

Hepatitis C Virus Infection: An Overview of Wisconsin's Public Health Resources

Marjorie Hurie MS, RN; William J. Reiser, MSN, RN; James Vergeront, MD

ABSTRACT

Hepatitis C virus (HCV) infection is the most common chronic bloodborne infection in the United States, with an estimated 3.9 million infected persons nationally and 85,000 persons infected in Wisconsin. HCV infection results in significant morbidity and mortality and contributes to high health care costs associated with specialized medical care, medications, and hospitalization. This report is an overview of HCV-related resources for consumers and clinicians caring for persons with HCV infection in Wisconsin.

BACKGROUND

Hepatitis C virus (HCV) infection is the most common chronic bloodborne infection in the United States, with an estimated 3.9 million Americans (1.6%) who are HCV antibody positive,¹⁻³ including approximately 85,000 persons in Wisconsin.⁴

Risk factors associated with acquiring HCV infection include injection drug use, transfusion of blood and blood products, transplantation of solid organs from infected donors, occupational exposure to blood, birth of an infant to an infected mother, and sexual contact with an infected partner.

Prospective studies show that 60%-80% of HCV-infected persons develop chronic infection.⁵ Major morbidities associated with HCV infection include progressive liver fibrosis, cirrhosis, end-stage liver disease, and hepatocellular carcinoma. Fibrosis, which occurs in approximately <20% of persons with chronic HCV infection, is influenced by several factors including older

age at time of infection; male gender; co-infection with human immunodeficiency virus, hepatitis B, or schistosomiasis; nonalcoholic fatty liver disease; and excessive alcohol consumption.⁶

HCV DISEASE PREVENTION AND CONTROL

HCV infection is prevented by reducing or eliminating risk for HCV transmission through screening donors of blood components, inactivation of plasma-derived products, risk reduction counseling of persons at risk, and infection control practices. Disease control measures include identifying persons with HCV infection, educating infected persons about preventing HCV transmission and disease progression, administering hepatitis A and hepatitis B vaccines to prevent HAV and HBV infections, and providing treatment to those at greatest risk for disease progression.⁷

The federal Centers for Disease Control and Prevention (CDC) initially awarded funding to the Wisconsin Department of Health and Family Services (DHFS) in 2000 to support state public health efforts to prevent and control HCV infection through disease surveillance and prevention. The Wisconsin Hepatitis C Program is integrated with the Wisconsin AIDS/HIV Program because both HCV and HIV infections involve bloodborne pathogens requiring similar capacities for disease surveillance and prevention. The programs serve similar target populations, especially persons with histories of injection drug use.

IDENTIFYING PERSONS WITH HCV INFECTION

HCV testing is routinely recommended for persons who

- were notified they received blood from a donor who later tested positive for hepatitis C.
- had a history of injecting illegal drugs on at least 1 occasion.

Authors are with the AIDS/HIV Program, Bureau of Communicable Diseases and Preparedness, Division of Public Health, Wisconsin Department of Health and Family Services. Ms Hurie is former Hepatitis C coordinator. Mr Reiser is a prevention specialist. Doctor Vergeront is director. Please address correspondence to: William J. Reiser, MSN, RN, 1 W Wilson St, Rm 318, Madison WI, 53701-2659; phone 608.266.3073; e-mail Reisewj@dhfs.state.wi.us.

- received a plasma-derived product for clotting problems prior to 1987.
- received a blood transfusion or solid organ transplant before July 1992.
- have ever been on long-term hemodialysis.
- have evidence of liver disease such as persistently abnormal levels of alanine aminotransferase (ALT).
- have been a sex partner of an injection drug user.
- have exchanged sex for drugs or money.
- have HIV infection.
- are health care, emergency, or public safety (police enforcement or correctional facility staff) workers with percutaneous or mucosal exposures to HCV-positive blood.
- are children born to HCV-positive women.
- are current sex partners of HCV-positive persons (within past 6 months).

