DOES YOUR PATIENT HAVE ACUTE HEPATITIS C INFECTION? 7

Has there been recent exposure to potentially HCV infected blood (e.g., recent needle stick injury, recent injection drug use)? Investigate for acute hepatitis C if the patient meets the following criteria:

Clinical Case definition: an acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g., anorexia, RUQ abdominal discomfort, nausea, vomiting, malaise) and elevated serum ALT, +/– jaundice.

Laboratory Criteria for diagnosis:

One or more of the following criteria:

1) Anti-HCV becomes positive at 4-12 weeks post exposure

OR

2) HCV-RNA becomes positive at 2-4 weeks post exposure

AND, meets the following two criteria:

1) Anti-HAV IgM negative

AND

2) Anti-HBc IgM negative

Case Classification

Confirmed: a case that meets the clinical case definition, is laboratory confirmed, and is not known to have chronic hepatitis C.

Unconfirmed: consider other causes of acute hepatitis (e.g., alcohol, hepatitis A or hepatitis B, medications, other toxins, autoimmune hepatitis).

adapted from www.cdc.gov/ncphi/diss/nndss/print/hepatitiscacutecurrent.htn

Diagnosis of acute HCV infection is reason for an urgent referral to an *experienced colleague. If viral clearance does not occur within 12 weeks of exposure, antiviral therapy should be started as there is a very high rate (>90%) of viral clearance following treatment of acute HCV.**

Acute hepatitis C infection suspected – recent exposure to potentially HCV infected blood

ORDER THESE TESTS AT FIRST VISIT

- **Anti-HCV** (to ensure not previously infected. This will become positive at 4–12 weeks post exposure)
- **HCV-RNA (qualitative PCR)** (this will become positive at 2–4 weeks post exposure)
- **ALT AST**
- **HIV**
- **Anti-HAV IgM** (to rule out acute hepatitis A)
- **HBsAg Anti-HBcTotal, Anti-HBc IgM** (to help rule out acute hepatitis B)

HCV-RNA POSITIVE

- **Anti-HCV Positive** Test result at less than 4 weeks post exposure
  - Pre-existing chronic HCV infection likely
  - See Module 2 – Chronic HCV infection
- **Anti-HCV Negative** with seroconversion (Anti-HCV positive) 4–12 weeks post exposure
  - Acute HCV infection
  - **Immediate referral** to *experienced colleague** for evaluation of need for antiviral therapy (call your *colleague*)
  - **Repeat HCV-RNA** at 12 weeks required to confirm persistent infection
    - Immediate treatment recommended

HCV-RNA NEGATIVE

- **Anti-HCV Negative**
  - Still possible acute HCV infection
  - **Repeat HCV-RNA** at 2-4 wks and if RNA positive, repeat in 12 more weeks
    - **HCV-RNA Positive**
- **Anti-HCV Positive** at time of 1st test
  - Resolved HCV infection or false positive serology
  - **Repeat HCV-RNA in 1 year** (to confirm viral clearance)
    - **HCV-RNA Negative**
      - HCV viral clearance (Anti-HCV persists)

**Experienced colleague may be a hepatologist, gastroenterologist, infectious diseases specialist, or family physician with experience in HCV management.*

WEB RESOURCES

Patients:

Canadian Liver Foundation: **www.liver.ca**

Health Canada: **www.hc-sc.gc.ca/iyh-vsv/diseases-maladies/hepc_e.html**

Public Health Agency of Canada: **www.phac-aspc.gc.ca/hepc**

Health Care Providers:

Canadian Association for the Study of the Liver: **www.hepatology.ca**

Management of chronic hepatitis C: consensus guidelines: **www.hepatology.ca/cm/FileLib/hepC.pdf**

Canadian Medical Association: **www.cma.ca**

Hepatitis C: a review for primary care physicians (Wong, Lee, 2006): **www.cmaj.ca/cgi/content/full/174/5/649**

A study to characterize the epidemiology of hepatitis C infection in Canada, 2002 (Remis RS, 2004): **www.phac-aspc.gc.ca/hepc**

ABBREVIATION KEY:

