GUIDE TO RABIES POST-EXPOSURE PROPHYLAXIS 2025

Table of Contents

BACKGROUND

New Jersey (NJ) is currently enzootic for the raccoon and bat variant rabies viruses. Raccoon variant rabies virus crossed the Delaware River from Pennsylvania into NJ in the fall of 1989 and has spread throughout the state. Rabid bats are found throughout the country including in NJ. Raccoons and other animals infected with the raccoon variant, as well as bats infected with bat variant strains of the virus, present a continual threat to NJ residents and their domestic animals. Although approximately 60 - 70 percent of the terrestrial animals confirmed to be rabid through laboratory testing every year are raccoons, many other terrestrial animals, especially skunks, foxes, groundhogs, and cats, also become infected from contact with raccoons. The NJ Department of Health (NJDOH) estimates that approximately 2,500 people in the State receive rabies post-exposure prophylaxis (PEP) annually, due to exposure to known or suspect rabid animals.

Once people develop symptoms of rabies, treatment is almost never successful, and death ensues. Fortunately, rabies PEP biologics (human rabies immune globulin and human rabies vaccine) are extremely effective in preventing rabies, if given in a timely manner following exposure to a rabid animal. This guide will review when and how to administer rabies PEP and will address frequently asked questions.

The decision to administer rabies PEP is made by the physician in consultation with the local Health Officer. This document serves as a resource for both physicians and Health Officers regarding prevention of human rabies.

Please review this document and keep it as a reference.

LEGAL REQUIREMENTS

Animal bites

Every physician is legally required to report all animal bites (N.J.S.A. 26:4-79) and all rabies PEP administrations (N.J.A.C. 8:57-1.5) within 24 hours of initial medical treatment to the **local health department (LHD)** with jurisdiction where the patient resides. The contact information for LHDs can be found under the municipal listing in the telephone book or on-line at nj.gov/health/lh/.

The LHD receiving the animal bite report from a physician shall provide guidance on rabies and guidelines for administering PEP to exposed persons. The LHD shall work with other agencies/LHDs to identify other persons and/or domestic animals that were exposed to the rabid animal and oversee PEP of people and confinement of exposed animal(s), if indicated.

Routine animal bite reports for patients seen during nights, weekends and holidays can usually be faxed, emailed or called into LHDs on the next working day. Animal bites should not be reported directly to the NJDOH.

Post-exposure prophylaxis administration reports

PEP administration to an exposed patient shall be reported to the LHD where the patient resides (N.J.A.C. 8:57 1.5b). The CDC-2 form to report PEP to LHDs is available on-line at: https://healthapps.nj.gov/forms/.

Suspect human rabies cases

Suspected cases of rabies in humans are **immediately reportable** to the LHD. The contact information for LHDs can be found under the municipal listing in the telephone book or on-line at: nj.gov/health/lh/.

If the LHD cannot be reached, contact the NJDOH at 609-826-4872 or 609-826-5964 between 8 a.m. and 5 p.m. during workdays. For emergency situations, and only after being unable to reach the LHD, contact the NJDOH during nights, weekends, and holidays at 609-392-2020.

RATIONALE FOR INITIATING POST-EXPOSURE PROPHLYAXIS

Advisory Committee Immunization Practices recommendations

The following section is from the Advisory Committee Immunization Practices (ACIP) Recommendations[1]:

"ACIP and the World Health Organization (WHO) recommend that prophylaxis for the prevention of rabies in humans exposed to rabies virus should include prompt and thorough wound cleansing followed by passive vaccination with HRIG and vaccination with cell culture rabies vaccines. Administration of rabies postexposure prophylaxis is a medical urgency, not a medical emergency. Because rabies biologics are valuable resources that are periodically in short supply, a risk assessment weighing potential adverse consequences associated with administering postexposure prophylaxis along with their severity and likelihood versus the actual risk for the person acquiring rabies should be conducted in each situation involving a possible rabies exposure. Because the balance of benefit and harm will differ among exposed persons based on the risk for infection, recommendations regarding rabies postexposure prophylaxis are dependent upon associated risks including 1) type of exposure, 2) epidemiology of animal rabies in the area where the contact occurred, and species of animal involved, and 3) circumstances of the exposure incident. The reliability of this information should be assessed for each incident. The decision of whether to initiate rabies postexposure prophylaxis also depends on the availability of the exposing animal for observation or rabies testing. Because the epidemiology and pathogenesis of rabies are complex, these recommendations cannot be specific for every possible circumstance. Clinicians should seek assistance from local or state public health officials for evaluating exposures or determining the need for postexposure management in situations that are not routine. State and local officials have access to CDC rabies experts for particularly rare situations or difficult decisions."

