



# **Focused risk-based testing for chronic hepatitis B virus infection**

**June 2022**

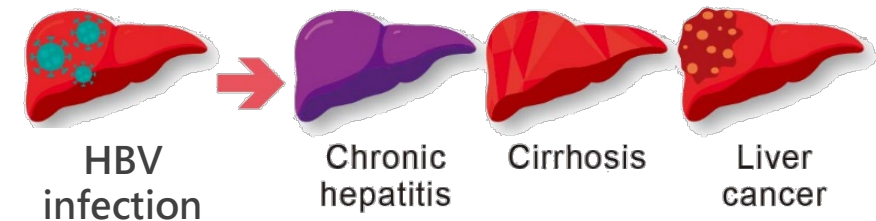
# Outline

1. Introduction
2. Focused risk-based HBV testing
  - Who to test
  - How to test
  - Key benefits
  - Interventions to promote uptake
3. Situation in Hong Kong
  - Local epidemiology
  - Hong Kong Viral Hepatitis Action Plan 2020-2024
  - Enhancing testing in populations at risk of HBV infection

## Chronic HBV infection

- Development of chronic HBV infection is common in infants infected from their mothers or before the age of 5 years
- In endemic regions, the majority of people with CHB acquired HBV infection through **mother-to-child transmission (MTCT)** at birth
- 15 - 40%** of untreated persons with CHB may develop cirrhosis, liver failure or liver cancer in their lifetime
- Antiviral treatment can slow the progression of cirrhosis, reduce incidence of liver cancer and improve long term survival

Risk of chronicity following acute infection	
neonates	80 ~ 90%
children < 6 yrs	30 ~ 50%
healthy adults	< 5%

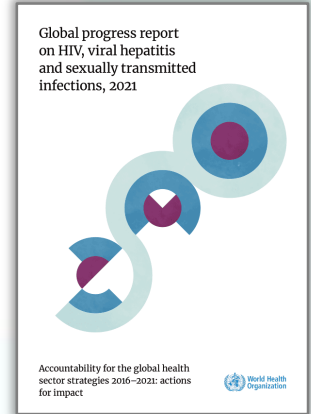


WHO Factsheet on hepatitis B [www.who.int/news-room/fact-sheets/detail/hepatitis-b](http://www.who.int/news-room/fact-sheets/detail/hepatitis-b)

Hyams KC. Risks of chronicity following acute hepatitis B virus infection: a review. *Clin Infect Dis* 1995; 20(4): 992-1000

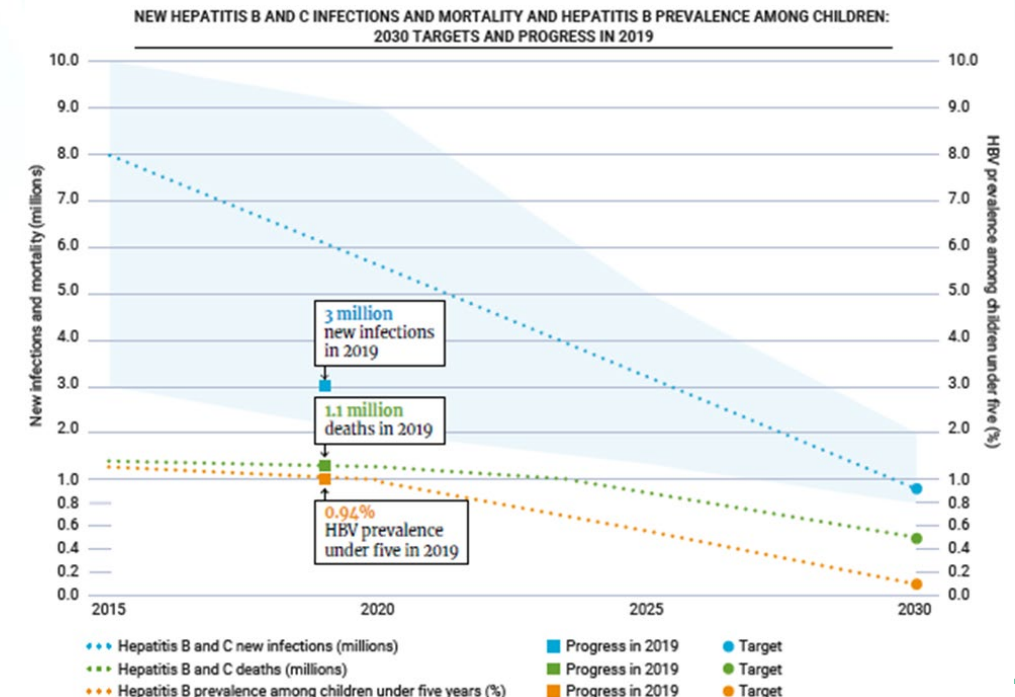
Lok AS. Chronic hepatitis B. *N Engl J Med* 2002; 346(22):1682-3.

## WHO Global progress report on HIV, viral hepatitis and STI, 2021



### Global estimates as of 2019

- Prevalence of HBV infection in the general population: 3.8%
  - ~ 296 million people living with chronic HBV infection
  - ~ 1.5 million new infections in 2019
- ~ 820 000 people died from hepatitis B in 2019, mostly from cirrhosis and hepatocellular carcinoma
- The burden of HBV infection is disproportionately high in Western Pacific and African Regions, particularly in low- and middle-income countries
- Scaled-up hepatitis B vaccination had steeply reduced the global prevalence of HBV infection among children under 5 to 0.94% in 2019, from 4.7% in the pre-vaccination era



## Wilson and Jungner's principles of screening, WHO 1968

### Disease

- ☛ The condition sought should be an **important health problem** - common, serious
- ☛ There should be a recognizable **latent or early symptomatic stage**
- ☛ The **natural history** of the condition, including development from latent to declared disease, should be adequately understood

### Screening test

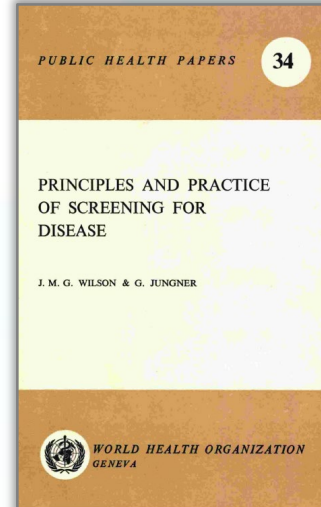
- ☛ There should be a **suitable test or examination**
  - ☛ safe
  - ☛ valid (sensitive and specific)
  - ☛ simple
  - ☛ cheap
  - ☛ reliable
- ☛ The test should be **acceptable** to the population

### Diagnostic test and treatment

- ☛ There should be an **accepted treatment** for patients with recognized disease
- ☛ There should be an agreed policy on **whom to treat** as patients
- ☛ **Facilities for diagnosis and treatment** should be available

### Screening programme

- ☛ The cost of case-finding (including diagnosis and treatment of patients diagnosed) should be **economically balanced** in relation to possible expenditure on medical care as a whole
- ☛ Case-finding should be a **continuing** process and not a "once and for all" project



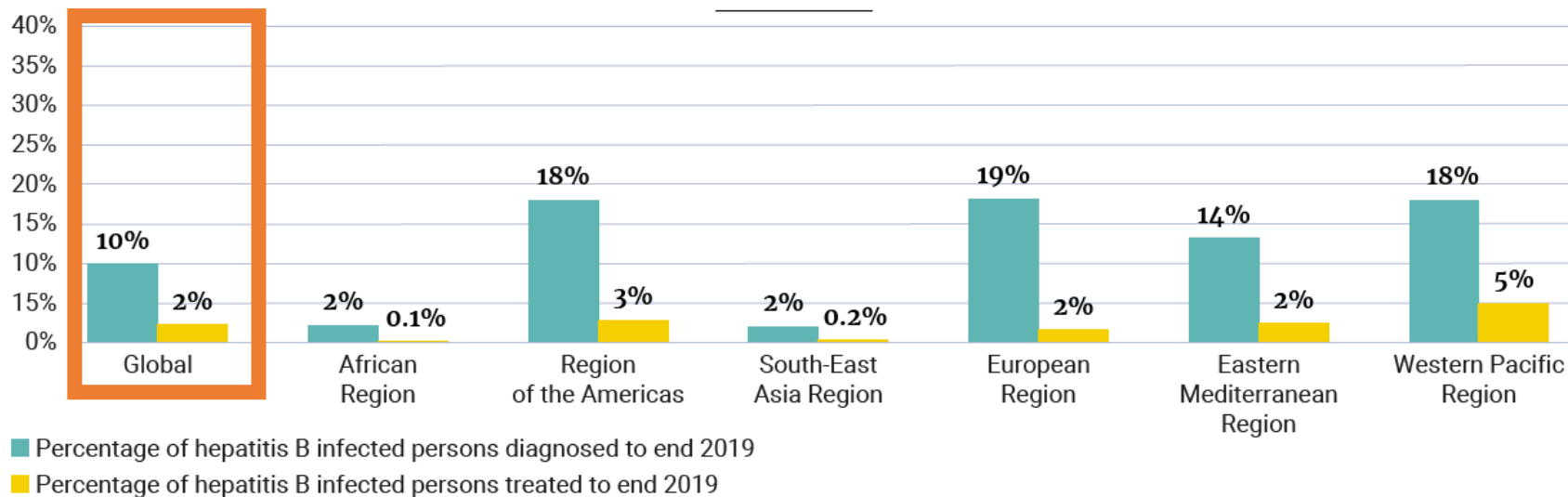
When combined with vaccination, HBV screening only requires **once-a-lifetime** testing



## WHO Global progress report on HIV, viral hepatitis and STI, 2021

- In 2019, 10% of estimated 296 million people with CHB globally were diagnosed
- 6.6 million were receiving treatment
  - 22% of patients diagnosed with HBV
  - 2.2% coverage of people with CHB