CDC also recommends testing persons in settings with a potentially high proportion of injection drug users such as correctional institutions, HIV counseling and testing sites, and drug and sexually transmitted disease (STD) treatment programs.⁷ A serologic survey conducted in 1999 demonstrated that restricting HCV screening to the approximately 30% of inmates meeting select screening criteria (ie, history of injection drug use or liver disease, serologic evidence of HBV infection, or elevated ALT levels) identified approximately 90% of all HCV infections among inmates in the Wisconsin Department of Corrections.⁸

HCV SCREENING AND TESTING IN WISCONSIN

In Wisconsin communities, HCV testing is available through private medical professionals, local health departments (LHDs), AIDS service organizations, tribal health clinics, family planning clinics, and STD clinics. Public sector agencies that provide HCV testing can be located on the Web site of the Wisconsin HIV/STD/Hepatitis C Information and Referral Center at www.wisconsin-irc.org by using the Web site's search function, labeled "Find Services Near You."

Public sector agencies submit specimens for HCV testing to the Wisconsin State Laboratory of Hygiene, which offers HCV antibody testing by enzyme immunoassay and HCV ribonucleic acid (RNA) testing by qualitative reverse transcriptase polymerase chain reaction.⁹

The CDC recommends that health care professionals routinely assess patients regarding their history of injection drug use and that they counsel, test, and evaluate persons with such histories for risk of HCV infec-

tion.⁷ Surveys of primary care professionals show that many appropriately evaluate persons with HCV infection but few elicit risk histories that could identify such persons.^{10,11}

To assist with risk assessment, the Wisconsin Hepatitis C Program has developed consumer education materials on risk self-assessment. These materials (including a full-color brochure, poster, and postcard) list risk factors for HCV infection and advise consumers with risks to ask their health care professional for a hepatitis C test. The materials, which are free, can be viewed on the DHFS Web site. An order form for these items is located on the DHFS Web site and can be printed, completed, and faxed to the Hepatitis C Program. See Table 1 for the Web site address for this and other materials referenced in this article.

Drug screening instruments are available to help clinicians identify patients who use illegal drugs. The federal Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Substance Abuse Treatment developed 2 versions of an alcohol and other drug use (AOD) screening instrument that was designed to be administered as an interview or a self-administered test (CSAT 1994). The Simple Screening Instrument for AOD Abuse Interview Form and the Self-Administered Form can be accessed on the SAMHSA Web site. The Drug Abuse Screening Test, a brief instrument for clinical screening and treatment evaluation research, is accessible from several Internet sites, including the Vanderbilt Addiction Center, where it can be self-administered and scored on-line.

EDUCATING INFECTED PERSONS

Persons who test positive for HCV infection should receive information on preventing liver damage (eg, regular medical care, abstaining from alcohol, good nutrition) and reducing risks for transmitting HCV.⁷ A patient brochure—"If You Have Hepatitis C"—reinforces these messages, and multiple copies can be ordered without charge from the CDC Web site. LHD staff can provide additional health education and risk reduction information as a part of follow-up with persons with HCV infection.

HEPATITIS A AND HEPATITIS B VACCINATION

Persons with HCV infection should be vaccinated against hepatitis A if liver damage is present, and hepatitis B if they are in a risk group for whom the vaccine is recommended.¹² The Wisconsin Immunization Program provides hepatitis A and hepatitis B vaccine for HCV-

Table 1. Internet Resources for Prevention, Detection, and Management of HCV Infection