TYPES OF EXPOSURE

The following section is from the Advisory Committee Immunization Practices (ACIP) Recommendations[1]:

"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 non-bite) 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 (non-bite 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. Exposures to bats deserve special assessment because bats can pose a greater risk for infecting humans under certain circumstances that might be considered inconsequential from a human perspective (i.e., a minor bite or lesion). Human-to-human transmission occurs almost exclusively because of organ or tissue transplantation. Clinicians should contact local or state public health officials for assistance in determining the likelihood of a rabies exposure in a specific situation."

Bite exposures

"Any penetration of the skin by teeth constitutes a bite exposure. All bites, regardless of body site or evidence of gross trauma, represent a potential risk. The risk for transmission varies in part with the species of biting animal, the anatomic site of the bite, and the severity of the wound. Although risk for transmission might increase with wound severity, rabies transmission also occurs from bites by some animals (e.g., bats) that inflict rather minor injury compared with larger-bodied carnivores, resulting in lesions that are difficult to detect under certain circumstances."

Non-bite exposures

"Non-bite exposures from animals very rarely cause rabies. However, occasional reports of non-bite transmission suggest that such exposures require assessment to determine if sufficient reasons exist to consider postexposure prophylaxis. The non-bite exposures of highest risk appear to be among surgical recipients of corneas, solid organs, and vascular tissue transplanted from patients who died of rabies and persons exposed to large amounts of aerosolized rabies virus. Two cases of rabies have been attributed to probable aerosol exposures in laboratories, and two cases of rabies have been attributed to possible airborne exposures in caves containing millions of free-tailed bats (*Tadarida brasiliensis*) in the Southwest. However, alternative infection routes cannot be discounted. Similar airborne incidents have not occurred in approximately 25 years, probably because of elevated awareness of such risks resulting in increased use of appropriate preventive measures.

The contamination of open wounds or abrasions (including scratches) or mucous membranes with saliva or other potentially infectious material (e.g., neural tissue) from a rabid animal also constitutes a non-bite exposure. Rabies virus is inactivated by desiccation, ultraviolet irradiation, and other factors and does not persist in the environment. In general, if the suspect material is dry the virus can be considered noninfectious. Non-bite exposures other than organ or tissue transplants have almost never been proven to cause rabies, and postexposure prophylaxis is not indicated unless the non-bite exposure met the definition of saliva or other potentially infectious material being introduced into fresh, open cuts in skin or onto mucous membranes." In general, scratches from cats are not considered an exposure unless the wound is contaminated with saliva, e.g., a cat grooms its claws and then immediately scratches a person or is hissing and spitting while scratching a person and saliva may have gotten into the wound."

RESPONSE BY TYPE OF ANIMAL INVOLVED IN THE HUMAN EXPOSURE

Domestic animal

Is the domestic animal (e.g., dog, cat, ferret and livestock) available for observation?
Note: In NJ, cats have accounted for 90% of the domestic animal rabies cases. Rabies in dogs and other domestic animals, except cats, is relatively uncommon.

YES - **Animal Available**

Healthy domestic animals (both vaccinated and unvaccinated for rabies) should be observed for 10 days. The LHD with jurisdiction where the involved animal is kept will arrange confinement of the animal for observation of signs of rabies for 10 days (N.J.S.A. 26:4-82). The New Jersey Department of Agriculture should be notified of livestock animals that may have exposed people to rabies (NJAC 2:2-1.5) .

If the animal exhibits clinical signs compatible with rabies (e.g., abnormal behavior, elevated temperature, anorexia, unprovoked aggression, impaired locomotion, progressive neurologic impairment, paralysis) during confinement, it should be immediately evaluated by a veterinarian and euthanized for rabies testing, based on the veterinarian's assessment. The exposed individual can start PEP prior to completion of rabies testing in high risk situations or when testing is delayed. PEP can be discontinued if test results are negative for rabies.

