Hepatitis B and Hepatitis B Vaccine
Disease
Hepatitis B Virus

- Hepadnaviridae family (DNA)
- Numerous antigenic components
- May retain infectivity for more than 7 days at room temperature
Hepatitis B Virus Infection

- 257 million chronic infections worldwide
- 850,000–2.2 million US chronic infections
- Causes 50% of hepatocellular carcinomas
- 786,000 deaths worldwide

https://www.cdc.gov/hepatitis/hbv/bfaq.htm#bFAQb04
Hepatitis B Epidemiology

- **Reservoir**
  - Human

- **Transmission**
  - percutaneous (i.e., puncture through the skin) or mucosal contact with infectious blood or body fluids (e.g., semen, saliva)

- **Communicability**
  - 1-2 months before and after onset of symptoms
    - Persons with either acute or chronic HBV infection with HBsAg present in blood
Hepatitis B Clinical Features

- Incubation period 60-150 days (average 90 days)
- Nonspecific prodrome of malaise, fever, headache, myalgia
- Children < 5 years and newly infected immunosuppressed adults generally asymptomatic
  - 30%–50% of persons aged ≥5 years have signs and symptoms
Hepatitis B Complications

- Fulminant hepatitis (<1%)
- Hospitalization
- Cirrhosis
- Hepatocellular carcinoma
- Death
Risk Factors for Hepatitis B

- Injection drug use
- 2 or more sexual partners
- Men who have sex with men
- Household contacts of persons with HBV
- Developmentally disabled persons in long-term-care facilities
- Correctional facilities
- Persons at risk for occupational exposure to HBV
- Hemodialysis patients
- Persons with HCV infection
- Persons with chronic liver disease
- Travelers to countries where HBV is endemic
- Persons with HIV
- Persons with Diabetes
Chronic Hepatitis B Virus Infection

- 80-90% of persons infected during infancy
- 30% of persons infected before age 6 years
- 1-12% of persons infected as an older child or adult
- Approximately 25% of persons chronically infected during childhood and 15% chronically infected after childhood will die prematurely from cirrhosis or liver cancer
Risk of Chronic HBV Infection
Chronic Hepatitis B Virus Infection – 4 Phases

- **Immune tolerant**
  - Minimal or no hepatic inflammation or fibrosis

- **Immune active**
  - Hepatic inflammation with or without fibrosis

- **Immune inactive**
  - Improvement of hepatic inflammation and fibrosis

- **Reactivation**
  - Active hepatic inflammation with or without fibrosis
Hepatitis B Perinatal Transmission*

HBsAg+ & HBeAg+

70-90% infected

HBsAg+ only

10% infected

Up to 90% of infected infants become chronically infected

*in the absence of post exposure prophylaxis
Prevent perinatal HBV transmission
- Routine testing of all pregnant women for HBsAg
  - Prophylaxis (HepB vaccine and HBIG) for infants born to HepB surface antigen (HBsAg) positive women
  - HBV DNA testing for HBsAg positive women and antiviral therapy if HBV DNA is >200,000 IU/mL

Universal vaccination of all infants at birth

Routine vaccination of previously unvaccinated children and adolescent (<19 years of age)

Vaccination of adults at risk for HBV infection

https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm#B2_down
2

Vaccine
### Hepatitis B-Containing Vaccine Products*

<table>
<thead>
<tr>
<th>Vaccine product</th>
<th>Age indications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single-component vaccines</strong></td>
<td></td>
</tr>
<tr>
<td>Engerix-B</td>
<td></td>
</tr>
<tr>
<td>Pediatric formulation</td>
<td>Birth–19 years</td>
</tr>
<tr>
<td>Adult formulation</td>
<td>20 years and older</td>
</tr>
<tr>
<td>Recombivax HB</td>
<td></td>
</tr>
<tr>
<td>Pediatric formulation</td>
<td>Birth–19 years</td>
</tr>
<tr>
<td>Adult formulation</td>
<td>20 years and older</td>
</tr>
<tr>
<td>Heplisav-B</td>
<td>18 years and older</td>
</tr>
<tr>
<td><strong>Combination vaccines</strong></td>
<td></td>
</tr>
<tr>
<td>Pediarix–DTaP, IPV and HepB vaccines</td>
<td>6 weeks–6 years</td>
</tr>
<tr>
<td>Twinrix–HepA and HepB vaccines</td>
<td>18 years and older</td>
</tr>
</tbody>
</table>