| Resource | Web Site Address* |
|---|--|
| Patient Education | |
| Centers for Disease Control and Prevention | www.cdc.gov/ncidod/diseases/hepatitis/resource/materials.htm |
| Wisconsin Department of Health and Family Services | www.dhfs.state.wi.us/dph_bcd/hepatitis |
| Wisconsin HIV/STD/Hepatitis C Information and Referral Center | www.irc-wisconsin.org (Use "Find Services Near You" function) |
| Screening Instruments for Alcohol and Other Drug Abuse | |
| Substance Abuse and Mental Health Services Administration | ncadi.samhsa.gov/govpubs/bkd143/ |
| Vanderbilt Addiction Center Drug Abuse Screening Test | kc.vanderbilt.edu/addiction/dast.html |
| HCV Testing | |
| Wisconsin HIV/STD/Hepatitis C Information and Referral Center | www.irc-wisconsin.org (Use "Find Services Near You" function) |
| Wisconsin State Laboratory of Hygiene | www.slh.wisc.edu/ |
| Hepatitis A and Hepatitis B Vaccine | |
| Local Health Departments (For persons with HCV infection who are un- or under-insured for vaccines) | www.dhfs.wisconsin.gov/DPH_Ops/LHDL.HTM |
| Drug Assistance | |
| Wisconsin AIDS/HIV Drug Assistance Program | www.dhfs.state.wi.us/aids-hiv/Resources/Overviews/AIDS_HIV_drug_reim.htm |
| Roche's Patient Assistance Program | www.rocheusa.com/programs/patientassist.asp |
| Schering's Commitment to Care Program | www.hep-help.com/about/resources/commit.htm |
| Health Insurance | |
| BadgerCare Medicaid | www.dhfs.state.wi.us/badgercare/html/application.htm www.dhfs.state.wi.us/medicaid1/recpubs/eligibility/book_contents.htm |
| National Hepatitis C Program for Veterans | www.va.gov/hepatitisc/index.htm |
| Information for Clinicians | |
| American Association for the Study of Liver Diseases | www.aasld.org/eweb/docs/hepatitisc.pdf |
| National Institute of Diabetes & Digestive & Kidney Diseases | www.niddk.nih.gov/health/digest/pubs/chrnhepc/chrnhepc.htm |
| National Institutes of Health Management of Hepatitis C: 2000 | consensus.nih.gov/cons/116/116cdc_intro.htm |

* All Web sites accessed January 10, 2006.

infected clients of LHDs if they are uninsured or if their insurance does not cover vaccines. Contact information for Wisconsin LHDs is located on the DHFS Web site.

MEDICAL REFERRAL

Persons with HCV infection should be evaluated for biochemical evidence of chronic liver disease, severity of disease, and need for treatment. The initial evaluation usually includes measurement of ALT, HCV RNA by polymerase chain reaction, and a liver biopsy. The National Digestive Diseases Information Clearinghouse provides information on many aspects of hepatitis C diagnosis and treatment for patients and health care professionals in an on-line document, "Chronic Hepatitis C: Current Disease Management." Additionally, the American Association for the Study of Liver Diseases has practice guidelines on the diagnosis, management, and treatment of hepatitis C.¹³ These medical recommendations suggest preferred ap-

proaches to the diagnostic, therapeutic, and preventive aspects of care.

TREATMENT FOR HCV INFECTION

The cost of a 48-week course of treatment for HCV infection with pegylated interferon and ribavirin ranges from approximately \$24,000 to \$32,000.¹⁴ HCV care and treatment resources include private insurance, Medicaid, BadgerCare, SeniorCare, Medicare, the Wisconsin AIDS/HIV Drug Assistance Program (ADAP), the Veteran's Administration, and the manufacturers' drug assistance programs. Medicaid reimburses medically necessary services related to the detection, prevention, and treatment of HCV infection when provided to persons enrolled in Wisconsin Medicaid or BadgerCare and delivered by Medicaid-certified health care professionals. Persons co-infected with HCV and HIV may receive HCV medications through ADAP if they meet ADAP eligibility criteria. Manufacturers of HCV medi-

cations provide medication at no cost to patients who have no health insurance and meet financial eligibility requirements. However, drug assistance programs do not cover the costs of treatment monitoring. Assistance for uninsured persons with moderate incomes or for insured persons with high deductibles or co-payments is not currently available.

In summary, several resources are available to support prevention, detection, and management of HCV infection, including consumer education materials and programs for HCV testing, hepatitis A and B vaccination to prevent HAV and HBV infections, and drug assistance. Additional resources for the care and treatment of persons with HCV infection are needed since the financial and other eligibility criteria of existing programs significantly limit the number of persons who can be served.