Note: There is no law mandating that the owner of a suspect rabid domestic animal must euthanize their pet for rabies testing. However, suspect rabid animals that expose humans should be ordered to be confined and observed for signs of rabies for 10 days by the Health Officer. Once confined, the Health Officer can order the animal tested if it dies or is euthanized during the confinement period (N.J.S.A. 26: 4-86).

If the owner refuses to euthanize a suspect rabid animal, PEP should be started and continued as indicated. If the animal is infected with rabies, it will usually die within 1 week of the onset of symptoms and then can be tested for rabies. PEP can be discontinued if the animal is found negative for rabies through laboratory testing. If the animal lives 10 days following the exposure, PEP can be discontinued as the animal in question was not rabid.

NO - **Animal Not Available**

If the animal had signs of rabies at the time of the exposure (e.g., abnormal behavior, elevated temperature, anorexia, unprovoked aggression, impaired locomotion, progressive neurologic impairment, paralysis), the physician and patient should consider the behavior and general health status of the animal, and the circumstances of the exposure (i.e., was exposure provoked?) when deciding to begin PEP. Local animal control shall investigate the exposure and attempt to locate the domestic animal. If found, the animal in question should be confined and observed for 10 days from the date of the exposure. If the confined animal develops clinical signs of rabies, a veterinarian should evaluate the animal and determine if euthanasia and rabies testing is indicated. If the animal dies or is euthanized during the 10-day confinement, the animal should be immediately tested for rabies and exposed individuals should discuss starting PEP with their physicians based on the likelihood the animal has rabies, the nature of their exposure(s) and the timeliness of the rabies testing.

If the animal did not have signs of rabies at the time of the exposure, take up to five days to attempt to find the animal with assistance of local animal control. If found, the domestic animal in question should be

confined and observed for 10 days from the date of the exposure. If the animal is not found in five days, PEP should be considered for exposed persons. Although rabies in domestic animals is rare, PEP is generally recommended for individuals with an exposure from a dog or cat which cannot be observed or tested. The physician and patient should consider the behavior and general health status of the animal, and the circumstances of the exposure (i.e., was exposure provoked?) when deciding to begin PEP.

Raccoon, skunk, fox, groundhog and other wild mammals

Is the animal available for laboratory testing?

YES -The animal should be euthanized and tested for rabies. If the test is positive, administer PEP to all persons exposed to the saliva or other infectious materials of the rabid animal. If testing of the animal is delayed more than 3 days, consider initiating PEP to all exposed persons prior to completion of testing. In the case of bites to the face, neck or fingers from, raccoons, skunks, foxes, groundhogs or other wildlife showing clinical signs of rabies, PEP should be initiated as soon as possible. PEP can be discontinued if laboratory test results are negative.

- Note: The New Jersey Department of Environmental Protection, Division of Fish and Wildlife requests to be notified of medium-risk suspect rabid animals of particular species (bear, bobcat, deer, fisher, coyotes) prior to submission for testing. NJ Fish and Wildlife can be reached by calling 1-877-WARNDEP or contact Dr. Patrick Connelly, NJ Office of Fish and Wildlife Health and Forensics at (908-735-6398) or Patrick.Connelly@dep.nj.gov.

NO - Raccoons, skunks, foxes, groundhogs and other high risk wildlife that cannot be tested should be considered rabid. PEP should be initiated to all exposed persons as soon as possible.

Bats

Is the bat available for laboratory testing?

YES – The animal should be submitted and tested for rabies. If the test is positive, administer PEP to all persons exposed to the saliva or other infectious materials of the rabid bat. If testing of the bat is delayed more than 3 days, consider initiating PEP to all exposed persons prior to completion of testing. In the case of bites to the face, neck or fingers from bats showing clinical signs of rabies, PEP should be initiated as soon as possible. PEP can be discontinued if laboratory test results are negative.

NO – PEP should be initiated all exposed persons as soon as possible.

