

## Increasing Hepatitis C Knowledge for Behavioral Health and Medical Providers



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**ATTC** Addiction Technology Transfer Center Network  
Funded by Substance Abuse and Mental Health Services Administration



**HCV Disease Burden and  
Populations at Risk**

# Hepatitis C Burden

- Hepatitis C virus (HCV) infection is the **leading** cause of cirrhosis, liver cancer, and liver transplantation.
- Current research indicates a potential 3.5 million persons are living with HCV in the US today
- 75% of those infected with HCV were born between 1945 and 1965 and are unaware of their infection.
- Up to 37% (900,000) of infected people in the United States will die from HCV-related complications if untreated.

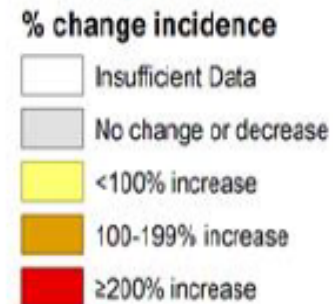
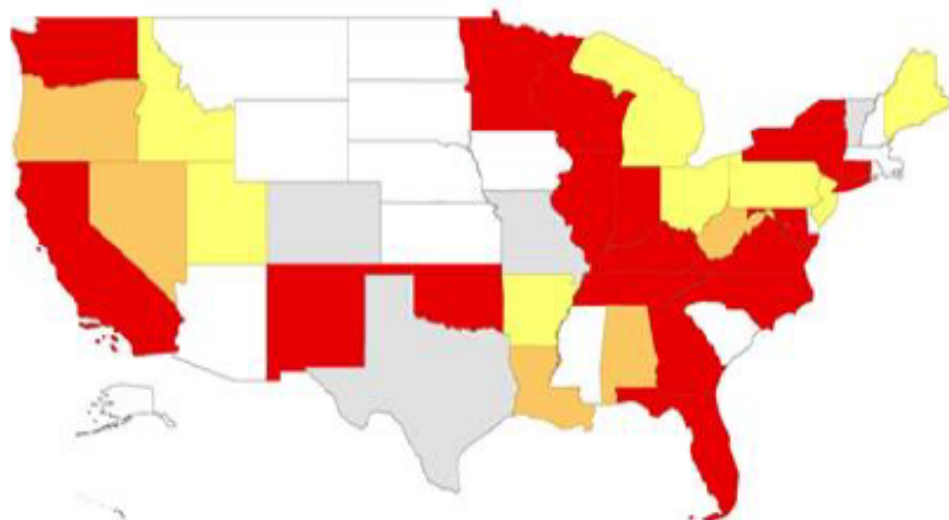
# Increases in HCV Infections

## Between 2007 and 2012

- 50% increase in case reporting
- 200% increase in 17 states

## Risk factors

- ~ 70% persons who inject drugs
- Previous oral prescription narcotic use
- Equally male to female
- Young, ages 18 to 29 years
- Rural and suburban
- White



# Increase Hepatitis C Prevention

- Educate and train primary care providers and healthcare systems in treating hepatitis C and caring for stigmatized populations including PWID
- Improve primary and secondary prevention effectiveness, policy development, education and training initiatives, and applied research
- Assess and address missed opportunities for medical evaluation, care, and treatment, as well as for counseling to promote behavioral changes that might reduce disease progression and avert transmission of infection



# HIV and Hepatitis A, B, & C

	HIV	HAV	HBV	HCV
<b>Lifelong Infection</b>	100%	0%	Adults: 2-5% Perinatal: ~90%	75-85%
<b>Protective Immunity from Natural Infection</b>	No	Yes	Yes	No
<b>Vaccine</b>	No	Yes	Yes	No
<b>Genetic Material</b>	RNA	RNA	DNA	RNA
<b>Curable</b>	0%	Self limited	1-2%	>95%!

# Transmission of Viral Infections

## HIV

- **Injection drugs:**  
Contaminated needles, syringes, cooker, cotton
- **Sexually:**  
Blood, semen (pre-seminal fluid), vaginal secretions
- **Perinatally:**  
From HIV-infected mother to newborn
- **Other infectious body fluid:** breast milk