*ACIP does not state a preference for vaccine product versus another if the patient is eligible for more than 1 product.
## Recommended Dosage of HepB Vaccine

<table>
<thead>
<tr>
<th></th>
<th>Recombivax HB Dose (mcg)</th>
<th>Engerix-B* Dose (mcg)</th>
<th>Heplisav-B Dose (mcg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Children: Birth through 19 years</strong></td>
<td>0.5 mL (5)</td>
<td>0.5 mL (10)</td>
<td>N/A: ≤17 yrs 0.5 mL (20): &gt;18 yrs</td>
</tr>
<tr>
<td><strong>Adults: 20 years and older</strong></td>
<td>1.0 mL (10)</td>
<td>1.0 mL (20)</td>
<td>0.5 mL (20)</td>
</tr>
</tbody>
</table>

*Pediarix contains the pediatric formulation of Engerix-B
*Twinrix contains the adult formulation of Engerix-B
† Heplisav-B approved for use in persons 18 years of age or older
## HepB Vaccine

<table>
<thead>
<tr>
<th></th>
<th>Recombivax HB Dose (mcg)</th>
<th>Engerix-B* Dose (mcg)</th>
<th>Heplisav-B Dose (mcg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Composition</strong></td>
<td>Recombinant HBsAg</td>
<td>Recombinant HBsAg</td>
<td>Adjuvanted Recombinant HBsAg</td>
</tr>
<tr>
<td><strong>Efficacy</strong></td>
<td>95% (Range, 80%–100%)</td>
<td>95% (Range, 80%–100%)</td>
<td>90%–100%</td>
</tr>
<tr>
<td><strong>Schedule</strong></td>
<td>3 doses</td>
<td>3 doses</td>
<td>2 doses</td>
</tr>
<tr>
<td><strong>Route</strong></td>
<td>IM</td>
<td>IM</td>
<td>IM</td>
</tr>
</tbody>
</table>

*Pediarix contains the pediatric formulation of Engerix-B
*Twinrix contains the adult formulation of Engerix-B
Combination Vaccines

- **Pediarix DTaP/IPV/HepB**
  - Ages: 6 weeks through 6 years
  - Routine schedule: 2, 4, 6 months of age
  - Approved for dose 1, 2, 3 of Hep B (Do NOT use for the birth dose)

- **Twinrix HepA/HepB**
  - Ages: 18 years of age and older
  - Routine schedule: 3 doses at 0, 1, 6 months, or 0, 7, 21-30 days and a booster dose at 12 months
  - Each dose of Twinrix contains an adult dose of hepatitis B vaccine
  - A HepB series started with Twinrix can be complete with single antigen HepB vaccine and vice versa
Clinical Considerations
ACIP HepB Vaccine Recommendations: Pediatric

- Routinely recommended for all children birth through 18 years of age
- Vaccinate previously unvaccinated children and those missing doses
### HepB Schedule: Routine Infant

<table>
<thead>
<tr>
<th>Dose+</th>
<th>Routine Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose 1</td>
<td>Birth§</td>
</tr>
<tr>
<td>Dose 2</td>
<td>1- 2 months</td>
</tr>
<tr>
<td>Dose 3+</td>
<td>6-18 months*</td>
</tr>
</tbody>
</table>

§The birth dose of single-component Hepatitis B vaccine should be administered within 24 hours of birth for medically stable infants weighing ≥2,000 grams born to hepatitis B surface antigen (HBsAg)-negative mothers.

