Hepatitis B and Hepatitis C screening and management

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Acknowledgement

We acknowledge the peoples of the Kulin nation as the Traditional Custodians of the land on which our work in the community takes place. We pay our respects to their Elders past and present.

Hepatitis B Virus (HBV)

Chronic hepatitis B (CHB)

- Chronic hepatitis B needs lifelong monitoring to prevent liver disease and liver cancer
- Hepatitis B virus is the 2nd most important known human carcinogen – after tobacco
- Many people will feel well and healthy – but there is no such thing as “a healthy carrier”
- Chronic hepatitis B can be managed well and some people will require medication
- The hepatitis B vaccine provides primary prevention and is offered to all newborns in Australia as well as other at-risk individuals

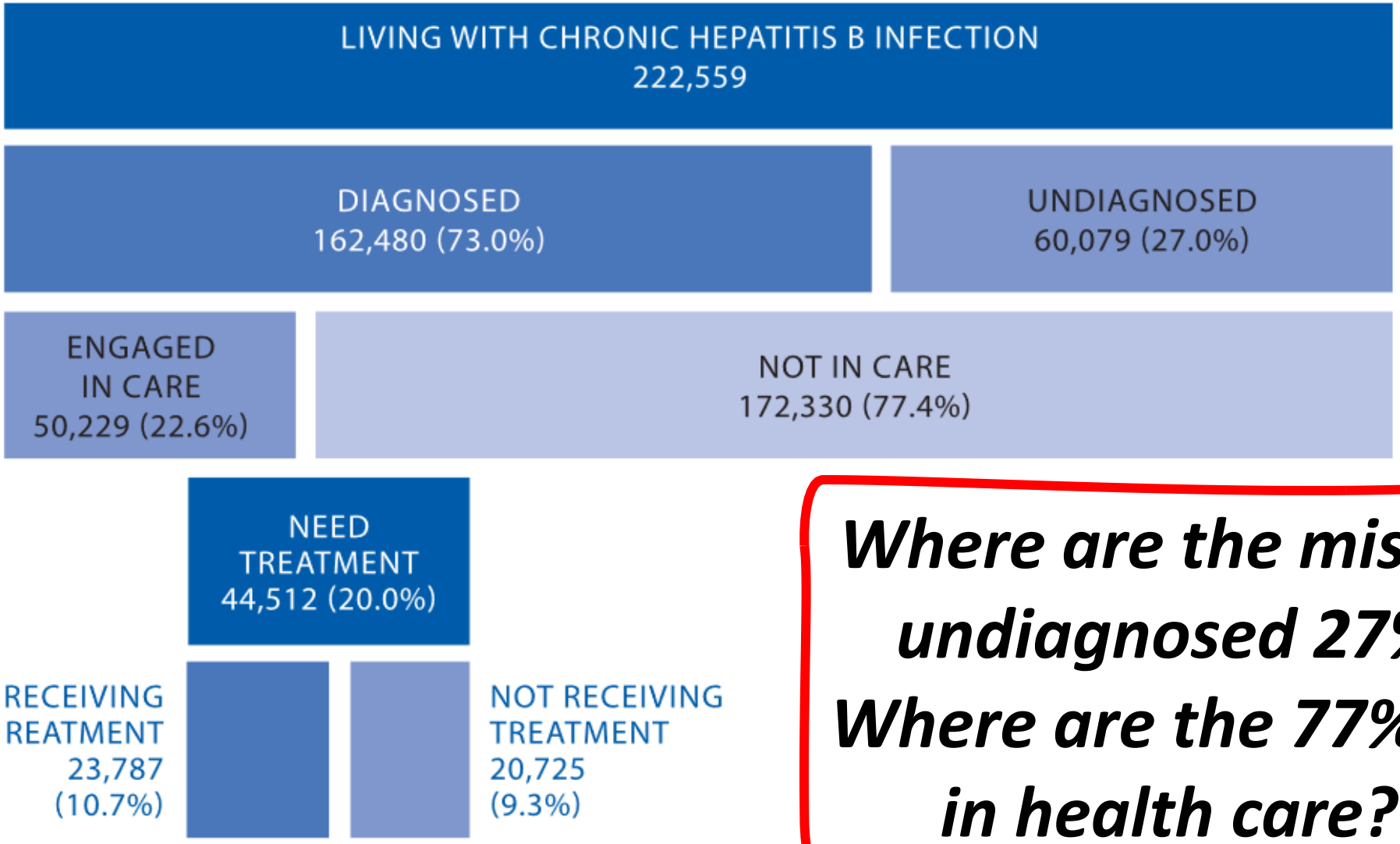
Transmission of hepatitis B

- Hepatitis B is transmitted through infected blood or bodily fluids (semen and vaginal fluids)
- Virus enters the blood stream through broken skin or mucous membranes
- Globally, most people are infected at time of birth or early in life
- Often more than one person in a family is infected

People to offer testing/screening to

- People born in intermediate or high prevalence country (offer interpreter)
- Aboriginal and Torres Strait Islander peoples
- Patients undergoing chemotherapy or immunosuppressive therapy (risk of reactivation)
- Pregnant
- Infants
- People
- Health
- Partner/household/sexual
- People who have ever injected drugs
- Men who have sex with men
- People with multiple sex partners
- People who have ever been in custodial settings
- People with HIV or hepatitis C, or both
- Patients undergoing dialysis
- Sex workers
- People initiating HIV pre-exposure prophylaxis

ANYONE who requests a test
ANYONE who has cirrhosis or liver disease or tested positive and not followed up



Where are the missing undiagnosed 27%? Where are the 77% not in health care??

