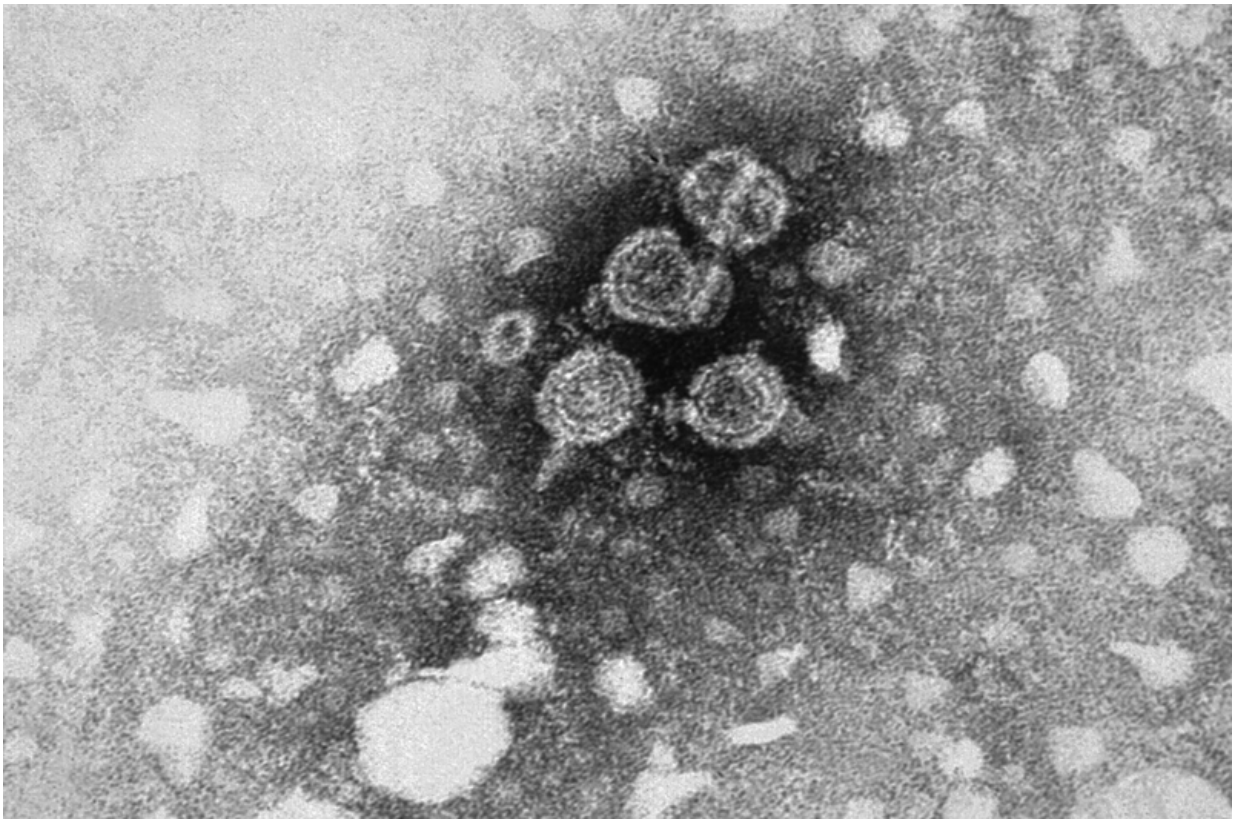
Hepatitis B—stopping a silent killer

July 11 2018



A microscopic image of the Hepatitis B virus, taken by the Centers for Disease Control and Prevention

Every year, hepatitis B kills more than 780,000 people around the world, and is the single most serious liver infection, according to the World Health Organization.

David Hutton, associate professor of health management and policy at the University of Michigan's School of Public Health, says early diagnosis and treatment is key to stopping the spread of the disease in the United States.

He co-authored a study published in *Health Affairs* that shows testing and treating immigrants from high-risk countries living in the U.S. could help dramatically improve their long-term quality of life, reduce hepatitis B-related diseases such as liver cancer and cirrhosis, and save money in the long term.

