



## ***Section 2: Natural History of Hepatitis C***

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*Training “Hepatitis C and HR for PWUD”,  
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## Learning objective of the session:

**Describing HCV acute infection**

**Describing the different stages of liver fibrosis**

**Outlining factors affecting progress/accelerating  
of liver fibrosis**



## When a patient is recently infected with hepatitis C virus

- » Acute infection (within 6 months of initial infection)
  - Most patients are asymptomatic
  - Only 10% have symptomatic illness.
  
- » Symptoms of acute infection usually appears within 4 to 12 weeks of initial infection and may persists for 2 to 12 weeks.

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## Symptoms of Acute Infection

### Symptoms can include:



Yellowing skin  
and eyes



Dark urine



Light-colored  
stools



Nausea and  
vomiting



Loss of  
appetite



Extreme  
fatigue

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## Why should you be concerned about hepatitis C?

- » Hepatitis C causes serious problems in some patients
  - Fibrosis
  - Cirrhosis
  - Advanced liver disease
  - Hepatocellular carcinoma (liver cancer)

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## Fibrosis

- » The beginning of scarring
- » Caused by infection, inflammation, or injury
- » Can prevent the liver from working well
- » Can lead to permanent scarring (cirrhosis)

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# Cirrhosis

- » Pronounced “sir-o-sis”
- » Means “scarring of the liver”
- » At risk for liver failure and liver cancer
- » Requires close medical follow-up



Healthy Liver



Liver with Cirrhosis

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## Advanced Liver Disease

- » Fatigue
- » Difficulty thinking clearly or concentrating
- » Yellow jaundice
- » Swelling
- » Fluid in the abdomen
- » Gastrointestinal bleeding
- » Poor blood clotting



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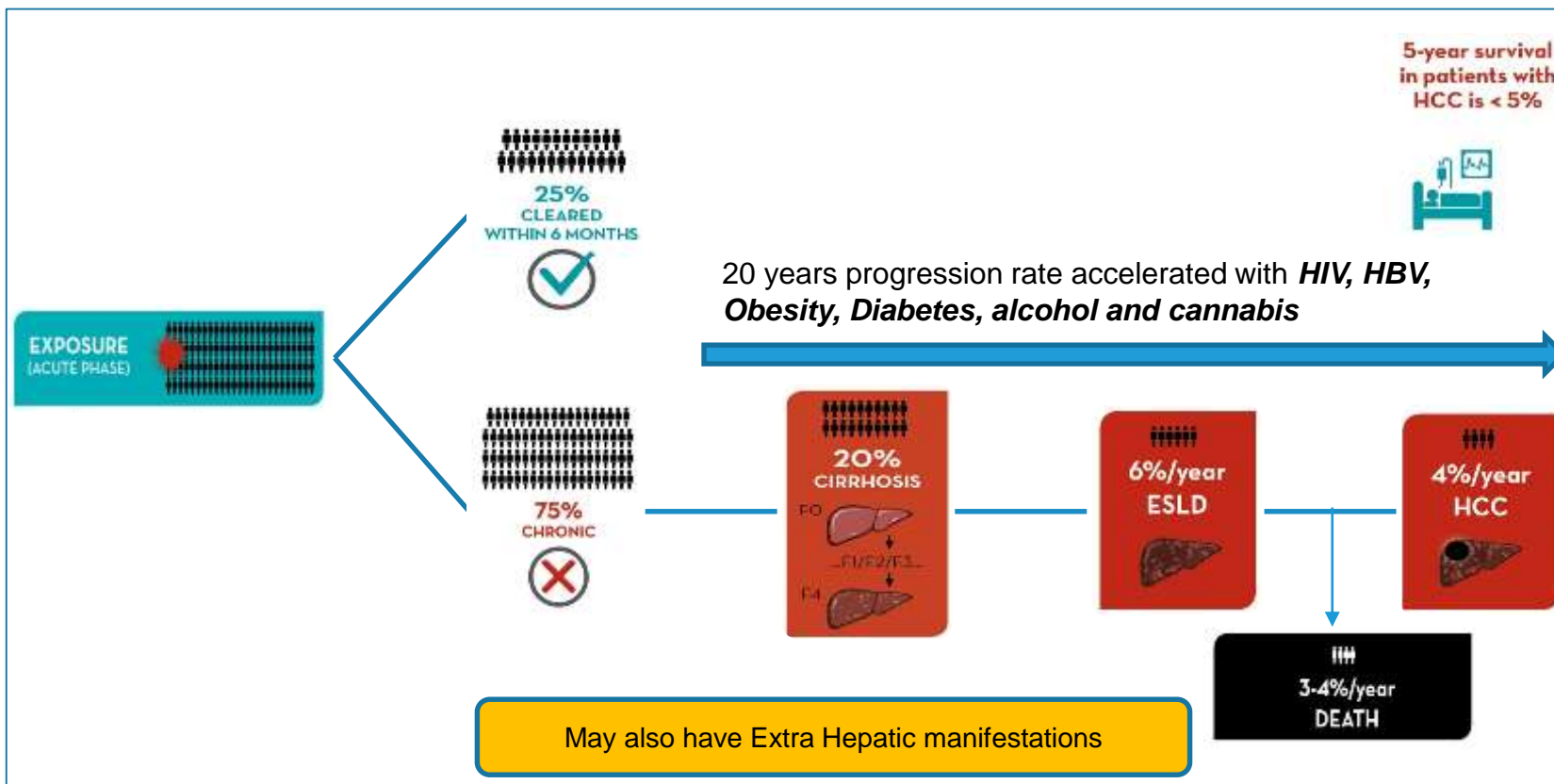
## Hepatocellular Carcinoma