## HBV

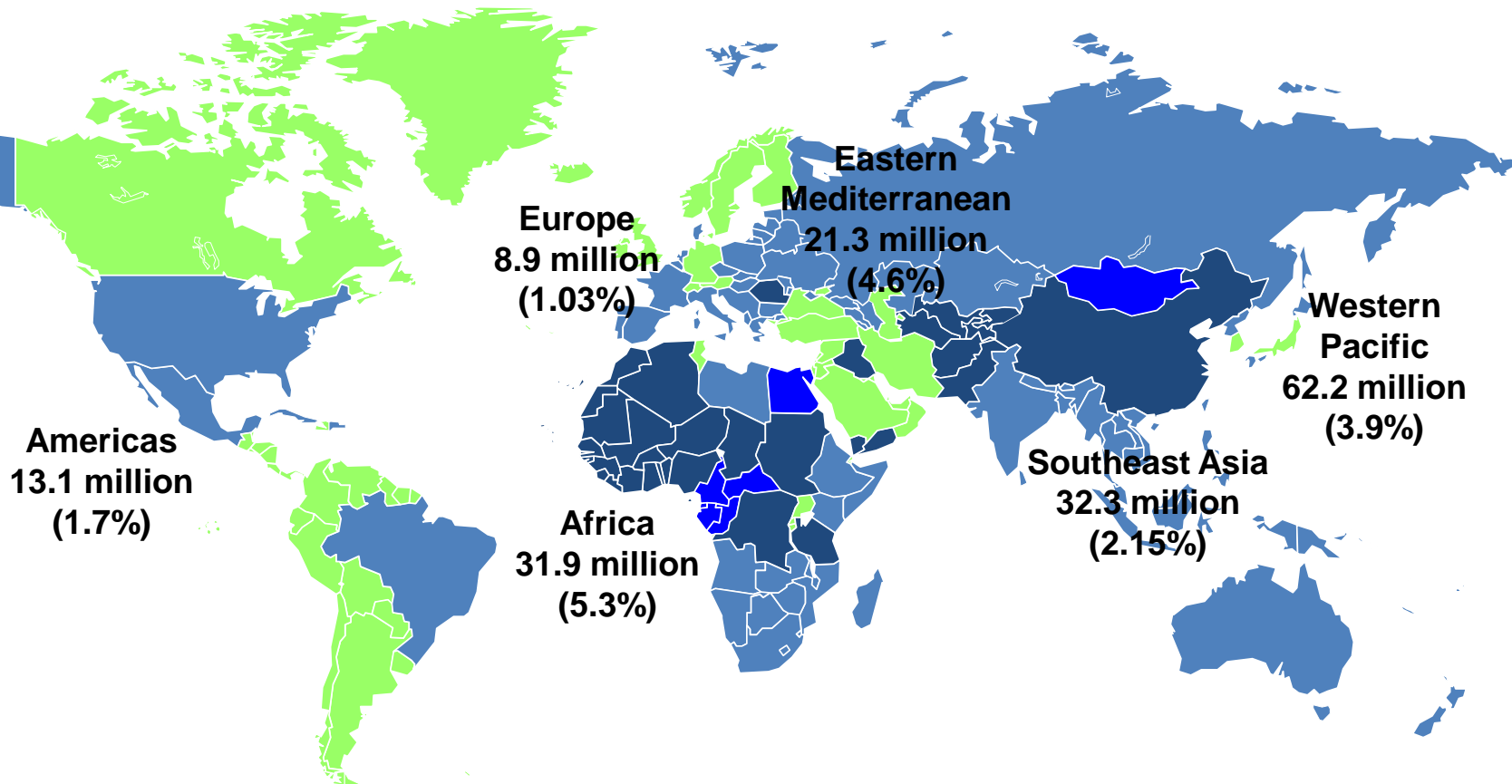
- **Injection drugs:**  
Contaminated needles, syringes, cooker, cotton
- **Sexually:**  
Blood, semen, vaginal secretions
- **Perinatally:**  
From HBV-infected mother to newborn
- **Household contact:**  
Sharing razor, toothbrush, nail clipper
- **Open sores**

## HCV

- **Injection drugs:**  
Contaminated needles, syringes, cooker, cotton
- **Sexually:**  
Traumatic sexual exposure
- **Perinatally:**  
From HCV-infected mother to newborn

An Estimated 135 Million Persons Are Infected With HCV Worldwide

An Estimated 4-5 Million Persons Are Infected With HCV in the U.S.





# Screening for Hepatitis C Infection

The CDC & USPSTF recommend:

- Screening for HCV infection in persons at elevated risk for infection.
- Offering one time screening for HCV infection to adults born between 1945 and 1965.

# History of Hepatitis C

- **1970's:** Virus appears in enough people to be noticed (called non-A, non-B)
- **1980s:** Blood screened for ALT, reducing HCV transmission (before it was discovered)
- **1989:** Hepatitis C virus identified & named
- **1990:** First antibody test helps identify people exposed to the virus & is used to screen blood
- **1992:** Better tests insure safety of blood supply and confirmatory test for anti-HCV is approved

# Risk Based Recommendations for HCV Testing

- Persons who have ever injected illegal drugs, including those who injected only once many years ago, ever shared needles and works
- All persons born between 1945 - 1965
- All persons with HIV infection
- Persons presenting with symptoms of hepatitis, or elevated enzyme levels
- Received transfusion or blood products before 1992
- Received clotting factor prior to 1987
- Ever on hemodialysis
- Healthcare, emergency, public safety workers after exposures to HCV through infected blood
- Children >1 year born to HCV-positive women
- Tattoo and/or body piercing done while incarcerated or by an unlicensed artist

