



Viral Hepatitis:

What Providers Need
to Know



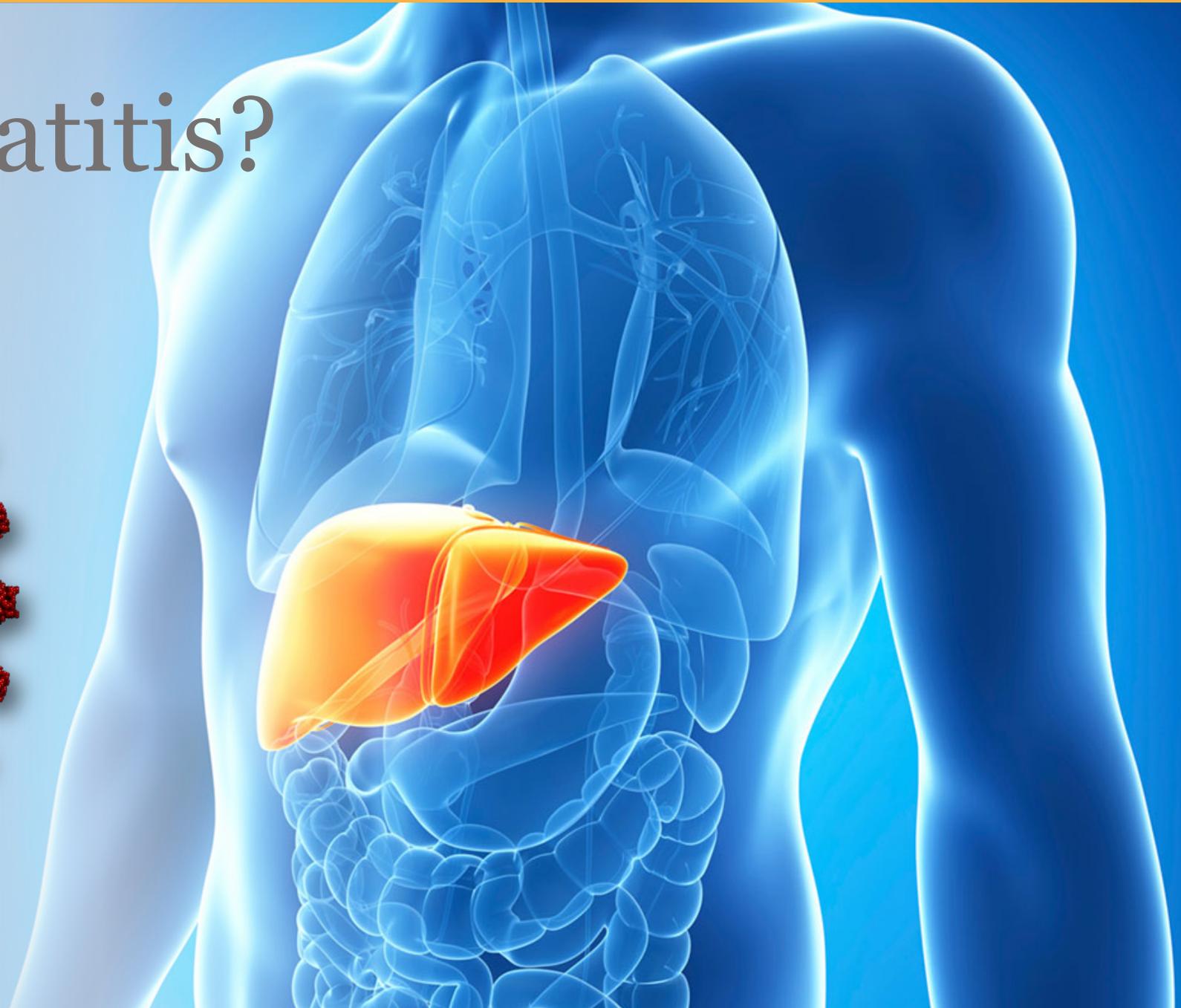
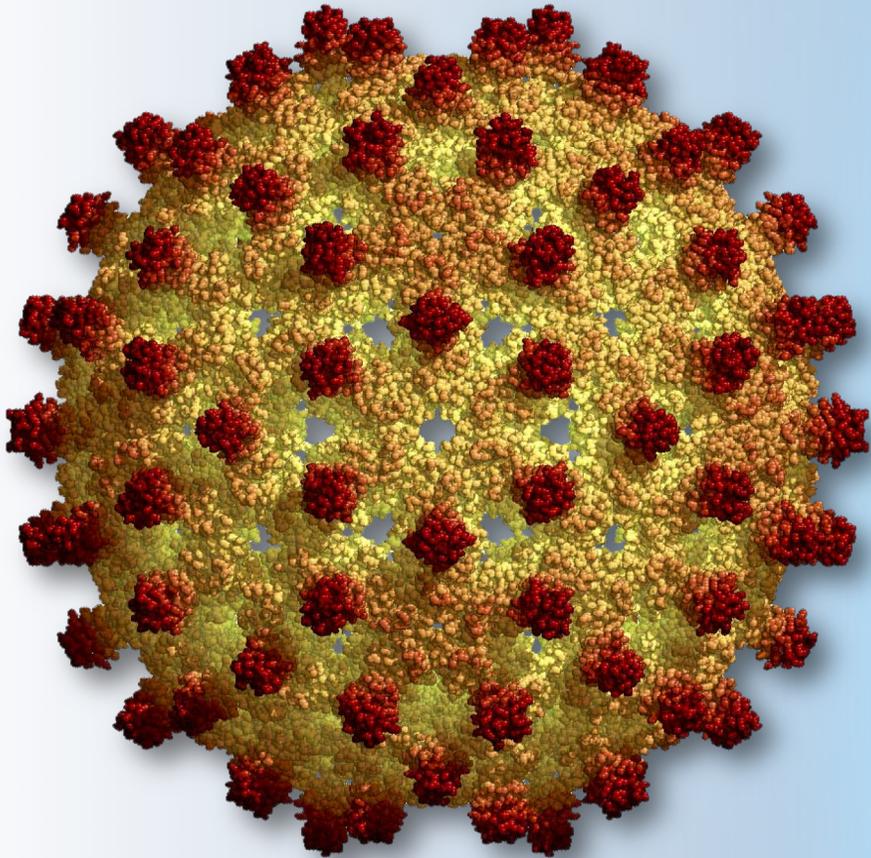
Quick Facts

- 3.5 million people are estimated to be living with hepatitis C in the United States. The actual number may be as high as 4.7 million or as low as 2.5 million.
- 850,000 people in the U.S. are estimated to be living with hepatitis B. The actual number may be as high as 2.2 million or as low as 730,000.
- More than half of persons living with hepatitis do not know that they have the virus.
 - 67% of persons living with hepatitis B infection do not know they have the virus.
 - 51% of persons living with hepatitis C infection do not know they have the virus.
- 1 in 30 baby boomers born between 1945 and 1965 are living with hepatitis C.
- 1 in 12 Asian Americans and Pacific Islanders are living with hepatitis B.

In Massachusetts, between 2011 and 2015:

- Hepatitis A **down** by 17%.
- Hepatitis B **down** by 60%.
- Hepatitis C **up** by 1133%.

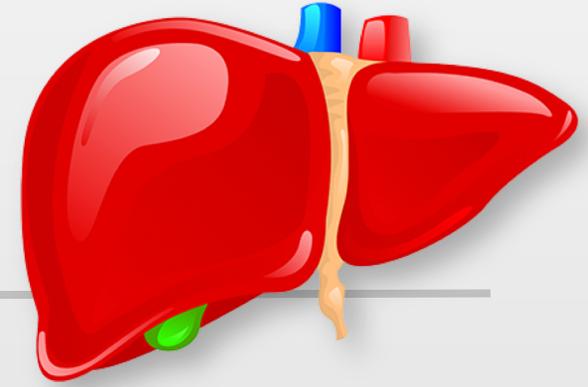
What is Hepatitis?