*Infants whose mothers are HBsAg+ or whose HBsAg status is unknown should receive the third dose at 6 months of age

+An additional dose at 4 months is acceptable if the clinician prefers to use a combination vaccine that contains hepatitis B vaccine
HepB Schedule: Minimum Age and Intervals

1. DOSE 1
   - 4 weeks

2. DOSE 2
   - 8 weeks

3. DOSE 3
   - 6 months = minimum age

16 weeks

4-day grace can be applied to minimum age and intervals
Pediarix Schedule Considerations

Can be given to infants who received HepB at birth = 4 doses*
Do NOT use for the birth dose

1. **DOSE 1**
   - Birth
   - Engerix B or Recombivax HB

2. **DOSE 2**
   - 2 months
   - Pediarix

3. **DOSE 3**
   - 4 months
   - Pediarix

4. **DOSE 4**
   - 6 months
   - Pediarix

6 months is the minimum age for the last dose

*An additional dose at 4 months is acceptable if the clinician prefers to use a combination vaccine that contains hepatitis B vaccine*
Birth Dose Considerations: Babies Weighing 2000 grams or more

HBsAg **NEGATIVE**
- mother
  - Administer HepB vaccine within 24 hours of birth

HBsAg **POSITIVE**
- mother
  - Administer HepB vaccine and HBIG* within 12 hours of birth

HBsAg **UNKNOWN**
- mother
  - Administer HepB vaccine within 12 hours of birth and test to determine mother’s status ASAP

*Administer HepB vaccine and HBIG in separate limbs
Birth Dose Considerations:
Babies Weighing Less Than 2000 grams

HBsAg **NEGATIVE** mother

Administer HepB vaccine at hospital discharge or at 1 month of age

HBsAg **POSITIVE** mother

Administer HepB vaccine and HBIG* within 12 hours of birth

HBsAg **UNKNOWN** mother

Administer HepB vaccine within 12 hours of birth. Give HBIG, if the mother’s HBsAg status cannot be determined within 12 hours of birth*

*Administer HepB vaccine and HBIG in separate limbs
Medical Considerations: Treating Infants Whose Mother is Hepatitis B Surface Antigen POSITIVE

- Administer HepB vaccine and HBIG within 12 hours of birth
  - HepB vaccine and HBIG can be administered at the same time
  - HepB and HBIG are both IM injections
  - Administer in different limbs

- Complete vaccination series at 6 months of age
  - 1st dose does not count when administered to infants weighing less than 2000 grams

- Test for response after completing a 3-dose series at 9 through 12 months of age
Medical Considerations: Treating Infants Whose Mother is Hepatitis B Surface Antigen UNKNOWN

- Infants born to women without HBsAg testing results but other evidence suggests maternal HBV infection exists, administer both HepB and HBIG within 12 hours of birth
- Test mother for HBsAG status as soon as possible
  - Infants weighing 2000 grams or more: If mother is determined to be hepatitis B surface antigen positive give HBIG as soon as possible, but no later than age 7 days
  - Infants weighing less than 2000 grams: If the mother tests positive or HBsAG status can not be determined, administer HBIG within 12 hours of birth
Serologic Testing and Children

- **Prevaccination serologic testing is:**
  - Not indicated before routine vaccination of infants or children
  - Recommended for all persons born in Africa, Asia, the Pacific Islands, and other regions with HBsAg prevalence of 2% or higher

- **Postvaccination serologic testing is:**
  - Not routinely recommended following vaccination of infants, children, and adolescents
  - Recommended for infants born to HBsAg+ women
ACIP HepB Vaccine Recommendations: Adult

- Vaccination recommended for unvaccinated adults at risk for HBV infection and adults requesting protection from HBV infection
  - Acknowledgement of a specific risk factor not required for vaccination

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV infection CD4 count</th>
<th>Asplenia, complement deficiencies</th>
<th>End-stage renal disease, on hemodialysis</th>
<th>Heart or lung disease, alcoholism</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>HepB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 or 3 doses depending on vaccine
Adults at Risk for HBV Infection

- Hepatitis C virus infection
- Chronic liver disease
- HIV infection
- Sexual exposure risk

* Persons with more than one sex partner during the previous 6 months
Adults at Risk for HBV Infection

- Current or recent injection drug use
- Percutaneous or mucosal risk for exposure to blood
- Incarcerated persons
- Travel in countries with high or intermediate endemic hepatitis B

* Persons with more than one sex partner during the previous 6 months
### HepB Schedule: Adult
Recombivax HB or Engerix-B

