

RABIES WATCH

YOUR SOURCE FOR RABIES AWARENESS AND EDUCATION

SPRING 2016, Issue #3

It's Rabies Season: Pharmacy and Emergency Department Preparedness

Prevention Is the Only Option for Rabies

Rabies is a deadly infectious disease that is essentially incurable if appropriate preventative measures are not taken promptly after exposure.¹⁻³ Hospital- and emergency department-based pharmacists play a critical role in ensuring appropriate postexposure prophylaxis (PEP) is administered in a timely fashion when patients present to an emergency department with potential rabies virus exposure (ie, after human contact with animals who have or may potentially have rabies, particularly if that contact includes penetration of the skin by teeth, or transdermal or mucosal contact).²



The Role of the Pharmacist in Postexposure Prophylaxis Protocols

- Help ensure that rabies PEP is administered in a manner consistent with United States Advisory Committee on Immunization Practices (ACIP) treatment guidelines (Box 1)
- Ensure that the hospital's pharmacy is adequately stocked with human rabies immune globulin (HRIG) (Box 2); one rule of thumb is to stock enough HRIG to treat a family of 5 (three 10-mL vials and seven 2-mL vials)
- Determine a patient's dose of HRIG based on the physician's written order and the patient's weight (Table 1)
- Check tetanus vaccine history when treating for rabies virus exposure—patients exposed to an animal bite are also at risk for tetanus⁴⁻⁶

For more information about determining the need for and appropriately administering postexposure prophylaxis (PEP) for rabies, please [click here](#).

Please see Important Safety Information at the end of this article and HyperRAB® S/D (rabies immune globulin [human]) full Prescribing Information for complete prescribing details.



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Box 1. ACIP Treatment Guidelines for Postexposure Prophylaxis for Rabies⁷

1. All wounds must be thoroughly and immediately washed with soap and water; if available, povidone-iodine or another virucidal agent may also be utilized
2. The rabies PEP regimen in patients who have not been previously vaccinated or have inadequate rabies antibody titer involves HRIG, which is given only once, and a series of 4 1.0-mL rabies vaccinations
 - HRIG and the first rabies vaccination are given on the first day of treatment (day 0) and 3 additional rabies vaccinations are given in follow up (on days 3, 7, and 14)
 - HRIG can be administered up to 7 days after the first dose of vaccine
 - It is recommended that immunocompromised persons receive a fifth vaccination on day 28
3. Patients who have previously received rabies prophylaxis should receive only 2 rabies vaccine boosters following an exposure, on days 0 and 3
 - HRIG should **not** be given to those previously immunized

HRIG is made from human plasma. Plasma products carry a risk of transmitting infectious agents, such as viruses, and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent, despite steps designed to reduce this risk.

Soreness at the site of injection and mild temperature elevations may be observed at times. Sensitization to repeated injections has occurred occasionally in immunoglobulin-deficient patients. Angioneurotic edema, skin rash, nephrotic syndrome, and anaphylactic shock have rarely been reported after intramuscular injection so that a causal relationship between immunoglobulin and these reactions is not clear.

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Box 2. HRIG Is an Essential Element of Rabies Postexposure Prophylaxis in Previously Unvaccinated Patients

- HRIG is essential for passive immunity that protects a previously unvaccinated person immediately after PEP²
 - HRIG should NOT be administered in patients who have been previously vaccinated with the rabies vaccine.⁷
- HRIG is a preservative-free immunoglobulin preparation obtained from human donors²
- HRIG should be stored refrigerated and not frozen²
- HRIG should be used immediately following vial penetration²
- HRIG should be administered **directly** into and around the wound, injecting as much volume in that area as possible⁷
 - For small wounds like fingers, toes, ears, or the face, inject as much as possible into the wound area, then administer the remainder of the dose intramuscularly at a site distant from the rabies vaccine administration site
 - The gluteal region should not be used as an injection site because of the risk of injury to the sciatic nerve⁸
 - HRIG should never be administered in the same syringe or needle or in the same anatomical site as vaccine⁸

