

Hepatitis C: An Emerging Health Concern for Texans

National estimates indicate that at least 300,000 Texans have contracted hepatitis C infection. Of special concern is the large number of those who are unaware that they are infected with this virus. To help address this priority public health concern, Texas Department of Health developed the following educational materials on hepatitis C. The first section provides background information and behavioral guidelines for patients and the general public. The second section, primarily intended for health professionals, includes information on hepatitis C testing and treatment.

What is hepatitis C?

Hepatitis C is one type of virus that can damage the liver, a vital organ that has many functions. About 30% to 40% of people with new hepatitis C infection develop symptoms, and 20% to 30% have jaundice (yellow eyes and skin). Symptoms include fatigue, mild fever, flu-like illness, nausea and vomiting, stomach ache, and loss of appetite.

Up to 70% of people who have just been infected with hepatitis C may have no symptoms. They may not even know they are infected. Many people first find out they are infected with this virus when they are tested at the time they donate blood or when they begin to have symptoms of liver damage. This is often years later.

More than 85% of persons with hepatitis C infection develop chronic hepatitis C, which persists over a long period of time. Fatigue is the most common complaint of people with chronic disease.

Why is hepatitis C a major health problem?

Hepatitis C is the most common chronic bloodborne infection in the United States. In 1997, 376 acute cases (new infection) of hepatitis C were reported to TDH (1.9 cases/100,000 population). Among racial/ethnic groups, Hispanics had the highest rate of acute cases (2.2/100,000).

About 70% of the people with chronic hepatitis C infection develop liver disease, which can progress to cirrhosis (scarring), failure, and/or cancer of the liver. Severe liver disease from hepatitis C infection accounts for one quarter to one third of all liver transplants in the nation.

The majority of persons infected with hepatitis C are now 30 to 49 years old. Complications from their chronic liver disease are likely to develop within the next couple of decades.

The Centers for Disease Control and Prevention (CDC) estimates that 8,000 to 10,000 people in the United States die each year from chronic hepatitis C. The number of deaths linked to chronic hepatitis C disease is expected to triple in the next 10 to 20 years.

The costs of hepatitis C are considerable. It is estimated that over \$600 million are spent nationally each year on medical care and lost wages related to hepatitis C. This disease also has emotional and social costs that are harder to add up. Joining a support group helps many people with hepatitis C cope with this disease. (See resource list.)

Continued ☞

Also in this issue:
 Outbreaks: Measles
 Errata

Is there a vaccine or other drug to help prevent hepatitis C infection?

No vaccines or immune globulin products to prevent hepatitis C infection are available right now. Developing a vaccine will be difficult because hepatitis C virus includes several strains that undergo many mutations.

Current prevention methods include

- modifying high-risk behaviors
- screening blood, organ, and tissue donors
- using gloves, gowns, and other barrier methods to prevent direct contact with the blood and body fluids of an infected person.

How does a person get infected with hepatitis C? Who is at risk?

A person infected with either acute or chronic hepatitis C may infect other people, especially if no safety measures are taken. The virus is found in the blood and is usually spread by direct contact with blood and blood products.

People can be infected with the virus when they use needles, toothbrushes, and nail files, that contain blood from an infected person. People who have acupuncture, body piercing, or tattooing done are at risk if the equipment used is not sterile. These procedures must be done using proper infection control that includes washing hands, using disposable gloves, and cleaning and disinfecting surfaces. The highest risk of getting infected with hepatitis C comes from injecting illegal drugs. The risk is very low, however, when a person gets a blood transfusion. Nowadays all donor blood is carefully tested in the laboratory.

A small proportion of people with hepatitis C infection virus have no known history of exposure to blood or to drug use. They could have

been exposed when a cut or wound came in contact with blood from an infected person. For example, the mother of an infected teenager recalled only one time her child was in contact with another person's blood. When she was 12, she joined a group who made members become "blood" brothers and sisters. She had to cut herself and touch the wound to the other kids' bleeding cuts.

Hepatitis C may also be spread through sexual contact. The exact risk is not yet known, but people with many sex partners are at higher risk. A person with hepatitis C who has multiple partners should tell them about this infection and always use latex condoms. People with hepatitis C infection who are with one long-term sex partner do not need to change their practices. The partner's risk is low but not absent. To lower this small risk, they can use barrier precautions such as latex condoms and ask their doctor about having the partner tested.