<table>
<thead>
<tr>
<th>Dose</th>
<th>Routine Interval</th>
<th>Minimum Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose 1</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Dose 2</td>
<td>1 month</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Dose 3</td>
<td>6 months</td>
<td>8 weeks <em>and</em> at least 16 weeks from Dose 1</td>
</tr>
</tbody>
</table>
Heplisav-B (HepB-CpG)

**Storage**
Store in the refrigerator between 2°C and 8°C (36°F and 46°F)

**Ages**
18 years of age and older

**Schedule**
Administer 2 doses separated by 4 weeks

**Administration**
Intramuscular (IM) injection in the deltoid
Can be administered at the same clinical visit as other vaccines. Administer in separate injection sites, 1 inch apart (if possible)

**Contraindication**
History of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any hepatitis B vaccine or to any component of Heplisav-B, including yeast
Additional Heplisav-B Considerations

- 2-dose HepB series only applies when BOTH doses are Heplisav-B, administered at least 4 weeks apart
  - Any 2 doses of Heplisav-B separated by 4 weeks is considered complete, even if the patient has had other HepB vaccine products

- Until safety data are available for Heplisav-B, providers should vaccinate pregnant women needing HepB vaccination with Engerix-B or Recombivax HB
Scenarios

1.
HepB
Engerix-B or RecombivaxHB
01/01/2018
HepB-CpG
Heplisav-B
02/01/2018
HepB-CpG
Heplisav-B
03/01/2018
Completed series
No additional doses are needed

2.
HepB
Engerix-B or RecombivaxHB
01/01/2018
HepB-CpG
Heplisav-B
02/01/2018
HepB
Engerix-B or RecombivaxHB
05/01/2018
Completed series
No additional doses are needed
Compared with adults without diabetes, adults with diabetes have a 60% higher prevalence of past or present HBV infection and twice the odds of acquiring acute HBV. Possibility of a higher case-fatality proportion among persons with diabetes acutely infected with HBV.

ACIP recommends HepB vaccination for persons with diabetes mellitus aged <60 years and persons with diabetes mellitus aged ≥60 years at the discretion of the treating clinician. No preference for any of the available vaccines.
Dialysis

- Hepatitis B vaccination is recommended for susceptible hemodialysis patients

- Hepatitis B vaccine is also indicated for patients whose renal disease is likely to lead to dialysis or transplantation
Dialysis

- For patients undergoing hemodialysis and for other immunosuppressed patients, higher vaccine doses or increased number of doses are required
  - Special formulations of the vaccines are now available for such persons (Recombivax HB, 40 µg/mL, Energix_B, 40 µg/mL)

- If an adult patient begins the vaccine series with a standard dose before beginning hemodialysis treatment, then moves to hemodialysis treatment before completing the series, complete the series using the higher dose recommended for hemodialysis patients
ACIP HepB Vaccine Recommendations: Healthcare and Public Safety Personnel

- All healthcare personnel (HCP) whose work-, training-, and volunteer-related activities involve reasonably anticipated risk for exposure to blood or body fluids should be assessed for evidence of immunity to hepatitis B.
Evidence of Immunity for HCP =

Written documentation of a complete HepB vaccine series

AND

Subsequent documented anti-HBs ≥10 mIU/mL
Common Clinical Scenarios for HCP

- Documentation of complete series AND documented positive titer
- Unvaccinated (or incomplete series)
- Documentation of complete series but no documented positive titer
Documentation of complete vaccine series AND documented positive titer

- HCP considered immune

- **NO** additional serologic testing or vaccine “booster” doses

- Advise the person to keep a copy of the vaccine record and positive titer FOREVER
Unvaccinated HCP (or incomplete vaccine series)

Vaccinate

Post-vaccination serologic testing
(1-2 months after final dose)

Positive
(anti-HBs ≥10 mIU/mL)
HCP considered immune
No further serologic testing or vaccination recommended

Negative
(anti-HBs <10 mIU/mL)
Administer a second complete HepB vaccine series
Post-vaccination serologic testing
(1-2 months after final dose)
Documentation of complete vaccine series but no documented positive titer

