



Protocol for Rabies Post-exposure Prophylaxis (RPEP) After Exposure to a Rabies Susceptible Animal^{1,2}

Post-exposure Rabies Vaccine Schedule Update

The March 19, 2010 issue of the Centers for Disease Control and Prevention (CDC), Morbidity and Mortality Weekly Report (MMWR) (<http://www.cdc.gov/mmwr/pdf/rr/rr5902.pdf>) summarizes new recommendations and updates previous recommendations of the Advisory Committee on Immunization Practices (ACIP) for postexposure prophylaxis (PEP) to prevent human rabies. (*CDC. Human rabies prevention—United States, 2008: recommendations of the Advisory Committee on Immunization Practices. MMWR 2008;57[No. RR-3]*). Previously, ACIP recommended a 5-dose rabies vaccination regimen with human diploid cell vaccine (HDCV) or purified chick embryo cell vaccine (PCECV). The new recommendations for PEP reduce the number of human rabies vaccine doses to 4 given on days 0, 3, 7, and 14 by eliminating the previously recommended 5th dose on day 28. Human rabies immune globulin (HRIG) continues to be recommended (20 IU/Kg) on day 0 for persons not considered previously immunized for rabies as defined in the [2008 ACIP recommendations](#). The Southern Nevada Health District protocol RPEP has been updated to follow these recommendations.

For information on obtaining rabies vaccine for uninsured and underinsured patients see page 4 of this document or visit http://www.cdc.gov/rabies/medical_care/programs.html.

Protocol

Exposure Defined:

The rabies virus is present in the saliva, brain and spinal cord tissue of an infected animal.

“When an exposure has occurred, the likelihood of rabies infection varies with the nature and extent of that exposure. Under most circumstances, two categories of exposure (bite and nonbite) should be considered. The most dangerous and common route of rabies exposure is from the bite of a rabid mammal. An exposure to rabies also might occur when the virus, from saliva or other potentially infectious material (e.g., neural tissue), is introduced into fresh, open cuts in skin or onto mucous membranes (nonbite exposure). Indirect contact and activities (e.g., petting or handling an animal, contact with blood, urine, or feces, and contact of saliva with intact skin) do not constitute exposures; therefore, postexposure prophylaxis should not be administered in these situations.”

(Human Rabies Prevention – US 2008, MMWR 2008; 57(RR03):1-28.)

When assessing patients with bite wounds from rabies susceptible animals:

1. Contact Animal Control in the jurisdiction where the bite occurred to report rabies susceptible animal bites (NAC 441A.415) and request guidance regarding the need for rabies post-exposure prophylaxis.
 - Clark County Animal Control: 455-7710 then press "0"
 - City of Las Vegas Animal Control: 229-6348 then press "0"
 - City of North Las Vegas Police Department: 633-9111 then press "9"
 - City of Henderson Animal Control: 565-2033
 - Boulder City Animal Control: 293-9283
 - City of Mesquite Animal Control: 346-5268
2. Immediate and thorough washing of all bite wounds and scratches with soap and water or a virucidal agent are important measures for preventing rabies.
3. Contact SNHD at 759-1389 if Rabies Post-Exposure Prophylaxis (RPEP) is warranted, to report circumstances surrounding the bite incident.
4. Follow guidelines in Table 1 if RPEP is warranted:

Guidelines for Administration of RPEP

If exposed to a dog, cat, ferret or other domestic animal that is not exhibiting signs of rabies, is normal and healthy and available for observation:

- Do not initiate Rabies Post-Exposure Prophylaxis (RPEP) until the animal has been observed for 10 days
- Recommend initiating RPEP if the animal becomes ill or dies with a rabies like illness during quarantine and the results of a brain specimen sent to the Nevada State Department of Agriculture for rabies testing are positive for rabies.

If exposed to a dog, cat, ferret that has not been apprehended, and therefore unavailable for observation:

- Recommend RPEP if animal control authority has determined that the bite was not provoked and the animal was exhibiting abnormal behavior;
- Consult as needed with the SNHD regarding the epizootology of rabies and the circumstances of the exposure.

If exposed to a wild animal such as a raccoon, fox, skunk, or coyote:

- Recommend RPEP if:
 - the animal has not been apprehended,
 - the specimen is untestable,
 - brain specimen testing by the Nevada State Department of Agriculture cannot be completed within 24 hours, or
 - the specimen is positive for rabies.
- Discontinue RPEP if the animal's brain specimen is negative for rabies.

If exposed to a bat:

- Recommend RPEP when direct contact between a human and a bat has occurred (unless the exposed person can be certain an exposure did not occur) and:
 - the animal has not been apprehended
 - the specimen is untestable
 - brain specimen testing by the Nevada State Department of Agriculture cannot be completed within 24 hours
 - the specimen is positive for rabies
- Discontinue RPEP if the animal’s brain specimen is negative for rabies
- Consider RPEP when
 - Persons were in the same room as the bat and may be unaware that a bite or direct contact occurred (e.g., a sleeping person awakens to find a bat in their room or an adult witnesses a bat in the room with a previously unattended child, mentally disabled person, or intoxicated person). RPEP would **not** be warranted for household members who were not present in the same room as the bat.

