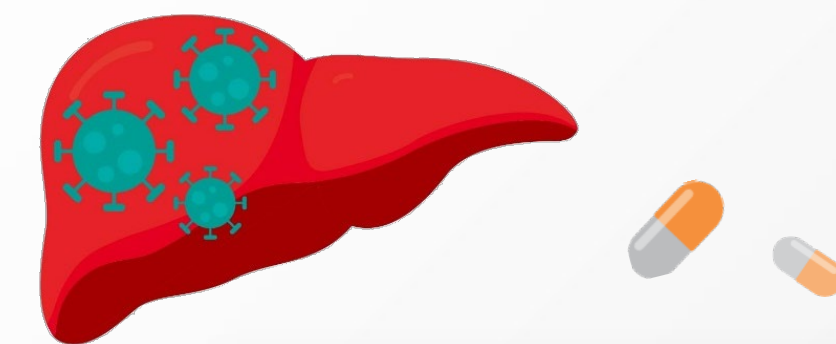


Hepatitis C virus infection

An illustration of a red liver with several green, spiky virus particles on its surface. Three pills (two orange and white, one grey and white) are scattered around the liver and the text.

May 2021

Content

Introduction of hepatitis C

- Aetiology
- Routes of transmission
- Natural course
- Epidemiology
- Diagnosis
- Treatment
- Prevention
- Health education materials

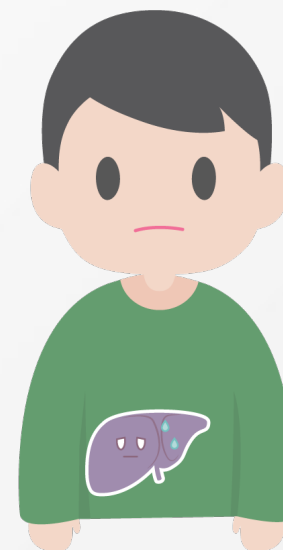


Causes of hepatitis

“Hepatitis” = “inflammation” of the liver

Causes of hepatitis:

- ♥ Viral infection (most common)
- ♥ Alcohol, drugs, chemicals and genetic diseases, etc.

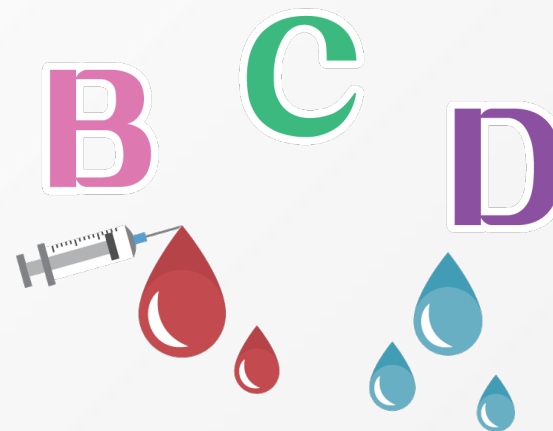


Viral hepatitis

Currently there are 5 main types of hepatitis virus



Transmitted by faecal-oral route
(food-borne infection)



Transmitted through contact
with blood or body fluid

Hepatitis C is a liver disease caused by hepatitis C virus.

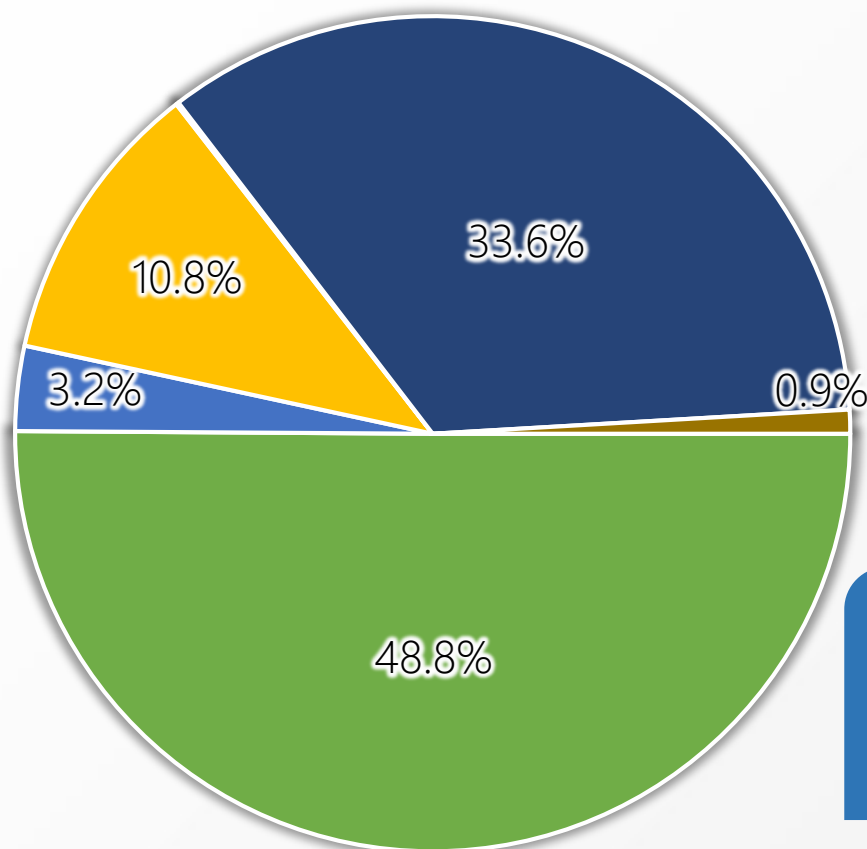
**Hepatitis C is transmitted through contact with
blood or body fluid of an infected person.**

