

Vaccination campaign doubles HBV mutations

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A universal infant vaccination campaign in China has led the Hepatitis B virus (HBV) to more than double its rate of "breakout" mutations. These mutations may enable the virus to elude the vaccine, necessitating new vaccination strategies. Researchers at the Chinese Centers for Disease Control and Prevention and University of North Carolina, Chapel Hill, report their findings in an article published ahead of print in the *Journal of Virology*.

Until a universal vaccination program for infants was implemented in 1992, nearly ten percent of Chinese—children included—were infected with HBV. The [vaccination campaign](#) has protected an estimated 80 million children, dramatically reducing the percentage of children under 5 who are infected, from nearly 10 percent in 1992 to less than one percent in 2005. But these gains are in danger of being eroded as the virus develops surface mutations.

Taking advantage of 1992 and 2005 survey, investigators found that the prevalence of HBV escape mutants in children rose from 6.5 percent in 1992, before the start of the universal vaccination program, to nearly 15 percent in 2005. Among the control group of adults unaffected by the universal vaccination campaign, the rate of break-out mutants was virtually unchanged.

Hepatitis B is an infectious illness of the liver which can cause vomiting, inflammation, jaundice, and, rarely, death. About a third of the world's population has been infected at some point in their lives. Transmission

of hepatitis B virus results from exposure to infectious blood or bodily fluids containing blood. The infection is preventable by vaccination, which has been routinely used since the 1980s.

Researcher Tao Bian of Chapel Hill says that the vaccine remains quite effective, but that because escape mutants are likely to increase, public health officials need to track the rise of escape mutants, in order to know when it becomes time to consider new [vaccination strategies](#). Measures that might be taken include boosting doses, adjusting the timing of vaccinations, or improving the vaccine. A next generation HBV vaccine has been invented, containing a second antigen in addition to the [virus'](#) surface antigen. That means that both antigens would have to develop breakout mutations in order to elude the [vaccine](#).

More information: [www.asm.org/images/Communicati ...
ps/2013/0913hepb.pdf](http://www.asm.org/images/Communications/2013/0913hepb.pdf)

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