



Immunizing Children Against Hepatitis B

A Training Module For Vaccinators



Training Resource Series, Revised March 2006

Adapting This Training Module for Your Program

This module was developed as a prototype for training immunization providers on hepatitis B disease and vaccine. Sections of this module will need to be adapted for the local context before use.

Recommended Steps for Adaptation

- Thoroughly review the training module and mark sections that may require adaptation for your country or region. **ADAPTATION NOTES** are included throughout the module. These notes should be deleted once you have finalized your version of this document.
- Adjust the level of technical detail and language so that it is appropriate for the staff you are training.
- Delete sections that discuss vaccine formulations and schedules not used in your country.
- Add or change examples to reflect actual situations in your country. Add or change pictures to reflect the ethnic or cultural preferences of your audience.
- Adapt the section on waste management and disposal of sharps to reflect local policies (for example, waste management policies may be different in rural and urban settings).
- Translate the training module into the appropriate language. Be sure to check that new page numbers coincide with the table of contents.
- Create handouts for participants. Delete the Trainer's notes and Adaptation notes from the word processor version of this document, then print the simplified file as a participant handout.

If your manual will be in English or French, request a free Microsoft Word version of the module from PATH:

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Acknowledgements

Much of the information in this module was adapted from documents produced by PATH and the World Health Organization. See the References section on page 18 for information on these sources.

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Introduction

Purpose of this training module

1. To educate vaccinators about hepatitis B disease.
2. To train vaccinators in the safe and proper use of hepatitis B vaccine.
3. To decrease drop-out rates and increase coverage by improving vaccinators' ability to communicate with parents, other caretakers, and local leaders about hepatitis B vaccination and immunization in general.

Who should receive this training?

Health workers who give childhood vaccinations, and their supervisors, will benefit from this training.

Objectives: By the end of this session, participants will be able to:

- cite key facts about hepatitis B infection, including symptoms and modes of transmission
- demonstrate correct vaccine administration techniques
- describe appropriate vaccine storage, dosage, timing, and disposal of used needles and syringes
- communicate more effectively with parents of children being vaccinated

Timeframe: The amount of time needed to present this module can vary from approximately 2 hours to one full day, depending on choices you make. For example, you may choose to allow more discussion time for the participants or you may decide that they should have additional practice giving injections, reconstituting vaccine (if appropriate), role-playing interaction with parents, or familiarizing themselves with new procedures and forms.

Preparation prior to Training:

- Review all **Trainer's Notes** and contents before initiating the training.
- Photocopy participant handouts (one copy per trainee).

Trainer's Notes:

1. At the beginning of the training session, introduce yourself and ask participants to introduce themselves and give information about their background and experience.
 2. Point out that there are varying levels of experience within the group, and that everyone can benefit from the experiences and ideas of other group members.
 3. Present the timeframe and objectives, and explain what participants will be able to do better after this training session.
 4. You may wish to ask participants to explain their expectations for the training session. They may mention important training needs that you had not anticipated, but which can easily be incorporated into the session.
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Key facts about hepatitis B

Trainer's Notes:

1. Ask participants:
 - **What are the symptoms of hepatitis B?**
 - **How is the hepatitis B virus transmitted?**
 - **Is there a cure for hepatitis B?**
2. List answers on a flipchart paper and discuss with the group.
3. Rectify any incorrect answers by providing the information below.
4. See Attachment G for a sample handout on hepatitis B.

What is hepatitis B?

Hepatitis B is a serious disease of the liver that is caused by the hepatitis B virus. The virus can be found in the blood and bodily fluids of an infected person. The virus affects the liver, and over many years can eventually cause severe illness or death from liver disease, including liver cancer. In most African and Asian countries, liver cancer is one of the most serious causes of cancer deaths among men.

Infants and young children infected with hepatitis B seldom show symptoms of acute hepatitis, but they are more likely to become chronic carriers of the disease. That is why it is important to immunize children against hepatitis B as soon after birth as possible.

Some teenagers and adults infected with hepatitis B get very sick for a short period of time, then recover. Others do not develop obvious symptoms, but can still carry the virus and can infect others. Those persons are called **chronic carriers** of the hepatitis B virus. Carriers may eventually develop liver disease (called cirrhosis) or liver cancer.

People first infected as adults are less likely to become chronic carriers. **But as many as 90 percent of those infected as infants, and 25 percent infected as young children, may become chronic carriers and are at high risk of liver disease later in life.** Fifteen to twenty-five percent of chronic carriers die prematurely of liver diseases caused by the hepatitis B virus.

NOTE: There are four types of hepatitis: A, B, C, and E. Hepatitis B is very different from hepatitis A, which is normally spread through contaminated food and water. All hepatitis viruses can cause clinical illness, but types A and B are most common.

There are vaccines against hepatitis A and B, but no vaccines against hepatitis C and E.

ADAPTATION NOTE: You may wish to add an illustration showing where the liver is located in the body.

What are the symptoms of hepatitis B?

Most young children do not show symptoms after being infected with hepatitis B. However, they are at high risk of becoming chronic carriers of the disease. If that happens, they can infect others and may die of liver disease when they are teenagers or adults.

When teenagers or adults are infected with hepatitis B for the first time, they may show these symptoms:

- Jaundice (yellow skin or eyes)
- Dark urine
- Abdominal pain and fever
- Nausea and vomiting
- Aches in muscles and joints
- Loss of appetite and discomfort

NOTE: Jaundice is also a symptom of other forms of hepatitis and other diseases.

How serious a health problem is hepatitis B?

Trainer's Notes:

1. Explain local or national statistics pertaining to hepatitis B infection if you have this information:
 - local or national infection prevalence
 - estimated number of deaths nationally due to hepatitis B-related illness
 - most common modes of transmission locally/nationally
 - whether adult immunization is recommended in your country or not
-

ADAPTATION NOTE: You may wish to include national statistics in the module instead of, or in addition to, these global statistics.

- Hepatitis B infection causes 60 to 80 percent of deadly liver cancer worldwide.
- Approximately 30 percent of the world's population-almost 2 billion people-have been infected with hepatitis B. Three hundred and fifty million people are chronic carriers.
- At least 500,000 people chronically infected with hepatitis B die annually from cirrhosis or liver cancer.

How is the hepatitis B virus transmitted?

- The hepatitis B virus is present in blood and other body fluids and is highly infectious.
- The hepatitis B virus can be transmitted:
 - From mother to baby during birth (when the baby is exposed to the mother's blood, amniotic fluid, and vaginal fluid).
 - From child to child through infected blood or other body fluids during rough play.
 - Through unsafe injections and blood transfusions.
 - Through unprotected sexual contact.
- Hepatitis B virus is not spread by air or water. Normally it is not spread through food, except if an infected person prepares food for a baby by chewing it, then giving it to the baby to eat.
- Hepatitis A, on the other hand, is easily spread through contaminated food or water.

Who is at risk of getting hepatitis B?

Anyone who has not previously been exposed to the virus, or has not been vaccinated against it, can get hepatitis B.

In countries with high prevalence of hepatitis B, many people are infected during birth (mother to baby) or during the first few years of life (child to child, family member to child, or as a result of unsafe injections). If a baby infected at birth is vaccinated within a few days or a week (given a "birth dose" of vaccine), the child will likely be protected against the disease. It is best to immunize the baby as soon after birth as possible.

Adults born in countries with high prevalence usually do not benefit from vaccination because most of them have already been exposed to the virus and have developed natural immunity or have become chronic carriers. In these cases the vaccine is not needed.

In countries with lower prevalence of hepatitis B, infection during sex accounts for a high proportion of hepatitis B cases among adolescents and adults. Teenagers and adults may benefit from hepatitis B vaccination in these countries.

NOTE: Monovalent hepatitis B vaccine (vaccine against hepatitis B only) can be given to children, teenagers, or adults. **However, combination vaccines should only be given to children**, because they contain the DTP vaccine which can cause adverse reactions in older children, teenagers, and adults. See page 6 for more information about these different vaccine formulations.

Is there a cure for hepatitis B?

There is no treatment or cure for hepatitis B disease; therefore, prevention is extremely important.

Vaccination against hepatitis B is the best protection because the vaccine is so effective.

Practicing safer sex and avoiding unsafe injections can also help to prevent hepatitis B, along with HIV/AIDS and other sexually transmissible diseases.

How effective is the vaccine?

- The hepatitis B vaccine is 95 percent effective in children when it is given before infection or within seven days after exposure to the virus. Since some infants may be exposed to the vaccine during the birth process, it is important to vaccinate children as early in life as possible.
- All WHO-approved formulations of hepatitis B vaccine are equally effective.

Are there any contraindications to use of hepatitis B vaccine?

No. Most children, even if they have a slight cold or flu, can be given hepatitis B vaccine safely. Low-grade fever, mild respiratory infection and other minor illness are not contraindications to DTP or any vaccination, including hepatitis B.

Is it all right to use hepatitis B vaccine that has been frozen?

No. Once hepatitis B vaccine has been frozen, it loses its potency and will no longer be effective.

Do not use hepatitis B vaccine that has been frozen. Be careful when placing the vaccine in the refrigerator or cold box to avoid freezing (see page 11).

Trainer's Notes:

1. To review what participants have learned up to this point, distribute **Attachment A: Matching Activity**.
 2. Give participants several minutes to read and complete the exercise, and then call upon volunteers to read through the list with their answers.
 3. Correct any misinformation or wrong answers using the answers provided in the box on page 20.
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ADAPTATION NOTE:

The text below provides information on different hepatitis B vaccine schedules and formulations. You may want to delete it from your version of the module.

What are the different hepatitis B vaccine formulations?

1. Hepatitis B vaccine is available in four formulations:

Monovalent vaccine protects only against hepatitis B (hepatitis B).

Bivalent vaccine protects against hepatitis A and hepatitis B, but is not usually used in infant immunization programs and is not discussed in this module.

