Hepatitis B (Acute Case)

Case Definition

**Confirmed Case**
Laboratory confirmation of infection:
- Hepatitis B surface antigen (HBsAg) positive and immunoglobulin M antibody to hepatitis B core antigen (anti-HBc IgM) positive in the context of a compatible clinical history or probable exposure
- Loss of HBsAg over 6 months in the context of a compatible clinical history or probable exposure

**Probable Case**
Acute clinical illness[^1] in a person who is epidemiologically linked to a confirmed case (acute or chronic).

[^1]: Acute clinical illness is characterized by a discrete onset of symptoms and jaundice or elevated serum aminotransferase levels.
Reporting Requirements

1. **Physicians/Health Practitioner and others**
   Physicians, health practitioners and others listed in Section 22 of the *Public Health Act* shall notify the Medical Officer of Health (MOH) (or designate) of all confirmed and probable cases in the prescribed form by mail, fax or electronic transfer within 48 hours (two days).

2. **Laboratories**
   All laboratories [including the Canadian Blood Services (CBS) Laboratory, insurance company laboratories, regional laboratories and the Provincial Laboratory of Public Health (PLPH)] shall report all positive laboratory results by mail, fax or electronic transfer within 48 hours (two days) to the:
   - Chief Medical Officer of Health (CMOH) (or designate),
   - MOH (or designate), and
   - Attending/ordering physician.

   When reporting positive tests, laboratories shall include the following:
   - name of individual,
   - date of birth,
   - personal health number,
   - address of the individual,
   - phone number of the individual,
   - date of test, and
   - name of laboratory performing test.

3. **Alberta Health Services**
   - The MOH (or designate) shall forward the preliminary Notifiable Disease Report (NDR) of all confirmed and probable cases to the CMOH (or designate) within two weeks of notification and the final NDR (amendment) within four weeks of notification.
   - For out of zone reports, the MOH (or designate) first notified shall notify the MOH (or designate) where the case resides by mail, fax or electronic transfer and fax a copy of the positive laboratory report within 48 hours (two days).
   - For out of zone contacts, the MOH (or designate) first notified shall notify the MOH (or designate) where the contact resides by mail, fax or electronic transfer including:
     - name,
     - date of birth,
     - personal health number, and
     - contact information i.e., address and phone number.
   - For out-of-province and out-of-country case and/or contact reports, the following information should be forwarded to the CMOH (or designate) by phone, fax or electronic transfer within 48 hours (two days) including:
     - name,
     - date of birth,
     - out-of-province health care number,
     - out-of-province/country address and phone number,
     - attending physician (locally and out-of-province), and
     - positive laboratory report (faxed).
4. Additional Reporting Requirements

- Canadian Blood Services (CBS): All persons testing positive must be reported by the MOH (or designate) to CBS within two working days if they have ever had a history of donating or receiving blood in Canada. (as per CBS policy: November 23, 2007)
  - A copy of the positive test result must accompany the report, and all information should be sent to Lookback/Traceback Coordinator, CBS:
    - for Red Deer north via confidential fax number 780-433-1907 or phone 780-431-8712.
    - for south of Red Deer via confidential fax number 403-410-2797 or phone 403-410-2711.
  - For donors the following information is required:
    - where and when donated blood,
    - all names (first and surnames) used, and
    - date of birth.
  - For blood recipients (when blood transfusion is the only risk factor identified), the following additional information is required:
    - year of transfusion, and
    - hospital of transfusion.

- Citizenship and Immigration Canada (CIC): There are currently no guidelines for immigrants as hepatitis B testing is not required as part of the immigration process.
Etiology (1,2)
The hepatitis B virus (HBV) is a DNA virus, composed of a nucleocapsid core (HBcAg), surrounded by an outer lipoprotein coat containing the surface antigen (HBsAg). The distribution of subtypes varies geographically. There are multiple subtypes and because of the common “a” determinant, protection against one subtype appears to confer protection against the other subtypes. No differences in clinical features have been related to subtypes.

