



## Hepatitis C Surveillance Protocol

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### Provider Responsibilities

1) Report newly diagnosed persons with acute hepatitis C within one week of diagnosis to the state health department. Forward the completed Confidential Reportable Disease Case Report and the laboratory report to the Division of Infectious Disease Epidemiology (350 Capitol St, Room 125; Charleston, WV 25301). Include all of the following information:

- a) Patient's name, date of birth, address and phone number
- b) Demographic information including race, sex, age, and ethnicity.
- c) Symptoms: did the patient have symptoms of acute hepatitis C?
- d) Laboratory results, including:
  - i) Hepatitis C test for antibody to Hepatitis C virus (Anti-HCV) i.e.:
    - (1) Enzyme Immunoassay (EIA) or
    - (2) Enhanced chemiluminescence immunoassay (CIA)
    - (3) Microparticle Enzyme Immunoassay (MEIA)
    - (4) Chemiluminescent Microparticle Immunoassay (CMIA) AND
  - iv) Confirmatory testing, i.e.:
    - (1) Hepatitis C virus detection By Nucleic Acid Testing ( including quantitative, qualitative and genotype testing); OR
    - (2) Detection of Hepatitis C virus Antigen; and
  - v) Transaminase levels (ALT and AST)

2) A single case of possible healthcare associated hepatitis C is defined as an outbreak and should be reported to the local health department immediately. Healthcare associated hepatitis C infection is often recognized in an index case who had an invasive medical procedure during the 2 weeks to 6 months period prior to onset of hepatitis and no other risk factors for hepatitis C.

3) Educate newly diagnosed persons about hepatitis C infection, especially ways to reduce transmission. [Information for the Public is available for this purpose.](#)

4) Educate patients about appropriate [screening recommendations.](#)

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### Screening recommendations for people who are asymptomatic but who have risk factors<sup>§</sup>

PERSONS	RISK OF INFECTION	TESTING RECOMMENDED?
Injecting drug users	High	Yes
Recipients of clotting factors made before 1987	High	Yes
People with HIV infection	High	Yes
Adults born during 1945–1965		Yes (one-time testing)**
Hemodialysis patients	Intermediate	Yes
Recipients of blood and/or solid organs before 1992	Intermediate	Yes
People with undiagnosed liver problems	Intermediate	Yes
Infants born to infected mothers	Intermediate	After 15 months old*
Healthcare/public safety workers	Low	Only after known exposure
People having sex with multiple partners	Low <sup>1</sup>	No***
People having sex with an infected steady partner	Low <sup>2</sup>	No***

\* Infants born to hepatitis C virus (HCV) positive mothers should be tested for HCV infection after 18 months of age for anti-HCV antibodies. Positive anti-HCV in infants prior to 18 months of age may be due to transplacental transfer of maternal anti-HCV antibody. If earlier diagnosis is desired, tests for HCV RNA may be performed at or after the infant's first well child visit at 1 or 2 months of age. Multiple risk factors were shown to increase the possibility of mother- to- infant transmission of hepatitis C, including co-infection with human immunodeficiency virus, intravenous drug use, and elevated maternal HCV viral load (Yeung et al., 2014). Routine testing for HCV infection is not recommended for all pregnant women. Pregnant women with a known risk factor for HCV infection should be offered counseling and testing.

\*\*[Adults born during 1945–1965 should receive one-time testing for HCV \(without prior ascertainment of HCV risk\)](#). This CDC recommendation for screening is based on the prevalence of patients with HCV infection in this birth cohort (accounting for approximately three fourth of all HCV infection in the U.S) ([MMWR August 17, 2012 / 61\(RR04\):1-18](#)).

\*\*\*Anyone who wants to get tested should discuss this with their doctor.

<sup>1</sup>Risk of transmission is approximately 5 to 10%.

<sup>2</sup>Risk of transmission is approximately 1%.

<sup>§</sup>[Testing recommendations for hepatitis C infection](#)

The risk of HCV infection from a needle stick injury is low. The source and exposed individual should be tested for antibody to HCV as soon as possible. If the source individual is HCV EIA or HCV RNA positive, an assay should be done in the exposed individual. Since HCV RNA is first detected in the blood 2 weeks after transmission, the exposed individual should be tested for HCV antibody, HCV RNA, and ALT at exposure

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and again between 2 and 8 weeks after injury. If seroconversion occurs, that person should be referred for consideration of treatment. Body piercing and tattooing are other potential sources of transmission if contaminated equipment or supplies are used. However, transmission due to these activities is rare and confounded by other risk factors.

