Understanding Hepatitis C:

A Training for Service Providers

Participant Manual

New York City Department of Health and Mental Hygiene

HIV Training Institute

Understanding Hepatitis C: A Training for Service Providers
Participant Manual

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Understanding Hepatitis C: A Training for Service Providers

Why this course?

Hepatitis C is a major public health problem in the United States. In New York City, as in other parts of the country, injection drug use (IDU) continues to play a significant role in the transmission of blood-borne diseases, such as hepatitis C virus (HCV) and Human Immunodeficiency Virus (HIV). Like HIV, HCV is transmitted largely through injection drug use with contaminated equipment and, therefore, impacts many of the same populations. Integrating HCV services into existing programs can help ensure that all persons have access to prevention information, care and treatment for HCV.

Persons at risk for or infected with HCV may need a wide range of services. Currently, very few communities have experience combining HCV testing, counseling, prevention, and treatment services with HIV/AIDS or any other public health program. Recent demonstration projects have shown that integrating HCV counseling, testing, and education into existing programs is feasible and can enhance identification of persons at risk or needing care for HCV.

This one-day course provides information for HIV counselors, case managers, outreach workers, educators, and other service providers whose clients are at risk of being infected with HCV or in need of care for HCV disease. During the course, each participant will have the opportunity to practice integrating key counseling messages for persons at risk for or already infected with hepatitis C.

The participant manual is divided into individual modules and includes an overview of viral hepatitis; the natural course and transmission of HCV; HCV testing and care; HIV/HCV co-infection; harm reduction counseling messages for persons at risk and HCV positive persons; resources; a glossary of terms; and frequently asked questions. Note pages have been incorporated into the manual to make it easier to follow and take notes.

Understanding Hepatitis C: A Training for Service Providers

COURSE GOAL

To provide community health, social service, and HIV service providers with the information and skills we need to integrate hepatitis C prevention, care and treatment issues into our work.

COURSE OBJECTIVES

At the end of this training, participants will be able to:

- Define hepatitis and explain the liver's role in the body.
- Explain the difference between hepatitis C (HCV) and other forms of viral hepatitis.
- Understand the history and prevalence of HCV.
- Understand the natural course of HCV infection and progression of disease.
- Explain how HCV is transmitted and not transmitted.
- Identify ways to reduce the transmission of HCV.
- Explain safer injection techniques.
- Explain the tests used to identify the presence of HCV.
- Understand tests used to monitor liver health.
- Describe therapies used in the treatment of HCV.
- Describe 10 ways to maintain liver health.
- Identify how co-infection with HIV/HCV impacts care and treatment.
- Explain the similarities and differences between HCV and HIV.
- Identify where HCV messages/activities can be integrated into existing HIV services.
- Understand key HCV prevention and counseling messages.
- Identify HCV prevention and counseling messages to integrate into our work.
- Practice and demonstrate the integration of HCV counseling messages and activities.
- Identify resources to assist in our work.

Understanding Hepatitis C: A Training for Service Providers
AGENDA

Pre-Training Questionnaire

Module I **Introduction and Overview of Course**
- Welcome/Course Objectives
- Introductions

Module 2 **Hepatitis and the Liver**
- What the liver does
- What hepatitis is
- Understanding A through E

Module 3 **About Hepatitis C Infection**
- Prevalence of HCV
- Natural course of infection
- Transmission myths, facts and questions
- Reducing the risk of infection or transmission

BREAK

Module 4 **HCV Testing & Care**
- HCV testing
- Monitoring liver health
- Current treatment options

LUNCH BREAK

Module 5 **HCV & HIV Co-Infection**
- Prevalence of co-infection
- Impact of co-infection
- Care and treatment of co-infected persons

Module 6 **Integrating HCV: Why, What, Where & How**
- Integrating messages into existing services
- HCV counseling messages for prevention and care

BREAK

Module 7 **Strategies for Successful Integration**
- Practicing the message
- Utilizing Resources
- Summary and Closing
- Post-Training Questionnaire & Evaluation

Understanding Hepatitis C:
A Training for Service Providers

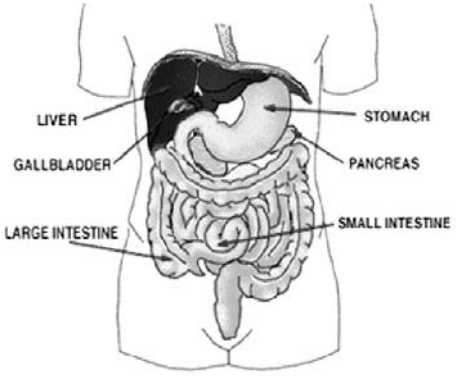
Module 1
Introduction and Overview of Course

Program Goal

To provide community health, social service, and HIV service providers with the information and skills we need to integrate Hepatitis C prevention, care, and treatment issues into our work.

Module 2
Hepatitis and the Liver

The Liver: Largest Internal Organ



The Liver

- Acts as the body's filter & warehouse.
- Converts food, alcohol, chemicals, drugs, into substances to be used or excreted by the body.

The Liver

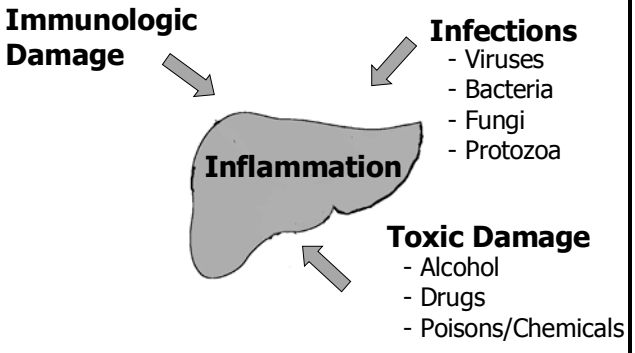
- Makes bile to help digest food.
- Stores vitamins & minerals.
- Regulates blood clotting, fat & sugar storage.
- *Has the amazing ability to regenerate itself!*

Definition

HEPATITIS

= inflammation of the liver

Causes of Hepatitis



Hepatitis A Virus (HAV)

- Transmission
  - Fecal-oral contact
    - anal/oral sexual contact, dirty diapers, household contact
  - Fecal contaminated food and water
- Is It Serious?
  - Symptoms may include fatigue, loss of appetite, nausea, vomiting, abdominal pain, fever, joint pain, light colored stool, and jaundice
  - Symptoms can last up to 8 weeks
  - No chronic disease
  - Once infected you are immune for life
- Can It Be Prevented?
  - Vaccine and Immune Globulin (Ig)

HAV Vaccine Recommendations

- Injection drug users
- HIV infected
- Chronic liver disease (incl. HBV or HCV)
- Men who have sex with men
- International travelers

Hepatitis B (HBV) Transmission

Hepatitis B is a common infection in the US

- 1:20 have been infected
- 1:200 are chronically infected (1.25 million people)

- Transmission: same ways as HIV, but more efficient
  - Sexually: blood, semen, vaginal secretions
  - Contaminated needles/equipment: syringes, cookers
  - Birth: from infected mother to newborn
  - Household contact: razor, toothbrush, nail clipper
  - Open sores

Hepatitis B – Clinical Features

- **Acute Illness:**
  - 30- 50% of adults develop acute symptoms
- **Chronic Illness:**
  - **Most adults recover from HBV infection**
  - Less than 5% develop chronic infection
  - Of those,15-25% will develop cirrhosis or experience liver failure
  - 4-5,000 deaths per year
- **90% of infants infected at birth develop chronic HBV**
  - Aggressive pre-natal screening and vaccination program in place

Hepatitis B Treatment

- **Treatment:**
  - Post-exposure prophylaxis to prevent or reduce severity of infection
    - vaccine
    - HBV immune globulin (HBIG)
- **Vaccination:**
  - 3 dose series
  - Protection ~50% after 1 dose; 85% - 2; 96% - 3

HBV Vaccine Recommendations

- All babies at birth
- Children ages 0-18 who haven't been vaccinated
- Injection drug users
- All men who have sex with men
- People with HIV, liver disease or on kidney dialysis
- Sexual & household contacts of people with chronic HBV
- Health care workers and other persons with possible occupational blood exposures

Hepatitis C Virus (HCV)

- Blood-borne viral infection
- Injection drug users at highest risk
- 75-85% will develop chronic infection
  - Can remain asymptomatic for decades
  - Can transmit the virus to others
- Sexual risk low, but not absent
- No vaccine
- Treatment with alfa-interferon & ribavirin

Hepatitis D Virus (HDV)

- Blood-borne viral infection
- Also known as “Delta Virus”
- Requires presence of HBV to cause infection
- Coinfection with HBV
  - Someone acquires both viruses at the same time
  - Acute severe disease with low risk of chronic disease
- Superinfection with HBV
  - Someone with HBV acquires HDV
  - Usually develop chronic HDV with risk of severe chronic liver disease
- Vaccination for HBV will prevent infection

Hepatitis E Virus (HEV)

- Fecal-oral contact
- Most outbreaks from water contaminated with feces
- Minimal person-to-person transmission
- U.S. cases usually have history of travel to endemic areas
  - Asia, Middle East, N. Africa
- Pregnant women can develop serious complications, including death

No chronic disease

No vaccine available

Module 3
About Hepatitis C Infection

Hepatitis C: What is it?

- A small RNA virus
- Enters the bloodstream, goes into liver cells causing inflammation
- Replicates *trillions* of virons a day
- Can live in blood for days outside the body - much longer than HIV

History of Hepatitis C

- 1970's: virus appears in enough people to be noticed (called non-A, non-B).
- 1988: Hepatitis C virus identified & named.
- 1990: First antibody test helps identify people exposed to the virus & is used to screen blood.
- 1991: FDA approves alfa-interferon for treatment of chronic HCV.

History of Hepatitis C

- 1992: Better tests insure safety of blood supply and confirmatory test for anti-HCV is approved.
- 1998: FDA approves combination treatment of alfa-interferon and ribavirin.
- 2000: FDA approves new version of alfa-interferon called pegylated interferon.

HCV Prevalence

- 3% of the world population infected with HCV (150-200 million people)
- 1.8% of the US population infected with HCV (4-5 million people)
- 2.7 million people are chronically infected with HCV

HCV Prevalence

- 60% - 90% of IDUs are infected with HCV
- 14% - 42% of incarcerated persons are infected with HCV
- As many as 42% of homeless persons may be infected with HCV

HCV Prevalence

- 8,000-10,000 Americans die each year from HCV-related complications
- Could be as many as 30,000 by 2015 as complications from long-term infections become more common
- Liver failure due to HCV is leading cause of liver transplants in the US
- 15,000 Americans on waiting lists for liver transplants

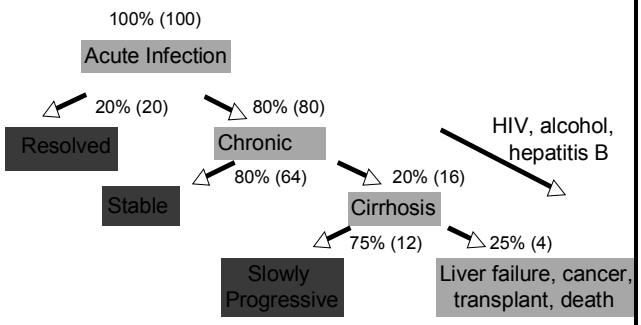
Acute HCV

- Antibody response typically: 6-7 weeks
- Can take up to 24 weeks
- Most persons have no symptoms
- 15% - 25% of people will spontaneously clear the virus

Chronic HCV

- 75-85% will develop chronic infection
- Most remain stable for years
- Of those with chronic infection:
  - 5-20% will develop cirrhosis and serious illness
  - 1-4% will develop liver cancer and/or need a transplant
  - 1% will die as a result of HCV disease

Natural History of HCV Infection



Factors Promoting Disease Progression

- Alcohol is a prime co-factor for HCV progression to severe liver disease
- Other factors:
  - HIV disease
  - chronic HBV
  - > age 40 when infected
  - male sex

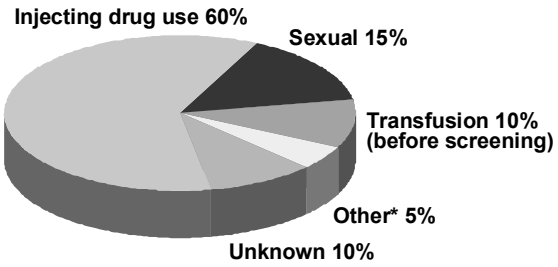
HCV Transmission

HCV is a blood-borne pathogen

The most efficient route of transmission involves percutaneous exposure

(direct passage of blood through the skin)

Sources of Infection for Persons with Hepatitis C



*In a medical setting; healthcare work; perinatal

Source: Centers for Disease Control and Prevention

HCV Risk - IDU

- Needle sharing from injection drug use is the greatest risk for HCV
- Injection drug use, even once many years ago, is a risk
- As many as 90% of IDUs are infected with HCV within 5 years of injecting
- IDU accounts for 60% of all new infections

HCV Risk - Transfusions

- Blood transfusion or organ transplant prior to 1992
- Clotting factor prior to 1988
- 90% hemophiliacs treated before 1988 became infected

HCV Risk – Sexual

- Sexual transmission occurs, but it is not the most efficient route
- Accounts for 10%-15% of HCV+ cases
- Increased risk for persons having sex that involves tearing and blood contact
- Multiple partners and active STD's can increase risk
- MSM not at higher risk

HCV Risk - Perinatal

- Risk of infected mother to infant at birth is less than 5%
- HIV co-infection increases risk of transmission up to 17%-20%
- Breast-feeding not a risk
  - unless nipples are cracked / bleeding

HCV Risk – Healthcare

- Risk from needlestick:

HIV	HCV	HBV
3/1000	20/1000	300/1000

- Prevalence of HCV in healthcare workers is same as general population
- Universal Precautions
- No work restrictions

HCV Risk - Tattooing

- Use of contaminated and homemade equipment increases risk
  - tattooing in prisons
  - shared ink
- There is no consistent data indicating tattooing or body piercing as independent risk factors. Studies are ongoing.

