A large, light gray, stylized letter 'C' that frames the central text. The 'C' is thick and has a slightly irregular, hand-drawn appearance. It starts at the top left, curves around the top and right, and then curves around the bottom and back to the left.

New York State Department of Health  
**Clinical Guidelines**  
for the **Medical Management of Hepatitis C**

Condensed Version  
Recommendations, Tables and Figures

2005

# Risk Assessment and Screening

## Recommendations

Persons at increased risk for HCV infection should be screened for serum HCV antibody.

HCV testing should be available to any patient who requests it.

## Diagnosis

### Recommendations

All patients suspected of having infection with HCV should be tested for antibody to HCV (anti-HCV) using an EIA (enzyme immunoassay) screening test.

In low-risk patients with a positive EIA test, confirmatory testing with the recombinant immunoblot assay (RIBA) should be performed.

For patients at low risk with a positive EIA and RIBA, confirmatory testing with a qualitative PCR test for detection of HCV RNA should be performed.

For patients at moderate or high risk and/or unexplained elevated serum alanine aminotransferase (ALT) value, a positive EIA should be followed by a qualitative test for HCV RNA in the blood.

For immunocompromised patients at high risk with unexplained elevated ALT value and a negative screening EIA, a qualitative test for detection of HCV RNA should be performed to diagnose HCV infection.

There is no recommendation for serial or periodic screening unless there has been repeat or ongoing high-risk behavior.

Quantitative PCR HCV RNA tests should be obtained for patients who are candidates for antiviral therapy.

## Liver Biopsy

### Recommendations

In patients with genotype 1 or 4, pre-treatment liver biopsy should be performed to assess the likelihood of a sustained virologic response (SVR).

In patients with genotype 2 or 3, it may not be necessary to perform a liver biopsy.

## Noninvasive Testing to Assess Liver Fibrosis

### Recommendation

The use of non-invasive tests to assess liver fibrosis is not yet recommended.

**Table 1**

## Relative Risk Factors for Hepatitis C Transmission

### High Risk

- Injection drug use
- Blood or blood product transfusion or transplantation prior to 1992

### Moderate Risk

- High-risk sexual activity\*
- Vertical transmission from mother to baby

### Low risk

- Occupational exposure
- Sexual activity between long-term spouses/ sexual partners

### Very low/No risk

- Casual contact
- Household contact

\*Sexual transmission of HCV is not clearly understood. However, certain high risk sexual behaviors have been associated with HCV transmission such as anal sex, sex with trauma, sex in the presence of a sexually transmitted disease (STD), and sex without a condom.

**Table 2**

## HCV RNA Tests

Qualitative	Method; Manufacturer	Dynamic Range (IU/ mL)*
Amplicor HCV test 2.0	PCR; Roche	≥50
COBAS Amplicor HCV test 2.0	PCR; Roche	≥50
VERSANT HCV RNA Assay	TMA; Bayer	≥ 5
Quantitative		
Versant™ HCV RNA 3.0	bDNA; Bayer	615 - 77.7 x10 <sup>6</sup>
§COBAS Amplicor HCV Monitor™	qPCR; Roche	600 - 7 x 10 <sup>5</sup>
COBAS TaqMan™ HCV	qPCR; Roche	10 - 2 x 10 <sup>8</sup>
Celera HCV QT ASR	qPCR; Abbott	25 - 5 x 10 <sup>8</sup>

\*Results may vary at the lower limit of detection depending on the laboratory performing the test