- » Most common type of liver cancer
- » Chronic hepatitis C increases the risk
- » Treated with surgery, medications or liver transplant



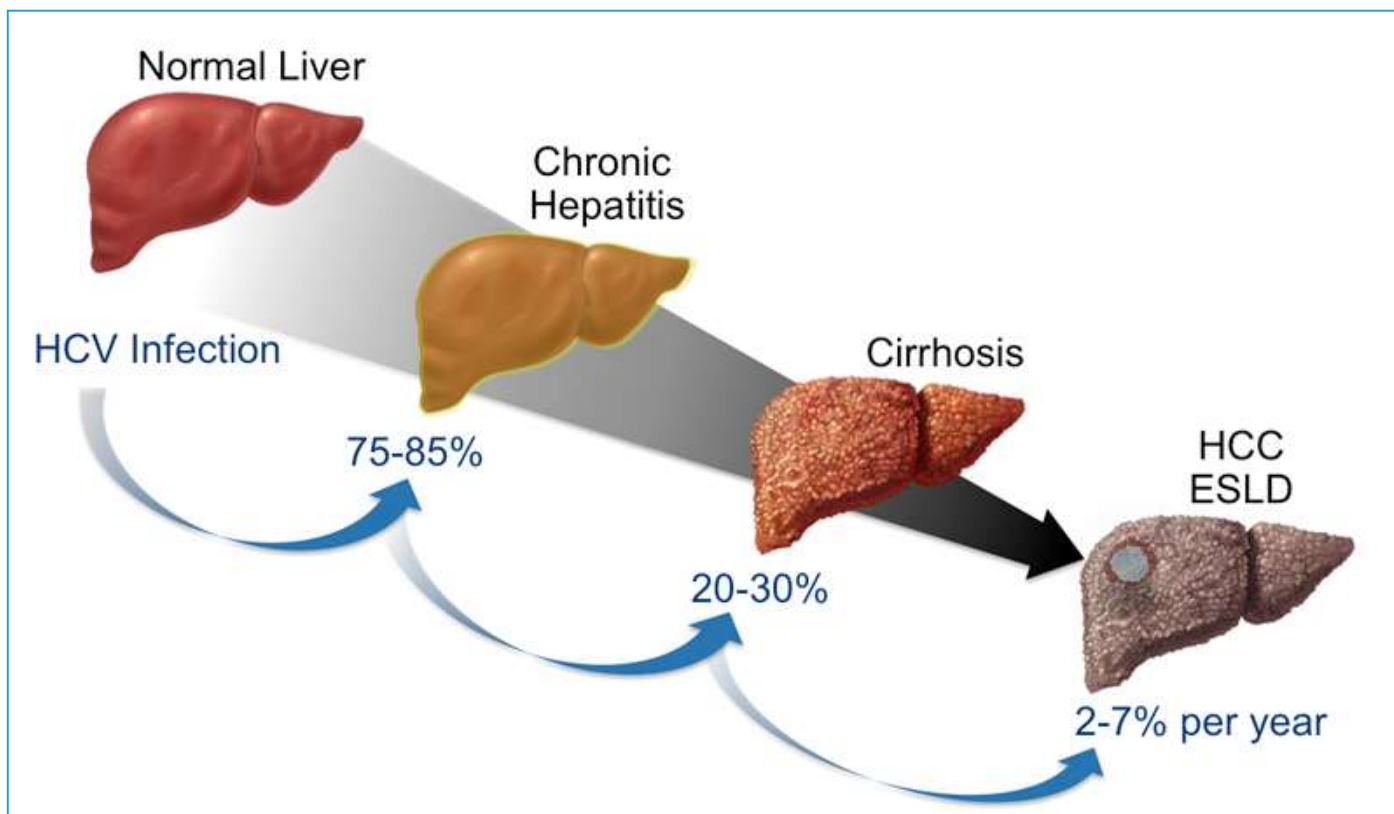


# Natural History of Hepatitis C



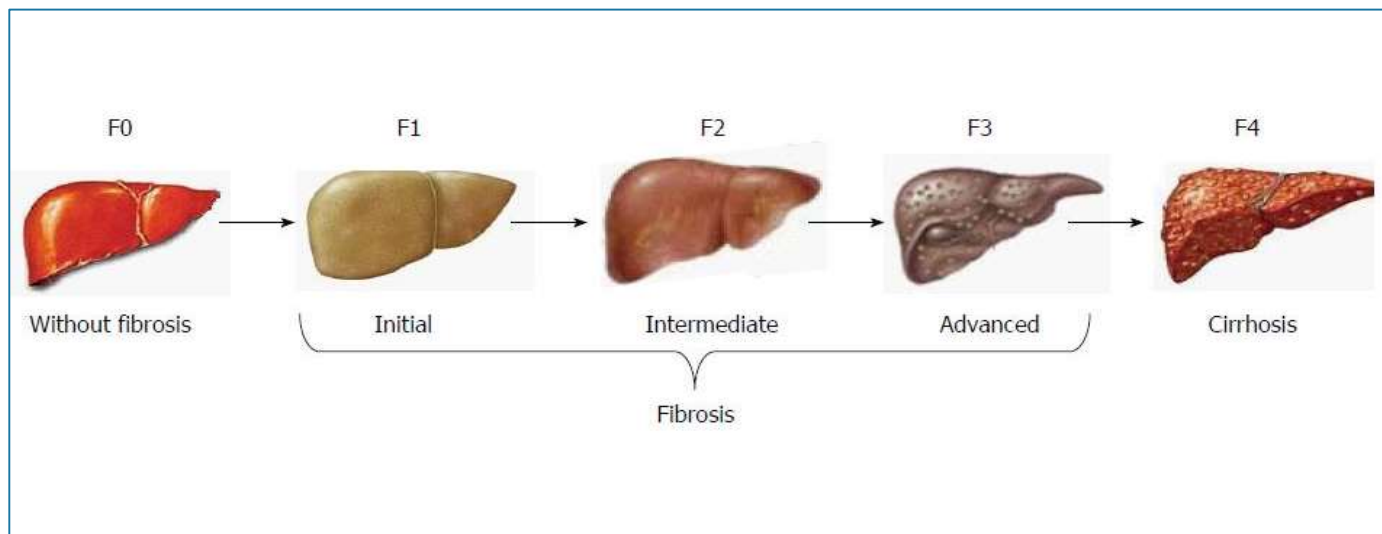


## Natural History of Hepatitis C





## Stage of Liver Fibrosis





# Extra Hepatic Manifestations Associated with HCV

## Hematologic

- Mixed cryoglobulinemia<sup>1</sup>
- Aplastic anemia<sup>2</sup>
- Thrombocytopenia<sup>2</sup>
- Non-Hodgkin's b-cell lymphoma<sup>2</sup>