HCV Risk - Intranasal Drug Use

- Transmission may occur.
- More studies are needed to determine risk of intranasal drug use as an independent factor.

HCV Risk - Household Contact

- Transmission may occur by sharing items contaminated with blood
  - razors, toothbrushes, clippers
- Casual contact does not transmit HCV
  - kissing, hugging, sharing food, etc.

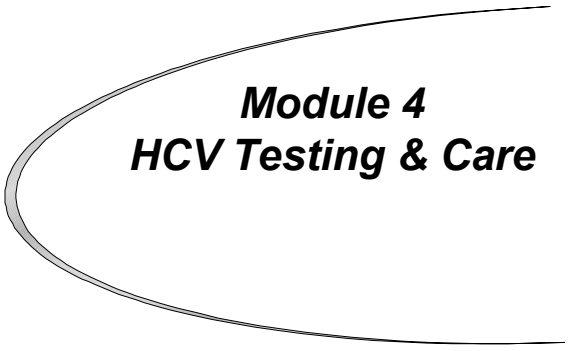
Harm Reduction

"…is a set of practical strategies that reduce negative consequences of drug use. Harm reduction strategies meet drug users 'where they're at,' addressing conditions of use along with the use itself."

(Harm Reduction Coalition)

Safer Injecting

- Wash your hands
- Avoid contact with blood
- Don't share syringes to shoot up. Don't split drugs with a used syringe.
- If you must share, clean ALL your works with bleach and water
- Take control of your own injection



Module 4
HCV Testing & Care

Diagnostic Tests for HCV

- Anti-HCV (antibody to HCV)
  - EIA (enzyme immunoassay)
  - RIBA (recombinant immunoblot assay)
- HCV RNA (PCR Qualitative)
  - Confirms presence of any HCV in blood

New York Protocol for HCV Testing

1. EIA
2. If positive, a second EIA is performed
3. RIBA is performed when EIA results are not definitive (rare)
4. If positive, the person is referred to a medical facility for care and PCR testing.

Confidential testing for HCV should be offered to all persons who are at highest risk of infection

HCV Testing Routinely Recommended

- Ever shared needles or works, even once
- Received a transfusion or blood products before 1992
- Received clotting factor prior to 1988
- Ever on hemodialysis
- HIV-positive
- Healthcare, emergency, public safety workers after needlestick/mucosal exposures to HCV-positive blood
- Children >1 year born to HCV-positive women

Routine HCV Testing of Uncertain Need

- History of non-sterile tattooing, body piercing
- Long-term sexual partners of HCV+ persons
- Sex partners of injection drug users
- History of STDs or multiple sex partners
- Intranasal cocaine or other non-injecting illegal drug users
- Recipients of transplanted tissue

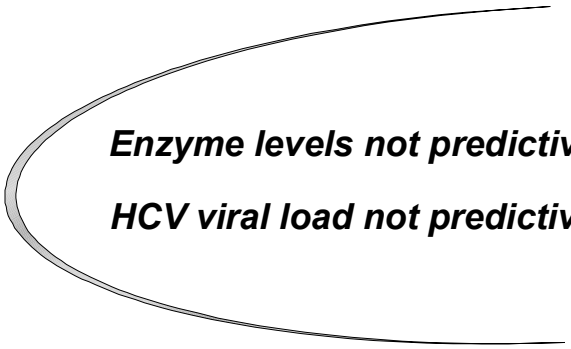
Routine HCV Testing Not Recommended

- Household (non-sexual) contacts of HCV-positive persons
- Healthcare, emergency medical, and public safety workers
- Pregnant women
- General population

Monitoring Liver Health

- Liver Function Tests (LFTs)
  - Liver enzymes: ALT, AST
  - 1/3 HCV+ have normal enzyme levels
- *Quantitative* HCV PCR (viral load)
  - Less than 2 million is considered low
  - Over 2 million is considered high

Monitoring Liver Health



Enzyme levels not predictive !

HCV viral load not predictive !

Monitoring Liver Health

- Liver biopsy:
  - 0 = no fibrosis or inflammation;
  - 1 = inflammation, no fibrosis
  - 2 = some cell death, fibrosis
  - 3 = fibrosis with bridging
  - 4 = severe scarring (cirrhosis)
- Most accurate way to measure degree of liver damage

Monitoring Liver Health

- Genotype (genetic strain)
  - 75% of US infections are Genotype 1
- Six known genotypes
- Knowing your genotype is important when considering treatment

HCV Treatment

- Pegylated alfa-interferon injected (once a week)

  +

  ribavirin capsules or tablets taken twice a day for 6 months to one year
- Goal of treatment:
  - *Sustained virologic response* = undetectable HCV viral load 6 months after finishing treatment

HCV Treatment

- Ribavirin + pegylated interferon
  - 50-60% overall sustained response
  - genotype 1

    42 - 46% sustained response
  - genotypes 2 & 3

    76 - 82% sustained response

HCV Treatment

- *The primary goals of treatment are eradication of the virus and a healthier liver (histological improvement):*
  - *normalized liver enzymes*
  - *lower HCV viral load*
  - *sometimes follow-up liver biopsy*

HCV Treatment

- *Predictors of a better response to treatment:*
  - *genotype 2 or 3*
  - *HCV viral load < two million*
  - *under 40*
  - *female (pre-menopause)*
  - *no cirrhosis*
  - *lower body weight or BMI*

Interferon Side Effects

- fatigue
- joint & muscle pain
- fever
- chills
- nausea
- headaches
- weight loss
- mild hair loss
- low white blood cells
- low platelets
- rapid heart beat
- irritability
- depression
- suicidal thoughts

Other Side Effects

- Ribavirin can cause severe anemia
- Both interferon and ribavirin may cause birth defects
- Side effect management:
  - Ibuprofen / Acetaminophen
  - Antidepressants
  - Nighttime interferon dosing
  - Erythropoetin injections can stimulate red blood cell growth

Barriers to Treatment

- Not everyone is eligible (early disease, severe mental illness)
- Expensive ($27,000 for a year of treatment)
- Difficult to get treated if actively using drugs or alcohol
- Not available or accessible in all methadone clinics
- Difficult to find good care
  - Liver specialists often not trained in addiction medicine
  - Sometimes long waiting lists to see a specialist
- Adherence can be difficult
- Side effects can be unmanageable

Finding Comprehensive Care

- Treatment appears to be more successful if certain strategies are in place:
  - Patient education
  - Mental health assessment & care
  - Substance use counseling
  - Case management
  - Treatment adherence services
  - Support groups

Creating a Support Network

- Important to establish before starting tx
- May need help with everyday tasks
- Psychological support equally important
  - Depression can be severe
  - Persons in recovery may need extra support to maintain abstinence

Complementary & Alternative Therapy

- Used to ease the side effects of treatment, instead of treatment or to strengthen the body's ability to fight infection
- Not proven to reduce treatment side effects or cure HCV
- Therapies include acupuncture, massage, yoga, Tai Chi, meditation
- Chinese herbs used include:

milk thistle	astragalus	licorice root
garlic	bupleurum	dandelion
artichoke	gingko biloba	thioctic acid

Keep your liver healthy!

It's the most important thing you can do to prevent progression of HCV disease.

Module 5
HCV & HIV Co-Infection

HIV and HCV

- Affects many of the same populations
- 200,000 co-infected in the U.S.
- 25-30% of HIV+ co-infected
- 10% of HCV+ co-infected
- In NY, up to 78% of HIV+ IDUs may have HCV

HIV and HCV

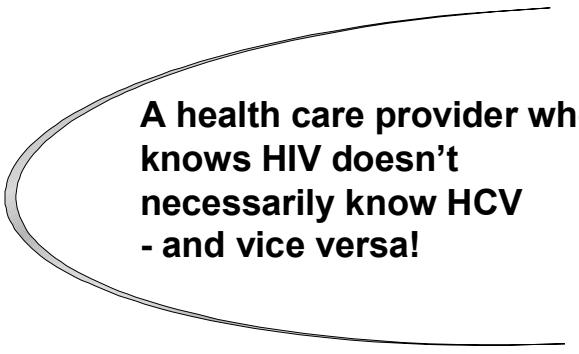
- Both HIV and HCV are blood-borne
- HCV is 10 times more infectious than HIV by blood-to-blood contact
- Most co-infected IDUs likely infected with HCV years before HIV
- HIV is more transmissible between sexual partners and from mother to infant

Co-infection
Effect of HIV on HCV Disease

- HIV infection worsens hepatitis C disease
  - **Weakened immune system allows HCV to replicate faster**
  - **Higher HCV viral load may make someone more infectious**
  - **Accelerates and increases likelihood of HCV disease progression**
- May not respond as well to HCV treatment

Co-infection
Effect of HCV on HIV disease

- Does not appear to accelerate HIV disease
  - Except for people with hemophilia
- Higher toxicity from HAART
  - Protease inhibitors & non-nucleosides are processed in the liver – patients must be carefully monitored
- As people live longer with HIV, many more HIV deaths are caused by HCV-related end stage liver disease



Treatment Considerations

Which to treat first?

- *Likelihood of beneficial response to tx*
- *Likelihood of adverse reactions to medications*
- *Risk of progression of liver disease*

Co-Infection Considerations

- Starting HAART can increase liver enzymes and HCV viral load for the first few months
- High doses of interferon can lower T-cells - at least temporarily
- *Anemia*: a possible side effect of both ribavirin & AZT
- *Mitochondrial toxicity:* 5 times more likely if on ribavirin and ddI (Videx)

Careful monitoring is important

Persons co-infected with HIV and HCV should be:

- Seen by physicians knowledgeable about both HIV and HCV
- Provided with information to maintain liver health
- Counseled about the impact of alcohol on the progression of liver disease
- Counseled on ways to reduce the transmission of HIV and HCV

Persons co-infected with HIV and HCV should be:

- Vaccinated against HAV and HBV, if appropriate
- Evaluated for chronic liver disease
- Considered for HIV and/or HCV antiviral treatment
- Counseled about drug interactions and side effects

Module 6
Integrating HCV:
Why, Where, What & How

Prevention Counseling

Helps individuals reduce the risk of contracting or transmitting HCV and/or minimize progression of disease

Counseling Messages When HCV Status is Unknown

- HCV is transmitted primarily through blood-to-blood contact
- Injection drug use is the primary way HCV is transmitted
- If you are at risk, consider testing for HCV
- Casual contact does not transmit HCV

HCV is Transmitted Primarily Through Blood-to-Blood Contact

- Persons who have shared injection equipment, even once, are at risk for HCV infection.
- Other types of exposure are less likely to transmit HCV though they are not without risk: Needlesticks, sharing tattoo equipment or ink, unprotected sex.

If You Are Injecting:

- Consider a drug treatment program.
- Always use a new sterile syringe, cotton, cooker and fresh water *for each injection*. Do not share syringes, cotton, cooker or water.
- Sterile syringes are available at syringe exchange programs and at ESAP pharmacies.
- If you are splitting drugs, split them when they are dry (in powder form) or use a new sterile syringe to split them.
- Don't backload into someone else's syringe.
- Clean the injection site and avoid contact with blood.
- If you must share, use bleach to clean your syringe before injecting. It is still unknown if bleach effectively kills HCV.

When Having Sex:

- About 15% of infections are sexually transmitted
- Sexual activities that may involve blood increase the chance of transmission
- Sex with multiple partners or in the presence of STD's with open sores greatly increases risk
- Using a latex condom, latex glove, or other barrier method will reduce your risk of becoming infected
- Talk with sexual partners about using protection, as well as past and current risk

If You're at Risk:
Consider Testing for HCV

- Knowing your HCV status can help you make choices about liver health even without other treatment options
- If your results are negative, you can get information to make sure you stay that way!

Contact With HCV+ Persons

- HCV is *not* spread by hugging, coughing, sharing utensils, or any other casual contact.
- Persons living with HCV infected individuals should avoid sharing household items that may have blood on them, such as razors and toothbrushes.

Counseling Messages for HCV- Persons

- Risk and harm reduction counseling similar to persons whose HCV status is unknown
- Encourage positive steps toward change
- Can become infected in the future

Counseling Messages for HCV+ Persons

Reducing Risk of Transmission

- Don't share needles, syringes, cotton, cooker or water used to prepare or inject drugs
- Discuss HCV status with sexual and/or needle sharing partner(s) and refer them for testing
- Discuss with partner(s) whether to use barrier protection during sex
- Don't share items that may have blood on them
- Don't get tattoos or body piercing in unlicensed settings
- Don't donate blood, body organs, other tissue, or semen
- Clean up blood spills with bleach solution
- Cover cuts and sores on the skin

Counseling Messages: Reducing Harm from Injection Drugs

- Offer a referral to substance abuse treatment, if interested
- Try to abstain from or reduce the use of injection drugs
- Always try to use sterile syringes and clean unused cooker, cotton and water. Don't share any of this equipment
- If you need to split drugs, use a new sterile syringe to divide up the drugs or split them when dry (in powder form)
- Don't backload into someone else's syringe
- If you need to share syringes or a cooker, use bleach to clean your equipment

Counseling Messages to Reduce Disease Progression

- Get a medical evaluation (even if not currently ill)
- See a specialist who understands HCV
- Consider getting vaccinated for HAV and HBV, if appropriate
- Alcohol has *serious* consequences for the liver. If you can, abstain from drinking or reduce alcohol consumption

Counseling Messages to Reduce Disease Progression

- Take care of your liver
- Drink plenty of water and eat well
- Talk to your doctor before starting any medications
- Get plenty of rest

Module 7 Strategies for Successful Integration

VIRAL HEPATITIS WORKSHEET

	HAV	HBV	HCV	HDV	HEV
How do you get it?					
What are the symptoms of acute infection?					
Is it a life-long infection? (chronic)					
Is there a vaccine? What are the treatments?					