### HEPATITIS B



**Huge gap in  
diagnosis and  
cascade of care**

Target Areas	2025 Targets	2030 Targets
<b>Coverage targets</b>		
Percentage of people living with hepatitis B diagnosed / treated	60% diagnosed 50% treated	90% diagnosed 80% treated
Percentage of people living with hepatitis C diagnosed / cured	60% diagnosed 50% treated	90% diagnosed 80% treated
Percentage of newborns who have benefitted from a timely birth dose of hepatitis vaccine and from other interventions to prevent MTCT of HBV	70%	90%
Hepatitis B vaccine coverage among children (third dose)	90%	90%
Number of needles and syringes distributed per PWID	200	300
Proportion of blood units screened for bloodborne diseases	100%	100%
Proportion of safe health-care injections	100%	100%
<b>Impact targets</b>		
HBsAg prevalence among children younger than 5 years old	0.5%	0.1%
Number of new hepatitis B infections per year	850 000 new cases <b>11 per 100 000</b>	170 000 new cases <b>2 per 100 000</b>
Number of new hepatitis C infections per year	1 million new cases <b>13 per 100 000</b>	350 000 new cases <b>5 per 100 000</b>
Number of new hepatitis C infections per year among PWIDs	<b>3 per 100</b>	<b>2 per 100</b>
Number of people dying from hepatitis B per year	530 000 deaths <b>7 per 100 000</b>	310 000 deaths <b>4 per 100 000</b>
Number of people dying from hepatitis C per year	240 000 deaths <b>3 per 100 000</b>	140 000 deaths <b>2 per 100 000</b>



**WHO Global Health Sector Strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022-2030 (GHSS)**

**Testing and diagnosis** of HBV and HCV infection is the gateway for access to both **prevention** and **treatment** services

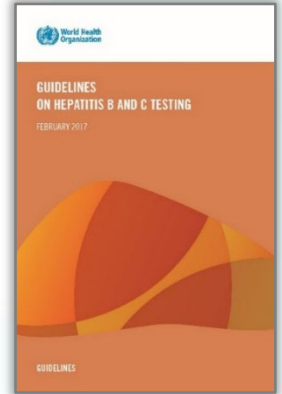
→ link to interventions to reduce transmission

- counselling on risk behaviours
- hepatitis B vaccination
- provide prevention commodities e.g. sterile needles, syringes

→ receive the necessary care and treatment to prevent or delay progression of liver disease



## WHO Guidelines on hepatitis B and C testing (2017)



### Who to test for HBV infection

#### 1. Focused risk-based testing in most affected population in all settings

- ♥ Adults and adolescents from populations most affected by HBV infection
    - ♥ who are part of the population with high HBV seroprevalence (e.g. mobile/migrant populations from high/intermediate endemic countries)
    - ♥ who have a history of exposure and/or high-risk behaviors for HBV infection (PWID, people in prisons/other closed settings, MSM, sex workers, people with HIV, family members and children of persons with HBV infection)
  - ♥ Sexual partners, children and other family members, and close household contacts of those with HBV infection
  - ♥ Healthcare workers
  - ♥ Those with a clinical suspicion of chronic viral hepatitis
- (Strong recommendation)*

#### 2. Screening of blood donors in all settings \*

3. Routine testing in pregnant women in settings with intermediate ( $\geq 2\%$ ) or high ( $\geq 5\%$ ) HBsAg prevalence in the general population *(Strong recommendation)*

4. General population testing in settings with intermediate ( $\geq 2\%$ ) or high ( $\geq 5\%$ ) HBsAg prevalence in the general population *(Conditional recommendation)*

\* Adapted from 2010 WHO guidance on screening donated blood for transfusion transmissible infections

## Clinically guided HBV testing

### Clinical suspicion of chronic viral hepatitis

- clinical symptoms or signs
- abnormal liver function tests or liver ultrasound

### Disease management in some patients, e.g.

- persons with end-stage renal disease (including pre-dialysis, haemodialysis, peritoneal dialysis, and home dialysis patients)
- persons needing immunosuppressive therapy (including chemotherapy, immunosuppression related to organ transplantation), and immunosuppression for rheumatological or gastroenterologic disorders

[WHO Guidelines on hepatitis B and C testing \(2017\)](#)

[Asian-Pacific clinical practice guidelines on the management of hepatitis B: a 2015 update](#)

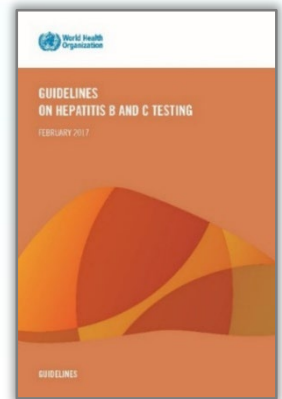
[Update on prevention, diagnosis, and treatment of chronic hepatitis B: AASLD 2018 hepatitis B guidance](#)

## WHO Guidelines on hepatitis B and C testing (2017)

- Consideration of evidence mainly from cost-effectiveness analyses, and data on HBsAg seroprevalence in different settings and populations, and in the general population with considerations of feasibility and cost

### Key drivers of cost-effectiveness for considering testing approaches

- (a) Cost of antiviral drug and testing cost (to a lesser extent)
- (b) Linkage to care and adherence to treatment



- It is likely to be worthwhile performing screening and providing treatment, even if participation in screening may be low, in part because testing costs are low relative to the costs and health benefits of treatment for those who are infected.
- HBsAg prevalence** had a relatively small influence on cost-effectiveness across a wide range of prevalence levels examined.

## Serological tests

### Hepatitis B surface antigen (HBsAg)

- test for HBV infection
- ♥ laboratory-based immunoassay
- ♥ **rapid diagnostic test (RDT)** in settings where there is limited access to laboratory testing and/or in populations where access to RDT would facilitate linkage to care and treatment

*RDTs are immunoassays that detect antibodies or antigens and can give a result in < 30 minutes. Most RDTs can be performed with capillary whole blood collected by finger-stick sampling*

### Antibody to HBsAg (anti-HBs)

- immunity in response to
- ♥ Hepatitis B vaccination, or
- ♥ Recovery from past HBV infection

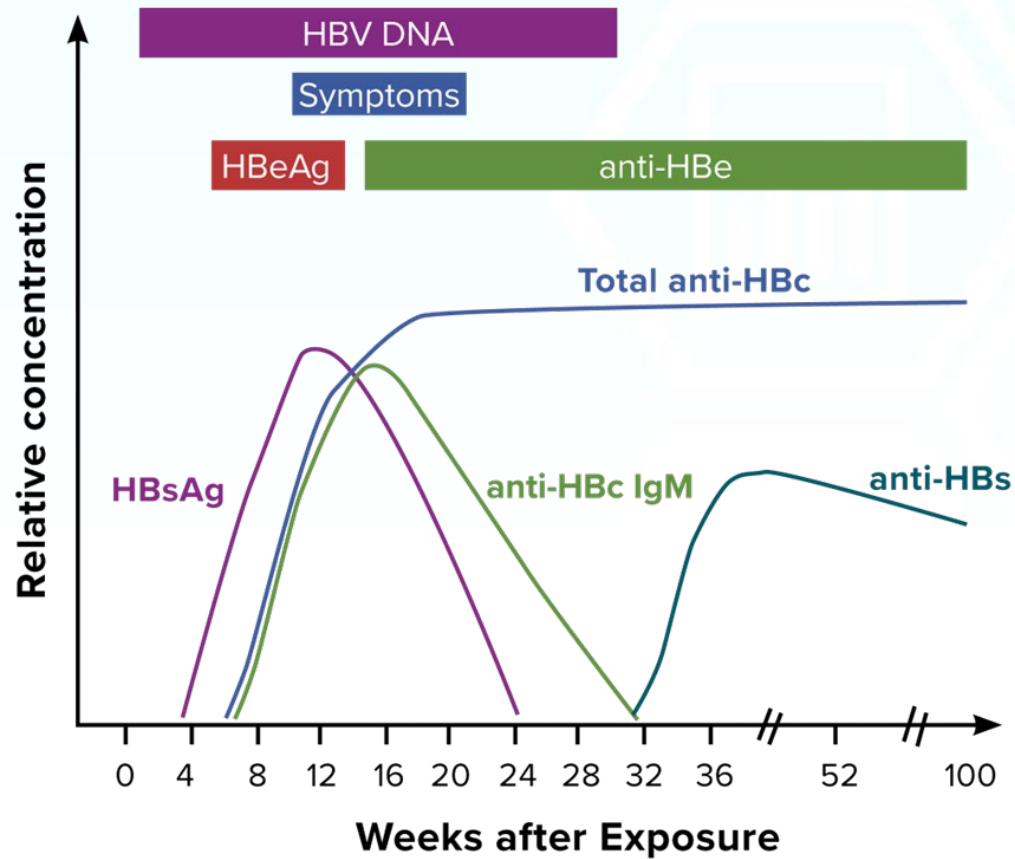
**Non-immune and uninfected**  
→ hepatitis B vaccination