### Laboratory Responsibilities

1) Forward paper copies of positive laboratory results for hepatitis C infection to the Division of Infectious Disease Epidemiology (350 Capitol St, Room 125; Charleston, WV 25301) within one week, if not already reported via Electronic Laboratory Reports (ELR). Please include:

- a) Patient's full name, date of birth, address and phone number;
- b) Demographic information including age, sex, race and ethnicity;
- c) Physician name, address and phone number; and
- d) Laboratory results, normal values and interpretation, including:
  - i) Hepatitis C test for antibody to Hepatitis C virus (Anti-HCV) i.e.:
    - (1) Enzyme Immunoassay (EIA) or
    - (2) Enhanced chemiluminescence immunoassay (CIA)
    - (3) MicroparticleImmunoassay (MEIA)
    - (4) ChemiluminescentMicroparticleImmunoassay (CMIA) AND
  - iv) Confirmatory testing, i.e.:
    - (1) Hepatitis C virus detection By Nucleic Acid Testing ( including quantitative, qualitative and genotype testing); OR
    - (2) Detection of Hepatitis C virus Antigen; and
  - v) Transaminase levels (ALT and AST)

2) All laboratories should perform and report results of supplemental testing if test for anti-HCV is positive ([MMWR May 7, 2013, vol. 62](#))

### Local Health Responsibilities

1) Educate the general public about:

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- a) Hepatitis C risk factors and
  - b) Prevention of hepatitis C transmission.
- 2) Educate providers about appropriate screening recommendations and reporting of acute hepatitis C infection to the local health department within one week of diagnosis.
- 3) Educate laboratories about reporting all positive hepatitis C laboratory results within one week to the Division of Infectious Disease Epidemiology.
- 3) Educate correctional facilities as follows:
- a) Evaluate inmate risk factors for HCV infection during the entry medical evaluation, and test inmates reporting risk factors for HCV, especially injection drug use.
    - i) Do appropriate diagnostic testing to differentiate acute hepatitis A, B or C for inmates with signs and symptoms of acute hepatitis and determine if the patient has chronic HBV or HCV infection.
    - ii) Report cases of acute and chronic hepatitis C to the Division of Infectious Disease Epidemiology.
  - b) Do prompt epidemiologic investigation in collaboration with the public health authorities to identify the source of the infection for all inmates with acute hepatitis C, including those incarcerated >6 months.
- 4) When a Hepatitis C Case Report is received, evaluate to determine if the case meets the acute case definition (see **Case Definitions** section)
- 5) If the patient meets the case definition for acute hepatitis C case definition:
- a) He or she should be investigated by using the [WVEDSS hepatitis form, Acute Hepatitis C section](#) and complete data entry in WVEDSS. Ask the patient about risk factors during the 2 weeks to 6 month incubation period.
  - b) If the patient had an invasive medical procedure during the 2 weeks to 6 months prior to onset of symptoms and does not report other risk factors, report this to Division of Infectious Disease Epidemiology (304) 558-5358, extension 1 immediately. A suspect case of healthcare associated hepatitis C infection warrants an investigation. Steps for investigating a single case of hepatitis C infection suspected of being related to health care delivery are available at <http://www.cdc.gov/hepatitis/Outbreaks/HealthcareInvestigationGuide.htm>
  - c) Ensure the patient is educated about hepatitis C transmission, prevention, and control (see **Prevention** section)



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- d) Fax paper copies of laboratory data to the Division of Infectious Disease Epidemiology at 304-558-6335 if not already reported via ELR.
- 6) Laboratory reports not supporting an acute hepatitis C infection should be reported as chronic hepatitis C. If information from investigation results in changing the event to 'hepatitis C acute', the risk assessment of activities 2 weeks to 6 months prior to onset date should be completed.
- 7) If the patient meets the chronic hepatitis C case definition:
  - a) Submit the Confidential Disease Report Card and pertinent laboratory reports to Division of Infectious Disease Epidemiology.
  - b) If resources allow, educate the patient about hepatitis C infection (see **Preventative Interventions** section).
  - c) If resources allow, complete the chronic hepatitis C form in WVEDSS.
- 8) Offer hepatitis A and hepatitis B vaccine according to current recommendations ([Affordable Care Act and Immunization](#)) to susceptible persons meeting the case definition for acute or chronic HCV infection.
- 9) A single suspect or confirmed case of Hepatitis C in association with a procedure at a single doctor's office or health care facility warrants further investigation. Refer to [health care associated investigation guide by CDC](#) for more information. Immediately report such cases to DIDE.