SIMILARITIES AND DIFFERENCES BETWEEN HIV AND HCV

WORKSHEET

List similarities and differences between HIV and HCV. Consider common themes such as populations impacted, transmission, prevention, symptoms, testing, and treatment.

HIV	HCV

Module 2

Hepatitis and the Liver

- **What does the liver do?**
- **What is hepatitis?**
- **What is the difference between each type of viral hepatitis?**

What does the liver do?

THE LIVER, the largest internal organ in the body, is located below the diaphragm in the right upper quadrant of the abdominal cavity. The liver serves as the body's filter and warehouse. The liver filters blood and other substances to be used or excreted by the body, and acts as a warehouse to hold onto substances that the body needs later. The liver is responsible for:

- breaking down food, chemicals and medications
- making bile to help digest food
- storing vitamins and minerals
- manufacturing proteins and nutrients
- converting nutrients into energy
- storing sugar and controlling the level of sugar in our bloodstream
- regulating fat storage
- regulating blood clotting

One of the unique features of the liver is its **ability to regenerate cells**. This is important after surgery, injuries, or diseases that destroy portions of the liver. However, excessive damage eventually causes normal liver tissue to turn into scar tissue. Alcohol is a good example of a substance that is difficult for the liver to metabolize or break down. *Excessive alcohol use over an extended period of time is one of the most common reasons for liver disease, including the development of cirrhosis (scar tissue).*

What is hepatitis?

HEPATITIS is a general term that means **inflammation of the liver**. "Hepar" means liver and "itis" means inflammation (as in arthr*itis*, pancreat*itis*, and dermat*itis).*

- Viruses, bacteria, drugs, toxins, excessive alcohol intake, or autoimmunity (your immune system attacking your own body) can cause inflammation of the liver.
- There are five viruses known to affect the liver and cause hepatitis: A, B, C, D, and E.
- There is no Hepatitis F.
- Although Hepatitis G was originally thought to cause liver damage, it doesn't and has been renamed GB virus C or GBV-C. The viruses were named in order of their discovery. While these viruses may cause similar symptoms, each one is actually very different. They differ in how they are transmitted and treated, as well as how severely and persistently they impact the body.

UNDERSTANDING VIRAL HEPATITIS

What is the difference between each type of viral hepatitis?

HEPATITIS A (HAV)

Hepatitis A is transmitted through fecal-oral contact. **Transmission** occurs when a person ingests anything that is contaminated with feces containing HAV. This can occur by eating food, raw shellfish, or drinking water that is contaminated with the virus. It can also be spread when diapering children or through sexual activity that includes anal contact (i.e. rimming). Symptoms of HAV usually occur after an average period of 28 days (range 15 – 50 days) and last up to eight weeks. This short-term initial stage of disease is called **acute Infection**.

The **symptoms** of acute infection can include high fever, loss of appetite, fatigue, dark urine, nausea, vomiting, joint pain, light-colored stool, and jaundice. Some people have no symptoms and recover without ever realizing they've been infected.

There is **no treatment** for HAV except those used for symptom relief such as aspirin or other pain relievers, drinking fluids, rest, etc. HAV does not develop into **chronic infection** (long-term or persistent disease), and almost everyone clears the virus, meaning his or her immune system effectively fights it off. Once you clear HAV, you cannot be infected again; the antibodies your immune system developed in response to the infection are protective against future exposure.

HAV can cause serious complications for people with other liver diseases including chronic HBV or HCV. Infection with HAV can be prevented by **vaccination**, which

requires two (2) doses, 6-18 months apart. If both doses are received, the vaccine efficacy is >99% and provides long-term protection. Persons **exposed** to HAV can get immune globulin shots within 2 weeks of exposure to avoid getting sick. The HAV vaccine is highly recommended for all men who have sex with men (MSM's), injection drug users, healthcare workers, international travelers, and people infected with HCV.

HEPATITIS B (HBV)

Hepatitis B is **transmitted** by direct blood-to-blood contact and through sexual activity. HBV is 100 times more infectious than HIV and 10 times more infectious than HCV. HBV is present in blood, semen and vaginal fluids, and is transmitted primarily through sexual activity. Another major transmission route is sharing equipment for injection drugs (including needles, cookers, tourniquets) and, to a lesser extent, non-injection drugs (cocaine straws and crack pipes). Perinatal transmission is now rare in the U.S. because of routine infant vaccinations and the availability of HBV immune globulin (HBIG) for infants born to women with chronic HBV. Although HBV is detectable in saliva, household transmission of HBV rarely occurs.

Acute HBV develops in approximately 30-50% of adults, with **symptoms** similar to HAV infection. Most people with acute HBV experience few or no symptoms. In a majority of adults infected with HBV, the immune system can clear the virus. However, among infants, 90% of those infected at birth become chronic carriers. Some HBV-infected people – usually estimated at less than 5% – will become **chronically infected**. The majority of persons with chronic HBV infection don't develop symptoms and one third have no evidence of liver damage. Approximately 15-25% of those with chronic HBV develop progressive liver disease, leading to cirrhosis, liver cancer, or liver failure. Approximately 1.25 million people in the U.S. have chronic HBV infection.

Various tests are used to diagnose HBV and to assess the stage of disease and the extent of liver damage. Unlike HCV, which is diagnosed based on the presence or absence of HCV antibodies, HBV is diagnosed and staged by looking at a complex combination of HBV antigens and antibodies.

If you are among the majority of people who clear HBV, you cannot be infected again; the antibodies your immune system developed in response to the infection are protective against future exposure. HBV can be prevented with a **vaccine**. The vaccine is administered as a series of three injections given over six months (the second injection one month after the first, and the third injection 4-6 months later). The HBV vaccine is highly recommended for sexually active adults, injection drug users, healthcare workers, household contacts of HBV-infected individuals, people with HIV, and people infected with HCV. **Post-exposure prophylaxis** using the HBV vaccine plus injected antibodies (HBV immune globulin, or HBIG) can help prevent the development of HBV or reduce the length and severity of illness. Persons infected with HBV can be **treated with** alfa-interferon, Epivir-B or Hepsera.

HEPATITIS C (HCV)

Hepatitis C is **transmitted** by blood-to-blood contact. Individuals who have injected drugs, even if only once, are at highest risk for HCV infection. Sexual and perinatal transmission occur, but the risk is relatively low. Most persons with **acute infection** experience few, if any, symptoms and are unaware they're infected. Unlike HBV, most people who are infected with HCV go on to develop **chronic infection**. The majority of persons with chronic HCV infection are asymptomatic. There is **no vaccine** or immune globulin to prevent HCV infection. Interferon and ribavirin are used **to treat** HCV.

HEPATITIS D (HDV)

Hepatitis D, also known as "Delta", is a relatively uncommon virus **transmitted** by blood-to-blood contact. This virus only occurs in people with active HBV infection. The **symptoms** of HDV are the same as HBV, although they are usually more severe. Injection drug users who have HBV are at highest risk for HDV infection. Individuals who have HBV are also at risk if they have sex with a person infected with HDV. When someone is infected with HDV and HBV, it is known as co-infection. Super-infection occurs when a person with established HBV infection contracts HDV. Super-infection is usually more serious than co-infection. **Vaccination** against HBV will prevent HDV infection. There is no specific **treatment** for HDV. Individuals co-infected with HBV and HDV can benefit from treatment for HBV.

HEPATITIS E (HEV)

Hepatitis E is **transmitted** by the same routes as HAV (fecal-oral contact). It is rare in the United States and is usually only seen in individuals who have recently traveled to other countries. It is a serious problem in developing countries in Asia, the Middle East and North Africa. The **symptoms** of HEV are similar to those of HAV and can include high fever, loss of appetite, fatigue, dark urine, nausea, vomiting, light colored stool, and jaundice. There have been minimal accounts of person-to-person transmission. HEV is **not chronic** and most people recover completely. However, 20% of pregnant women with HEV die as a result of their infection. There is **no vaccine** for HEV and **no specific treatment**, only symptom relief.

HEPATITIS A – E

	Hepatitis A	Hepatitis B	Hepatitis C	Hepatitis D	Hepatitis E
How do you get it?	Transmitted through fecal-oral contact (changing diapers, rimming, eating contaminated food, etc.)	Transmitted through sexual contact, blood, breast milk, or mother-to-child during birth.	Transmitted by blood-to-blood contact. Sexual transmission is uncommon and mother-to-child transmission is possible.	Transmitted by blood-to-blood contact. Must have active HBV to get HDV. Relatively uncommon virus.	Transmitted through fecal-oral contact. Rare in the U.S.
What are the symptoms of acute infection?	High fever, loss of appetite, fatigue, dark urine, nausea, vomiting, light colored stool and jaundice. Symptoms may last from 1 week to 2 months.	Similar to HAV though many people have no symptoms. 30-50% develop acute (symptomatic) infection within 4 weeks to 6 months.	Similar to HAV though most people with HCV (75%) have no symptoms.	Similar to HAV though usually more severe.	Similar to HAV.
Is it a life-long infection?	NO. HAV is never chronic, and most people clear the virus completely. HAV can cause serious problems for people with other liver diseases.	YES, for some, though most adults clear the virus. Less than 5% become chronically infected. 15-20% of people with chronic HBV will die of cirrhosis or liver cancer after many years.	YES, for most, though 15-25% clear the virus. 75-85% become chronically infected; 5-20% develop cirrhosis; and 1-4% develop liver cancer.	YES. When a person is infected with HDV and HBV simultaneously, it's known as co-infection. Super-infection is when a person with established HBV contracts HDV. Super-infection is more serious than co-infection.	NO. HEV is not chronic, and most people recover completely. Pregnant women, however, can develop serious complications and 20% will die as a result of infection with HEV.
Is there a vaccine? What are the treatments?	The HAV vaccine prevents infection and is given in 2 doses, at least 6 months apart. Persons exposed to HAV can get immune globulin shots within 2 weeks of exposure to avoid getting sick. No treatment except for symptom relief.	The HBV vaccine prevents infection and is given in 3 doses over a minimum of 6 months. Persons exposed to HBV can get the HBV vaccine and HBIG to prevent illness or reduce severity. Treatment for chronic HBV may include: alfa-interferon injections, Epivir-B or Hepsera. There is no treatment for acute infection.	There is no vaccine and no post-exposure prophylaxis. Treatment for chronic HCV may include: pegylated alfa-interferon combined with ribavirin. There is no treatment for acute infection.	Vaccination against HBV will prevent HDV infection. There is no specific treatment or vaccine for HDV.	There is no vaccine for HEV. No treatment except for symptom relief.

Module 3

About Hepatitis C Infection

- **What do we know about the history of HCV?**
- **How prevalent is HCV in the United States?**
- **What is the natural progression of HCV disease?**
- **How is HCV transmitted? How can the risk of transmission be reduced?**
- **What harm reduction strategies can help reduce the risk of HCV transmission?**

THE HISTORY AND "TIMELINE" OF HCV

What do we know about the history of HCV?

HCV was formerly known as non-A, non-B hepatitis. HCV is an RNA virus that enters the bloodstream, goes into liver cells, and replicates very quickly. The infected liver produces up to a trillion HCV particles a day. HCV replicates differently than HIV. HIV enters the nucleus of white blood cells and destroys them in the process while HCV does not enter the nucleus of liver cells.

1970's	The virus appears in enough people to be noticed. It is called non-A, non-B hepatitis (NANB).
1988	HCV is identified and named.
1990	First antibody test helps identify people exposed to the virus & is used to screen blood. Transmission by blood transfusions becomes rare.
1990	FDA approves alfa-interferon for treatment of chronic HCV.
1992	Confirmatory test for anti-HCV antibodies is approved.
1998	FDA approves combination treatment of alfa-interferon and ribavirin.
2000	FDA approves new version of alfa-interferon called pegylated interferon.

PREVALENCE OF HCV

How prevalent is HCV in the United States?

HCV infection is **the most common chronic blood-borne infection in the U.S.**

- The National Health and Nutrition Examination Study (NHANES III) tested 21,241 blood samples from participants age six years and older and estimated that four million people in the United States have been infected with HCV (1.8% of the U.S. population), of whom most (2.7 million) are chronically infected.
- Most persons with chronic HCV are not aware of their infection. Data from NHANES III significantly underestimates the true prevalence of HCV infection in the United States since incarcerated and homeless individuals were not included in the populations surveyed.
- **The true prevalence is probably higher than four million, perhaps as high as five million.**
- Studies of HCV prevalence among this country's 1.8 million incarcerated persons range from 14% in New York to 42% in California.
- A 2002 survey of 597 homeless veterans found an HCV seroprevalence of 42%.

8,000-10,000 Americans will die this year from HCV-related complications, and the numbers are expected to rise to 30,000 by 2015 since many people have been living with HCV for decades.

- New infections are expected to continue at the rate of 35,000 per year.
- Currently, persons aged 40 to 59 years have the highest prevalence of HCV infection, and, in this age group, African American men have the highest infection rate (9.8%).
- Among injection drug users (IDU's), infection rates range from 60-90%, with most new injection users becoming infected within 5 years.

In New York City, it is estimated that between 200,000-300,000 people have chronic infection.

THE NATURAL HISTORY AND PROGRESSION OF UNTREATED HCV

What is the natural progression of HCV disease?

Acute Infection

After initial exposure, HCV can be detected in blood as early as one to two weeks, though the average time from exposure to the development of a detectable level of antibodies is 6-7 weeks. **After three months, more than 90% of those infected will test positive for antibodies to HCV.** Diagnosing HCV infection can be difficult since most people do not develop symptoms and, therefore, do not seek testing or medical

care. When symptoms do occur, they can be severe. However, people with severe symptoms are more likely to clear the virus on their own. **Only 25% (1 out of 4 people) have symptoms when first infected.** These may include fatigue, stiff or aching joints, weight loss, or jaundice, among others, and usually subside after several weeks. *Out of 100 persons infected with HCV, approximately 15-25 will spontaneously clear the virus without treatment. The other 75-85 go on to develop chronic infection.*

Chronic Infection
Most people that are infected with HCV will go on to have persistent infection for life (75-85%). Many of these individuals will remain stable over the course of decades and will never develop serious liver problems. However, **between 5-20% of those with HCV infection will develop cirrhosis, extensive scarring of the liver.** In these individuals, progression of HCV-related disease is usually slow, taking ten to fifty years before serious liver damage occurs. Between 1-4% will develop liver cancer (hepatocellular carcinoma) and/or require a liver transplant. Currently**, an estimated 1% of all persons with chronic infection die as a result of HCV disease.**

There is no way to tell who will develop cirrhosis or liver cancer, and who will live for decades with chronic infection but no serious liver damage. Factors that increase the risk of developing liver disease include:

- older age at time of infection
- male sex,
- HIV
- chronic HBV
- high alcohol use.