Bat bites may be less severe and therefore more difficult to recognize that bites inflicted by larger animals. Therefore, PEP should be considered when direct contact between a human and a bat has occurred, unless the exposed person can be certain a bite, scratch or mucous membrane exposure did not occur.

PEP may be considered for persons who were in the same room as the bat and who might be unaware that a bite or direct contact had occurred (e.g., a sleeping person awakens to find a bat in the room or an adult witnesses a bat in the room with a previously unattended child,

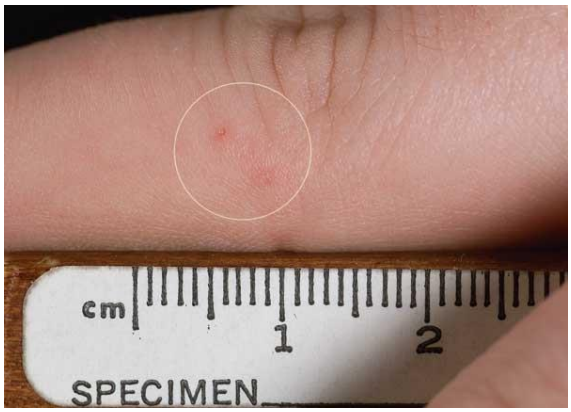


Figure 1: Wound inflicted by canine teeth of *Eptesicus fuscus* (big brown bat) while bat was being handled; picture taken same day as bite.

mentally disabled person, or intoxicated person) and the bat is unavailable for testing. PEP would not be recommended for other household members.

Rodents and lagomorphs

Is the suspect animal a healthy rodent (other than a groundhog) or lagomorph (e.g., rabbit) that has lived in an indoor cage all its life?

YES - No PEP or testing is needed.

NO - Rodents are not reservoirs of rabies and the disease has never been found in NJ squirrels, chipmunks, moles, voles, rats or mice. Bites and other exposures to these animals are extremely low risk. Administration of PEP or animal specimen testing in the case of bites from wild or pet rodents and lagomorphs is rarely necessary but should be considered in situations of unprovoked attacks by animals that exhibit aggressive behavior and clear neurologic illness and have a history of a bite wound or contact with wildlife.

Squirrels commonly scratch people when startled. However, squirrels are rarely found rabid. Capturing the squirrel for testing or initiating PEP is not recommended unless the biting squirrel exhibited aggressive behavior and/or neurologic impairment.

Although groundhogs are rodents, they are treated as high-risk animals for rabies. From 1989 – 2019, there have been 187 rabid groundhogs documented through laboratory testing.

From 1989 – 2019, there have been 9 domestic rabbits in NJ documented to have been infected with rabies. All were housed in outdoor cages with wire floors and 8 of the 9 cases had a documented wound on the paw that was most likely a bite from a rabid animal. Rabies has not been identified in NJ wild rabbits.

Other animals

Was the suspect animal a type not listed above?

All other mammals not listed above are also susceptible to rabies. Bites or other exposures from primates and other wild and exotic animals need to be evaluated on an individual basis. Please contact the LHD for assistance in determining the appropriate course of action in these situations.

Rabies is a disease of mammals only, therefore bites by reptiles, amphibians, fish, and birds carry no risk of rabies transmission.

Animal rabies testing

Contact the LHD with jurisdiction for information about laboratory testing of animals. Specific procedures are in place for submitting animal specimens for rabies testing at the NJDOH Rabies Laboratory: nj.gov/health/cd/documents/topics/rabies/packaging_transport_rabies.pdf. In high risk situations, if testing of the animal is delayed (i.e., over weekends and holidays) the treating physician may choose to initiate PEP prior to completion of testing. In the event the test result is negative, PEP can be discontinued.

RABIES POST-EXPOSURE PROPHLYAXSIS PROTOCOL

Rabies post-exposure prophylaxis (PEP) should begin with immediate cleansing of all wounds with water and soap as soon as possible after exposure. If available, a virucidal agent such as povidone-iodine solution should be used to irrigate the wounds. PEP should be initiated as soon as possible after a decision is made to treat but it should also be given even if long delays have occurred since exposure, as PEP may still be effective to prevent rabies. Generally, delays of several days are acceptable while waiting for an animal to be located and tested, up to five days pending search for a healthy-appearing dog or cat, or up to 10 days if a healthy dog or cat is being confined and observed for signs of rabies.

