



## PIC QUESTION OF THE WEEK: 9/11/06

Q: What is the current recommendation for administering booster doses of hepatitis B vaccine?

A: Hepatitis B vaccine is routinely administered to infants, children, and adults at intervals of 0, 1, and 6 months. This vaccine is included in the immunization programs of most countries and has proven to be effective in reducing the rate of chronic hepatitis B virus (HBV) infection. From 1990 to 2004, the incidence of acute hepatitis B in the United States decreased by 75%, the most impressive decline being among children and adolescents (94%). Cumulative data from several long-term studies among children and adults vaccinated against hepatitis B indicates that booster doses of the vaccine are not necessary for recipients who are immunocompetent. In a prospective trial of nearly 1,000 children and adults, antibody levels were sufficiently high to provide protection against hepatitis B infection nearly fifteen years after the primary series was completed. Antibody levels were lowest among those aged 6 months – 4 years. Another study of approximately 1,100 children and military recruits revealed that the majority of recipients maintained protective antibody levels ( $\geq 10$  IU/L) ten years after immunization. Again, antibody levels maintained by children in the study were lower than the values observed in the adult population. Even when antibody levels diminish, immunological memory persists and provides for increased antibody production upon subsequent exposure to the antigen (anamnestic response). Therefore, protection is dependent on immune memory rather than solely on declining levels of antibody to hepatitis B. It appears that almost all acute cases of hepatitis B in children and adolescents in the United States occurred in subjects who had never received the primary series of vaccine. Some have suggested that booster doses be considered for high-risk groups such as healthcare workers, fire fighters, police, dialysis patients, etc. as well as for individuals who are immunocompromised. At this time, there are no specific recommendations for administration of booster doses for these populations.

### References:

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- Zanetti AR, Mariano A, Romano L, et al. Long-term immunogenicity of hepatitis B vaccination and policy for booster: an Italian multicentre study. *Lancet* 2005;366:1379-84.

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