There is strong evidence that 30g/day of alcohol in men (2 beers, 2 glasses of wine, or 2 mixed drinks) and 20g/day in women greatly accelerates the progression of disease.

To summarize:

Of the millions of people infected with HCV:

- **75-85% will develop persistent (chronic) infection**

Of the 75-85% with chronic infection:

- **5-20% will develop cirrhosis**
- **1-4% will develop liver cancer or need a liver transplant**
- **1% will die as a result of their disease**

HCV TRANSMISSION

How is HCV transmitted? How can the risk of transmission be reduced?

Hepatitis C is transmitted through direct blood contact. Any activity that lets one person's blood come into contact with another person's blood can potentially transmit HCV. Transmission can occur by sharing needles or "works" to inject drugs; high-risk sex with an infected person; occupational exposure to infected blood; tattooing/body piercing with contaminated equipment; mother-to-infant; the use of blood products such as clotting factor prior to 1988; and, through blood transfusions and tissue transplants prior to 1992. Transmission through intranasal drug use (i.e. sharing straws to snort drugs) is still unclear.

Injection Drug Use

The most efficient route of HCV transmission is by direct passage of blood through the skin. Injecting-drug use leads to HCV transmission in a manner similar to that for other blood borne pathogens (i.e., through transfer of HCV-infected blood by sharing syringes and needles directly or through contamination of equipment such as cotton, cookers and water). However, HCV infection is acquired more rapidly after initiation of injecting than HIV. High rates of transmission are due to how small HCV is, how quickly it replicates, and, therefore, the high number of viral particles in a drop of blood. Rates of HCV infection among young injecting-drug users are four times higher than rates of HIV infection.

Injection drug use currently accounts for most HCV transmission in the United States (over 60%), and has accounted for a substantial proportion of HCV infections during the past decades. Many persons with chronic HCV infection may have acquired their infection 20 to 30 years ago as a result of limited or occasional drug injecting. After 5 years of injecting, as many as 90% of users have become infected with HCV. The high rates of HCV among injecting-drug users is probably due to the high incidence of chronic HCV infection among injecting-drug users, which results in a greater likelihood of exposure to an HCV-infected person.

Drug users have shown that they are invested in their own health. When they have access to sterile injection equipment, drug users prefer an unused, sharp syringe to a barbed, clogged and potentially contaminated one. Effective strategies talk less in terms of disease prevention and more about healthier injection practices.
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To reduce infection and transmission of HCV, persons injecting drugs should be provided with information about substance abuse treatment options, if desired. All IDU's should be informed about the risks associated with needle and equipment sharing, given information about syringe exchange programs and participating ESAP (Expanded Syringe Access Program) pharmacies, taught how to clean their "works" and, most importantly, taught healthy injection practices that normalize common sense approaches to safer injecting.

Blood Transfusion/Clotting Factors/Organ Transplant

Anyone who received a blood transfusion or organ transplant in the U.S. before July of 1992 or used blood products (such as clotting factor) before 1988 is at risk. In the past, many people contracted HCV through blood transfusions. Ten percent of persons infected with HCV report having received a blood transfusion prior to 1992. A test to screen donated blood became widely available in 1992. **The risk of HCV transmission through donated blood is now extremely small.**

Persons with hemophilia were at high risk for HCV (and HIV) infection prior to 1988 when virus inactivation procedures were developed. Ninety percent of persons with hemophilia that were treated with clotting factors before 1988 became infected with HCV.

Persons receiving organs from infected donors were also at high risk prior to universal testing of the blood supply. **As with blood transfusions, screening of organ and tissue donors has virtually eliminated the risk of transmission from transplant surgery in the U.S.**

Sexual Transmission

Most experts believe the risk of sexual transmission of HCV is low, although any sexual activity that involves blood-to-blood contact (including menstrual blood) with an infected person can potentially transmit HCV. About 15% of HCV infections are reported to be sexually transmitted. Traces of virus have been found in semen, saliva, and vaginal secretions in some studies, although there isn't any evidence yet that HCV in these bodily fluids is transmissible. The presence of HIV or any other sexually transmitted diseases (STD's), such as herpes or syphilis, significantly increases the risk of sexual transmission. **Sexual activities that could result in torn tissue (rough sex, anal sex, fisting, some S&M activities) and, therefore, blood-to-blood contact, may increase the odds of transmission** as well. There are no known cases of HCV being transmitted through oral sex.

Studies of long-term monogamous sexual partners of people with chronic HCV infection reveal an average prevalence of 2-3%. Among persons reported to have acute HCV infection, 4-6% identified having a history of high-risk sexual behaviors, including an STD or unprotected sex with multiple partners. One study indicates that sexual transmission from men to women is more efficient than transmission from women to men. Other studies suggest that people who are co-infected with both HCV and HIV or HBV are more likely to transmit HCV.

HCV-infected persons with multiple sexual partners, high-risk sexual behaviors, or in short-term relationships should practice safer sex, in particular the use of latex condoms or other barriers. Because the risk of transmission is low, persons in long-term monogamous relationships may choose not to use barrier protection to prevent HCV transmission. More studies are needed to determine the risk for specific sexual activities and transmission of HCV.

Perinatal Transmission

Transmission from mother to baby occurs in less than 5% of births. Rates of infection can be as high as 20% if the mother is also HIV positive. Mothers in the acute phase of hepatitis C infection (shortly after initial infection) or with serious liver damage have a higher risk of transmitting hepatitis C to the baby. Women with HCV infection who are considering pregnancy or already pregnant should inform their physician of their HCV+ status since HCV screening during prenatal care is not routine. Breast-feeding is considered safe, but cracked and/or bleeding nipples could increase the risk of HCV transmission. Children infected with HCV are less likely to progress to advanced liver disease throughout their lives. They progress more slowly than adults but should be monitored regularly.

Healthcare Exposure

Healthcare workers can be infected through needlesticks or blood splashes, or by using unsterilized medical equipment. The risk of HCV infection from a needlestick injury where the source is infected with HCV is estimated to be 2%. Transmission from healthcare workers to patients has also been documented, but is rare and confounded by other risk factors. **Healthcare workers should use standard precautions to prevent infection with or transmission of HCV.**

Tattooing/Body Piercing

During the past 20 years, fewer than 1% of persons with newly acquired HCV gave a history of being tattooed. The Centers for Disease Control and Prevention (CDC) is currently conducting a study to evaluate tattooing as a potential risk. **Body piercing and tattooing are potential sources of transmission if contaminated needles or shared ink are used.** Because tattoos in correctional facilities and on the streets are often created using crude and unsterilized instruments such as knives, pens, and paper clips (as well as needles), risk reduction messages should stress the importance of using your own tattoo equipment and ink or properly sterilizing the equipment.

Intranasal Drug Use

In some studies, HCV infection has been associated with a history of intranasal cocaine use. Transmission of HCV could take place through sharing blood-contaminated straws. It is unclear whether intranasal drug use is an independent risk factor or, rather, an indication that a person practices both injecting drug use and inhalation of drugs that could get contaminated with blood.

Household Contact

Sharing items that may be contaminated with blood, such as toothbrushes, razors, or nail clippers, is a potential risk for HCV transmission and should be avoided. Blood spills should be cleaned immediately with a 1:10 solution of bleach and water and open sores should be covered to avoid contact with blood. There is ***no*** evidence that HCV can be transmitted by kissing, hugging, sneezing, coughing, food, water, sharing eating utensils or drinking glasses, casual contact, or other contact without exposure to blood.

SAFER INJECTION TECHNIQUES

What harm reduction strategies can help reduce the risk of HCV transmission?

"**Harm reduction is** a set of practical strategies that reduce negative consequences of drug use. Harm reduction strategies meet drug users 'where they're at,' addressing conditions of use along with the use itself." (Harm Reduction Coalition)

HCV is easy to acquire and transmit and it seems that very small amounts of blood will do the trick. Injecting drugs is the riskiest way to use, due to the variety of complications that can occur. But while some risks may be unavoidable, others can be reduced or eliminated through awareness and planning.

- **Safer injection messages** to prevent HCV as well as HIV:

    1. Wash hands thoroughly
    2. Avoid contact with blood
    3. Don't share syringes to shoot up. Don't split drugs with a used syringe
    4. If you must share, clean your works with bleach and water
    5. Take control of your own injection

SAFER INJECTING

- **"Avoid contact with any blood"** means a simple, day-to-day awareness of how blood is present. Conditions are rarely perfect for injection, but think of injecting along the same lines as preparing to eat dinner.
  - Wash your hands and arms.
  - Clear a space that is yours.
  - Use clean surfaces.
  - Make sure your injecting space is clean by wiping it down or spreading out a sheet of newspaper.

- **Use sterile syringes, if possible.** If you must reuse, keep a personal syringe. It's better to use one that's only been used by you.

- **Know which syringes are yours** by marking them before you get off. Remember when you are getting off with other people, syringes look alike. Keep track of how you marked yours, and remember that markings can wipe off. Knowing which are yours is important if you recap your syringes.

- **If you have to share, always clean the needle and syringe with bleach and water.** It is unknown how long you need to clean needles with bleach to kill hepatitis C. To clean:
  - Fill the syringe with water from a clean container. Shake for at least 30 seconds and squirt out. Repeat this step twice, and use new water each time.
  - Do the same thing with bleach.
  - Rinse at least 2 times with water.
  - If possible, take apart the syringe and soak it in bleach (as long as you can) then rinse it out several times with clean water.

- **Use a sterile syringe to split drugs,** if possible.
  - When preparing your shot use your own cooker, cotton and water.
  - Clean out the cooker with an alcohol pad to be sure it's as clean as possible.
  - If you're drawing up from a shared cooker, try to use only new syringes.
    It's a bad idea to draw up from a cooker if someone else stuck a used syringe in it.

- **Always clean your injection site** by using an alcohol pad or soap and water. During the whole process of injection, be aware of what you touch or handle.

- **Apply gentle pressure to the injection site** after you've shot your drugs.
  - Use tissue or cotton to stop the bleeding.
  - Alcohol pads don't stop bleeding, the alcohol stops your blood from clotting.
  - Dispose of the used cotton or tissue, and dispose of the syringe in a sharps container (or a hard, puncture proof container).

- **Wash your hands and arms.** Be aware that you've been handling syringes, cotton, tissues and other materials that have probably contacted your blood.
  - Re-wipe your surface.
  - Check your tie and remember how your blood could have ended up on anything you touch or use.

- **Take control of your own injection**. Having another person inject you significantly increases your chance of getting infected. But even when someone else injects you, basic hygiene can prevent most infections. If someone injects you after they have gotten themselves off, they should wash their hands, and use a sterile syringe, clean cooker, water and tie for you.

HCV is easy to acquire and transmit and it seems that very small amounts of blood will do the trick. Injecting drugs is the riskiest way to use, due to the variety of complications that can occur. But while some risks may be unavoidable, others can be reduced or eliminated through awareness and planning. Above all, it is time to recognize that hygiene can be a normal part of injection, just like it's a normal part of eating.

Adapted from *Harm Reduction Measures for IV Drug Users*, by Allan Clear, Harm Reduction Coalition. Originally published in *HCV Advocate*, July 2000.

Module 4

HCV Testing and Care

- **What tests are used to screen for HCV infection?**
- **Who should get tested for HCV?**
- **How is HCV disease progression monitored?**
- **What treatments are available for persons infected with HCV?**
- **What are the best ways to keep your liver healthy if you have HCV?**

HEPATITIS C TESTING

What tests are used to screen for HCV infection?

Several different tests are used to diagnose HCV infection. The EIA and RIBA are blood tests used to detect antibodies to HCV. The PCR is used to detect the presence of virus.

EIA (enzyme immunoassay) is an **antibody test** similar to the HIV antibody test. It looks for antibodies that the immune system produces in response to the presence of HCV. EIA tests for exposure to HCV (past or present). It does not indicate if someone is chronically infected. False negatives can happen if a person tests too early after exposure or in persons with compromised immune systems. Positive EIA tests are often followed by a confirmatory RIBA or PCR.

RIBA (recombinant immunoblot assay) is a more *specific* **antibody test** that looks for and confirms the presence of HCV antibodies. Positive results indicate past or present infection with HCV. Someone who was infected but cleared the virus will likely remain *antibody positive* for the rest of his or her life, but will not have the virus.

Qualitative PCR (Polymerase Chain Reaction) tests for the presence of *any* hepatitis C virus (HCV RNA) in the blood. It does *not*, however, tell you *how much* HCV is in the blood. The qualitative PCR can usually detect virus one to two weeks after initial exposure and is used as a confirmation of current infection. HCV RNA may be detected only intermittently in persons with chronic, latent infection; therefore, a single negative PCR does not mean absence of infection.

HCV Testing Protocol at most NYC screening sites is:

1) EIA
2) If positive, a second EIA is performed
3) RIBA is performed when EIA results are not definitive (rare)
4) If positive, the person is referred to a medical facility for care and PCR testing.

- Most screening sites only perform a confirmatory RIBA if the EIA tests are borderline positive.
- Community HCV screening sites often only perform antibody testing.
- PCR testing is usually only performed at a medical facility where additional follow-up tests are available.

