

The Rabies Post-Exposure Prophylaxis Schedule

March 2010

Rabies PEP should begin with immediate cleansing of all wounds with water and soap as soon as possible after the bite or scratch. If available, a virucidal agent such as povidone-iodine solution should be used to irrigate the wounds.

For Previously Unvaccinated Immunocompetent Persons: A complete course of one dose of human rabies immune globulin (HRIG) and **four** 1-ml doses of vaccine, as described below, is necessary for adequate prophylaxis:

1. HRIG - Administer intramuscularly (IM) only once on day 0, the day prophylaxis is initiated. If not available initially, HRIG can be given as soon as possible through the seventh day of treatment. The dose is 20 IU/KG or 9 IU/LB. HRIG is currently available in two and ten milliliter (ml) vials with a concentration of 150 IU per ml. At this concentration, the dose is 0.133 ml/kg or 0.06 ml/lb of body weight. Always check the package to be sure that there have been no changes in the concentration. If anatomically feasible, the full dose should be infiltrated into and around the wound(s), and any remaining volume administered intramuscularly at an anatomical site distant from the vaccine. Also, HRIG should not be administered in the same syringe as vaccine. Do not give more than the recommended amount of HRIG since this may affect the immune response.
2. Human rabies vaccine - Administer 1.0 ml of human diploid cell vaccine (HDCV) or purified chick embryo cell culture (PCEC) vaccine IM on **days 0, 3, 7, and 14** into the deltoid muscle in children and adults. In infants and small children it may be preferable to give the vaccine in the midlateral aspect of the thigh. All doses must be given.

This protocol should not be modified. Rabies vaccine and HRIG should never be given together at the same body site. Vaccine should never be given in the buttocks. Routine testing of healthy patients completing PEP is not necessary to document seroconversion.

Persons With Altered Immunocompetence (either due to illness, medication, or therapy) should continue to receive a fifth dose of rabies vaccine 28 days after the receiving the first rabies vaccine of the PEP protocol (Day 0) with the understanding that the immune response still might be inadequate. Immunosuppressive agents should not be administered during rabies PEP unless essential for the treatment of other conditions. One or more serum

samples should be tested to document seroconversion beginning 1-2 weeks after receiving the last dose of vaccine (completion of PEP) for testing by the rapid fluorescent focus inhibition test (RFFIT). Laboratories performing this assay are listed at the end of this document. Titers of at least a 1:5 serum dilution are considered seroconversion. A patient who fails to seroconvert with an acceptable antibody response after the fifth dose should be managed in consultation with their physician and the NJDHSS, Infectious and Zoonotic Disease Program (IZDP).

If possible, immunosuppressed patients should postpone rabies pre-exposure vaccination until the immunocompromising condition is resolved.

A discussion on the conditions that may alter immunocompetence can be found in the "Altered Immunocompetence" section of the ACIP General Recommendations on Immunization document available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm>

For Previously Vaccinated Persons:

1. Previously vaccinated persons are those who have received either:
 - a. the full three dose pre-exposure series of HDCV, rabies virus adsorbed (RVA) or PCEC;
 - b. the full post-exposure prophylaxis with HDCV, RVA or PCEC; or
 - c. has had a previous vaccination with any other type of rabies vaccine and had a documented history of antibody response to the previous vaccination

Previously vaccinated people may not have documentation of past vaccination available when they present for PEP. This should not preclude administering the protocol for previously vaccinated individuals as described below, especially when the patient is in an occupation where pre-exposure prophylaxis is required or recommended (e.g., veterinarian, animal control officer, veterinary technician, wildlife worker).

2. PEP for previously vaccinated persons consists of only two doses of vaccine given on days 0 and 3. **HRIG should not be administered to previously vaccinated persons.**
3. Persons receiving the 4-doses PEP protocol will be managed as previously vaccinated person in the event of future rabies exposures.
4. Persons who have received rabies immunizations other than that described above should contact the NJDHSS, IZDP for guidance by calling (609) 826-4886 during business hours. Staff is available to assist with public health emergencies during nights, weekends and holidays by calling (609) 392-2020.