Quadrivalent vaccine protects against four diseases: diphtheria, tetanus, pertussis and hepatitis B (DTP + hepatitis B).

Pentavalent vaccine protects against five diseases: diphtheria, tetanus, pertussis, hepatitis B, and *Haemophilus influenzae* type B (DTP + hepatitis B + Hib).

2. The national vaccination schedule can include one of three recommended vaccination schedules for hepatitis B, depending on the vaccine formulation and various other factors.

Option I provides a total of three doses, but **no dose at birth*** (monovalent, quadrivalent, or pentavalent vaccines can be used for this schedule).

Option II provides a dose at birth* plus two additional doses (usually only monovalent hepatitis B vaccine is used in this schedule).

Option III provides a dose at birth* plus three additional doses (monovalent vaccine for the birth dose and monovalent, quadrivalent or pentavalent vaccine for the remaining doses).

3. Find out which type of vaccine and which schedule will be used in your country.
4. Locate the page number below for the section that corresponds with your country's policy.

	Option I (NO birth dose)	Options II or III (WITH birth dose*)
Monovalent vaccine	Page 7	Attachment D-Page 26
Quadrivalent vaccine	Attachment D-Page 28	Attachment D-Page 31
Pentavalent vaccine	Attachment D-Page 34	Attachment D-Page 38

* A "birth dose" is a dose of hepatitis B vaccine given within the first week of life. In countries where children often are infected at birth, providing the first dose of hepatitis B vaccine as early as possible helps prevent chronic carrier status. All schedules offering birth doses require monovalent vaccine for the birth dose because **DTP vaccine should not be given at birth.**

5. Train health workers ONLY on the schedule and vaccine formulation(s) that apply to your country.

ADAPTATION NOTE: *This information is for countries providing three doses of monovalent vaccine, with NO dose at birth. See Attachment D for information on other hepatitis B vaccine schedules and formulations.*

Administering hepatitis B vaccine

Who is eligible for hepatitis B vaccine?

Trainer's Notes:

When hepatitis B vaccine is first introduced into an area, health officials will determine which children are eligible to receive the vaccine.

When hepatitis B vaccine is first introduced into your area: Explain the introduction strategy for your area.

After the vaccine has been fully integrated in your area: Use the information below.

- All children should receive three doses of hepatitis B vaccine, with a gap of at least four weeks between doses.
- All children under one year of age who have not started DTP should receive hepatitis B vaccine on the same schedule as DTP.
- In countries where hepatitis B infection is common, vaccination usually does not benefit adults since they have likely already been exposed to the virus as children.

What is the vaccine schedule?

Age	Vaccines Given
Birth	OPV0 BCG
6 weeks	OPV1 DTP1 hepB1
10 weeks	OPV2 DTP2 hepB2
14 weeks	OPV3 DTP3 hepB3
9 months	Measles

ADAPTATION NOTE: *Your immunization schedule may be different—replace this schedule with your own. Also, your immunization program may include other vaccines such as yellow fever or Japanese encephalitis vaccine. In that case, add the vaccine(s) to the schedule.*

What is the correct dosage?

Hepatitis B vaccine is given as a 0.5 ml injection.

NOTE: Using a different manufacturer's hepatitis B vaccine for subsequent doses does not reduce effectiveness.

What if a dose is missed?

To guarantee long-term protection, all three doses should be given. If a child misses the date for vaccination, the child can make up the dose as soon as possible. There is no need to re-start the vaccination schedule.

Can an extra dose of vaccine hurt the child?

An extra dose of hepatitis B vaccine given some months after the last scheduled dose does not hurt children, but also does not increase the effectiveness of the immunization. Therefore “booster doses” of hepatitis B vaccine are not recommended.

How is hepatitis B vaccine administered?

- Hepatitis B vaccine is given as an intramuscular injection in the outer mid-thigh (children) or arm (adults).

Infants should NEVER be given injections in the buttock as evidence indicates that there is risk of damaging nerves in that area. The vaccine will also be less effective if injected deep into fatty tissues.

- Hepatitis B vaccine is given with a 0.5 ml syringe and needle (disposable or auto-disable), the same type of syringe and needle as are routinely used for DTP injections.
- A sterile syringe and needle must be used for each injection.
- Hepatitis B vaccine can safely be given along with other vaccines such as DTP, polio, BCG, measles, and yellow fever vaccines during the same immunization visit—but each injection should be given in a different limb. For example, DTP could be given in the right thigh and hepatitis B in the left thigh.
- Do not use hepatitis B vaccine that has been frozen.

ADAPTATION NOTE: You may want to include the “Job Aid” (Attachment F) here for a step-by-step description of how to administer hepatitis B vaccine. There are three different Job Aids in that section (one for monovalent vaccine, one for quadrivalent vaccine, and one for pentavalent vaccine). Be sure to insert the correct Job Aid for the vaccine formulation used in your program.

Trainer's Notes:

1. Ask participants, **What are all the steps we should follow when immunizing an infant against hepatitis B?**
 2. Allow participants to brainstorm a list of steps to follow when administering a vaccine. Write answers on a flipchart paper.
 3. Discuss the importance of:
 - greeting the parent
 - evaluating the child's immunization card
 - explaining to the parent about the vaccine
 - checking to make sure the correct vaccine is available
 - looking at the expiry date and checking the vaccine vial monitor (if the vial has a VVM)
 - using safe injection equipment
 - using the "shake test" to determine whether the vaccine has been frozen or not
 4. Demonstrate correct vaccine administration, including good communication with the parent.
-

Side Effects

Trainer's notes:

Drop-outs due to parent concern about side effects are avoidable. Make sure that participants have a chance to role-play talking with parents about common side effects and what to do about them.

What are the side effects of the hepatitis B monovalent vaccine and combination vaccines?

ADAPTATION NOTE: Revise the text below so that it refers only to the vaccine formulation(s) used in your program.

- Hepatitis B monovalent vaccine and combination vaccines have almost no side effects. Some infants may develop mild soreness at the site, but this will go away within 24 to 72 hours. No treatment or special care is needed.
- It is rare for a child to have a fever after being vaccinated against hepatitis B or *Haemophilus influenzae* type B (Hib). However, infants given hepatitis B + DTP or hepatitis B + DTP + Hib combination vaccine may have fever, just the same as those who receive DTP vaccine alone.

Older children, teenagers, and adults should not be given DTP vaccine, or any combination vaccine including DTP, because there is a higher risk of adverse reactions for these age groups.

- Allergic reaction to the vaccine (rash, difficulty breathing, and choking) is very rare (about one child in 600,000 vaccinated). A child that has had a severe allergic reaction from the vaccine should not be given another dose.
- **The hepatitis B vaccine cannot cause hepatitis B disease.**

Storing and Transporting Monovalent and Combination Vaccines

ADAPTATION NOTE: Revise the text below so that it refers only to the vaccine formulation(s) used in your program.

How do you store hepatitis B vaccine?

Trainer's Notes:

1. To stimulate discussion, ask participants to share how vaccines are stored in their clinic.
 2. Ask for examples of how vaccines are stored during national immunization days or work in remote communities. What conditions are necessary? How is the cold chain guaranteed?
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- Whether combined with DTP vaccine or not, the hepatitis B vaccine should be stored between 2 and 8 degrees Celsius.
- Hepatitis B vaccine, DTP vaccine and TT vaccine must not be frozen. If frozen, these vaccines lose their potency and provide no protection against disease. Previously frozen vaccines may also cause “aseptic abscesses.”
- The DTP + hepatitis B (quadrivalent) and DTP + hepatitis B + Hib (pentavalent) vaccines are especially vulnerable to freezing. Be extra careful not to freeze these vaccines.

How to avoid freezing vaccines

- Store vaccines in the warmest part of the refrigerator (usually the top if it is a top opening refrigerator). If vaccines are placed in the bottom or middle of a top opening refrigerator, they are more likely to freeze.

In front loading refrigerators: do not store vaccines on the top shelf since it is directly under the freezer and can be very cold.

- If possible, carry hepatitis B, DTP, liquid Hib, and TT vaccines in a separate cold box or vaccine carrier. Make sure that ice packs are put into the cold box or vaccine carrier only after they are “conditioned.” Also, to ensure that vaccines do not freeze due to direct contact with ice packs, wrap the vaccines in brown paper or newspaper before putting them into the box or carrier. This will help avoid freezing.
- If you cannot use separate carriers, be sure to keep the hepatitis B, DTP, liquid Hib, and TT vaccine vials far away from icepacks.

Wrap the vials in a paper bag (paper insulates better than plastic), then put them all in a plastic bag to keep the vials dry and the labels intact. Place the bag in the top level of the cold box.

None of these vaccines should touch an ice pack.

What do you do with leftover vaccine in an open bottle?

ADAPTATION NOTES: Policies for dealing with open, rubber-stoppered vials of liquid vaccine (such as liquid monovalent or quadrivalent hepatitis B vaccine) vary from country to country.

Learn what the policy is in your country and adapt the information in this section.

The information below is based on World Health Organization recommendations for using opened vials of vaccine. See References (page 18).

Open vials of **monovalent hepatitis B** vaccine and **quadrivalent DTP + hepatitis B** vaccine may be reused in subsequent sessions as long as:

- they have been kept at the correct temperature,
- the VVM (if any) is intact and has not reached the discard point,
- the vial has a rubber stopper (septum) and the septum has not been soaking in water, and
- aseptic technique has been used to draw previous doses.

Reconstituted pentavalent hepatitis B + DTP + Hib vaccine must be thrown away after six hours or at the end of the vaccination session (whichever comes first), because they can become contaminated and toxic.

During the session, you can use the vaccine in the vial as long as:

- the vaccine was reconstituted less than six hours earlier
- the vaccine has been stored between uses at 2 to 8 degrees centigrade and has not been frozen
- the vial septum has not been soaking in water and
- aseptic technique has been used to draw previous doses.