Hepatitis [*hēpar*, *hēpat-* ‘liver’ + it is]

- Inflammation of the liver
- May be self-limiting or may progress to fibrosis and cirrhosis
- May be acute (lasting less than 6 months) or chronic

Hepatitis can be caused by:



- Viruses
- Other infections
- Toxins and certain drugs
- Alcohol
- Autoimmune disease
- Other health conditions like obesity and diabetes

Hepatitis and People with Substance Use Disorders

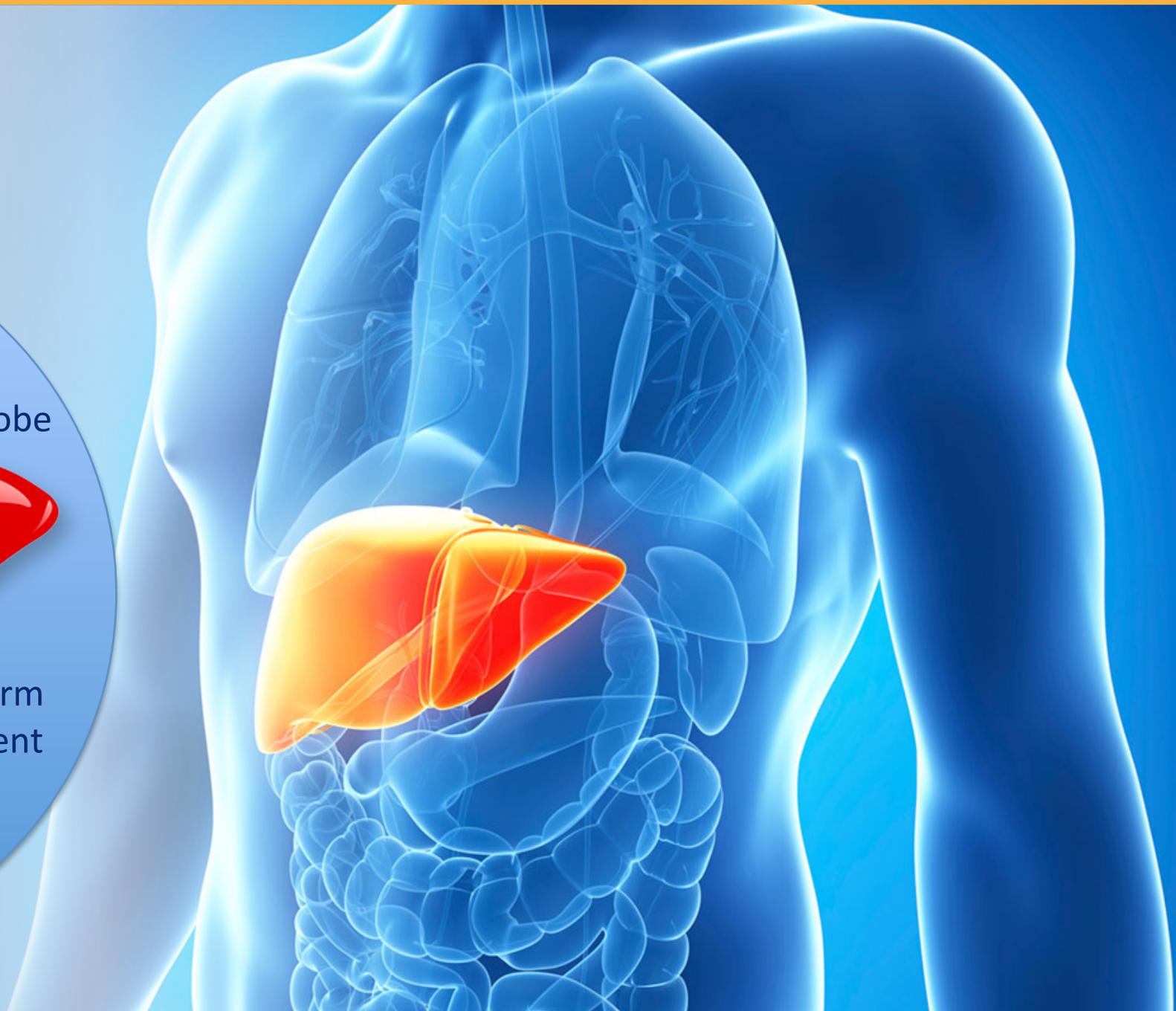
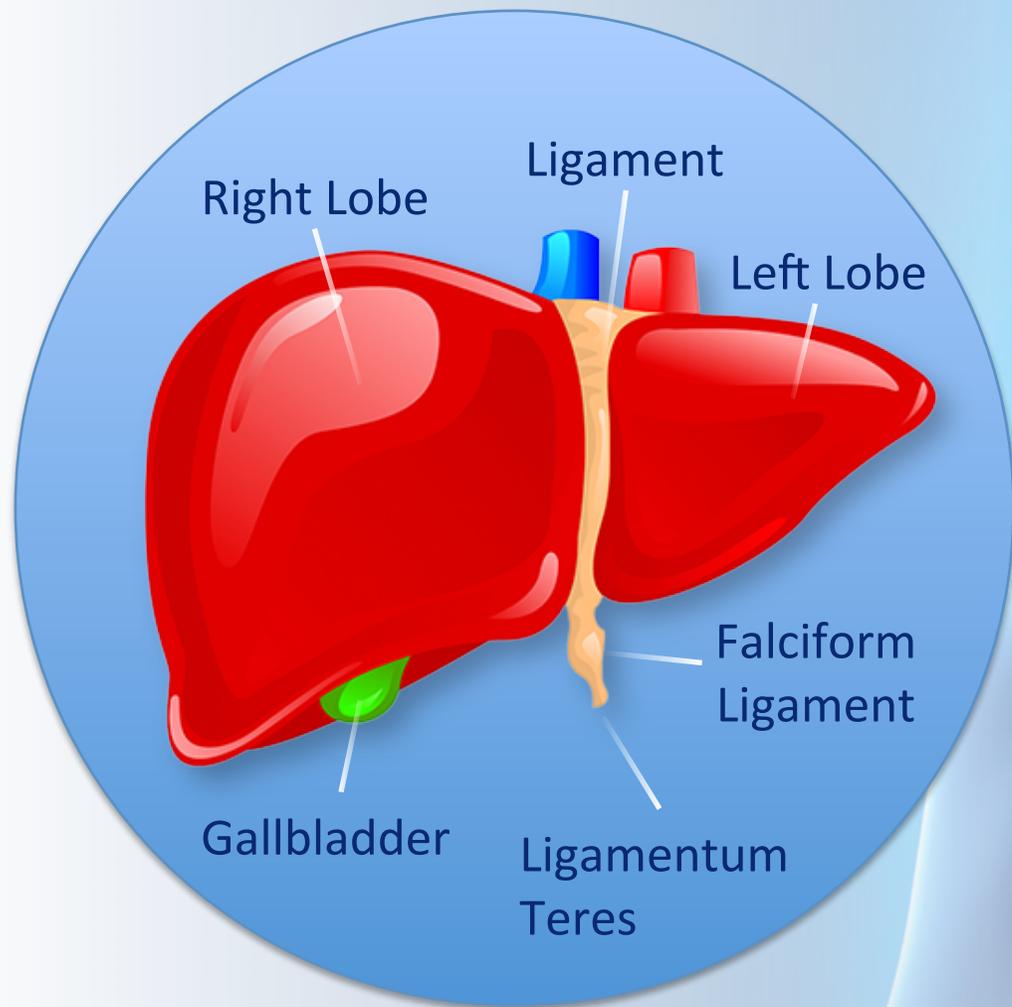
- Factors contributing to increased risk for viral hepatitis:
 - Sharing needles and other drug paraphernalia
 - Unprotected sex
 - Unhygienic practices and conditions (hand washing/food preparation)
 - Living with HIV
 - Risk of liver damage caused by alcohol
 - Having multiple risk factor can increase overall damage to the liver

Signs and Symptoms of Hepatitis

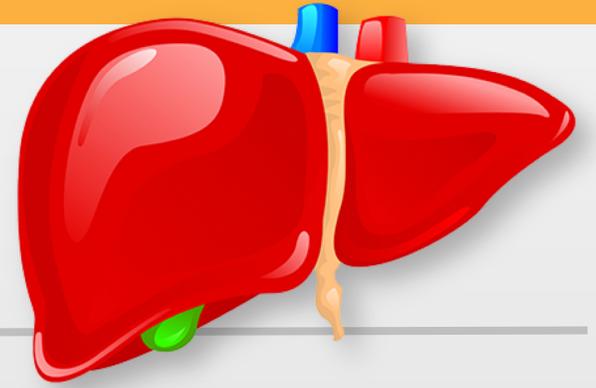
- Fatigue and malaise
- Jaundice
- Poor appetite
- Nausea and vomiting
- Diarrhea
- Dark urine
- Pale stools

...or no symptoms at all

The Liver



Organ or a Gland?



- The liver is one of the vital organs of the body, responsible for hundreds of chemical actions that the body needs to survive.
- It also secretes chemicals used by other parts of the body.
- For these reasons, the liver is both an organ and a gland.