The EIA is used as an initial screening test because it is inexpensive (like the ELISA used for HIV testing) compared to RIBA and PCR. Health clinics and other medical facilities often go directly to a qualitative PCR following two positive EIA's. If someone is EIA+ or RIBA+ on one or more tests, but PCR negative, it is usually recommended that they have a follow-up test six months later.

Who should get tested for HCV?

Confidential testing for HCV should be offered to all persons who are at highest risk of infection, including:

- **Individuals at highest risk**
  - ✓ Persons who have ***ever*** shared needles or works, even once
  - ✓ Persons who received a blood transfusion or blood products before July 1992
  - ✓ Persons who have received clotting factor concentrates made prior to 1988
  - ✓ Persons who are HIV positive
  - ✓ Persons who have ever received hemodialysis
  - ✓ Healthcare workers who received a needlestick injury from a contaminated needle or mucosal exposure to HCV-infected blood.
  - ✓ Children (over 12 months) born to HCV-infected women

There is less evidence supporting testing of persons with the following risks, though testing should be offered at the request of the client:

- **Individuals with uncertain risk**
  - ✓ Persons with a history of tattooing/body piercing in unsanitary conditions
  - ✓ Long-term sexual partners of HCV positive persons
  - ✓ Sex partners of injection drug users
  - ✓ Persons with a history of STD's or multiple sexual partners
  - ✓ Intranasal and other non-injecting illegal drug users
  - ✓ Recipients of transplanted tissue

- **Individuals for whom routine HCV testing is not recommended**
  - ✓ Household (nonsexual) contacts of HCV positive persons
  - ✓ Healthcare, emergency medical, and public safety workers who have **not** had a needlestick or been exposed to contaminated blood
  - ✓ Pregnant women
  - ✓ The general population

MONITORING LIVER HEALTH

How is HCV disease progression monitored?

Individuals with chronic HCV should be evaluated and monitored for the presence and severity of liver disease. Information about the condition of the liver is important in making treatment decisions.

Liver Function Tests (LFT's) *are blood tests that measure the level of liver enzymes.* Sometimes they are called ***liver biochemical tests*** because people mistakenly equate the name with the health of the liver (i.e. if your ALT's are elevated, your liver is not functioning properly). Liver enzymes are secreted into the blood as a normal part of liver function. *When the liver is working hard or is damaged, enzyme levels in the blood are often higher than normal.*

Persons with HCV often have elevated liver enzyme levels. Alanine aminotransferase (ALT) and aspartate aminotransferase (AST) are two enzymes that are released by the liver and are used to monitor liver health. These enzymes will fluctuate during the course of HCV infection and can serve as an indication of possible liver damage at any given time, but NOT as a definitive marker for liver disease.

Persons taking medications or drinking alcohol may have higher enzyme levels as the liver works to metabolize them (break them down). If the liver is severely damaged, levels may be low because the liver is not producing normal amounts of these enzymes. About one-third of people with hepatitis C have enzyme levels within normal range. This does not necessarily mean the liver is healthy. **Liver enzymes should be monitored every three to six months.** If elevated levels continue, a liver biopsy may be recommended.

ALT (alanine aminotransferase): normal range 5-60 IU/L.
AST (aspartate aminotransferase): normal range 5-43 IU/L.
(Note: normal ranges vary from lab to lab.)

Quantitative Hepatitis C PCR *(viral load) measures the amount of HCV in the blood.* While the viral load level does not correlate with the severity of disease or disease progression, the level of virus in the blood is useful in determining the likelihood of response to antiviral treatment. Persons with lower HCV viral loads generally respond better to treatment.

Until recently, HCV viral loads were reported as copies/mL. Unlike the viral load in HIV, an HCV viral load measured as copies/mL is likely to be extremely high – often in the millions. Based on World Health Organization recommendations, HCV RNA is now usually measured in International Units (IUs). There is no standard way to convert from copies/mL to IU/mL. Each quantitative viral load test is different, so it is important to use the same laboratory and the same test whenever you have your viral load measured. Results are generally reported only as low or high.

Low – less than 2 million copies/mL (~800,000 IU/mL)
High – over 2 million copies/mL (~800,000 IU/mL)

The quantitative PCR is not part of routine care. It is most helpful, and most often used, when a person is considering HCV treatment and/or to monitor the effects of treatment.

Liver biopsy *is the most accurate way to measure the degree of liver damage (inflammation, fibrosis, cirrhosis). A liver biopsy provides information to help make informed choices about the initiation or postponement of antiviral treatment.*

The biopsy is an outpatient procedure that takes a few minutes. While the patient is awake, a needle is inserted just below the right ribs, into the liver. A small tissue sample is taken and examined by a pathologist. A CAT scan or sonogram (ultrasound) may be done prior to a biopsy to determine the best site for needle insertion. Sometimes, an ultrasound is used during the actual biopsy to help guide the needle. Different people respond differently to a biopsy – some find it painful, while most are surprised at how little pain they experience. Many people describe the procedure as boring because they have to remain stationary for hours afterwards. Biopsies can be repeated to assess disease progression over time.

Biopsy results are scored on a scale from 0 to 4:

0 = no fibrosis (mild scarring) or inflammation
1 = inflammation, no fibrosis
2 = some necrosis (cell death), with scattered fibrosis
3 = fibrosis with bridging
(the scarring “bridges” between blood and tissue tracts, particularly significant in the portal region as the portal vein is the main vein feeding blood to the liver)
4 = cirrhosis (severe scarring) is such that liver function is severely impaired, and the liver is misshapen

Genotype is the genetic make-up of a particular strain of virus. There are at least six hepatitis C genotypes, numbers 1 through 6. *Genotype 1 accounts for 70-75% of infections in the United States.* Knowing your genotype is very important if you're considering treatment since rates of response to antiviral therapy are substantially lower in persons with genotype 1.

CURRENT TREATMENT

What treatments are available for persons infected with HCV?

Deciding to start or continue treatment for hepatitis C is complicated – even more complicated than with HIV. Many persons with HCV will never need treatment and will experience minimal health consequences as a result of their infection. Persons with advancing disease, however, must consider the benefits and consequences of beginning a treatment regimen that is not always successful.

Current treatment includes a combination of alfa-interferon and ribavirin, taken for six months to one year. People with genotype 1 usually undergo treatment for one year, while people with genotypes 2 or 3 typically need treatment for six months. Some physicians are treating people with HIV/HCV co-infection for 18 months.

Alfa-Interferon is a protein naturally produced by the body that interferes with a virus' ability to infect cells. Chemically synthesized alfa-interferon was first approved for the treatment of HCV in 1991. Early versions of alfa-interferon had to be injected subcutaneously (under the skin) three times a week. The most recently approved treatment for HCV, pegylated interferon (PEG), reduces the frequency of injection to only once a week. There are currently two brands of pegylated interferon available: PEG-Intron & Pegasus.

Ribavirin is an anti-viral capsule or tablet taken orally twice a day. For reasons that are not well understood, ribavirin makes interferon work better than if the interferon is used alone. Ribavirin used alone has no effect on HCV. There are currently two brands of ribavirin available: Copegus and Rebetol. Generic ribavirin will likely be available in the near future.

Treatment success is measured by a **sustained virological response**, which is an undetectable viral load six months after completing treatment.

- Combination therapy of pegylated interferon and ribavirin achieves a sustained response in approximately 50-60% of people overall.
- Persons with genotype 1 typically have a sustained response of 42-46% with combination therapy.
- Persons with genotype 2 or 3 respond more favorably, with 76-82% achieving a sustained response with combination therapy.

The primary goals of treatment are **eradication of virus** and a **healthier liver** (histologic improvement). Improvement is measured by normalized liver enzymes, lower or undetectable viral load, and possibly a follow-up liver biopsy. *Even without a sustained response or significantly lower viral load, treatment may give the liver a much-needed break and decrease the degree of liver damage.*

Factors that may influence a successful response to treatment:

Most predictive:
- having genotype 2 or 3
- HCV viral load less than two million copies when starting treatment

Somewhat predictive:
- age under 40
- pre-menopausal female
- little fibrosis
- no cirrhosis
- low body mass index (BMI)

Treatment Side Effects

Interferon side effects are often severe. Side effects are usually worse during the first few weeks, though each person experiences them very differently. Possible side effects include:

- fatigue
- joint pain (athralgia)
- muscle pain (myalgia)
- fever and/or chills
- nausea
- headaches
- weight loss
- mild hair loss (alopecia)
- low white blood cells and platelets
- rapid heart beat (tachycardia)
- irritability
- depression
- suicidal thoughts

Ribavirin can cause severe anemia (reduced red blood cells). Lowering the ribavirin dose is often necessary, although it may also lessen the likelihood of achieving a sustained response. Anemia can sometimes be treated with injections of erythropoetin (Epogen or Procrit), which stimulates the bone marrow to produce more red blood cells. Both interferon and ribavirin may cause birth defects. Both men and women should use effective contraception while on the combination (and for six months afterwards) if pregnancy is possible.

In clinical trials of interferon + ribavirin, 10-20% of participants dropped out because of side effects or adverse events.

Some persons experiencing side effects find relief by:

- Using ibuprofen or acetaminophen to help with flu-like symptoms
- Getting treated with injections of Neupogen, to stimulate production of white blood cells
- Starting antidepressants prior to beginning HCV treatment
- Arranging the timing of interferon shots to allow for rest afterwards (nighttime dosing may allow a person to sleep through some of the side effects).

Barriers to Treatment

People who are interested in and for whom treatment is medically indicated sometimes face barriers that make it difficult to access proper treatment and care. At about $27,000 a year, the pegylated interferon + ribavirin combination can be cost prohibitive if a person is uninsured or underinsured. It can be difficult to find good care even with adequate insurance. For example, liver specialists aren't usually trained in addiction medicine, and the waiting list to see a specialist or obtain a biopsy can be so long as to discourage a patient. It can also be difficult to get treated if an individual is actively using drugs or alcohol. Similarly, people on methadone or with mild to moderate mental illness are often denied treatment.

Support During Treatment

Making the decision to start antiviral therapy is a very personal one. Establishing a support network *before* beginning treatment is important. This is true with HCV treatment even more than with HIV treatment. The side effects of HCV treatment can be extremely debilitating (especially in the beginning), and some people will need help with everyday tasks such as shopping, food preparation, cleaning, or child care. Psychological support is equally important. The irritability, depression and suicidal ideation that may accompany treatment often come on slowly, are difficult to identify, and can be unbearable for the person experiencing them.

Complementary and Alternative Therapies

Complementary therapies are used together with conventional medicine to treat many illnesses, including HCV and the side effects of treatment. Alternative therapies are used instead of conventional medical treatment. Complementary and alternative therapies attempt to use the body's natural self-healing abilities to bring the body back into balance. These therapies can include acupuncture, massage, yoga, Tai Chi, meditation and Chinese herbal medicine.

No complementary or alternative therapies have been scientifically proven to cure or even ease symptoms of HCV. However, some people are turning to herbs for relief of symptoms or to try to strengthen the body's ability to fight infection. Herbs and herbal products with the most data, as well as most widely used, include:

- **milk thistle** (**silymarin**) acts as an antioxidant, stimulating the regeneration of liver cells.
- **astragalus** enhances immune function by increasing the activity of various white blood cells and boosting the production of antibodies and natural interferon.
- **dandelion**, boiled or in capsule form, is used for all kinds of liver problems.
- **bupleurum** reduces liver inflammation and protects the liver from toxic damage.
- **garlic** detoxifies and protects the body from infection, and strengthens blood vessels. *The high sulfur content of raw garlic can cause dermatitis and colitis. Garlic can also inhibit blood clotting and interfere with thyroid function.*
- **licorice root** contains glycyrrhizin, which has antiviral activity and may be effective in treating viral hepatitis. *Potassium can be depleted with long-time use of licorice. In very high doses, glycyrrhizin can cause high blood pressure, water retention, and possibly heart complications.*
- **artichoke** promotes the outflow of bile from the liver to the gall bladder.
- **thioctic (alpha-lipoic) acid** is a natural antioxidant that is often used because of its ability to help maintain and restore liver health.
- **gingko biloba** is sometimes used to improve memory loss and blood circulation.

All substances, including herbs, can have dangerous side effects and impact the dosing of other drugs. Talk with your doctor or pharmacist before using complementary or alternative therapies – including over-the-counter ones.

KEEPING THE LIVER HEALTHY

What are the best ways to keep your liver healthy if you have HCV?

The liver is a unique organ in that it is always working to repair itself. There are many things that persons with HCV can do to assist the natural healing process. Although liver damage may eventually become so severe that it cannot be reversed, even incremental lifestyle changes can considerably slow down that process. Changes in diet, lowering alcohol intake, drinking plenty of fluids, and getting vaccinated against hepatitis A and hepatitis B are examples of relatively simple actions that can help people keep their livers as healthy as possible. The following chart offers some specific recommendations for a healthy liver, whether the damage is due to HCV infection, excessive alcohol intake, or others factors.

KEEPING YOUR LIVER HEALTHY IF YOU HAVE HEPATITIS C

Talk with your healthcare provider about liver health and consider the following recommendations:

DO:

- Find a doctor who understands HCV – a gastroenterologist (stomach and bowel specialist), hepatologist (liver specialist), some infectious disease doctors and primary care physicians. If you're considering treatment, a team approach, including a psychiatrist, is best.
- Get vaccinated against hepatitis A and hepatitis B. Co-infection with hepatitis C and active hepatitis A or B can be *extremely* dangerous.
- Get regular health check-ups, including liver function tests.
- Consider stopping or reducing your alcohol intake. Alcohol use *significantly* increases the risk of developing cirrhosis and liver cancer. If drinking alcohol, drink plenty of water with it.
- Protect yourself from *reinfection*. If your body has cleared the virus, keep in mind that having hepatitis C antibodies will *not* protect you from becoming infected again!
- Stick to a balanced diet of fresh vegetables, fruits, beans, whole grains, and lean meats.
- Get a healthy balance of protein in your diet – too much protein can stress your liver.
- Drink lots of fluids to flush toxins from your body.
- Get regular exercise and develop a stress reduction plan.