Hepatitis C virus (HCV)

- Discovered in 1989
 - Isolated from serum of a person with non-A non-B hepatitis
- Hepatitis C screening test was developed in 1990
- Six different genotypes
 - Genotype 1** is the most common in Hong Kong

HCV genotypes

Distribution of HCV genotypes in Hong Kong*



- Genotype 1
- Genotype 2
- Genotype 3
- Genotype 4
- Genotype 6
- Mixed

Genotype distribution among PWID

Genotype 1 : 39.8%

Genotype 6 : 43.4%

* Genotype distribution of the 2699 hepatitis C patients in public hospitals between January 2005 and March 2017

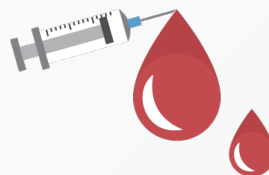
(Reference: Hui YT, Wong GL, Fung JY, et al. Territory wide population based study of chronic hepatitis C infection and implications for hepatitis elimination in Hong Kong. Liver Int 2018; 38(11): 1911-9.)

Transmission of HCV

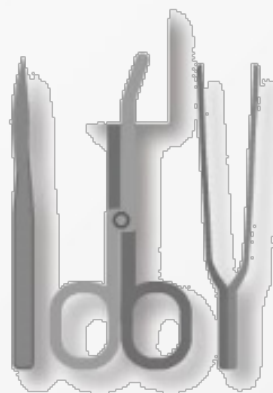
Blood contact (most common)



Sharing equipment
for injecting drugs



Transfusion of
unscreened blood
and blood products



Reusing inadequately sterilised
medical equipment

Transmission of HCV

Sexual contact

⬆ HCV transmission through sexual contact is **uncommon**

⬆ It can occur if both partners have **skin or mucosal lesions** and **do not use condoms** during sex, especially for sexual practices that lead to exposure to blood.

⬆ Higher risk of infection among

- Men who have sex with men (MSM)
- HIV-positive people
- People having sexually transmitted disease
- People having rough sex



Transmission of HCV

Mother-to-child transmission (MTCT)

- ◆ Uncommon
- ◆ The estimated risk of MTCT is about 4 - 8%
- ◆ The risk can be twofold to fourfold higher when the mother is co-infected with HIV
- ◆ Currently there is no proof that breastfeeding can transmit HCV



Transmission of HCV



HCV is **not** transmitted through social contact.

sharing eating utensils
dining together



hugging
holding hands
kissing

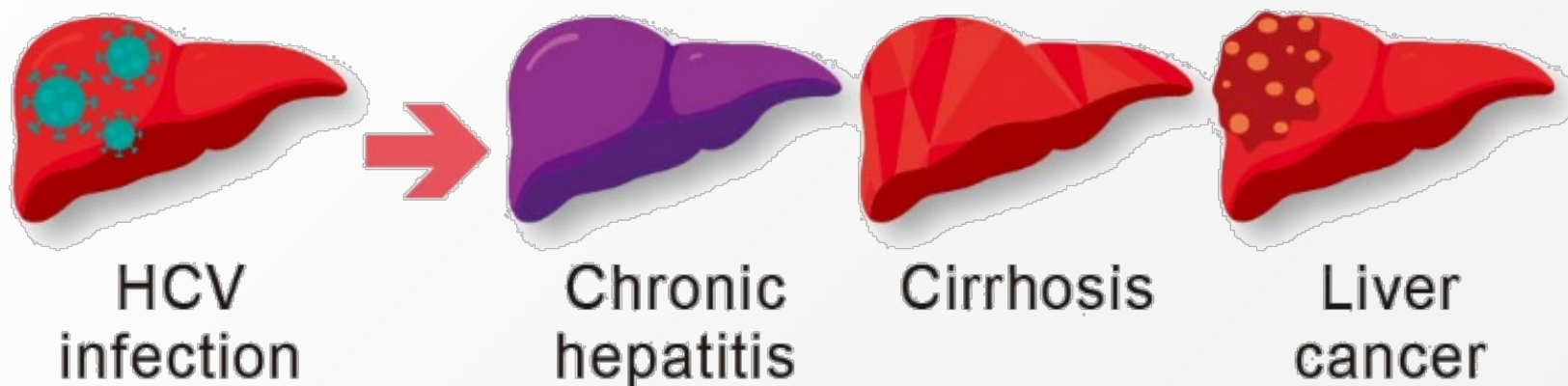


coughing
sneezing



Natural course

- ♥ Infection with HCV can cause both acute and chronic hepatitis
- ♥ Acute HCV infection is usually self-limiting. It rarely causes hepatic failure, but can lead to chronic infection.
- ♥ Chronic HCV infection often follows a progressive course over many years, which can ultimately result in **cirrhosis, liver cancer** and the need for liver transplantation



Acute HCV infection

- Incubation period ranges from 2 weeks to 6 months (usually 6 - 9 weeks)
- Newly acquired HCV infections are usually (~80%) **asymptomatic**
- Symptoms indistinguishable from hepatitis of other causes