Safe Disposal of Used Needles and Syringes

How can you safely dispose of used syringes and needles?

ADAPTATION NOTES: Policies for dealing with contaminated needles and syringes, and other medical waste, vary from country to country. Learn what the policy is in your country and adapt the information in this section.

You may wish to add an illustration showing the safety box being used in your country.

For more information about safe disposal, see References.

- Each used syringe and needle must be put in a safety box immediately after use. When the box is three-quarters full, it should be sealed, then incinerated or burned.

If no official safety box is available, used syringes and needles should be placed in a hard plastic medical waste container or safety box, then incinerated or burned.

- Safety boxes and waste containers should be fully incinerated, if possible.

If there is no incinerator, burn the contaminated waste in a metal drum.

- After burning, bury any remaining ashes and metal debris (such as needles).

Monitoring Use of Hepatitis B Vaccine

ADAPTATION NOTES: Policies for monitoring and reporting vaccine use vary from country to country. Learn what the policy is in your country and adapt the information in this section.

How can you monitor use of the hepatitis B vaccine?

Trainer's Notes:

1. Introduce and discuss local or national record-keeping and reporting procedures here.
 - show participants the new immunization card with hepatitis B included
 - show participants new registration forms and other recording forms that must be filled out by the health worker.
 2. Ask each health worker to complete a sample form. Observe their work.
 3. Correct any mistakes and answer any remaining questions about record keeping and reporting.
-

Hepatitis B vaccine is valuable, so it is important to monitor the use of vaccine and to think about ways to reduce wastage.

Evaluation Exercise

Trainer's Notes:

1. To further evaluate what participants have learned, distribute ***Hepatitis B Statement Cards: True or False?*** (Attachment C). Follow the instructions in the attachment
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Reducing Drop-Outs and Increasing Immunization Coverage through Better Communication with Parents

How can you help ensure that parents bring their children for all needed immunizations?

Why do parents bring their children for some immunizations, but then fail to return for the full vaccination series? Sometimes parents try to come for immunization but the health center is closed or they do not know when immunizations are offered. Sometimes they may be afraid of side effects. Or they may have had a bad experience during an earlier immunization visit and be hesitant to return.

To effectively discuss these concerns with parents, every vaccinator needs to develop good communication skills. When a mother feels that she and her baby have been treated well, and when she knows when to return for the next immunization, she will be more likely to bring her children for the full course of immunization. And she may encourage other mothers to bring their children for vaccinations too!

Trainer's Notes:

Ask participants, **What can a vaccinator do to reduce drop-outs and increase immunization coverage?** Possible answers include:

- Find out when it is convenient for parents to bring their children for immunization and offer immunizations at those times.
- Maintain a regular immunization schedule so that parents know when to come. Clearly post the schedule where parents will see it.
- Explain to parents when and why the child should return for future vaccinations. Remind them to bring the child's vaccination card. Assure them that the child should be vaccinated even if he or she has a slight fever or cold.
- Share his or her knowledge about vaccination with the parents.
- Be friendly and courteous in all interactions with parents.
- Listen respectfully to parents' questions and concerns.
- Answer questions and explain things simply and clearly. Be patient with people who cannot read or who have not attended school.
- Speak the local language and use words the parents can understand.
- Ensure a smooth patient flow so that children are seen in the order they arrived, and without unnecessary delay.
- Allow only one family at a time in the immunization area.
- Help parents understand possible common side effects and how they can treat the symptoms. Also, what they should do in case of uncommon allergic reactions.
- Explain to parents that measles can kill children and that it is important to vaccinate their children against this disease. Failure to get the measles vaccine can be a big problem.
- Guide the parent to the exit after giving the immunization and thank her or him for coming.
- Ask community leaders and community organizations to help educate parents about full immunization and motivate or assist them to bring their children on time. Interested groups might include youth organizations, mother's clubs or service organizations such as Rotary.

Role-play: Administering Hepatitis B Vaccine Safely and Correctly

Trainer's Notes:

Role-playing is an excellent educational tool and participants often rate role-plays very highly when they evaluate training programs. Yet trainers sometimes make the mistake of not scheduling role-plays, or not allocating enough time for them.

Below are ideas for a role-play exercise on hepatitis B administration. If you feel that participants need more practice preparing for immunization sessions, loading vaccines into cold boxes, reconstituting lyophilized vaccine, giving injections, safely disposing of contaminated needles or syringes, or communicating with parents, create special role-plays to address those issues.

1. Ask participants to form teams of three persons for a role-play exercise on administering hepatitis B vaccine. One participant will role-play as the Immunization Provider. One will be a Mother (or Father) with her baby. The third participant will act as an Observer.
2. Give a copy of the [observation checklist](#) (Attachment B-1 or B-2) to each participant.
3. Each Provider will demonstrate the correct procedures for administering hepatitis B vaccine, including interaction with the Mother. Oranges or grapefruits can be used as injection models.
4. You may want to give special challenges to the Providers. For example, as them to role-play as if:
 - * the hepatitis B vaccine appears to have been frozen
 - * there is some vaccine remaining in an open vial at the end of the day
 - * the baby is ten days old (and your program offers a birth dose of vaccine, but only within the first week of life)
 - * they do not have updated record cards and have to use the old cards
 - * the mother did not bring the child's immunization card
 - * the mother demands that she also be vaccinated
 - * the mother has heard bad things about hepatitis B vaccination
 - * the baby will soon be moving to another place—how to complete vaccination?
5. Each Observer will fill out the observation checklist during the role-play between the Provider and the Mother. The Observers should check "yes" when they observe that a Provider has completed that action, and "no" when the Provider neglected to perform that step.
6. Ask each team to stop role-playing after seven minutes (or give them more time if you prefer). Tell all the Mothers that they are now Providers, all Providers are now Observers, and all Observers are now Mothers.
7. Repeat the role-play for another seven minutes.
8. Switch roles and repeat the role-play again until every participant has had a chance to be Observer, Provider, and Mother.
9. Conduct a group discussion about the role-play. Share your own observations as well. Focus on the question "What can we do to improve our immunization service, increase safety, reduce drop-outs, and increase coverage?"

Evaluation of the Training Session and Closing the Session

Trainer's Notes:

Ask participants to verbally share what they liked best about the training session and what they would change for the future.

AND/OR

Distribute the training evaluation form in Attachment H.

ADAPTATION NOTE: Organize whatever closing activities are traditional in your country. This might include awarding certificates for completion of the training or simply saying "thank you for participating and sharing your insights and experience."

References

Hepatitis B Disease and Vaccine

Children's Vaccine Program/PATH. Diseases and Vaccines section of the CVP web site:
www.childrensvaccine.org/html/diseases_vaccine.htm

World Health Organization, Department of Vaccines and Biologicals. "Introduction of hepatitis B vaccine into childhood immunization services—Management guidelines, including information for health workers and parents." 2001 (WHO/V&B/01.31)

World Health Organization, Department of Vaccines and Biologicals.
"WHO policy statement: The use of opened multi-dose vials of vaccine in subsequent immunization sessions" 2000 (WHO/V&B/00.09)

These three WHO documents can be downloaded from
www.who.int/vaccines-documents/DoxGen/H3DoxList.htm

World Health Organization, Department of Vaccines and Biologicals.
"Proper Handling and Reconstitution of Vaccines" Vaccines and Biologicals Update, Volume 34, December, 2000.

This document can be downloaded from
www.who.int/vaccines-documents/DoxNews/pdf-updt/update34.pdf

Injection Safety and Safe Disposal of Medical Waste

Children's Vaccine Program/PATH. Safe Injection section of the CVP web site:
www.childrensvaccine.org/html/safe_injection.htm

PATH. "Giving Safe Injections: Introducing Auto-Disable Syringes." 2000

Children's Vaccine Program/PATH. "Proper Handling and Disposal of Auto-Disable Syringes and Safety Boxes—A Training Module." 2002

These two documents can be downloaded from
www.childrensvaccine.org/html/safe_injection.htm

World Health Organization. "Safe Injection." Bulletin of the World Health Organization. Volume 77, Number 10, 1999, 787-866

This document can be downloaded from
www.who.int/bulletin/tableofcontents/vol.77no.10.html

ATTACHMENT A

Trainer’s Note:

If you are training vaccinators who do not read well, this exercise can be done verbally, relying on the participants’ memories. Simply read the questions to the group and ask them fill in the blanks verbally.

Key Facts about Hepatitis B: Matching Activity

Directions: Fill in the blanks using words in the box.

30 percent	frozen	acute and chronic
symptoms	900,000 people	blood
safely	95 percent	three doses
body fluids	infectious	combination
	monovalent	

1. The majority of infants infected with hepatitis B do not show any _____, but they are more likely to become chronic carriers.
2. The hepatitis B virus is highly _____.
3. Hepatitis B is transmitted via injections and from contact with _____ and other _____ such as semen, vaginal fluids and saliva. This happens most commonly during birth, during sex, during rough play between children, and with unsafe injections.
4. The vaccine is _____ effective.
5. _____ hepatitis B vaccine can safely be given to adults and infants, but adults should never be given _____ hepatitis B vaccine.
6. For full immunization, children must receive _____ of hepatitis B vaccine.
7. Worldwide, hepatitis B infection is the largest cause of _____ liver disease.
8. Approximately _____ of the world’s population-almost 2 billion people-have been infected with hepatitis B.
9. Approximately _____ infected with chronic hepatitis B die annually from cirrhosis and liver cancer.
10. Hepatitis B vaccine can safely be given _____ along with other vaccines, such as DTP, polio, measles, BCG, and yellow fever.
11. Hepatitis B vaccine will not work after it has been _____.

ANSWERS to Matching Activity (Attachment A)

The majority of infants infected with hepatitis B do not show any **symptoms**, but they are more likely to become chronic carriers.

The hepatitis B virus is highly **infectious**.