For every 100 infants born to HCV-infected mothers, 5 become infected at the time of birth. There is no treatment that can prevent this from happening. Most infants who are infected at birth have no symptoms and do well during childhood. More studies are needed to see if these children will have problems later.

Current information suggests that babies do not become infected with hepatitis C from their mothers' breastmilk. However, mothers who have cracked or bleeding nipples should consider formula feeding until their nipples are healed.

Proper medical care during and after pregnancy is especially important for women with hepatitis C. They should discuss all possible risks with their doctors.

Continued ☞

What should people do if they have hepatitis C or think they are at risk?

Everyone who tests positive for hepatitis C should follow the guidelines below to prevent further liver damage and reduce the risk of infecting others.

Protect your liver from further harm.

- Get a medical evaluation for chronic liver disease and possible treatment
- Do not drink alcohol.
- Consult a physician before you start any new medicines, including over-the-counter and herbal medicines.
- Get vaccinated against hepatitis A if you have liver disease.

Reduce the risk of infecting others.

- Do not donate blood, body organs, other tissue, or semen.
- Do not share toothbrushes, dental appliances, razors, manicure scissors, or other personal-care articles that might have blood on them.
- Cover cuts and sores on the skin to keep from spreading infectious blood or secretions.

It is important for people who are at high risk for hepatitis C to know about their risk and how to reduce it. Over half of the people who inject illegal drugs are infected with hepatitis C. Since they are at highest risk, injection drug users should follow these guidelines:

Stop using and injecting drugs!

- Enter and complete substance-abuse treatment, including relapse-prevention programs.

If you continue to inject drugs, you can lessen your risk somewhat.

- Use a new sterile syringe each time you prepare and inject drugs.
- Do not reuse or share any equipment used to prepare or inject drugs--such as syringes, needles, or water. Otherwise, disinfect used equipment with bleach and water first. (Follow instructions on bleach bottle.)
- Use sterile water to prepare drugs. Clean tap water can be sterilized by boiling it for one minute.
- Use a new or disinfected container ("cooker") and a new filter ("cotton") to prepare drugs.
- Clean the injection site before injection with a new alcohol swab. Safely dispose of syringes after one use.
- Get vaccinated against hepatitis B and hepatitis A.

Continued ☞

Other important facts about Hepatitis C Virus

- HCV is not spread by sneezing, hugging, coughing, food or water, sharing eating utensils, or drinking glasses, or casual contact.
- Having HCV is not a reason to be excluded from work, school, play, child-care, or other group setting.

Major High-risk Groups for Hepatitis C

- People who have received blood or blood products from a donor who tested positive for hepatitis C
- People who received a blood transfusion or solid organ transplant (such as a kidney, liver, or heart) before July 1992¹
- People with blood clotting problems who received treatment with a blood product made before 1987²
- People who have ever injected street drugs, even once
- People who were ever on long-term kidney dialysis
- People with accidental injuries due to needles or other sharp objects

1. Routine testing for HCV antibody began in 1990, and more sensitive testing became available during July 1992.
2. Effective procedures to inactivate viruses became available in 1987.

Resources for Hepatitis C Information

American Liver Foundation
1-800-Go Liver (1-800-465-4837)
<http://www.liverfoundation.org>

Centers for Disease Control and
Prevention (CDC), Hepatitis Branch
1-888-4 HEP-CDC (1-888-443-7232)
[http://www.cdc.gov/ncidod/
diseases/hepatitis/](http://www.cdc.gov/ncidod/diseases/hepatitis/)

Hepatitis C Foundation
(215) 672-2606
<http://www.hepcfoundation.org>

Hepatitis Foundation International
1-800-891-0707
<http://www.hepfi.org>

Support Groups in Texas:

HepC Connection
(512) 432-1787
<http://www.hepc.org>

Texas Liver Coalition
1-800-72-LIVER
<http://www.texasliver.org>

Additional Hepatitis C information for Health Professionals

Screening for Hepatitis C

The most widely available test methodology for detection of antibody to hepatitis C (anti-HCV) is the enzyme immunoassay (EIA). Although this methodology is able to detect anti-HCV, it does not distinguish between acute, chronic, or past infection. A third version of the assay is now available that detects anti-HCV in 97% or more of persons with hepatitis C infection.

Unfortunately, the rate of false positives for anti-HCV is high in groups of people with low rates of infection. All positive tests should be verified by using a supplemental assay such as the Recombinant Immunoblot Assay (RIBA).