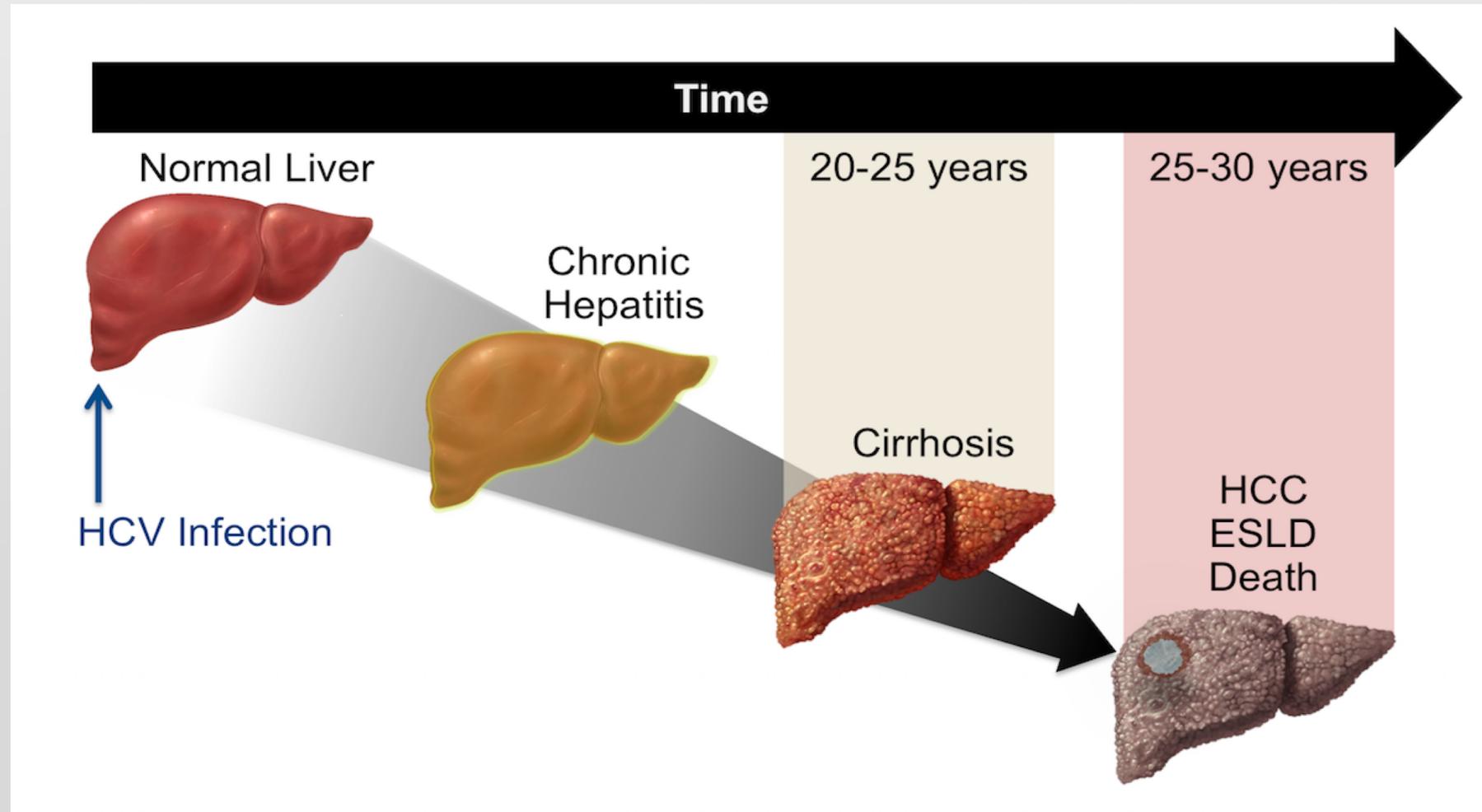
Liver Functions

- Detoxifies blood to rid it of harmful substances such as alcohol and drugs
- Stores some vitamins and iron
- Stores the sugar glucose
- Converts stored sugar to functional sugar when glucose levels fall below normal
- Breaks down hemoglobin as well as insulin and other hormones
- Converts ammonia to urea, which is vital in metabolism

The Liver is an Amazing Organ

- Liver regeneration has been recognized by scientists for many years and was even described by the ancient Greeks, who mentioned liver regeneration in the myth of Prometheus.
- Chronic alcohol use and viruses can eventually prevent regeneration and lead to cirrhosis

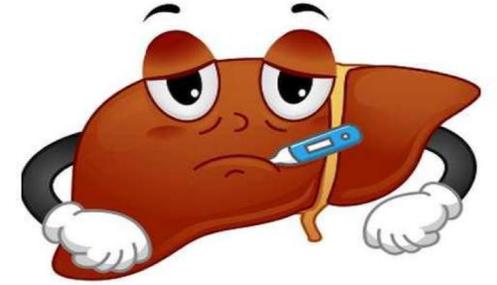
Progression of Liver Disease



Acetaminophen (Tylenol)

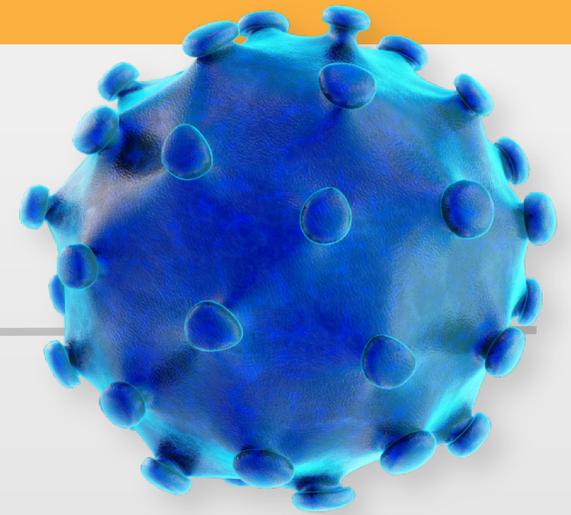
- Acetaminophen can be toxic to the liver if taken in higher-than-recommended doses (3000mg per day or 2000mg per day if you have liver disease).
- Annually, Acetaminophen misuse is responsible for approximately:
 - 56,000 emergency room visits
 - 26,000 hospitalizations
 - 458 deaths

Viral Hepatitis



- Inflammation of the liver caused by a group of viruses
- Viral hepatitis **A B C D E**
- Leading cause of liver cancer
- Most common reason for liver transplant
- Over **4.4 million** Americans are infected (and most do not know it).

Hepatitis A



- Caused by the Hepatitis A virus (HAV)
- Spread through food or water contaminated by feces from an infected person
- Highly contagious
- Not chronic and usually resolves on its own
- Incubation period is 28 days (range 15-50)
- Hepatitis A vaccination is effective for at least 25 years in adults and 14-20 years in children

Hepatitis A Virus is Extremely Hardy

It is able to survive the body's digestive tract.

- Can live outside the body for months.
- Heating food or liquids for at least **1 minute** at 185°F will kill the virus, although freezing temperatures do not.

Who is at Risk for Hepatitis A?

- International travelers
- People in close contact with an infected person
- Residents of an area where people are not vaccinated
- Staff and children in daycare
- Anyone who engages in anal sex
- Drug users
- Outreach workers and other frontline staff
- People experiencing homelessness

Hepatitis A Screening

- Tests for antibodies to HAV
- Positive test means person has or had HAV infection or that the person has been vaccinated
- Negative test means person has not been infected or vaccinated for HAV

Treatment for Hepatitis A

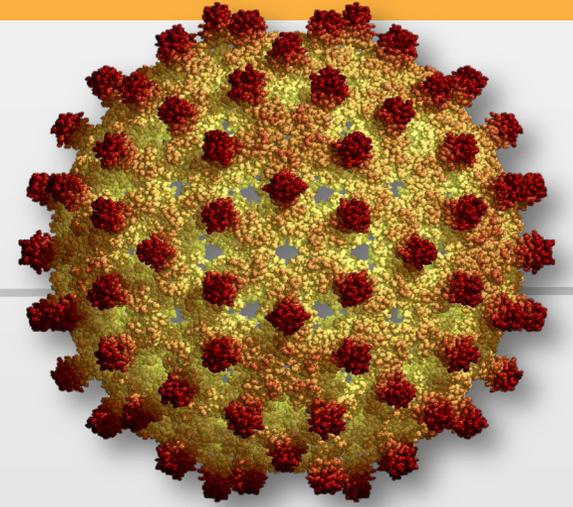
- If someone thinks they have been exposed to Hepatitis A, they can be treated with Hepatitis A immune globulin, which may prevent them from getting sick if taken shortly after exposure.
- Since most people are unaware they have been exposed, rest and good nutrition are usually the only way to treat Hepatitis A.

How to Prevent HAV Infection

- Good hygiene – hand washing
- Avoiding tap water from unreliable sources
- Avoid undercooked or raw shellfish
- Wash fruits and vegetables
- Routine vaccination



Hepatitis B



- Caused by the Hepatitis B virus (HBV)
- Spread through contact with infected blood, sex with an infected person, or from mother to child in childbirth
- Infection usually resolves on its own – fewer than 10% will develop chronic Hepatitis B infection.
- Incubation period is 60–150 days.
- HBV can live at least 7 days outside the body in fluids.
- HBV vaccine is effective for 15-20 years.

Who is at Risk for HBV Infection?

- People who have unprotected vaginal/anal sex with an infected person
- Anal sex is a higher risk behavior, similar to HIV
- People who have multiple sex partners
- Sharing syringes/blood to blood – less often than sexually transmitted
- People at risk for needle sticks
- Infants born to mothers with HBV infection

Hepatitis B Screening

- Test for HBV involves measuring HBV antibodies and antigens.
- Can be detected in 4-6 weeks.
- Lab workers will interpret results to determine if the person is infected, if the infection is acute or chronic, or if the person has immunity.
- Presence of surface antibodies means that the person is immune, either because the virus has cleared the body or because of vaccinations.

Treatment for Chronic Hepatitis B

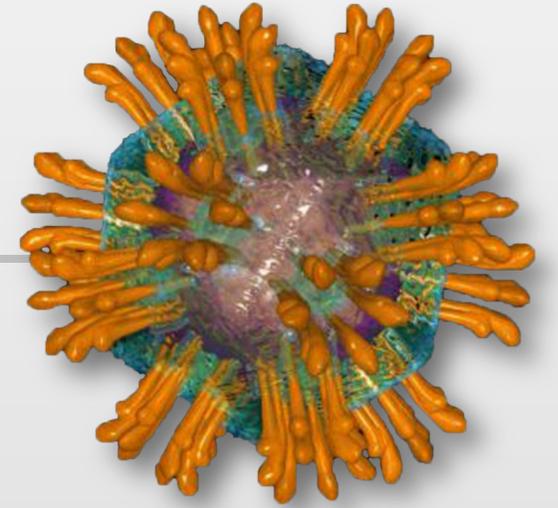
- People diagnosed with chronic Hepatitis B infection (fewer than 10% of all cases) may have treatment to reduce the risk of liver disease and prevent them from passing the infection to others.
- Treatments include antiviral medications such as Epivir & Tenvirudine, which can help fight the virus and slow its ability to damage the liver.