Screening tests for hepatitis B virus

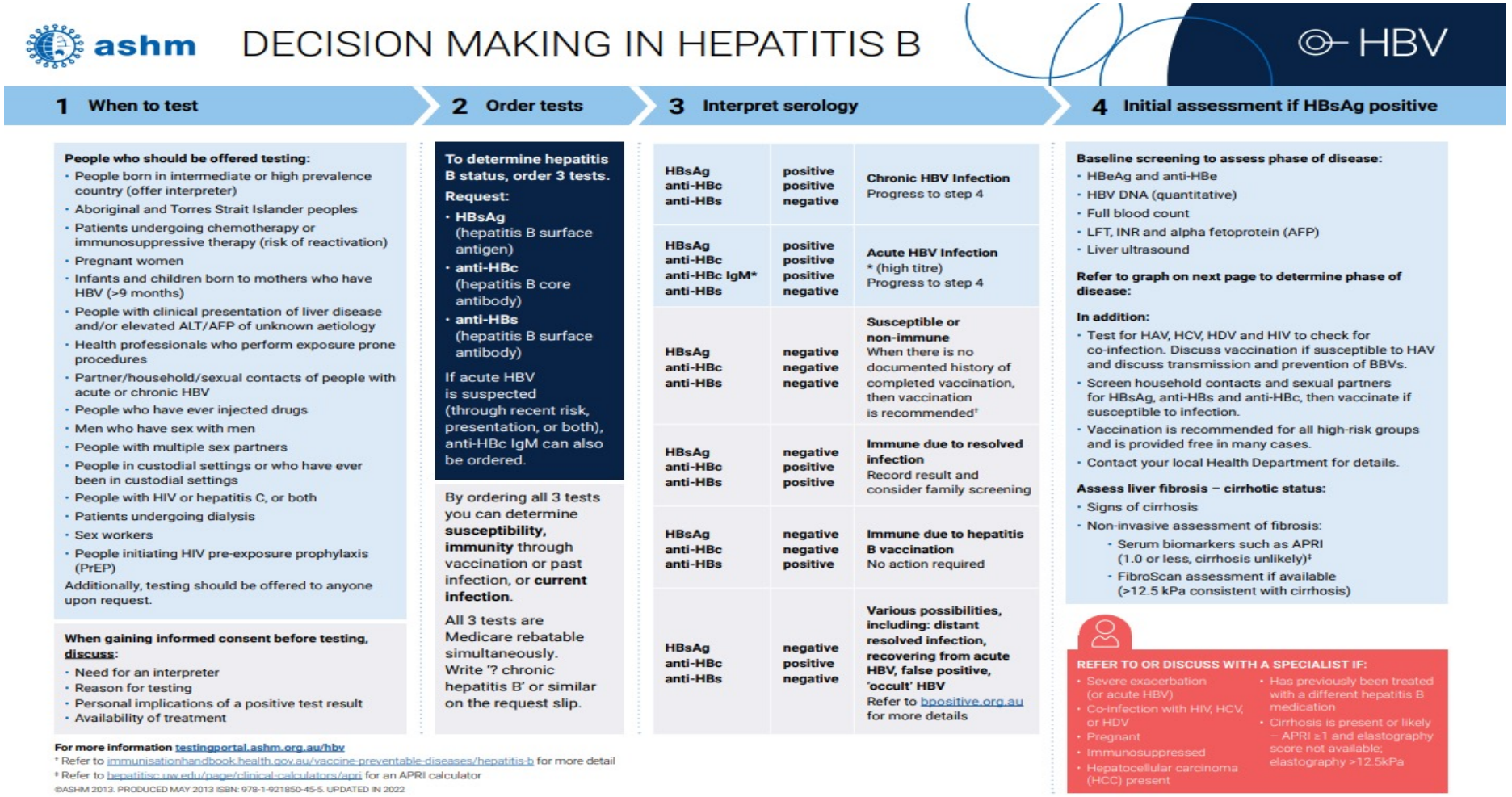
- To determine hepatitis B status, order panel of 3 tests
  1. HBsAg (hepatitis B surface antigen)
  2. anti-HBc (hepatitis B core antibody)
  3. anti-HBs (hepatitis B surface antibody)

- Three tests together can determine current infection, susceptibility or immunity (through vaccination or past infection) and assist with referral for care planning

- All three tests are Medicare rebatable at the same time

- Write “? Chronic hepatitis B” on pathology form

Use the ASHM Decision Making Tool available online to support interpretation of results:



ashm DECISION MAKING IN HEPATITIS B

HBV

1 When to test

People who should be offered testing:

- People born in intermediate or high prevalence country (offer interpreter)
- Aboriginal and Torres Strait Islander peoples
- Patients undergoing chemotherapy or immunosuppressive therapy (risk of reactivation)
- Pregnant women
- Infants and children born to mothers who have HBV (>9 months)
- People with clinical presentation of liver disease and/or elevated ALT/AFP of unknown aetiology
- Health professionals who perform exposure prone procedures
- Partner/household/sexual contacts of people with acute or chronic HBV
- People who have ever injected drugs
- Men who have sex with men
- People with multiple sex partners
- People in custodial settings or who have ever been in custodial settings
- People with HIV or hepatitis C, or both
- Patients undergoing dialysis
- Sex workers
- People initiating HIV pre-exposure prophylaxis (PrEP)

Additionally, testing should be offered to anyone upon request.