↑	Elevated
+	Positive
–	Negative
♀	Female
♂	Male
Anti-HAV IgM	Antibodies to hepatitis A immunoglobulin M (positive with acute infection)
Anti-HAV IgG	Antibodies to hepatitis A immunoglobulin G
Anti-HBcIgM	IgM antibody to hepatitis B core antigen (in acute HBV & flare of chronic HBV)
Anti-HBcTotal	Total antibody to hepatitis B core antigen
Anti-HBs	Antibody to hepatitis B surface antigen
Anti-HCV	Antibodies to hepatitis C
ALT	Alanine aminotransaminase
ASA	Acetylsalicylic acid
AST	Aspartate aminotransaminase
BMI	Body Mass Index
CBC	Complete blood count
Fe	Iron
GGT	Gamma Glutamyl Transpeptidase
HBsAg	Hepatitis B surface antigen
HAV	Hepatitis A Virus
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HCC	Hepatocellular carcinoma
INR	International Normalized Ratio
LFTs	Liver Function Tests
LGV	Lymphogranuloma venereum
Mos	Months
NHL	Non-Hodgkin's Lymphoma
NSAIDs	Non-steroidal anti-inflammatory drugs
PCT	Porphyria cutanea tarda
PCR	Polymerase chain reaction
PT/PTT	Prothrombin time/Partial thromboplastin time
RNA	Ribonucleic acid
RUQ	Right Upper Quadrant
STI	Sexually Transmitted Infection
TIBC	Total Iron Binding Capacity
T-Bili	Total bilirubin
U/S	Ultrasound
vWD	von Willebrand Disease
WC	Waist circumference
Wks	Weeks

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PDR REVISION 2009

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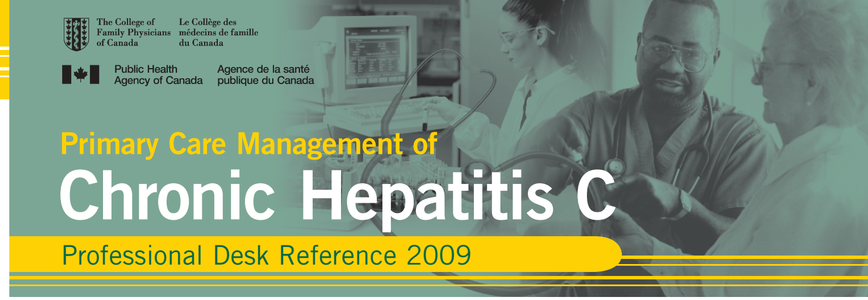


Primary Care Management of Chronic Hepatitis C

Professional Desk Reference 2009

WHO SHOULD BE SCREENED FOR THE HEPATITIS C VIRUS (HCV)? 1

(1) Anyone with RISK BEHAVIOURS/POTENTIAL EXPOSURES to HCV

HIGH RISK

Injection drug use (IDU)

- anytime in the past or present, even if only once
  - due to shared/contaminated drug preparation/injection materials (e.g., syringe/needle, spoon/cooker, water, drug solution, filter)

Incarceration

- exposures due to:
  - shared/contaminated drug preparation/injection materials (e.g., as above)
  - shared/contaminated tattooing materials (e.g., needles, inks)
  - physical trauma (e.g., fighting where blood is present)
  - unprotected sex where blood may be present (e.g., anal intercourse, fisting)

Born, traveled, or resided in a region in which HCV infection is more common

- due to lack of universal precautions and medical/dental practices using contaminated equipment (e.g., childhood immunizations, injections, multi-dose vials, surgery, transfusion, etc.)

Receipt of health care where there is a lack of universal precautions (nosocomial transmission)

- due to use of contaminated equipment in medical/dental practices (e.g., childhood immunizations, injections, multi-dose vials, surgery, transfusion, etc.)

Blood transfusion, blood products, or organ transplant before 1992 in Canada

INTERMEDIATE RISK

Hemodialysis

Infant born to mother with HCV infection

Needle stick injuries

OTHER RISKS SOMETIMES ASSOCIATED WITH HCV EXPOSURE

Sharing sharp instruments/personal hygiene materials with HCV+ person (e.g., razors, scissors, nail clippers, toothbrush)

Tattooing, body piercing, scarification, female genital mutilation or other ceremonial rituals

- due to shared/contaminated materials

Intranasal (snorting) & inhalation drug use

- due to shared/contaminated drug use materials (e.g., pipes, straws)

Homelessness, residency in group homes or shelters

Higher-risk sexual behaviour

- Unprotected sex with HCV+ partner (non-monogamous relationship)
- Unprotected sex with partner with STI (e.g., HIV, HBV, LGV)
- Unprotected sex with multiple sexual partners
- Unprotected sex where blood may be present (e.g., vaginal sex during menstruation; traumatic sex that can cause mucosal tearing e.g., fisting, sex toys; anal intercourse)

(2) Anyone with CLINICAL CLUES suspicious for hepatitis C infection (and above risk factors)

- Abnormal liver biochemistry (e.g., ↑ ALT)
- Drug and/or alcohol dependency (past or present)
- Blood diseases requiring multiple transfusions of blood products (e.g., hemophilia, thalassemia, sickle cell anemia, vWD)
- HBV infection
- HIV infection
- Signs of chronic liver disease (e.g., hepatomegaly +/- splenomegaly, spider nevi, palmar erythema, jaundice)
- Vasculitis (due to associated cryoglobulinemia)
- History of unexplained renal impairment
- Non-Hodgkin's lymphoma