§Research Use Only- Not approved for patient use

bDNA: branched chain DNA

PCR: polymerase chain reaction

qPCR: quantitative polymerase chain reaction

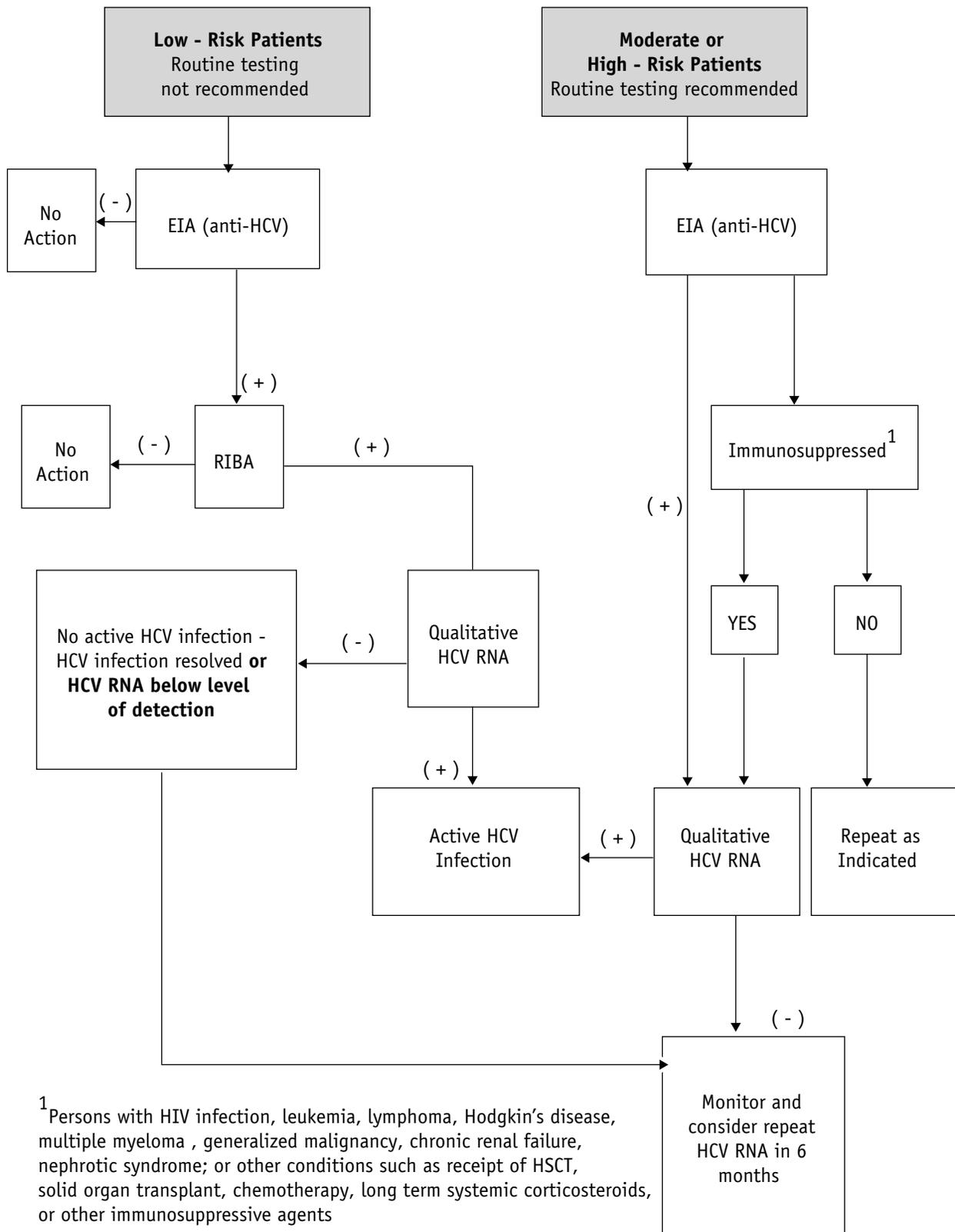
TMA: transcription mediated assay

ASR: analyte specific reagent

The use of proprietary names does not constitute endorsement by the NYS DOH.

Figure 1

## Hepatitis C Screening Algorithm



# Treatment

## Patient Evaluation and Treatment

### Recommendations

Treatment should be considered for all patients with detectable HCV RNA and an abnormal liver biopsy, regardless of the presence or absence of liver enzyme elevation.

Prior to making a decision regarding treatment, patients should be evaluated with HCV RNA, HCV genotype, liver enzymes (ALT), and liver biopsy, unless contraindicated.