### Antibody to HB core antigen (anti-HBc)

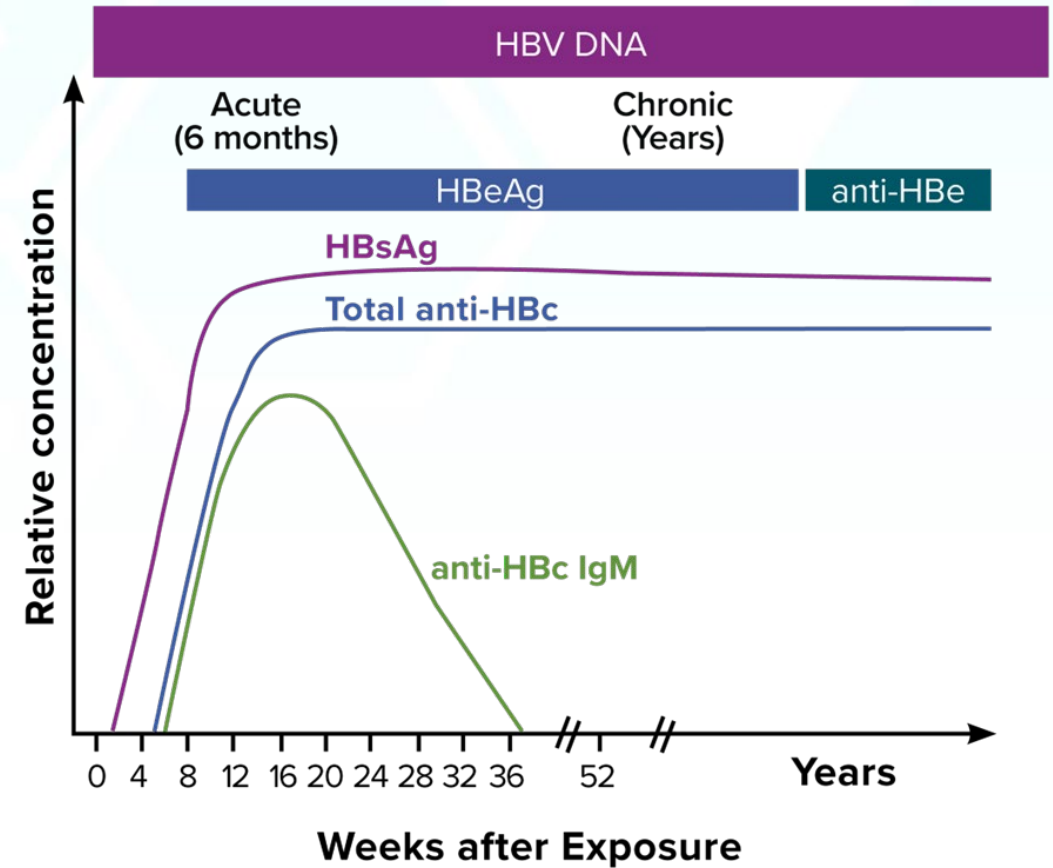
- prior exposure to HBV
- ♥ NOT routinely recommended for HBV screening
- ♥ indicated in selected patients
  - ♥ people living with HIV
  - ♥ those who are about to undergo HCV, anti-cancer or other immunosuppressive therapies or renal dialysis
- ♥ screening donated blood

# HBV testing

Typical serologic course of acute hepatitis B to recovery



Typical serologic course of the progression to chronic hepatitis B





## WHO prequalified rapid diagnostic test kits for HBV and HCV screening (as of June 2022)

Product name	Manufacturer (site)	Sample	Sensitivity (95% CI)	Specificity (95% CI)	WHO report
Determine HBsAg 2	Alere Medical Co. Ltd (Japan)	50 µL of serum/ plasma / venous and capillary whole blood	100% (98.2 - 100%)	100% (98.8 - 100%)	<a href="#">▶</a>
Bioline HBsAg WB	Abbott Diagnostics Korea Inc (Korea)	100 µL of serum/ plasma/ whole blood specimen	100% (98.1 - 100%)	99.0% (97.2 - 99.8%)	<a href="#">▶</a>
STANDARD Q HCV Ab Test	SD Biosensor, Inc. (Korea)	10µl of serum/plasma / 20µl of venous / capillary whole blood	100% (97.8 - 100%)	100% (98.9 - 100%)	<a href="#">▶</a>
Rapid Anti-HCV Test	InTec PRODUCTS, INC (China)	10 µl serum/ plasma/ venous or fingerprick whole blood	100% (97.6 - 100%)	99.7% (98.8 - 100%)	<a href="#">▶</a>
OraQuick HCV Rapid Antibody Test Kit	OraSure Technologies, Inc. (USA)	~5µL serum/ plasma/ venous or capillary whole blood/ oral fluid	100% (97.8 - 100%)	99.7% (98.3 - 100%)	<a href="#">▶</a>
Bioline HCV	Abbott Diagnostics Korea Inc (Korea)	10 µl of serum/ plasma/ whole blood specimen	100% (97.76 - 100%)	100% (98.85 - 100%)	<a href="#">▶</a>

## Key benefits of focused risk-based testing approach

- ✓ make use of the existing opportunities and infrastructure for health facility-based testing, as well as community-based testing
- ✓ increase uptake and facilitate referral to care and other services
- ✓ likely to be associated with higher rates of case-finding
- ✓ a more readily feasible approach if resources to undertake general population screening is lacking

### Health facilities

- ♥ primary care clinics
- ♥ inpatient wards
- ♥ outpatient clinics including specialist dedicated clinics e.g. HIV, STI, TB clinics
- ♥ private clinical services

### Community-based testing - outreach/mobile approach

- ♥ home-based testing /door-to-door outreach
- ♥ workplace
- ♥ places of worship, parks, bars....
- ♥ schools
- ♥ through campaigns (screening alongside that for NCD e.g. DM, HT)

## Interventions to promote uptake and linkage to care

- ✓ **peer and lay health worker support** in community-based settings
- ✓ **clinician reminders** to prompt provider-initiated, facility-based HBV testing in settings that have electronic records or analogous reminder systems
- ✓ provide hepatitis testing as part of **integrated services** within mental health or substance use services

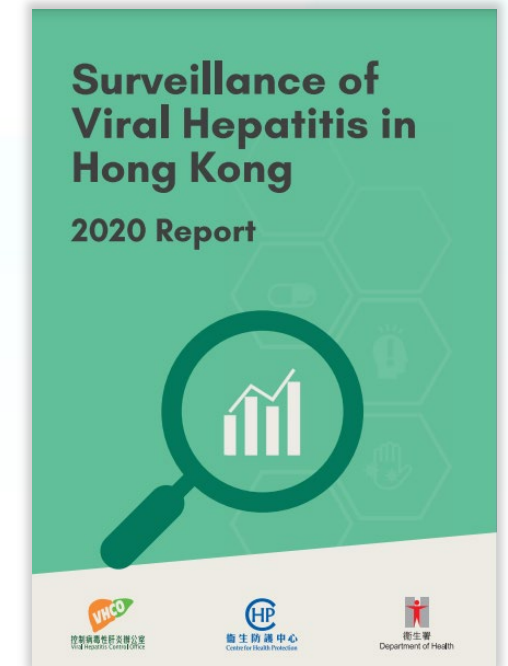
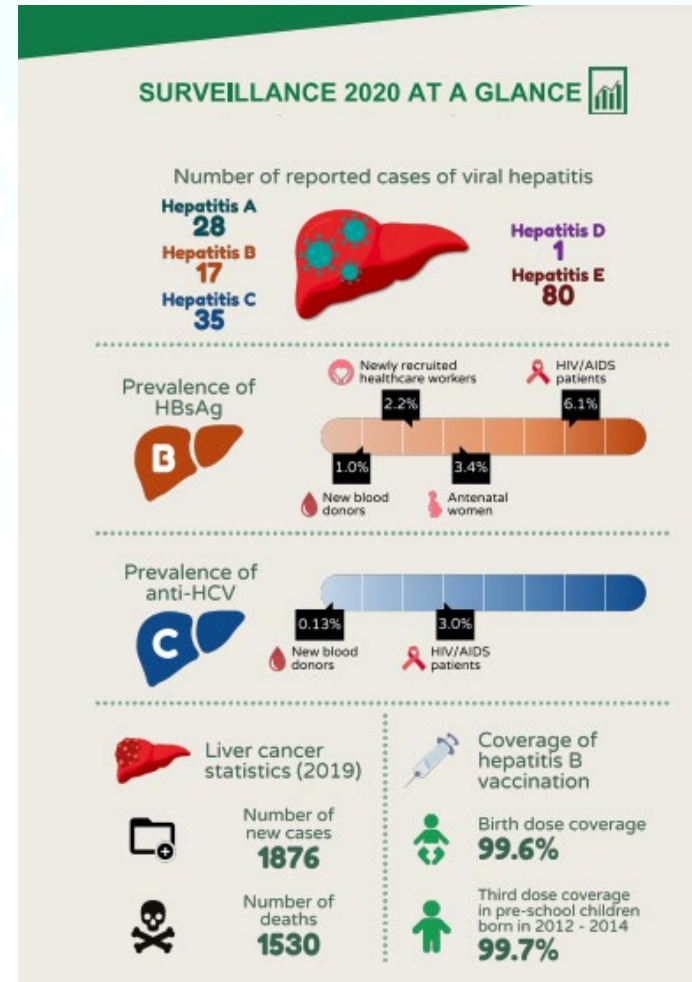
To best reach those with undiagnosed infection and populations at high risk, it is important to identify the most strategic mix of facility- and community-based testing opportunities, as well as the use of

- ♥ **integration** with other health services
- ♥ **decentralization** to primary care facilities and outside the health system
- ♥ **task-sharing** of testing responsibilities to other health workers, including trained lay providers

## HBsAg seroprevalence in Hong Kong

- 🍃 In **2016**, a territory-wide prevalence study gave an age- and sex-adjusted HBsAg prevalence in the general population: **7.2%** (~ 540 000 HBV infection )
- 🍃 Mother-to-child transmission (MTCT) accounts for the prevalence of HBV infection in Hong Kong
- 🍃 Universal childhood hepatitis B vaccination programme since 1988

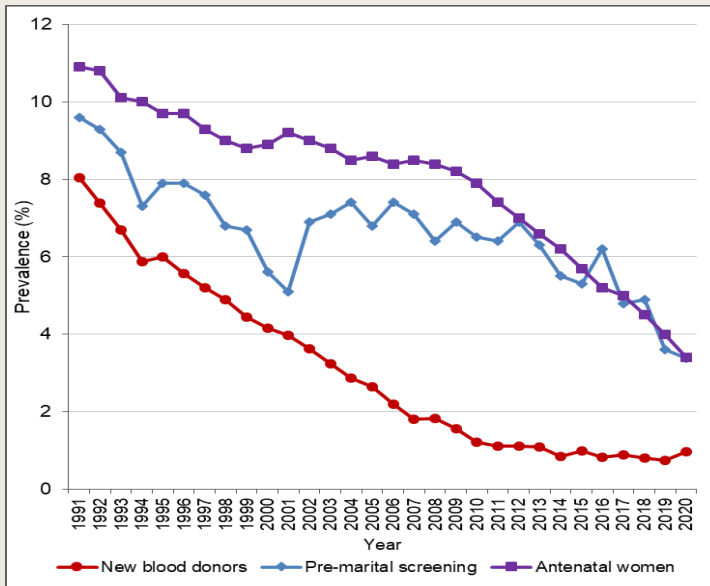
Liu KS, Seto WK, Lau EH, et al. A Territorywide Prevalence Study on Blood-Borne and Enteric Viral Hepatitis in Hong Kong. J Infect Dis 2019; 219(12): 1924-33.