### State Health Responsibilities

- 1) Manage laboratory reports not supporting an acute hepatitis C infection as [chronic hepatitis C](#) investigation in WVEDSS.
- 2) Timely and complete reporting of hepatitis C cases to the CDC through WVEDSS.
- 3) Provide technical expertise and consultation on surveillance, investigation, disease control and prevention of hepatitis C.
- 4) Assist local health jurisdiction in suspected outbreak investigation in getting technical expertise and resources necessary for the investigation.
- 5) Notify CDC of suspected outbreaks identified.
- 6) Summarize surveillance data on annual basis and share with partners.
- 7) State Viral Hepatitis Prevention Coordinator provides information to medical staff, educational institutions and public on hepatitis prevention, counseling and referral to care.

### Disease Control Objectives

- 1) Reduce transmission through timely identification and investigation of community-based and health care associated outbreaks of hepatitis C so that appropriate control measures can be applied.

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### Disease Prevention Objectives

- 1) Prevent transmission of hepatitis C infection through education of persons who have tested positive for HCV.
- 2) Reduce the incidence of acute hepatitis C through community education and programs to prevent drug use and sharing of needles.
- 3) Prevent transmission of health care associated hepatitis C infection through effective infection control measures.
- 4) Prevent transmission of hepatitis C through screening of blood and organ donors.
- 5) Prevent complications of hepatitis C by assuring that persons with hepatitis C receive education about current treatment options, hepatitis A and B vaccines, and the harmful effects of alcohol consumption.

### Disease Surveillance Objectives

- 1) Determine the incidence of acute hepatitis C in West Virginia.
- 2) Annually estimate the number of newly diagnosed cases of chronic hepatitis C in West Virginia.
- 3) Identify the risk factors associated with acute hepatitis C infection.
- 4) Periodically identify the lifetime risk factors associated with chronic hepatitis C infection through special studies.
- 5) Identify demographic characteristics of persons with acute and chronic hepatitis C infection.
- 6) Periodically assess access to care and quality of care for patients with hepatitis C infection through special studies.
- 7) Detect outbreaks or cluster of hepatitis C infection

### Public Health Significance

Hepatitis C virus infection is the most common chronic blood-borne infection in the United States; an estimated 3.2 million persons are chronically infected (<http://www.cdc.gov/media/releases/2012/dpk0830-hepC.html>). Infection is most prevalent among those born during 1945–1965, the majority of whom were likely infected during the 1970s and 1980s. The high prevalence of HCV infection in this birth cohort is largely attributed to exposures that occurred during this period of increased incidence. Many of those exposures were associated with illicit drug use or blood transfusion. Injection drug use (IDU) continues to be the leading risk factor for HCV incidence in the United States, and people who inject drugs have the highest prevalence of HCV infection of any population, ranging from 40%–70% (Amon et al., 2008; Hagan et al., 2011; Williams, et al., 2011). Hepatitis C virus infection is the primary cause for serious liver damage requiring liver transplantation in the U.S. (Davis et al., 2010).

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No vaccine against HCV infection exists and prophylaxis with immune globulin is not effective in preventing HCV infection after exposure.

Seventy to 80% of persons newly infected with HCV are either asymptomatic or have only a mild clinical illness (<http://www.cdc.gov/hepatitis/HCV/HCVfaq.htm>). Most infected persons remain unaware of their infection because they are not clinically ill. However, infected persons serve as a source of transmission to others and are at risk for chronic liver disease (CLD) and other HCV-related chronic diseases for decades after infection (<http://www.cdc.gov/std/treatment/2010/hepc.htm>).

A CDC review of death certificate data found that mortality rate due to hepatitis C infection increased substantially during 1999–2007 (annual mortality rate change: +0.18 deaths per 100,000 population per year); in 2007, HCV caused more than 15,000 deaths (<http://www.cdc.gov/media/releases/2012/dpk0830-hepc.html>). Of the HCV-related deaths, 73.4% occurred among persons aged 45–64 years, with a median age at death of 57 years (approximately 20 years less than the average lifespan of persons living in the United States).