The third hepatitis B antigen, the “e” antigen (HBeAg), has been identified as a soluble antigen, whose sequences are a subset of those in the core antigen, but without cross-reactivity. The presence of HBeAg is known to be a marker of highly replicative and infectious state for HBV.

Clinical Presentation (1,2)
Only a small proportion of acute hepatitis B cases may be clinically recognized. Less than 10% of children and 30–50% of adult acute cases will have icteric disease. Hepatitis B in children is most often milder and often anicteric. In infants, this disease is typically asymptomatic.

In persons with clinical illness, the onset is usually insidious with anorexia, vague abdominal discomfort, nausea and vomiting, sometimes arthralgias and rash, often progressing to jaundice. Fever may be absent or mild. Severity ranges from inapparent cases detectable only by liver function tests to fulminating, fatal cases of acute hepatic necrosis. The case-fatality rate in hospitalized patients is about 1% and is higher in those over 40 years of age.

Following acute HBV infection, the risk of developing chronic infection varies inversely with age. Infants infected with HBV at birth will have a 90% chance of becoming chronic HBV carriers. Twenty-five per cent to 50% of children infected between one and five years of age and about 1–10% of persons infected as older children and adults will become chronic HBV carriers.

Diagnosis
Three serologic tests are commonly used to determine if a person is a chronic or acute case of hepatitis B. They are:

- HBsAg, and
- anti-HBc IgM
- anti-HBc total (total antibody to hepatitis B core antigen)

HBsAg can be detected in the serum from several weeks before onset of symptoms to days, weeks or months after onset in acute cases and will persist in chronic cases. In acute and chronic cases that resolve, HBsAg declines, disappears and is followed by the appearance of antibody to hepatitis B surface antigen (anti-HBs). See Annex 1 - Characteristics of Hepatitis B Antibody Response.

Testing for anti-HBc total includes the detection of both anti-HBc IgM and anti-HBc IgG. Thus anti-HBc total is positive at the onset of illness and persists indefinitely. Demonstration of anti-HBc total in serum indicates either current or past HBV infection. Anti-HBc IgM is present in high titre in acute cases and usually disappears within six months; rarely, it can reactivate in chronic cases, thus a positive anti-HBc IgM does not reliably diagnose an acute case. In resolving cases, anti-HBc total may be present while HBsAg and anti-HBs are both absent. This is known as the “window period.”

Testing for HBV DNA is not routinely performed but may be done in individuals on treatment, those being monitored by hepatitis specialists and for patients with unusual HBV serologic markers, e.g., who are only positive for anti-HBc total. (HBsAg negative and anti-HBs negative) for clarification of their status. It may be used to assess the degree of infectivity.
Hepatitis B Serological Markers (1-4)

<table>
<thead>
<tr>
<th>Marker</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-HBs +</td>
<td></td>
</tr>
<tr>
<td>Antibody to hepatitis B surface antigen</td>
<td>Immunity either from infection or vaccine.</td>
</tr>
<tr>
<td>Anti-HBc IgM+</td>
<td></td>
</tr>
<tr>
<td>Immunoglobulin M (IgM) antibody to hepatitis B core antigen</td>
<td>Recent acute infection and rarely during exacerbations of chronic infection.</td>
</tr>
<tr>
<td>Anti-HBc total +</td>
<td></td>
</tr>
<tr>
<td>Total antibody to hepatitis B core antigen</td>
<td>Current acute infection, chronic carrier, or past infection. Not present after immunization.</td>
</tr>
<tr>
<td>HBeAg+</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B e antigen</td>
<td>Highly infectious. Can be present during both acute and chronic infections.</td>
</tr>
<tr>
<td>HBsAg+</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B surface antigen</td>
<td>Current acute infection or chronic carrier if persists beyond 6 months.</td>
</tr>
<tr>
<td>HBV DNA+</td>
<td></td>
</tr>
<tr>
<td>Measures level of circulating DNA and is a marker of infectivity.</td>
<td></td>
</tr>
</tbody>
</table>

