prevention, education, and medical management. The goal of hepatitis surveillance is to measure the burden of disease; determine risk factors; identify outbreaks; monitor trends; evaluate control measures, interventions, and programs; and identify infected persons for medical referral, education, and counseling.

This plan encourages the promotion of viral hepatitis research activities in an effort to assist with decreasing the incidence of viral hepatitis and benefit those infected with chronic hepatitis.

Suggested Action Steps

Step 1: Collect data on viral hepatitis A and B to direct and support prevention, medical management, and policy development.

1.1. Maintain the existing data management system to monitor incidence, prevalence, trends, demographics and risk groups for viral hepatitis, co-infection with HIV, and other reportable diseases.

1.2. Utilize existing protocols and forms for data collection, investigation, and case management.
1.3. Create a viral hepatitis epidemiological profile for New Hampshire based upon existing and new data sources.
1.4. Distribute the epidemiological profile to policy and decision-makers to educate them on the burden of viral hepatitis infection in New Hampshire.

Step 2: Encourage and promote research initiatives to support prevention, control and surveillance programs.

2.1. Assess hepatitis A and B vaccination dissemination among high-risk groups and identify barriers.
2.2. Conduct research studies targeted at the incarcerated population burdened with HBV, HCV, and HIV to identify barriers, aid in the design of educational materials and training, and promote awareness.
2.3. Survey community-based and private-sector agencies to assess current hepatitis services to identify barriers and guide recommendations.
2.4. Utilize PHL data to guide prevention efforts to address the impact of hepatitis B and C.

5. Evaluation

The *New Hampshire Viral Hepatitis Prevention and Control Plan* will be reviewed annually to assess program objectives and progress and to recommend future initiatives. Throughout this plan, evaluations will be conducted after training sessions to identify effectiveness and make future recommendations. Bi-annually, follow-up will be conducted with state and partner agencies to assess barriers and successes of integrating hepatitis counseling/messages into practices and literature.

The New Hampshire DHHS Viral Hepatitis Program will prepare a progress report on prevention and control activities and future recommendations as required by CDC for the Viral Hepatitis Prevention Coordinator (VHPC) grant. Future revisions and updates will be created by the New Hampshire DHHS Viral Hepatitis Program and edited by the New Hampshire Communicable Disease Epidemic Control Committee (CDECC).

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