Investigation of a suspect case of healthcare associated hepatitis C is important as it can result in the identification of an outbreak or unsafe clinical practices that are putting additional patients at risk.

### Clinical Description

Persons with acute hepatitis C infection are usually asymptomatic. About 25-30% of persons with acute hepatitis C infection will experience the classic symptoms of hepatitis, including malaise, anorexia, abdominal pain, jaundice, nausea, vomiting, diarrhea and dark urine. Acute hepatitis C infection is indistinguishable from acute hepatitis due to other viruses. A full set of tests for viral hepatitis, including hepatitis A IgM, HBsAg, HBcIgM, and Anti-HCV (with confirmation according to current guidelines) should be ordered, because of the frequency of co-infections. Acute hepatitis A superimposed on chronic hepatitis C infection can cause fulminant hepatitis.

An estimated 75-85% of HCV infected persons develop chronic infection. Again, most of these patients are asymptomatic. About 5–20% HCV infected persons will go on to develop cirrhosis over a period of 20–30 years. Hepatocellular carcinoma, a form of liver cancer, is estimated to occur in about 1-4% of persons with cirrhosis every year (El-Serag 2012).

### Etiologic Agent

The hepatitis C virus is an enveloped RNA virus classified as a separate genus (Hepacivirus) in the Flaviviridae family. At least 6 different genotypes and approximately 100 subtypes of HCV exist. Genotype 1 (subtype 1a and 1b) is the most common (60 to 70%) of the HCV infection in U.S (Kohli et al., 2014). Evidence is limited regarding differences in clinical features, disease outcome or progression to cirrhosis or hepatocellular carcinoma (HCC) among persons with different genotypes. However, differences do exist in responses to antiviral therapy according to HCV genotypes. Hepatitis C virus genotype 1 is more difficult to cure than genotype 2 or genotype 3 (Kohli et al., 2014).

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### Reservoir

This virus is found only in humans. Chimpanzees and mice have been infected experimentally, but they play no known role in transmission to humans.

### Mode of Transmission

Hepatitis C is efficiently transmitted by the **parenteral route** mainly through percutaneous exposure of infectious blood. All injection drug users, even those who have used drugs only once, are considered to be at risk. IDU is currently the most common means of HCV transmission in the United States. Risk factors for transmission of HCV among drug users include: first-time use with an older user, frequent use, cocaine injection, and sharing of paraphernalia.

Other important risk factors include:

- transfusion or organ transplantation, especially prior to July, 1992;
- hemodialysis;
- high-risk sexual activity;
- unsafe injections (in developing countries);
- tattoo and body piercing instruments if not sterilized
- occupational exposure to blood (needle stick in health care setting);
- perinatal exposure. The risk of perinatal transmission is approximately 2 percent for infants of anti-HCV seropositive women.

HCV can also be spread infrequently through:

- Sex with an HCV-infected person
- Sharing personal items contaminated with infectious blood, such as razors or toothbrushes
- Other health care procedures that involve invasive procedures, such as injections (usually recognized in the context of outbreaks)

Healthcare associated transmission of hepatitis C virus infection has been reported from a variety of healthcare settings. Common known or suspected mode of transmission of healthcare associated hepatitis C infection are syringe reuse contaminating medication vials, use of single-dose vials for more than one patient, drug diversion by infected medical technician, use of fingerstick devices and blood glucose meters for more than one individual, preparation of medication in the same area where blood specimens are processed, phlebotomy and nail care performed at nursing home. Hemodialysis patients are at increased risk for hepatitis C; probably because of unrecognized transmission during hemodialysis. A single suspect or confirmed case of Hepatitis C in association with a procedure at a single doctor's office or health care facility warrants further investigation. Refer to [health care associated investigation guide by CDC](#) for more information.

Healthcare workers have a similar or slightly lower prevalence of HCV infection than the general population, although they may have acquired their infection from occupational sources. Transmission from

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healthcare workers to patients has also been documented, but is rare and confounded by other risk factors. HCV-infected healthcare workers should use standard (universal) precautions to prevent transmission and should not be restricted from work.

Transmission does not occur through casual contact (kissing, hugging, touching, coughing, sneezing, food, water, sharing eating utensils or drinking glasses, or other contact without exposure to blood etc.) Breast-feeding does not appear to transmit HCV.