Hepatitis B is transmitted via injections and from contact with **blood** and other **body fluids** such as semen, vaginal fluids and saliva. This happens most commonly during birth, during sex, during rough play between children, and with unsafe injections.

The vaccine is **95 percent** effective.

Monovalent hepatitis B vaccine can safely be given to adults and infants, but adults should never be given **combination** hepatitis B vaccine.

For full immunization, children must receive **three doses** of hepatitis B vaccine.

Worldwide, hepatitis B infection is the largest cause of **acute and chronic** liver disease.

Approximately **30 percent** of the world's population-almost 2 billion people-have been infected with hepatitis B.

Approximately **900,000 people** infected with chronic hepatitis B die annually from cirrhosis and liver cancer.

Hepatitis B vaccine can be given **safely** along with other vaccines, such as DTP, polio, measles, BCG, and yellow fever.

Hepatitis B vaccine will not work after it has been **frozen**.

ATTACHMENT B-1

Vaccine Administration Role-Play Observation Checklist

Monovalent vaccine (hepatitis B) or **quadrivalent** vaccine (DTP+hepatitis B)

	Action	Observed? YES	Observed? NO
1.	Greet parent.		
2.	Examine child's immunization card or question parent about child's immunization history.		
3.	Explain to parent which vaccines will be given this session.		
4.	Check to make sure the vaccines you select are those required for the child.		
5.	Check the expiry date and VVM (if any) of each vaccine.		
6.	Perform a shake test to see if the hepatitis B vaccine has been frozen.		
7.	Shake the vial again before use		
8.	Take a sterile 0.5 ml syringe with a sterile intramuscular needle.		
9.	Draw exactly 0.5 ml. Hold the syringe needle-up and tap it to expel any remaining air.		
10.	Position the mother with baby on her lap and ask the mother to hold the baby's arms.		
11.	Insert the needle straight and deep into the baby's outer thigh muscle (opposite leg from the DTP vaccination).		
12.	Inject the vaccine and withdraw the needle.		
13.	Immediately dispose of the contaminated needle and syringe in safety box.		
14.	Tell the mother when to return for the next immunization, counsel her about common side effects, and answer any questions she may have. Thank her for bringing her child to the clinic.		

Comments and feedback for vaccinator: _____

ATTACHMENT B-2

Vaccine Administration Role-Play Observation Checklist

Pentavalent vaccine (hepatitis B + DTP + Hib)

	Action	Observed? YES	Observed? NO
1.	Greet parent.		
2.	Examine child's immunization card or question parent about child's immunization history.		
3.	Explain to parent which vaccines will be given this session.		
4.	Check to make sure the vaccines you select are those required for the child.		
5.	Check the expiry date and VVM (if any) of each vaccine.		
6.	Take a sterile 2 ml mixing (reconstitution) syringe.		
7.	Draw up the DTP + hepatitis B vaccine into the mixing syringe.		
8.	Mix the Hib vaccine using the DTP + hepatitis B as diluent.		
9.	Take a sterile 0.5 ml syringe with a sterile intramuscular needle.		
10.	Draw exactly 0.5 ml. Hold the syringe needle-up and tap it to expel any remaining air.		
11.	Position the mother with baby on her lap and ask the mother to hold the baby's arms.		
12.	Insert the needle straight and deep into the baby's outer thigh muscle (opposite leg from the DTP vaccination).		
13.	Inject the vaccine and withdraw the needle.		
14.	Immediately dispose of the contaminated needle and syringe in safety box.		
15.	Tell the mother when to return for the next immunization, counsel her about common side effects, and answer any questions she may have. Thank her for bringing her child to the clinic.		

Comments and feedback for vaccinator: _____

ATTACHMENT C

Hepatitis B Statement Cards: True or False?

- Cut the sheet below to make 14 slips of paper, each with one statement. Make up your own true and false statements if you like.
- Give a statement to each participant. Ask participants to read their statements out loud.
- The group should discuss whether each statement is true or false.
- Ask for the group's agreement before correcting the answer or continuing on to the next statement.

1. All people infected with hepatitis B become chronic carriers.

8. Most children do not experience side effects after being given the hepatitis B vaccine.

2. Hepatitis B is transmitted by blood and other bodily fluids, including saliva and semen.

9. The hepatitis B vaccine is given by injection in the outer mid-thigh for children and the arm for adults.

3. Most babies who are infected with hepatitis B clear it from their bodies by the age of 3.

10. Used syringes and needles should be placed in a safety box, then incinerated.

4. There is a vaccine for hepatitis B but not for hepatitis C.

11. It is not necessary to use a sterile needle and syringe when administering hepatitis B vaccine.

5. Hepatitis B can be transmitted by sharing needles during injection drug use.

12. If a mother is humiliated or scolded by a vaccinator during an immunization session, she may not return for her child's future immunizations.

6. Hepatitis B can be transmitted by shaking hands, touching, or hugging.

13. The hepatitis B vaccine should never be frozen.

7. It is important for a vaccinator to be friendly and courteous.

14. Jaundice, aches in muscles and joints, and loss of appetite are symptoms of hepatitis B, especially in teenagers and adults.

ANSWERS to Hepatitis B Statement Cards: True or False? (Attachment C)

1. False – Most people infected with hepatitis B virus do not become chronic carriers of the disease. People infected as infants are more likely to become chronic carriers.
2. True
3. False-Many babies infected with hepatitis B develop chronic infection.
4. True
5. True
6. False-Hepatitis B is not transmitted by casual contact, nor by food or water.
7. True
8. True
9. True
10. True
11. False – Needles and syringes used for ANY injection should always be sterile.
12. True
13. True
14. True

ATTACHMENT D

Adapting the Module for Other Hepatitis B Vaccination Schedules and Vaccine Formulations

ADAPTATION NOTE: This attachment includes five separate sections dealing with various hepatitis B vaccine schedules (with or without birth dose) and formulations (monovalent, quadrivalent and pentavalent vaccines).

If your immunization program will offer monovalent hepatitis B without a birth dose, use the information included in the main body of this module (beginning on page 7).

If your program offers a birth dose or will offer a combination vaccine, substitute the information in the main body of the module with the appropriate information from this attachment.

Vaccine formulation used in your program	Your program has NO BIRTH DOSE*	Your program ADDS a BIRTH DOSE*
<i>Monovalent vaccine</i>	Page 7	Attachment D-Page 26
<i>Quadrivalent vaccine</i>	Attachment D-Page 28	Attachment D-Page 31
<i>Pentavalent vaccine</i>	Attachment D-Page 34	Attachment D-Page 38

* A "birth dose" is a dose of hepatitis B vaccine given within the first week of life. All schedules offering birth doses require monovalent vaccine for the birth dose because DTP vaccine should not be given at birth.

ADAPTATION NOTE: *This information is for countries providing three doses of monovalent vaccine, PLUS a dose at birth.*

Administering the hepatitis B vaccine

Who should get hepatitis B vaccine?

Trainer's Notes:

When hepatitis B vaccine is first introduced into an area, health officials will determine which children are eligible to receive the vaccine.

When hepatitis B vaccine is first introduced into your area: Explain the introduction strategy for your area.

After the vaccine has been fully integrated in your area: Use the information below.

- All children should receive three doses of hepatitis B vaccine, with a gap of at least four weeks between doses.
- The first dose should be given within the first week of life (a birth dose). The birth dose is important because many babies are infected with hepatitis B during delivery. Vaccination at birth helps protect them from becoming chronic carriers of the disease.
- In countries where hepatitis B infection is common, vaccination usually does not benefit adults since they have likely already been exposed to the virus as children.

What is the vaccine schedule?

Age	Vaccines Given		
Birth	OPV0	BCG	HepB1
6 weeks	OPV1	DTP1	HepB2
10 weeks	OPV2	DTP2	
14 weeks	OPV3	DTP3	HepB3
9 months	Measles		

ADAPTATION NOTE: *Your immunization schedule may be different—replace this schedule with your own. Also, your immunization program may include other vaccines such as yellow fever or Japanese encephalitis vaccine. In that case, add the vaccine(s) to the schedule.*

What is the correct dosage?

Hepatitis B vaccine is given as a 0.5 ml injection.

NOTE: Using a different manufacturer's hepatitis B vaccine for subsequent doses does not reduce effectiveness.

What if a dose is missed?

To guarantee long-term protection, all three doses should be given. If a child misses the date for vaccination, the child can make up the dose as soon as possible. Be sure to record this dose properly.

There is no need to re-start the vaccination schedule.

Can an extra dose of vaccine hurt the child?

An extra dose of hepatitis B vaccine given some months after the last scheduled dose does not hurt children, but also does not increase the effectiveness of the immunization. Therefore “booster doses” of hepatitis B vaccine are not recommended.

How is hepatitis B vaccine administered?

- Hepatitis B vaccine is given as an intramuscular injection in the outer mid-thigh (children) or arm (adults).

Infants should NEVER be given injections in the buttock as evidence indicates that there is risk of damaging nerves in that area. The vaccine will also be less effective if injected deep into fatty tissues.

- Hepatitis B vaccine is given with a 0.5 ml syringe and needle (disposable or auto-disable), the same type of syringe and needle as are routinely used for DTP injections.
- A sterile syringe and needle must be used for each injection.
- Hepatitis B vaccine can safely be given along with other vaccines such as DTP, polio, BCG, measles, and yellow fever vaccines during the same immunization visit—but each injection should be given in a different limb. For example, DTP could be given in the right thigh and hepatitis B in the left thigh.
- Do not use hepatitis B vaccine that has been frozen.
- See the “Job Aid” included in Attachment F for a step-by-step description of how to administer hepatitis B vaccine. Be sure to select the correct Job Aid for the vaccine schedule and formulation used in your program.

ADAPTATION NOTE: This information is for countries providing three doses of hepatitis B + DTP (quadrivalent) vaccine, with NO dose at birth.