AVOID:

- Drinking alcohol. Even 1 drink a day can greatly accelerate the progression of liver disease.
- Taking large amounts (2,000/mg day) of acetaminophen (Tylenol & other non-aspirin pain relievers) that are toxic to the liver. Acetaminophen is in many medications – so read the labels carefully. Acetaminophen and alcohol together can cause severe liver damage.
- Breathing in pollutants, chemicals, and cleaning products (skin contact & breathing): fumes from paint, paint thinners, chemical solvents, spray adhesives, insect sprays, and cleaners can be harmful to the liver. Always follow manufacturers' precautions.
- Foods with high salt, sugar or fat content such as cheese, fast food and processed foods (cookies, cakes, frozen dinners, packaged foods with long shelf lives, "instant" foods).
- Too much fried foods.
- Eating shellfish and raw fish because of the risk of hepatitis A.
- High-doses of Vitamins A, D, E or K.
- Taking herbs that are toxic to the liver such as peppermint, mistletoe, yerba tea, sassafras, germander, chaparral, skull cap, nutmeg, valerian, Jin Bu Juan, comfrey (bush tea), pennyroyal and tansy ragwortsenna. Always talk to your doctor before trying new herbs or supplements.
- Taking iron supplements unless advised by your doctor.

Module 5

HCV and HIV Co-Infection

- **What is the prevalence of co-infection with HCV and HIV?**
- **How does co-infection impact the course of disease?**
- **What are treatment considerations for co-infected persons?**
- **How are HCV and HIV similar? How are they different?**

PREVALENCE and EPIDEMIOLOGY OF CO-INFECTION

What is the prevalence of co-infection with HCV and HIV?

Because HIV and HCV are blood-borne viruses, they affect many of the same populations.

- **In the United States, an estimated 200,000 persons are infected with both HCV and HIV.**
- Studies estimate that as many as **25-30% of HIV positive people in the U.S. are co-infected with HCV** and **up to 10% of HCV positive persons are HIV infected**.
- In urban areas of the U.S., up to 90% of persons who acquired HIV infection from injection drug use also have HCV.
- **In New York, 78% of persons with HIV who report injecting drug use are also HCV-infected.**

Both HIV and HCV can be transmitted by blood-to-blood contact, unprotected sex, and from a mother to her infant; however, the efficacy of transmission by these routes varies. **HCV is 10 times more infectious than HIV by direct blood-to-blood contact.** This explains the higher incidence of HCV infection among IDU's. For this reason, and because HCV infection was common in urban areas of the U.S. for decades before HIV was discovered, most HIV/HCV co-infected injection drug users were likely infected with HCV years before HIV.

In contrast, studies have found that HIV is more transmissible than HCV between sexual partners and from a mother to her infant. Studies have found low rates of transmission to long-term monogamous sexual partners of HCV-infected persons. Even among persons engaging in high-risk sexual activity with multiple partners, the rates of HCV transmission are significantly lower than the rates of HIV transmission. However, the risk of sexual transmission of HCV appears to be increased when a person also has

HIV. This could be because immuno-suppression caused by HIV may increase HCV viral load, and higher viral load may increase risk of transmitting HCV.

Without anti-HIV treatment, HIV is transmitted from mother-to-infant at rates as high as 20-30%. In contrast, HCV is transmitted to only 2% to 5% of infants born to HCV positive mothers. In most cases, however, the incidence of mother-to-infant HCV transmission increases if the mother is co-infected with HIV with rates reported as high as 20%. There is no treatment available to HCV+ pregnant women to decrease the likelihood of transmission.

IMPACT OF CO-INFECTION

How does co-infection impact the course of disease?

Effect of HIV on HCV Disease
Most studies indicate that *people with HIV/HCV co-infection experience faster progression to cirrhosis and more liver damage than people who are infected with only hepatitis C.* Faster progression may be less likely if the individual's HIV disease is well under control. A weakened immune system allows HCV to replicate faster, and higher HCV viral load makes a person more infectious. Co-infected persons with less than 200 T-cells are at a much higher risk of developing cirrhosis, liver failure and liver cancer, also called hepatocellular carcinoma (HCC).

Effect of HCV on HIV disease
It is still unclear if HCV accelerates HIV disease but, in most cases, it does not appear to. Studies of people with hemophilia who are co-infected have shown alarming rates of HIV disease progression, but other co-infected populations do not appear to experience this effect. HCV may affect the course of HIV by increasing the incidence of liver toxicity caused by HAART. Persons with badly damaged livers may have a hard time breaking down HIV medications, especially protease inhibitors and non-nucleosides. This can lead to less antiviral activity, a higher HIV viral load, a lower T-cell count, and, over time, limited HIV treatment options. As people live longer with HIV, many more HIV deaths are caused by HCV-related end stage liver disease.

TREATING CO-INFECTED PERSONS

What are treatment considerations for co-infected persons?

Persons considering treatment should consult with healthcare providers well versed in HIV and HCV treatment. Referrals to specialists (such as a gastroenterologist, hepatologist, and/or infectious disease doctor) are an important part of making informed decisions. In NYC, there are medical clinics that specialize in co-infection.

Deciding which infection to treat first, HCV or HIV, can be difficult. The treatments for HCV have not been specifically approved by the FDA for the treatment of HCV in HIV-infected persons, although they are commonly used in co-infected people. In addition, there are no published studies of the most effective way to treat co-infected persons.

Most physicians work to get HIV under control first. With reduced HIV-related disease progression as a result of HAART (Highly Active Anti-Retroviral Therapy), the decision of who should be treated for HCV (and when) is often determined by:

- the likelihood of beneficial response to treatment
- the likelihood of adverse reactions to the medications
- the risk of progression of liver disease

While questions about when to start treatment and which treatment to start first are still unresolved, there is important information that should be considered when making treatment decisions:

- Many individuals who are co-infected do not respond as well to HCV therapy as persons who are infected only with HCV. Factors affecting a person's response to HCV therapy include age, HIV viral load, CD4 count, HCV viral load, HCV genotype, condition of the liver, and alcohol intake.

- Protease inhibitors and non-nucleosides are processed through the liver. Persons beginning HIV anti-viral treatment often experience an increase in HCV viral load and liver enzymes. In most cases, this flare-up will go away relatively quickly. Regular bloodwork is particularly important during the first couple of months after starting any antiviral treatment.

- Ribavirin and Retrovir (AZT) can both cause severe anemia in many people, therefore it may be best to avoid using both drugs at the same time. Combivir and Trizivir also include AZT and should likewise be avoided in combination with ribavirin.

- Nucleoside analogues can damage mitochondria, which produce energy for cells. Ribavirin is a nucleoside analogue as are AZT, d4T (Zerit), ddI (Videx), ddC (Hivid), 3TC (Epivir) and abacavir (Ziagen). Mitochondrial toxicity may be more likely in persons taking ribavirin in addition to other nucleoside analogues.

- If ribavirin and ddI (Videx) are used together, particular caution is in order! People taking both drugs have a five times greater likelihood of developing mitochondrial toxicity than people taking ribavirin with other nucleoside analogues.

- Viramune (nevirapine) has been associated with an increased risk of liver damage in people with hepatitis C, although not all co-infected people will experience liver problems from this drug. Signs of liver problems usually begin within three months after initiation of use.

- Regular liver function tests are important to monitor the impact of treatment, especially the first 2-3 months after starting a new drug therapy.

- Interferon has been associated with increased irritability, insomnia and suicidal ideation. Because depression before and while on treatment is common, co-infected persons who are considering therapy that includes interferon are strongly encouraged to have a support network in place which includes a mental health professional and /or support group.

- High doses of interferon can lower T-cells (CD4s), at least temporarily, although the CD4 percentage is not usually affected. Although interferon can benefit people's immune response to hepatitis C, it may be harmful to the immune response of some people with HIV.

All persons co-infected with HIV and HCV should be:

- Seen by physicians knowledgeable about both HIV and HCV
- Provided with information to maintain liver health
- Counseled about the impact of alcohol on the progression of liver disease
- Counseled on ways to reduce the transmission of HIV and HCV
- Vaccinated against HAV and HBV, if not previously exposed
- Evaluated for chronic liver disease, including HCV viral load, genotype, LFT's and perhaps a biopsy
- Considered for HIV and/or HCV antiviral treatment as needed
- Counseled about drug interactions and side effects of HCV and HIV treatments

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How are HCV and HIV similar? How are they different?

The following chart can be used when preparing to integrate HCV information into existing programs.

SIMILARITIES AND DIFFERENCES BETWEEN HIV AND HCV

HIV	HCV
Blood-borne & sexually-transmitted virus	Blood-borne virus
Affects the immune system	Affects the liver
Infection is lifelong	Approximately 15-25% of persons infected with HCV spontaneously clear the virus. 75-85% go on to develop chronic infection
Highest rate of infection among IDU's	Highest rate of infection among IDU's
No vaccine available	No vaccine available
ELISA screening with Western Blot confirmation	EIA screening with RIBA or PCR confirmation
Treatment may be for a lifetime or at least many years	Treatment typically lasts from 6 to 12 months
High viral load indicates disease progression	High viral load does not appear to correlate with liver damage
Viral loads do not randomly fluctuate	Viral loads fluctuate randomly
Many anti-viral treatments are available	Currently only one approved treatment (interferon with ribavirin)
Appears to accelerate HCV disease progression	Unclear if HCV accelerates HIV disease progression
High risk of transmission from blood-to-blood contact	Rate of transmission from blood-to-blood contact is 10 times higher than HIV.
Transmitted by unprotected vaginal, anal and oral sex	Significantly lower incidence of transmission through unprotected sex
Mother-to-infant transmission rate is 20-30% without treatment	Mother-to-infant transmission rate is 2-5%

Module 6

Integrating HCV: Why, Where, What and How

- **Why should HCV be integrated into existing programs?**
- **Where can HCV be integrated?**
- **What are important counseling messages for prevention and care?**

Why should HCV be integrated into existing programs?

- HCV impacts many of the same populations at risk
- May only get to see client one time ("one stop shopping")
- HIV-infected persons are at increased risk for HCV
- Meets the needs of the community
- Lack of funding for HCV-specific services

Where can HCV be integrated?

- Client/Patient and Staff Education Programs
- Counseling & Testing Sites
- Intake and Assessment
- Case Management Counseling
- Case Conferencing and Review
- HIV Treatment Programs
- Partner Notification Programs
- Syringe Exchange Programs
- Harm Reduction Outreach Programs
- Mobile Counseling & Testing Programs
- Health Care Clinics
- Peer Education Programs
- Support Groups

INTEGRATING COUNSELING/EDUCATION MESSAGES FOR HEPATITIS C VIRUS

What are important counseling messages for prevention and care?

Prevention counseling helps individuals confront their own risk behaviors, consider their options, and develop a plan to reduce their risk of contracting HCV, as well as HIV, STD's, and other forms of hepatitis. Because an individual's risk for one of these infections is likely to put him/her at risk for others, prevention counseling that helps reduce risk behavior for one disease also helps reduce the risk for a number of other infections. Likewise, counseling messages that encourage medical monitoring and positive self-care are often applicable to many differing infections.

HIV pre- and post-test counselors, prevention educators, case managers and others who have 1:1 or small group interactions are in a unique position to readily integrate prevention counseling into their work.

Counseling Messages When HCV Status is Unknown

When an individual's HCV status is unknown, the following core messages should be integrated into all prevention education and counseling activities:

HCV is transmitted primarily through blood-to-blood contact.

- Injection drug use is the most common way HCV is transmitted.
- Persons who have shared injection equipment, even once, are at risk for HCV infection.
- Other types of exposures are less likely to transmit HCV though they are not without risk. These include: needlesticks, sharing tattoo equipment or ink and unprotected sex.

Injection drug use is the primary way HCV is transmitted.

If injecting:

- Consider a drug treatment program.
- Always use a new sterile syringe, cotton, cooker and fresh water *for each injection*. Do not share syringes, cotton, cooker or water.
- Sterile syringes are available at syringe exchange programs and at ESAP pharmacies.
- If you are splitting drugs, split them when they are dry (in powder form) or use a new sterile syringe to split them.
- Don't backload into someone else's syringe.
- Clean the injection site and avoid contact with blood.
- If you must share, use bleach to clean your syringe before injecting. It is still unknown if bleach effectively kills HCV.

When having sex:

- Although HCV is not easily transmitted through sex, about 15% of infections are sexually transmitted.
- Sexual activities that may involve blood, such as rough sex, anal sex, or fisting, increase the chance of transmission.
- Sex with multiple partners or in the presence of STD's with open sores also greatly increases risk.
- Using a latex condom, latex glove, or other barrier method will reduce your risk of becoming infected with HCV, as well as HIV, HBV and other STD's.
- Talk with sexual partners about using protection, as well as past and current risk.

If you are at risk, consider testing for HCV.

- Knowing your HCV status can help you make choices about liver health even without other treatment options.
- If your results are negative, you can get information to make sure you stay that way!

Casual contact with HCV positive persons is not a risk.

- HCV is not spread by hugging, coughing, sharing utensils, or any other casual contact.
- Persons living with HCV-infected individuals should avoid sharing household items that may have blood on them, such as razors and toothbrushes.

Counseling Messages for HCV Negative Persons

HCV negative individuals (like HIV negative persons) with ongoing risk factors require risk and harm reduction counseling concerning ways to prevent future infection and to encourage positive steps toward behavior change. The messages given are similar to persons whose HCV status is unknown.

Counseling Messages for HCV Positive Persons

Persons who test positive for HCV may require:

1) counseling and education to understand HCV disease and reduce the risk of transmission to others;
2) risk and harm reduction counseling;
3) referrals to drug and alcohol treatment, support groups and mental health care;
4) counseling on liver health and positive self-care, including the effects of alcohol;
5) education that HCV is usually a slowly progressive disease and there's a lot you can do to take care of yourself;
6) medical referrals to determine the extent of their liver disease, if appropriate; and
7) immunization for HAV and HBV, if needed.