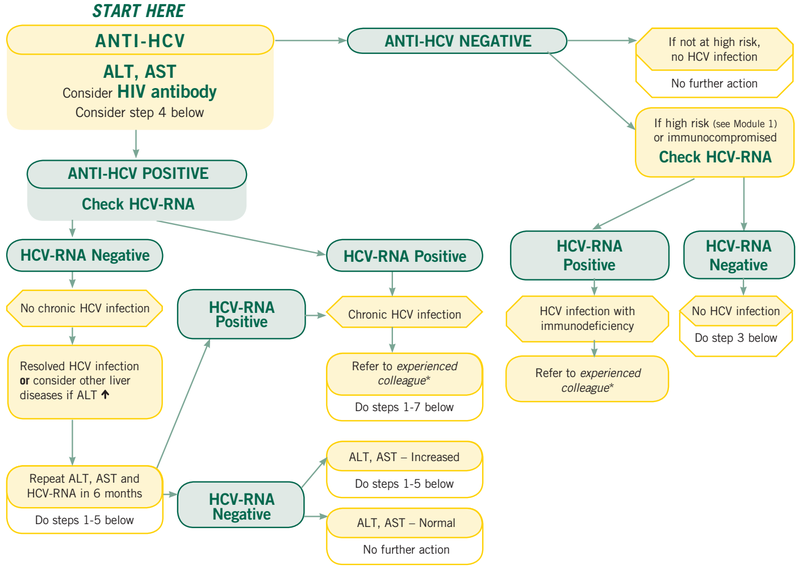
MOST PEOPLE WILL HAVE NO SPECIFIC SYMPTOMS

SCREENING FOR HCV EXPOSURE & DETERMINING CHRONIC HEPATITIS C INFECTION

2

Has there been recent exposure to potentially HCV infected blood?

If YES — see Module 7 regarding acute hepatitis C infection **If NO** — follow algorithm below



1. Complete physical exam

2. Evaluate for other liver diseases
   - Drugs (review history)
   - Alcohol (AST/ALT>1 Note: the same ratio may also be seen in cirrhosis)
   - Fatty liver (consider if central obesity or diabetic)
   - Hemochromatosis (check Fe, TIBC). Ferritin not useful because often elevated with ↑ALT or any inflammatory disease
   - Wilson's disease (check ceruloplasmin)

3. Evaluate other viruses affecting liver health or potential treatment:
   a. Offer HIV testing (similar risk factors)
   b. Hepatitis A & hepatitis B testing – see step 4

4. Assure immunity to HAV & HBV
   - Check anti-HAV IgG, HBsAg, anti-HBs, anti-HBc
   - Offer hepatitis A & hepatitis B vaccine if negative
   - Consider verifying titres at 4 weeks post-hepatitis A & B immunization series in the HIV positive population or cirrhotic

5. Patient education (see Modules 4 & 5)

6. Further evaluation of chronic infection:
   a. Risk factor review (see Module 1)
   b. Determine duration of infection (use proxy measures: "in what year did you first inject drugs")
   c. Targeted physical exam for signs of advanced liver disease
   d. ALT, AST, T-Bili, GGT, INR, Albumin
   e. HCV viral load
   f. HCV genotype

7. If cirrhotic:
   a. Hepatocellular carcinoma surveillance – ultrasound every 6 months
   b. Annual influenza vaccination
   c. One-time pneumococcal vaccination

Experienced colleague may be a hepatologist, gastroenterologist, infectious diseases specialist, or family physician with experience in HCV management.

EVALUATION OF THE HCV INFECTED ADULT

3

All patients with chronic hepatitis C infection (HCV-RNA +) should be referred to an *experienced colleague for further assessment & possible treatment**