Administering the hepatitis B + DTP vaccine

Hepatitis B + DTP is a “quadrivalent,” or four-in-one, vaccine. It combines four different vaccines in one injection to protect against four diseases:

- Hepatitis B
- diphtheria,
- tetanus, and
- pertussis.

Who should get hepatitis B + DTP vaccine?

Trainer’s Notes:

When hepatitis B vaccine is first introduced into an area, health officials will determine which children are eligible to receive the vaccine.

When hepatitis B vaccine is first introduced into your area: Explain the introduction strategy for your area.

After the vaccine has been fully integrated in your area: Use the information below.

- All children under one year of age should receive three doses of hepatitis B + DTP vaccine, with a gap of at least four weeks between doses.
- **Children under six weeks of age, older children, and adults should never be given hepatitis B + DTP vaccine** (because of the DTP component).
- In countries where hepatitis B infection is common, vaccination usually does not benefit adults since they have likely already been exposed to the virus as children.

What is the vaccine schedule?

Age	Vaccines Given
Birth	OPV0 BCG
6 weeks	OPV1 HepB + DTP (quadrivalent 1)
10 weeks	OPV2 HepB + DTP (quadrivalent 2)
14 weeks	OPV3 HepB + DTP (quadrivalent 3)
9 months	Measles

ADAPTATION NOTE: Your immunization schedule may be different—replace this schedule with your own. Also, your immunization program may include other vaccines such as yellow fever or Japanese encephalitis vaccine. In that case, add the vaccine(s) to the schedule.

What is the correct dosage?

Hepatitis B + DTP vaccine is given as a 0.5 ml injection.

NOTE: Once a child has received one or more doses of hepatitis B + DTP vaccine, all subsequent doses should also be in the form of quadrivalent vaccine.

What if a dose is missed?

To guarantee long-term protection, all three doses should be given. If a child misses the date for vaccination, the child can make up the dose as soon as possible. Be sure to record this dose properly.

There is no need to re-start the vaccination schedule.

Can an extra dose of vaccine hurt the child?

An extra dose of hepatitis B vaccine given some months after the last scheduled dose does not hurt children, but also does not increase the effectiveness of the immunization. Therefore “booster doses” of hepatitis B vaccine are not recommended.

How is hepatitis B + DTP vaccine administered?

- Hepatitis B + DTP vaccine is given as an intramuscular injection in the child’s outer mid-thigh.

Infants should NEVER be given injections in the buttock as evidence indicates that there is

risk of damaging nerves in that area. The vaccine will also be less effective if injected deep into fatty tissues.

- Hepatitis B + DTP vaccine is given with a 0.5 ml syringe and needle (disposable or auto-disable), the same type of syringe and needle as are routinely used for DTP injections.
- A sterile syringe and needle must be used for each injection.
- Hepatitis B + DTP vaccine can safely be given along with other vaccines such as polio, BCG, measles, and yellow fever vaccines during the same immunization visit—but each injection should be given in a different limb.
- Do not use hepatitis B vaccine that has been frozen.
- See the “Job Aid” included in Attachment F for a step-by-step description of how to administer hepatitis B + DTP vaccine. Be sure to select the correct Job Aid for the vaccine schedule and formulation used in your program.

ADAPTATION NOTE: This information is for countries providing three doses of hepatitis B + DTP (quadrivalent) vaccine, PLUS a dose at birth.

Administering the hepatitis B + DTP vaccine

What is a monovalent vaccine?

A monovalent vaccine is one that protects against one disease. Because infants less than six weeks of age cannot be given DTP vaccine, our program is using monovalent hepatitis B vaccine for the first dose (within seven days of birth), then switching to a combination (quadrivalent) vaccine for the remaining three doses.

What is a quadrivalent vaccine?

Hepatitis B + DTP vaccine is a “quadrivalent,” or four-in-one, vaccine. It combines four different vaccines in one injection to protect against four diseases.

- Hepatitis B,
- diphtheria
- tetanus, and
- pertussis.

Who should get hepatitis B + DTP vaccine?

Trainer’s Notes:

When hepatitis B vaccine is first introduced into an area, health officials will determine which children are eligible to receive the vaccine.

When hepatitis B vaccine is first introduced into your area: Explain the introduction strategy for your area.

After the vaccine has been fully integrated in your area: Use the information below.

Make sure that trainees recognize the differences between monovalent and quadrivalent vaccine vials.

- Within a week of birth, all children will receive a dose of monovalent hepatitis B vaccine. Later they will receive three doses of hepatitis B + DTP vaccine, with a gap of at least four weeks between doses.

The birth dose is important because many babies are infected with hepatitis B during delivery. Vaccination at birth helps protect them from becoming chronic carriers of the disease.

- **Children under six weeks of age, older children, and adults should never be given hepatitis B + DTP vaccine** (because of the DTP component).

- In countries where hepatitis B infection is common, vaccination usually does not benefit adults since they have likely already been exposed to the virus as children.

What is the vaccine schedule?

Age	Vaccines Given		
Birth	OPV0	BCG	HepB0 (monovalent)
6 weeks	OPV1		HepB + DTP (quadrivalent 1)
10 weeks	OPV2		HepB + DTP (quadrivalent 2)
14 weeks	OPV3		HepB + DTP (quadrivalent 3)
9 months	Measles		

ADAPTATION NOTE: Your immunization schedule may be different—replace this schedule with your own. Also, your immunization program may include other vaccines such as yellow fever or Japanese encephalitis vaccine. In that case, add the vaccine(s) to the schedule.

What is the correct dosage?

Monovalent hepatitis B vaccine and quadrivalent hepatitis B + DTP vaccine are given as a 0.5 ml injection.

NOTE: Once a child has received one or more doses of hepatitis B + DTP vaccine, all subsequent doses should also be in the form of quadrivalent vaccine.

What if a dose is missed?

If there is no monovalent hepatitis B vaccine available, or if the child misses the birth dose, do not make up the monovalent dose. The child can start the hepatitis B immunization with hepatitis B + DTP1 at age six weeks.

For later doses, the child can make up the dose as soon as possible. Be sure to record this dose properly.

There is no need to re-start the vaccination schedule.

Can an extra dose of vaccine hurt the child?

An extra dose of hepatitis B vaccine given some months after the last scheduled dose does not hurt children, but also does not increase the effectiveness of the immunization. Therefore “booster doses” of hepatitis B vaccine are not recommended.

How are monovalent hepatitis B vaccine and quadrivalent hepatitis B + DTP vaccine administered?

- Both types of vaccine are given as an intramuscular injection in the child’s outer mid-thigh.

Infants should NEVER be given injections in the buttock as evidence indicates that there is risk of damaging nerves in that area. The vaccine will also be less effective if injected deep into fatty tissues.

- Both types of vaccine are given with a 0.5 ml syringe and needle (disposable or auto-disable), the same type of syringe and needle as are routinely used for DTP injections.
- A sterile syringe and needle must be used for each injection.
- Monovalent hepatitis B vaccine and quadrivalent hepatitis B + DTP vaccine can safely be given along with other vaccines such as polio, BCG, measles, and yellow fever vaccines during the same immunization visit—but each injection should be given in a different limb.
- Do not use monovalent or quadrivalent hepatitis B vaccine that has been frozen.
- See the “Job Aid” included in Attachment F for a step-by-step description of how to administer hepatitis B vaccine. Be sure to select the correct Job Aid for the vaccine schedule and formulation used in your program.

ADAPTATION NOTE: This information is for countries providing three doses of hepatitis B + DTP+ Hib (pentavalent) vaccine, with NO dose at birth..

Administering the hepatitis B + DTP + Hib vaccine

Hepatitis B + DTP + Hib vaccine is a “pentavalent,” or five-in-one, vaccine. It combines five different vaccines in one injection to protect against five diseases:

- Hepatitis B,
- diphtheria,
- tetanus,
- pertussis, and
- *Haemophilus influenzae* type B (Hib) disease.

NOTE: In spite of its name, *Haemophilus influenzae* type B does not cause influenza—it causes pneumonia and meningitis.

This combination vaccine is a bit different than any other vaccine you have used. Like measles vaccine, hepatitis B + DTP + Hib vaccine must be mixed (reconstituted) before use.

The vaccine comes in two separate vials. One vial contains hepatitis B + DTP vaccine as a liquid and the second vial contains a lyophilized (freeze dried) Hib vaccine. To prepare the pentavalent vaccine, inject the liquid hepatitis B + DTP vaccine into the vial containing the lyophilized Hib vaccine. After shaking, the liquid can be injected intramuscularly as DTP had been previously.

Hepatitis B + DTP + Hib vaccine is provided in two dose vials.

IMPORTANT: Discard any reconstituted hepatitis B + DTP + Hib vaccine at the end of each day or after six hours, whichever comes first.

Who should get hepatitis B + DTP + Hib vaccine?

Trainer’s Notes:

When hepatitis B vaccine is first introduced into an area, health officials will determine which children are eligible to receive the vaccine.

When hepatitis B vaccine is first introduced into your area: Explain the introduction strategy for your area.

After the vaccine has been fully integrated in your area: Use the information below.

- All children under one year of age should receive three doses of hepatitis B + DTP + Hib vaccine, with a gap of at least four weeks between doses.

- **Children under six weeks of age, older children, and adults should never be given hepatitis B + DTP + Hib vaccine** (because of the DTP component).
- In countries where hepatitis B infection is common, vaccination usually does not benefit adults since they have likely already been exposed to the virus as children.

What is the vaccine schedule?

Age	Vaccines Given	
Birth	OPV0	BCG
6 weeks	OPV1	HepB + DTP + Hib (pentavalent 1)
10 weeks	OPV2	HepB + DTP + Hib (pentavalent 2)
14 weeks	OPV3	HepB + DTP + Hib (pentavalent 3)
9 months	Measles	

ADAPTATION NOTE: Your immunization schedule may be different—replace this schedule with your own. Also, your immunization program may include other vaccines such as yellow fever or Japanese encephalitis vaccine. In that case, add the vaccine(s) to the schedule.