Fever



Fatigue



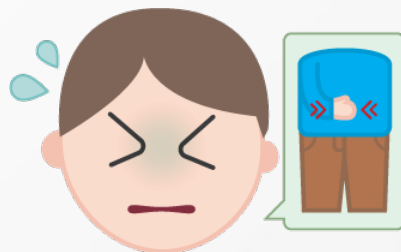
Nausea



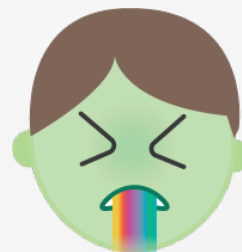
Loss of appetite



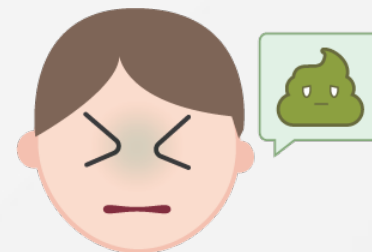
Jaundice



Upper abdominal discomfort



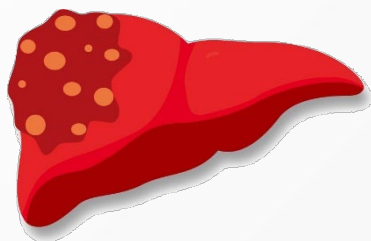
Vomiting



Diarrhoea, tea-coloured urine

Chronic HCV infection

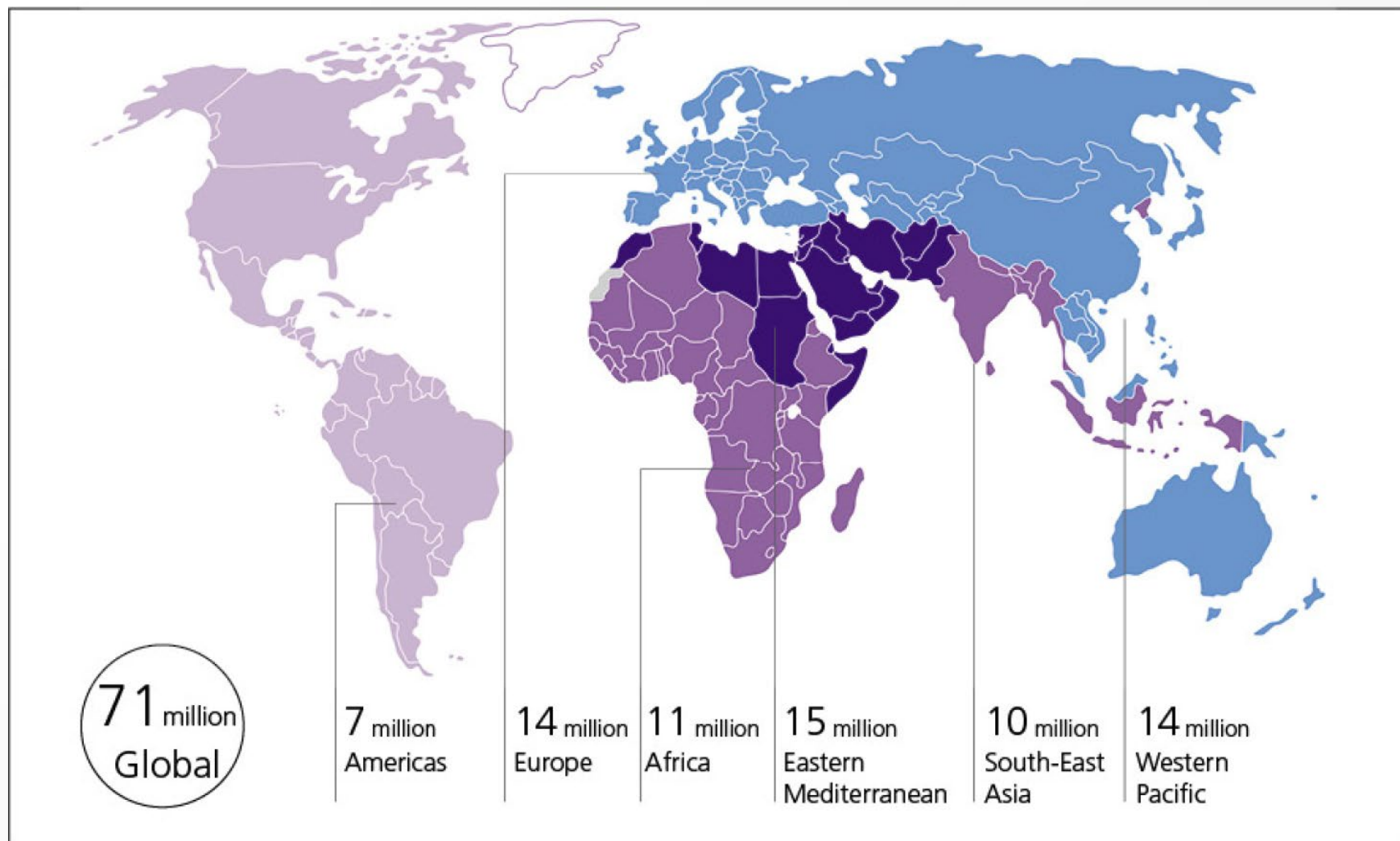
- About **70%** people infected with HCV are unable to clear the virus, and will develop **chronic hepatitis**
- Chronic HCV infection can remain asymptomatic until decades after infection, when signs and symptoms develop secondary to serious liver damage
- If symptoms occur with chronic HCV infection, they can be a sign of **advanced liver disease** (e.g. cirrhosis and liver cancer), which can **hardly be treated**.



Liver cancer is a silent killer

In Hong Kong, about **7%** with liver cancer have HCV infection

Epidemiology



Reference: Global hepatitis report, 2017. Geneva: World Health Organization; 2017.