The decision to initiate antiviral therapy should be made based upon the willingness of the patient to undergo therapy, ability to regularly attend appointments, and agreement to use contraception to prevent pregnancy.

The decision to initiate antiviral therapy should be made on an individualized basis that considers severity of liver disease, co-morbid conditions, the potential for serious side effects and the likelihood of response.

Patients with HCV infection on methadone maintenance therapy should not be considered ineligible for treatment.

The treatment of the actively using injection drug user is not contraindicated and may be appropriate under some circumstances.

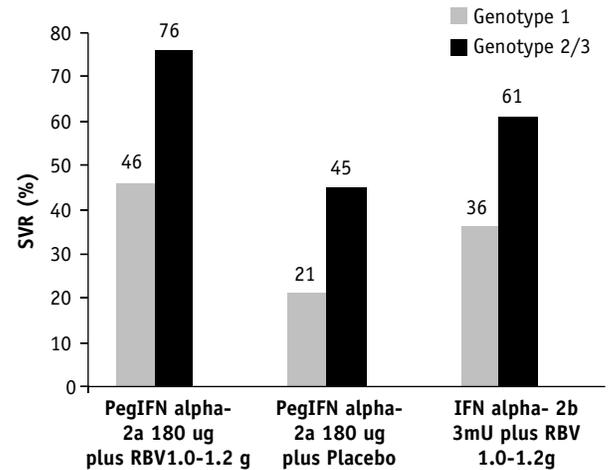
Patients with a history of well-controlled psychiatric disorders may be excellent candidates for antiviral therapy and should be under the care of a qualified mental health professional.

Treatment of HIV/HCV co-infected patients should be offered with pegylated interferon and ribavirin, unless contraindicated.

Patients co-infected with HIV/HCV should be managed by experts in both viruses. The basic tenets of HCV management should not change, but the provider must be prepared for possible hepatotoxicity and drug-drug interactions.

Figure 2

Sustained virologic response rates with peginterferon alpha-2a (PegIFN) or interferon alpha - 2b (IFN) and ribavirin (RBV) according to genotype<sup>2</sup>



## Initiating Treatment

### Recommendations

Prior to treatment, patients should have a baseline complete blood count (CBC), chemistry evaluations, serum creatinine, thyroid function tests, pregnancy tests in women, HIV testing, contraceptive counseling for men and women, and screening for depression.

Prior to initiating treatment, patients should be informed of the possible side effects of therapy to allow them to anticipate and manage with these side effects.

The treatment of choice for patients with chronic hepatitis C infection is combination pegylated interferon and ribavirin.

Patients infected with genotype 1 or 4 should be treated for 48 weeks with combination pegylated interferon and ribavirin. The ribavirin dose should be 1000 mg a day in patients  $\leq$  75 kg and 1200 mg a day in patients  $>$  75 kg.

Patients infected with genotype 2 or 3 should be treated for 24 weeks with combination pegylated interferon and ribavirin. The ribavirin dose should be 800 mg a day.

## Monitoring While on Treatment

### Recommendations

Patients who do not achieve virologic suppression or a 2- log decrease in HCV RNA at 12 weeks may have therapy discontinued, although factors such as degree of fibrosis and tolerability of therapy should be considered.

Patients should have a CBC and chemistry evaluations 2 weeks after initiation of treatment to assess for potential toxicities.

CBC, chemistry evaluations, and pregnancy tests in women should be done routinely at each follow-up visit and not less often than every 4-6 weeks during treatment.

Patients who achieve an end-of-treatment virological response should have HCV RNA testing performed 24 weeks after stopping treatment to evaluate for a SVR.

Erythropoietin alfa and granulocyte colony stimulating factor (G-CSF) may be used to treat anemia and neutropenia, respectively, in order to maintain the patient on full medication doses.

Providers should reference the full discussion of side effects of hepatitis C treatment.

## Re-treatment of Patients Previously Treated for Hepatitis C

### Recommendations

Re-treatment of inadequately treated patients is recommended with a combination of pegylated interferon and ribavirin.

Re-treatment of non-responders or relapsers to antiviral therapies other than a combination of pegylated interferon and ribavirin should be strongly considered.