What is the correct dosage?

Hepatitis B + DTP + Hib vaccine is given as a 0.5 ml injection.

NOTE: Once a child has received one or more doses of hepatitis B + DTP + Hib vaccine, all subsequent doses should also be in the form of pentavalent vaccine.

What if a dose is missed?

To guarantee long-term protection, all three doses should be given. If a child misses the date for vaccination, the child can make up the dose as soon as possible. Be sure to record this dose properly.

There is no need to re-start the vaccination schedule.

Can an extra dose of vaccine hurt the child?

An extra dose of hepatitis B vaccine given some months after the last scheduled dose does not hurt children, but also does not increase the effectiveness of the immunization. Therefore “booster doses” of hepatitis B vaccine are not recommended.

How is hepatitis B + DTP + Hib vaccine administered?

Reconstituting (mixing) the freeze-dried vaccine

With pentavalent hepatitis B + DTP + Hib vaccine, the Hib vaccine is lyophilized (freeze-dried) and the liquid hepatitis B + DTP is used to reconstitute the Hib vaccine.

1. Make sure that you have both the vial containing the lyophilized Hib vaccine and the vial containing the liquid hepatitis B + DTP vaccine. You will also need a sterile mixing (reconstitution) syringe.
 2. Examine the liquid hepatitis B + DTP vaccine vial carefully for evidence that it has been frozen. Use the “shake test” to help you decide if it was frozen or not. If the liquid vaccine appears to have been frozen, destroy it. Do not use hepatitis B + DTP vaccine that has been frozen.
 3. Using the mixing syringe, draw up all of the liquid hepatitis B + DTP vaccine from the vial (1.3 ml). Inject all 1.3 ml into the vial containing the lyophilized Hib vaccine.
 4. Remove the mixing syringe from the vaccine vial and shake the vial.
 5. Administer the vaccine as you would normal DTP vaccine.
 6. **IMPORTANT:** Discard any reconstituted hepatitis B + DTP + Hib vaccine at the end of each day or after six hours, whichever comes first.
- After mixing the hepatitis B + DTP + Hib vaccine is given as an intramuscular injection in the child’s outer mid-thigh.

Infants should NEVER be given injections in the buttock as evidence indicates that there is risk of damaging nerves in that area. The vaccine will also be less effective if injected deep into fatty tissues.

- Hepatitis B + DTP + Hib vaccine is given with a 0.5 ml syringe and needle (disposable or auto-disable), the same type of syringe and needle as are routinely used for DTP injections.
- A sterile syringe and needle must be used for each injection.
- Hepatitis B + DTP + Hib vaccine can safely be given along with other vaccines such as polio, BCG, measles, and yellow fever vaccines during the same immunization visit—but each injection should be given in a different limb.
- Do not use hepatitis B + DTP + Hib vaccine if the hepatitis B + DTP liquid component has been frozen.
- See the “Job Aid” included in Attachment F for a step-by-step description of how to administer hepatitis B + DTP + Hib vaccine. Be sure to select the correct Job Aid for the vaccine schedule and formulation used in your program.

Trainer's Notes:

1. Ask participants, **What are some important things to remember when reconstituting vaccines?**
 2. Allow participants to brainstorm a list of answers. Write answers on a flipchart paper.
 3. Discuss the importance of:
 - selecting the correct diluent for the vaccine (in this case the diluent is a liquid hepatitis B + DTP vaccine)
 - using a sterile syringe and sterile needle to mix the vaccine
 - knowing how long the vaccine can be kept after it is mixed
-

ADAPTATION NOTE: This information is for countries providing three doses of hepatitis B + DTP+ Hib (pentavalent) vaccine, PLUS a dose at birth.

Administering the hepatitis B + DTP + Hib vaccine

What is a monovalent vaccine?

A monovalent vaccine is one that protects against one disease. Because infants less than six weeks of age cannot be given DTP vaccine, our program is using monovalent hepatitis B vaccine for the first dose (within seven days of birth), then switching to a combination (pentavalent) vaccine for the remaining three doses.

What is a pentavalent vaccine?

Hepatitis B + DTP + Hib vaccine is a “pentavalent,” or five-in-one, vaccine. It combines five different vaccines in one injection to protect against five diseases.

- Hepatitis B,
- diphtheria,
- tetanus,
- pertussis, and
- *Haemophilus influenzae* type B (Hib) disease.

NOTE: In spite of its name, *Haemophilus influenzae* type B does not cause influenza—it causes pneumonia and meningitis.

This combination vaccine is a bit different than any other vaccine you have used. Like measles vaccine, hepatitis B + DTP + Hib vaccine must be mixed (reconstituted) before use.

The vaccine comes in two separate vials. One vial contains hepatitis B + DTP vaccine as a liquid and the second vial contains a lyophilized (freeze-dried) Hib vaccine. To prepare the pentavalent vaccine, inject the liquid hepatitis B + DTP vaccine into the vial containing the lyophilized Hib vaccine. After shaking, the liquid can be injected intramuscularly as DTP had been previously.

Hepatitis B + DTP + Hib vaccine is provided in two dose vials.

IMPORTANT: Discard any reconstituted hepatitis B + DTP + Hib vaccine at the end of each day or after six hours, whichever comes first.

Who is eligible for hepatitis B + DTP + Hib vaccine?

Trainer's Notes:

1. When hepatitis B vaccine is first introduced into an area, health officials will determine which children are eligible to receive the vaccine.

When hepatitis B vaccine is first introduced into your area: Explain the introduction strategy for your area.

After the vaccine has been fully integrated in your area: Use the information below.

2. Make sure that trainees recognize the differences between monovalent and pentavalent vaccine vials.

-
- Within a week of birth, all children will receive a dose of monovalent hepatitis B vaccine. Later they will receive three doses of hepatitis B + DTP + Hib vaccine, with a gap of at least four weeks between doses.

The birth dose is important because many babies are infected with hepatitis B during delivery. Vaccination at birth helps protect them from becoming chronic carriers of the disease.

- **Children under six weeks of age, older children, and adults should never be given hepatitis B + DTP + Hib vaccine** (because of the DTP component).
- In countries where hepatitis B infection is common, vaccination usually does not benefit adults since they have likely already been exposed to the virus as children.

What is the vaccine schedule?

Age	Vaccines Given		
Birth	OPV0	BCG	HepB0 (monovalent)
6 weeks	OPV1		HepB + DTP + Hib (pentavalent 1)
10 weeks	OPV2		HepB + DTP + Hib (pentavalent 2)
14 weeks	OPV3		HepB + DTP + Hib (pentavalent 3)
9 months	Measles		

ADAPTATION NOTE: Your immunization schedule may be different—replace this schedule with your own. Also, your immunization program may include other vaccines such as yellow fever or Japanese encephalitis vaccine. In that case, add the vaccine(s) to the schedule.

What is the correct dosage?

Monovalent hepatitis B vaccine and pentavalent Hepatitis B + DTP + Hib vaccine are given as a 0.5 ml injection.

NOTE: Once a child has received one or more doses of hepatitis B + DTP + Hib vaccine, all subsequent doses should also be in the form of pentavalent vaccine.

What if a dose is missed?

If there is no monovalent hepatitis B vaccine available, or if the child misses the birth dose, do not make up the monovalent dose. The child can start the hepatitis B immunization with hepatitis B + DTP + Hib1 at age six weeks.

For later doses, the child can make up the dose as soon as possible. Be sure to record this dose properly.

There is no need to re-start the vaccination schedule.

Can an extra dose of vaccine hurt the child?

An extra dose of hepatitis B vaccine given some months after the last scheduled dose does not hurt children, but also does not increase the effectiveness of the immunization. Therefore “booster doses” of hepatitis B vaccine are not recommended.

How are monovalent hepatitis B vaccine and hepatitis B + DTP + Hib vaccine administered?

Reconstituting (mixing) the freeze-dried vaccine

With pentavalent hepatitis B + DTP + Hib vaccine, the Hib vaccine is lyophilized (freeze-dried) and the liquid hepatitis B + DTP is used to reconstitute the Hib vaccine.

1. Make sure that you have both the vial containing the lyophilized Hib vaccine and the vial containing the liquid hepatitis B + DTP vaccine. You will also need a sterile mixing (reconstitution) syringe.
2. Examine the liquid hepatitis B + DTP vaccine vial carefully for evidence that it has been frozen. Use the “shake test” to help you decide if it was frozen or not. If the liquid vaccine appears to have been frozen, destroy it. Do not use hepatitis B + DTP vaccine that has been frozen.
3. Using the mixing syringe, draw up all of the liquid hepatitis B + DTP vaccine from the vial (1.3 ml). Inject all 1.3 ml into the vial containing the lyophilized Hib vaccine
4. Remove the mixing syringe from the vaccine vial and shake the vial.
5. Administer the vaccine as you would normal DTP vaccine.
6. **IMPORTANT:** Discard any reconstituted hepatitis B + DTP + Hib vaccine at the end of each day or after six hours, whichever comes first.

- Both types of vaccine are given as an intramuscular injection in the child's outer mid-thigh.

Infants should NEVER be given injections in the buttock as evidence indicates that there is risk of damaging nerves in that area. The vaccine will also be less effective if injected deep into fatty tissues.

- Both types of vaccine are given with a 0.5 ml syringe and needle (disposable or auto-disable), the same type of syringe and needle as are routinely used for DTP injections.
- A sterile syringe and needle must be used for each injection.
- Both types of vaccine can safely be given along with other vaccines such as polio, BCG, measles, and yellow fever vaccines during the same immunization visit—but each injection should be given in a different limb.
- Do not use monovalent hepatitis B vaccine that has been frozen. Do not use pentavalent hepatitis B + DTP + Hib vaccine if the hepatitis B + DTP liquid component has been frozen.
- See the “Job Aid” included in Attachment F for a step-by-step description of how to administer hepatitis B + DTP + Hib vaccine. Be sure to select the correct Job Aid for the vaccine schedule and formulation used in your program.