How to Prevent HBV Infection

- Hepatitis B vaccination
- Using latex or polyurethane condoms
- Not sharing needles and other equipment
- Not sharing personal items like toothbrushes, razors, and nail clippers (Low risk)

Hepatitis C

- Caused by the Hepatitis C virus (HCV)
- Incubation period ranges from 2 weeks to 6 months
- Spread through blood
- HCV is the most common blood-borne illness in the U.S.
- Risk of sexual transmission is lower than for HAV and HBV
- 75-85% develop chronic Hepatitis C
- There is no vaccine for Hepatitis C



Genotypes

- 6 genotypes and 67 sub-types of Hepatitis C
- Genotype 1 (70%)
- Genotype 2 & 3 (30%)
- Genotypes 4, 5 and 6 less than 1%
- It is possible to have more than 1 genotype at the same time

Where in the world?

- HCV genotypes 1-3 appear to be distributed worldwide.
- HCV genotype 4 is more prevalent in Africa and in the Middle East.
- HCV genotype 5 is found mainly in South Africa.
- HCV genotype 6 is found mainly in Southeast Asia.

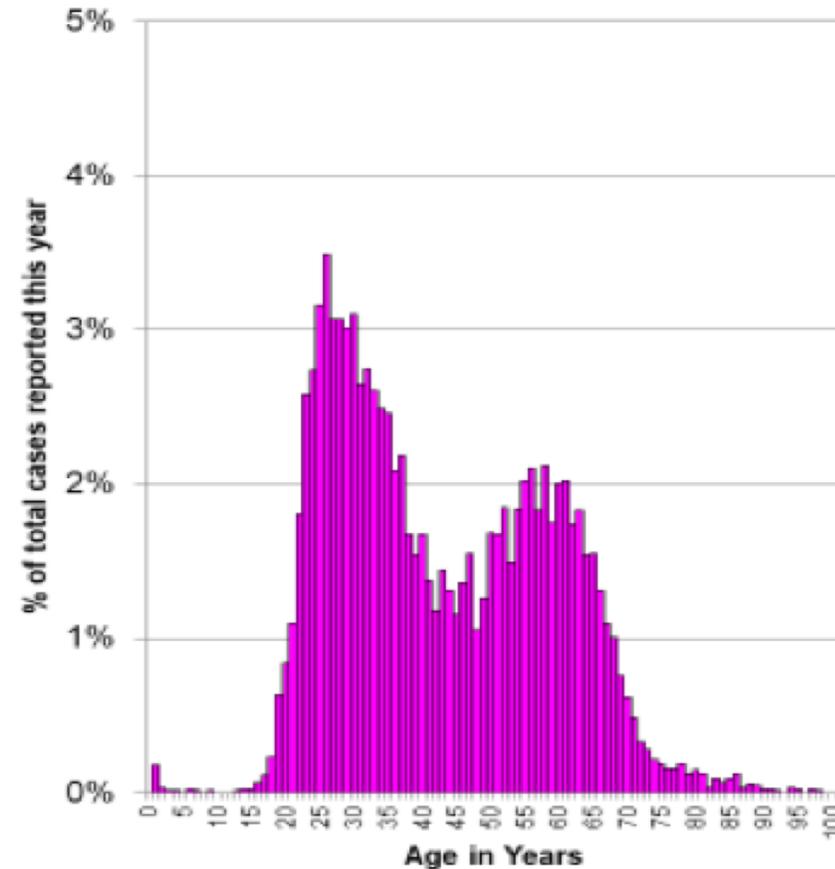
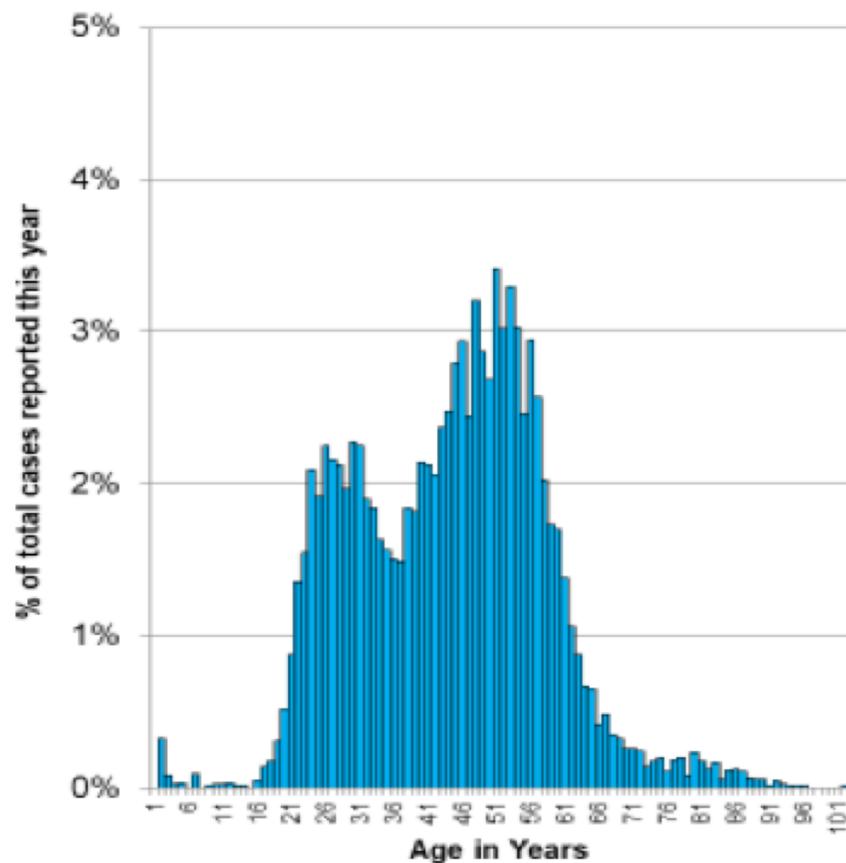


Who Is at Risk for HCV Infection?

- People who share syringes or works
- People at risk for needle sticks
- People who received a transfusion of blood before 1992
- People with jail or home tattoos
- People who have unprotected sex with an infected person.
- People born between 1945 and 1965:
 - People born during this timeframe are 5 times more likely than other adults to be infected. In fact, 75% of adults with Hepatitis C were born in these years. The reasons why baby boomers have the highest rates of Hepatitis C are not completely understood.

Hepatitis C Infections by Age 2007 vs. 2015

Distribution of Confirmed and Probable Hepatitis C Cases by Age: 2007 Versus 2015