### Incubation Period

Incubation period is two weeks to six months; average 45 days. Chronic infection may persist for up to 20 years before the onset of cirrhosis or hepatoma.

### Period of Communicability

Persons with hepatitis C are infectious (viremic) from about two weeks after exposure for an indefinite period of time. Persons with chronic hepatitis C are intermittently viremic. Peaks in virus concentration appear to correlate with peaks in ALT activity. Persons who test positive for hepatitis C should be assumed to be infectious unless repeated testing for hepatitis C RNA is documented to be negative.

### Outbreak Recognition

Outbreaks have been described in association with cardiac surgery, colonoscopy, outpatient surgery and injectable narcotics diversion by an infected health care provider. Outbreaks have also been recognized in association with needle-sharing partners. If, one or more *acute cases* of hepatitis C occur in association with surgery, dialysis, another invasive procedure in patients without other risk factors within the 2 week to 6 month incubation period, Division of Infectious Disease Epidemiology should be notified immediately that a possible outbreak has been identified. Otherwise, an outbreak would also be recognized if multiple persons report the same risk factor. Outbreak identification should be facilitated by use of the WVEDSS hepatitis investigation form to investigate acute cases of hepatitis C.

### Case Definitions

#### Acute Hepatitis C, acute (2016 Case Definition)

*CSTE Position Statement Number: 15-ID-03*

#### Clinical Criteria

An illness with discrete onset of any sign or symptom\* consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain), **AND**

a) jaundice, **OR**

b) a peak elevated serum alanine aminotransferase (ALT) level >200 IU/L during the period of acute illness..

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\*A documented negative HCV antibody laboratory test result followed within 12 months by a positive test (as described in the laboratory criteria for diagnosis) result does not require an acute clinical presentation to meet the surveillance case definition.

### **Laboratory Criteria for Diagnosis**

1. A positive test for antibodies to hepatitis C virus (anti-HCV)
2. Hepatitis C virus detection test:
  - Nucleic acid test (NAT) for HCV RNA positive (including qualitative, quantitative or genotype testing)
  - A positive test indicating presence of hepatitis C viral antigen(s) (HCV antigen)\*

\* When and if a test for HCV antigen(s) is approved by FDA and available.

### **Criteria to Distinguish a New Case from an Existing Case**

A new acute case is an incident acute hepatitis C case that meets the case criteria for acute hepatitis C and has not previously been reported. A new probable acute case may be re-classified as confirmed acute case if a positive NAT for HCV RNA or a positive HCV antigen(s) test is reported within the same year. A confirmed acute case may be classified as a confirmed chronic case if a positive NAT for HCV RNA or a positive HCV antigen is reported one year or longer after acute case onset. A confirmed acute case may not be reported as a probable chronic case (i.e., HCV antibody positive, but with an unknown HCV RNA NAT or antigen status).

States and territories may choose to track resolved hepatitis C cases in which spontaneous clearance of infection or sustained viral response to treatment are suspected to have occurred before national notification or are known to have occurred after national notification as a confirmed or probable case to CDC.

### **Case Classification**

#### **Probable**

- A case that meets clinical criteria and has a positive anti-HCV antibody test, but has no reports of a positive HCV NAT or positive HCV antigen tests,  
**AND**
- Does not have test conversion within 12 months or has no report of test conversion.

#### **Confirmed**

- A case that meets clinical criteria and has a positive hepatitis C virus detection test (HCV NAT or HCV antigen),  
**OR**

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- A documented negative HCV antibody, HCV antigen or NAT laboratory test result followed within 12 months by a positive result of any of these tests (test conversion).

### Hepatitis C, chronic (2016 Case Definition)

*CSTE Position Statement Number: 15-ID-03*

#### Clinical Criteria

No available evidence of clinical and relevant laboratory information indicative of acute infection ([refer to the criteria for classification Table VII-B in CSTE position statement 15-ID-03](#)). Most hepatitis C virus (HCV)-infected persons are asymptomatic; however, many have chronic liver disease, which can range from mild to severe.