The actual virus can also be detected through reverse transcriptase polymerase chain reaction (RT-PCR) techniques that detect the genetic code of the virus. Results may vary considerably across laboratories, and therefore this type of test should be used together with the more standard tests that detect anti-HCV antibodies. The average amount of time from exposure to seroconversion is 8 to 9 weeks; anti-HCV antibody is detectable within 15 weeks in 80% of people and within 6 months in 97%.

The Centers for Disease Control and Prevention developed the following guidelines for determining who should be tested for HCV infection.

Persons who should be tested routinely for HCV infection based on their risk for infection:

- Recipients of clotting factor concentrates before 1987
- Injecting drug users (including past users)
- Persons with persistently abnormal alanine aminotransferase levels
- Chronic hemodialysis patients
- Blood and solid-organ transplant recipients before 1992
- Persons notified that they received blood from a donor who later tested positive for HCV infection

Average Anti-HCV Prevalence

- 87%
- 79%
- 15%
- 10%
- 6%*

No Data

* Percentage positive who received blood transfusions or organ transplants before 1990.

Persons who should be tested routinely for HCV infection based on a recognized exposure:

- Children born to HCV-infected women
- Health care, emergency medical, and public safety workers after needle stick, sharp, or mucosal exposures to HCV-positive blood

Incidence

- 5%
- 2%

Persons for whom routine testing for hepatitis C infection is of uncertain need:

- Recipients of transplanted tissue (eg, corneal, musculoskeletal, skin, ova, sperm)
- Intranasal cocaine and other noninjecting illegal drug users
- Persons with a history of tattooing or body piercing
- Persons with a history of multiple sex partners or sexually transmitted diseases
- Long-term steady sex partners of hepatitis C-positive persons

Persons for whom routine testing is not necessary:

- Health-care, emergency medical, and public safety workers
- Pregnant women
- Household (nonsexual) contacts of HCV-positive persons
- The general population

Note: recommendations change as new data become available.

Notification of Persons With Possible Exposure Through Donor Blood

In September 1998, the FDA issued the "Guidance for Industry: Supplemental Testing and the Notification of Consignees of Donor Test Results for Antibody to Hepatitis C Virus (Anti-HCV)." This policy lists requirements for blood banks regarding the quarantine and disposition of units from prior collections of donors with repeat reactive screening tests for anti-HCV and for the notification of blood recipients if they received blood from a donor who subsequently tested positive for antibody to HCV. In the guidance document, any hospital or transfusion service that is notified of the prior receipt of a unit of blood that potentially contained HCV is directed to promptly notify the patient or their physician of record. FDA recommends that this notification process be completed within 18 months. They also recommend that notification include information about HCV testing and counseling; sufficient information so that the transfusion recipient make an informed decision about whether to obtain testing; and a list of programs or places the patient can obtain HCV testing.

Treatment Options

Interferon is one of several drugs available to treat chronic hepatitis C. It must be given by injection and has a number of side effects, including flu-like symptoms. Periodic blood tests are required to monitor white blood cells and platelets because interferon may interfere with their production by depressing the bone marrow. While 50% to 60% of patients respond to treatment initially, only 10% to 20% have lasting clearance of the virus. Depending on patient response, treatment lasts 6 to 18 months.

In June 1998, the United States Food and Drug Administration (FDA) approved Rebetrone® combination therapy (interferon and ribavirin) for

treatment of chronic hepatitis C patients with liver disease who have relapsed following interferon therapy. Six months after treatment with this combination of interferon and ribavirin therapy, 46% of patients had undetectable virus levels. In December 1998, the FDA approved the combination therapy for treatment of chronic hepatitis C in patients with compensated liver disease previously untreated with interferon therapy. In addition to the side effects associated with interferon, ribavirin in the combination therapy can cause serious anemia. Pregnancy should be avoided during treatment because ribavirin causes birth defects.

HCV-positive children with elevated liver enzyme levels should be referred for evaluation to a specialist familiar with managing HCV-related disease in children.

Some persons with hepatitis C require a liver transplant. Currently, one quarter to one third of all liver transplants in the nation are performed for end-stage hepatitis C disease.