## Dermatologic

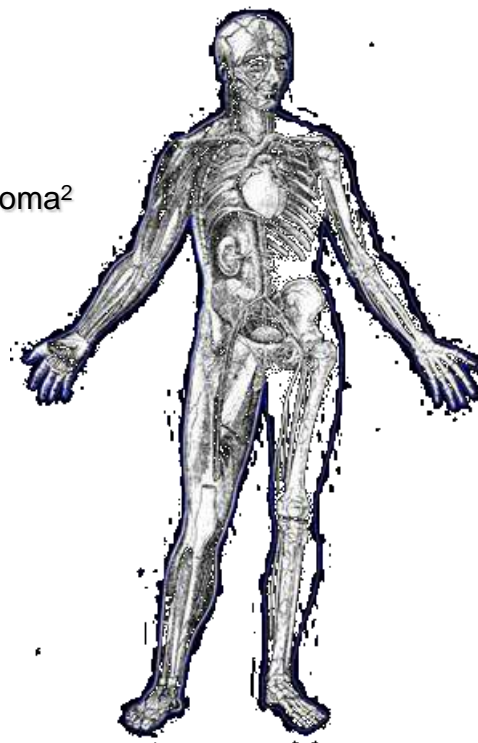
- Porphyria cutanea tarda<sup>1</sup>
- Lichen planus<sup>2</sup>
- Cutaneous necrotizing  
vasculitis<sup>2</sup>

## Renal

- Glomerulonephritis<sup>1</sup>
- Nephrotic syndrome<sup>2</sup>

## Endocrine

- Hypothyroidism<sup>2</sup>
- Diabetes mellitus<sup>2</sup>



## Ocular

- Corneal ulcer<sup>2</sup>
- Uveitis<sup>2</sup>

## Vascular

- Necrotizing vasculitis<sup>2</sup>
- Polyarteritis nodosa<sup>2</sup>

## Neuromuscular<sup>2</sup>

- Weakness/myalgia
- Peripheral neuropathy
- Arthritis/arthralgia

## Autoimmune Phenomena<sup>2</sup>

- CREST syndrome

## Neuropsychiatric

- Depression<sup>1</sup>

<sup>1</sup>NIH. *NIH Consensus State Sci Statements*. 2002;19(3):1-46.

<sup>2</sup>Sene D et al. *Metab Brain Dis*. 2004;19(3-4):357-381.



## Factors affecting disease progression

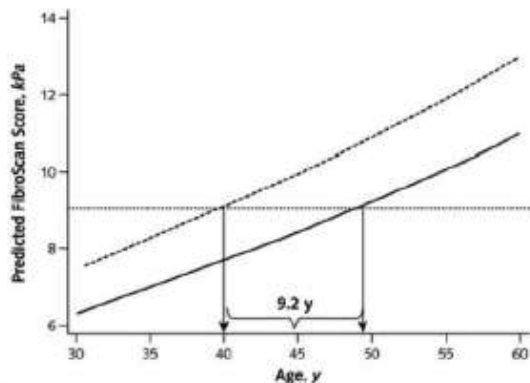
- » **Alcohol consumption**
  - Alcohol significantly speeds up the rate of fibrosis
- » **Age and duration of infection**
  - People over 40 are progressively more susceptible to faster rates of fibrosis.
- » **Gender**
  - Men are more likely to have faster progression to cirrhosis than women
- » **Co-infection with HIV and Hepatitis B**
  - HIV-HCV co-infection causes progression of liver damage
- » **Fatty liver**
  - Fat accumulates in the liver if it is unable to metabolize it properly due to liver damage or excessive intake of fat through diet
- » **And other factors such as Drugs ,Metabolic syndrome, Virological factors and coffee**



## Factors affecting disease progression

### Accelerated Liver Disease in HIV

Figure 3. Liver fibrosis and age among persons coinfectcd with HIV and HCV (dashed line) and those with only HCV (solid line).