## Treatment of HCV-Infected Children

### Recommendations

Diagnostic evaluation for the presence and severity of HCV infection, including liver biopsy, should be performed in children as in adults.

Therapy with standard interferon and ribavirin may be offered to children aged 3-17 years if given under the care of experienced physicians.

Antiviral therapy should not be administered to children under the age of three.

## Treatment of Individuals with Acute Hepatitis C Infection

### Recommendations

Although there are no controlled trials recommending treatment of acute HCV infection, the use of pegylated interferon monotherapy may prevent the development of CHC infection, although the duration of therapy is still unknown.

There are insufficient data to recommend the use of ribavirin in the acute setting.

Therapy should be deferred until 12 weeks after exposure, to allow for spontaneous clearance to occur, thus avoiding therapy.

# Medical Management

## Recommendations

A multidisciplinary team approach is recommended for HCV patients with active co-occurring alcohol, substance abuse disorders and/or psychiatric illnesses who are not ready for antiviral treatment.

## Patients with Unstable Drug Use

### Recommendations

Perform a comprehensive substance abuse assessment, including type(s) of substance(s), frequency, quantity, method of use, environment, and change in use over time. Identify whether injection drug users share syringes, cookers, cotton, or water; and where the equipment is obtained.

Assess patient's understanding of his/her substance abuse disorder, readiness for change, and willingness to engage in substance abuse treatment.

Educate patient on the requirements for initiating antiviral treatment. In particular, clarify that drug abstinence is not a requirement for antiviral treatment. Conversely, alcohol abstinence is recommended for patients with alcohol abuse and/or dependence as heavy alcohol use adversely affects treatment outcomes.

Encourage patient to seek substance abuse treatment or harm reduction program (i.e. syringe exchange program). Make appropriate referrals for patients interested in pursuing treatment, counseling, and/or supportive services. Collaborate with addiction specialist to reassess for antiviral treatment eligibility.

Assess stability of substance use and eligibility for antiviral treatment at periodic intervals.

## Patients with Unstable Alcohol Use

### Recommendations

Patients with HCV infection who use alcohol need to be educated regarding the effects of alcohol on the course of HCV infection.

Patients with alcohol abuse or dependence should be referred for chemical dependency treatment.

Patients with alcohol abuse or dependence should be encouraged to enroll in a rehabilitation program and establish abstinence prior to treatment.

Patients who consume light or moderate amounts of alcohol should be advised to abstain from alcohol during antiviral therapy, but a pretreatment period of abstinence is not necessary.

## Patients with Unstable Psychiatric Illness

### Recommendations

Refer patients to a mental health provider for treatment and stabilization. Collaborate with mental health provider to reassess for antiviral treatment eligibility.

Assessment for antiviral treatment readiness should include an assessment of the patient's supportive networks, both formal and informal. Family meetings may help clarify expectations for the initiation of antiviral treatment, and promote family support to the patient.

Patients with unstable psychiatric illness who refuse to engage in psychiatric treatment are not candidates for antiviral treatment.

Assess stability of psychiatric illness and eligibility for antiviral treatment at periodic intervals.

Patients not currently undergoing antiviral therapy should be reassessed periodically for eligibility and interest. Providers and patients should actively address substance abuse, psychiatric, and medical co-morbidities in order to prepare for antiviral treatment.

All patients may benefit from hepatitis C support groups and peer education, whether or not they are undergoing antiviral treatment.

## Frequency of Viral Load Testing

### Recommendation

Serial HCV viral loads should not be routinely performed for patients who are not receiving antiviral treatment.

## Frequency of Liver Biopsy

### Recommendation

Liver biopsies every 4-5 years may be considered for those patients in whom treatment is deferred because of mild fibrosis (Metavir score <2 or Ishak score <3) if progression of disease affects the decision to treat.

## Management of Patients with Decompensated Liver Disease

### Recommendation

An HCV-infected patient with decompensated liver disease should always be managed by, or in conjunction with, an expert in liver diseases.