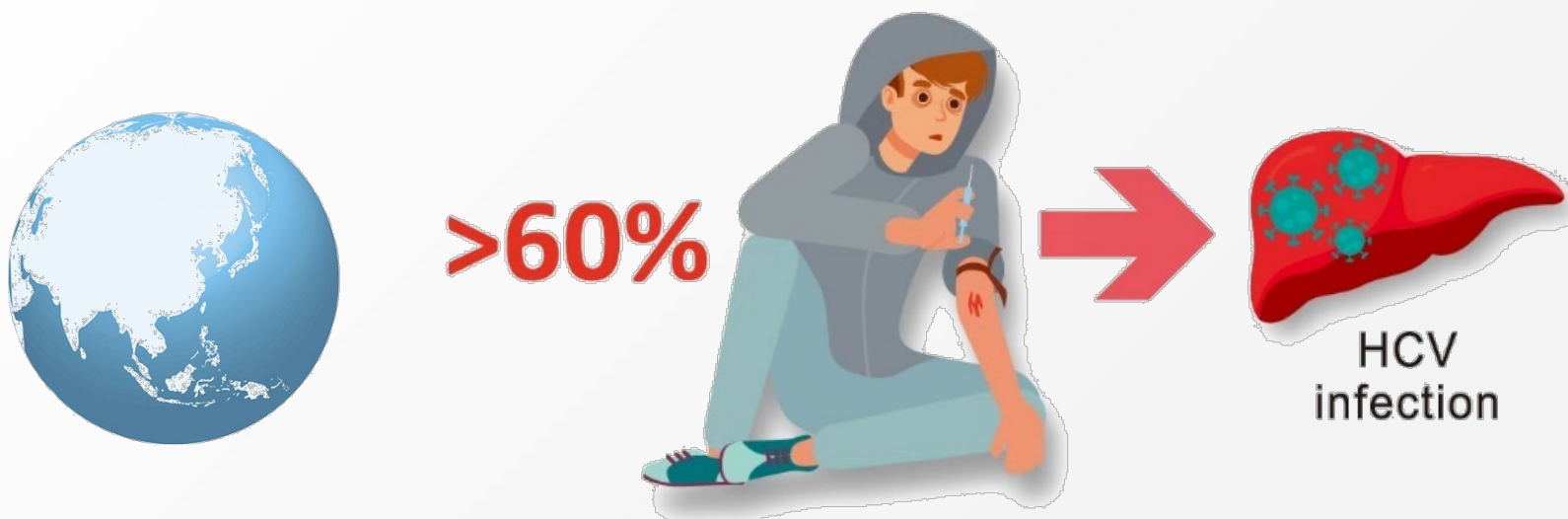
Populations at increased risk of HCV infection:

- People who inject drugs (PWID)
- Non-injecting drug users
- Men who have sex with men (MSM)
- Recipients of potentially contaminated blood products
- Patients on renal dialysis
- Children born to mothers infected with HCV
- HIV+ people
- Prisoners
- People who have had tattoos or piercings

Epidemiology

HCV infection is common among people who inject drugs (PWID).

Globally, **more than 60%** of PWID ever have HCV infection.



Reference: Nelson PK, Mathers BM, Cowie B, et al. Global epidemiology of hepatitis B and hepatitis C in people who inject drugs: results of systematic reviews. Lancet 2011; 378(9791): 571-83.

💧 HCV can be **easily** transmitted through contact with blood. Sharing needles, syringes or other equipment for injecting drugs can spread the infection.



HCV infection in Hong Kong



- Before 1991, HCV antibody test on the collected samples of donated blood was not available
 - A systematic look-back exercise was undertaken in 1990s to ensure that patients potentially infected with HCV through transfusion of contaminated blood or blood products were traced, investigated and managed
- With advancement in diagnostic technology, the current residual risk of HCV in a blood product is less than 1 in 1 000 000 in Hong Kong



HCV infection in Hong Kong



- An epidemiological study conducted in 2015-16:
~ **0.3%** of the general population in Hong Kong
infected with HCV



- Given the low HCV prevalence in Hong Kong,
a risk-based case-finding approach is recommended
- Targeting people with risk behaviours for HCV and
those with known or potential exposure to HCV
- **HCV prevails in some specific populations.**

Reference: Liu KS, Seto WK, Lau EH, et al. A Territorywide Prevalence Study on Blood-Borne and Enteric Viral Hepatitis in Hong Kong. J Infect Dis 2019; 219(12): 1924-33.

HCV infection among PWID in Hong Kong

Among PWID in Hong Kong, prevalence of
past or current HCV infection (anti-HCV)



- 85% (2006, methadone clinics)
- 81.7% (2011, gathering places of PWID)
- 76.4% (2014, gathering places of PWID)
- 73.4% (2009 – 2018, targeted screening of ex-PWID)

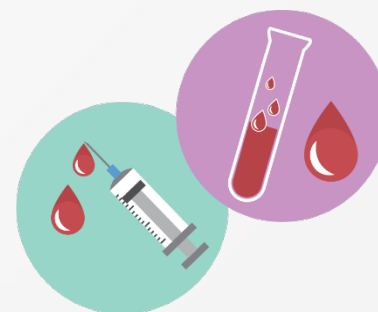
Reference

1. Lee KC, Lim WW, Lee SS. High prevalence of HCV in a cohort of injectors on methadone substitution treatment. J Clin Virol 2008;41(4):297-300.
2. Wong NS, Chan PC, Lee SS, et al. A multilevel approach for assessing the variability of hepatitis C prevalence in injection drug users by their gathering places. Int J Infect Dis 2013;17(3):e193-8.
3. Chan DP, Lee KC, Lee SS, et al. Community-based molecular epidemiology study of hepatitis C virus infection in injection drug users. Hong Kong Med J 2017; 23 Suppl 5(4):27-30.
4. Wong GL, Chan HL, Loo CK, et al. Change in treatment paradigm in people who previously injected drugs with chronic hepatitis C in the era of direct-acting antiviral therapy. J Gastroenterol Hepatol 2019;34(9):1641-7.