When gaining informed consent before testing, discuss:

- Need for an interpreter
- Reason for testing
- Personal implications of a positive test result
- Availability of treatment

2 Order tests

To determine hepatitis B status, order 3 tests.

Request:

- **HBsAg** (hepatitis B surface antigen)
- **anti-HBc** (hepatitis B core antibody)
- **anti-HBs** (hepatitis B surface antibody)

If acute HBV is suspected (through recent risk, presentation, or both), anti-HBc IgM can also be ordered.

By ordering all 3 tests you can determine **susceptibility, immunity** through vaccination or past infection, or **current infection**.

All 3 tests are Medicare rebatable simultaneously. Write '? chronic hepatitis B' or similar on the request slip.

3 Interpret serology

HBsAg anti-HBc anti-HBs	positive positive negative	**Chronic HBV Infection** Progress to step 4
HBsAg anti-HBc anti-HBc IgM* anti-HBs	positive positive positive negative	**Acute HBV Infection** * (high titre) Progress to step 4
HBsAg anti-HBc anti-HBs	negative negative negative	**Susceptible or non-immune** When there is no documented history of completed vaccination, then vaccination is recommended†
HBsAg anti-HBc anti-HBs	negative positive positive	**Immune due to resolved infection** Record result and consider family screening
HBsAg anti-HBc anti-HBs	negative negative positive	**Immune due to hepatitis B vaccination** No action required
HBsAg anti-HBc anti-HBs	negative positive negative	**Various possibilities, including: distant resolved infection, recovering from acute HBV, false positive, 'occult' HBV** Refer to bpositive.org.au for more details

4 Initial assessment if HBsAg positive

Baseline screening to assess phase of disease:

- HBeAg and anti-HBe
- HBV DNA (quantitative)
- Full blood count
- LFT, INR and alpha fetoprotein (AFP)
- Liver ultrasound

Refer to graph on next page to determine phase of disease:

In addition:

- Test for HAV, HCV, HDV and HIV to check for co-infection. Discuss vaccination if susceptible to HAV and discuss transmission and prevention of BBVs.
- Screen household contacts and sexual partners for HBsAg, anti-HBs and anti-HBc, then vaccinate if susceptible to infection.
- Vaccination is recommended for all high-risk groups and is provided free in many cases.
- Contact your local Health Department for details.

Assess liver fibrosis – cirrhotic status:

- Signs of cirrhosis
- Non-invasive assessment of fibrosis:
  - Serum biomarkers such as APRI (1.0 or less, cirrhosis unlikely)‡
  - FibroScan assessment if available (>12.5 kPa consistent with cirrhosis)

REFER TO OR DISCUSS WITH A SPECIALIST IF:

- Severe exacerbation (or acute HBV)
- Co-infection with HIV, HCV, or HDV
- Pregnant
- Immunosuppressed
- Hepatocellular carcinoma (HCC) present
- Has previously been treated with a different hepatitis B medication
- Cirrhosis is present or likely – APRI ≥1 and elastography score not available; elastography >12.5kPa

For more information testingportal.ashm.org.au/hbv

† Refer to immunisationhandbook.health.gov.au/vaccine-preventable-diseases/hepatitis-b for more detail

‡ Refer to hepatitisc.uw.edu/page/clinical-calculators/apri for an APRI calculator

https://ashm.org.au/wp-content/uploads/2022/08/ASHM-Decision-Making-in-Hepatitis-B-2021-update-2.pdf