Serologic testing → Positive (anti-HBs ≥10 mIU/mL) → HCP considered immune → No further serologic testing or vaccination recommended
Serologic testing
Negative (anti-HBs <10 mIU/mL)

Documented complete vaccine series but no documented positive titer (2)

Administer 1 dose of HepB vaccine
Followed by post-vaccination serologic testing (1-2 months later)

Positive (anti-HBs ≥10 mIU/mL)
HCP considered immune → No further serologic testing or vaccination recommended

Negative (anti-HBs <10 mIU/mL)
Complete second HepB vaccine series → Post-vaccination serologic testing (1-2 months after final dose)
Persistent Nonresponse to HepB Vaccine

- Less than 5% of vaccinees do not develop anti-HBs after 6 valid doses
- May be nonresponder or “hyporesponder”
- Check HBsAg status
- If exposed, treat as nonresponder with postexposure prophylaxis
# HCP and Postexposure Management

## TABLE 5. Postexposure management of health care personnel after occupational percutaneous or mucosal exposure to blood or body fluids, by health care personnel HepB vaccination and response status

<table>
<thead>
<tr>
<th>HCP status</th>
<th>Postexposure testing</th>
<th>Postexposure prophylaxis</th>
<th>Postvaccination serologic testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documented responder after complete series</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Documented nonresponder after two complete series</td>
<td>Positive/unknown</td>
<td>&lt;10 mIU/mL</td>
<td>HBIG x1, initiate revaccination</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>None, initiate revaccination</td>
</tr>
<tr>
<td>Response unknown after complete series</td>
<td>Positive/unknown</td>
<td>&lt;10 mIU/mL</td>
<td>No action needed</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>No action needed</td>
</tr>
<tr>
<td>Unvaccinated/incompletely vaccinated or vaccine refusers</td>
<td>Positive/unknown</td>
<td>None</td>
<td>Complete vaccination</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>Complete vaccination</td>
</tr>
</tbody>
</table>

**Abbreviations:** anti HBs = antibody to hepatitis B surface antigen; HBIG = hepatitis B immune globulin; HBsAg = hepatitis B surface antigen; HCP = health care personnel; N/A = not applicable.

* Not indicated.
Prevaccination Serologic Testing

- **Recommended for:**
  - All persons born in Africa, Asia, the Pacific Islands, and other regions with HBsAg prevalence of 2% or higher
  - Household, sex, and needle-sharing contacts of HBsAg-positive persons
  - Men who have sex with men
  - Injection drug users
  - Certain persons receiving cytotoxic or immunosuppressive therapy
Postvaccination Serologic Testing

- Serologic testing is NOT routinely recommended following vaccination of most persons

- Recommended for:
  - Chronic hemodialysis patients
  - Other immunocompromised persons
  - Persons with HIV infection
  - Sex partners of HBsAg+ persons
  - Health care personnel
Revaccination

- Revaccination is generally not recommended for persons with a normal immune status
- Recommended for the following:
  - HBsAg-negative infants with anti-HBs <10 mIU/mL (born to HBsAg-positive mothers)
  - Hemodialysis patients
  - HIV-infected persons
  - Other immunocompromised persons
Vaccine Administration

**Route: IM Injection**
- Needle gauge: 22–25 gauge
- Needle length*: 5/8 – 1.5 inch depending on the patient’s age and/or weight

**Site**: 
- Birth–11 months: Vastus lateralis muscle is preferred
- 1–3 years: Vastus lateralis muscle is preferred; deltoid muscle may be used if the muscle mass is adequate
- 4 years and older: Deltoid muscle is preferred; vastus lateralis muscle may be used

*Professional judgement should be used to determine the proper needle length and site. Factors influencing site including local reaction, number of vaccine to be administered age and muscle mass.
Vaccine Administration Considerations

- **Route: IM Injection**
  - Administer HepB vaccine and HBIG (if needed) in different limbs
- **Site: NO BUTTS!**