## Timing of Referral for Liver Transplant in Patients with HCV-associated Cirrhosis

### Recommendations

All attempts should be made to treat HCV infection pre-transplant even in patients with decompensated liver disease.

Any patient with decompensated liver should be evaluated by a liver transplant specialist.

**Table 3**

### Child-Turcotte-Pugh Scoring System for Severity of HCV

Feature	Points		
	1	2	3
Encephalopathy*	Stage 0	Stage 1-2	Stage 3-4
Ascites	Absent	Mild-Moderate	Severe
Serum Bilirubin (mg/dL)	< 2	2-3	>3
Serum Albumin (g/dL)	> 3.5	2.8-3.5	<2.8
INR	<1.3	1.3-1.5	>1.5

Score: Class A = 0-6 points; Class B = 7-9 points; Class C = 10 or more points

\*Mental status in hepatic encephalopathy can be graded by use of the West Haven criteria

- Stage 0: Normal behavior and personality; no asterixis.
- Stage 1: Mild decrease in orientation, attention deficit, impaired ability to calculate (addition/subtraction), abnormal sleep pattern (hypersomnia, insomnia), mood alteration (euphoria or depression), irritability; with/without asterixis.
- Stage 2: Lethargy, drowsiness, inattentiveness, disorientation, memory deficit, dysarthria; asterixis is present.
- Stage 3: Severe disorientation, obtundation (but arousable), inappropriate behavior, stupor, clonus; asterixis not usually present.
- Stage 4: Coma, dilated pupils.

## Liver Health

### Hepatotoxic Drugs

#### Recommendations

Providers should discuss the role played by alcohol in the progression of hepatitis C.

Providers should warn patients to be aware that over-the-counter medications can be hepatotoxic and that they should discuss medication use with a medical provider.

Patients should be made aware that no herbal products have yet been shown to delay progression of hepatitis C and that some herbs are hepatotoxic.

### Injection Drug Users

#### Recommendations

Injection drug users should be advised to stop injecting, and seek treatment if indicated.

If unable to stop, IDUs should be advised to obtain sterile syringes from pharmacies or syringe exchanges and to avoid sharing any injection equipment.

### Risk Reduction and Partner Notification

#### Recommendations

Non-monogamous patients should use condoms and other barrier methods with sexual partners.

HCV- positive patients should be advised to avoid sharing items that may be contaminated with blood such as toothbrushes and razors; blood spills should be promptly cleaned.

Providers should be available to assist patients when they inform partners and family members about their HCV status to provide information on transmission, treatment and prognosis.

## Hepatitis C Post-exposure Management

### Recommendations

At time of exposure:

Determine the type of exposure and assess the associated risk.

Wash wounds with soap and water; flush mucous membranes with water.

No post-exposure prophylaxis (immune globulin or antiviral medications) is recommended.

Counsel the exposed person regarding hepatitis C transmission risk.

Test source and exposed individual for hepatitis C virus antibody (figure 1) and liver enzymes for exposed individual. If source is not available or refuses testing, treat exposed person as if source has active hepatitis C infection.

If source is hepatitis C virus antibody positive, or is antibody negative and is immunocompromised, test source for qualitative HCV RNA.

If source is negative for hepatitis C antibody (and HCV RNA, if indicated), no further testing is necessary and no further action beyond initial HCV testing, is necessary for the exposed person.

If source is positive for hepatitis C antibody and HCV RNA, and exposed person is negative, follow up of exposed person should be done.