Trainer's Notes:

1. Ask participants, What are some important things to remember when reconstituting vaccines?
 2. Allow participants to brainstorm a list of answers. Write answers on a flipchart paper.
 3. Discuss the importance of:
 - selecting the correct diluent for the vaccine (in this case the diluent is a liquid hepatitis B + DTP vaccine)
 - using a sterile syringe and sterile needle to mix the vaccine
 - knowing how long the vaccine can be kept after it is mixed
-

ATTACHMENT E

Has This Vaccine Been Frozen? Doing the “Shake Test”

Hepatitis B vaccine, DTP vaccine, TT vaccine, and liquid Hib vaccine should never be frozen. Freezing damages the vaccine and it will not work correctly. And sometimes the grains in a vaccine that was frozen can create an “aseptic abscess”—a painful lump at the injection site filled with a clear liquid (not pus).

If you suspect that a vial of hepatitis B vaccine, DTP vaccine, TT vaccine, or liquid Hib vaccine has been frozen, use the “shake test” described below.

How to do the shake test

1. Prepare a frozen “control vial”

Select any vaccine vial from the same batch and manufacturer as the “suspect vials” you wish to test. This will be your “control vial” (the one you know has been frozen).

Freeze the vaccine in the control vial completely.

Clearly label the control vial “frozen” and never use it!

Allow the control vial to thaw to the same temperature as the suspect vials.

2. Compare a “suspect vial” with the frozen control vial

Gather any suspect vials you wish to test (they must be from the same batch and manufacturer as the control vial).

Shake the suspect and control vials for 10-15 seconds. If the solution in the suspect vials is not evenly-colored after shaking, do not use the vaccine. Discard it. The suspect vials probably were frozen.

Now place all the vials on a flat surface and watch as the vaccine sediment settles.

If the sediment in the suspect vials settles more slowly than the sediment in the frozen control vial, you may use the vaccine in the suspect vials.

If the sediment in the suspect vials settles at the same rate or more quickly than those in the frozen control vial, do not use the suspect vials. Discard them. The suspect vials probably have been frozen.

3. Repeat the test for each different batch of vaccine

Repeat steps one and two above for each batch of vaccine you test, even if they are from the same manufacturer. It is not necessary to test each shipping box, just each batch of vaccine.

ATTACHMENT F

Job Aids – How to Administer Hepatitis B Vaccine

You can photocopy the Job Aid and use it as a handout. But be sure to select the correct Job Aid for your program:

Monovalent vaccine Job Aid Page 44

Quadrivalent vaccine Job Aid Page 45

Pentavalent vaccine Job Aid Page 46

How to Administer Hepatitis B Vaccine (Monovalent Formulation)

1. **Before the session begins:** Prepare your vaccines, needles, syringes, and safety disposal box ahead of time. Make sure that you have sufficient equipment to provide every child with a safe injection and to safely dispose of all injection materials.
2. **When the parent and child arrives:** Greet the parent in a friendly manner. Ask if the parent has any questions or concerns about immunization. Respond truthfully and respectfully.
3. Look at the child's immunization card. Determine whether the child is due for a hepatitis B vaccination. Don't scold if the parent has brought the child in late.
4. Make sure that you have the correct vaccines you plan to use for this child.
5. Explain to the parent about the hepatitis B vaccine (and any other vaccines needed this visit).
6. Check the expiry date of the hepatitis B vaccine. If the vaccine has expired, dispose of it.
7. If the vial has a vaccine vial monitor (VVM), check the VVM. If the VVM indicates that the vaccine has been exposed to too much heat, dispose of it.
8. Use the "shake test" (see Attachment E) to determine if the vaccine has been frozen or not. **Do not use hepatitis B vaccine that has been frozen.** If it appears to have been frozen, dispose of it.
9. Shake the vial again immediately before use.
10. Using a sterile 0.5 ml syringe, draw exactly 0.5 ml into the syringe. Hold the needle upwards and tap the syringe to expel any air trapped inside.
11. Position the mother with the baby on her lap. Ask the mother to hold the baby's arms and legs still.
12. Insert the needle straight and deep into the infant's upper outer thigh muscle.
13. Inject the vaccine, then withdraw the needle.
14. Dispose of the needle and syringe in a safety box. Do not recap the needle.
15. Record the date of vaccination on the child's vaccination card.
16. Thank the parent for bringing the child for immunization and tell the parent when to bring in the child for the next immunization.

ADAPTATION NOTE: You may wish to add illustrations showing how to position the baby on the mother's lap and/or how to give an intramuscular injection.

How to Administer Hepatitis B + DTP Vaccine (Quadrivalent Formulation)

1. **Before the session begins:** Prepare your vaccines, needles, syringes, and safety disposal box ahead of time. Make sure that you have sufficient equipment to provide every child with a safe injection and to safely dispose of all injection materials.
2. **When the parent and child arrives:** Greet the parent in a friendly manner. Ask if the parent has any questions or concerns about immunization. Respond truthfully and respectfully.
3. Look at the child's immunization card. Determine whether the child is due for a hepatitis B vaccination. Don't scold if the parent has brought the child in late.
4. Make sure that you have the correct vaccines you plan to use for this child.
5. Explain to the parent about the combination hepatitis B + DTP vaccine (and any other vaccines needed this visit).
6. Check the expiry date of the hepatitis B + DTP vaccine. If the vaccine has expired, dispose of it.
7. If the vial has a vaccine vial monitor (VVM), check the VVM. If the VVM indicates that the vaccine has been exposed to too much heat, dispose of it.
8. Use the "shake test" (see Attachment E) to determine if the vaccine has been frozen or not. **Do not use hepatitis B + DTP vaccine that has been frozen.** If it appears to have been frozen, dispose of it.
9. Shake the vial again immediately before use.
10. Using a sterile 0.5 ml syringe, draw exactly 0.5 ml into the syringe. Hold the needle upwards and tap the syringe to expel any air trapped inside.
11. Position the mother with the baby on her lap. Ask the mother to hold the baby's arms and legs still.
12. Insert the needle straight and deep into the infant's upper outer thigh muscle.
13. Inject the vaccine, then withdraw the needle.
14. Dispose of the needle and syringe in a safety box. Do not recap the needle.
15. Record the date of vaccination on the child's vaccination card.
16. Thank the parent for bringing the child for immunization and tell the parent when to bring in the child for the next immunization.

ADAPTATION NOTE: You may wish to add illustrations showing how to position the baby on the mother's lap and/or how to give an intramuscular injection.

How to Administer Hepatitis B + DTP + Hib Vaccine (Pentavalent Formulation)

1. **Before the session begins:** Prepare your vaccines, needles, syringes, and safety disposal box ahead of time. Make sure that you have sufficient equipment to provide every child with a safe injection and to safely dispose of all injection materials.
2. **When the parent and child arrives:** Greet the parent in a friendly manner. Ask if the parent has any questions or concerns about immunization. Respond truthfully and respectfully.
3. Look at the child's immunization card. Determine whether the child is due for a hepatitis B vaccination. Don't scold if the parent has brought the child in late.
4. Make sure that you have the correct vaccines you plan to use for this child. Make sure that you have both the vial containing the lyophilized Hib vaccine and the vial containing the liquid hepatitis B + DTP vaccine. You will also need a sterile mixing (reconstitution) syringe.
5. Explain to the parent about the combination hepatitis B + DTP + Hib vaccine (and any other vaccines needed this visit).
6. Check the expiry date of the hepatitis B + DTP + Hib vaccine. If the vaccine has expired, dispose of it.
7. If the vial has a vaccine vial monitor (VVM), check the VVM. If the VVM indicates that the vaccine has been exposed to too much heat, dispose of it.
8. Use the "shake test" (see Attachment E) to determine if the liquid hepatitis B + DTP vaccine has been frozen or not. **Do not use liquid hepatitis B + DTP vaccine that has been frozen.** If it appears to have been frozen, dispose of it.
9. Shake the liquid hepatitis B + DTP vial again immediately before use.
10. Using the mixing syringe, draw up all of the liquid hepatitis B + DTP vaccine from the vial (1.3 ml). Inject all 1.3 ml into the vial containing the lyophilized Hib vaccine.
11. Remove the mixing syringe from the vaccine vial and shake the vial.
12. Using a sterile 0.5 ml syringe, draw exactly 0.5 ml into the syringe. Hold the needle upwards and tap the syringe to expel any air trapped inside.
13. Position the mother with the baby on her lap. Ask the mother to hold the baby's arms and legs still.
14. Insert the needle straight and deep into the infant's upper outer thigh muscle.
15. Inject the vaccine, then withdraw the needle.
16. Dispose of the needle and syringe in a safety box. Do not recap the needle.
17. Record the date of vaccination on the child's vaccination card.
18. Thank the parent for bringing the child for immunization and tell the parent when to bring in the child for the next immunization.

IMPORTANT: Discard any reconstituted hepatitis B + DTP + Hib vaccine at the end of each day or after six hours, whichever comes first.

ADAPTATION NOTE: You may wish to add illustrations showing how to position the baby on the mother's lap and/or how to give an intramuscular injection.

ATTACHMENT G

Sample Handout for Parents and Local Leaders

ADAPTATION NOTE: The handout on the following pages was designed for health workers or for parents, local leaders, and other community members who have a basic understanding of biology (i.e. they know what a virus is).

For less-educated community members, you will need to simplify the information. For these groups, it is often a good idea to design messages that focus on what they need to do to fully immunize their children (example: “Your child must come to the health center five times for immunizations”), not on biological concepts or explanations about how vaccines work.