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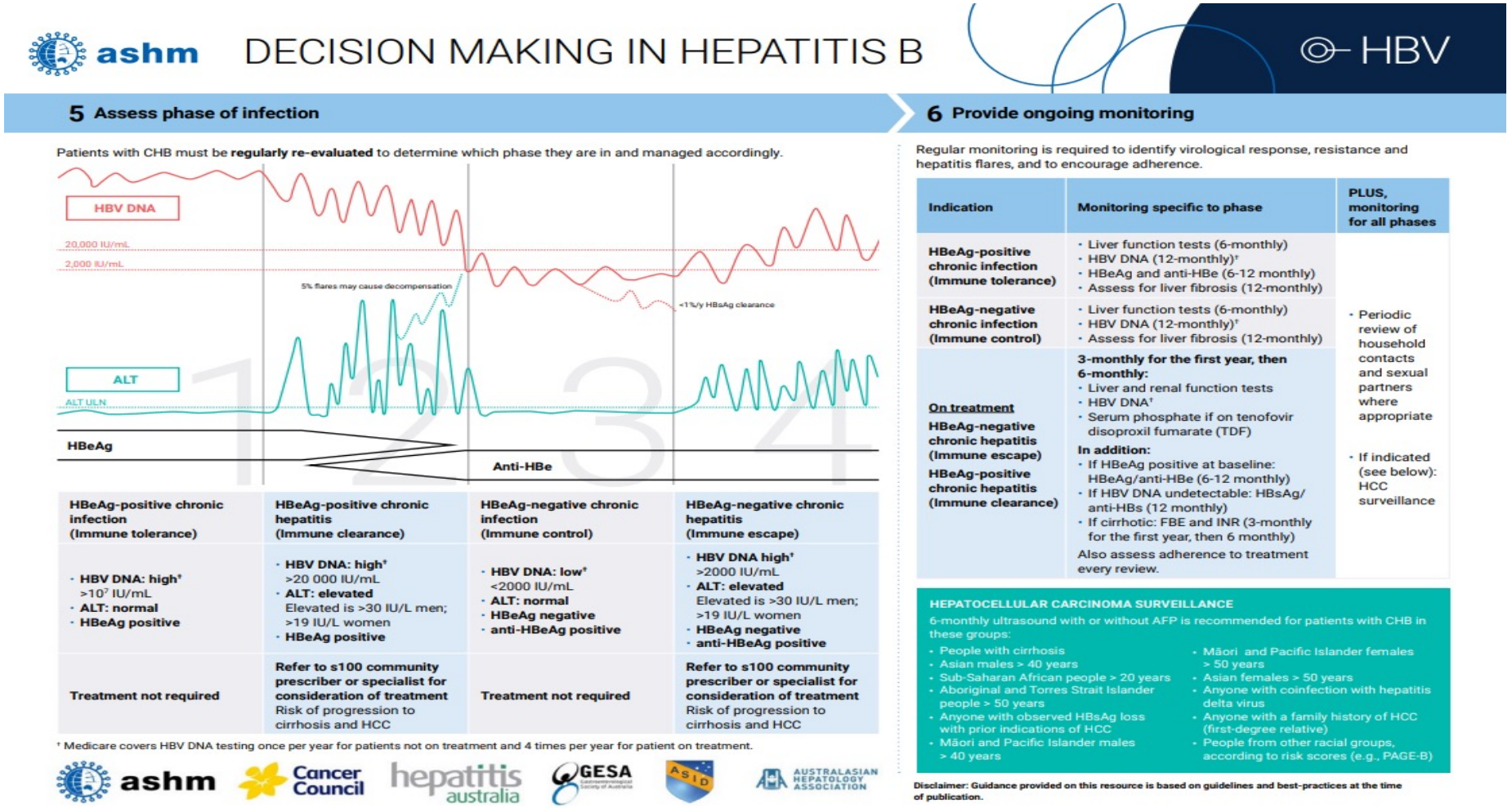

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HBV

5 Assess phase of infection

Patients with CHB must be **regularly re-evaluated** to determine which phase they are in and managed accordingly.

HBeAg-positive chronic infection (Immune tolerance)	HBeAg-positive chronic hepatitis (Immune clearance)	HBeAg-negative chronic infection (Immune control)	HBeAg-negative chronic hepatitis (Immune escape)
· **HBV DNA: high**† >10^7 IU/mL · **ALT: normal** · **HBeAg positive**	· **HBV DNA: high**† >20 000 IU/mL · **ALT: elevated** Elevated is >30 IU/L men; >19 IU/L women · **HBeAg positive**	· **HBV DNA: low**† <2000 IU/mL · **ALT: normal** · **HBeAg negative** · **anti-HBeAg positive**	· **HBV DNA high**† >2000 IU/mL · **ALT: elevated** Elevated is >30 IU/L men; >19 IU/L women · **HBeAg negative** · **anti-HBeAg positive**
Treatment not required	**Refer to s100 community prescriber or specialist for consideration of treatment** Risk of progression to cirrhosis and HCC	**Treatment not required**	**Refer to s100 community prescriber or specialist for consideration of treatment** Risk of progression to cirrhosis and HCC

† Medicare covers HBV DNA testing once per year for patients not on treatment and 4 times per year for patient on treatment.

6 Provide ongoing monitoring

Regular monitoring is required to identify virological response, resistance and hepatitis flares, and to encourage adherence.

Indication	Monitoring specific to phase	PLUS, monitoring for all phases
HBeAg-positive chronic infection (Immune tolerance)	· Liver function tests (6-monthly) · HBV DNA (12-monthly)† · HBeAg and anti-HBe (6-12 monthly) · Assess for liver fibrosis (12-monthly)	· Periodic review of household contacts and sexual partners where appropriate · If indicated (see below): HCC surveillance
HBeAg-negative chronic infection (Immune control)	· Liver function tests (6-monthly) · HBV DNA (12-monthly)† · Assess for liver fibrosis (12-monthly)	
On treatment **HBeAg-negative chronic hepatitis (Immune escape)** **HBeAg-positive chronic hepatitis (Immune clearance)**	**3-monthly for the first year, then 6-monthly:** · Liver and renal function tests · HBV DNA† · Serum phosphate if on tenofovir disoproxil fumarate (TDF) **In addition:** · If HBeAg positive at baseline: HBeAg/anti-HBe (6-12 monthly) · If HBV DNA undetectable: HBsAg/ anti-HBs (12 monthly) · If cirrhotic: FBE and INR (3-monthly for the first year, then 6 monthly) Also assess adherence to treatment every review.	