# Emerging Trends

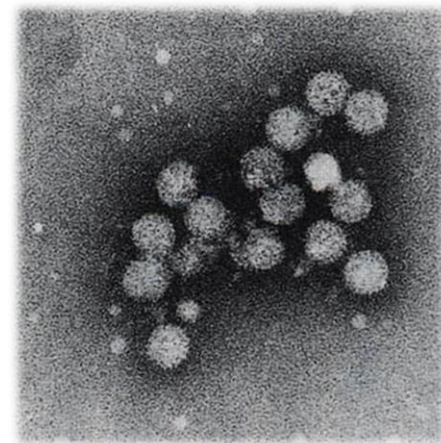
- Rising rates (22.3%) of HCV infection among young people who inject drugs
  - *Over 5 million young people used pharmaceutical opioids non-medically in the past year*
- Iatrogenic transmission (healthcare exposure)
- Sexual transmission of HCV amongst HIV-infected and HIV-uninfected men who have sex with men (MSM)

# Hepatitis C Infection



# Characteristics of Hepatitis C

- Hepatitis C virus is a rapidly replicating blood borne pathogen that causes inflammation of the liver
- Clinical presentation during acute HCV infection may or may not include jaundice, abdominal pain, or flu-like symptoms such as fatigue, muscle aches, and nausea.
- Can live in blood outside body for days to weeks - much longer than HIV
- *No vaccine...yet!*



# Stages of liver damage

Healthy Liver

Inflammation

Liver Fibrosis

Cirrhosis



Scar tissues forms

Growth of connective tissue destroys liver cells

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- HCV infection causes inflammation of the liver
- Over years, inflammation leads to scarring (**scarring = fibrosis**)
- Severe scarring (**F4=stage 4 fibrosis or cirrhosis**)
- Cirrhosis can lead to end stage liver disease (**decompensated cirrhosis**), hepatocellular carcinoma (**liver cancer**), which is fatal without a liver transplant

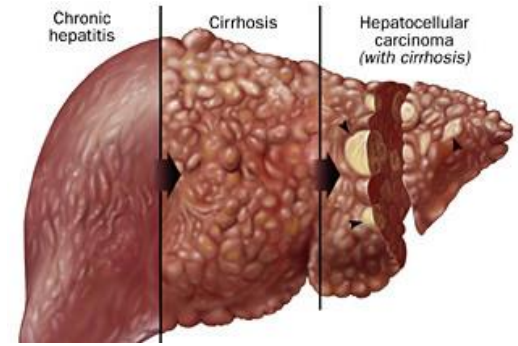
# Acute\* HCV Infection

- Average time of development of HCV antibodies when first infected is about **6-8 weeks**, up to 6 months in some cases
- 15%-25% spontaneously clear the virus without treatment in 3-4 months, most times without symptoms

*\*Acute phase: within the first 6 months after acquiring infection*



# Chronic\* HCV Infection



75-85% develop chronic infection and may remain stable for years

- 20%-30% develop cirrhosis and serious illness within 20 years if untreated

*\* Chronic phase: infected more than 6 months after acquiring infection*

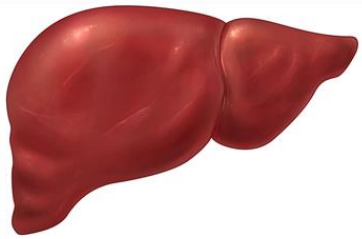
# Nonspecific Symptoms of Chronic Hepatitis C

- Chronic fatigue, memory loss, cognitive impairment (“brain fog”)
- Not related to severity of liver disease (can be early or late)



- Can be severe, disabling
- May be passed off as not due to hepatitis C
- May not be recognized until it goes away with treatment

# Cirrhosis



## Compensated cirrhosis

- Asymptomatic stage

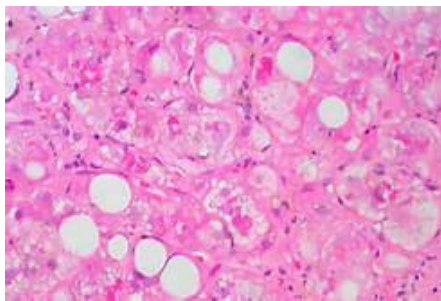


## Decompensated cirrhosis

- Clinically evident symptoms
- End-stage liver disease

# Decompensated Cirrhosis

Symptoms presenting during end stage liver disease



- Portal hypertension
- Ascites (fluid in abdomen)
- Jaundice
- Variceal bleeding
- Hepatic encephalopathy

# Monitoring Liver Health and Disease

- Liver enzyme tests (LETs) use measured levels of enzymes as markers of inflammation and injury: ALT, AST (1/3 of people with HCV have normal enzyme levels)
- Liver function tests (LFTs) help show how the liver is working (platelet count, bilirubin, albumin, prothrombin time)
- AFP (for liver cancer)

# A Silent Killer

Hepatitis C infection is usually asymptomatic and often goes undiagnosed unless:

- Patient enters primary care for unrelated medical issues and consequent blood panels reflect elevated enzymes
- End stage liver disease has occurred and symptoms present
- Through promotion of HCV screening and testing based on risk behaviors or birth cohort