To reduce the risk of HCV transmission to others, all HCV positive persons should be encouraged to:

- Not share syringes, cotton, cooker or water used to prepare or inject drugs.
- Discuss their HCV status with sexual and/or needle sharing partner(s) and refer them for testing.
- Discuss with their partner(s) whether to use barrier precautions during sex.
- Not share items that may have blood on them (i.e. razor, toothbrush, clippers).
- Clean up blood spills with bleach solution.
- Not get tattoos or body piercing in unlicensed settings.
- Not donate blood, body organs, other tissue, or semen.
- Cover cuts and sores on the skin.

The impact of alcohol and other drug use on disease transmission and progression cannot be overestimated. Drug use can be a direct route of transmission, a contributor to high-risk sexual activity, and a powerful contributor to liver disease in HCV positive persons. Since abstinence from drugs and alcohol may not be an acceptable choice for many clients, it is important to have a variety of approaches to help individuals make positive health changes and reduce the risk of transmission to others.

Client-Centered Counseling to Reduce Harm from Injection Drugs*:*

- Offer a referral to substance abuse treatment, if interested.
- Try to abstain from or reduce the use of injection drugs.
- If possible, get sterile needles from a syringe exchange program or ESAP pharmacy.
- Always try to use sterile syringes and clean unused cooker, cotton and water. Don't share any of this equipment.
- If you need to split drugs, use a new sterile syringe to divide up the drugs or split them when dry (in powder form).
- Don't backload into someone else's syringe.
- If you need to share syringes or a cooker, use bleach to clean your equipment.

Counseling Messages to Reduce the Risk of Disease Progression:

- Get a medical evaluation (even if not currently ill). Try to be open about your health and about alcohol and substance use.
- See a specialist who understands HCV such as a hepatologist, infectious disease specialist, or gastroenterologist who provides comprehensive care (mental health and substance use counseling, treatment adherence services, etc.)
- Consider getting vaccinated for HAV and HBV, if not previously exposed.
- Alcohol has *serious* consequences for the liver. If you can, abstain from drinking or reduce alcohol consumption. Consider a treatment program or support group.

- Take care of your liver. Drink plenty of water and make a choice to focus on eating well. Try to avoid high fat food. Add fresh vegetables, fruits, beans, whole grains, and lean meats to your diet.
- Cigarette smoking increases the progression of disease. Consider help to quit or cut down on smoking.
- Check with your doctor before starting any new medicines, including over-the-counter and herbal medicines.
- Get plenty of rest. The liver is a hard working organ. When you rest, it rests.

HEPATITIS RESOURCES

FREE HEPATITIS C COUNSELING, TESTING AND REFERRAL
FREE HEPATITIS A AND B VACCINATION
New York City Department of Health and Mental Hygiene

Riverside STD Clinic
160 W. 100th Street, 1st Floor
Manhattan
(212) 865-1951
Testing and Hepatitis B vaccinations offered on a first-come, first serve basis Monday-Friday starting at 8:30 a.m. Hepatitis A vaccinations are not available.

Morrisania STD Clinic
1309 Fulton Avenue, 2nd Floor
Bronx
(718) 901-6564
Testing and Hepatitis A and B vaccinations offered on a first-come, first serve basis Monday- Friday starting at 8:30 a.m.

Crown Heights STD Clinic
1218 Prospect Place
Brooklyn
(718) 735-0580
Testing and Hepatitis A and B vaccinations offered on a first-come, first serve basis Monday- Friday starting at 8:30 a.m.

Bulk quantities of a simple fact card that lists these free clinics and provides basic information on hepatitis A, B and C can be ordered by contacting John Thacker at (212) 427-5120.

WORKSHOPS AND TRAININGS

ACRIA (AIDS Community Research Initiative of America)
Workshops for clients & trainings for staff in English and Spanish (free).
www.acria.org
(212) 924-3934 ext.129

AIDS Institute Regional Training Centers
www.upstate.edu/cei/training.shtml
(518) 474-9866

Harm Reduction Training Institute
Workshops for staff only, will travel off-site (for a fee).
www.harmreduction.org/hrti/index.html
(212) 213-6376

HIV Training Institute (HTI)
New York City Department of Health and Mental Hygiene
40 Worth Street, Rm. 1602
Hepatitis C and a wide range of HIV-related trainings for service providers (free)
For a course catalogue and application, call: (212) 341-9810 or e-mail:
losborne@health.nyc.gov

NATAP (National AIDS Treatment Advocacy Project)
Workshops and forums for clients & trainings for staff in English and Spanish (free).
www.natap.org
(212) 219-0106

New York City Department of Health and Mental Hygiene
Karen Schlanger – Director, Hepatitis C Program (212) 227-6021
Email: kschlang@health.nyc.gov
Workshops in English, will travel off-site (free).

FREE BROCHURES, EDUCATIONAL MATERIALS, TREATMENT INFORMATION

ACRIA (AIDS Community Research Initiative of America)
www.acria.org
(212) 924-3934 ext. 129
Free brochures, educational materials, and treatment newsletter.

AIDS Treatment Data Network
www.atdn.org/hcv.html
(212) 260-8868 ext. 12
Simple fact sheets on Hepatitis C, HIV/HCV Co-infection and Liver Function Tests.

American Liver Foundation
www.liverfoundation.org
(800) 465-4837
Newsletter ($25/yr) and brochure on Hepatitis C (free).

Centers for Disease Control and Prevention
www.cdc.gov/ncidod/diseases/hepatitis/resource/materials.htm
Hepatitis C fact sheets, frequently asked questions, brochures, posters, slides and on-line training, as well as information on prevention and guidelines for treatment.

Harm Reduction Coalition
www.harmreduction.org/pamphlets/brochure_exchange.html
(212) 213-6376
Simple fact sheets, a curriculum on Hepatitis C, and a brochure on liver health.

Hepatitis C Support Project (HCV Advocate)
www.hcvadvocate.org
Fact sheets, listing of national HCV events and support groups, and a newsletter.

HIVandHepatitis.com
www.HIVandhepatitis.com
Regularly updated website which features cutting-edge information on Hepatitis A, B, and C as well as HIV, including reports from recent conferences.

Immunization Action Coalition
www.immunize.org
One-page fact sheet on vaccinations for people living with Hepatitis C.
and
www.hepprograms.org
Links to many hepatitis service organizations, including prevention-based programs.

NATAP (National AIDS Treatment Advocacy Project)
www.natap.org
(212) 219-0106
Co-infection booklet and e-mail update subscription (free).

National Institutes of Health
http://consensus.nih.gov/cons/116/116cdc_intro.htm
Consensus Development Conference Statement, *Management of Hepatitis C: 2002.*

New York City Department of Health and Mental Hygiene
Karen Schlanger – Director, Hepatitis C Program (212) 227-6021
Email: kschlang@health.nyc.gov
Free "Living with Hepatitis C" educational video (in English and Spanish)

New York State AIDS Institute
Literature available. Email hivpubs@health.state.ny.us to request an order form**.**

Veterans Affairs – National Hepatitis C Program
www.va.gov/hepatitisc
Information on Hepatitis C is available on-line through the Education link, in the Hepatitis C section.

SUPPORT GROUPS

American Liver Foundation (ALF)
www.liverfoundation.org
(212) 943-1059 ext.12
Provides referrals for ALF- and non-ALF-affiliated hepatitis support groups.

H.E.L.P.P. (Hepatitis Education Liver Disease Awareness Patient Support Program)
Teresa Abreu (718) 352- 7772
General liver disease support group. Meets every 3rd Sunday of the month at New York Hospital of Queens. Does not meet during summer months.

Latino Organization for Liver Awareness
www.lola-national.org
(718) 892-8697
Bilingual support group in Spanish and English.

NATAP (National AIDS Treatment Advocacy Project)
www.natap.org
Dawn Schuk (212) 219-0106
Support group for Hepatitis C/HIV co-infected individuals.

St. Vincent's Hospital
(212) 535-1850
Support group for people affected by or infected with Hepatitis C.

Hepatitis C Clinics in New York City Public Hospitals (HHC)

NOTE: All listed clinics will accept patients regardless of insurance status. Other public hospitals may also have clinics for patients with hepatitis C.

Location:	Clinic Details:
Bellevue Hospital Center 462 First Avenue New York, New York 10016 General Information number: (212) 562-4141	Friday mornings 9am-12pm Call (212) 562-8625 for info Must have Bellevue doctor referral Call (212) 562-3291 for referral appt.
East New York Diagnostic & Treatment Center 2094 Pitkin Avenue Brooklyn, NY 11207 General Information number: (718) 240-0400	Tuesdays & Thursdays 5-8pm
Elmhurst Hospital Center 79-01 Broadway Elmhurst, NY 11373 General Information number: (718) 334-4000	Thursdays Go to walk-in diagnostic (8am-8pm) to get a referral & appointment
Harlem Hospital Center 506 Lenox Avenue New York, NY 10037 General Information number: (212) 939-1000	Every Thursday morning Call (212) 939-2910 to make an appointment
Kings County Hospital Center 470 Clarkson Avenue Brooklyn, NY 11203 General Information: (718) 270-1112	Call for appointment
Metropolitan Hospital Center 1901 First Avenue New York, NY 10029 General Information number: (212) 423-6262	Friday afternoons 1pm Call (212) 423-6881 for info Need a doctor's referral Call (212) 423-6144 for referral appt.

GLOSSARY OF TERMS

Acute: Sudden onset of illness. Is of short duration and can be severe (not chronic).

AIDS: Acquired Immune Deficiency Syndrome – the later stage of the illness caused by infection with the Human Immunodeficiency Virus (HIV), which attacks the body's immune system.

ALT: Alanine aminotransferase (ALT) is an enzyme released from liver cells. Persistent elevation of the ALT in the blood may indicate the liver is inflamed or damaged.

AST: Aspartate aminotransferase (AST) is an enzyme released from liver cells. Like ALT, persistent elevation may indicate liver inflammation or damage.

Antibodies: Immune system proteins created in response to an invading pathogen (germ). Antibodies have biochemical coding designed specifically to match (and combat) the invading pathogen.

Blood-borne virus: A virus that is spread primarily by contact with blood.

Chronic: A disease of long duration or frequent recurrences (not acute).

Cirrhosis: The development of severe scar tissue in the liver that results in loss of liver function.

Co-infection: Infection with two or more different diseases at the same time.

Combination therapy: Treatment with more than one drug. HCV combination therapy includes interferon and ribavirin.

EIA: Enzyme immunoassay – this antibody test is the most widely used test to diagnose HCV infection.

ESAP: Expanded Syringe Access Program – New York state program that allows pharmacies to sell syringes to individuals without a prescription.

Fecal/oral route: Transmission of disease by ingesting feces (stool) or food or water that is contaminated with feces.

Fibrosis: Scar tissue in the liver.

Genotype: Genetic information that is unique to an organism. There are six different genotypes of HCV. Genotype 1 is most common in the United States.

HAART: Highly Active Anti-Retroviral Therapy – anti-HIV treatment that uses a combination of drugs to reduce HIV viral load to low or undetectable levels.

Hemodialysis: Also known as kidney dialysis, is a mechanical process that removes the blood from the body, eliminates toxins, and returns it back into the body.

Hepatitis: Inflammation of the liver due to infection or toxins.

Hepatitis A (HAV): Hepatitis A Virus – transmitted primarily by fecal-oral route.

Hepatitis B (HBV): Hepatitis B Virus – transmitted primarily through sexual or blood-to-blood contact.

Hepatitis C (HCV): Hepatitis C Virus – transmitted primarily through blood-to-blood contact.

Hepatitis D (HDV): Hepatitis D Virus – transmitted primarily through blood-to-blood contact; must have HBV to get HDV.

Hepatitis E (HEV): Hepatitis E Virus – transmitted primarily by fecal-oral route. Relatively uncommon in the United States.

HIV: Human Immunodeficiency Virus – transmitted primarily through sexual or blood-to-blood contact, HIV is the virus that causes AIDS by attacking the body's immune system.

IDU's: Injection drug users – people who inject drugs into a vein, muscle, or under the skin.

Incubation: Time between exposure and the development of symptoms.

Interferon: A protein that helps the body fight infections. It occurs naturally in the body and a synthetic version is used as a medication to treat HCV.

Jaundice: Yellowing of skin or whites of the eyes due to high bilirubin levels in the blood, a possible sign of liver damage.

Liver biopsy: Microscopic examination of tissue removed from the liver with a needle to look for the presence of inflammation and liver damage.

Liver function tests: Blood tests to measure the level of liver enzymes (ALT/AST). Sometimes called liver biochemical tests

Liver transplant: The removal of a severely damaged liver and replacement with either the liver from a person who recently died or a part of a living donor's liver.

Monotherapy: Treatment with only one medication.

Non-A non-B Hepatitis: The old term for hepatitis that was not caused by the A or B viruses. In 1987, it was shown to be what is now called hepatitis C.

PCR (polymerase chain reaction): A test that detects HCV in the blood . A positive test confirms HCV infection.

Percutaneous: Through the skin.

Prophylaxis: Preventive.

Qualitative PCR: A test for the presence of *any* hepatitis C virus in the blood. The qualitative PCR can usually detect virus one to two weeks after initial exposure. A positive test confirms HCV infection.

Quantitative PCR: measures the *amount* of HCV in the blood (viral load).

RIBA: Recombinant immunoblot assay – is a more *specific* antibody test that looks for and confirms the presence of HCV antibodies.

Ribavirin: An antiviral medication that is not effective by itself, but, when combined with interferon, improves the effectiveness of interferon at fighting HCV.

Seroconversion: The point at which antibodies may be detected by antibody tests.

Superinfection: Infection with a second virus. Persons with established HBV infection who contract HDV have *superinfection*; superinfection is usually more severe than co-infection.

Sustained response: The absence of virus in the blood at least six months after HCV treatment has stopped.

Symptom: A noticeable change in the body or its functions, indicating possible disease process.

Vaccine: A synthetic fragment of an infectious agent that stimulates the body's immune system to resist disease caused by the actual germ.