HEPATOCELLULAR CARCINOMA SURVEILLANCE

6-monthly ultrasound with or without AFP is recommended for patients with CHB in these groups:

- People with cirrhosis
- Asian males > 40 years
- Sub-Saharan African people > 20 years
- Aboriginal and Torres Strait Islander people > 50 years
- Anyone with observed HBsAg loss with prior indications of HCC
- Māori and Pacific Islander males > 40 years
- Māori and Pacific Islander females > 50 years
- Asian females > 50 years
- Anyone with coinfection with hepatitis delta virus
- Anyone with a family history of HCC (first-degree relative)
- People from other racial groups, according to risk scores (e.g., PAGE-B)

Disclaimer: Guidance provided on this resource is based on guidelines and best-practices at the time of publication.

ashm Cancer Council hepatitis australia GESA ASID AUSTRALASIAN HEPATOLOGY ASSOCIATION

https://ashm.org.au/wp-content/uploads/2022/08/ASHM-Decision-Making-in-Hepatitis-B-2021-update-2.pdf

Further management of chronic hepatitis B

- Everyone with chronic hepatitis B needs 6 – 12 monthly monitoring
  - Usually includes Liver Function Tests and for some people, a liver ultrasound plus additional serology

- More GPs are “co-managing” people with chronic hepatitis B who are well and stable

Further management of chronic hepatitis B

- Many people will not require treatment
- About 20% will need antiviral medication (S100) to reduce viral load, minimise liver disease and reduce the risk of developing liver cancer
  - Oral tablets daily; well tolerated, minimal side effects

Hepatocellular carcinoma (HCC) surveillance

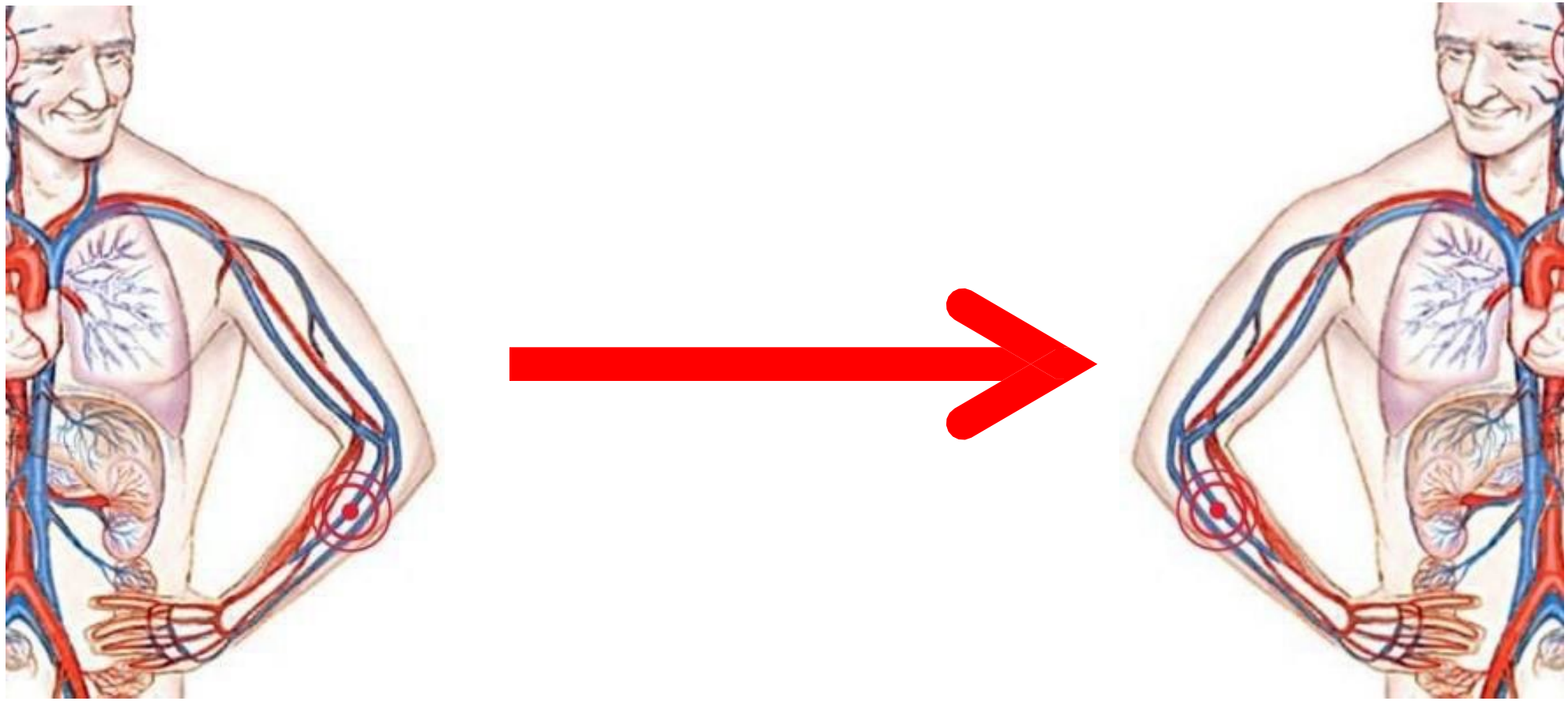
HEPATOCELLULAR CARCINOMA SURVEILLANCE

6-monthly ultrasound with or without AFP is recommended for patients with CHB in these groups:

- Asian males >40 years
- African people >20 years
- Aboriginal and Torres Strait Islander people >50 years
- Asian females >50 years
- Anyone with cirrhosis
- Anyone with a family history of HCC

Hepatitis C Virus (HCV)

HCV is transmitted by blood to blood contact



Who to screen for HCV?