Table 1. HRIG Dosing at 20 IU/kg (0.133 mL/kg) of Body Weight⁸

Patient example	Patient weight		Formula-based IU	Recommended number of vials
	Kilograms	Pounds		
Adult	80	176.4	1600	One 10-mL vial + one 2-mL vial
Adult	75	165.4	1500	One 10-mL vial
Adult/Adolescent	60	132	1200	Four 2-mL vials
Child	40	88	800	Three 2-mL vials
Child	30	66	600	Two 2-mL vials

The recommended dose for all age and weight groups is 20 units/kg of body weight; rounding to the nearest available vial size is recommended.²

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IMPORTANT SAFETY INFORMATION

Rabies vaccine and HyperRAB® S/D (rabies immune globulin [human]) should be given to all persons suspected of exposure to rabies with one exception: persons who have been previously immunized with rabies vaccine and have a confirmed adequate rabies antibody titer should receive only vaccine. HyperRAB S/D should be administered as promptly as possible after exposure, but can be administered up to the eighth day after the first dose of vaccine is given.

HyperRAB S/D should be given with caution to patients with a history of prior systemic allergic reactions following the administration of human immunoglobulin preparations.

The attending physician who wishes to administer HyperRAB S/D to persons with isolated immunoglobulin A (IgA) deficiency must weigh the benefits of immunization against the potential risks of hypersensitivity reactions. Such persons have increased potential for developing antibodies to IgA and could have anaphylactic reactions to subsequent administration of blood products that contain IgA.

As with all preparations administered by the intramuscular route, bleeding complications may be encountered in patients with thrombocytopenia or other bleeding disorders.

Soreness at the site of injection and mild temperature elevations may be observed at times. Sensitization to repeated injections has occurred occasionally in immunoglobulin-deficient patients. Angioneurotic edema, skin rash, nephrotic syndrome, and anaphylactic shock have rarely been reported after intramuscular injection so that a causal relationship between immunoglobulin and these reactions is not clear.

Administration of live virus vaccines (e.g., MMR) should be deferred for approximately 3 months after rabies immune globulin (human) administration.

HyperRAB S/D is made from human plasma. Products made from human plasma may contain infectious agents, such as viruses, and, theoretically, the Creutzfeldt-Jakob disease (CJD) agent that can cause disease. There is also the possibility that unknown infectious agents may be present in such products.

Please see HyperRAB S/D full Prescribing Information for complete prescribing details.

**You are encouraged to report negative side effects of prescription drugs to the FDA.
Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.**

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1. Crowcroft NS, Thampi N. The prevention and management of rabies. *BMJ*. 2015;350:g7827. doi: 10.1136/bmj.g7827. **2.** Bailey AM, Holder MC, Baker SN, Weant KA. Rabies prophylaxis in the emergency department. *Adv Emerg Nurs J*. 2013;35(2):110-119. **3.** Monroe BP, Yager P, Blanton J, et al. Rabies surveillance in the United States during 2014. *J Am Vet Med Assoc*. 2016;248(7):777-788. **4.** Tetanus. In: Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. Hamborsky J, Kroger A, Wolfe S, eds. 13th ed. Washington DC. Public Health Foundation, 2015. **5.** Manning SE, Rupprecht CE, Fishbein D, et al; Advisory Committee on Immunization Practices Centers for Disease Control and Prevention (CDC). Human rabies prevention—United States, 2008: recommendations of the Advisory Committee on Immunization Practices. *MMWR Recomm Rep*. 2008;57(RR-3):1-28. **6.** World Health Organization. Animal bites (fact sheet no. 373). February 2013. <http://www.who.int/mediacentre/factsheets/fs373/en/#>. Accessed April 8, 2016. **7.** Rupprecht CE, Briggs D, Brown CM, et al; Centers for Disease Control and Prevention (CDC). Use of a reduced (4-dose) vaccine schedule for postexposure prophylaxis to prevent human rabies: recommendations of the Advisory Committee on Immunization Practices. *MMWR Recomm Rep*. 2010;59(RR-2):1-9. **8.** HyperRAB® S/D (rabies immune globulin [human]) Prescribing Information. Grifols.

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