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## *Immunization Dialogue*

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### **Hepatitis B Vaccination in G-6-PD Deficiency**

**Q.** *In Glucose-6-Phosphate-Dehydrogenase (G-6-PD) deficiency, hepatitis virus can cause hemolysis. Should hepatitis B vaccination be therefore contraindicated in G-6-PD deficient children?*

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**A.** A number of infections, including viral hepatitis, are known to precipitate hemolysis in G-6-PD deficient individuals. The exact pathogenesis of this phenomenon is not known. However, since hepatitis B vaccine is a subunit vaccine, containing only the surface antigen and no infectious virus, it does not produce active infection in order to evoke an immune response. Therefore, it is unlikely that it will precipitate hemolysis. A Medline search from 1966

to 1996 did not reveal any reports of adverse effects of hepatitis B vaccine in G-6-PD deficient individuals. In oriental populations with increased prevalence of G-6-PD deficiency, pediatricians have not noted any untoward effects after hepatitis B vaccination. The guidelines of the Advisory Committee on Immunization Practices (ACIP), Centers for Disease Control, also does not list G-6-PD deficiency as being a contraindication for hepatitis B vaccination (1).

#### **REFERENCE**

- Centers for Disease Control and Prevention. General Recommendations on Immunizations: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1994; 43:1-98.

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### **Exchange Transfusion and Immunization**

**Q.** *It is mentioned that vaccines should not be given within 6 months following exchange transfusions," I seek a clarification on this issue?*

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**A.** In order to understand the potential of interference by exchange transfusion on immunization, we must examine how passive immunization affects active immunization. In exchange transfusion, a large proportion of the child's blood, including plasma, is replaced by the donor's blood. The donor is always an adult. Therefore, the humoral immunity of the donor, which is likely to cover all infections (except tuberculo-

sis) for which vaccines are offered to children, will be passively transferred to the child. Thus, it is akin to transplacental transfer of antibodies from the mother.

Most exchange transfusions are given in the neonatal period. Therefore, the time intervals of various vaccinations from birth need not be altered. If exchange transfusion is given later, then the immunization time table for that child should be specially drawn up. BCG and OPV are not much affected by passive immunity. DPT and Hepatitis B vaccines overcome the inhibitory effect either because of multiple doses (DPT) or by being excellent immunogens (HB vaccine). Measles and MMR vaccines are affected, and they should be given after a reasonable interval. An interval of 6 months would be proba-

bly satisfactory, provided the infant is not below the usual recommended age for the vaccine. Even if much of the maternal antibody had been replaced by the donor's antibody, it is probably wise not to vaccinate before the scheduled age.

Recently there are some evidences to suggest that blood transfusions do affect the immune system; however, that need not be addressed here, partly because the picture is not quite clear as yet.

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