<table>
<thead>
<tr>
<th>Administration Errors</th>
<th>Count the Dose or Revaccinate?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult formulation administered to a child</td>
<td>Count the dose, if it meets minimum age and interval</td>
</tr>
<tr>
<td>Pediatric formulation administered to an adult</td>
<td>Dose does not count and should be repeated ASAP</td>
</tr>
<tr>
<td>HepA instead of HepB vaccine</td>
<td>Administer HepB vaccine ASAP</td>
</tr>
</tbody>
</table>
HepB Vaccine Contraindications and Precautions

- **Contraindication**
  - Severe allergic reaction to a vaccine component or following a prior dose

- **Precaution**
  - Moderate or severe acute illness
## HepB Vaccine Adverse Reactions

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain at injection site</td>
<td>3%-29%</td>
</tr>
<tr>
<td>Erythema</td>
<td>3%</td>
</tr>
<tr>
<td>Swelling</td>
<td>3%</td>
</tr>
<tr>
<td>Fever</td>
<td>1%-6%</td>
</tr>
<tr>
<td>Headache</td>
<td>3%</td>
</tr>
<tr>
<td>Severe systemic reactions</td>
<td>rare</td>
</tr>
</tbody>
</table>
Hepatitis B Vaccine Storage and Handling

- Store HepB-containing vaccines in a refrigerator between 2°C - 8°C (36°F - 46°F)
- DO NOT FREEZE
- Store in the original packaging with the lids closed in a clearly labeled bin and/or area of the storage unit
- Store pediatric and adult formulations separately, away from each other and other look- or sound-alike vaccines; e.g., HepA, Hib, HPV

Vaccine storage label example
Available at www.cdc.gov/vaccines/hcp/admin/storage/guide/vaccine-storage-labels.pdf
Information for Parents: Hepatitis B and the Vaccine (Shot) to Prevent It

The best way to protect against hepatitis B is by getting the hepatitis B vaccine. Doctors recommend that all children get the vaccine.

Why should my child get the hepatitis B shot?
The hepatitis B shot:
- Protects your child against hepatitis B, a potentially serious disease
- Protects other people from the disease because children with hepatitis B usually don’t have symptoms, but they may pass the disease to others without anyone knowing they were infected.
- Protects your child from developing liver disease and cancer from hepatitis B.
- Keep your child from missing school or childcare and keeps you from missing work to care for your sick child.

Is the hepatitis B shot safe?
The hepatitis B vaccine is very safe, and it is effective at preventing hepatitis B. Vaccines, like any medicine, can have side effects. But serious side effects caused by the hepatitis B vaccine are extremely rare.

What are the side effects?
Most people who get the hepatitis B vaccine will have no side effects at all. When side effects do occur, they are often very mild, such as a low fever (less than 101 degrees) or a sore arm from the shot.

What is hepatitis B?
Hepatitis B is a contagious liver disease caused by the hepatitis B virus. When a person is first infected with the virus, he or she can develop an "acute" (short-term) infection. Acute hepatitis B refers to the first 6 months after someone is infected with the hepatitis B virus. This infection can range from a very mild illness with few or no symptoms to a serious condition requiring hospitalization. Some people are able to fight the infection and clear the virus.

For others, the infection persists and is "chronic," or lifelong. Chronic hepatitis B refers to the infection when it remains active instead of getting better after 6 months. Over time, the infection can cause serious health problems, and even liver cancer.

Doctors recommend that your child get 3 doses of the hepatitis B shot for best protection. Ask your doctor when your child should get the next shot. Typically, children get one dose at each of the following ages:
- Shortly after birth
- 1 through 2 months
- 6 through 18 months

Your child may get a 4th dose depending on the brand of vaccine the doctor uses.

Hepatitis B Standing Order Templates
Children and Adults

STANDING ORDERS FOR Administering Hepatitis B Vaccine to Children and Teens

Purpose
To reduce morbidity and mortality from hepatitis B virus (HBV) by vaccinating all children and teens who meet the criteria established by the Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices (ACIP).

Policy
Where allowed by state law, standing orders enable eligible nurses and other healthcare professionals (e.g., pharmacists) to assess the need for and vaccinate children and teens who meet any of the criteria below.

Procedure
1. Assess Children and Teens in Need of Vaccination against HBV infection based on the following criteria:
   - Lack of documentation of at least 3 doses of hepatitis B vaccine (HepB) with the third dose given at least 14 weeks after the first dose, at least 6 weeks after the second dose, and when younger than age 24 weeks.