Diagnosis of HCV infection

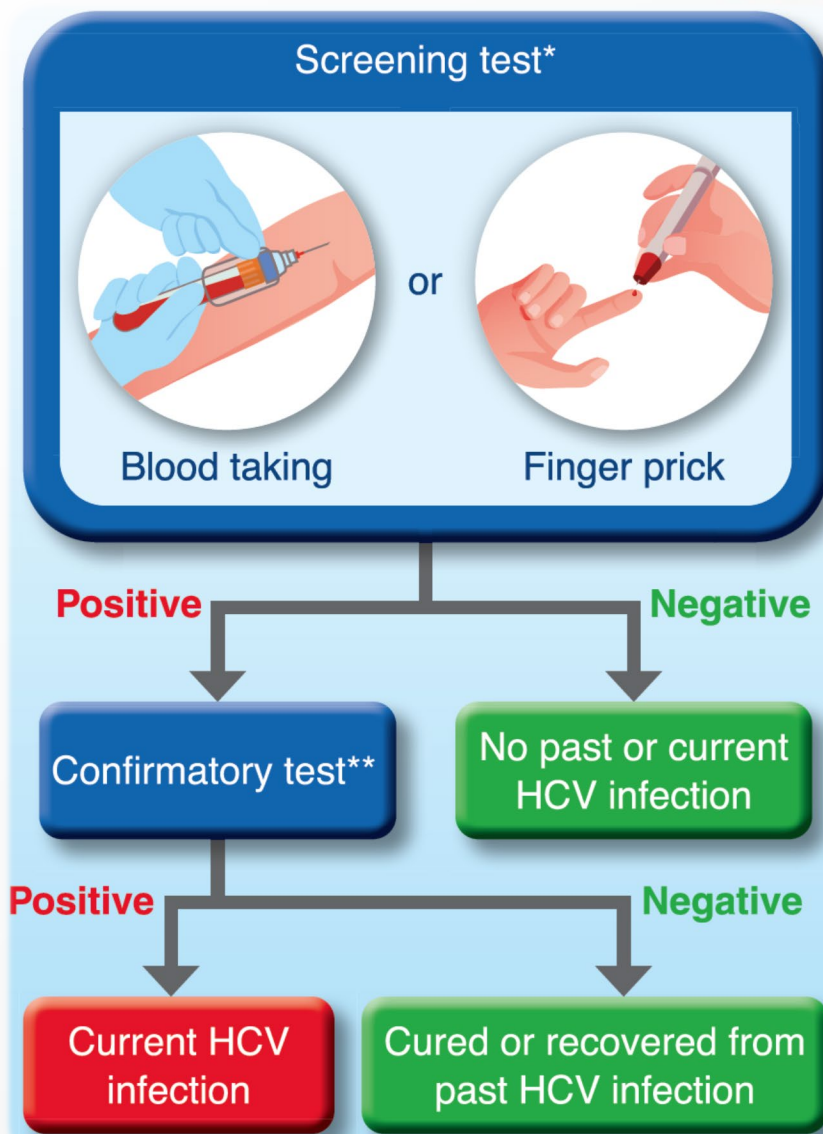
♥ HCV infection must be diagnosed through blood test, but not from the symptoms

- **Antibody against HCV (anti-HCV)**
As a **screening test** to determine whether a person has **past exposure** to HCV
- **HCV ribonucleic acid (HCV RNA)**
As a **confirmatory test** to determine whether a person **currently** has HCV infection



People tested positive for both anti-HCV and HCV RNA
are diagnosed as having HCV infection.

Diagnosis of HCV infection



Diagnosis of HCV infection

Testing for HCV is recommended for ALL current or former PWID

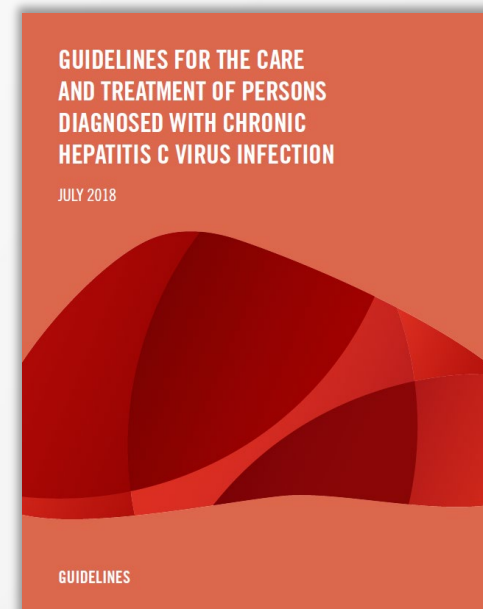
- including those who injected drugs only once or few times years ago
- no matter whether they have symptoms



