DECISION MAKING IN HEPATITIS B IN THE NORTHERN TERRITORY

ashm

HBV

1 When to test

People who should be offered testing:

- People born in intermediate or high prevalence country (offer interpreter if appropriate)
- Aboriginal & 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 &/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 service, Aboriginal health practitioner or community-based worker
- Using the Hep B Story app in preferred language
- Check the Hep B Hub for existing test results
- Reason for test
- 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 allocate an appropriate serocode.

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

3 Interpret serology

Serology	Result	Interpretation	Add to Problem List
HBsAg anti-HBc anti-HBs	positive positive negative	**Chronic HBV Infection** Progress to step 4	**Hep B: Infected ON Treatment:** Add a hep B infected care plan **Hep B: Infected NOT on Treatment**
HBsAg anti-HBc anti-HBc IgM* anti-HBs	positive positive positive negative	**Acute HBV Infection** * (high titre) Progress to step 4	**Hep B: Infected NOT on Treatment**
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† Add a vaccination care plan	**Hep B: Non-immune:** Add a vaccination care plan
HBsAg anti-HBc anti-HBs	negative positive positive	**Immune due to resolved infection** Record result and consider family screening.	**Hep B: Immune by Exposure**
HBsAg anti-HBc anti-HBs	negative negative positive	**Immune due to hepatitis B vaccination** No action required	**Hep B: Fully Vaccinated**
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	Most likely Hep B: Immune by exposure

4 Initial assessment if HBsAg positive

Baseline screening to assess phase of disease

- HBeAg and anti-HBe
- HBV DNA (quantitative)
- Full blood count
- LFT, UEC, 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 forco-infection. Discuss vaccination if susceptible to HAV and discuss transmission and prevention of BBVs. (HDV coinfection testing not needed for Aboriginal and Torres Strait Islander people)
- 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 Hepascore (Request via Territory Pathology to avoid charge to patient) or APRI (1.0 or less cirrhosis unlikely)‡
  - FIbroScan assessment if available (>10 kPa consistent with cirrhosis)
  - **Document hepatitis B serocode in Hep B Hub**

REFER TO OR DISCUSS WITH A SPECIALIST IF:

- If unsure or seeking advice
- 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 www.testingportal.ashm.org.au/hbv

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

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

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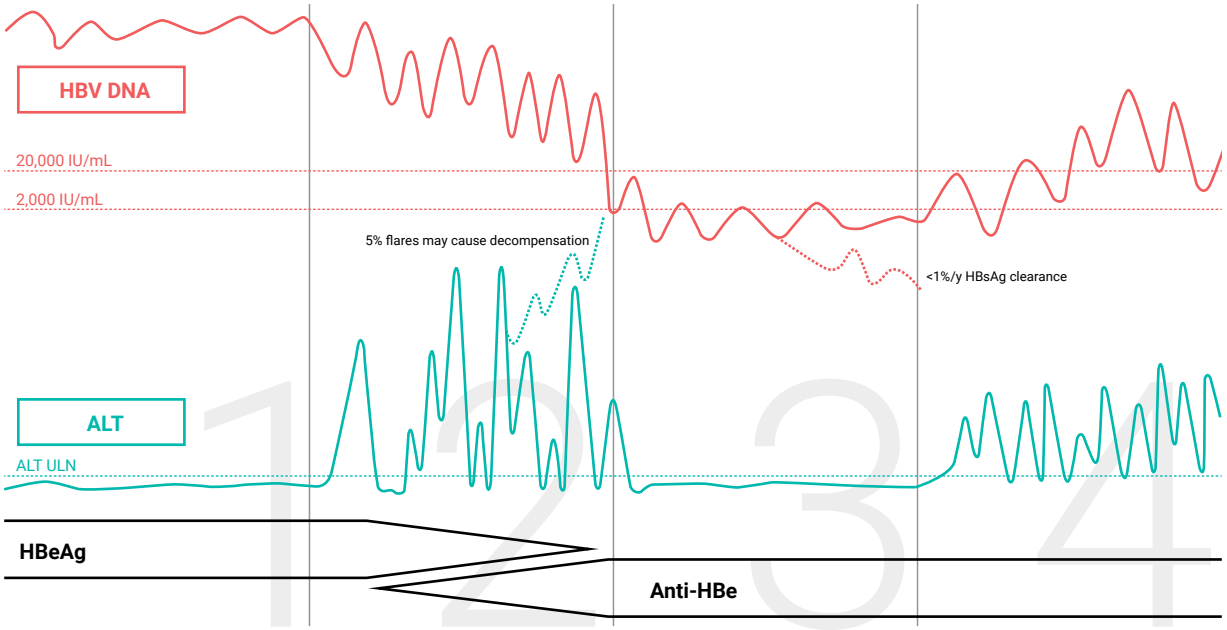
5 Assess phase of infection

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 unless cirrhotic	**Refer to s100 community prescriber or specialist for consideration of treatment** Risk of progression to cirrhosis and HCC	**Treatment not required unless cirrhotic**	**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	**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. *Finger prick (POC) INR is acceptable	

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)