Kirk et al. Ann Intern Med 2013; 158:658-66

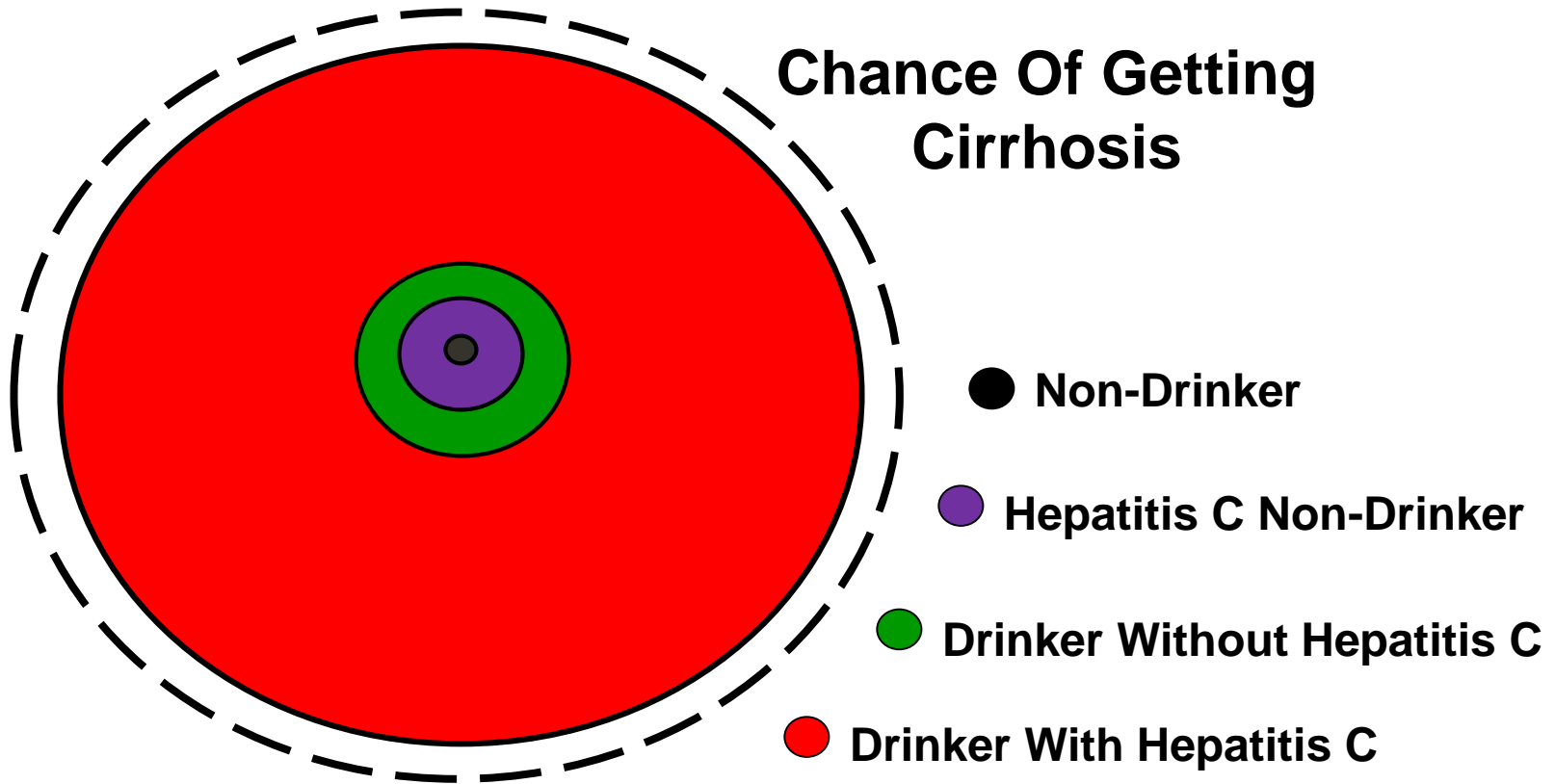
1. Age/duration of infection
2. Co-infection with HIV also accelerated the progress of liver disease
  - clearance of HCV is associated with strong and persistent HCV-specific cytotoxic T-lymphocyte and CD4 lymphocyte responses
3. Co-infection with HBV increase the risk of liver fibrosis and HCC

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# Alcohol consumption and chance of getting cirrhosis







## What is Excessive alcohol intake?

- » A standard drink of alcohol is defined as 10 grams of alcohol
- » Excessive alcohol intake defined as >40 grams/day for Women and >60 grams/day for Men

STANDARD DRINKS		
		
<b>SPARKLING WINE</b>	<b>WINE</b>	<b>LIGHT BEER</b>
<b>100 mL</b>	<b>100 mL</b>	<b>425 mL</b>
<b>13% alc/vol</b>	<b>13% alc/vol</b>	<b>2.7% alc/vol</b>
		
<b>REGULAR BEER</b>	<b>FORTIFIED WINE</b>	<b>SPIRITS</b>
<b>285 mL</b>	<b>60 mL</b>	<b>30 mL</b>
<b>4.9% alc/vol</b>	<b>20% alc/vol</b>	<b>40% alc/vol</b>

EACH OF THESE IS ONE STANDARD DRINK. A STANDARD DRINK CONTAINS APPROX. 10 GRAMS OF PURE ALCOHOL



## Alcohol intake recommended by WHO

- » An Alcohol intake assessment is recommended for all person with HCV infection.
- » Behaviour alcohol reduction intervention is recommended for a person with moderate to high alcohol intake.