Interpretation of Serologic Test Results for HBV (3-5)

<table>
<thead>
<tr>
<th>HBsAg</th>
<th>Anti-HBc IgM</th>
<th>Anti-HBc Total</th>
<th>Anti-HBs</th>
<th>HBV DNA</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>n/a</td>
<td>Early HBV infection before anti-HBc response.</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>n/a</td>
<td>Early HBV infection. Because anti-HBc IgM is positive, the onset is within 6 months. IgG antibody usually appears shortly after IgM; therefore, both are usually positive when IgM is positive. (Acutely infected)</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>+</td>
<td>- or +</td>
<td>n/a</td>
<td>Recent acute HBV infection (within four to six months) with resolution; i.e., HBsAg has already disappeared. Anti-HBs usually appears within a few weeks or months of HBsAg disappearance.</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>n/a</td>
<td>HBV infection onset at least six months earlier because anti-HBc IgM has disappeared. Probable chronic HBV infection. (Chronically infected)</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>n/a</td>
<td>Response to hepatitis B vaccine. No evidence of infection.</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>Chronic HBV infection.</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>n/a</td>
<td>Past HBV infection, recovered. (Immune due to natural infection).</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Past HBV infection, recovered. Anti-HBs below detectable levels. (Immune due to natural infection).</td>
</tr>
</tbody>
</table>

n/a = not routinely performed as part of public health follow-up
Epidemiology (2;6)

Reservoir
Humans. Chimpanzees are susceptible, but an animal reservoir in nature has not been recognized. Infected pet monkeys have been documented.

Transmission
The principal routes of transmission for HBV are percutaneous (injection drug use, exposure to blood or body fluid), sexual (heterosexual or men who have sex with men (MSM)), vertical (mother to infant), and horizontal (between children and household contacts through skin lesions or sharing of blood-contaminated toothbrushes and razors). Infections also occur in settings of close personal contact through unrecognized contact with infectious bodily fluids. Because HBV is stable on environmental surfaces for up to and including seven days, indirect inoculation of HBV can also occur via inanimate objects.

Blood and all body fluids that are visibly contaminated with blood can transmit HBV. Semen, vaginal secretions, and saliva as well as other body fluids (pleural, amniotic, pericardial, peritoneal, synovial and cerebrospinal) may contain the virus. Transmission from breast milk is unlikely. Feces, nasal secretions, sputum, sweat, tears, urine and vomitus are not implicated unless they are visibly contaminated with blood.

The risk of transmission from screened and donated blood, manufactured blood products and transplanted organs is minimal due to donor screening and processing of blood products.

Perinatal transmission is common in endemic areas of Southeast Asia and the Far East, (e.g. Pacific Islands) especially when HBsAg carrier mothers are also HBeAg positive with high HBV DNA levels. Infection may also be transmitted between household members and between sexual partners, either homosexual or heterosexual, and in groups of toddler-aged children with high HBsAg carrier rates.

Communally used razors and toothbrushes have been implicated as occasional vehicles of HBV transmission causing percutaneous and mucosal inoculation. Fecal-oral or vector-borne transmission has not been demonstrated. In about 35% of HBV infections no transmission source can be identified.

Incubation Period
The incubation period is 45 to 180 days, with an average of 60 to 90 days. It may be as short as two weeks to the appearance of HBsAg, and rarely as long as six to nine months. The variation is related in part to the amount of virus in the inoculum, the mode of transmission and host factors.

Period of Communicability
The communicability is while HBsAg is present in blood and is highest during the acute phase of illness. Persons in the “window period” and those rare persons who are concurrently HBsAg and anti-HBs positive should be considered infectious. In the latter case, if HBsAg disappears and anti-HBs remains, persons can be considered non-infectious. The presence of “e” antigen or high levels of viral DNA indicate high virus titres and higher infectivity, while the presence of “e” antibody and low levels of viral DNA indicate reduced infectivity.