# Promoting Screening and Testing of Hepatitis C Infection



# Keys to Promoting HCV Testing

- Keeping in mind patient factors such as fear, stigma, lack of HCV information, and relatedness, initiate a conversation around a patient's identified risk behavior for HCV and the benefits of screening and testing
- Discuss the entire testing process and possible test results. Include availability of provider support, tailored risk reduction counseling, and current treatment options



# Patient/Client Considerations

- Fear
- Stigma
- Lack of HCV information & relatedness
- Cultural and linguistic issues
- Mental health
- *Others?*

# Screening & Testing for HCV

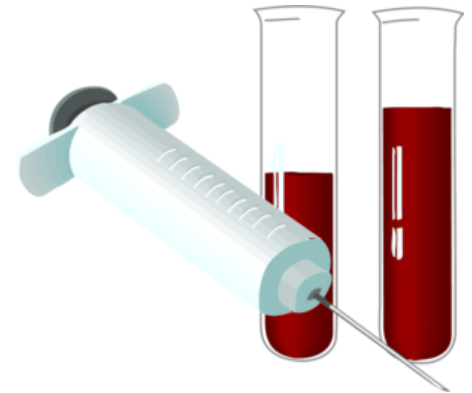
Diagnosing HCV infection is a 2 step process

## 1) Anti-HCV (antibody)

- Non reactive (negative)
- Reactive (positive)

## 2) HCV RNA (PCR or viral load)

- Not detected
- Detected



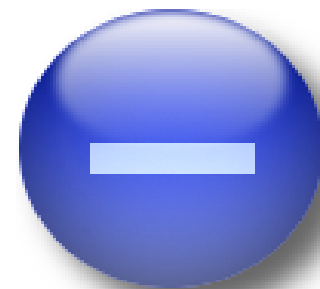
## Anti-HCV Tests

- Anti-HCV tests are used to detect the presence of antibodies to hepatitis C virus within a “window period” (6-8 weeks)
- Potential test results are either, ...***reactive*** or ***non reactive***

# Anti-HCV Test Results

A ***non-reactive*** (negative) result means HCV antibodies were not found and you're probably not infected with HCV

- You are not protected from future HCV infection
- Or you may still be in the window period



# Counseling *Non Reactive* (negative)

*“To stay negative, eliminate or reduce risk by practicing:*

- Don't share needles or other injection equipment, or anything that may have blood on it*
- Tattoos, piercings, and body art from a licensed artist and explain what consumer should expect*
- Vaccinate against hepatitis A and B*
- Practice safer sex, and get treated for STDs”*

\* If person engaged in risky behavior within the last 6 months, they should be encouraged to get retested (anti-HCV) in 6 months

# Anti-HCV Test Results

A ***reactive*** (positive) test result means antibodies to HCV were found in your blood

- HCV infection occurred and you may still be infected
- Further testing must be done with an HCV RNA (PCR) test to see if you are still infected



# Counseling *Reactive* (positive)

- HCV RNA test measures amount of HCV in your blood
- If there is no virus, test will come back, '**not detected.**'  
If '**detected,**' then you are infected with hepatitis C
- Until you get the HCV RNA test, **assume** you are infected with HCV and help protect your liver by avoiding alcohol, and practice other risk reduction behavior
- See a doctor, learn about hepatitis C, and HCV treatment\*

\* Counselor schedules and facilitates access to second test

# Antibody Tests Cannot Tell the Difference Between...

- Someone who has a chronic infection
- Someone who had a past infection
  - Someone who has 'cleared' the virus spontaneously
  - Someone who has been effectively treated



# Diagnosing HCV Infection

## HCV RNA (PCR or Viral Load)

- **Qualitative** - test for presence or absence of HCV virus
- **Quantitative** - test for amount of HCV virus in blood (viral load)
  - *Not detected result means no current infection*
  - *Detected result mean hepatitis C virus was found, confirming HCV infection*

# HCV RNA Results

## Not Detected

- No current infection (*some recommend another test in 3-6 months to be sure*)
- Past cleared HCV infection means you can still get infected again

# HCV RNA Results

## Detected (Viral Load)

- Diagnosis of active infection
- Conduct genotype testing
  - *Six known genotypes (1a & 1b subtypes, 2-6)*
  - *75% of US infections are Genotype 1*
- Evaluate for treatment eligibility

## Not Detected or Detected

Despite the HCV RNA test result, patient is encouraged to practice tailored risk reduction behavior options

- *“If you’re HCV RNA test result is, ‘**not detected**,’ then you’re not currently infected. But you can change your risky behavior that first got you infected, so as not to become re-infected.”*

- *“If you’re HCV RNA test result is, **detected**,’ then understand how you can modify your risky behavior to not infect someone else.”*

*....allow me (provider) to link you to a specialist that can work to monitor you and perhaps treat your HCV infection.”*