## Prevention and Counseling

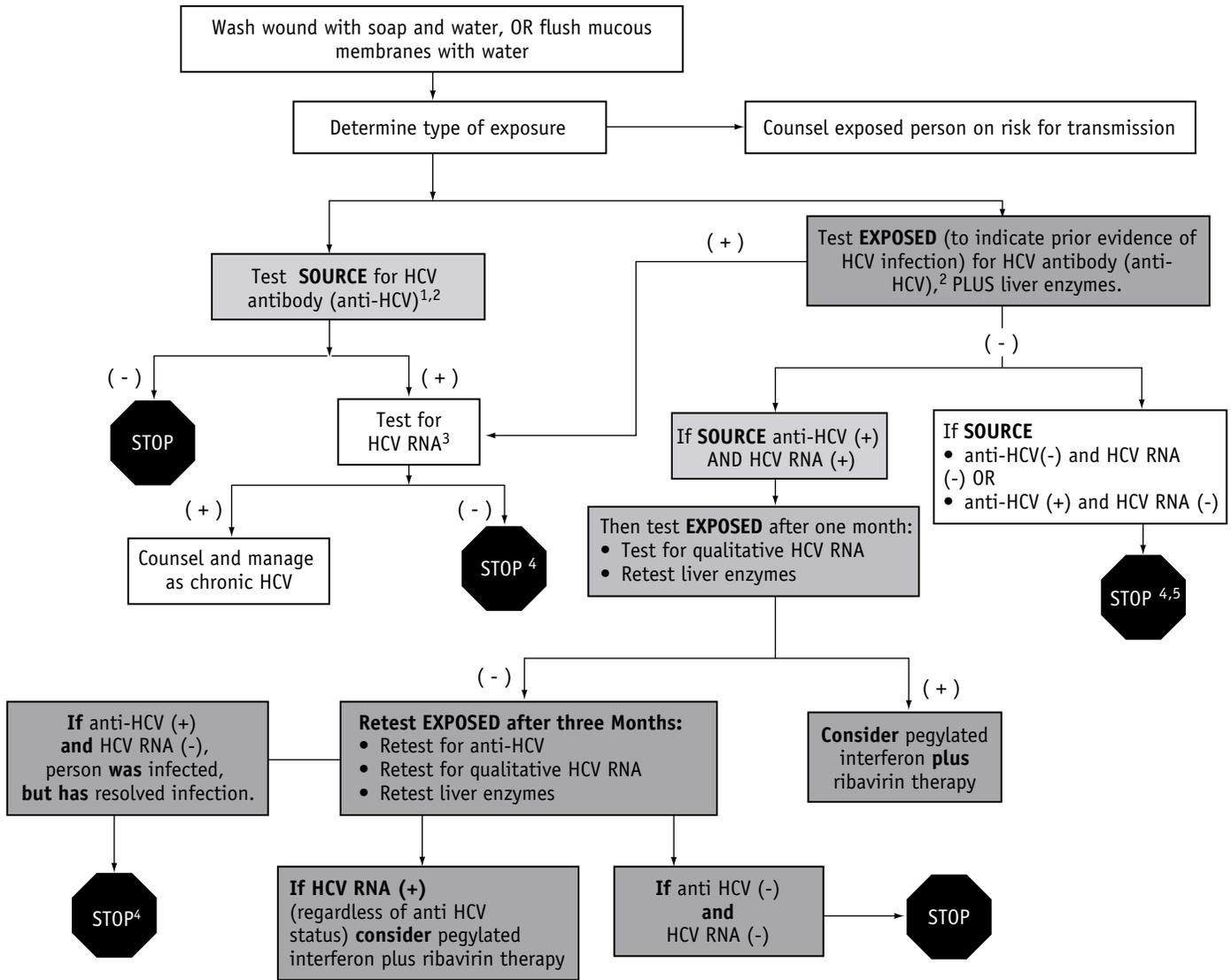
### Recommendations

The medical team should have an understanding of the significance and importance of the available HCV tests.

Prior to ordering testing, assess the patient's ability, regardless of age, to comprehend the nature and consequences of HCV antibody testing. Defer testing if the patient's ability to understand is temporarily impaired.

Figure 3

## Hepatitis C Post-exposure Management



<sup>1</sup> If source is unavailable or refuses testing, treat exposed as if source was anti-HCV (+) and HCV RNA (+).

<sup>2</sup> Since immunosuppressed persons can be negative for hepatitis C antibody despite viremia, qualitative HCV RNA testing should be performed.

<sup>3</sup> Qualitative HCV RNA by PCR or TMA.

<sup>4</sup> Person was HCV-infected at one time and spontaneously cleared the virus. Person is NOT able to transmit HCV at that time.