#### Laboratory Criteria for diagnosis

- A positive test for antibodies to hepatitis C virus (anti-HCV)
- Hepatitis C virus detection test:
  - Nucleic acid test (NAT) for HCV RNA positive (including qualitative, quantitative or genotype testing)
  - A positive test indicating presence of hepatitis C viral antigen(s) (HCV antigen)\*

\* When and if a test for HCV antigen(s) is approved by FDA and available

#### **Criteria to Distinguish a New Case from an Existing Case**

A new chronic case is an incident chronic hepatitis C case that meets the case criteria for chronic hepatitis C and has not previously been reported. A confirmed acute case may not be reported as a probable chronic case (i.e., HCV antibody positive, but with an unknown HCV RNA NAT or antigen status).

States and territories may choose to track resolved hepatitis C cases in which spontaneous clearance of infection or sustained viral response to treatment are suspected to have occurred before national notification or are known to have occurred after national notification as a confirmed or probable case to CDC.

#### Case classification

##### **Probable**

- A case that does not meet clinical criteria or has no report of clinical criteria,  
**AND**
- Does not have test conversion within 12 months or has no report of test conversion,  
**AND**
- Has a positive anti-HCV antibody test, but no report of a positive HCV NAT or positive HCV antigen test.

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### Confirmed

- A case that does not meet clinical criteria or has no report of clinical criteria,  
**AND**
- Does not have test conversion within 12 months or has no report of test conversion,  
**AND**
- Has a positive HCV NAT or HCV antigen test.

### Prevention Measures

*For persons who are HCV-positive, share the following information:*

1. Don't donate:
  - a) Blood;
  - b) Body organs or other tissue; or
  - c) Semen.
2. Don't share personal items, including:
  - a) Toothbrushes or dental appliances;
  - b) Razors; or
  - c) Nail-grooming equipment.
3. Cover cuts or skin lesions.
4. Stop using or injecting illegal drugs. Enter and complete substance abuse treatment, including relapse prevention. If still injecting, follow risk reduction practices (See below).
5. Consult a physician regarding treatment. Some people benefit from treatment. Additional testing may be required to determine if treatment will be beneficial, including blood tests and a liver biopsy. Be sure to select a physician who is knowledgeable about hepatitis C.
6. Stop drinking alcohol or drastically reduce consumption.
7. Hepatitis A vaccine is recommended all children under age 18 and adults:
  - a. Traveling or working in countries with intermediate or high endemicity of hepatitis A
  - b. Who are men who have sex with men
  - c. Using injection or non-injection drugs.
  - d. Living in communities with high rates of hepatitis A
  - e. With chronic liver disease.
  - f. Receiving blood products for coagulation disorders.
  - g. Working with HAV-infected animals or working with HAV in research setting.
8. Hepatitis B vaccine is recommended for all children under age 18 and adults:
  - a. Who have sex with or live in the same house as a person with hepatitis B virus infection.
  - b. Who have sex with more than one partner.
  - c. Seeking care in a clinic for sexually transmitted diseases, HIV testing or treatment, or drug treatment.
  - d. Who are men who have sex with other men.

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- e. Who inject drugs.
- f. With a job that involves contact with human blood (health care personnel and public safety workers).
- g. On the staff of, or a client in, an institution for the developmentally disabled.
- h. Who are a hemodialysis patient or have end-stage renal disease.
- i. Who have HIV infection
- j. Who have chronic liver disease.
- k. Under age 60 who have diabetes.
- l. Living or traveling for more than 6 months a year in countries where hepatitis B is common.
- m. Seeking care in a clinic for sexually transmitted diseases, HIV testing, or drug treatment.
- n. Who are prisoners in a correctional facility.

### 9. Counseling regarding sexual behavior

- a. For persons who have only one sex partner: While it is advisable to inform that partner, no change in sexual practices is necessary.
- b. For persons who have multiple partners: Reduce the number of partners. Inform all partners of their status and use latex condoms.

Risk reduction practices -- *For persons regardless of serostatus who are still using drugs:*

1. Never reuse or share syringes, water, or preparation equipment.
2. Use only syringes obtained from a reliable source. In West Virginia, syringes can be obtained without a prescription at veterinary supply stores.
3. Use a new sterile syringe to prepare and inject drugs.
4. Use sterile water to prepare drugs. If sterile water is not available, clean tap water is preferable to water from other sources.
5. Use a new or disinfected container ('cooker') and a new filter ('cotton') to prepare drugs.
6. Clean the injection site with a new alcohol swab prior to injection
7. Safely dispose of syringes after one use.