High risk situations

In cases of bites to the fingers, face or neck from high-risk animals (i.e., bats, raccoons, skunks, foxes or groundhogs showing clinical signs of rabies), PEP should be initiated immediately. PEP can always be discontinued if the animal is tested and determined to be free of rabies. PEP should be started even if the animal was asymptomatic, and testing will not be able to be completed on a timely basis (often the case with weekend exposures).

Immunosuppressed individuals that are bitten by suspect rabid animals should begin PEP immediately.

Out-of-state animal bite situations

Although all species of mammals are susceptible to rabies virus infection, only a few species are important as reservoirs for the disease. In the United States, several distinct rabies virus variants have been identified in terrestrial mammals, including raccoons, skunks, foxes, and coyotes. In addition to these terrestrial reservoirs, several species of insectivorous bats are also reservoirs for rabies.

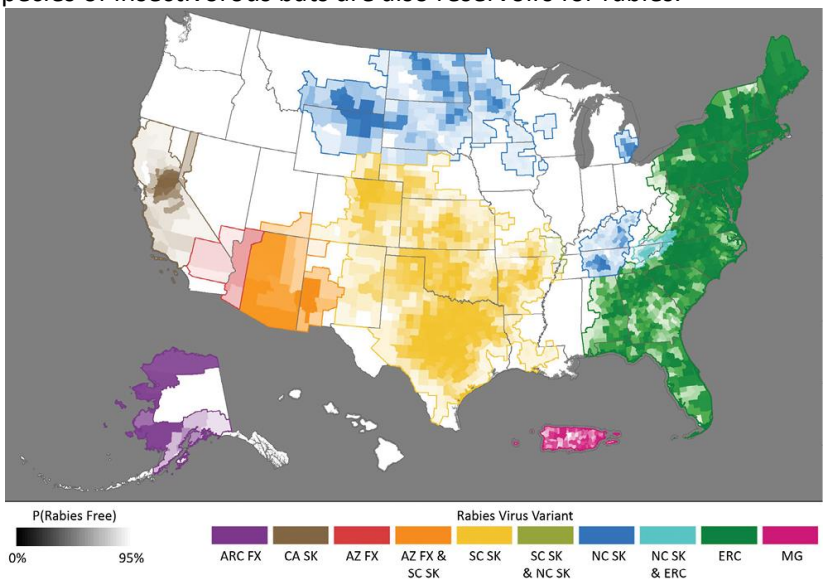


Figure 1. Distribution of major rabies virus variants (RVVs) among mesocarnivores in the US, including Puerto Rico. Lighter shading indicates a higher probability of terrestrial rabies freedom as determined by a county-level terrestrial rabies freedom model. Counties with a probability of > 95% are considered terrestrial rabies free (no color). [3]
Abbreviations: ARC FX = Arctic fox RVV. AZ FX = Arizona fox RVV. CA SK = California skunk RVV. ERC = Eastern raccoon RVV. MG = Dog-mongoose RVV. NC SK = North central skunk RVV. SC SK = South central skunk RVV.

The figure shows a map of major rabies virus variants among carnivores in the United States and Puerto Rico for 1970 through 2021.

Rabid bats are found in all U.S. states, except for Hawaii. While certain bats are more commonly diagnosed with rabies, all bat species are susceptible and any direct contact with a bat should be reported to a medical provider or the local health department.

If the biting animal is a cat, dog, or livestock animal, which is available for observation, this can be arranged through NJDOH or NJDA in cooperation with local officials in the involved state. If the animal is not available, information on the incidence of rabies in the state where the exposure occurred, and other factors will need to be considered.

Please complete the CDS-31 form (https://www.nj.gov/health/forms/cds-31.pdf) and fax to the NJDOH at (609) 826-4874.

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 PEP.