What is hepatitis B and who does it affect?

Hutton: Hepatitis B is a blood-borne viral infection that affects the liver. It's pretty contagious and can be transmitted by blood or bodily fluids, so through things like sharing razors and toothbrushes. It's been called the silent killer because it is asymptomatic—you might have the virus but not know until it manifests itself until much later.

In the United States, there aren't that many people who actually acquire hepatitis B because since the early 1980s we've been pretty good about vaccinating people and if you're vaccinated at birth, it's very good at preventing mother-to-child transmission and also transmission in early childhood. Right now, chronic hepatitis B affects largely nonwhite foreign-born people from Asia and Africa.

How about at a global level?

Hutton: There are a lot of countries where prevalence of hepatitis B is higher because it's historically been more prevalent there, and because there have been delays and not very good coverage of the hepatitis B vaccine. So, for example, in China it was only made as part of their

national immunization plan and made free in the last 10 to 15 years. People who are in their 30s or 40s from China and who immigrated to the United States probably weren't vaccinated at birth and probably were exposed to hepatitis B from their mothers or friends.

How can you diagnose, treat and cure hepatitis B?

Hutton: There is no cure for hepatitis B. Many people do not know they have it because it usually takes decades for it to manifest itself in terms of cirrhosis or liver cancer, which are very nasty, difficult to treat and have high impacts on quality of life and high mortality.

The good news is there are antiviral treatments. I like to think of it as similar to HIV treatments, so you're going to be taking pills for the rest of your life. But they're highly effective and they have very few side effects.

So it's certainly a disease that can be managed and, if treated, it dramatically reduces the viral load and reduces liver complications like cirrhosis and liver cancer. But because it can be asymptomatic, the key is in testing.

Tell me about your research. Why did you focus on immigrants?

Hutton: We wanted to look at the cost-effectiveness and population health impact of an increase in diagnosis, care and treatment of hepatitis B to meet the World Health Organization's goals for 2030.

Because the majority of the estimated 1.29 million people living with hepatitis B in the U.S. are adults who, particularly in the Asian and black populations, were born abroad, we developed a model to simulate the

prevalence of foreign-born Asian and black adults currently living in the U.S. and projected migration from high-risk areas.

We calculated the costs of screening—either by their personal doctors, through community organizations or health care systems—and examined three diagnosis, care and treatment scenarios to calculate the costs.

What were the results?

Hutton: Based on our analysis, if we met WHO targets for diagnosis and treatment by 2030 (having 90 percent of cases diagnosed and 80 percent treated), we would reduce deaths by 37 percent, reduce liver cancer by 35 percent and decompensated cirrhosis by 51 percent. And, depending on the cost of antiviral drugs, the measures could actually save money.

One of the measurements of health we use is a quality-adjusted life-year. It is a way of aggregating together the loss of quality of life and length of life onto a single measure where one quality-adjusted life-year is equivalent to one year in perfect health. We calculated that meeting these targets would result in 474,000 quality-adjusted life-years gained. At current treatment costs, meeting these goals would mean a net increase in costs of $49 million. But, that means we are only paying $103 per quality-adjusted life-year. We routinely spend more than $50,000 per quality-adjusted life-year gained on other medical interventions. For example, screening all women aged 40-80 annually for breast cancer costs $58,000 per additional quality-adjusted life-year gained. If we achieve the hepatitis B goals earlier or if the treatment cost drop, meeting these WHO goals could be cost-saving.

Why do you think testing is so important?

Hutton: A lot of public health interventions don't save money. This is

one of those rare cases where the intervention actually can save money over the long run and improves people's quality of life. Over the long run, if you're going to prevent cirrhosis or liver cancer, and the need for liver transplants—those can get very, very expensive—you're going to save money and improve people's lives, especially in these sometimes underrepresented and marginalized groups.

What do you hope people learn from your study?

Hutton: If they are immigrants from Africa and Asia who are in the U.S. but have not been tested, they should get tested as soon as possible. Testing is very simple. And if you find that you have hepatitis B, know that is a manageable treatment that can be very valuable at preventing terrible liver disease.

Provided by University of Michigan