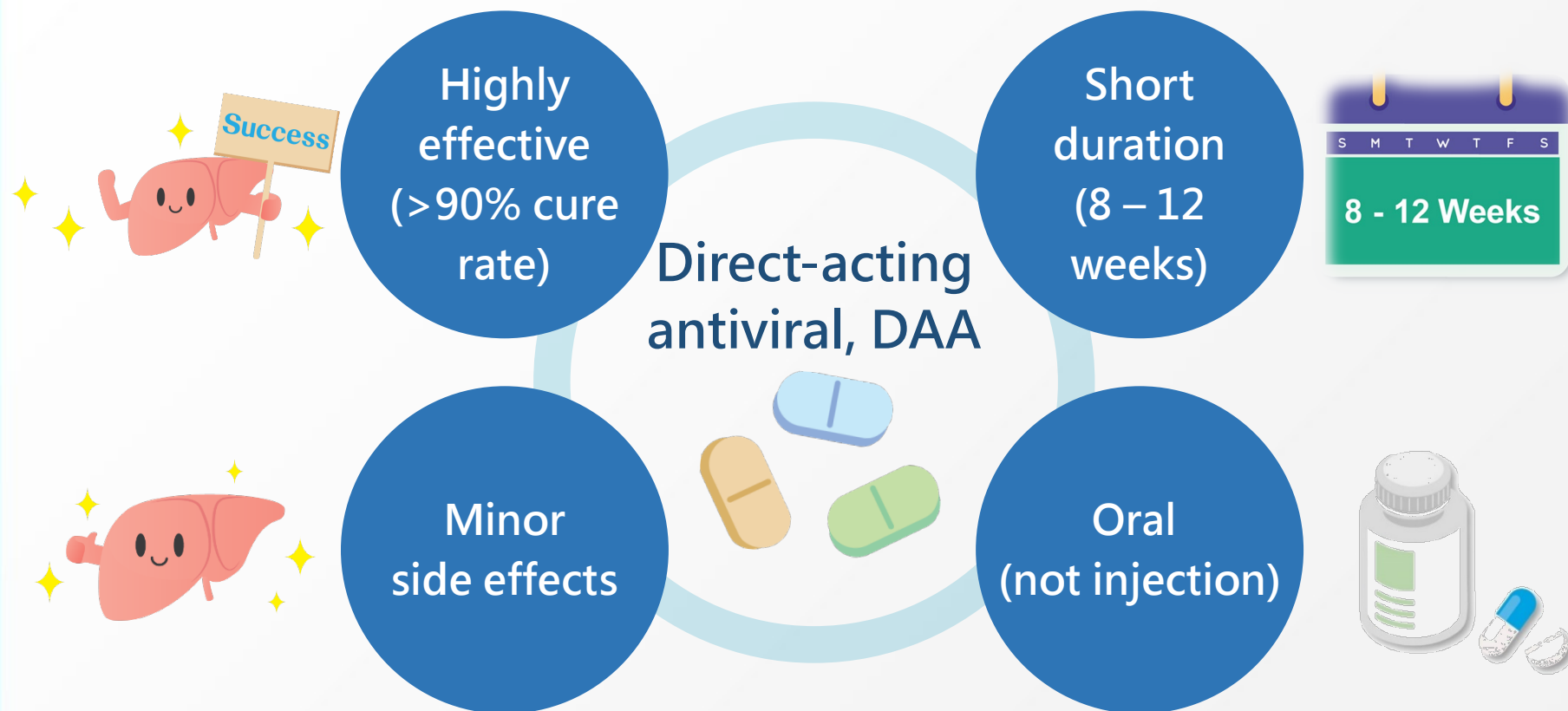
Treatment for HCV infection

World Health Organization recommends

- offering treatment to all individuals diagnosed with HCV infection who are ≥ 12 years, irrespective of disease stage
- use of pangenotypic **direct-acting antiviral (DAA)** regimens for the treatment of persons with chronic HCV infection aged ≥ 18 years



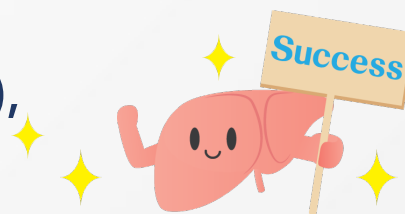
Treatment for HCV infection



HCV treatment in the past

Interferon-based regimens with ribavirin

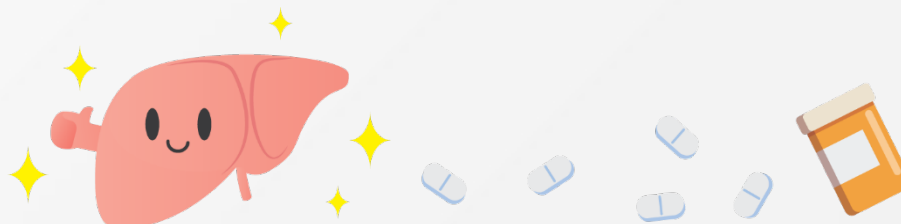
- Success rate of viral clearance and duration of treatment course depend on HCV genotype
- For genotype 1 (most common in HK), success rate between 40% and 50%
- Interferon-based regimens are fraught with significant adverse effects that are difficult to manage



Treatment for HCV infection

Goal

- ✎ To achieve sustained eradication of HCV
- ✎ To reduce the risk of progression to cirrhosis, hepatocellular carcinoma (HCC) and decompensated liver disease requiring liver transplantation
- ✎ To reduce the risk of liver-related mortality
- ✎ Sustained virological response (SVR)
 - ✎ An indicator for **treatment success**
 - ✎ Defined as persistent absence (viral load in undetectable level) of HCV RNA in serum 12 weeks after antiviral treatment