If exposed to a small animal or rodent (rat, mouse, squirrel, rabbit) RPEP is not recommended unless there are unusual circumstances.

“Rodents are not reservoirs of rabies virus. Small rodents (e.g., squirrels, chipmunks, rats, mice, hamsters, guinea pigs, and gerbils) and lagomorphs (including rabbits and hares) are rarely infected with rabies and have not been known to transmit rabies to humans.”

(Human Rabies Prevention—US 2008. MMWR. 2008: 57(RR03);1-28.)

Table 1. Rabies postexposure prophylaxis schedule – United States, 2010⁵

Vaccination status	Treatment	Regimen*
Not previously vaccinated	Wound cleansing	All postexposure 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.
	Human Rabies immune globulin (HRIG)	Administer 20 IU/Kg body weight. If anatomically feasible, the full dose should be infiltrated around the wound(s) and any remaining volume should be administered intramuscularly (IM) at an anatomical site distant from vaccine administration. Also, HRIG should not be administered in the same syringe as vaccine. Because HRIG might partially suppress active production of antibody, no more than the recommended dose should be given.
Previously vaccinated†	Vaccine	Human diploid cell vaccine (HDCV) or purified chick embryo cell vaccine (PCECV) 1.0 mL, IM (deltoid area [§]), one each on days 0 [¶] , 3, 7, and 14 ^{**} .
	Wound cleansing	All postexposure 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.
	HRIG Vaccine	HRIG should not be administered HDCV or PCECV 1.0 mL, IM (deltoid area [§]), one each on days 0 [¶] , and 3.

* These regimens are applicable for all age groups, including children.
 † Any person with a history of a complete pre-exposure or postexposure vaccination regimen with HDCV, PCECV, or rabies vaccine adsorbed (RVA), or previous vaccination with any other type of rabies vaccine and a documented history of antibody response to the prior vaccination.
 § The deltoid area is the only acceptable site of vaccination for adults and older children. For younger children, the outer aspect of the thigh can be used. Vaccine should never be administered in the gluteal area.
 ¶ Day 0 is the day the first dose of vaccine is administered.
 ** For persons with immunosuppression, rabies PEP should be administered using all 5 doses of vaccine on days 0, 3, 7, 14, and 28.

Uninsured and Underinsured Patient Assistant Programs

Both rabies vaccine manufacturers have patient assistant programs that provide medications to uninsured or underinsured patients. Sanofi Pasteur's Indigent Patient Program (providing Imogam ® Rabies-HT and Imovax ® Rabies) is administered through the National Organization for Rare Disorders (NORD). Information can be obtained by contacting NORD at 1-877-798-8716 or by emailing nadiq@rarediseases.org to obtain an application. The RabAvert ® Patient Assistance Program is managed through Rx for Hope and can be accessed at 1-800-244-7668 or at www.rabavert.com* on the "How to Order" page.

