PENNSYLVANIA DEPARTMENT OF HEALTH
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pennsylvania
DEPARTMENT OF HEALTH

Importance of Properly Administered Rabies Post Exposure Prophylaxis

DATE:	5/31/2023
TO:	Health Alert Network
FROM:	Debra L. Bogen, MD, FAAP, Acting Secretary of Health
SUBJECT:	Importance of Properly Administered Rabies Post Exposure Prophylaxis
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This transmission is a "Health Advisory," and provides important information for a specific incident or situation; may not require immediate action.

HOSPITALS: PLEASE SHARE WITH ALL MEDICAL, PEDIATRIC, NURSING AND LABORATORY STAFF IN YOUR HOSPITAL**; EMS COUNCILS:** PLEASE DISTRIBUTE AS APPROPRIATE; FQHCs**:** PLEASE DISTRIBUTE AS APPROPRIATE **LOCAL HEALTH JURISDICTIONS**: PLEASE DISTRIBUTE AS APPROPRIATE; **PROFESSIONAL ORGANIZATIONS:** PLEASE DISTRIBUTE TO YOUR MEMBERSHIP; **LONG-TERM CARE FACILITIES:** PLEASE SHARE WITH ALL MEDICAL, INFECTION CONTROL, AND NURSING STAFF IN YOUR FACILITY

SUMMARY

- Rabies Post Exposure Prophylaxis (PEP) is indicated for patients with high-risk exposures such as bites and scratches from wild or potentially rabid animals.
- For non-previously immunized individuals, PEP includes a single dose of Human Rabies Immunoglobin (HRIG) and rabies vaccine series administered on the day of exposure, with subsequent doses given on days 3, 7 and 14 following exposure. Immunocompromised individuals should receive a fifth dose on day 28.
- For previously immunized individuals, PEP treatment is two doses of rabies vaccine given on days 0 and 3. HRIG should not be administered to previously immunized individuals.
- HRIG should be infiltrated **in and around the wound.** Excess HRIG should be given intramuscularly at a separate anatomical site from the rabies vaccine.
- **Rabies vaccine should be given intramuscularly (IM) and should NOT be administered in the gluteal area.**
- It is important to ensure that HRIG and rabies vaccine are given properly, as improper administration could result in their poor uptake.
- If you have any questions, please call DOH at 1-877-PA-HEALTH (1-877-724-3258) or your local health department.

Background

Rabies is a zoonotic disease caused by an RNA virus that infects the central nervous system of mammals. It is transmitted via direct contact with either broken skin or mucous membranes in the eyes, nose, or mouth with saliva, or brain/nervous system tissue from an infected animal. This most commonly occurs with animal bites and occasionally with scratches, abrasions, or open wounds that are exposed to saliva or other potentially infectious material from a rabid animal.

In the United States, more than 90% of reported cases of rabies in animals occur in wildlife. The wild animals that most commonly carry rabies in the United States are raccoons, skunks, bats, and foxes. Contact with infected bats is the leading cause of human rabies deaths in this country; at least 7 out of 10 Americans who die from rabies in the US were infected by bats. People may not recognize a bat scratch or bite, which can be very small, but these types of contact can still spread rabies. Pets (e.g., cats and dogs) and livestock (e.g., cattle and horses) can also get rabies. Nearly all the pets and livestock that develop rabies had not been vaccinated or were not up to date on rabies vaccination. Most pets get rabies from having contact with wildlife.

Humans are usually infected from the bite of an animal that is infected with rabies. It is also possible, but rare, for people to get rabies from non-bite exposures, which can include scratches, abrasions, or open wounds that are exposed to saliva or other potentially infectious material (e.g., blood or nervous tissue) from a rabid animal. Other types of contact, such as petting a rabid animal or contact with the blood, urine, or feces of a rabid animal are not associated with risk for infection and are not considered to be exposures of concern for rabies.

The typical incubation period following an exposure is usually weeks to months, though this period can last anywhere from days to years. The first symptoms of rabies can include weakness, fever, headache, and discomfort or prickling at the site of the bite and progress to an acute encephalomyelitis. Once symptoms develop, human rabies is essentially always fatal. Rabies post-exposure prophylaxis (PEP) administered at any stage prior to the onset of symptoms is highly effective at preventing disease and death.

Post Exposure Rabies Prophylaxis

The Centers for Disease Control and Prevention (CDC) recommends that anyone who comes into direct contact with any wildlife or unfamiliar domestic animals, especially if a patient has been bitten or scratched, should contact a healthcare provider to determine the risk for rabies infection.