Trainer’s Notes:

See the following resources for more ideas about communicating immunization messages to parents. All can be found by searching for the document name on the CVP/PATH website (www.ChildrensVaccine.org).

- **Introduction to the DTP-Hepatitis B Vaccine**
Two booklets from the Ministry of Health, Mozambique. One is for health workers, the other for community leaders.
- **Parents and Teens** section of the CVP/PATH website:
www.childrensvaccine.org/html/parents_teens.htm
- **Hepatitis B Vaccine Introduction: Lessons Learned in Advocacy, Communication, and Training**
A short paper with practical suggestions from Children's Vaccine Program/PATH.
- **Training Vaccinators in a Time of Change**
An article from the October 2001 issue of GAVI’s Immunization Focus newsletter. The article is a follow-up to the CVP paper listed above, with additional suggestions.
- **Immunization and Child Health Materials Development Guide**
A comprehensive manual from CVP which includes practical information on designing health education materials for less-educated (and low-literate) audiences

For more information about hepatitis B and other vaccine-preventable diseases, visit the “Diseases and Vaccines” and the “Training Materials and Clinical Information” sections of the CVP website at www.ChildrensVaccine.org

Hepatitis B: The virus and the vaccine

What is hepatitis?

Hepatitis is a disease of the liver. There are four types of hepatitis: hepatitis A, hepatitis B, hepatitis C, and hepatitis E. We have vaccines to protect us against two types of hepatitis: hepatitis A and hepatitis B. There are no vaccines against hepatitis C and hepatitis E.

Jaundice (yellowing of the skin and eyes) is a symptom of several types of hepatitis, but jaundice can be caused by other diseases too. A baby who is immunized against hepatitis B probably won't get jaundice caused by hepatitis B virus, but the baby might get jaundice resulting from other health problems.

What is hepatitis B?

Hepatitis B virus (HBV) is a major cause of hepatitis, an infection of the liver that can lead to death. This virus can enter the blood stream, attack the liver, and cause severe illness. In some cases, the virus can remain in the body for a lifetime and cause ongoing liver damage.

More than 2 billion people worldwide have been infected with HBV, and 350 million are chronic hepatitis B carriers. Hepatitis B kills about 1 million people (usually chronic carriers) each year.

Hepatitis B is NOT the same as Hib disease. To prevent both hepatitis B and Hib disease, two different vaccines are needed.

What does it mean to be a hepatitis B carrier?

An HBV carrier is someone who has had hepatitis B virus in her/his blood for more than six months. A carrier usually has no signs or symptoms of HBV but remains infected with the virus for years or for a lifetime and is capable of passing the disease on to others. Sometimes HBV carriers will spontaneously clear the infection from their bodies, but most will not. Although most carriers have no serious problems with hepatitis B and lead normal, healthy lives, some carriers develop liver problems later. Hepatitis B carriers are at significantly higher risk than the general population for liver failure or liver cancer.

Who can get hepatitis B?

Anyone can get hepatitis B, but infants and young children are most at risk. Younger children also have a greater risk of becoming chronic carriers. For example, infants infected within the first six months of life have an 80 to 90 percent carrier risk, compared to a 10 percent carrier risk in adults.

Age of infection	Carrier risk (%)
Birth	90
1-6 months	80
7-12 months	60
1-4 years	35
Adults	10

How is HBV spread?

The hepatitis B virus is 40 to 100 times more infectious than HIV, the virus that causes AIDS. Hepatitis B is found in blood and certain body fluids of people infected with HBV—fluids such as serum, semen, vaginal secretions, and saliva.

HBV is *not* found in sweat, tears, urine, or respirator secretions.

Hepatitis B infections commonly occur at the time of birth when an infected mother passes HBV to her infant (perinatal transmission).

Hepatitis B can also be spread by:

- Unprotected sex
- Injection drug use
- Contact with blood or open sores of an infected person
- Human bites
- Sharing items such as razors, toothbrushes, or washcloths with an infected person
- Pre-chewing food for babies or sharing chewing gum
- Using unsterilized needles in ear or body piercing, tattooing, or acupuncture
- Using the same immunization needle on more than one person
- Using any needle or syringe on more than one person without sterilizing it.

What are the symptoms of HBV?

Children and many adults infected with the hepatitis B virus rarely develop severe symptoms. If people do have signs or symptoms, they may experience loss of appetite, yellow skin and eyes (jaundice), nausea, vomiting, fever, weakness, abdominal pain, joint pain, and/or dark urine.

HBV causes 60 to 80 percent of the world's primary liver cancer. Liver cancer is the number one cause of cancer deaths in males in sub-Saharan Africa and much of Asia, and an important cause of cancer deaths in women.

Can hepatitis B be treated?

No. Currently, there are no effective treatments for chronic hepatitis B infection. The available drugs either help stop the virus from reproducing or help the body to fight the virus.

How can HBV be prevented?

The best way to prevent hepatitis B is through immunization with the hepatitis B vaccine. When administered properly the vaccine is about 95 percent effective against hepatitis B disease. The vaccine can be given safely to infants, children, and adults. Even pregnant women can be safely given these shots if their risk factors warrant it. Hepatitis B shots are very safe and side effects are rare.

Available since 1982, the hepatitis B vaccine is the first vaccine against a major human cancer. The vaccine is produced from plasma or by recombinant DNA technology and is safe and effective. There is no risk of hepatitis B infection from the vaccine. To date, more than 1 billion doses have been administered.

Who should be vaccinated against hepatitis B?

The World Health Organization recommends that all infants, no matter where they live, should be vaccinated against hepatitis B.

Adults and teenagers born in countries where hepatitis B is very common usually do not benefit from vaccination. Most of them have already been exposed to the virus and have developed natural immunity or have become

chronic carriers, and in these cases the vaccine is not needed. However, in countries where hepatitis B is less common, adults and teenagers may benefit from the vaccine.

How is hepatitis B vaccine given?

Usually, hepatitis B vaccine is given as three or four separate doses. All the doses must be given to ensure that your child is protected.

If a dose is missed it should be given as soon as possible. There is no need to start the schedule again.

To prevent the spread of HBV from an infected mother to her baby, the first dose must be given as close as possible to birth (preferably within 24 hours). After birth, doses are usually given at the same time as DTP vaccine.

Can HBV vaccine be given at the same time as other immunizations?

Yes. Hepatitis B vaccine can be given at the same time as childhood vaccines such as measles, diphtheria-tetanus-pertussis (DTP), polio, BCG, Hib, and yellow fever.

What are the side effects of hepatitis B vaccine?

Hepatitis B vaccine is very safe. The most common side effects are redness, swelling, and pain where the injection has been given. These side effects usually start within a day after the vaccine has been given and last for one to three days. Less commonly, fever may occur for a short time after the vaccine has been given. Very rarely there may be serious allergic reactions to the vaccine.

Is there any reason why a child should not be given hepatitis B vaccine?

A child who has had a severe reaction to a previous dose of hepatitis B vaccine should not be given another dose.

If a child has a high fever the vaccine may be given at a later visit.

ATTACHMENT H

Sample Training Evaluation Form

ADAPTATION NOTE: Adapt this form to gather the information you feel is most important for your trainers. You may want to delete some items. For example, if you did not serve food during the training session, delete the line in question 2 about food.

Immunizing Children Against Hepatitis B

If you need more space to write your responses, please use the back of the paper.

1. Please evaluate each of the following training sessions by putting a check in the appropriate column.

SESSION NAME	EXTREMELY USEFUL 6	VERY USEFUL 5	USEFUL 4	SOMEWHAT USEFUL 3	NOT TOO USEFUL 2	NOT USEFUL AT ALL 1
Key Facts About Hep B						
Administering Hep B Vaccine						
Side Effects						
Storing & Transporting Hep B Vaccine						
Safe Disposal of Used Needles and Syringes						
Monitoring Use of Hep B Vaccine						
Increasing Coverage Through Better Communication with Parents						
Hep B Administration Role-Play						

1a. If you rated any session 3 or less, please tell us why:

2. Please evaluate each of the following aspects of the training by putting a check in the appropriate column.

ASPECT	EXCELLENT 6	VERY GOOD 5	GOOD 4	FAIR 3	SATISFACTORY 2	NOT SATISFACTORY 1
Achievement of my personal expectations						
Relevance of content						
Effectiveness of training methodology						
Organization of training session						
Usefulness of materials						
Effectiveness of facilitators and resource persons						
Accommodation						
Food						
Training Facilities						
Administrative Support						

2a. If you rated any session 3 or less, please tell us why:

3. Please evaluate how well the training was able to meet its three key objectives.

OBJECTIVE	EXTREMELY WELL 6	VERY WELL 5	WELL 4	SOMEWHAT WELL 3	NOT TOO WELL 2	NOT AT ALL WELL 1
To help you understand key facts about Hep B infection and disease						
To help you understand how to use Hep B vaccine						
To help you communicate more effectively with parents of children being vaccinated						

3a. If you rated any session 3 or less, please tell us why:

4. What did you like best about the training?

5. What did you like least about the training?

6. If there are any aspects of Hep B vaccination that you are not sure about, please describe them.

7. Any other comments?

More Training Resources from PATH

Visit the “**Training Materials and Clinical Information**” section of our website to download any of these materials:

www.path.org/vaccinelibrary

- Hepatitis B Vaccine Introduction—
Lessons Learned In Advocacy, Communications, And Training
- Immunizing Children Against *Haemophilus influenzae* type B (Hib)
- Immunizing Children Against Japanese Encephalitis
- Proper Handling and Disposal of Auto-Disable Syringes and Safety Boxes—
A Training Module
- Giving Safe Injections: Using Auto-Disable Syringes for Immunization
- GAVI Training for Stronger Immunization Programs
- Training Vaccinators in a Time of Change
- Immunization and Child Health Materials Development Guide
- The Case for Childhood Immunization
- Advocacy for Immunization
- Helping Young People Become Youth Advocates for Immunization



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