

By Brian J. McMahon, M.D.
Alaska Native Medical Center

Hepatitis B virus is a serious worldwide infection. The majority of the world is highly infected with this virus including Africa, Asia, Eastern and Southern Europe, South America, New Zealand and parts of Australia.

The United States, Canada and parts of western Europe have a lower rate of hepatitis B infection, although in the Lower 48, the incidence of hepatitis B in all ethnic populations has dramatically increased over the last seven years.

Worldwide, 40 million people die every year from the consequences of chronic hepatitis and 6 million people worldwide develop liver cancer. The majority of those cases are caused by hepatitis B virus.

There are 200 million to 300 million people in the world who are chronic carriers of hepatitis B, and 20 percent to 30 percent of those people will develop liver cancer or die of cirrhosis.

Hepatitis B is spread through a variety of ways. Mothers who are infected can pass this virus on to their newborn infants. If the infant is infected, that baby will have a 90 percent chance of being a lifelong carrier of hepatitis B virus.

Hepatitis B virus can also be spread by open cuts and scratches. The virus is located mainly in the bloodstream, but when people have cuts and scratches, they can leak the virus out onto surfaces such as kitchen table tops, school lunchroom table tops, etc. The virus is very hardy and can survive outside the body for a long period of time. When another person who is not infected with a cut places their open cut over the surface where the virus is present, the virus could infect that person as well.

In rural Alaska, this is the main means by which hepatitis B is transmitted from child to child. We all know how children get mosquito bites in the summer which they scratch and the bites become open and bleed. If a child is infected in the first five years of life, there is a 30 percent chance that the child will become a carrier of hepatitis B for life. In addition hepatitis B can be spread through sexual transmission.

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Alaska Natives have a high rate of hepatitis B infection. They also have the highest rate of liver cancer in the United States. In 1972, the Indian Health Service, Centers for Disease Control and Yukon-Kuskokwim Health Corp. began studying the spread of hepatitis B virus in the Yukon-Kuskokwim Delta. Carefully conducted studies show that hepatitis B was rapidly spread from child to child to adults in villages where there were many infected children, and from villages that were very infected to other villages which were not as infected.

In 1981, a new vaccine for hepatitis B prevention was licensed in the United States. This vaccine had undergone extensive testing over the previous five years and was shown to

be safe and very effective.

The vaccine was made from the serum of people who were chronically infected with hepatitis B. A part of the virus which was not infectious was removed from the serum particles of carriers, and heated up to kill most viruses and bacteria. After that, three killing chemicals were added to these particles; they included pepsin, which digests bacteria and viruses; urea, which causes bacteria and viruses to swell and rupture, and formalin, which

have received it. The rate of hepatitis B in Alaska Natives has fallen dramatically. For example, the rate of new cases of people who were sick with hepatitis B in the Yukon-Kuskokwim Delta fell from more than 200 per 100,000 population to less than 15 per 100,000 population, a rate that is lower than other U.S. states.

When the hepatitis B program first began, there was some concern about possible contamination of hepatitis B vaccine with the AIDS virus. Until

other Alaska Natives who desire immunization.

There are 1,400 Alaska Natives who are chronically infected with hepatitis B and in whom the vaccine is of no help. These Alaska Natives are at a very high risk of developing liver cancer.

The rate of liver cancer in carriers of hepatitis B in Alaska is more than 200 times the rate of liver cancer that develops in people who are not infected with hepatitis B. This rate in-

Hepatitis B is a serious threat to ethnic peoples



kills all living things and is used to preserve bodies for burial; these four killing steps were shown to kill every known animal and human virus and bacteria.

Shortly after the vaccine was licensed, the Alaska Area Native Health Service, Centers for Disease Control, and two Native corporations, Yukon-Kuskokwim Health Corp. and the Norton Sound Health Corp., jointly conducted a hepatitis B vaccine demonstration project in the Yukon-Kuskokwim Delta.

More than 1,500 people received hepatitis B vaccine and the response was excellent. More than 97 percent of those who were vaccinated, including 99 percent of the children developed protective antibodies to hepatitis B. This protection has been maintained for six years now. In addition, there were no serious side effects, and the only side effects seen were an occasional sore arm and slight fever that went away in a few days.

After the successful vaccine trial, a grassroots campaign was mounted by the Alaska Natives primarily from YKHC and other areas to get the federal government to purchase more hepatitis B vaccine and start a program to protect Alaska Natives from this devastating cancer causing virus.