Conclusion

Hepatitis C infection is the most common chronic bloodborne infection in the United States. This infection is a serious public health concern in Texas for two reasons: a large number of people are infected, and chronically infected persons may develop such long-term adverse health effects as cirrhosis and/or cancer of the liver. Screening and counseling persons at high risk of hepatitis C are important interventions to prevent the spread of the virus. Early detection of infection can also prevent further progression of liver disease through referral for treatment and education about lifestyle changes (such as the importance of not drinking alcohol).



Prepared by Jean Brender, RN, PhD, TDH Infectious Disease Epidemiology and Surveillance Division and Jennifer A. Richardson, RN, University of Texas at Austin School of Nursing

Continued 

Bibliography

Centers for Disease Control and Prevention. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. MMWR 1998;47(No. RR-19).

National Institutes of Health Consensus Development Conference Panel Statement: Management of Hepatitis C. Hepatology 1997, 26:3 (Suppl 1), 2S-10S.

US Food and Drug Administration. Guidance for Industry. Current Good Manufacturing Practice for Blood and Blood Components: (1) Quarantine and Disposition of Units from Prior Collections from Donors with Repeatedly Reactive Screening Tests for Antibody to Hepatitis C Virus (Anti-HCV); (2) Supplemental Testing and the Notification of Consignees and Blood Recipients of Donor Test Results for Anti-HCV.

For further information on hepatitis C infections contact Jean Brender at (512) 458-7676.

Austin Cases Reported This Year Spoil Texas' Measles-Free Record of 1998

Rash onsets were January 18 and 19, respectively, for 6-month-old twins from Austin who had recently visited Lebanon with their parents. These are the first cases to be confirmed in Texas since July 1997. Although Texas health officials investigated over 200 suspected cases last year, none were confirmed, making 1998 the first known measles-free year for Texas.

Because measles is highly contagious, suspected cases must be reported to health authorities immediately so appropriate control measures can be taken and susceptible contacts identified. Susceptible contacts to suspected cases should be vaccinated with measles

vaccine within 72 hours of exposure or be given immune globulin within 6 days.

Measles should be suspected if the patient has the following:

- ≥ 3 days of generalized rash
- temperature $\geq 101^\circ$ F
- cough, coryza, or conjunctivitis

All suspected cases should be treated as confirmed until appropriate laboratory testing or other information rules out measles.

For additional information on these outbreaks, call the TDH Immunization Division, at (800) 252-9152.

Report measles cases immediately to (800) 705-8868 or (800) 252-9152.



Disease Prevention News (DPN)
 Texas Department of Health
 1100 West 49th Street
 Austin, TX 78756-3199
 Phone: (512) 458-7677
 Fax: (512) 458-7616
 Email: dpn@discon.tdh.state.tx.us

The electronic versions of *Disease Prevention News* are available at the following locations:
<http://www.tdh.state.tx.us/phpep/dpnhome.htm>
 TDH Healthy Texans BBS: (800) 858-5833

Walter D. Wilkerson, Jr., MD, Chair
 Texas Board of Health

William R. Archer III, MD, Commissioner of Health

Debra Stabeno, Deputy Commissioner for Public Health Sciences and Quality

Diane Simpson, PhD, MD, State Epidemiologist,
 Associate Commissioner for Disease Control and Prevention

Kate Hendricks, MD, MPH&TM, Medical Editor

Mark Gregg, MA, Director,
 Public Health Professional Education

Susan Hammack, MEd, Managing Editor

Linda Darlington, Production Assistant

Errata

Print copies of the January 4, 1999, *DPN* (Vol.59, No. 1) contain an incorrect draft of the table on page 6. The table below contains the correct, most current data. Also on page 6, the website address for the Infectious Disease Epidemiology and Surveillance Division was incomplete. The correct address is <http://www.tdh.state.tx.us/ideas/ideasweb.htm>. The electronic copy that was sent to subscribers on our list server also contained the errata. The website version was corrected January 27.

Case Report Comparison Among Public Health Regions 1996-1997

PHR	1996	1997	No.	%	↑/↓
1	612	1372	760	124.2	↑
2	226	282	56	24.8	↑
3	2893	3114	221	7.6	↑
4	557	636	79	14.2	↑
5 North	105	109	4	3.8	↑
5 South	160	228	68	42.5	↑
6	2774	3000	226	8.1	↑
7	1572	1746	174	11.1	↑
8	1891	2084	193	10.2	↑
9	346	341	-5	-1.4	↓
10	638	603	-35	-5.5	↓
11	2102	2478	376	17.9	↑