

## INFORMATION PAPER

Military Vaccine Agency  
21 December 2011

**SUBJECT: Counting Doses in Combined Regimens of Monovalent and Bivalent Hepatitis A and Hepatitis B vaccines**

1. Purpose. To describe the required number of doses, using various combinations of monovalent (single antigen) hepatitis A and hepatitis B vaccines and the bivalent (combination hepatitis A and hepatitis B) vaccine, to ensure adequate immunity against both diseases.

2. Facts.

a. Service members may include personnel who are 17 years of age or older, and therefore, must be screened by age to ensure they receive age-appropriate doses (pediatric/adolescent vs. adult) of the hepatitis vaccines.

b. Two monovalent hepatitis A vaccines are marketed in the United States: Havrix (manufactured by GlaxoSmithKline) and Vaqta (manufactured by Merck). Two monovalent hepatitis B vaccines are marketed in the United States: Engerix-B (manufactured by GlaxoSmithKline) and Recombivax-HB (manufactured by Merck). GlaxoSmithKline also markets Twinrix, a combination hepatitis A and hepatitis B vaccine.

c. The age-specific doses and dosing schedule of the hepatitis vaccines are as follows:

### **Monovalent Hepatitis A Vaccine (HAVRIX (GlaxoSmithKline (GSK)) or VAQTA (Merck))**

<b>Age of Recruit</b>	<b>Number of Doses</b>	<b>Vaccine Dosage and Schedule</b>
18 years of age or younger	One initial dose and one booster dose	Administer an initial dose of <b>0.5</b> mL and a booster dose of <b>0.5</b> mL between 6 to 12 months later
19 years of age or older	One initial dose and one booster	Administer an initial dose of <b>1.0</b> mL and a booster dose of <b>1.0</b> mL between 6 to 12 months later

### **Monovalent Hepatitis B Vaccine (ENGERIX-B (GSK) or RECOMBIVAX-HB (Merck))**

<b>Age of Recruit</b>	<b>Number of Doses</b>	<b>Vaccine Dosage and Schedule</b>
19 years of age or younger	Three dose series	Administer an initial dose of <b>0.5</b> mL and then the next two doses of <b>0.5</b> mL at 1 month and 6 months from the initial dose
20 years of age or older	Three dose series	Administer an initial dose of <b>1.0</b> mL and then the next two doses of <b>1.0</b> mL at 1 month and 6 months from the initial dose

### **Bivalent (Combination) Hepatitis A and Hepatitis B Vaccine (TWINRIX (GSK))**

<b>Age of Recruit</b>	<b>Number of Doses</b>	<b>Vaccine Dosage and Schedule</b>
18 years of age or older	Three dose series	Administer an initial dose of <b>1.0</b> mL and then the next two doses of <b>1.0</b> mL at 1 month and 6 months from the initial dose

d. Age-specific doses (adult vs. pediatric/adolescent) must also be administered when the vaccine schedule includes both the monovalent and bivalent hepatitis vaccines. The mixed

regimen of vaccines that induce adequate immunity against hepatitis A and hepatitis B are shown below. The individual vaccines within the combinations below can be administered in any sequence, if proper minimum timing between doses is observed. When Twinrix is part of the regimen, maintain the dose spacing requirement for Twinrix.

<b>Mixed Regimen of Vaccines to Complete Hepatitis A and B Series*</b>			
<b>Age of Recruit</b>	<b>Hepatitis A and B (Twinrix)</b>	<b>Hepatitis A (HAVRIX or VAQTA)</b>	<b>Hepatitis B (Engerix B or Recombivax-HB)</b>
17 years of age		2 doses hep A (0.5 mL)	+ 3 doses hep B (0.5 mL)
18 years of age		2 doses hep A (0.5 mL)	+ 3 doses hep B (0.5 mL)
	1 dose Twinrix (1.0 mL)	+ 1 dose hep A (0.5 mL) separated by 5 months	+ 2 doses hep B (0.5 mL)
	2 doses Twinrix (1.0 mL)	+ 1 dose hep A (0.5 mL) administered 5 months after 2 <sup>nd</sup> dose of Twinrix	+ 1 dose hep B (0.5 mL) administered 5 months after 2 <sup>nd</sup> dose of Twinrix
19 years of age		2 doses hep A (1.0 mL)	+ 3 doses hep B (0.5 mL)
	1 dose Twinrix (1.0 mL)	+ 2 doses hep A (1.0 mL) separated by 5 months	+ 2 doses hep B (0.5 mL)
	2 doses Twinrix (1.0 mL)	+ 1 dose hep A (1.0 mL) administered 5 months after 2 <sup>nd</sup> dose of Twinrix	+ 1 dose hep B (0.5 mL) administered 5 months after 2 <sup>nd</sup> dose of Twinrix
20 years of age or older		2 doses hep A (1.0 mL)	+ 3 doses hep B (1.0 mL)
	1 dose Twinrix (1.0 mL)	+ 2 doses hep A (1.0 mL) separated by 5 months	+ 2 doses hep B (1.0 mL)
	2 doses Twinrix (1.0 mL)	+ 1 dose hep A (1.0 mL) administered 5 months after 2 <sup>nd</sup> dose of Twinrix	+ 1 dose hep B (1.0 mL) administered 5 months after 2 <sup>nd</sup> dose of Twinrix

\* Guidance provided by the National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention (CDC), 5 Dec 2011, and CDC's "Epidemiology and Prevention of Vaccine-Preventable Disease," 12<sup>th</sup> Ed, May 2011.

3. References.

a. CDC disease information at: [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines).

b. Multiple resources (e.g., package inserts, Vaccine Information Statements) assembled by the Military Vaccine Agency: [www.vaccines.mil](http://www.vaccines.mil).

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