

**vScience Bites Radio**  
*small bites you can remember  
to bite them in the behind*

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**TOPIC: HEPATITIS B and HEPATITIS B VACCINE**

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<https://www.vaccineu.com/hepb>**

Hepatitis means inflammation of the liver. Many things, including drugs, alcohol, environmental chemicals and autoimmune conditions, can cause hepatitis.

Many viruses can inflame the liver, including the virus that causes mono and a less common virus called cytomegalovirus, or CMV. But the most common viruses to infect and inflame the liver are the family of **hepatitis viruses**. They are responsible for about half of all cases of human hepatitis. While there are **at least SIX hepatitis viruses**, named from A to G, the most common are types A, B, and C.

I want to make a quick comment about the new treatment available for chronic hepatitis C infection.

**Harvoni** is a medication to treat specific genotypes of chronic hepatitis C in adults and children who are at least 12 years old. It has been so successful that it is actually called a “cure” for persons with those genotypes. This is where it gets interesting: In April 2018, speaking at The Genome Revolution Conference, Goldman Sachs analyst Salveen Richter said, that cures could be bad for business. He went on to say, “While this proposition carries tremendous value for patients and society, it could represent a challenge for developers looking for sustained cash flow.”

<https://www.cnbc.com/2018/04/11/goldman-asks-is-curing-patients-a-sustainable-business-model.html>

Always remember: the money is in the medicine, NOT in the cure.

But today we are here to talk about Hepatitis B and the Hepatitis B vaccine. How did this vaccine become part of the pediatric schedule? The better question is WHY?

## **1. The Illness: What is Hepatitis B**

Hepatitis B is an infection of your liver. It is most commonly spread when people come in contact with the blood, open sores, or body fluids of someone who is infected with the hepatitis B virus.

When you're first infected, it can often take up to six months before you know you have the infection. Symptoms generally present as fatigue, low grade fever, loss of appetite – similar to most other viral infection. The clue to test for a hepatitis infection is the appearance of jaundice – when the whites of your eyes turn yellow. Your urine may turn to an orange or brownish color and, depending on how much bilirubin is released from your liver by the infection, your skin may even have a yellow or orange tinge to it. The only way that a viral hepatitis B infection can be accurately diagnosed is with a blood test.

More than 95% of persons who contract Hepatitis B recover **uneventfully and fully**; that's why there are no treatments offered for acute illness.

## **2. A (Brief) History of the Vaccine**

This vaccine should never have been added to the routine pediatric vaccination schedule. Not EVER. In fact, I have said for years that if I were retired and independently wealthy, I would devote the rest of my life to eliminating this vaccination from ever being injected into a single baby.

In the early 1980s, several preliminary HBV vaccines were developed. The vaccines consisted of inactivated HBsAg particles recovered and **purified from the serum of individuals who had a chronic hepatitis B infection**. These antigens were absorbed onto aluminum. Called plasma-derived vaccines, the target for this vaccine was to be adult homosexual men and those that were using IV drugs.

But in the 1980s was when AIDS was first being identified ...within the same population of men. This at-risk population refused the hepatitis B vaccine for fear of actually CONTRACTING HIV-AIDS. So, the vaccine was abandoned.

**Sept. 1991:** MMWR – Hepatitis B Virus: A Comprehensive Strategy for Eliminating Transmission in the United States Through Universal Childhood Vaccination: Recommendations of (ACIP) (full text)

<https://www.cdc.gov/mmwr/preview/mmwrhtml/00033405.htm>

“This document provides the rationale for a comprehensive strategy to eliminate transmission of HBV and ultimately reduce the incidence of hepatitis B and hepatitis B-associated chronic liver disease in the United States. The recommendations for implementing this strategy include making hepatitis B vaccine a part of routine vaccination schedules for infants.

### **#3: The vaccine ingredients - and studies pointing to problems with at least some of the ingredients**

Over the next several years, recombinant DNA technologies came to the forefront. Researchers were able to get the virus to replicate in yeast and then extract the HepBSAg from the culture. They used *Saccharomyces cerevisiae* (baker's yeast) to grow the virus.

#### **RECOMBIVAX HB**

- This hepatitis B viral vaccine derived from HBsAg produced in yeast cells.
- The fermentation process involves growth *of Saccharomyces cerevisiae* on a complex fermentation medium, which consists of an extract of yeast, soy peptone, dextrose, amino acids and mineral salts.
- Each dose contains:
  - 5 mcg of hepatitis B surface antigen
  - Less than **1% yeast protein**
  - **500 mg of aluminum** (provided as amorphous aluminum hydroxyphosphate sulfate [AAHS])
  - up to 15 mcg/mL **residual formaldehyde**.

#### **ENGERIX-B**

- Hepatitis B Vaccine (Recombinant) is suspension of noninfectious HBsAg purified surface antigen of the virus obtained by culturing genetically engineered *Saccharomyces cerevisiae* cells, which carry the surface antigen gene of the hepatitis B virus.
- Each dose contains:
  - 10 mcg of hepatitis B surface antigen
  - Up to 5% yeast protein
  - 250 mcg of aluminum hydroxide.
  - 9000 mcg of sodium chloride
  - 0.98 mg phosphate buffers (disodium phosphate dehydrate)
  - 0.71 mg sodium dihydrogen phosphate dehydrate
  - Syringes contain natural **rubber latex**

#### **February 1998: Journal - VACCINE. (abstract) “Major adverse reactions to yeast-derived hepatitis B vaccines—a review.”**

<https://www.sciencedirect.com/science/article/pii/S0264410X97002144>

Severe adverse events have been reported in the ten years which have passed since the introduction of the vaccine. Our review of the literature revealed reports of **serious adverse reactions** which included **anaphylaxis and urticarial**, as well as **delayed reactions**, including skin conditions, rheumatic conditions, vasculitis – including lupus and glomerulonephritis, blood conditions, ophthalmologic and neurologic reactions.”

Parents need to urgently know:

**July 2018:** Journal - Pediatric Infectious Disease Journal (abstract)  
**Hospital, Maternal, and Birth Factors Associated with Hepatitis B  
Vaccination at Birth – West Virginia, 2015.**

[https://journals.lww.com/pidj/Abstract/2018/07000/  
Hospital, Maternal and Birth Factors Associated.15.aspx](https://journals.lww.com/pidj/Abstract/2018/07000/Hospital_Maternal_and_Birth_Factors_Associated.15.aspx)

Methods: The study surveyed all 26 West Virginia birthing facilities in 2015 about their perinatal hepatitis B virus prevention policies.

Results: In 2015, there were 17,458 live births in these facilities. Of these, 14,006 (80.2%) infants received the birth dose of HepB vaccine. Hospitals that used of **preprinted newborn routine admission vaccination orders** had higher frequencies of HepB birth dose receipt.

*What this means: Be sure your admission orders to a birthing center OR a hospital does not include routine STANDING ORDERS to give your baby the hepatitis B vaccine at birth. Be sure these are stricken from your hospital birth plan if you want to refuse the hepatitis B vaccine for your newborn. You should get all records in advance, line-out what you are refusing and perhaps even have the documents notarized.*