What are the hepatitis B screening tests?

Note: only one blood sample is required for the blood panel.

- **Hepatitis B surface antigen (HBsAg):** this tests for the presence of the virus. A positive test means that the person is infected with hepatitis B, which can be an ‘acute’ (resolves within 6 months) or ‘chronic’ infection.

- **Hepatitis B surface antibody (anti-HBs or HBsAb):** a positive test indicates presence of the antibody which indicates immunity (immune protection). This can occur if the person has successfully responded to the hepatitis B vaccine or has recovered from a hepatitis B infection.

- **Hepatitis B core antibody (anti-HBc or HBcAb):** a positive test indicates a past or present infection.
  - Hepatitis B core antibody, total or IgG indicates current chronic infection or previous infection
  - Hepatitis B core antibody, IgM is an indicator of an acute infection and should not be used for screening for chronic infection (the HBcAb IgM negative in chronic hepatitis B infection).

### Hepatitis B (HBV) panel

- **Negative for chronic hepatitis B (HBsAg negative, HBsAb positive or negative):** No further tests required (vaccinate if appropriate)

- **Positive for chronic hepatitis B (HBsAg positive):**
  
  Test to evaluate hepatitis B virus and if treatment is required
  
  - HBV DNA testing (viral load)
  - ALT (liver enzymes)
  - HBeAg/HBeAb
  
  Note: in low resource settings not all tests may be available (HBV DNA, HBeAg/eAb) and aminotransferase (ALT) level might be used instead.*

  Other HBV tests
  - AFP (alpha-feto protein) tumor marker-screening
  - HBV genotype
  - HBV precore, basal core promoter mutations
  - HBV polymerase mutation

*Another alternative is the TREAT-B model. In low resource settings where HBV DNA testing is not available this new model uses ALT and hepatitis B e-antigen tests to determine if treatment is required. It is a lower cost alternative but further data is required, especially in sub Saharan Africa, before it could be widely implemented.
Hepatitis B can be a complicated disease and so other tests may be ordered to ensure that the best care and follow-up is provided.

<table>
<thead>
<tr>
<th>Test</th>
<th>Details</th>
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<tbody>
<tr>
<td>Hepatitis B e-Antigen (HBeAg)</td>
<td>This is a viral protein made by the hepatitis B virus and is positive in the early stages of chronic infection and associated with higher levels of viral replication and higher viral load.</td>
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<td>A negative test for someone with hepatitis B means the person has moved into a different stage of chronic hepatitis B. When the HBeAg disappears, and they develop HBe-antibody, this generally indicates a lower viral count in the blood. However, mutant strains of HBV can lead to HBeAg negative individuals to have higher viral load.</td>
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<td></td>
<td>Loss of HBeAg is an endpoint for antiviral treatment for those who are HBeAg positive at beginning of treatment. (This test should not be used for screening for hepatitis infection, only for those already diagnosed.)</td>
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<tr>
<td>Hepatitis B e-Antibody (Anti-HBe)</td>
<td>Antibodies made when individuals are able to exert a level of immune control over hepatitis B and they lose their HBeAg seropositivity. In the natural lifecycle of the virus, this HBeAg seroconversion usually occurs in the 2nd or 3rd decade of life. If it occurs after age 40, it is associated with higher risk of liver cancer.</td>
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<tr>
<td>Hepatitis B core Antibody, IgG or total (Anti-HBc or HBcAb, IgG or total)</td>
<td>Antibodies produced from current or past hepatitis B infection. All hepatitis B individuals with current infection will have these antibodies. Individuals with previous infection to hepatitis B but who have resolved their infections (HBsAg negative) also have these antibodies.</td>
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<tr>
<td>Hepatitis B core IgM Anti-hepatitis B core IgM (HBcAb)</td>
<td>Antibodies produced during an acute infection which disappear within 6 months if the infection resolves. These are not present in individuals with a current chronic infection or who had HBV infection in the past. This test should not be used for screening for chronic infection, only to diagnose an acute infection.</td>
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Further information on these test can be found [here](#).