# Understanding Screening Results

HCV antibody:	Non reactive	Reactive	Reactive
HCV RNA:		Not detected	Detected
Meaning:	<b>Not</b> infected <sup>1</sup>	<b>Previously</b> infected <sup>2</sup>	<b>Currently</b> infected <sup>3</sup>

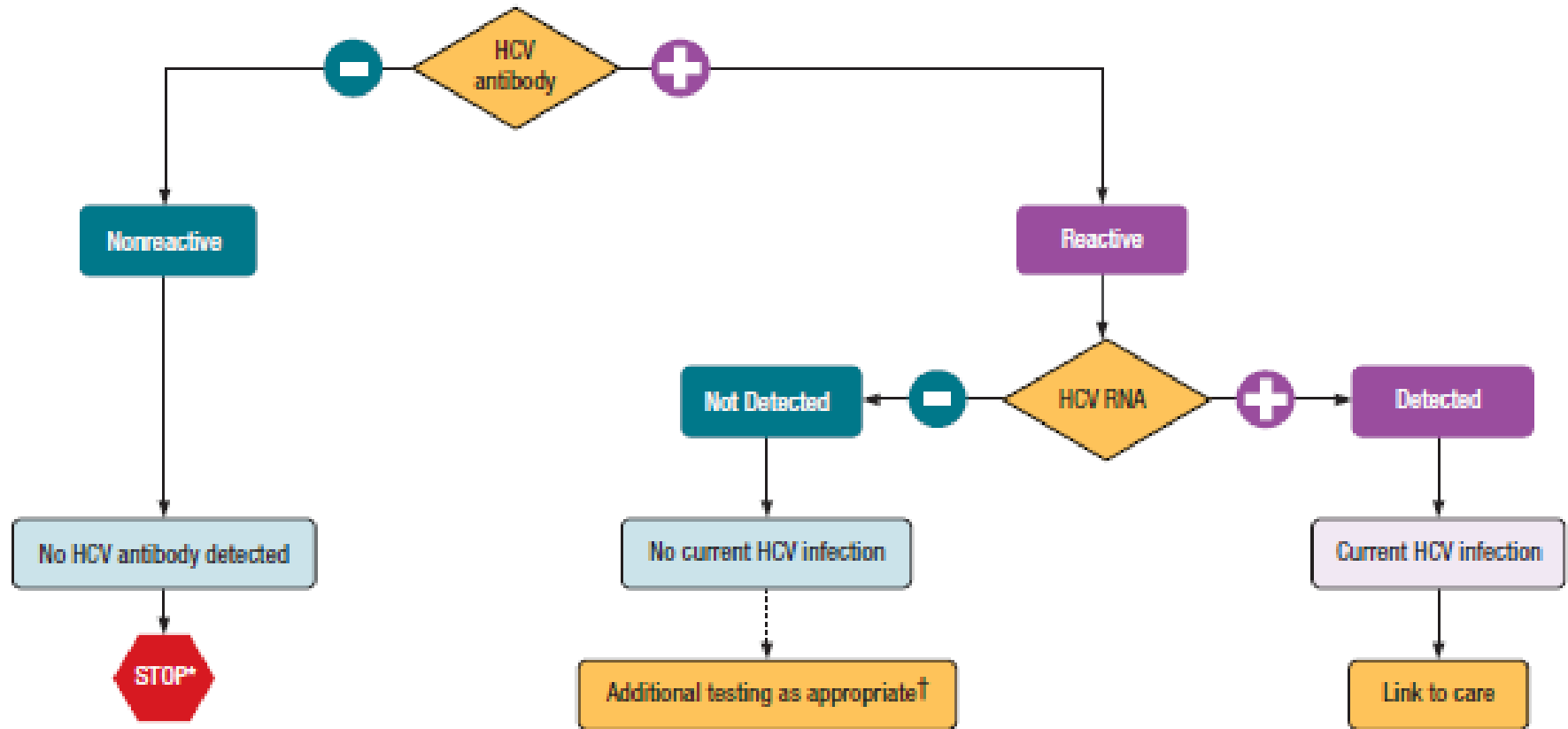
## Additional testing as appropriate:

<sup>1</sup>Unless in window period (recently infected) or immunocompromised

<sup>2</sup>Repeat test in 6 months to be sure

<sup>3</sup>Needs medical evaluation to assess stage and consider for treatment

# Recommended Testing Sequence for Identifying Current Hepatitis C Virus (HCV) Infection



\* For persons who might have been exposed to HCV within the past 6 months, testing for HCV RNA or follow-up testing for HCV antibody is recommended. For persons who are immunocompromised, testing for HCV RNA can be considered.

† To differentiate past, resolved HCV infection from biologic false positivity for HCV antibody, testing with another HCV antibody assay can be considered. Repeat HCV RNA testing if the person tested is suspected to have had HCV exposure within the past 6 months or has clinical evidence of HCV disease, or if there is concern regarding the handling or storage of the test specimen.