Host Susceptibility
Susceptibility is general. Protective immunity follows infection if antibody to HBsAg (anti-HBsAg) develops and HBsAg becomes negative.
The primary determinant of the risk of development of chronic infection is age at the time of infection. Infants born to mothers who have acute hepatitis B infection during the third trimester of pregnancy have a risk of up to 90% of acquiring the infection. Children aged one to five years have a risk of 25–50% whereas older children and adults have a risk of 2–6%.

Persons with Down Syndrome, lymphoproliferative disease, HIV infection and those on hemodialysis appear to be more likely to develop chronic infection.

Occurrence

General (2;6)

Hepatitis B occurs worldwide and is endemic with little seasonal variation. In areas of Africa and Asia, widespread infection may occur in infancy and in childhood. In North America, infection is most common in young adults. In the United States and Canada, serologic evidence of previous infection varies depending on age and socioeconomic class. Overall, 5% of the adult population in the US has anti-HBc total and 0.5% is HBsAg positive. Among those from some areas of Asia, 10–15% may be HBsAg positive.

In developed countries, exposure to HBV may be more common in certain groups. These include IDUs, people with multiple sexual partners, MSM, clients and staff in institutions for the developmentally disabled, employees in hemodialysis centres and persons in certain healthcare and public safety occupations.

Percutaneous and permucosal exposure to blood or serous fluids are associated with occupationally acquired HBV infections. Surgeons, dentists, oral surgeons, pathologists, operating room and emergency room staff and clinical laboratory workers who handle blood are at highest risk of exposure, however, the majority should be immune to infection if they have received hepatitis B vaccine.

Until 1985, recipients of blood products were at risk of contracting hepatitis B. In the many countries in which pre-transfusion screening of blood donors for HBsAg is required, and where pooled blood-clotting factors (especially antihemophilic factor) are processed to destroy the virus, this risk has been virtually eliminated. The risk is still present in many developing countries.

Contaminated and inadequately sterilized syringes and needles have resulted in outbreaks of hepatitis B among patients in clinics and physicians' offices. This has been a major mode of transmission worldwide. Occasionally, outbreaks have been traced to tattooing and acupuncture. Transmission to patients from HBsAg positive HCWs has also been documented.

Canada (7;8)

Acute hepatitis B has been reportable in Canada since 1969. From 1988 to 1996 an average of 2905 cases of acute hepatitis B were reported per year in Canada (range 2361 to 3378). In 1997, there was a significant decline in the number of reported cases and this decrease has continued in more recent years. From 1997 to 2000, an average of 1066 cases were reported (range 971-1277). This may be, in part, attributed to the introduction of universal hepatitis B immunization programs for preteens and teens in provinces/territories across Canada.

In Canada in 2001, the major risk factors associated with acute hepatitis B infection include IDU (34%) and heterosexual activities such as having multiple heterosexual partners (24%) and sex with HBV-infected individuals (12%). Drug snorting (2.4%), receipt of blood products
(2.4%), male homosexual activity (7.3%), a hepatitis B carrier in the family (2.4%), association with an institution (2.4%), history of hospitalization (7.3%), and surgery (2.4%) or dental visit (2.4%) also account for a proportion of acute cases. In Canada, there is failure to identify any risk factor in about 27% of acute hepatitis B cases. For chronic hepatitis B cases, a high proportion report a history of blood transfusion (10%), body piercing (13.8%), and occupational blood contact (5%). In comparison with acute cases, a much smaller proportion of chronic carriers (11.2%) report injection drug use (IDU) as a risk factor.

Alberta (7;9)
Rates of acute hepatitis B disease in Alberta have been decreasing since 1993. This trend has continued with the exception of 1998 when 102 cases were reported compared to 77 cases in the previous year.