1. People who have shared equipment to inject or snort drugs, to tattoo or body pierce

2. People who have ever been in prison

People who inject or have a history of injecting make up 90% of new hepatitis C diagnoses.

28 times

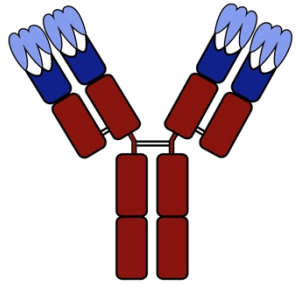
People entering prison are up to 28 times more likely to test positive to hepatitis C than the general population.

Who to screen for HCV?

- Receipt of blood products or donor organs in Aust. before 1990
- Born in a high prevalence region (Asia, Africa, Egypt, Pakistan, Eastern Eu… …rranean)
- U… …lures in high prevalence countries
- Mother to chil… …pprox 5%)
- Needle stick injury
- Men who have sex with men (MSM) & HIV+ or HB…
- Partners of HCV+ people
- Liver disease associated with HCV

ANYONE who requests a test
ANYONE who has cirrhosis or liver disease or tested positive and not followed up

Screening tests for HCV



HCV antibody

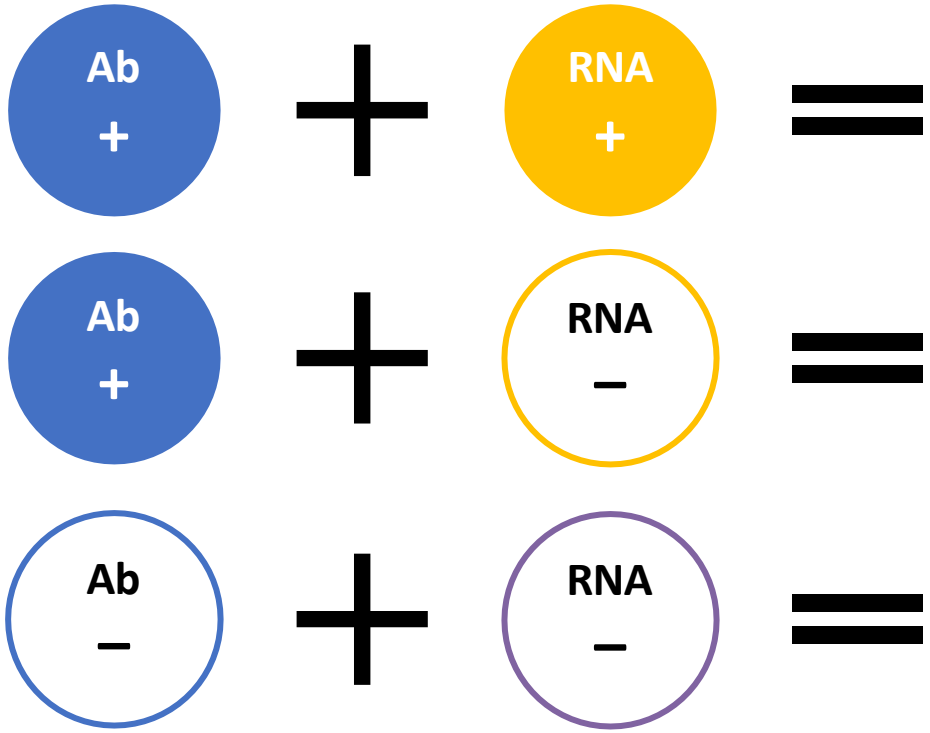
Determines if you have ever been exposed
(ever had HCV in your blood)

Doesn't determine if *current* or *past* HCV

Once exposed, will remain positive lifelong

Need to then request HCV RNA in those with positive HCV antibody and/or ongoing risk factors to determine if current infection

Hepatitis C virus (HCV) serology interpretation



Exposure to HCV and currently infected with HCV

Exposure to HCV and not currently infected with HCV (due to spontaneous clearance, or prior treatment – “cure”)