Treatment for HCV infection



Treatment as Prevention



- With **widespread treatment** of HCV, the number of persons capable of transmitting HCV would decline dramatically, which could have a major impact on **HCV incidence** and the **overall HCV epidemic**
- Mathematical models showed that even modest increases in successful HCV treatment among PWID could **decrease prevalence and incidence of HCV infection**
- WHO cited **treatment for PWID** as a **critical means** in achieving the elimination of HCV
- Active injection drug use is not a contraindication** to antiviral therapy, as long as the patient wishes to be treated and is willing and able to adhere to close monitoring during treatment

Treatment for HCV infection

Points to note

- ✎ If there is deteriorated liver function, cirrhosis and its complication before treatment, regular examination is still required
 - ✎ Although clearance of HCV reduces the risk of HCC occurrence, the risk of developing HCC remains substantial for persons who have advanced liver fibrosis or cirrhosis prior to HCV treatment
 - ✎ Individuals who meet HCC surveillance criteria prior to HCV treatment should continue to receive HCC surveillance every 6 months after achieving an SVR with HCV treatment

Treatment for HCV infection



Points to note

As treatment **does not confer protective immunity**, recovered hepatitis C patients should stop high-risk behaviours to prevent HCV reinfection.

Preventing HCV infection

Currently, there is **no vaccine** to prevent HCV infection.



Preventing HCV infection

⚠ Stop injecting drug use

- ◇ Get into **methadone** treatment programme
- ◇ Blood attached to a used needle, even in amounts too small to see, can dissolve in water and contaminate the containers and other equipment, such as filters and spoons, and pose risk of HCV transmission



⚠ Avoid sharing personal care items (e.g. razors and toothbrushes) that are potentially contaminated with blood



✓ Use condom when having sex

Counselling for hepatitis C

- Discussions about the routes of HCV transmission
 - Advice on preventive measures** to decrease the risk of transmission to other individuals
- Diet and behaviors
 - Patients should **be informed about the potentially modifiable factors** that are associated with accelerated liver disease, including alcohol use, obesity and insulin resistance, and marijuana use
 - Advise complete **avoidance of alcohol**
 - Advise **weight loss** in obese patients
 - Advise **cessation of cigarettes and marijuana**

Hepatitis B and C

	Hepatitis B	Hepatitis C
Symptoms	Mostly asymptomatic	
Disease progression	Both can cause chronic hepatitis, which may lead to cirrhosis and liver cancer	
Transmission	Blood-borne, most commonly through MTCT	Blood-borne, commonly through blood contact like injecting drug use
Vaccine	Yes	No
Treatment	Regular monitoring and consider antiviral for viral suppression	Curative antiviral treatment available
Protective antibody	Antibody acquired through vaccination or recovery from acute infection can prevent infection	Antibody does not confer protective immunity . There is a chance for re-infection .

Pamphlet



Getting tested for hepatitis C
can save your life

丙型肝炎可致肝癌

丙型肝炎是由丙型肝炎病毒引起的肝臟疾病。慢性丙型肝炎可引致肝硬化及肝癌。



感染丙型肝炎病毒後可持續數十年都沒有症狀，直至肝臟已被嚴重損害後才出現徵狀。

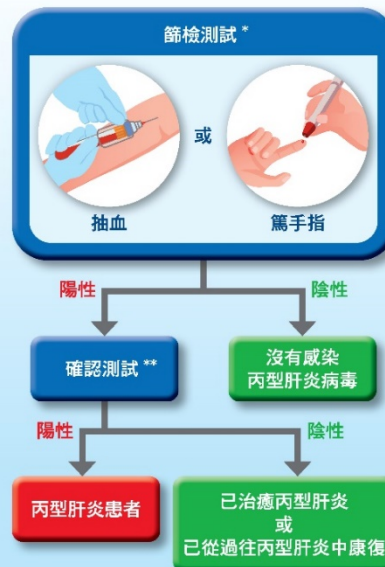
丙型肝炎很容易經接觸感染者的血液而傳播，共用針咀、針筒或其他器具注射毒品可傳染丙型肝炎病毒。

在香港，估計超過六成的注射毒品人士患有丙型肝炎。



診斷丙型肝炎須透過血液測試

現時或曾經注射毒品人士，包括在多年前只注射過一次或數次毒品的人士，無論有沒有症狀，均應接受丙型肝炎測試。



* 篩檢測試：抗體測試判斷是否感染丙型肝炎病毒

** 確認測試：核酸測試判斷現時是否帶有丙型肝炎病毒

口服藥物可治癒丙型肝炎

服用直接抗病毒藥物約8-12個星期可治癒丙型肝炎（即可「斷尾」），從而降低發展成肝癌及因肝臟疾病致死的風險。

- 療效顯著
- 副作用少
- 口服藥物（毋須注射）



保護自己免受丙型肝炎感染

丙型肝炎患者服用藥物康復後，並不會有具保護性的免疫力，故仍然需要注意以下事項：

停止注射毒品

- 接受美沙酮治療
- 用過的針咀可能沾有血液，即使是難以肉眼察覺到的極少份量，溶於水中時亦可污染器皿及其他器具（如濾紙及匙羹），構成傳播丙型肝炎病毒的風險



- 避免與他人共用剃刀及牙刷等有機會受血液污染的个人護理用品



- 進行性行為時使用安全套



www.hepatitis.gov.hk

肝炎熱線 2112 9911



衛生署 特別預防計劃 控制病毒性肝炎辦公室 2021年3月

Pamphlet

丙型肝炎你要知 What you need to know about hepatitis C



甚麼是丙型肝炎？

丙型肝炎是由丙型肝炎病毒引起的肝臟疾病。
約七成的丙型肝炎病毒感染會發展為慢性肝炎，並可引致肝硬化及肝癌。



大多數新感染丙型肝炎的患者都沒有明顯症狀，部分急性患者或會出現與其他肝炎相類似的症狀，如發燒、疲倦、食慾不振、噁心、嘔吐、上腹部不適、茶色小便及黃疸（皮膚和眼白發黃）。