Viral load: A blood test that measures the amount of HCV in the blood (quantitative PCR). Numbers for HCV viral load are significantly higher than HIV viral load values.

Hepatitis C Integration
Staff's Frequently Asked Questions

Are HCV prevention messages different than HIV prevention messages?

No, not really. HCV and HIV are both blood-borne viruses that are transmitted largely through injection drug use and unprotected sex. However, HCV is 10 times easier to transmit through blood-to-blood contact than HIV is. In addition, sexual transmission of HCV is rare, the result of blood or open sore contact during sex. For these reasons, HCV prevention messages stress avoiding all contact with blood and the importance of good hygiene (hand washing, covering sores etc.).

Can HCV be spread by sexual activity?

Yes, but it is not the most efficient route. HCV is transmitted primarily through blood. People with multiple sexual partners and those with STDs should practice safer sex to prevent transmission of HCV, as well as other STDs. Currently, there is no evidence that HCV is spread through oral sex.

What should I tell HCV+ people who are in a monogamous relationship?

HCV+ people with one long-term steady sex partner do not need to change their sexual practices. They should, however, discuss the risk of transmission (which is low but not absent) with their partner. If they want to lower the chance of transmitting HCV, they can use barrier protection (e.g., latex condoms, gloves, and/or latex dams) and discuss HCV testing and counseling with their partner.

What is the risk that an HCV infected woman will transmit the virus to her newborn?

Less than 5 out of every 100 infants born to HCV positive women become infected. This occurs at the time of birth, and there is no treatment that can prevent this from happening. Most infants infected with HCV at birth have no symptoms and do well during childhood. It is unknown if children will have problems from the infection as they grow older. There are no approved treatments or guidelines for the treatment of infants or children infected with HCV.

Can an HCV infected woman breastfeed her infant?

Yes. There is no evidence that breastfeeding spreads HCV. Women with cracked or bleeding nipples should consider abstaining from breastfeeding until they heal. If the woman is co-infected with HIV, she should not breastfeed.

Why do most people remain infected after exposure?

When HCV reproduces, it makes a large number of copies that differ slightly from each other in their genetic makeup. Scientists believe that this genetic diversity allows HCV to evade the body's immune system. This may be the reason why such a high percentage

of people infected with HCV (75-85%) develop chronic infection. This genetic diversity is also the likely reason why an effective HCV vaccine has not yet been developed.

Why should I recommend testing if the person can't afford the treatment?

There are many ways that patients can gain access to treatment. Even if the person doesn't qualify for Medicaid or another benefits program, the companies that make the treatments have patient assistance programs that provide free drug to people who qualify. The phone numbers to call for these programs are (800) 521-7157 for PEG-Intron and ribavirin or (800) 387-1258 for Pegasys and ribavirin.

It's also important to remember that treatment is not necessary for many people who have hepatitis C. If a client knows that they have HCV, they can be counseled about preventing transmission of the virus to others as well as being provided with tips to help keep their liver healthy.

If someone isn't a good candidate for HCV treatment, is there anything else available to help?

Yes. There are many things that someone can do to keep their liver as healthy as possible. There are a number of alternative therapies such as herbs that people use to try to strengthen the body's ability to fight infection Although none of them have been scientifically proven to cure or even ease symptoms of HCV, many people find comfort in using them. Be sure to talk to your doctor before starting any medications, including herbal medicines – some can be harmful to the liver! Other ways to keep your liver healthy include:

- Seeing their healthcare provider on a regular basis
- Getting vaccinated for hepatitis A and B, if not previously exposed
- *A*bstaining from drinking or reducing alcohol consumption.
- Drinking plenty of water and eating well
- Getting plenty of rest.

Hepatitis C Integration
Clients' Frequently Asked Questions

What does hepatitis mean?

Hepatitis is a general term that means inflammation of the liver. "Hepar" means liver and "itis" means inflammation (as in arthr*itis*, pancreat*itis*, and dermat*itis*). Viruses, bacteria, drugs, toxins, excessive alcohol intake, or autoimmunity (your immune system attacking your own body) can cause inflammation of the liver.

Is it possible that at one point I had hepatitis, but now I don't?

At some point in their lives, many people have been told by a healthcare provider that they have hepatitis. Maybe your bloodwork showed that you had antibodies to hepatitis A or B, meaning that you had been exposed to one or both of those viruses. It's important to find out what kind of hepatitis the provider meant so that you're not making guesses about your health.

What is hepatitis C?

Hepatitis C is a virus (a type of germ) that causes liver disease. The hepatitis C virus is found in the blood and liver of people with hepatitis C infection.

How is hepatitis C spread?

The hepatitis C virus is spread primarily through blood. It can be spread whenever blood (or fluids containing blood) comes in contact with an opening in the skin or other tissues. This can occur even when these openings cannot be seen. Hepatitis C virus can also be transmitted by sexual contact, but this does not happen as easily as with HIV, the virus that causes AIDS.

The hepatitis C virus is *not* spread by casual contact like hugging, sneezing, coughing, or sharing food and drinks. You can not get hepatitis C by donating blood.

What about other kinds of hepatitis?

There are several different kinds of hepatitis viruses. Each hepatitis virus is very different from the others. If you have had one type, you can still get any of the others. The hepatitis A virus is spread by feces (even a small or not visible amount), through close personal contact, or contaminated food and water. The hepatitis B virus is spread through blood and body fluids, like semen. Once you have had either hepatitis A or hepatitis B, your body will develop protective antibodies to keep you from getting infected with that particular virus again. There are also vaccines for hepatitis A and hepatitis B, which can protect you from either hepatitis. If you have hepatitis C, talk to your doctor about getting vaccinated for hepatitis A and B (if you haven't had either before). Blood tests can be done to see if you have been exposed to the different hepatitis viruses.

If you get hepatitis A, does it turn into hepatitis B and then hepatitis C?

No. Hepatitis A, B, and C are very different germs. One doesn't evolve into another. Each one is transmitted differently, and the body reacts to each one differently. The only thing they have in common is that they're all viruses and they all affect the liver.

Who is at risk for getting hepatitis C?

People are at risk for getting hepatitis C infection if they:

- Have ***ever*** shared needles or any works, even once;
- Have had a blood transfusion, received blood products, or had an organ transplant before July 1992;
- Have ever been on kidney dialysis;
- Have had unprotected sex with many partners; or
- Were born to mothers with hepatitis C.

What's so important about the liver?

The liver is the largest organ in the body and plays an important role in hundreds of necessary body functions. It serves as the body's filter and warehouse, filtering our blood and other substances to be used or excreted by the body, and holding onto substances like vitamins, minerals, sugar and fat that the body needs later. The liver is responsible for breaking down food, chemicals, and medications. It even regulates blood clotting. We can't live without our liver, and the healthier it is, the healthier we are overall.

How serious is hepatitis C?

Hepatitis C infection is very serious for some people, but not for others. Some people (15-25%) who have hepatitis C will clear the virus from their body within a few months without treatment. Most people who become infected will carry the virus for the rest of their lives. Some will feel healthy for many years after being diagnosed with hepatitis C infection. A smaller number will develop liver damage and possibly cirrhosis (scarring of the liver) and/or liver cancer. While most people will not develop liver failure or cancer with hepatitis C, how you take care of your liver plays an important role in how slowly or quickly hepatitis C progresses.

What are the symptoms of hepatitis C?

Most people with hepatitis C do not have noticeable symptoms. Even if you feel fine, the virus could be damaging your liver and you could be spreading the virus to others. If you're one of the few people who have symptoms when they're first infected, symptoms could include feeling like you have a slight flu, pale feces, dark urine, and possibly jaundice.

How can I find out if I have hepatitis C?

A simple blood test called the EIA or RIBA can determine if you have been exposed to HCV. Your healthcare provider or local clinic can test your blood for HCV. Consider getting tested if you have put yourself at risk for infection.

How can hepatitis C be prevented?

There is no vaccine for hepatitis C. The best way to keep from getting the hepatitis C virus is to avoid any contact with other people's blood. This includes not sharing needles and "works", razors, toothbrushes, or other household items that may be contaminated with blood. Blood banks now screen donated blood for hepatitis C virus, so your risk of getting infected from a blood transfusion is extremely low. You can also get hepatitis C from sex with an infected partner, though it is uncommon.

To prevent the spread of hepatitis C:

- If you shoot drugs, never share works with anyone.
- Use a latex condom every time you have sex.
- Only get tattoos or body piercings from places using sterile equipment.
- Healthcare workers and people who clean up in hospitals or places where needles or sharps are used should follow standard (universal) precautions for every patient.
- If you have hepatitis C, don't share razors, toothbrushes, nail clippers, etc.
- If you have hepatitis C, don't donate blood, sperm, or organs.

Can I have normal liver enzyme levels and still have liver damage?

Yes. Some people with chronic hepatitis C have liver enzyme levels that are in the normal or even below normal range but still have liver damage. Similarly, some people have consistently high enzyme levels but don't have serious liver damage. Enzyme levels that continue to rise over time or go up suddenly are an indication that something is going on. It's important to have your levels checked regularly (every three to six months), but the results don't give a complete picture of the degree of liver damage or how much damage might occur in the future.

Is there a treatment for hepatitis C?

Two drugs, interferon and ribavirin, may be used in combination to treat hepatitis C infection. Treatment does not work for everyone and often has severe side effects. Ask your doctor about treatment options and steps you can take to protect your liver.

How long does treatment last?

The length of treatment is usually between 6 and 12 months. People co-infected with both HIV and HCV may need treatment for as long as 18 months.

Isn't the treatment worse than the disease?

It's true that the side effects of combination therapy (interferon and ribavirin) can be difficult, and sometimes impossible, to tolerate. What's right for one person isn't necessarily right for someone else. If treatment is indicated, many people would choose 6 to 12 months of difficult side effects over the possibility of worsening liver disease and, possibly, death. It's also important to realize that 40-50% of people who complete the treatment clear the virus, meaning that they no longer have HCV. As with all medical

decisions, it's helpful to have as much information as possible so that you can weigh the potential risks and benefits.

Before beginning treatment, discuss all of the possible side effects with your healthcare provider so that you have a realistic picture of what to expect. It's also important to have a support system in place before starting treatment – people you can count on to help you cope with the possible physical and psychological side effects.

Can I get hepatitis C more than once?

Yes. Even if you're one of the lucky people who clears the virus after infection or through HCV treatment, you could be reinfected with HCV if you put yourself at risk. Unlike the antibodies to hepatitis A and hepatitis B, HCV antibodies do not protect you from future infection.

How much alcohol can I drink if I have hepatitis C?

Alcohol is very difficult for the liver to break down. Even without hepatitis C, excessive alcohol use over an extended period of time is one of the most common reasons for liver disease. If you have chronic hepatitis C, alcohol can make the disease progress much more quickly and can lead to further liver damage. There is strong evidence that 30g/day of alcohol in men (2 beers, 2 glasses of wine, or 2 mixed drinks) and 20g/day in women greatly speeds up the progression of liver disease. Giving up alcohol or at least cutting down on alcohol intake is an important step to reduce the risk of serious liver damage.

How does HIV impact hepatitis C?

Having HIV lessens your body's ability to fight hepatitis C. HIV can also speed up the rate of liver damage caused by hepatitis C. Although both illnesses are serious, they can be treated. It's important to find a healthcare provider who is knowledgeable about both HIV and hepatitis C to ensure that you receive the best care possible.

How does hepatitis C impact HIV?

It's still unclear if hepatitis C speeds up HIV disease but, in most cases, it doesn't seem to. Hepatitis C may affect the course of HIV by increasing the incidence of liver toxicity caused by some anti-HIV medications. Also, people with badly damaged livers as a result of hepatitis C may have a hard time breaking down some anti-HIV medications.

Can I become pregnant if I have hepatitis C?

Hepatitis C is passed to an infant during the birthing process in less than 6% of cases. There are no recommendations against women with hepatitis C becoming pregnant or breastfeeding. You or your partner should not become pregnant while being treated for hepatitis C with ribavirin since it may cause severe birth defects.

If I see a specialist, will they make me have a liver biopsy?

No. As with any medical procedure, it is your right to refuse a liver biopsy. Since a liver biopsy is the most accurate way to measure the degree of liver damage, some liver specialists won't treat someone with HCV without performing a biopsy first. Other specialists don't require a biopsy. It's important to remember that different people respond differently to a biopsy – some find it painful, while most are surprised at how little pain they experience. The risk of complications from the procedure is very small. Many people describe the procedure as boring because they have to remain stationary for hours afterwards. Although it is your right to refuse the procedure, be sure that your decision is based on information rather than fear.

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Appendix
Guidelines for Good Feedback

Feedback can help someone make the choice to learn about him or herself. When delivered accurately and sensitively, it can reinforce positive qualities and help a person understand ways in which their actions impact others. When received openly, it can help provide new insights and give direction for continued learning. To make role-plays as useful as possible, good feedback is necessary. The following guidelines can help facilitate constructive feedback for each participant

When giving feedback

Ask:	Check in to see if the person is ready to hear feedback.
Be specific:	Describe what you heard and how you were affected. Feedback that states "When you _____, I felt _____ " is a good way to focus on specific actions.
Be constructive:	Suggest changes the participant can do something about. No one wants to hear that the pimple on their face is distracting!
Be sensitive:	Focus your comments on helping. If the person clearly is upset or feeling bad about the role-play, this is not the time for a long list of comments, no matter how constructive.
Don't overload:	No one is expected to remember everything they just learned!

When receiving feedback

Ask:	Let the other person know you'd like feedback.
Listen openly:	Don't discount or block the information as you receive it. It's not helpful to get defensive or argue.
Check for understanding:	Ask for clarification if you are not sure what someone means. Restating is a good tool to use here: "So what you're saying is … Is that correct?"
Sit with the information:	Take time to decide for yourself, based on the feedback, what you want to incorporate. Remember that feedback is a gift…you can use it or leave it in the closet with the other gifts that aren't useful!