Never exposed to HCV and not currently infected with HCV

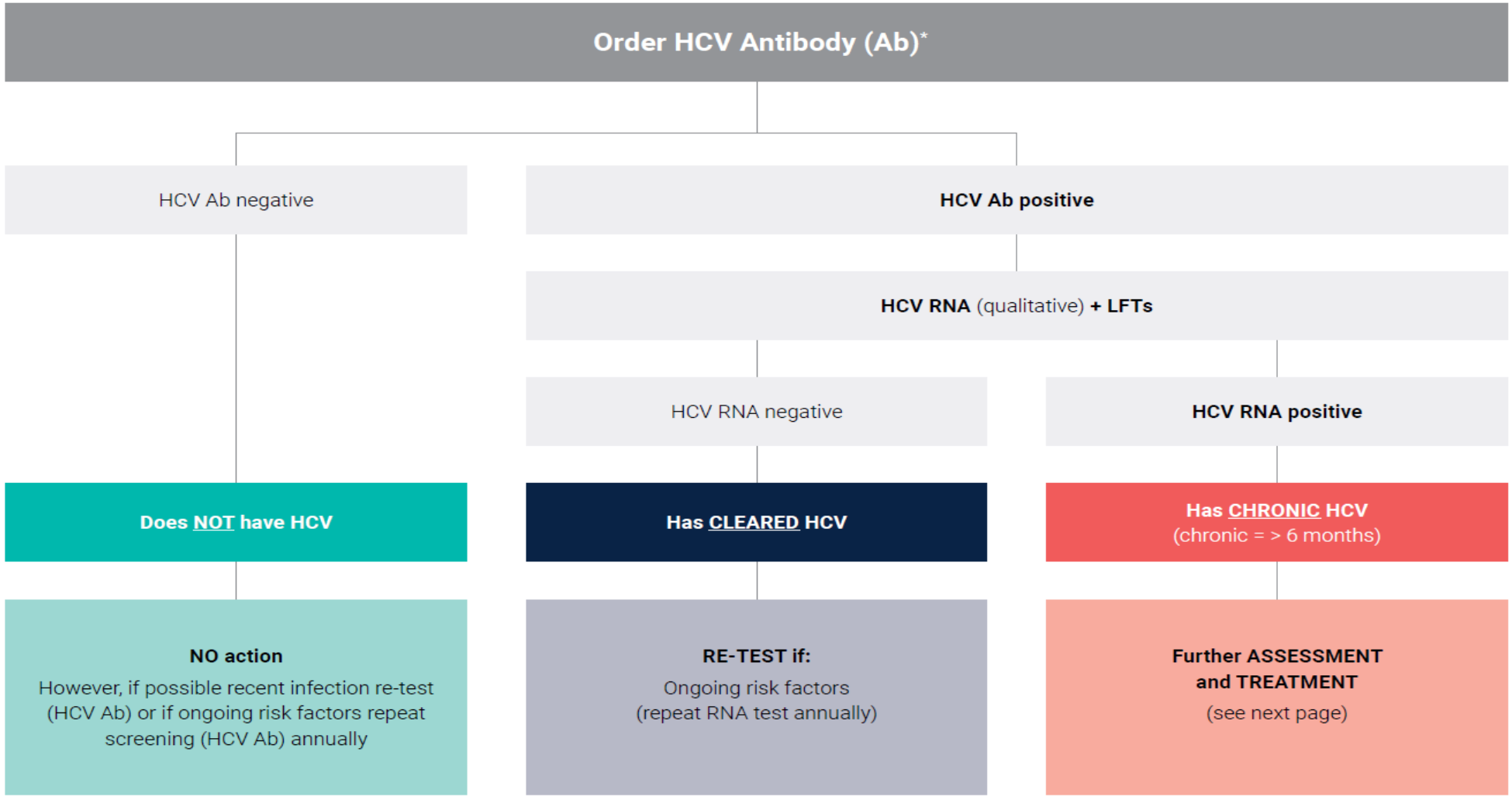
Ab — *Anti-HCV antibody test* Indicates if patient has been exposed to HCV

RNA — *HC RNA/PCR test* Indicates if patient is infected with HCV

* Slide courtesy of Gilead Sciences

Adapted from EC Practice Support Toolkit: Available at https://ecpartnership.org.au/toolkit

Request reflexive HCV RNA & LFTs



https://ashm.org.au/wp-content/uploads/2022/04/2021ASHM-Decision-making-in-hepatitis-C_.pdf