When patients present to healthcare following an animal bite or exposure, they should immediately and thoroughly wash the exposed area with warm soap and water. After the patient has thoroughly washed the area, providers should determine the following from the patient:

- What type of animal (domestic, wild)?
- What type of exposure (bite, scratch)?
- Has the patient been vaccinated against rabies in the past?

If the healthcare provider has questions about whether the exposure warrants PEP, they should contact their local health department or the Pennsylvania Department of Health (DOH).

Once the decision to initiate rabies PEP has been made, the PEP regimen should be started as soon as possible.

For patients who have **never** received rabies vaccine, PEP consists of both Human Rabies Immune Globulin (HRIG) and rabies vaccination.

Human Rabies Immune Globulin (HRIG)

- HRIG is only given once on day 0 to previously unvaccinated people.
- HRIG will provide rabies immunoglobulin to combat infection until the patient produces rabies antibodies on their own after vaccination with rabies vaccine.
- 20 IU/kg of body weight of HRIG should be injected at the local site **around wound** and affected area.
- Any remaining HRIG that cannot be injected into the wound should be given intramuscularly at a site distant from the rabies vaccine administration.
- HRIG should never be administered with the same syringe or in the same anatomical site as rabies vaccine.

Rabies Vaccine

- Rabies vaccine should be given on days 0, 3, 7, and 14 following the exposure.
- If the patient is immunocompromised, an additional fifth dose should be given on day 28.
    - The day 0 dose should be given on day of exposure if possible.
- Every effort should be made to adhere to the vaccination schedule, especially for the first two days of treatment, day 0 and day 3. If substantial deviations from the recommended schedule occur, contact your local health department or DOH.
- The dose for rabies vaccine is 1 ml intramuscularly (IM) in the deltoid area for adults, in the deltoid area or the anterolateral aspect of the thigh for children.
- Do **NOT** use in the gluteal area as research has shown that injections in this area result in lower neutralizing antibody titers.

For patients who have successfully completed a rabies vaccination series in the past, PEP consists of two doses of rabies vaccine. HRIG should **not** be administered.

Rabies Vaccine

- Rabies vaccine should be given on days 0 and 3 following the exposure.
    - Dose #1 should be given on the day of exposure if possible.
- The dose for Rabies vaccine is 1 ml intramuscularly (IM) in the deltoid area for adults and in the deltoid area or the anterolateral aspect of the thigh for children.
- Do **NOT** use in the gluteal area as research has shown that injections in this area result in lower neutralizing antibody titers.
- Patients who have received rabies vaccine in the past **do not need** HRIG, as an anamnestic response will follow the administration of the rabies vaccine.

Additionally for bites and deep injuries, wound care should include copious irrigation, and a tetanus booster is indicated if one has not been administered in the past 10 years.

If you have any questions, please call PA DOH at 1-877-PA-HEALTH (1-877-724-3258) or your local health department.

Summary table on rabies PEP from [Morbidity and Mortality Weekly Report (MMWR) on Human Rabies Prevention]

TABLE 3. Rabies postexposure prophylaxis (PEP) schedule — United States, 2010

Vaccination status	Intervention	Regimen*
Not previously vaccinated	Wound cleansing	All PEP should begin with immediate thorough cleansing of all wounds with soap and water. If available, a virucidal agent (e.g., 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 and into the wound(s), and any remaining volume should be administered at an anatomical site (intramuscular [IM]) distant from vaccine administration. Also, HRIG should not be administered in the same syringe as vaccine. Because RIG might partially suppress active production of rabies virus antibody, no more than the recommended dose should be administered.
	Vaccine	Human diploid cell vaccine (HDCV) or purified chick embryo cell vaccine (PCECV) 1.0 mL, IM (deltoid area†), 1 each on days 0,§ 3, 7 and 14.¶
Previously vaccinated**	Wound cleansing	All PEP 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	HRIG should not be administered.
	Vaccine	HDCV or PCECV 1.0 mL, IM (deltoid area†), 1 each on days 0§ and 3.

* These regimens are applicable for persons in all age groups, including children.
† The deltoid area is the only acceptable site of vaccination for adults and older children. For younger children, the outer aspect of the thigh may be used. Vaccine should never be administered in the gluteal area.
§ Day 0 is the day dose 1 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.
** Any person with a history of pre-exposure vaccination with HDCV, PCECV, or rabies vaccine adsorbed (RVA); prior PEP with HDCV, PCECV or RVA; or previous vaccination with any other type of rabies vaccine and a documented history of antibody response to the prior vaccination.

Categories of Health Alert messages:
Health Alert: conveys the highest level of importance; warrants immediate action or attention.
Health Advisory: provides important information for a specific incident or situation; may not require immediate action.
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This information is current as of May 31, 2023, year but may be modified in the future.