2. Screen for contraindications and precautions
   - Do not give HepB to a child or teen who has experienced a serious reaction (e.g., anaphylaxis) to any of the components in the vaccine or any of its excipients. For information on vaccine components, refer to the manufacturer's package insert (available online at immunize.org/package) or go to www.cdc.gov/vaccines/pubs/patient-factsheets/safety/safety-b.pdf.
   - Do not give HepB to a child or teen who has experienced hypersensitivity to yeast.

Precautions
- Moderate or severe acute illness with or without fever.

3. Provide Vaccine Information Statement
   - Provide all patients (or, in the case of minors, their parent or legal representative) with a copy of the most current hepatitis B vaccine information statement (HII). Provide non-English-speaking patients with a copy of the HII in their native language. If none is available and desired, these can be found at www.immunize.org. (For information about how to document that the HII was given, see section 6.3.D. “Documentation.”)

4. Prepare to Administer Vaccine
   - Choose the needle gauge, needle length, and injection site according to the following chart:

<table>
<thead>
<tr>
<th>Age of Child</th>
<th>Site of Injection</th>
<th>Needle Length</th>
<th>Needle Gauge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborns (&lt;30 days)</td>
<td>Anterior deltoid</td>
<td>1&quot;</td>
<td>27G</td>
</tr>
<tr>
<td>Infants (1-11 months)</td>
<td>Anterior deltoid</td>
<td>1&quot;</td>
<td>25G</td>
</tr>
<tr>
<td>Toddlers (1-10 years)</td>
<td>Anterior deltoid</td>
<td>1&amp;1/2&quot;</td>
<td>25G</td>
</tr>
<tr>
<td>Children (11+ years)</td>
<td>Anterior deltoid</td>
<td>1&amp;1/2&quot;</td>
<td>25G</td>
</tr>
<tr>
<td>Adolescents and Teens</td>
<td>Anterior deltoid</td>
<td>1&amp;1/2&quot;</td>
<td>25G</td>
</tr>
</tbody>
</table>

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STANDING ORDERS FOR Administering Hepatitis B Vaccine to Adults

Purpose
To reduce morbidity and mortality from hepatitis B virus (HBV) by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices.

Policy
Where allowed by state law, standing orders enable eligible nurses and other healthcare professionals (e.g., pharmacists) to assess the need for vaccination and to vaccinate adults who meet any of the criteria below.

Procedure
1. Assess Adults for Need of Vaccination against HBV infection according to the following criteria:
   - Any person who wants to be protected from HBV infection.
   - Patient with diabetes mellitus (Note: For those age 60 years or older, with diabetes mellitus, at the discretion of the treating clinician).
   - Persons with end-stage renal disease, including patients receiving hemodialysis.
   - HIV infection, or chronic liver disease.
   - Sexually active and not in a long-term, mutually monogamous relationship (e.g., more than 1 sex partner during the previous 6 months).
   - Severe or major reaction to their last dose of HepB vaccine.
   - HIV-infected or AIDS-positive patient.
   - HIV-infected or AIDS-positive patient.
   - Previous history of significant reactions to HepB vaccine.
   - Severe or moderate illness with or without fever.

Precautions
- Moderate or severe acute illness with or without fever.

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- Ask the Experts–Hepatitis B FAQs: www.immunize.org/askexperts/experts_hepb.asp
- CDC Viral Hepatitis–Hepatitis B Information: www.cdc.gov/hepatitis/hbv/index.htm
- CDC Hepatitis B Vaccination: www.cdc.gov/vaccines/vpd/hepb/index.html
- Hepatitis B and the Vaccine (Shot) to Prevent It–Information for Parents: www.cdc.gov/vaccines/parents/diseases/child/hepB-basics-color.pdf
Preexposure Evaluation for Health Care Personnel Previously Vaccinated with Complete ≥3-Dose HepB Vaccine Series Who Have Not Had Postvaccination Serologic Testing (Figure 3): www.cdc.gov/mmwr/volumes/67/rr/pdfs/rr6701-H.pdf