# Hepatitis C Treatment Monitoring, Evaluation, and Therapies



# Monitoring Progression of Hepatitis C

Factors that may accelerate the progression of HCV

- Heavy alcohol consumption
- HIV infection
- Older age at the time of infection
- Male gender
- Insulin resistance
- Abnormal accumulation of fat in the liver (steatohepatitis - fatty liver disease)
  - Alcoholic
  - Non alcoholic - diabetes (obesity)
  - HCV genotype 3



# Assess Alcohol Consumption

- Heavy alcohol intake accelerates progression of liver fibrosis
- Alcohol screening questions and brief intervention if indicated
  - “How many times in the past year have you had 4/5 or more drinks in a day?” (4 for women and 5 for men)
  - CAGE questionnaire
  - Center for Integrated Solution, SAMHSA-HRSA, <http://www.integration.samhsa.gov/clinical-practice/SBIRT>
  - IRETA, National SBIRT ATTC <http://my.ireta.org/ATTC>

# Clinical Evaluation

- Blood tests: LETs and LFTs
- Assess degree of hepatic fibrosis, using noninvasive testing (**FibroSURE™** and **FibroScan®**) or liver biopsy.
- Liver cancer screening for patients with cirrhosis (every six months)
  - Serum alpha-fetoprotein
  - Hepatic ultrasound

# Treatment Factors to Consider

- Extent and severity of liver disease
- Extrahepatic manifestations (e.g., cryoglobulinemia, nonspecific symptoms)
- Patient preference
- Drug-drug interactions
- Comorbid HIV or other liver disease
- Adherence issues and possibility of resistance
- Reinfection
- Insurance coverage

# HCV Treatments Timeline

Peginterferon  
Injections  
and Ribavirin  
**G1 & G2 &  
G3**

Peginterferon  
Injections  
and Ribavirin  
Boceprevir  
& Teleprevir  
**G1**

Simeprevir,  
Interferon, &  
Ribavirin  
**G1**

Sofosbuvir,  
Interferon,  
Ribavirin  
**G1**

Sofosbuvir &  
Ribavirin  
**G2 & G3**

Sofosbuvir,  
Interferon,  
Ribavirin  
**G3**

Sofosbuvir,  
Ledipasvir  
**G1**

Sofosbuvir,  
Simeprevir  
**G1**

Paritaprevir,  
Ritonavir,  
Ombitasvir,  
Dasabuvir ±  
Ribavirin  
**G1**

Decatasvir,  
Sofosbuvir  
**G1, G2, G3,  
G5, G6**

Sofosbuvir,  
Ledipasvir  
**G1**

Sofosbuvir,  
Simeprevir  
**G1**

Paritaprevir,  
Ritonavir,  
Ombitasvir,  
Dasabuvir ±  
Ribavirin  
**G1**



# HCV Treatments for HIV/HCV

HCV/HIV-1 co-infection, dosage recommendations

**Recommended Treatment Duration for HARVONI in Patients with Genotype 1, 4, 5 or 6 HCV**

	<b>Patient Population</b>	<b>Recommended Treatment Duration</b>
Genotype 1	Treatment-naïve with or without cirrhosis	12 weeks*
	Treatment-experienced** without cirrhosis	12 weeks
	Treatment-experienced** with cirrhosis	24 weeks†
Genotype 4, 5, 6	Treatment-naïve and treatment-experienced**, with or without cirrhosis	12 weeks

# HIV and HCV Coinfection

- Consultation between HCV and HIV practitioners
- Potential drug-drug interactions should be assessed (eg., *sofosbuvir*, *ledipasvir*, and *simeprevir* interact with some antiretrovirals)
- Treatment recommendations should follow the recommendations for mono-infection specific to genotype

# Treatment Markers & Benefits

- Sustained virologic response (SVR) 12 weeks after treatment completion, (**no virus detected**) means cure
- Reduction in liver failure, liver cancer, and liver-related deaths
- Oral therapies
- HCV therapy is **shorter duration** (8-24 weeks)
- Increased treatment **tolerability**



# Treatment Recommendations

- **Treatment is recommended for all patients with chronic HCV infection, except those with short life expectancies**
- Immediate treatment is assigned the highest priority for those patients with advanced fibrosis (F3), those with compensated cirrhosis (F4), liver transplant recipients, and patients with severe extrahepatic hepatitis C
- Transmission can be interrupted by treating those engaging in risk behavior (PWID, MSM)
- Payers should not deny treatment to anyone



# Linking Patients Infected with Hepatitis C to Health Care Services



# Linkage to Hepatitis C Care

- Through promotion of HCV screening and testing
  - One-time testing of people in birth cohort or with identified risk factor
- Referral to health care facility for HCV RNA testing and evaluation for treatment
- Entering primary care for non-HCV medical issue
- Already within the continuum of HCV care