Through the efforts of Sen. Ted Stevens, R-Alaska, Sen. Frank Murkowski, R-Alaska, and Rep. Don Young, R-Alaska, Congress appropriated money for a hepatitis B control program in early 1983.

Between 1983 and the end of 1987, 51,000 Alaska Natives were tested for hepatitis B. Three percent of the Alaska Natives tested were found to be actively infected with the virus, and another 14 percent were found to have been infected and recovering from hepatitis B.

The areas with the highest infection rate were in Southeast Alaska, as well as Bristol Bay, Iliamna and the Yukon-Kuskokwim Delta areas. Norton Sound, Kotzebue, Kodiak Island and Southcentral Alaska, including Anchorage, were found to have an intermediate infection rate. Much lower infection rates were found in the North Slope and Interior villages, excluding Fairbanks.

Hepatitis B vaccination has been voluntary, and over 40,000 people

1984, scientists and public health officials did not know what caused AIDS. However, it was felt that because the vaccine went through four killing steps which killed all known viruses and bacteria, that this vaccine was safe and that the chance that it would cause AIDS would be very unlikely. In addition, all of the persons who had received hepatitis B vaccine who were not at high risk of developing AIDS, mainly doctors and nurses, showed that none of those individuals had developed AIDS.

Finally, in 1984, the AIDS virus was identified and was tested to see if it could survive the process the hepatitis B vaccine goes through. Each of the four killing steps killed the AIDS virus separately.

In addition, the manufacturer of hepatitis B vaccine, Merck, Sharp and Dohme, saved samples of vaccine that were made from the very first batch to all of the more recent batches. Each one of those samples were tested for AIDS virus and AIDS antibody; all were negative.

These reassuring findings were reviewed by public health experts around the world and it was declared that hepatitis B vaccine does not transmit the AIDS virus.

In the last few years, a new way of producing hepatitis B vaccine was discovered and is now used to produce an excellent vaccine. This process uses genetic material from hepatitis B which is fed into yeast cells which produce the hepatitis B vaccine. This vaccine, called recombinant hepatitis B vaccine is now available and has been purchased by the Alaska Native Health Service.

Since the plasma vaccine is more expensive to produce, it is felt that U.S. manufacturers will make only recombinant vaccine in the future. However, plasma vaccine will still be important in other parts of the world since it is more potent than the recombinant vaccine.

The mass immunization program for Alaska Natives was completed in 1987, and since then a maintenance program has been established. This program continues to offer hepatitis B vaccine to all Alaska Native newborns since the greatest risk of becoming a chronic carrier will occur unprotected in children. In addition, health care persons are immunized as well as

creases as a person gets older, but is high even for children who are infected.

A simple blood test for a protein called alpha-fetoprotein has been shown to be effective in diagnosing liver cancer at an early stage. Prior to 1982, all Alaska Natives who developed liver cancer died within four months of the time they were diagnosed.

In 1982, we began to follow hepatitis B carriers with alpha-fetoprotein every six months. We discovered that we were able to find liver cancer very early and remove these cancers in several patients. Most of the patients who have had successful surgery have been children, many of whom would not be alive had not their liver cancer been discovered early by this program.

In conclusion, hepatitis B is a serious problem in the world today. When the price of hepatitis B vaccine falls, it will be a routine immunization for all Americans, not just those who are at highest risk.

Hepatitis B vaccine is the first vaccine that prevents a form of cancer, and the vaccine has been proven to be safe with no attributable serious side effects and has demonstrated beyond a doubt that the AIDS virus is not transmitted by the vaccine.

The majority of the staff of the Indian Health Service in Alaska have been vaccinated with hepatitis B plasma-derived vaccine and I have been immunized as well as my children and wife.

Recently in the American College of Immunization Practices, a group of private and public donors who make recommendations for immunizations in the United States have recommended that all Alaska Native infants receive hepatitis B immunization as the very highest priority. In addition, they have recommended that in the United States, all pregnant women be screened for hepatitis B. This screening pregnant women for hepatitis B has been going on in Alaska since 1982.

Finally, if any Alaska Natives would like to receive hepatitis B vaccine, we welcome them to go to their nearest Indian Health Service or Native Health Corp. Clinic where they can receive hepatitis B vaccination.