## HBsAg seroprevalence in Hong Kong

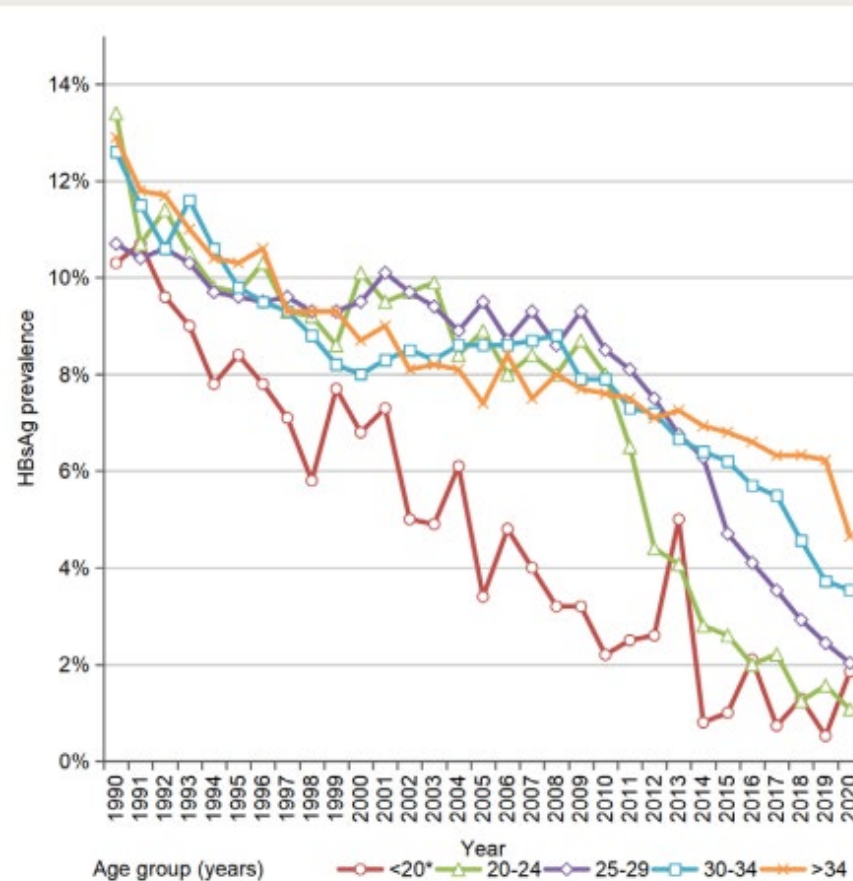
### HBsAg prevalence in populations without specific HBV risk



	1991	2020
New blood donors	8.0 %	1.0 %
Pre-marital screening	9.6 %	3.4 %
Antenatal women	10.9 %	3.4 %

#### Box 32

HBsAg prevalence among antenatal mothers by age, from 1990 to 2020 (Date source: FHS and PHLSB, CHP, DH)



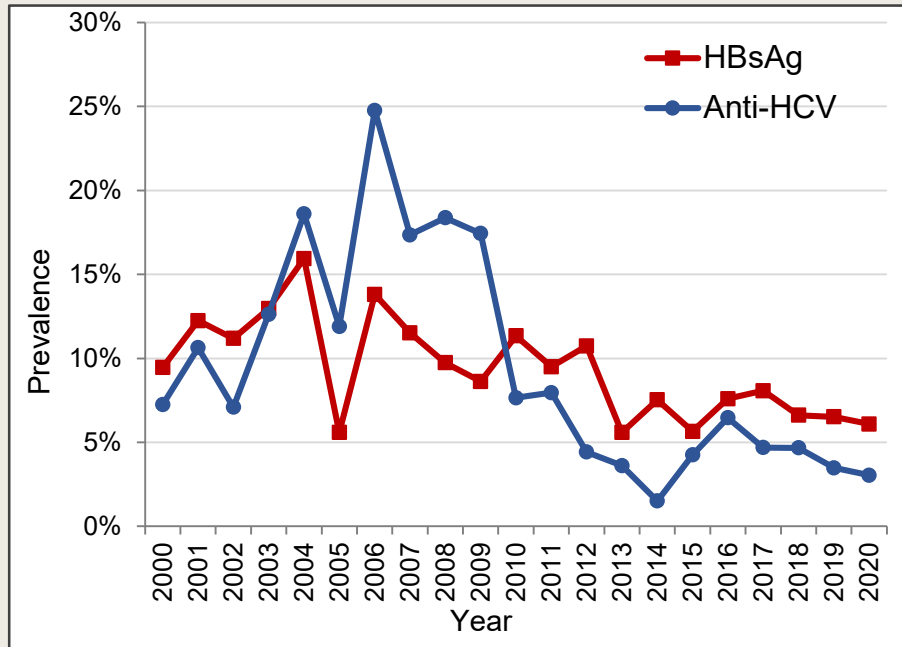
### Surveillance of Viral Hepatitis in Hong Kong 2020 Report

Sources: HK Red Cross Blood Transfusion Services, Family Planning Association, DH Family Health Service



## HBsAg seroprevalence in Hong Kong

### Baseline screening among HIV/AIDS patients attending Integrated Treatment Centre (ITC)



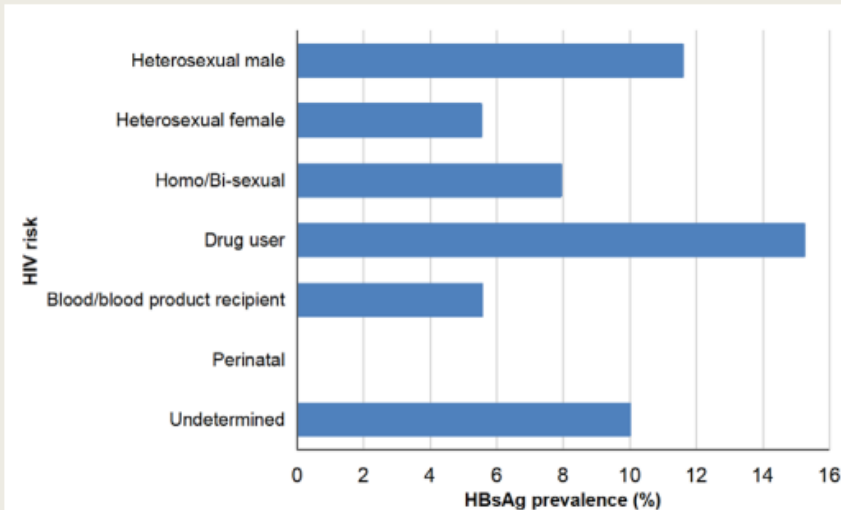
Period 2015 – 2020

HBsAg-positive: 5.6% - 8.1%

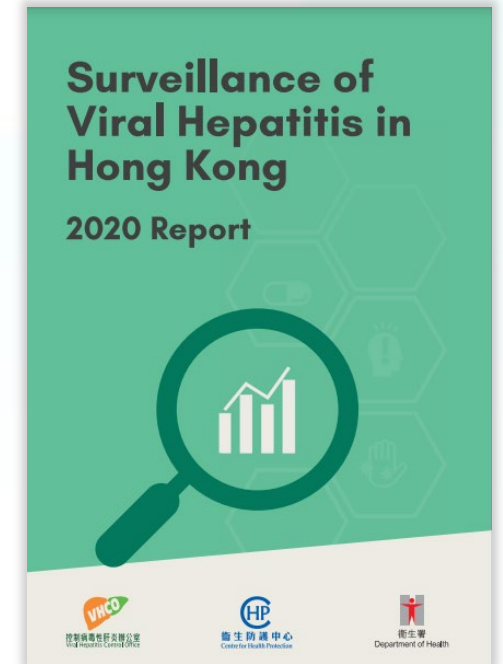
Anti-HCV-positive: 3.0% - 6.5%

#### Box 43

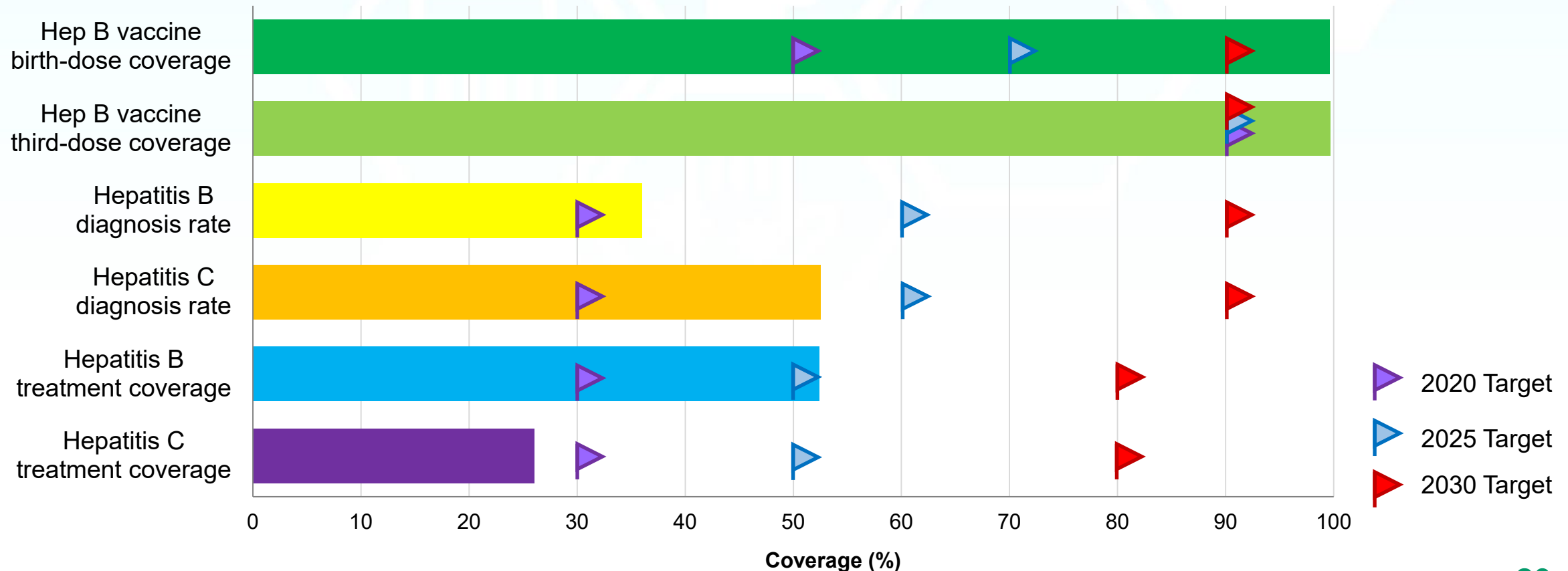
Prevalence of HBV infection per HIV risk at baseline screening of HIV/AIDS patients attending ITC from 2000 to 2020 (Data source: ITC, CHP, DH)