HCV is easily curable with Direct Acting Antivirals

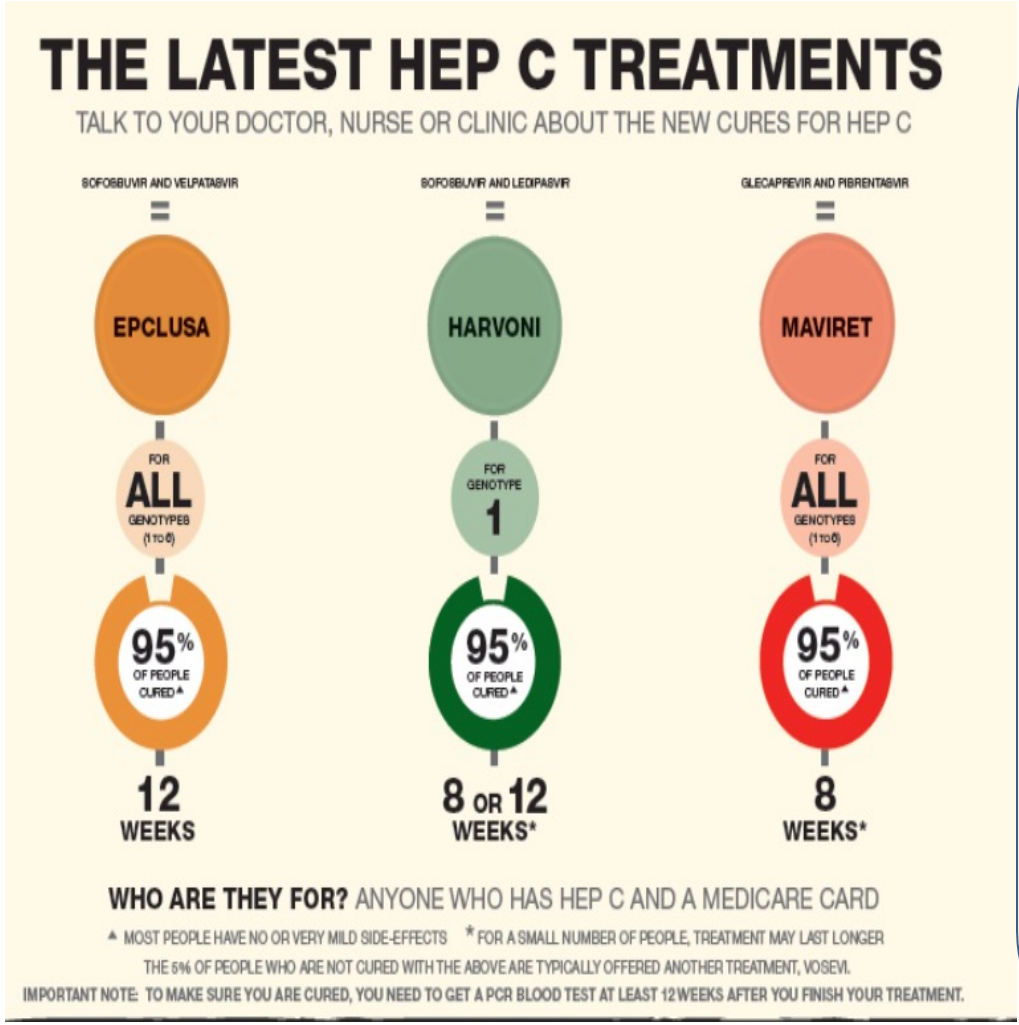
NEW

EASY

CURE

Curative treatment

- Easy and effective
- Most people will be cured after taking Direct Acting Antiviral (DAA) tablets for 8 – 12 weeks
- GPs and Nurse Practitioners can prescribe if person is not cirrhotic



Similarities

Pan-genotypic

Risk of reactivating HBV

Adverse reactions: headache, nausea and fatigue

Role of the GP and practice staff in hepatitis C and hepatitis B screening and management

- Offer anyone with risk factors a HCV/HBV screening test
- EVERYONE with HCV can receive treatment
- HCV treatment can be undertaken multiple times if required
- GPs and NPs can prescribe HCV treatments (non-cirrhotics)
- S100 prescribers can manage and treat HBV
- Further assessment and support with contact tracing can be via referral to an Infectious Diseases Physician, Gastroenterologist or specialist nurse consultant
- Both HCV and HBV are notifiable conditions in Victoria
- Clients often have other health issues and need additional support, immunisation, interpreters, visual resources, referrals, etc

References – Viral Hepatitis

Hepatitis B references

- ASHM 2021. Decision Making in Hepatitis B. Available at: https://ashm.org.au/resources/HBV-Resources-list/decision-making-in-hbv/ (this resource supports clinical decision-making in hepatitis B, including who to test, how to test and interpret serology, how to conduct initial assessment, and how to conduct ongoing monitoring).
- Hepatitis B Consensus Statement Working Group. Australian consensus recommendations for the management of hepatitis B infection. Melbourne: Gastroenterological Society of Australia, 2022. Available at: https://www.gesa.org.au/public/13/files/Education%20%26%20Resources/Clinical%20Practice%20Resources/Hep%20B/HBV%20consensus%20Mar%202022%20Updated.pdf
- State of Victoria. Victorian Hepatitis B Plan 2022-2030. Available at: https://www.health.vic.gov.au/publications/victorian-hepatitis-b-plan-2022-30
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- MacLachlan JH, Stewart S, Cowie BC. Viral Hepatitis Mapping Project: National Report 2020. Darlinghurst, NSW, Australia: Australasian Society for HIV, Viral Hepatitis, and Sexual Health Medicine (ASHM), 2020; https://www.ashm.org.au/programs/Viral-Hepatitis-Mapping-Project
- Hepatitis Victoria: https://www.hepvic.org.au/resources/

References – Viral Hepatitis

Hepatitis C references

- ASHM 2021. Decision Making in Hepatitis C. Available at: https://ashm.org.au/resources/hcv-resources-list/decision-making-in-hcv/ (2-page resource with a comprehensive overview of hepatitis C diagnosis, treatment, and follow up to assist GPs and primary care providers in the management of hepatitis C).
- Hepatitis C Virus Infection Consensus Statement Working Group. Australian recommendations for the management of hepatitis C virus infection: a consensus statement (October 2022). Melbourne: Gastroenterological Society of Australia, 2022. Available at: https://www.hepcguidelines.org.au/
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- St Vincent's Hospital "Hepatitis C: good news about treatment". Available at: https://www.svhm.org.au/ArticleDocuments/2305/Hepatitis_C_Story_English.pdf.aspx?embed=y
- Hepatitis Australia 2020. Clinical guidance for treating hepatitis C virus infection: a summary. Available at: https://ashm.blob.core.windows.net/ashmpublic/GP-algorithm-v10-June-2020.pdf
- EC Partnership 2021. EC Practice Support Toolkit. Available at: https://ecpartnership.org.au/toolkit (The EC Practice Support Toolkit was developed for primary care providers, including general practitioners, nurse practitioners, nurses, and allied health professionals. It contains all of the resources needed to promote hepatitis C testing and treatment and to ensure people remain engaged in good quality hepatitis C care to prevent further liver damage and reduce the likelihood of transmission to others).