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

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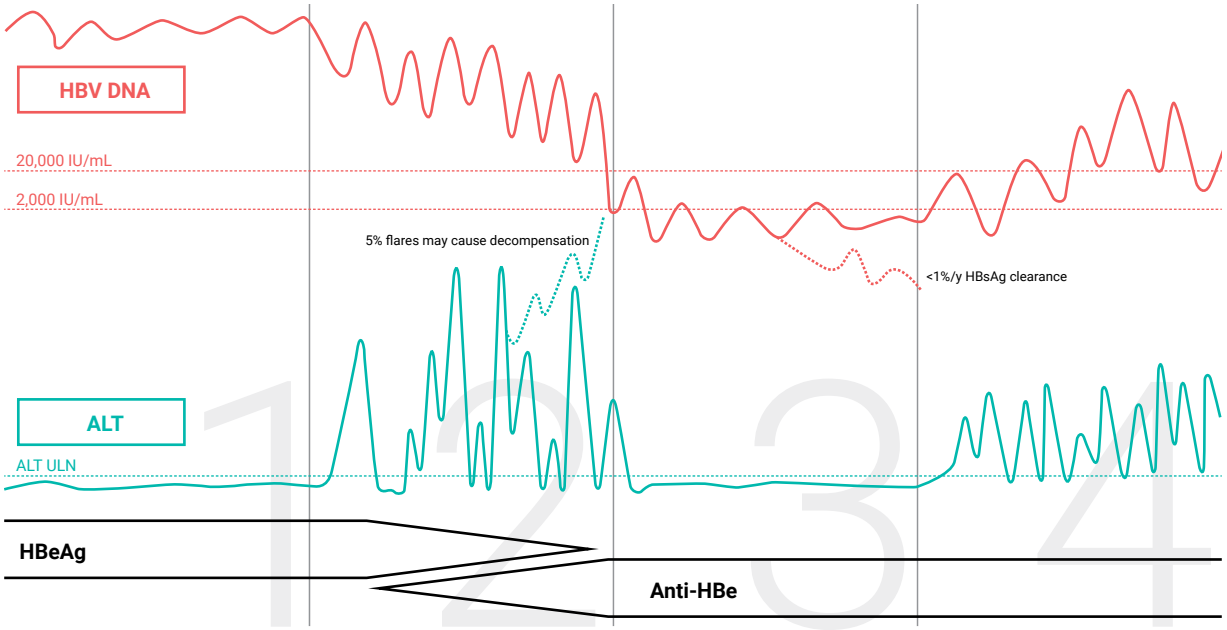
5 Assess phase of infection

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-HBe positive**	• **HBV DNA high†** >2000 IU/mL • **ALT: elevated** Elevated is >30 IU/L men; >19 IU/L women • **HBeAg negative** • **anti-HBe 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)	
<u>On treatment</u> 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.
- Anyone aged ≥ 40 years with a family history of HCC (first-degree relative). *Consider offering surveillance 10 years prior to earliest case in a family.*
- Sub-Saharan African people ≥ 20 years
- Aboriginal and Torres Strait Islander people ≥ 50 years
- Aboriginal and Torres Strait Islander people with high risk features ≥ 40 years.^
- Asian -Pacific males ≥ 40 years
- Asian - Pacific females ≥ 50 years

* These surveillance guidelines are based on the Clinical Practice Guidelines for HCC Surveillance for people at high risk in Australia (Cancer Council, April 2023). Alternative guidelines are offered in the Australian recommendations for the management of hepatocellular carcinoma: a consensus statement (GESA). ^Such as confirmed or likely high risk HBV genotype. Genotype testing is not routinely offered and not subsidised through the Medicare Benefits Schedule.