HIV risk	No. tested	HBsAg +ve (%)	Anti-HBs +ve (%)
Heterosexual male	889	103 (11.6%)	430 (48.4%)
Heterosexual female	542	30 (5.5%)	243 (44.8%)
Homo/Bi-sexual	2850	226 (7.9%)	1671 (58.6%)
Drug user	269	41 (15.2%)	134 (49.8%)
Blood/blood product recipient	18	1 (5.6%)	6 (33.3%)
Perinatal	9	0 (0%)	2 (22.2%)
Undetermined	50	5 (10.0%)	27 (54.0%)
<b>Total</b>	<b>4627</b>	<b>406 (8.8%)</b>	<b>2513 (54.3%)</b>



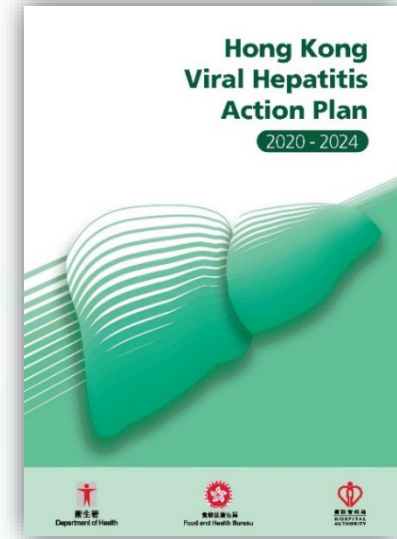
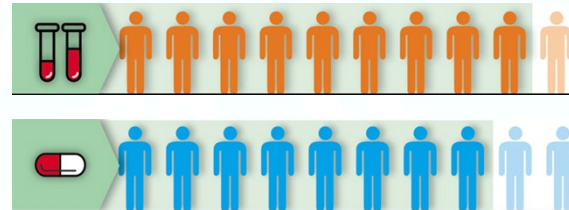
## Progress towards WHO service coverage targets\*



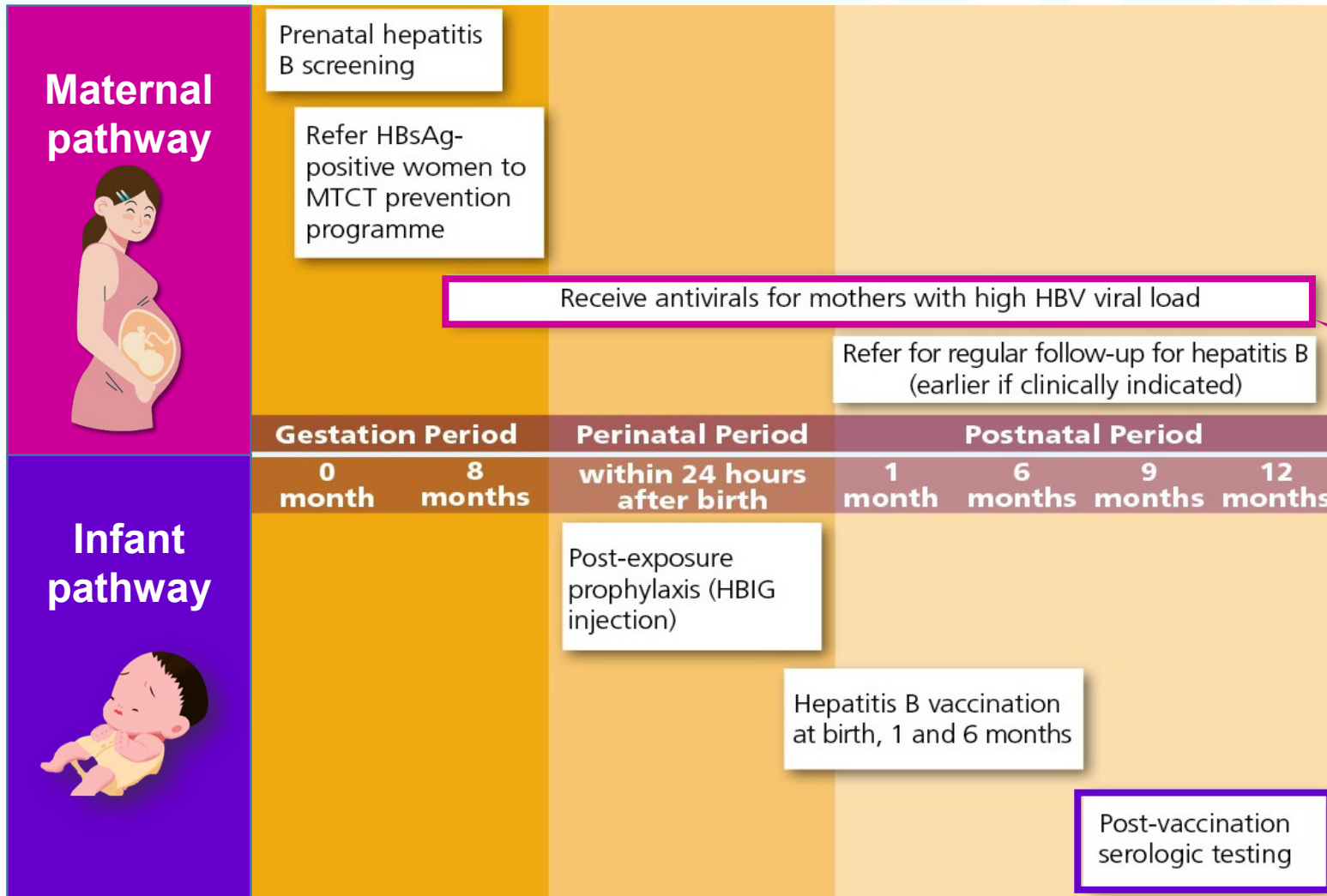
\* Other service coverage targets applicable to Hong Kong include blood safety and safe injections

## Hong Kong Viral Hepatitis Action Plan 2020 - 2024

- Progressing towards the targets set by WHO to eliminate viral hepatitis as a public threat by 2030
  - 90% infected people diagnosed
  - 80% eligible patients treated
  - ↓ no. of new cases of chronic HBV and HCV by 90%
  - ↓ no. of deaths from HBV and HCV by 65%
- 4 strategic axes
- Vision: to render HK free of chronic viral hepatitis



## Prevention of mother-to-child transmission of HBV



The service model was first piloted in two birthing hospitals at the beginning of 2020, before fully implemented in all public birthing hospitals run by the Hospital Authority (HA) in August 2020.

**960** HBV-infected pregnant women were recruited in the initiative (September 2020 – August 2021)

**16%** had high viral load  
Referred to hepatology clinics for consideration of antiviral prophylaxis

**88%** started on antiviral prophylaxis  
109 pregnant women started on antiviral prophylaxis, out of 124 had attended follow-up in Medicine specialty

Implemented in DH MCHCs since January 2022

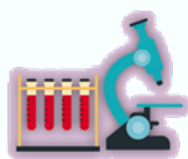
## Gap in HBV diagnosis and treatment coverage

- Given the large number of undiagnosed people in Hong Kong, the current screening practices in place are not sufficient to achieve the **WHO target** of diagnosis rate at **60% by 2025** and **90% by 2030**
- The Steering Committee on Prevention and Control of Viral Hepatitis (SCVH) recommended that both **diagnosis and treatment capacity** for HBV infection should be built up in order to meet the substantial demand of population-based HBV screening and subsequent long-term care
- SCVH considered that **focused risk-based testing of populations at higher risk of HBV infection**
  - a pragmatic way to **start scaling up HBV screening** in Hong Kong
  - an expedient and **short-term strategy** while expansion of treatment and care capacity of HBV infection is being addressed in parallel



## Enhancing treatment capacity for HBV infection

- To augment the diagnosis and treatment capacity for HBV infection, enhancements have been made in HA in four areas



Laboratory



Equipment



Drug



Model of care

- To enhance the management capacity of HBV infection, HA hepatologists and primary care physicians are devising a framework of HBV management with recommendations for management of HBV infection in the **primary care setting**

Action Plan	Action party	Timeline
<b>4.1 Enhancement of treatment for HBV infection</b>		
4.1.1 Augment diagnosis and treatment capacity for HBV infection, in terms of laboratory, equipment, drug and model of care	HA	Ongoing
4.1.2 Review the service provided by nurse clinics	HA	2022Q4
4.1.3 Engage HA hepatologists to explore strategies to enhance service capacity for HBV infection in both public and private settings	DH & HA	2021Q2
4.1.4 Engage primary care physicians to support management of HBV infection	DH & HA	2021Q4
4.1.5 Develop information resources to facilitate management of HBV infection by primary care physicians	DH & HA	2023Q1
4.1.6 Promulgate the information resources to primary care physicians	DH & HA	2023Q3
4.1.7 Estimate the service need of ultrasound for HCC surveillance	DH & HA	2021Q2