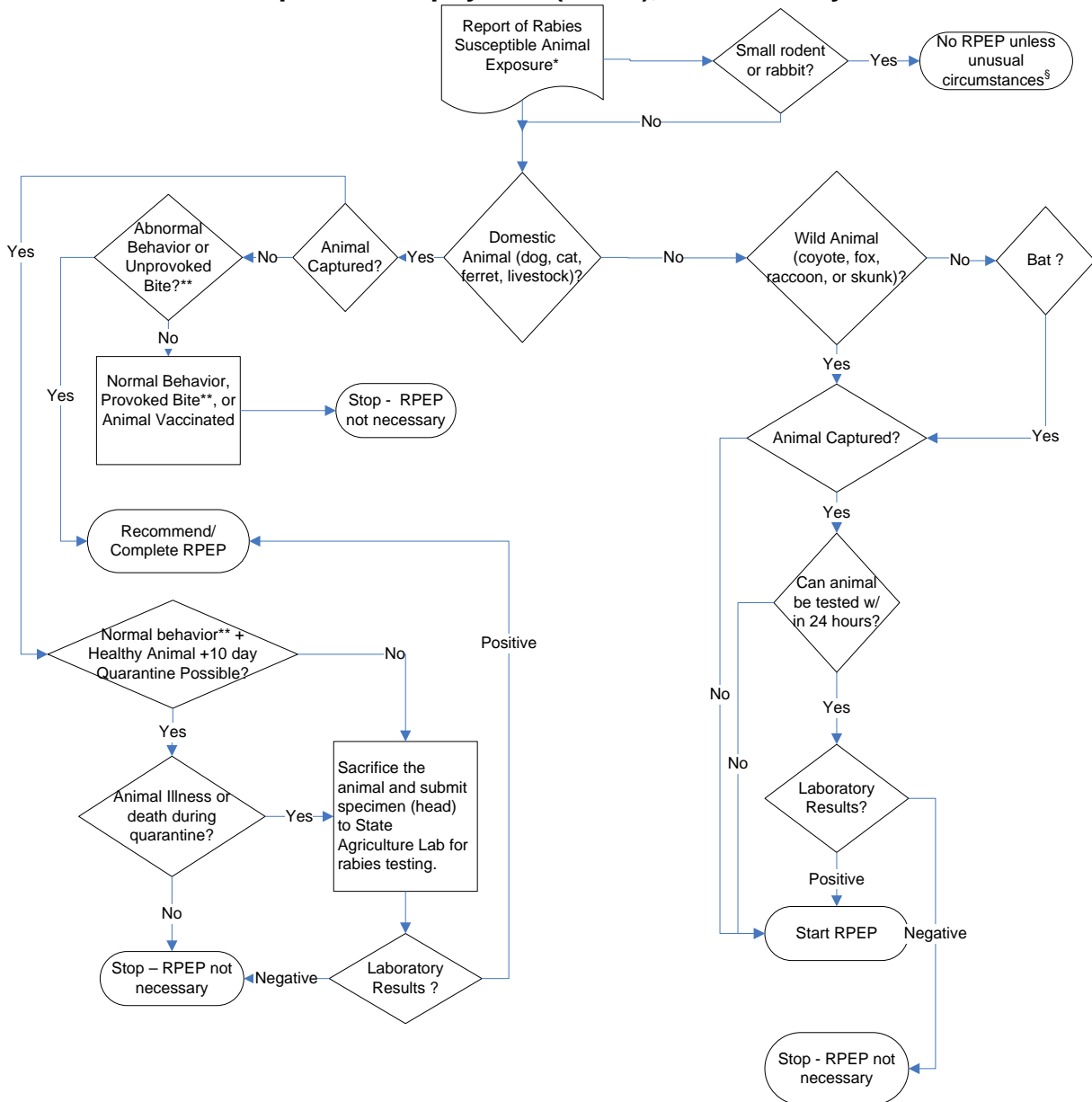
Table 2. Current Clark County Hospital availability of Rabies Vaccine and Human Rabies Immune Globulin (HRIG) (updated 4/8/10)

Hospital	Main #	HRIG/Vaccine
Boulder City	293-4111	Both
Desert Springs	733-8800	Both
Mountain View	255-5000	Vaccine
North Vista	649-7711	Vaccine
Spring Valley	853-3000	Both
Southern Hills	880-2100	Both
St. Rose Delima	564-2622	Both
St Rose San Martin	492-8000	Both
St. Rose Siena	616-5000	Both
Summerlin	233-7700	Vaccine
Sunrise	731-8000	Both
UMC	383-2000	Both
Valley	388-4000	Vaccine

The patient/physician can contact the appropriate hospital to make arrangements for RPEP.

For additional animal bite exposure risk assessment contact Anette Rink, DVM or Keith Forbes, DVM at the Nevada Department of Agriculture, Division of Animal Industry at (775)688-1182 Rink-ext. 232, Forbes-ext. 284.

Rabies Post-exposure Prophylaxis (RPEP), Clark County Nevada^{2,3,4}



*Exposure = The most dangerous and common route of rabies exposure is from the bite of a rabid mammal. An exposure to rabies also might occur when the virus, from saliva or other potentially infectious material (e.g., neural tissue), is introduced into fresh, open cuts in skin or onto mucous membranes (nonbite exposure). Indirect contact and activities (e.g., petting or handling an animal, contact with blood, urine, or feces, and contact of saliva with intact skin) do not constitute exposures.

RPEP= Rabies Post-exposure Prophylaxis

**As assessed by the Rabies Control Authority

§Unusual circumstances may occur in rabbits and small rodents that are kept in cages outside and may have been bitten by a rabid animal. In instances the cage protected them from more serious wounds that may have caused death. This situation is very rare.

¹Moran, GJ, Talan, DA, Mower, W et.al. Appropriateness of Rabies Postexposure Prophylaxis Treatment for Animal Exposures. JAMA, August 22/30, 2000, 284;8:1001-1007.

²Adapted from: New York State Department of Health "Rabies Treatment Algorithm" <http://www.health.state.ny.us/diseases/communicable/zoonoses/rabies/docs/algorithm.pdf> and

³Adapted from: North Carolina Department of Health and Human Services "Evaluation of Animal Bites for Rabies Risk" http://www.epi.state.nc.us/epi/rabies/pdf/exp_eval_2006.pdf and <http://www.epi.state.nc.us/epi/rabies/>.

⁴Human Rabies Prevention – US 2008, MMWR 2008; 57(RR03):1-28

⁵Rupprecht, Charles E. et. al. "Use of a Reduced (4-Dose) Vaccine Schedule for Postexposure Prophylaxis to Prevent Human Rabies" MMWR 2010; 59(02);1-9 http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5902a1.htm?s_cid=rr5902a1_x