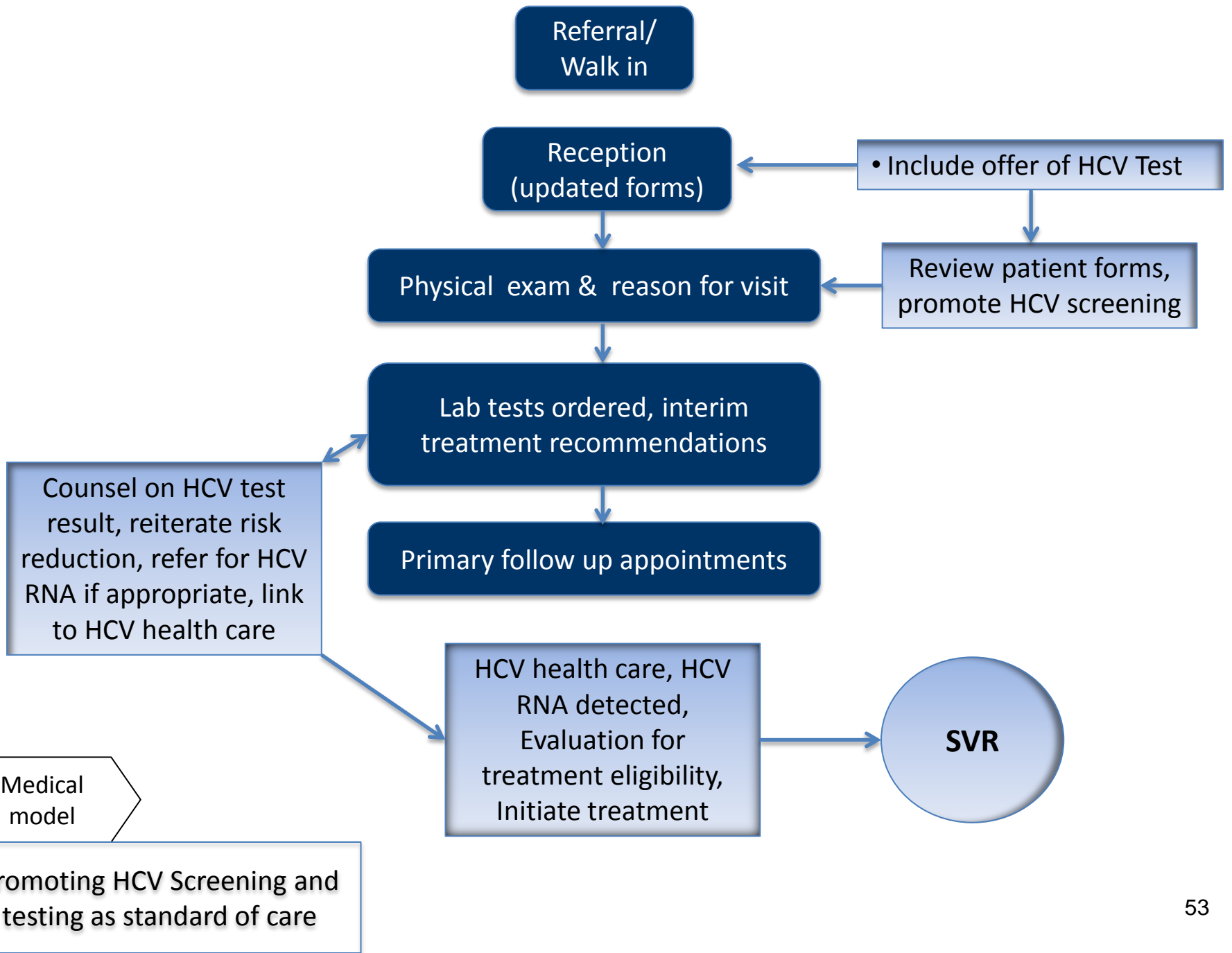
# Provider Focused Initiatives

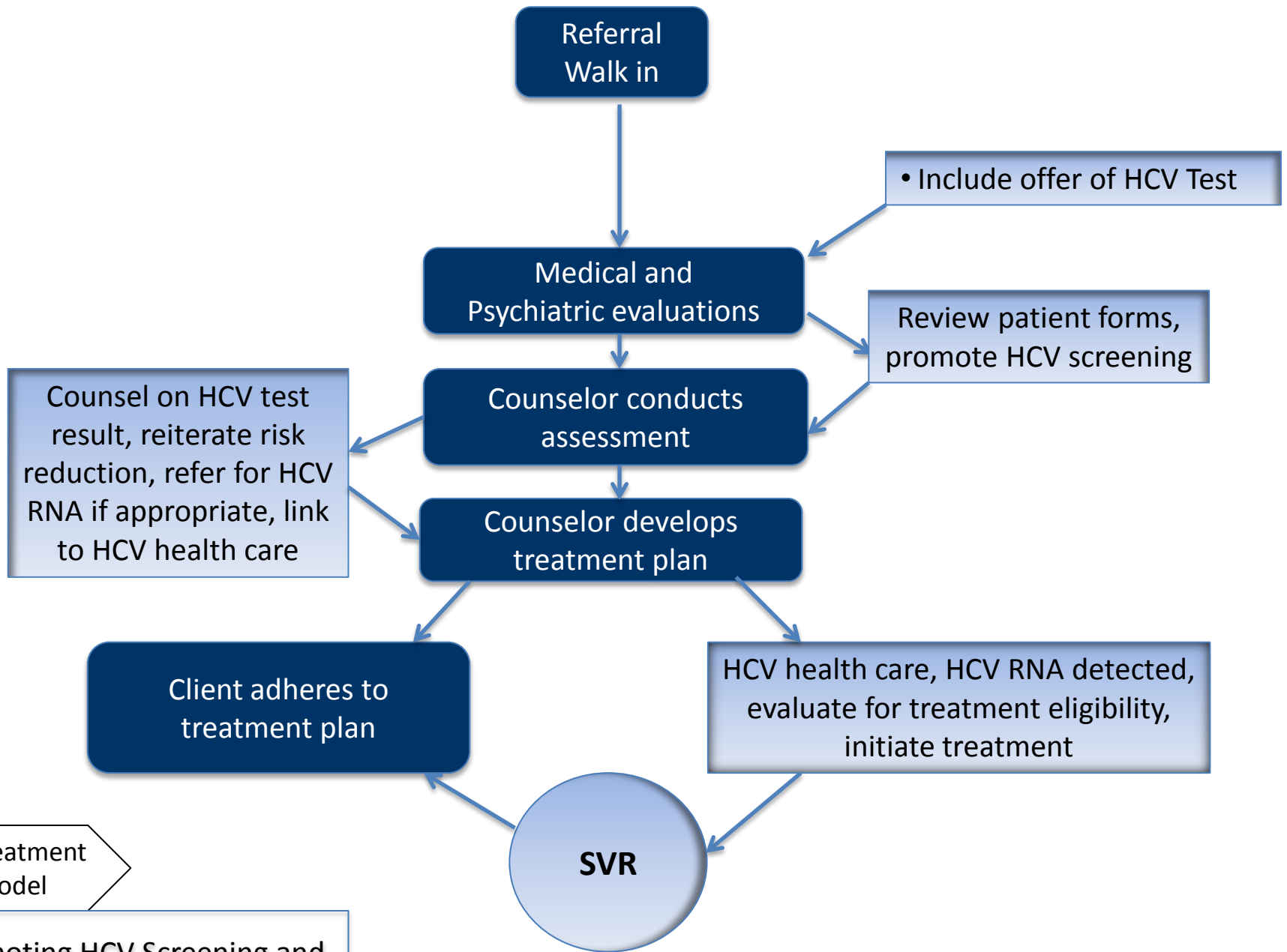
- Improve provider education on hepatitis C
- Incorporate **routine screening** into clinic workflow and implement testing by non-clinical staff
- Enable providers to apply best practices in **monitoring and treating hepatitis C**
  - **Telemedicine** (e.g., project ECHO) using video conferencing with clinical hepatitis experts
  - **Data systems** with centralized database to monitor outcomes
  - Develop **screening indicators** (EMR) and share with individual clinics and providers



# Provider Focused Initiatives

- Develop a hepatitis C “champion”
  - Act as a resource for information
  - Monitor screening
  - Monitor follow-up and cascade of care
- Designate a lead clinician who will take on the primary responsibility of HCV treatment and monitoring, or establish and organize a system for evaluation, treatment, and monitoring.





Promoting HCV Screening and testing as standard of care

# Integration Activity

Discuss these two questions, and list at least 2 strategies by practice setting:

- 1. How can screening be incorporated at your practice setting and at various patient contact points, with those entering or already in care?*