## Enhancing testing in populations at risk of HBV infection

- Six most affected and at-risk populations are identified as **priority groups** for the planning of focused risk-based testing
  - People who inject drugs (PWID)
  - People in prisons and other closed settings
  - Men who have sex with men (MSM)
  - Sex workers
  - People with HIV
  - Family members (parents, siblings and offspring) and sexual partners of people with HBV infection
- Offer preventive measures and advice, vaccination
- Provide concomitant HCV screening for at-risk groups



## Family members and sexual partners of CHB patients

- 🍃 In 2016, a **territory-wide** prevalence study gave an age- and sex-adjusted HBsAg prevalence in general population : **7.2%**  
(~ 540 000 people with HBV infection )
- 🍃 % respondents (all age groups) who had HBV carriage in
  - 🍃 mother : 2.7% (276/10086)
  - 🍃 other family members : 9.3% (934/10086)

~10-15% clients in primary care settings are family members or spouses/sexual partners of CHB patients  
→ **focused risk-based HBV testing**

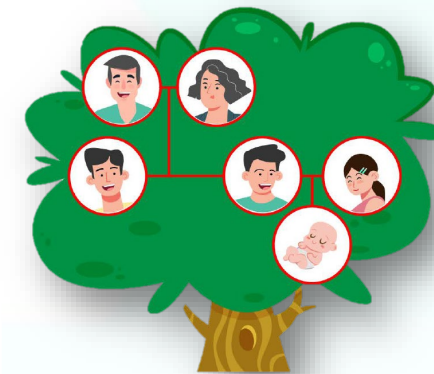
Prevalence of HBsAg and anti-HBs by age group

Age group	Number tested	HBsAg prevalence (%)	Anti-HBs positivity rate (%)
< 26	725	2.6	38.8
26 - 35	1020	7.4	50.6
36 - 45	1478	10.9	51.4
46 - 55	2238	8.0	52.5
56 - 65	3044	8.0	53.6
> 65	1730	7.3	54.6

Figures collated from Table 1 and Table 3 of the article

Overall, around **40%** of tested participants were negative for both HBsAg and anti-HBs  
**uninfected and non-immune → hepatitis B vaccination**

## HBsAg positivity rate among family members and sexual partners of CHB patients



**~30%** family members and spouses/sexual partners of CHB patients **positive for HBsAg → referral** (depending on the relationship with the index)

		Gupta S, et al., 2008 <sup>1</sup>	Lok AS, et al., 1987 <sup>2</sup>
Study participants		265 household contacts of 91 index patients with HBV-related chronic liver disease, in India	731 family members of 240 index CHB patients, in Hong Kong
Study period		Jan 2006 – July 2007	Jan 1983 – July 1984
HBsAg prevalence in general population		<b>5.9%</b>	<b>9.6%</b>
HBsAg prevalence among family members and spouses of CHB patients		<b>Overall 30.6% (81/265)</b>	<b>Overall 28.3%</b>
Relationship with the index CHB patient	Parents	31.5%	32.9% Mother 40.9% Father 20.7%
	Siblings	48.3%	53%
	Spouse	9.7%	10.8%
	Offspring	27.5%	24.8% offspring of female CHB pt 50.5% offspring of a male CHB pt 13.5%

<sup>1</sup> Gupta S, et al. Role of horizontal transmission in hepatitis B virus spread among household contacts in north India. Intervirology 2008;51(1):7–13.

<sup>2</sup> Lok AS, et al. Hepatitis B virus infection in Chinese families in Hong Kong. Am J Epidemiol 1987; 126(3):492-9.

## Hepatitis B vaccination for adults

**WHO** Vaccination of groups at highest risk of acquiring HBV infection is recommended

- ▀ patients who frequently require blood or blood products
- ▀ dialysis patients, diabetes patients
- ▀ recipients of solid organ transplantation
- ▀ persons with chronic liver disease including those with hepatitis C
- ▀ persons with HIV infection
- ▀ persons interned in prisons
- ▀ injecting drug users
- ▀ household and sexual contacts of persons with chronic HBV infection
- ▀ men who have sex with men (MSM)
- ▀ persons with multiple sexual partners
- ▀ healthcare workers and others who may be exposed to blood, blood products or other potentially infectious body fluids during their work

[WHO position paper on hepatitis B vaccines, 2017](#)

**US CDC** The Advisory Committee on Immunization Practices (ACIP) recommends hepatitis B vaccination among

- ▀ all adults aged 19–59 years
- ▀ adults >60 yrs with risk factors

Adults >60 yrs without identified risk factors but seeking protection may still receive hepatitis B vaccination

[CDC guidelines on hepatitis B vaccination of adults \(April 2022\)](#)



## Hepatitis B vaccination

- WHO does not recommend routine booster dose(s) of hepatitis B vaccine after completion of the primary vaccination series for persons with normal immune status.
- Routine post-vaccination testing for immunity is not necessary
- Post-vaccination testing should be considered for high-risk individuals, whose subsequent clinical management depends on knowledge of their immune status**
  - persons at risk of occupational exposure to HBV infection, e.g. health-care workers
  - infants born to HBsAg-positive mothers
  - chronic haemodialysis patients
  - HIV-positive and other immunocompromised persons
  - sex partners or needle-sharing partners of persons who are HBsAg-positive
- Testing should be carried out 1–2 months after administration of the last dose of the vaccine series using a method that allows for a quantitative determination of the anti-HBs antibody level with a detection limit **<10 mIU/mL**.



**IT'S TIME  
TO ACT!**

# I CAN'T WAIT

The sooner I know if I have hepatitis, the better chance I have of a long and healthy life.

**Don't wait. Get tested.**



World Hepatitis Day  
28 July  
#WorldHepatitisDay  
worldhepatitisday.org



# I CAN'T WAIT TO GET TREATED

I know that hepatitis is the leading cause of liver cancer. Starting treatment on time is the best way to protect myself.

**Don't wait. Speak to your health professional.**



World Hepatitis Day  
28 July  
#WorldHepatitisDay  
worldhepatitisday.org



# Hong Kong Viral Hepatitis Action Plan 2020-2024



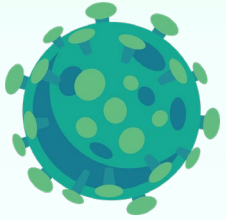
English



Chinese

<https://www.youtube.com/watch?v=WqeRtCNtDk0>

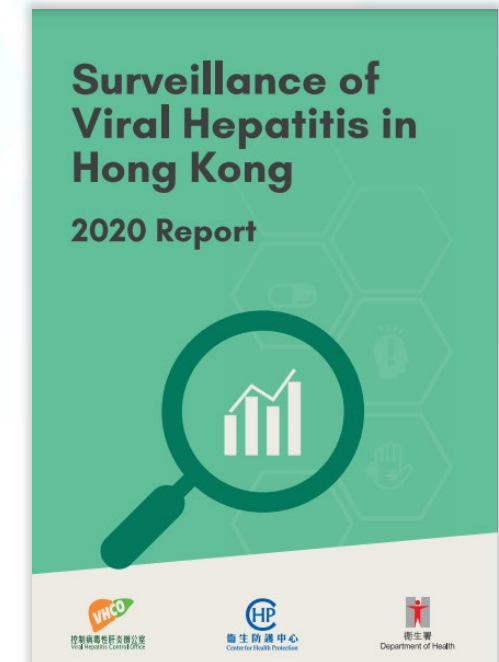
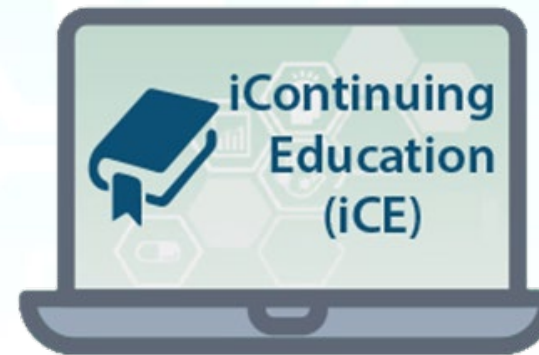




# Information for health professionals

## Health Professionals

- iContinuing Education (iCE)
- Training Materials
- Guidelines / Recommendations
- Surveillance Reports
- Other Publications



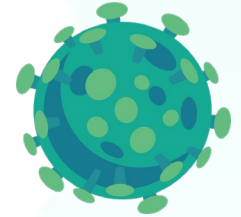
## Health educational resources



<https://youtu.be/E7k-SSmXXfY>

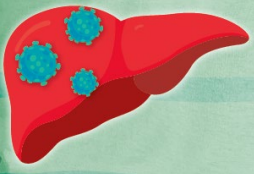


# Health educational resources



## 乙肝無聲致肝癌 及早檢測及早醫

Hepatitis B can cause cancer  
Get tested and treated early



慢性乙型肝炎患者的家庭成員和性伴侶及  
感染風險較高的人士應及早檢測！  
Family members and sexual partners of people with chronic hepatitis B and  
people at higher risk of infection should get tested early!



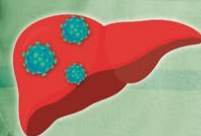
www.hepatitis.gov.hk

乙型肝炎影片  
Hepatitis B video



## 乙型肝炎你要知

What you need to  
know about hepatitis B



控制病毒性肝炎辦公室  
Viral Hepatitis Control Office



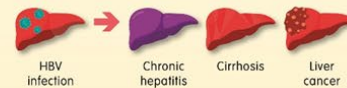
衛生防護中心  
Centre for Health Protection



衛生署  
Department of Health

### What is hepatitis B?

- Hepatitis B is a liver disease caused by hepatitis B virus (HBV).
- Infants and young children are mostly asymptomatic when newly infected with HBV, while 30 - 50% of older children or adults with acute hepatitis B may develop symptoms that are undistinguishable from hepatitis of other causes, such as fever, fatigue, loss of appetite, nausea, vomiting, upper abdominal discomfort, tea-coloured urine and jaundice (yellowing of the skin and the whites of eyes).
- Some people fail to clear the virus and develop **chronic hepatitis B infection**. The younger a person is when infected with HBV, the higher the risk of developing chronic infection.
  - Some 90% of newborn babies infected with HBV would develop chronic hepatitis B (CHB).
  - About 5% of HBV infection acquired in adulthood would lead to CHB.
- Over time, about 15 - 40% of people with CHB could develop cirrhosis and liver cancer. They may remain asymptomatic until signs and symptoms develop secondary to serious liver damage.