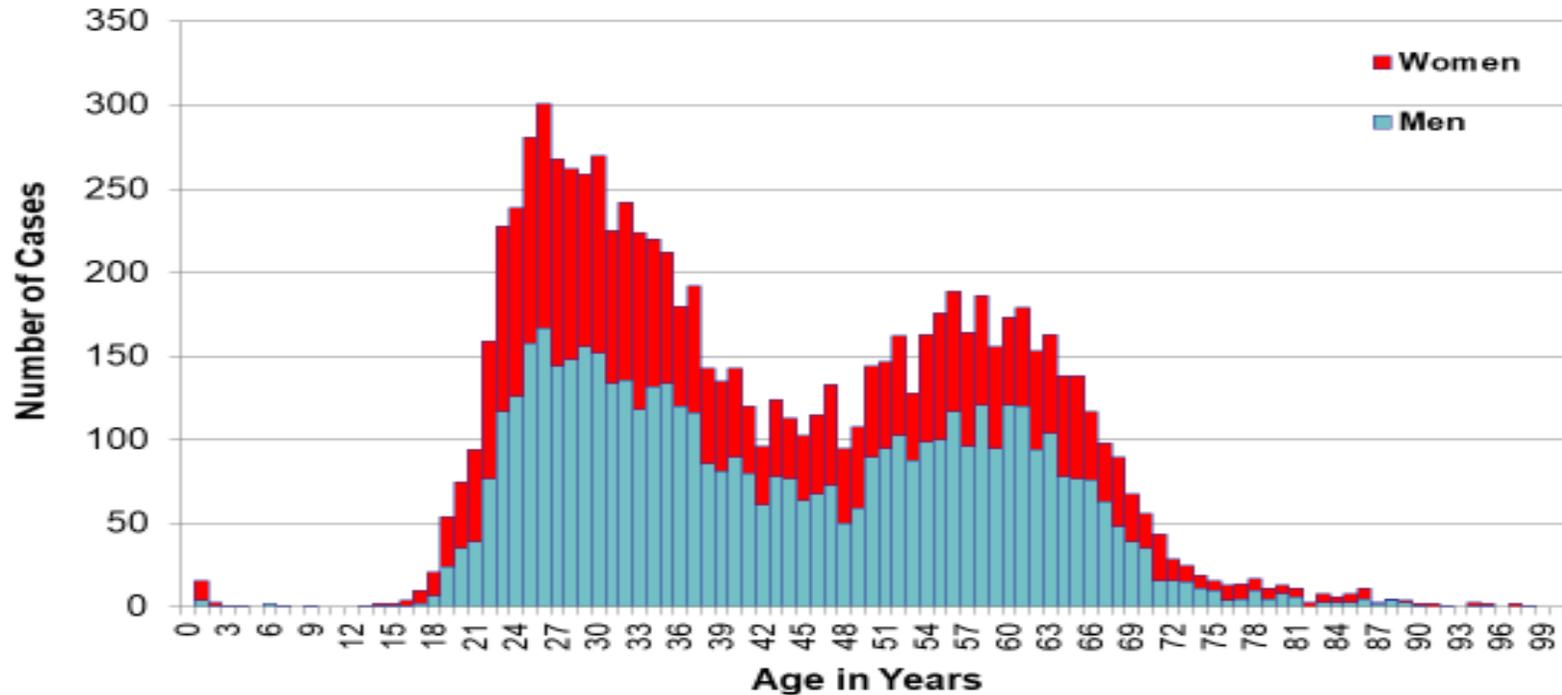


Data Source: MDPH, Bureau of Infectious Disease and Laboratory Sciences, data are current as of 8/9/17 and subject to change

Data current
as of 8/9/17

Hepatitis C cases by Age and Gender

Number of Confirmed and Probable Hepatitis C Cases Reported by Age and Gender, Massachusetts, 2015



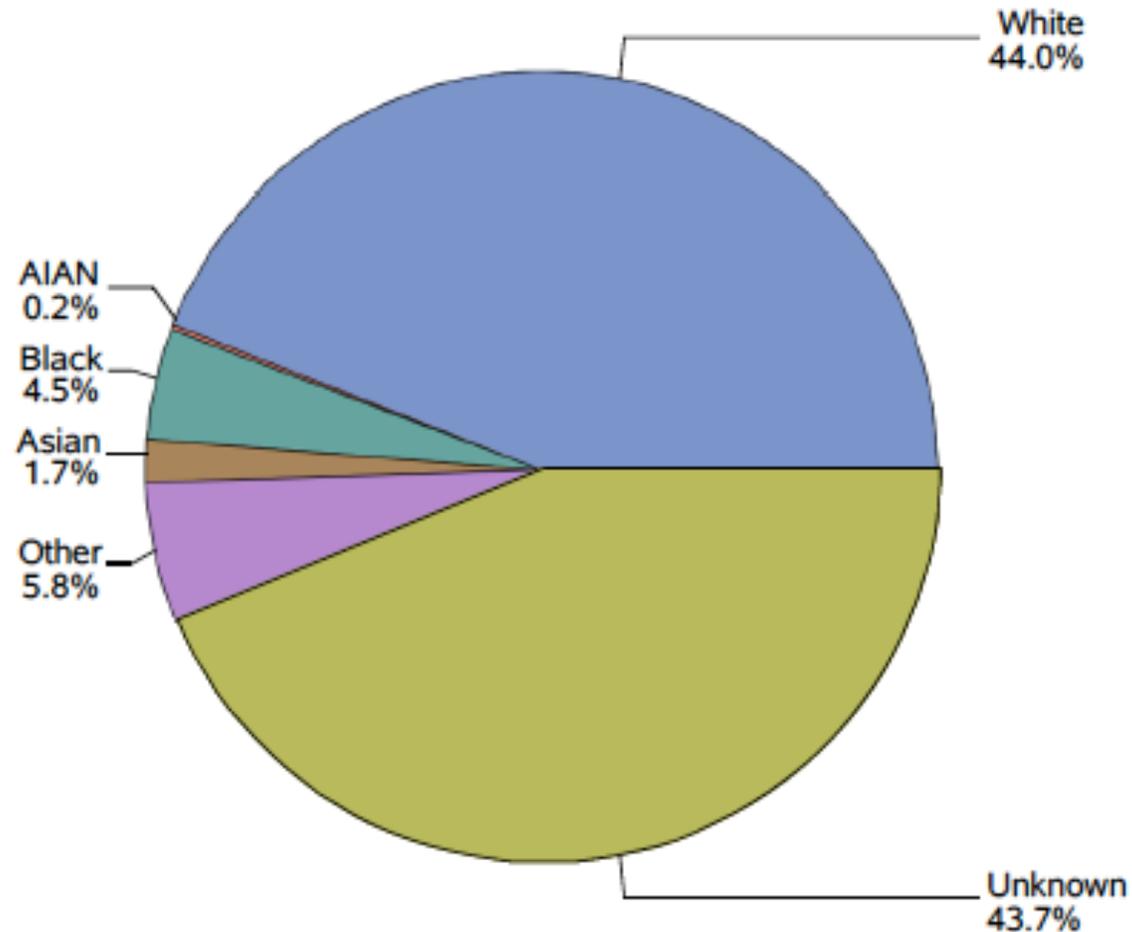
Data current
as of 8/9/17

N=8,739; 303 with missing age and/or gender were excluded from analysis

Data Source: MDPH, Bureau of Infectious Disease and Laboratory Sciences, data are current as of 8/9/17 and subject to change