Resources for HCV education:

1. [CDC HCV Patient Education Resources:](#)
2. [CDC "Know More Hepatitis":](#)
3. [Hepatitis C FAQs for Health Professionals](#)
4. [CDC Hepatitis C and Incarceration Fact Sheet:](#)
5. [Hepatitis C and Injection Drug Use Fact Sheet](#)
6. [The ABCs of Hepatitis:](#)
7. [HCV Advocate:](#)
8. [What I need to know about Hepatitis C:](#)

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9. [American Liver Foundation](#):
10. [Affordable Care Act and Immunization](#)

### Post-exposure Prophylaxis and Follow-Up

The prevention of HCV infection with immunoglobulin (IG) is not effective for post-exposure prophylaxis of hepatitis C. There is no vaccine available for hepatitis C.

### Treatment

Treatment is an individual decision between the physician and the infected person who is likely to benefit. Selection of persons likely to benefit requires an evaluation, including:

1. Confirmation of the diagnosis.
2. Review of medical history and laboratory studies to identify possible contraindications to therapy
3. Viral load testing
4. Genotyping
5. Liver biopsy in selected patients

Recent Food and Drug Administration–approved direct-acting antivirals (DAAs) such as Sofosbuvir and Simeprevir [<http://www.cdc.gov/hepatitis/HCV/HCVfaq.htm>; [Sadler and Lee \(2015\)](#)] have increased HCV infection cure rates.

### Surveillance Indicators

- Proportion of acute cases of hepatitis C with complete demographic information
- Proportion of acute cases of hepatitis C with complete information on risk factors
- Proportion of acute cases of hepatitis C who have been educated.
- Proportion of chronic cases of hepatitis C with complete demographic and locating information

### References

Amon, J.J., Garfein, R.S., Ahdieh-Grant L, et al. (2008). Prevalence of hepatitis C virus infection among injection drug users in the United States, 1994-2004. *Clin Infect Dis*; 46:1852-1858.

Center for Disease Control and Prevention (2015). Healthcare investigation guide. <http://www.cdc.gov/hepatitis/outbreaks/healthcareinvestigationguide.htm>

Council of State and Territorial Epidemiologists (2015). Revision of the Case Definition of Hepatitis C for National Notification <http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/2015PS/2015PSFinal/15-ID-03.pdf>

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### Division of Infectious Disease Epidemiology

350 Capitol St, Room 125, Charleston WV 25301-3715

Phone: 304.558.5358 Fax: 304.558.6335 [www.dide.wv.gov](http://www.dide.wv.gov)

## Hepatitis C Surveillance Protocol

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- Davis, G.L., Alter, M.J., El-Serag, H, et al. (2010). Aging of hepatitis C virus (HCV)-infected persons in the United States: a multiple cohort model of HCV prevalence and disease progression. *Gastroenterology*; 138:513-521.
- El-Serag, H.B. (2012). Epidemiology of viral hepatitis and hepatocellular carcinoma. *Gastroenterology* ; 142: 1264-1273.
- Guyatt, G.H., Oxman, A.D., Schunemann, H.J, et al. (2011). GRADE guidelines: a new series of articles in the Journal of Clinical Epidemiology. *J Clin Epidemiol*; 64:380-382.
- Hagan, H., Pouget, E.R., Des Jarlais, D.C. (2011).A systematic review and meta-analysis of interventions to prevent hepatitis C virus infection in people who inject drugs. *J Infect Dis*; 204:74–83.
- Kohli, A., Shaffer, A., Sherman, A .and Kottlilil S. (2014). Treatment of hepatitis C: a Systematic review. *JAMA*; 312:631-640
- Sadler, M.D.and Lee, S.S. (2015). Revolution in hepatitis C antiviral Therapy. *Br Med Bull*; 113:31-44.
- Smith, B.D., Jorgensen, C., Zibbell, J.E. and Beckett, G.A. (2012). Centers for Disease Control and Prevention Initiatives to Prevent Hepatitis C Virus Infection: A Selective Update. *Clin Infect Dis*; 55 (suppl 1): S49-S53
- Williams, I.T., Bell, B.P., Kuhnert,W. and Alter,M.J.(2011). Incidence and transmission patterns of acute hepatitis C in the United States, 1982–2006. *Arch Intern Med*; 171:242-248.
- Yeung, C.Y., Lee, H.C., Chan, W.T. et al. (2014). Vertical transmission of hepatitis C: current knowledge and perspectives. *World J Hepatol*.6:643-651.