丙型肝炎是怎樣傳播？

丙型肝炎病毒最常透過接觸感染者的血液而傳播：



丙型肝炎病毒不會經一般社交接觸（如共用食具、共膳、擁抱、握手及接吻等）而傳播。

丙型肝炎能經性接觸而傳播嗎？

經性接觸而傳播丙型肝炎的情況並不常見。不過，若性伴侶雙方都有皮膚或黏膜破損，在沒有使用安全套的情況下進行性行為會有機會傳播丙型肝炎病毒，尤其是進行可導致血液接觸的性行為。

丙型肝炎會由母親傳給嬰兒嗎？

丙型肝炎病毒可由母親傳給嬰兒，但並不常見。
◆ 母嬰傳播風險估計為 4 - 8%。
◆ 若母親同時感染愛滋病病毒，母嬰傳播的風險會高 2 至 4 倍。

患有丙型肝炎的母親可以餵哺母乳嗎？

✓ 患有丙型肝炎的母親可以餵哺母乳。

現時沒有證據顯示丙型肝炎病毒會經母乳傳播給嬰兒；不過，若乳頭破損及流血，應停止餵哺母乳，直至乳頭傷口癒合。



誰具較高感染風險？

估計約 0.3% 的香港人口患有丙型肝炎，但在某些特定群組中較為常見。



如何診斷丙型肝炎？

感染丙型肝炎病毒後可持續數十年都沒有症狀，直至肝臟已被嚴重損害後才出現徵狀。

診斷丙型肝炎必須透過血液測試。



如何治療丙型肝炎？

服用直接抗病毒藥物約 8 - 12 個星期可治療丙型肝炎（即可「斷尾」），從而降低發展成肝癌及因肝臟疾病致死的風險。

- ✔ 療效顯著
- ✔ 副作用少
- ✔ 口服藥物（毋須注射）



請注意：

丙型肝炎患者服用藥物康復後，並不會有具保護性的免疫力，故應停止進行高風險行為，以預防再次感染丙型肝炎病毒。

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Key facts of HCV infection

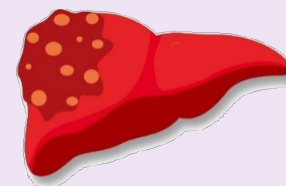
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The prevalence of HCV infection among PWID is high in Hong Kong.



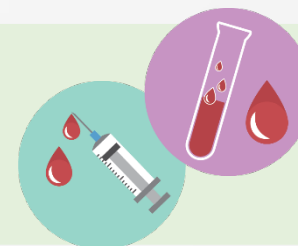
2

Chronic HCV infection can cause serious liver diseases.



3

Blood test is required to diagnose HCV infection.



4

Oral drugs can **cure** HCV infection.



| To know more.....

www.hepatitis.gov.hk

Hepatitis Hotline 2112 9911



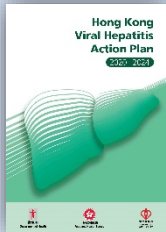

The screenshot shows the website of the Viral Hepatitis Control Office (VHCO). The header includes the VHCO logo, the text '香港特別行政區政府 衛生署 控制病毒性肝炎辦公室', and navigation links for home, language (English, Chinese), and a search bar. The main content area features a green background with a stylized graphic of a hand holding a pen. The text reads: '2020 - 2024 年 香港病毒性肝炎行動計劃 Hong Kong Viral Hepatitis Action Plan 2020 - 2024'. At the bottom right, there are icons representing a lightbulb, a bar chart, a hand, and a pill.



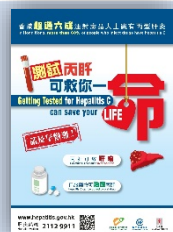

Video of the Action Plan



Resources

Type	Topic	Hyperlink	Cover
Report	Hong Kong Viral Hepatitis Action Plan 2020 - 2024	https://www.hepatitis.gov.hk/english/action_plan/intro.html	
Video	Hong Kong Viral Hepatitis Action Plan 2020 - 2024	https://www.youtube.com/watch?v=VaHs-DZWXEM	

Resources

Type	Topic	Hyperlink	Cover
Poster	Getting tested for hepatitis C can save your life	www.hepatitis.gov.hk/tc_chi/resources/files/Poster_Getting%20Tested%20for%20Hep%20C_WCAG_final.pdf	
Pamphlet	Getting tested for hepatitis C can save your life	www.hepatitis.gov.hk/tc_chi/resources/files/Pamphlet_Getting Tested for Hep C_WCAG.pdf	
Pamphlet	What you need to know about hepatitis C	www.hepatitis.gov.hk/tc_chi/resources/files/Pamphlet_What%20you%20need%20to%20know%20about%20hep%20C_WCAG.pdf	