- About 80% of liver cancer patients in Hong Kong are infected with HBV.
- Since 1988, universal childhood hepatitis B vaccination programme has been implemented in Hong Kong, greatly reducing the risk of HBV infection.

### How is HBV transmitted?

#### Mother-to-child transmission (MTCT)

HBV can be transmitted from mothers with CHB to their babies during delivery. In endemic places, most persons with CHB acquired HBV infection by MTCT.



#### Contact with blood or body fluids of an infected person

- Contact with an infected person's blood or body fluids through broken skin, or mucosal membranes of the eyes or mouths
- Sharing injection instruments for drug injection
- Using contaminated instruments for ear-piercing, tattooing or acupuncture
- Sharing personal items, which may be contaminated with blood, such as razors, shavers and nail trimmers
- Reusing inadequately sterilised medical equipment
- Transfusion of contaminated blood or blood products

#### Sexual contact

Unprotected sexual contact with an infected person

HBV is **not** transmitted through breastfeeding or social contact, such as sharing eating utensils, dining together, hugging, shaking hands and kissing.



### Persons at higher risk of HBV infection should get tested

Persons considered at **higher risk of infection** include:

- Family members (such as parents, siblings and offspring) and sexual partners of people with CHB
- People who inject drugs
- Men who have sex with men
- HIV-positive people
- People who receive blood or blood products on a regular basis
- People on dialysis
- Healthcare workers who may have occupational exposure to blood or body fluids of patients

The test generally consists of blood tests on **hepatitis B surface antigen (HBsAg)** and **hepatitis B surface antibody (anti-HBs)** for assessing hepatitis B infection and immune status respectively.

Test results		Clinical interpretation
HBsAg	anti-HBs	
Positive (+)	Negative (-)	<ul style="list-style-type: none"> <li>Infected with HBV</li> <li>Should seek medical consultation as early as possible</li> <li>Persistence of HBsAg for more than 6 months indicates <b>chronic HBV infection</b></li> </ul>
Negative (-)	Positive (+)	<ul style="list-style-type: none"> <li>No HBV infection</li> <li>Have adequate protective antibodies against HBV infection</li> </ul>
Negative (-)	Negative (-)	<ul style="list-style-type: none"> <li>No HBV infection</li> <li>Not immune to HBV infection and may consider hepatitis B vaccination</li> </ul>

### How to treat HBV infection?

- Antiviral medication is effective in inhibiting HBV replication and reducing the risk of cirrhosis, liver failure and liver cancer.
- Doctors will thoroughly assess the condition of each patient with CHB to determine when antiviral medication is needed.
- Patients with CHB should have regular medical follow-up and relevant investigations, such as blood test for liver function, alpha-fetoprotein and viral load, and ultrasonographic abdominal examination, for early detection and management of changes in the liver condition.



### How to prevent HBV infection?

- Receive hepatitis B vaccination to acquire immunity against HBV infection
- Wear gloves while handling open wounds with care and bandage them properly
- Do not share personal care items which may be contaminated with blood, such as razors and nail scissors
- Do not share needles or any other injecting equipment
- Practice safer sex and use condom properly
- Wear gloves and use household bleach to disinfect items contaminated by blood or body fluids






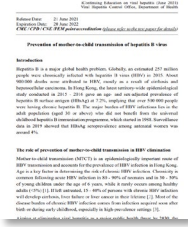
To get tested for hepatitis B, please consult your family doctor.



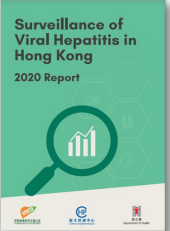
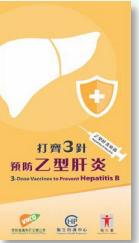
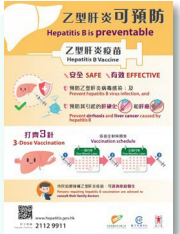

www.hepatitis.gov.hk

Viral Hepatitis Control Office  
Special Preventive Programme  
Department of Health  
July 2022

# Useful resources




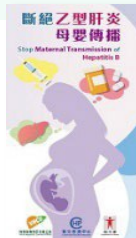
Category	Title	Link	Cover
<b>Video</b>	Hong Kong Viral Hepatitis Action Plan 2020-2024	<a href="https://youtu.be/VaHs-DZWXEM">https://youtu.be/VaHs-DZWXEM</a>	
<b>iContinuing Education</b>	Micro-elimination of hepatitis C in people who inject drugs	<a href="https://www.hepatitis.gov.hk/english/health_professionals/files/iCE_HC_V_PWID_paper.pdf">https://www.hepatitis.gov.hk/english/health_professionals/files/iCE_HC_V_PWID_paper.pdf</a>	
<b>iContinuing Education</b>	Serologic testing after hepatitis B vaccination for babies born to mothers infected with hepatitis B virus	<a href="https://www.hepatitis.gov.hk/english/health_professionals/files/iCE_PV_ST.pdf">https://www.hepatitis.gov.hk/english/health_professionals/files/iCE_PV_ST.pdf</a>	
<b>iContinuing Education</b>	Prevention of mother-to-child transmission of hepatitis B virus	<a href="https://www.hepatitis.gov.hk/english/health_professionals/files/iCE_PM_TCT_of_HBV.pdf">https://www.hepatitis.gov.hk/english/health_professionals/files/iCE_PM_TCT_of_HBV.pdf</a>	

# Useful resources



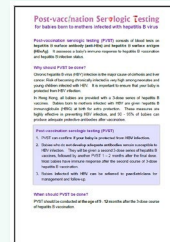

Category	Title	Link	Cover
<b>Surveillance Report</b>	Surveillance of Viral Hepatitis in Hong Kong – 2020 Report	<a href="https://www.hepatitis.gov.hk/english/health_professionals/files/hepsurv20.pdf">https://www.hepatitis.gov.hk/english/health_professionals/files/hepsurv20.pdf</a>	
<b>Pamphlet</b>	Hepatitis B vaccination	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/leaflet2020_2.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/leaflet2020_2.pdf</a>	
<b>Poster</b>	Hepatitis B vaccination	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/poster2020_2.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/poster2020_2.pdf</a>	
<b>Video</b>	Stop mother-to-child transmission to realise a hepatitis B-free generation	<a href="https://youtu.be/5_FFuOKVVb4">https://youtu.be/5_FFuOKVVb4</a>	



# Useful resources



Category	Title	Link	Cover
Health Talk	Prevention of mother-to-child transmission of hepatitis B	<a href="https://www.hepatitis.gov.hk/english/health_professionals/files/Prevention_of_MTCT_of_HBV_web.pdf">https://www.hepatitis.gov.hk/english/health_professionals/files/Prevention_of_MTCT_of_HBV_web.pdf</a>	
Health Talk	Stop mother-to-child transmission of hepatitis B	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/stop_MTCT.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/stop_MTCT.pdf</a>	
Pamphlet	Prevention of perinatal hepatitis B	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/leaflet2020_3.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/leaflet2020_3.pdf</a>	
Pamphlet	Stop maternal transmission of hepatitis B (languages of ethnic minorities are available)	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/stop-transmission-leaflet-w3c.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/stop-transmission-leaflet-w3c.pdf</a>	

# Useful resources

Category	Title	Link	Cover
Poster	Prevention of perinatal hepatitis B	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/poster2020_3.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/poster2020_3.pdf</a>	
Poster	Stop maternal transmission of hepatitis B	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/poster2020_4.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/poster2020_4.pdf</a>	
Factsheet	Post-vaccination serologic testing (PVST)	<a href="https://www.hepatitis.gov.hk/doc/pdf/PVST_factsheet.pdf">https://www.hepatitis.gov.hk/doc/pdf/PVST_factsheet.pdf</a>	
Pamphlet	What you need to know about hepatitis C	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/What_you_need_to_know_about_hep_C.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/What_you_need_to_know_about_hep_C.pdf</a>	