HRIG - Administer intramuscularly (IM) once on day 0, the day PEP is initiated. If not available initially, HRIG can be administered up to 7 days after the first dose of vaccine. The recommended dose is 20 IU/kg of body weight, without any upper limit. If anatomically feasible, the full dose should be infiltrated into and around the wound(s) and any remaining volume administered intramuscularly into an anatomical site distant from where the vaccine is administered (e.g., the thigh). Do not give more than the recommended amount of HRIG since this may affect the immune response. **HRIG should not be administered in the same syringe or the same anatomical site as vaccine**.

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. If doses are missed or delayed, resume the PEP schedule where it was left off. Rabies vaccine and HRIG should never be given together at the same body site. Rabies vaccine should never be given in the buttocks as administration of vaccine in this region results in lower neutralizing antibody titers. HRIG should not be administered in the gluteal region because of the risk of injury to the sciatic nerve. Routine serologic testing of healthy patients completing PEP is not necessary to document seroconversion.

Unvaccinated persons with altered immunocompetence

Persons with altered immunocompetence (either due to illness, medication, or therapy – as described in the resource linked in the below) should receive a fifth dose of rabies vaccine 28 days after the receiving the first rabies vaccine dose (Day 0) of the PEP protocol with the understanding that the immune response still might be inadequate.

Immunosuppressive agents should not be administered during 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) utilizing the rapid fluorescent focus inhibition test (RFFIT). Laboratories performing this assay are listed on page 13 of this document. Titers of at least a 1:5 serum dilution are considered seroconverted. A patient who fails to seroconvert after the fifth dose should be managed in consultation with their physician and the NJDOH.

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.

Previously vaccinated persons

Previously vaccinated persons are defined as those who have received either:

- the full pre-exposure series of HDCV or PCEC in accordance with ACIP recommendations; or
- the full post-exposure prophylaxis with HDCV or PCEC; or
- 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). 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**.

Persons receiving the 4-dose PEP protocol will be managed as a previously vaccinated person in the event of future rabies exposures. For persons who have received rabies immunizations other than that described above, contact the patient's LHD for guidance.

ADVERSE EVENTS ASSOCIATED WITH POST-EXPOSURE PROPHYLAXIS

Studies of the use of human rabies vaccine reported local reactions (e.g., pain at the injection site, redness, swelling, and induration) among approximately 2/3 of recipients. Local reactions were more common than systemic reactions. Most local reactions were mild and resolved spontaneously within a few days. Local pain at the injection site was the most frequently reported adverse reaction occurring. Mild systemic reactions (e.g., fever, headache, dizziness, and gastrointestinal symptoms) were reported in approximately 1/3 of recipients.

Rare, individual case reports of neurologic adverse events following rabies vaccination have been reported, but in none of the cases has causality been established. Five cases of neurologic illness resembling Guillain-Barré syndrome occurring after treatment with HDCV or PCEC have been identified. One case of acute neurologic syndrome involving seizure activity was reported following the administration of HDCV and HRIG. Other central and peripheral nervous system disorders have been temporally associated with HDCV vaccine.

The following discussion of adverse reactions to PEP is from the ACIP Recommendations (1):

"Once initiated, rabies prophylaxis should not be interrupted or discontinued because of local or mild systemic adverse reactions to rabies vaccine. Usually, such reactions can be successfully managed with anti-inflammatory and antipyretic agents, such as ibuprofen or acetaminophen.

When a person with a history of serious hypersensitivity to rabies vaccine must be revaccinated, antihistamines can be administered. Epinephrine should be readily available to counteract anaphylactic reactions, and the person should be observed carefully immediately after vaccination. Although serious systemic, anaphylactic, or neuroparalytic reactions are rare during and after the administration of rabies vaccines, such reactions pose a serious dilemma for the patient and the attending physician. A patient's risk of acquiring rabies must be carefully considered before deciding to discontinue vaccination. Advice and assistance on the management of serious adverse reactions for persons receiving rabies vaccines may be sought from the state, or local health department or CDC.

All clinically significant adverse events occurring following administration of rabies biologics should be reported to the Vaccine Adverse Event Reporting System (VAERS), even if causal relation to vaccination is not certain. Although VAERS is subject to limitations common to passive surveillance systems, including underreporting and reporting bias, it is a valuable tool for characterizing the safety profile of vaccines and identifying risk factors for rare serious adverse reactions to vaccines. VAERS reporting forms and information are available electronically (vaers.hhs.gov/) or by telephone via a 24-hour toll-free telephone number, 800-822-7967. Web-based reporting is available, and providers are encouraged to report electronically to promote better timeliness and quality of safety data. Clinically significant adverse events following HRIG administration should be reported to the Food and Drug Administration's MedWatch. Reports can be submitted electronically to fda.gov/MedWatch."