From 1988 to 1996 the average rate of acute disease was 4.53 per 100,000 (range 3.09-5.54); averaging 118 cases per year (range 86-136). Universal hepatitis B immunization for grade five students was introduced in 1995. In the period 1997 to 2004, an average of 76 cases were reported annually (range 52-102), the rate decreasing to less than two cases per 100,000 population by 2004. From 2006 to 2009, there has been an average of 29 cases reported per year (range 16-36). The average rate for this time period has decreased to 0.83 with a range of 0.6-1.1 cases per 100,000 people.

Cases in males are reported more often than in females. Prior to 1993, the highest incidence was reported in the 25 to 29 year age group. In 1993, the higher rate shifted to the 30 to 39 year age group. Since 2007 the age group with the highest number of cases has shifted to the 40-59 year olds. An average of one to two cases per year has been reported in children under the age of 15. IDU continues to be identified as a significant risk factor in Alberta followed closely by “unknown risk factors” and then “no known risk factors” identified.

Key Investigation

Single Case/Household Cluster

- Contact the physician, if possible, before contacting the client to determine:
  - acute or chronic infection,
  - reason for the test,
  - possible source,
  - client symptoms,
  - relevant laboratory results e.g., liver function tests (LFT), and
  - if testing of relevant contacts has occurred.

- Assess risk factors for acquisition of hepatitis B infection including:
  - immigration from or travel to a known endemic country,
  - living with, or attending daycare with a known hepatitis B carrier or case,
  - having sexual contact with a known hepatitis B carrier or case,
  - practicing unsafe sex,
  - MSM,
  - IDU/needle-sharing,
  - recent incarceration,
  - receipt of blood/tissue/organ prior to 1985,
  - receipt of blood/tissue/organ at any time in a developing country,
  - frequent receipt of blood or blood products,
  - skin piercing procedures e.g., tattooing, body piercing, acupuncture,
  - workplace or non-occupational exposure,
Recent invasive medical or dental procedures (e.g., hemodialysis) and resident or staff of institution for the developmentally challenged.

- Assess sexual relationships and unsafe sex practices.
- Ascertain co-infection with other BBVIs.
- Determine hepatitis B immunization history.
- If female, determine pregnancy status.
- Determine donation of blood, tissue or organs.
- Identify household and other intimate contacts of the case for potential blood exposure (significant contacts).
  - For acute cases, this should include all current significant contacts as well as those in the previous six months.
  - Contacts include:
    - persons living in the household,
    - needle sharing partners,
    - persons who share personal care items e.g., razors, toothbrushes,
    - short and long term sexual partners, and
    - persons with other blood or body fluid exposures e.g., unprotected first aid.

Control Management of a Case

- Public health personnel should contact physicians to make them aware of usual public health follow-up such as:
  - acquisition of additional epidemiological information,
  - possibility for testing for infection with other BBVIs,
  - possible referral to a hepatologist, and
  - follow-up of susceptible contacts.
- Provide education about the modes of transmission for the purpose of reducing infection risk to others.
- Promote a healthy lifestyle to minimize liver damage e.g., avoid intake of alcohol and hepatotoxic drugs, eating a well balanced diet, and having regular medical checkups.
- Provide information about community support agencies.
- Medical follow-up
  - Acute cases should be tested for both HBsAg and anti-HBs six months (but can be as soon as three months) after detection to assess whether a chronic carrier state has developed.
  - If the person is in the “window period” at six months, the individual should be retested at six-month intervals to determine if they have developed anti-HBs while HBsAg remains negative.
    - Pregnant women should be tested more frequently if they will deliver before the six-month interval to establish whether or not prophylaxis of the newborn will be required (i.e., HBIG and hepatitis B vaccine).

Treatment of a Case

- Details concerning treatment should be obtained in consultation with a hepatologist.