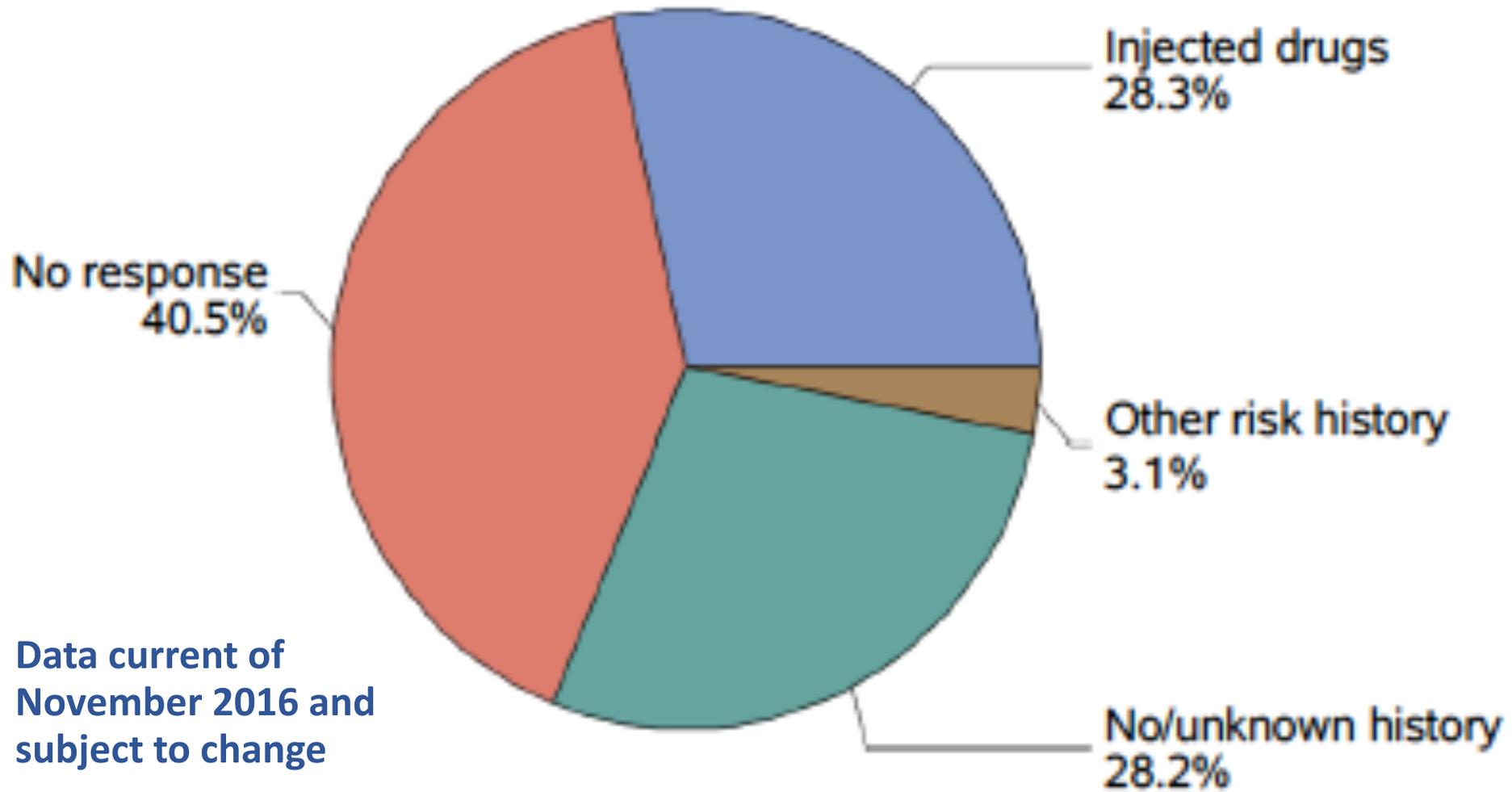
HCV Cases by Race

Percent of Confirmed and Probable HCV Cases Reported in MA by Race, 2015



Date current as of November 2016 and subject to change

HCV by Mode of Transmission



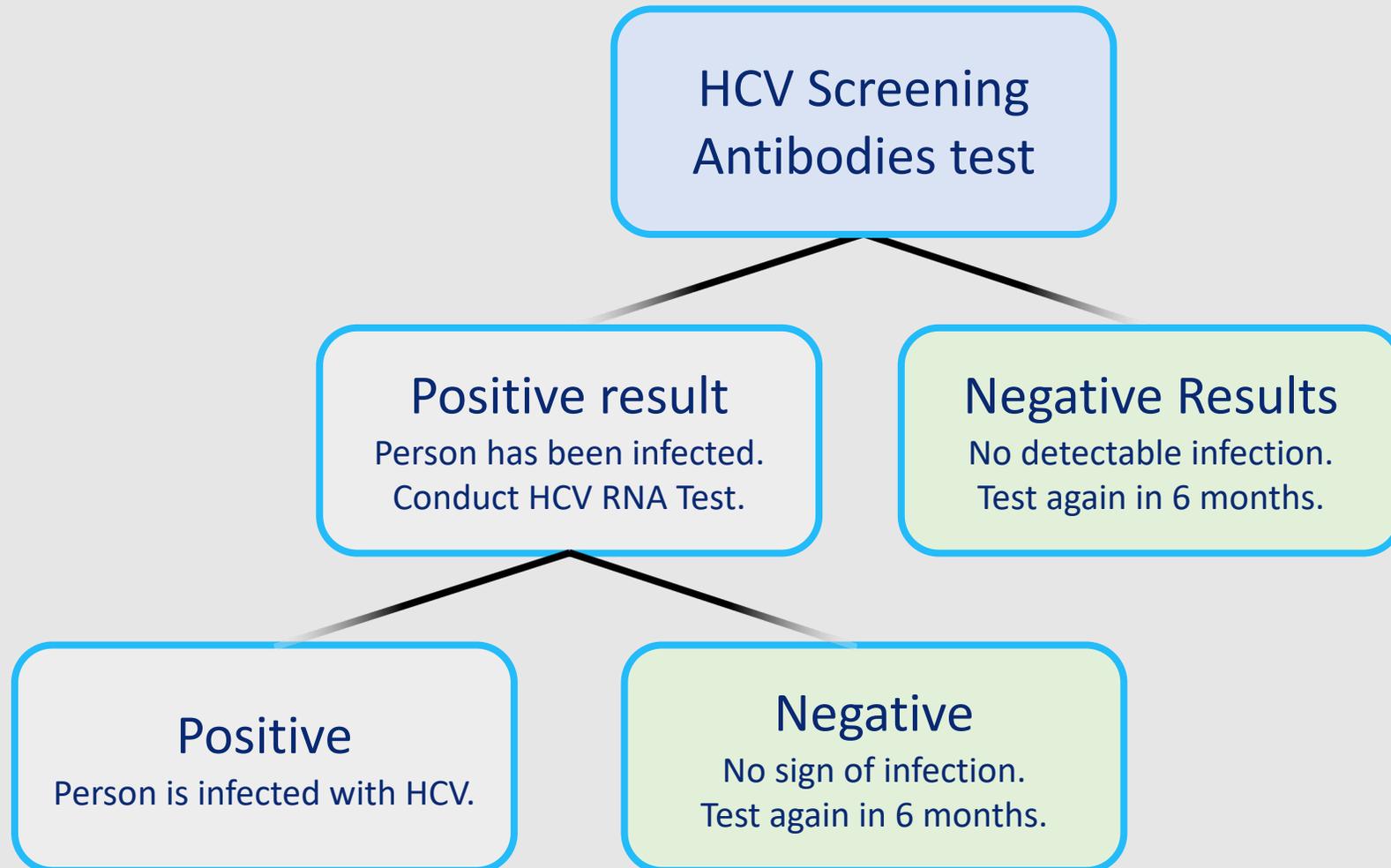
Sexual Transmission & Vertical Transmission

- Vertical transmission from mother to child is 3–10%. Risk increases with HIV co-infection.
- HCV prevalence among opposite sex, sex partners is about 4%.
- It is believed that anal sex carries a higher risk due to the possibility of blood being present.
- CDC states that MSM are at a higher risk due to being a population with higher concentrations of HIV.
- Multiple sex partners increase risk.

How soon after exposure can HCV be detected?

- HCV infection can be detected by enzyme immunoassay 4–10 weeks after infection.
- It can be detected in >97% of persons by 6 months after exposure.
- HCV RNA appears in blood and can be detected as early as 2–3 weeks after infection by a PCR (Polymerase Chain Reaction) test.

Hepatitis C Screening



Evaluation of Chronic Hepatitis

- Liver panel and other blood tests
- Viral load test
- Genotype test
- Fibrosis assessment
 - Liver biopsy
 - Fibro scan (liver imaging, non invasive)
 - Fibro Test/Fibro sure (blood test)



Treatment – Old vs. New

Interferon

Duration – 48 weeks
Weekly injection
Efficacy – 54-63% SVR

Harvoni

Duration – 8-12 weeks
Daily pill
Efficacy – 96-99% SVR

Side Effects

Flu like symptoms, fatigue
nausea, vomiting, diarrhea,
mouth ulcers, poor appetite,
anxiety, depression, suicidal
ideations, hair loss

Temporary mild flu like
symptoms

Treatment for HCV

Harvoni

One pill a day, very effective and few side effects

- Effective cure for genotype 1 (96-99% SVR) and for some people with genotypes 3 (73-89%) & 6 (96%) if taken with Ribavirin.
- Treatment initially cost between \$63,000 and \$189,000, depending on duration.
- The cost has decreased as more treatments become available.

Treatment for HCV

Sovaldi

Taken with Ribavirin and/or PEG

- Effective cure for genotypes 1a & 1b (95% SVR)
- 100% SVR for genotype 4 & 80% SVR for genotype 6

Other Treatment Options

Daklinza

For people with genotype 3 and treatment naïve

Zepatier

For genotypes 1, 4 and 6. Recommended for people with cirrhosis, HIV and kidney disease

Technivie

For people with genotype 4 who don't have cirrhosis

Viekira Pak

For people with genotype 1 who have compensated cirrhosis

Mavyret & Vosevi

Both effective cures for genotypes 1-6

Considerations for Hepatitis Treatment

- Timing
- Treatment contraindications – treatment is not approved for someone who is pregnant or unwilling to take birth control during treatment
- Presence of more urgent problems
- Cost/lack of health insurance

Treatment for HCV in MA

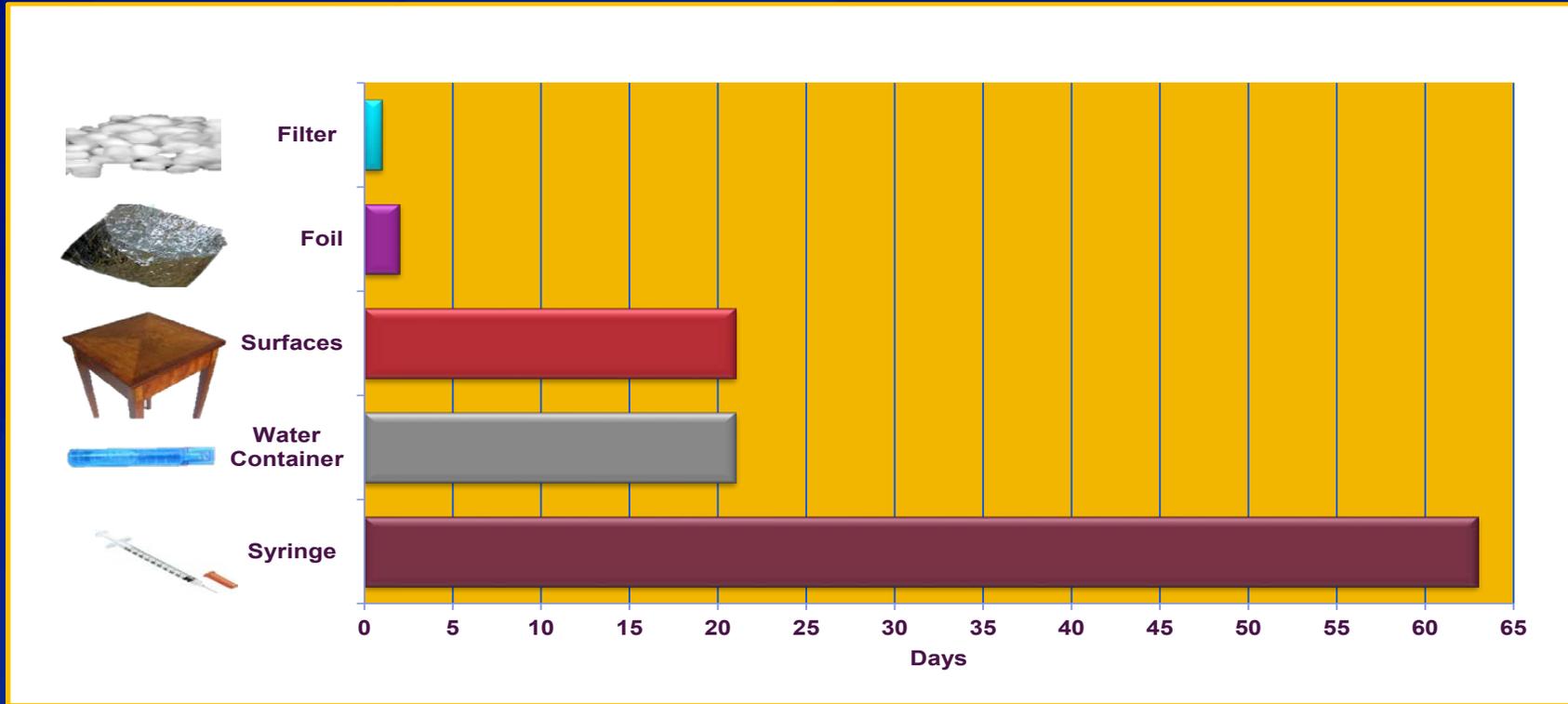
- Mass Health will pay for new treatments.
 - Prior Authorization Request Form
- HDAP
- Self-pay
- New treatment costs range from \$15,000 - \$25,000