- 2. Does anyone at your practice treat hepatitis C or do you have a place to refer out, and do those patients who are referred go?*

# HCV Resources for Patients

- Caring Ambassadors, <http://caringambassadors.org/>
- National Viral Hepatitis Roundtable, <http://nvhr.org/>
- Help-4-Hep, <http://help4hep.org/>
- HCV Advocate: Hepatitis C – Living with Hepatitis C, <http://www.hcvadvocate.org>
- American Liver Foundation Support Services, <http://www.liverfoundation.org/support>



# HCV Resources for Providers

- AASLD & IDSA, [www.hcvguidelines.org](http://www.hcvguidelines.org)
- CDC, Center for Disease Control and Prevention, Viral Hepatitis, <http://www.cdc.gov/hepatitis>
- US Department of Veteran Affairs, Viral Hepatitis, [www.hepatitis.va.gov](http://www.hepatitis.va.gov)
- Stakeholders' Workbook: Exploring Vital Roles and Opportunities to Break the Silence, <http://aids.gov/pdf/vhap-workbook-for-stakeholders.pdf>
- Project ECHO, <http://echo.unm.edu>

# HCVCurrent

Resources for Medical and Behavioral Health Professionals.

[http://www.nattc.org/projects/HCV\\_Home.aspx](http://www.nattc.org/projects/HCV_Home.aspx)

## Thank you for your time!



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