Management of Contacts (10;11)

- Assess for a history of prior hepatitis B immunization or disease.
  - Serology (HBsAg and anti-HBs) may be required to determine status and is generally recommended for the following individuals:
• persons at high risk of past infection,
• household members who may have been previously immunized through a universal program (e.g., grade 5, 12 or Endemic Programs)
• individuals with prior to immunization, and
• individuals from endemic countries. See current Alberta Immunization Manual for list of endemic countries. See also Annex 2 – Geographical distribution of chronic hepatitis B virus infection.
  o Recommended follow-up is based on results of serology:
    ▪ if anti-HBs positive, client immune, no further follow-up.
    ▪ if HBsAg positive, follow-up required to determine case status (acute or chronic). Public health follow-up done as appropriate.
    ▪ if HBsAg negative and anti-HBs negative recommend:
      ✓ HBIG, when indicated, and
      ✓ hepatitis B vaccine series.
  o Vaccinated persons who are non-responders (refer to the current Alberta Immunization Manual):
    ▪ if after one series, anti-HBs is negative initiate a second series (i.e., doses 4,5 & 6),
    ▪ offer post-vaccination serology after the fourth dose,
    ▪ if negative anti-HBs, complete the second series,
    ▪ offer post-vaccination serology,
    ▪ if anti-HBs negative after completion of the second series and a significant exposure occurs, offer two doses of HBIG one month apart.
• Community exposures to blood and/or body fluids.
  o Refer to the current Alberta Guidelines for Post-Exposure in Non-Occupational Settings.
• Significant contacts of an acute case
  o Sexual contacts, needle sharing partners, or other blood/body fluid exposure in the past 14 days.
    ▪ Arrange for immediate serology through the personal physician or MOH [or designate].
    ▪ If the contact is susceptible (HBsAg negative, anti-HBs negative), recommend HBIG and hepatitis B vaccine series.
    ▪ Initiate hepatitis B vaccine series concurrently or as soon as possible after HBIG has been given.
  o Sexual contacts, needle sharing partners or other blood/body fluid exposures occurring more than 14 days prior to case diagnosis but less than 6 months (for adequate public health contact tracing, go back six months from onset date to identify contacts).
    ▪ Recommend pre-vaccination serology. This should be done prior to, or at the time of the first dose of hepatitis B vaccine.
    ▪ If the contact is susceptible, initiate a hepatitis B vaccine series,
      ✓ Recommend post-vaccination serology.
  o All other household contacts.
    ▪ Recommend pre-vaccination serology.
    ▪ If the contact is susceptible, initiate hepatitis B vaccine series.
      ✓ Post-immunization serology is not required as the sero-conversion rate is usually 90% or more in healthy adults and 98% in children.
  o Newborns at birth whose mother or primary caregiver is an acute case.(2)
    ▪ No pre-vaccination serology is required.
    ▪ HBIG should be offered as soon as possible.
    ▪ Initiate hepatitis B vaccine series.
    ▪ Recommend post-vaccination serology.(10)
Infants less than 12 months of age whose mother or primary caregiver is an acute case.(5)
- No pre-vaccination serology is required.
- HBIG should be offered as soon as possible and within two weeks of last contact.
- Initiate hepatitis B vaccine series.
- If the infant has had only one dose of vaccine, the second dose should be administered if the interval is appropriate or HBIG given if the immunization is not due. The vaccine series should be completed as scheduled.(2;4)
- If the infant has had two doses of vaccine, the infant should be presumed protected and HBIG is not required. The vaccine series should be completed as scheduled.(2)
- Recommend post-vaccination serology.(10)