How to Prevent HCV Infections

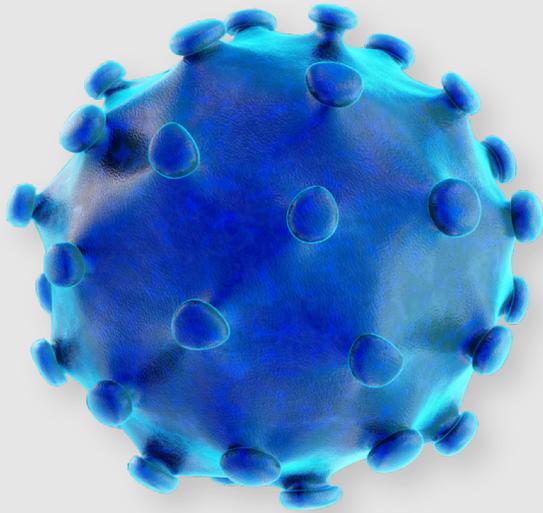
- Not sharing needles or other equipment, like straws for snorting
- Using latex or polyurethane condoms
- Not sharing personal items like toothbrushes, razors, and nail clippers (Low risk)

How long can HCV survive on inanimate objects?

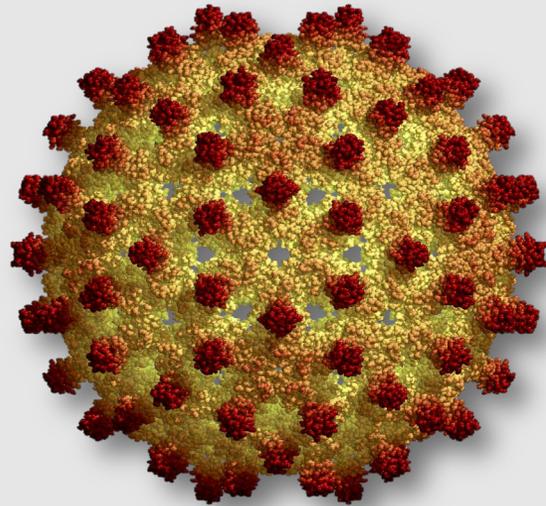


HCV-contaminated solution needs to be heated for almost a **90 seconds** and reach temperatures of **144°F** for the virus to be at undetectable levels.

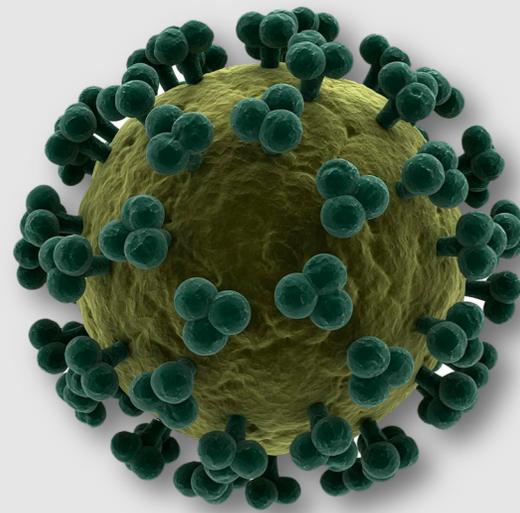
Co-Infection with HIV and Viral Hepatitis



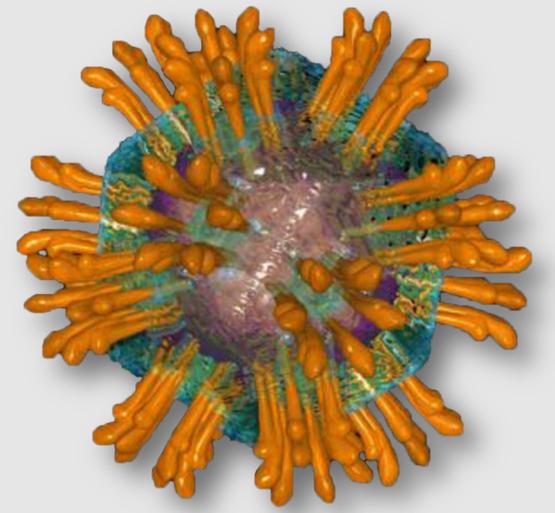
HAV/HIV



HBV/HIV



HIV



HCV/HIV

Co-Infection: HIV and Viral Hepatitis

- HAV/HIV co-infection may make it necessary to suspend HIV treatment temporarily.
- HAV infection may cause the liver to have difficulty metabolizing HIV medications.
- HAV infection may be more severe and last longer in people who have both infections
- Most studies suggest that this co-infection with HBV/HIV does not significantly increase the risk that HIV will progress to AIDS.
- Co-infection increases the likelihood that HBV infection will become chronic and progress quickly and that liver damage may be more severe.
- HIV infection may increase a person's risk of contracting HCV through sexual contact. Approximately 25-33% of people with HIV are co-infected with HCV, via sexual transmission.
- People with co-infections are more likely to develop cirrhosis, liver cancer and liver failure than those with HCV only.

Identifying barriers to testing and treatment



- Fear
- Stigma
- Doctors don't ask
- Cost



- Make it easy
- Make it free
- Talk about it
- Bring test to them
- Address fear
- Others?



Barriers to Treatment

People who inject drugs have historically been viewed as less than ideal candidates to treat for HCV due to perceived inferior adherence and potential reinfection

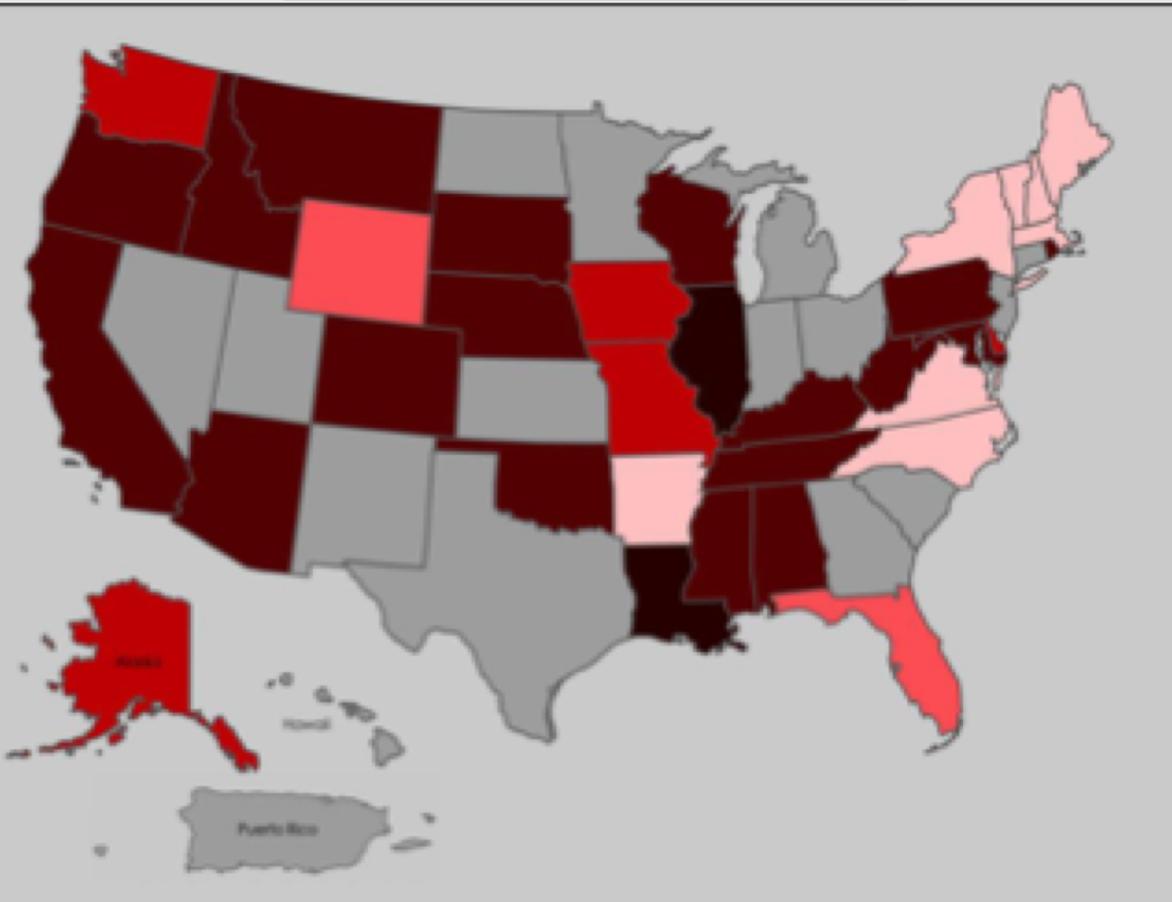
A 10-year study has proven otherwise...