Special clinical considerations

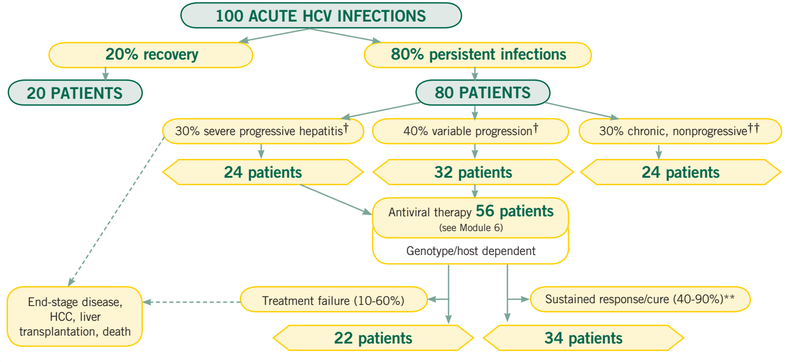
- **Evaluate liver function** – measure T-Bili, Albumin, INR (Note: low platelets suggest cirrhosis in this population)
- **Probable cirrhosis** – screening liver ultrasound for HCC. If suspicious mass found, refer urgently to specialist
- **HIV positive**
  - refer to *experienced colleague** with expertise in HCV-HIV co-infection
- **Extra-hepatic HCV** (e.g., PCT, skin vasculitis, renal failure, NHL) – needs to see *experienced colleague** urgently
- **Pregnant women** with chronic hepatitis C infection – no change to routine obstetrical care unless cirrhotic
- **Pregnant women with cirrhosis** require referral to an expert in high risk obstetrical care
- **HCV positive moms** can breastfeed as long as nipples are not cracked/bleeding. Can resume breastfeeding when nipples healed
- **Children & Adolescents** – no urgent care required. Test newborns of HCV-RNA positive mothers at 1 year using HCV-RNA test. (Note: anti-HCV may be positive if infant is tested before 1 year old.) Children rarely develop end-stage liver disease.

EDUCATION FOR CHRONIC HCV INFECTED ADULTS

4

Natural history of chronic HCV infection

PROJECTION OF LIFETIME OUTCOMES IN HCV INFECTION



††*For reasons unknown, disease is more rapidly progressive with age and requires ongoing monitoring.*

adapted from Alter HF, Seeff LB. Semin Liver Dis. 2000;20:17–35.

† Risk factors which may contribute to liver damage (fibrosis progression)

- Older age (> 40yrs) when infected
- Alcohol intake > 50g/day (3 drinks)
- Male sex
- Coinfection with HBV or HIV
- Longer duration of infection
- Advanced fibrosis at time of diagnosis
- Central obesity (WC>80cm♀, >102cm♂)
- Smoking (daily tobacco/marijuana increases risk of HCC)

***Note: undetectable HCV-RNA at 6 months after full course of hepatitis C treatment*

COUNSELING ADULTS WITH CHRONIC HCV INFECTION

5

Advice to reduce liver damage (fibrosis progression)

- Limit alcohol intake (less than 2 drinks/week)
- Promote smoking cessation (e.g., tobacco, marijuana)
- Maintain a healthy weight (ideal BMI 20-25, ideal WC <80cm♀, <102cm♂)
- Ensure hepatitis A & hepatitis B immunity
- Consider therapy for hepatitis C

Advice to reduce the risks of transmission or re-infection

- Never donate blood, organs, semen, tissues
- Never share materials used to prepare, inject, or inhale drugs (e.g., syringe/needle, pipe, straw, spoon/cooker, water, drug solution, filter)
- Never share sharp instruments/personal hygiene materials with others (e.g., razors, scissors, nail clippers, toothbrush)
- Consider the potential health risks of tattooing and body piercing
- Discuss your HCV status with drug using partners
- Sexual activity is safe unless it involves trauma or higher risk sexual behaviours (see Module 1)
- In non-monogamous relationships and for new sexual partners – use condoms/dental dams for sex to limit potential HCV transmission as well as the transmission of STI
- There is currently no proven method to reduce the risk of vertical transmission (approx. 5%)
- HCV+ mother can breastfeed unless nipples are cracked or bleeding. Can resume breastfeeding when nipples are healed

Advice regarding medications in cirrhosis

- Avoid benzodiazapines, aminoglycosides, and narcotics including codeine
- No ASA or NSAIDs if possible
- Acetaminophen (e.g., Tylenol), oral contraceptive pills, and statins are safe to use
- Keep your health care provider informed of any complementary/alternative therapies or supplements taken

Living well with hepatitis C

- Adhere to and be actively involved in the follow-up and monitoring of your hepatitis C infection
- Be informed. Obtain current/accurate information about hepatitis C
- Be physically active
- Reduce stress and maintain an active support network

TREATMENT

6

- Therapy for hepatitis C can cure HCV infection in up to 90% of cases (40-90%)
- Efficacy depends on the HCV genotype. People respond best in the following order: genotype 2 > 3 > 4 > 1. Genotypes 5 & 6 not yet known
- Treatment duration also depends on HCV genotype or HIV status: 24 to 72 weeks
- For those who opt not to have treatment, regular follow-up should be encouraged to monitor disease progression and desire for treatment
- Side effects from hepatitis C medications are common. Before starting hepatitis C therapy consider and discuss the balance between side effects and potential benefits. *Experienced colleagues* are prepared to deal with most side effects that may occur
- **Remember:** Not everybody needs or wants treatment. Many people live well with hepatitis C. As symptoms do not correlate with disease severity, sophisticated tests are required to assess the degree of hepatic fibrosis (e.g., liver biopsy, fibroscans/fibrotest if available)