Preventive Measures (11-13)
- All occupational exposures to potentially infectious material should be managed according to the OH&S guidelines for the workplace where the incident occurred, or their personal physician.
- Routinely screen for HBV:
  - adopted children from countries or family situations in which there is high prevalence of infection,
  - males or females with multiple sexual partners, or with a recent history of a sexually transmitted disease,
  - injection drug users,
  - blood donors, and
  - all donations of blood, blood products, tissues, organs, and semen.
- After a blood spill, removal of organic material must occur followed with appropriate disinfection (usually 1:10 dilution of household bleach).(14)
- Ensure adequate sterilization of instruments used in invasive procedures, including personal care services (e.g., ear/body piercing, tattooing).
- To prevent the transmission of HBV to newborns, all pregnant women should be routinely tested for HBsAg at the first prenatal visit and repeat testing before delivery may be considered in uninfected and unimmunized women with continuing high-risk behavior.(2;10)
  - prenatal women who have not been screened, should be screened soon as possible, even if delivery has occurred.
    - The mother’s lifestyle risks may be taken into consideration when assessing
    - When results can be obtained within 12 hours, the first dose of hepatitis B vaccine should be given, with the decision to give HBIG awaiting results.
    - When results will not be available within 12 hours, the first dose of vaccine should be given and administration of HBIG should be considered, taking into account the presence or absence of maternal risk factors for infection.
    - When hepatitis B vaccine is initiated the series should be completed regardless of maternal status.
- Universal immunization program for grade five students.
- Pre-exposure vaccine should be offered to the following groups. Refer to the current Alberta Immunization Manual for vaccine eligibility and vaccine type.
  - Healthcare and emergency service workers and others with an occupational risk of exposure.
  - Others at increased risk including:
    - residents and staff of institutions for the developmentally disabled,
    - MSM,
    - heterosexual males and females with multiple sexual partners, or with a recent history of a sexually transmitted disease,
- Hemophiliacs and others receiving repeated infusions of blood or blood products,
- Hemodialysis patients,
- Inmates of long term correctional facilities,
- Populations or communities in which HBV is highly endemic,
- Children less than seven years of age whose families have immigrated to Canada from areas where there is a high prevalence of HBV,
- Children in child care settings in which there is a known HBV infected child,
- Persons with hepatitis C or other chronic liver disease, and
- Persons who use illicit drugs resulting in blood/bloody body fluid exposure.

- Post Immunization Serology:
  - Post immunization testing is recommended if it is important to ensure protection against a continual known or repeated potential exposure to HBV. This includes:
    - Infants born to infected mothers,
    - Sexual partners and household contacts of chronic carriers,
    - Those who have been immunized because of occupational exposure,
    - Healthcare workers (HCW) and students in healthcare disciplines,
    - Ideally, this testing should be done at least one month but no later than six months after the last dose of vaccine.
    - Individuals who are immuno-compromised should be tested after vaccine series, and
      - If antibody protection is not present the series should be repeated.
      - If antibody still not present the person should be counselled on the need for passive immunization after potential exposure to HBV.
    - Travellers to HBV endemic countries should be advised to confirm their need for vaccine with the appropriate clinic before travelling.
      - AHW does not fund hepatitis B vaccine for travellers.

- HealthCare Workers
  - In any situation in which a worker who is HBV positive, is uncertain about the potential transmission risks of HBV or proper practices to minimize the risk to clients, he or she should consult with employee health or an infection control practitioner or patient safety group responsible for the quality of care for the clients.
  - In addition, HCWs who are HBV positive should contact the Zone MOH or designate to discuss the potential risks of transmission to clients. Upon assessment by the Zone MOH, a worker may or may not be referred to the Alberta Expert Review Panel for Blood Borne Viral Infections in Health Care Workers for further assessment services, if indicated.
  - The Panel is established to review circumstances of HCWs who are found to have a blood borne viral infectious disease. The panel may receive referrals from MOHs regarding HCWs who perform exposure-prone procedures when there is uncertainty as to whether continued or modified professional practice is indicated.
Annex 1: Characteristics of hepatitis B antibody response

Figure 146-8 Typical course of hepatitis B. **Left,** Typical course of acute hepatitis B. **Right,** Chronic hepatitis B. HBc, hepatitis B core; HBe, hepatitis B early; HBsAg, hepatitis B surface antigen; IgM, immunoglobulin M.

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Annex 2 – Map of Hepatitis B Endemic Countries

Figure 146-9 Global prevalence of hepatitis B surface antigenemia.

References