<sup>5</sup> Advise and counsel EXPOSED person if SOURCE person is anti-HCV (+) only.

**Table 4**

## **Elements of Hepatitis C Counseling Counseling Prior to HCV Testing**

### **Initial counseling should review the following elements:**

- Patient's prior history of HCV testing and counseling;
- Incidence and prevalence of HCV;
- HCV transmission;
- Relationship to other diseases such as substance dependence, HIV, sexually transmitted diseases;
- Benefits of early diagnosis and intervention—prevention of transmission to others, reduced risk of long terms complications of HCV infection; and
- Treatment options.

### **The second part of hepatitis C counseling prior to testing is the explanation of specific test issues:**

- Testing is voluntary;
- Tests and procedures, purpose of the test and that blood specimens are needed to perform the test;
- Explain the meaning of possible test results;
- When results should be expected and that results are occasionally delayed, which does not necessarily indicate a positive test; and
- Explain the confidential nature of clinician/patient relationship.

### **The final part of hepatitis C counseling prior to testing includes:**

- An explanation of risk reduction behaviors associated with HCV and other bloodborne diseases;
- A discussion of possible test results and that there will be post- test counseling; and
- Reassurance and/or referral for emotional support for the patient during the waiting period.

## **Counseling after HCV Testing\***

### **For the patient with a negative test result:**

- Discuss the meaning of the test result;
- Discuss possibility of HCV exposure during the past three months and the need for repeat testing if risk factors are significant;
- Emphasize that a negative test result does not imply immunity to future infection;
- Reinforce that the patient should not:
  - share needles;
  - ink or needles for tattoos;
  - needles for body piercing;
  - razors, toothbrushes or other personal items that could have blood or secretions on them; and
- Reinforce personal risk reduction strategies such as using latex condoms.

### **For the patient with a positive HCV antibody test result, discuss:**

- Meaning of the test result (antibody test vs. viral load test);
- Possible risk factors that were present in the history; and
- Follow-up testing with a qualitative HCV RNA.

### **For the patient with a positive HCV antibody test result and a negative qualitative HCV RNA, discuss:**

- Need for repeat qualitative HCV RNA in several months, if there are significant risk factors present, as the viral load can fluctuate;
- That a positive antibody and two negative qualitative HCV RNA tests at least 6 months apart means that the patient cannot transmit hepatitis C;
- That a positive antibody test does not confer immunity from future hepatitis C infections and that risk reduction is still important; and
- The possibility of acute infection that may have resolved spontaneously.

## Table 4 continued

### For the patient with a positive qualitative HCV RNA:

- Discuss that all new medications, including herbal medications and over-the-counter medications, need to be discussed with their physician prior to their use, as they could have deleterious effects on the liver;
- Inform the patient to minimize transmission to others, that he/she should not donate blood, body organs, tissue or semen, share anything that could have blood on it such as toothbrushes, razors, dental appliances, nail clippers, etc.;
- Cover all open sores to prevent spreading of possible infectious secretions;
- Discuss the harmful effects of alcohol use and HCV disease;
- Encourage partner/spousal notification with the options of self-notification or clinician-assisted notification;
- Encourage referral of needle sharing partners for HCV testing;
- Encourage referral of children of chronically infected women for HCV testing;
- For pregnant women infected only with HCV:
  - Breast-feeding should not be discouraged unless there are bleeding or cracked nipples and
  - When the mother is infected only with HCV, the vertical transmission rate is approximately 5% (range 3-7%);
- If the person has a long-term steady sexual partner the risk of transmission to the uninfected partner is low, though not absent. Barrier protection should be emphasized;
- Provide counseling or refer to counseling for coping with the emotional consequences of testing positive and behavior changes that will be needed to prevent the spread of HCV;
- Discuss availability of specialized medical care;
- Encourage vaccination for hepatitis A and B if the patient is susceptible;
- Provide or refer to HCV medical care for treatment; and
- Provide or refer the patient, family or significant others to support groups for counseling as needed.

\*Refer to Hepatitis C Screening Algorithm (Figure 1) for HCV test interpretations