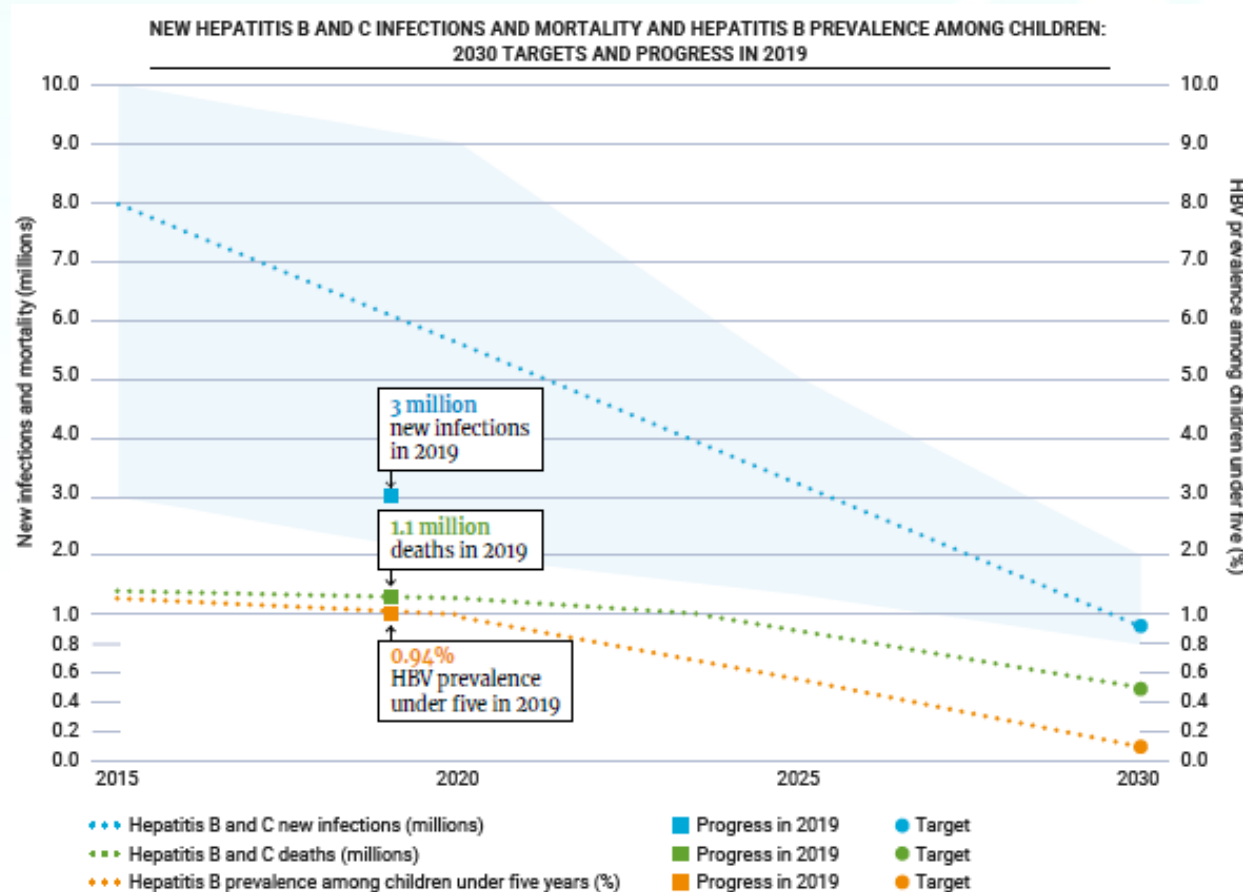


# Useful resources

Category	Title	Link	Cover
Pamphlet	Getting tested for hepatitis C can save your life	<a href="https://www.hepatitis.gov.hk/tc_chi/resources/files/Pamphlet_Getting%20Tested%20for%20Hep%20C_WCAG.pdf">https://www.hepatitis.gov.hk/tc_chi/resources/files/Pamphlet_Getting%20Tested%20for%20Hep%20C_WCAG.pdf</a>	
Poster	Getting tested for hepatitis C can save your life	<a href="https://www.hepatitis.gov.hk/english/resources/poster2021_1.html">https://www.hepatitis.gov.hk/english/resources/poster2021_1.html</a>	

# Supplementary slides

## WHO Global progress report on HIV, viral hepatitis and STI, 2021



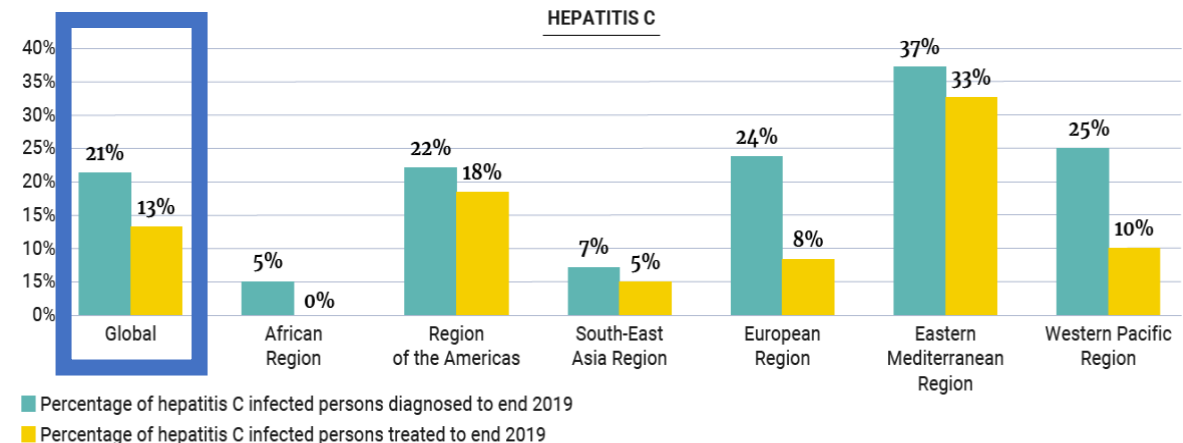
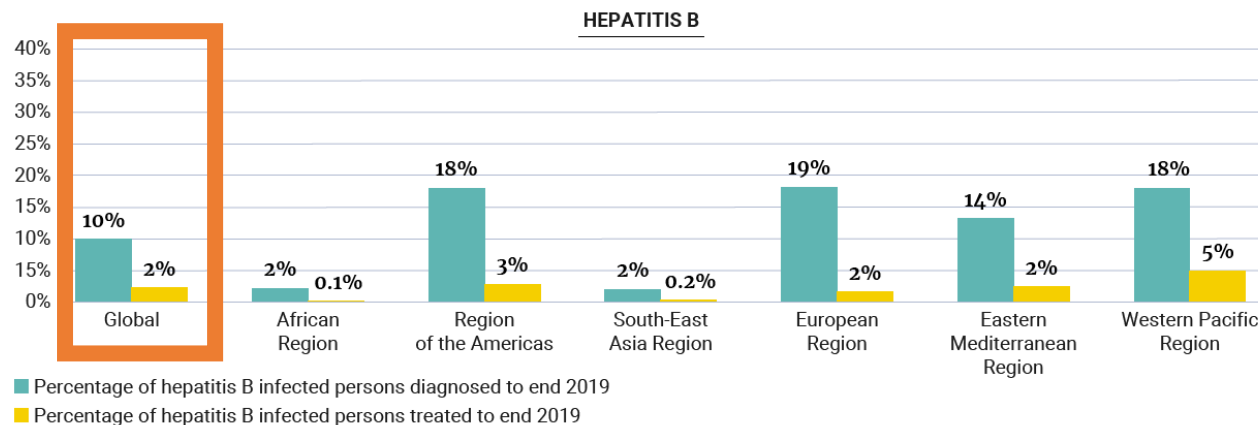
	2015	2019
HBV & HCV incidence	6-10 million	3 million
HBV & HCV deaths	1.34 million	1.1 million
HBV prevalence under 5	1.3%	0.94%
HBV prevalence	257 million (3.5%)	296 million [3.8%]*
HCV prevalence	71 million (1%)	58 million [0.8%]*

Scaled-up hepatitis B vaccination had steeply reduced the global prevalence of HBV infection among children under 5 to 0.94% in 2019, from 4.7% in the pre-vaccination era (which, according to the year of introduction can range from 1980s to the early 2000s in different countries)

## WHO Global progress report on HIV, viral hepatitis and STI, 2021

- 10% of estimated 296 million people with chronic HBV infection were diagnosed
- 6.6 million were receiving treatment
  - 22% of patients diagnosed with HBV
  - 2.2% coverage of people with CHB

- 21% of estimated 58 million people with chronic HCV infection were diagnosed
- 9.4 million treated between 2015 to 2019
  - 62% of patients diagnosed with HCV
  - 13% coverage of the people in need



## WHO Guidelines on Hepatitis B and C Testing 2017

### Who to test for HCV infection

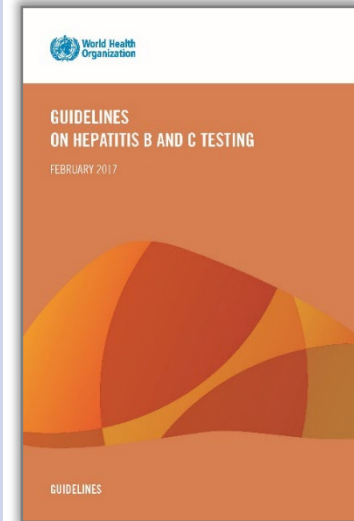
#### 1. Focused testing

- Adults and adolescents from populations most affected by HCV infection
  - who are part of the population with high HCV seroprevalence  
(e.g. some migrant populations from endemic countries, some indigenous populations)
  - who have a history of exposure and/or high-risk behaviors for HCV infection  
(PWID, people in prisons/other closed settings, MSM, sex workers, HIV-infected, tattoos, transfusions, children of mothers with chronic HCV infection esp. if HIV-coinfected)
- Those with a clinical suspicion of chronic viral hepatitis

#### 2. General population testing in settings with $\geq 2\%$ or $\geq 5\%$ (intermediate / high) HCV Ab prevalence

#### 3. Birth cohort testing for specific identified birth cohorts of older persons at higher risk of infection and morbidity within populations that have an overall lower general prevalence

(historical exposure to unscreened or inadequately screened blood products and/or poor injection safety)





## WHO updated recommendations on simplified service delivery and diagnostics for hepatitis C infection (June 2022)

### Simplified service delivery

- Expansion of HCV testing and treatment services, ideally at the same site, through **decentralization** of care to lower-level facilities;
- integration with existing services**, such as in primary care, harm reduction programmes, prisons and HIV services; and
- promotion of **task sharing** through delivery of HCV testing, care and treatment by appropriately trained non-specialist doctors and nurses

### HCV diagnostics

- use of **point-of-care (POC) HCV RNA viral load assays** as an alternative approach to laboratory-based RNA assays to diagnose viraemic infection, esp. applicable to marginalized populations (e.g. PWIDs), and hard-to-reach communities with limited access to health care and high rates of loss to follow-up
- Reflex HCV RNA testing** in those with a positive anti-HCV test to promote linkage to care and treatment



## WHO updated recommendations on treatment of adolescents and children with chronic HCV infection (June 2022)

- extend the 2018 treat all recommendation for adults with chronic HCV infection to include adolescents and children down to 3 years
- align the existing recommended pangenotypic direct-acting antiviral (DAA) regimens (SOF/DCV, SOF/VEL and G/P) for adults, to those for adolescents and children.

This alignment is expected to simplify procurement, promote access to treatment among children in low- and middle-income countries and contribute to global efforts to eliminate the disease.