REFERENCES

1. Armstrong GL, Simard EP, Wasley A, et al. The Prevalence of Hepatitis C Virus (HCV) Infection in the United States, 1999-2002. Centers for Disease Control and Prevention. 2004. Abstract presented at the 55th Annual Meeting of the American Association for the Study of Liver Diseases (AASLD), Boston, 2004 October 29-November 2.
2. Alter MJ, Kruszon-Moran D, Nainan OV, et al. The prevalence of hepatitis C virus infection in the United States 1998 through 1994. *N Engl J Med*. 1999;314:556-562.
3. Alter MJ. Prevention of spread of hepatitis C. *Hepatology*. 2002;36(suppl 1):S93-S98.
4. Wisconsin Department of Health and Family Services, Division of Public Health, Bureau of Communicable Diseases. Wisconsin Hepatitis Strategic Plan. 2003. Available at: <http://dhfs.wisconsin.gov/communicable/hepatitis/ProvResources/ProvResourcesfront.htm>. Accessed January 5, 2006.
5. National Institutes of Health Consensus Development Conference Statement: Management of Hepatitis C: 2002. *Hepatology*. 2002;36(suppl 1):S3-S20.
6. Seeff LB. Natural history of chronic hepatitis C. *Hepatology*. 2002;36(suppl 1):S35-S46.
7. Centers for Disease Control and Prevention (CDC). Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. *MMWR Morb Mortal Wkly Rep*. 1998;47(No. RR-19).
8. Pfister JR, Haase B, Hurie M, Davis JP, Voermans P, Thorpe C. Targeted hepatitis C virus screening of inmates on admission to the Wisconsin adult correctional system. *Wisconsin AIDS/HIV Update*. Spring 2001:43-46.
9. Wisconsin Department of Health and Family Services (DHFS). EpiNnet Wisconsin Disease Surveillance Manual. Rev. April, 1997. POH 4037. Available at: dhfs.wisconsin.gov/dph_bcd/Communicable/HlthProvider.htm#EpiNetMan. Accessed January 5, 2006.
10. Shehab TM, Orrego M, Chunduri R, Lok AS. Identification and management of hepatitis C patients in primary care clinics. *Am J Gastroenterol*. 2003;98(3):639-644.
11. Navarro VJ, St Louis TE, Bell BP. Identification of patients with hepatitis C virus infection in New Haven County primary care practices. *J Clin Gastroenterol*. 2003;36(5):431-435.
12. Centers for Disease Control and Prevention. Prevention of hepatitis A through active or passive immunization: recommendations of the advisory committee on immunization practices (ACIP). *MMWR Morb Mortal Wkly Rep*. 1999;48(No. RR-12):1-37.
13. Strader DB, Wright T, Thomas DL, Seeff LB; American Association for the Study of Liver Diseases. Diagnosis, management, and treatment of hepatitis C. *Hepatology*. 2004;39(4):1147-1171.
14. Franciscus A. A simple guide to understanding the cost of HCV medications. *HCV Advocate*. 2003;6(5):1,5. Available at: www.hcvadvocate.org. Accessed January 5, 2006.

Wisconsin Medical Journal

The mission of the *Wisconsin Medical Journal* is to provide a vehicle for professional communication and continuing education of Wisconsin physicians.

The *Wisconsin Medical Journal* (ISSN 1098-1861) is the official publication of the Wisconsin Medical Society and is devoted to the interests of the medical profession and health care in Wisconsin. The managing editor is responsible for overseeing the production, business operation and contents of the *Wisconsin Medical Journal*. The editorial board, chaired by the medical editor, solicits and peer reviews all scientific articles; it does not screen public health, socioeconomic or organizational articles. Although letters to the editor are reviewed by the medical editor, all signed expressions of opinion belong to the author(s) for which neither the *Wisconsin Medical Journal* nor the Society take responsibility. The *Wisconsin Medical Journal* is indexed in Index Medicus, Hospital Literature Index and Cambridge Scientific Abstracts.

For reprints of this article, contact the *Wisconsin Medical Journal* at 866.442.3800 or e-mail wmj@wismed.org.

© 2006 Wisconsin Medical Society