Manufacturers of Rabies Biologics

All hospital emergency departments should stock rabies biologics and be prepared to provide rabies PEP. Physicians are urged to consider administering rabies PEP to their patients on an outpatient basis whenever possible. Human rabies vaccines and immune globulin are readily available through pharmaceutical vendors or directly from the manufacturers:

Human Rabies Vaccines

- RabAvert (PCEC)
Novartis Vaccines and Diagnostics
Telephone number (800) 244-7668
<http://www.novartisvaccines.com/products/travel.shtml>
- IMOVAX Rabies (HDCV)
Sanofi Pasteur
Telephone number (800) 822-2463 (800 VACCINE)
<http://www.imovax.com>

Human Rabies Immune Globulin (HRIG)

- IMOGAM RABIES-HT
Sanofi Pasteur
Telephone number (800) 822-2463 (800 VACCINE)
<http://www.imovax.com>
- HyperRaB TM S/D
Talecris Biotherapeutics
Telephone number (800) 243-4153 or (800) 520-2807
http://www.talecrisusa.com/prod_hype_brab.asp

Laboratories That Conduct Rabies Serology RFFIT Testing

- Kansas State Veterinary Diagnostic Laboratory,
<http://www.vet.ksu.edu/depts/dmp/service/rabies/index.htm>, telephone:
(785) 532-4483
- Atlanta Health Associates, Inc., <http://www.atlantahealth.net/>, telephone:
(800) 717-5612

Informational Resources

1. 2008 Recommendations of the Advisory Committee Immunization Practices (ACIP) for the prevention of rabies:
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5703a1.htm>
2. March 19, 2010, CDC Morbidity and Mortality Weekly Report Use of a Reduced (4-dose) Vaccine Schedule for Postexposure prophylaxis to Prevent Human Rabies:
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5902a1.htm>
3. CDC rabies post-exposure prophylaxis:
http://www.cdc.gov/rabies/medical_care/index.html
4. CDC precautions or contraindications for rabies vaccination:
http://www.cdc.gov/rabies/specific_groups/doctors/vaccination_precautions.html
5. ACIP General Recommendations on Immunization:
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm>
6. NJDHSS Infectious and Zoonotic Disease Program rabies information:
<http://www.state.nj.us/health/cd/documents/faq/rabies.pdf>

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March 2010

New Jersey Department of Health and Senior Services

Adapted from materials published by the Centers for Disease Control and Prevention

A regimen of four 1-mL doses of HDCV or PCEC vaccines should be administered intramuscularly to previously unvaccinated persons.

The first dose of the four-dose course should be administered as soon as possible after exposure. Additional doses should be administered on days 3, 7, and 14 after the first vaccination. For adults, the vaccination should always be administered intramuscularly in the deltoid area (arm). For children, the anterolateral aspect of the thigh is also acceptable. The gluteal area should never be used for rabies vaccine injections because observations suggest administration in this area results in lower neutralizing antibody titers.

Post-exposure Prophylaxis for Non-immunized Individuals	
Treatment	Regimen
Wound cleansing	All post-exposure prophylaxis should begin with immediate thorough cleansing of all wounds with soap and water. If available, a virucidal agent such as povidine-iodine solution should be used to irrigate the wounds.
RIG	If possible, the full dose should be infiltrated around any wound(s) and any remaining volume should be administered IM at an anatomical site distant from vaccine administration. Also, RIG should not be administered in the same syringe as vaccine. Because RIG might partially suppress active production of antibody, no more than the recommended dose should be given.
Vaccine	HDCV or PCECV 1.0 mL, IM (deltoid area), one each on days 0, 3, 7, and 14.

Post-exposure Prophylaxis for Previously Immunized Individuals	
Treatment	Regimen
Wound cleansing	All post-exposure prophylaxis should begin with immediate thorough cleansing of all wounds with soap and water. If available, a virucidal agent such as povidine-iodine solution should be used to irrigate the wounds.
RIG	RIG should not be administered.
Vaccine	HDCV or PCECV 1.0 mL, IM (deltoid area), one each on days 0 and 3.

If exposed to rabies, previously vaccinated persons should receive two IM doses (1.0 mL each) of vaccine, one immediately and one three days later. Previously vaccinated persons are those who have received one of the recommended pre-exposure or post-exposure regimens of HDCV, RVA, or PCECV, or those who received another vaccine and had a documented rabies antibody titer. RIG is unnecessary and should not be administered to these persons.