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## Metabolic Syndrome

- » Multiplex risk factors due to insulin resistance together with abnormal adipose deposition (Obesity+Diabetes)
- » It is also a risk factor for coronary heart disease and fatty liver





## What can we advice if a patient has metabolic syndrome ?

- » Life style modification
  - Mainly diet and exercise
  - To maintain the body weight within normal range  
BMI >18.5 and <25
  
- » Pharmacological therapy (for Hypertension, Diabetes, hyperlipidaemia) if necessary



## Marijuana (Bhang)

- » Marijuana use is associated with accelerated liver fibrosis due to a strong link between heavy use of marijuana and steatosis.
- » There is limited data available on the correlation between Marijuana and Hep C. Therefore, WHO has no recommendation on Marijuana used in Hep C patient in April 2016 revised guideline.



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## How can identify Marijuana be used

- » Assessment of drug use
- » Suggest the patient to reduce the use of Marijuana as much as possible

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## Herbs and over the counter drugs

- » Chronic use of acetaminophen (paracetamol , **Tylenol**® and others) also increase the risk of liver damage.
  - » Ibuprofen and other anti-inflammatory medications (**Motrin**®, **Advil**®, **Aleve**®, and others)
  - » Herbal medicines are also widely used in Kenya and most of the herbal medicines have no clear ingredients or effects.
  - » **Iron supplements not recommended**
    - They may increase the rate of liver scarring
    - **Milk thistle** is safe, BUT not shown to improve liver disease
- Talk with your medical care provider before starting any new medication or supplement



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## What kinds of advice should be given to the patients ?

- » Not to take over-the-counter drugs
- » Take medicines only when necessary under the prescription of medical doctor
- » To avoid using herbs or traditional medicines
- » Need to be vaccinated against Hep B



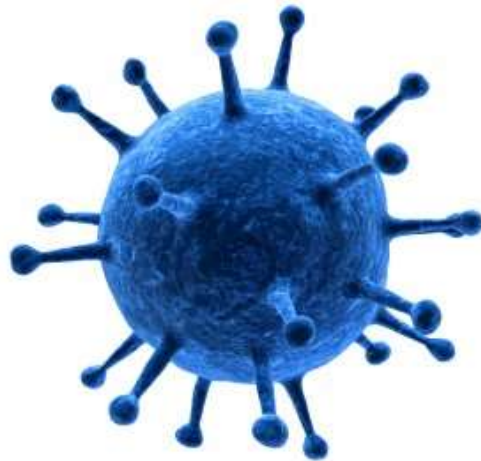
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## Virological Factor

Some studies show that Genotype 3 is associated with higher prevalence of steatosis which in turn accelerated liver fibrosis.



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## Protection factor: Coffee

- » Some studies show that regular taking of coffee (3 cups a day) may slow down the rate of progression of liver disease in Hep C patients.

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## Exercise 1 : Quizz

- » What % of HCV infected people develops chronic HCV infection?
- » What % of HCV infected people develops serious liver disease?
- » How long might this take?
- » What factors might stop, slow down or increase the risk of disease progression?



## Exercise 2

**1/ Print each elements below on a single papersheet, and distribute one sheet to every participant**

1. HIV/HCV coinfection
2. HBV/HCV coinfection
3. Use 3 big cup of strong alcohol per day
4. Taking regularly paracetamol as pain killer
5. Smoking Marijuana
6. Being overweight
7. Being 55 years old
8. Injecting heroin with friends occasionally
9. Getting tested for HCV
10. Being vaccinated against HBV
11. Using my own equipment whenever using drugs
12. Taking methadone
13. Taking a lot of herbal treatment
14. HCV treatment
15. Reducing alcohol consumption
16. Good follow up on HIV treatment

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## 2/ Identify in the room 3 corners:

- 1) factors accelerating liver disease
- 2) factors protective of liver disease
- 3) factors having no effect on liver disease

## 3/ Ask participants to stand in the corner corresponding to the information on his-her papershette and explain to the group his-her choice

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