Re-infection rates for:

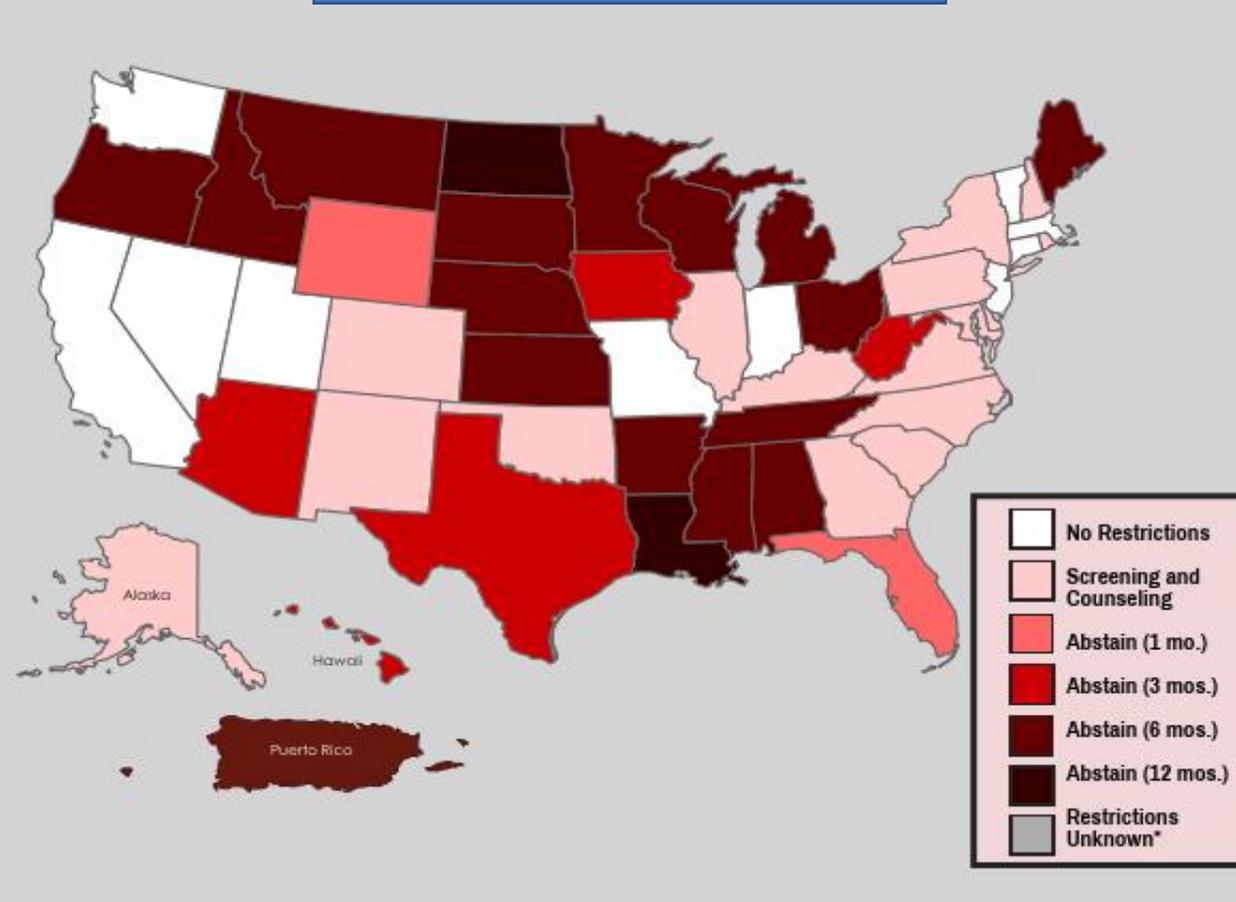
- Former injection drug users with six months sobriety is 3-5 %
- Current injection drug users 6.4%

Sobriety Restrictions

2014



2018



From a Public Health Perspective

As the number of people infected decreases over time, infections/reinfection will also decrease.

Harm Reduction to Minimize Risk of Reinfection

- Getting tested to know your status
- Using clean injection equipment including syringe, cotton, water and cooker
- Using first or early in line
- New syringe for splitting

Developing a Prevention Plan

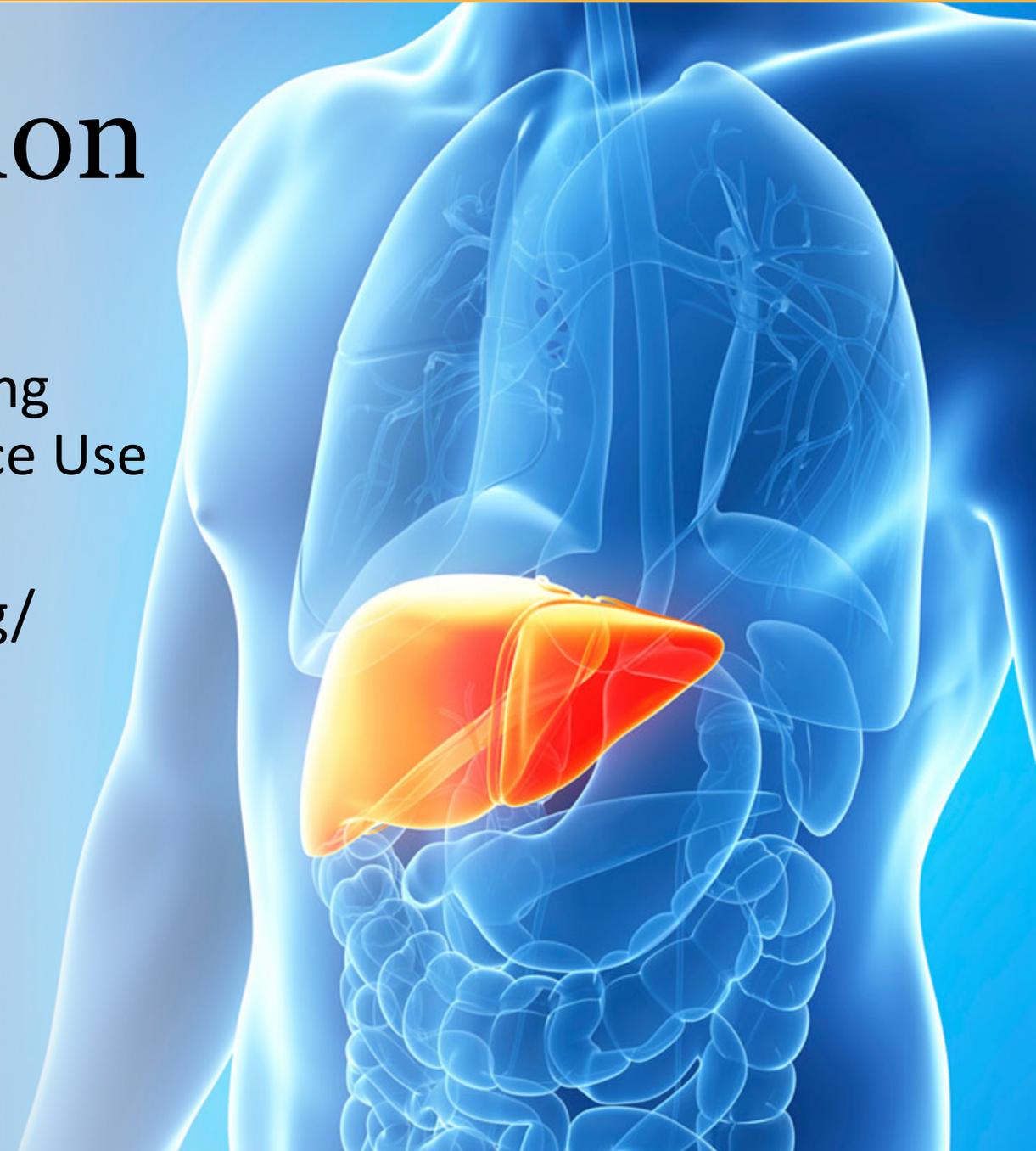
- Identify high risk behaviors
- Identify a situation where the client has minimized their risk
- Include a vaccination for A & B along with self care on their treatment plan

Addressing Social Factors?

- Social consequences of viral hepatitis diagnosis may be challenging.
- Negative attitudes about people who have chronic hepatitis remain, even among some medical professionals.
- Internalized stigma and shame can be generated by these negative attitudes.

For more information

- SAMHSA publication: TIP 53: Addressing Viral Hepatitis in People with Substance Use Disorders
- HCV Advocate: <http://hcvadvocate.org/>
- Praxis: <http://center4si.com/praxis>





Thank You!