PROCURING RABIES BIOLOGICS

All hospitals with an emergency department should stock rabies biologics in their pharmacies and be prepared to provide PEP. Physicians are strongly urged to consider administering PEP to their patients on an outpatient basis whenever possible to reduce costs. Travel medicine clinics usually stock rabies vaccine and may administer it to patients that have begun PEP in consultation with a physician in an emergency department or other setting.

Human rabies vaccines and immune globulin are readily available through pharmaceutical vendors, hospital pharmacies, or directly from these manufacturers:

Human rabies vaccines

- IMOVAX Rabies (HDCV)
  Sanofi Pasteur
  Telephone number (800) 822-2463 (800 VACCINE)
  https://www.sanofi.us/en

- RabAvert (PCEC)
  Bavarian Nordic
  Telephone number 1-844-422-8274
  https://bnvaccines.com/

Human rabies immune globulin

- HyperRab and HyperRab S/D
  Grifols Therapeutics
  Telephone number (800) 243-4153
  https://www.hyperrab.com/en/hcp/ordering-info
  Note HyperRab immunoglobulin product has a different concentration compared to all other rabies immunoglobulins (including the very similarly named HyperRab S/D) – requiring lower volumes to administer the recommended dose of 20 IU/kg ; care should be taken to ensure the correct dose of immunoglobulin is administered to ensure adequate immune response.

- IMOGAM RABIES-HT
  Sanofi Pasteur
  Telephone number (800) 822-2463 (800 VACCINE)
  https://www.vaccineshoppe.com/

- KEDRAB
  Kedrion Biopharma
  Telephone number: 1-855-353-7466
  https://kedrab.com/ordering-reimbursement/

Please contact the LHD, if problems arise in securing the appropriate rabies biologics in a timely manner.

PROGRAMS FOR THE UNINSURED AND UNDERINSURED

Patient assistance programs that provide medication to uninsured or underinsured patients may be available for qualified patients through rabies vaccine and rabies immunoglobulin manufactures. For more information on these programs including eligibility requirements, please contact the manufacturers directly. Information on patient assistance programs can be found at https://www.cdc.gov/rabies/hcp/clinical-overview/rabies-biologics.html

LABORATORIES CONDUCTING RFFIT ANTIBODY SEROLOGY

- Atlanta Health Associates, Inc.,
  http://www.atlantahealth.net/
  Telephone: 770-205-9091 or 800-717-5612

- Kansas State Veterinary Diagnostic Laboratory,
  http://www.ksvdl.org/rabies-laboratory/
  Telephone: (785) 532-4483

Testing at Kansas State Veterinary Diagnostic Laboratory may also be requested through Quest Labs as Rabies Vaccine Response End Point Titer (order # 5789) or ARUP as Rabies Antibody Screen by RFFIT, Serum (order #2014351).

INFORMATIONAL RESOURCES

1 Use of a Modified Preexposure Prophylaxis Vaccination Schedule to Prevent Human Rabies: Recommendations of the Advisory Committee on Immunization Practices — United States, 2022 | MMWR (cdc.gov)

2 2008 Recommendations of the Advisory Committee Immunization Practices (ACIP) for the prevention of rabies: cdc.gov/mmwr/preview/mmwrhtml/rr5703a1.htm

3 Rabies surveillance in the United States during 2022: https://avmajournals.avma.org/view/journals/javma/262/11/javma.24.05.0354.xml

4 2010 Recommendations of the Advisory Committee Immunization Practices (ACIP) for Use of a Reduced (4-Dose) Vaccine Schedule for Postexposure Prophylaxis to Prevent Human Rabies: Recommendations of the Advisory Committee on Immunization Policies: cdc.gov/mmwr/preview/mmwrhtml/rr5902a1.htm

5 March 19, 2010, CDC Morbidity and Mortality Weekly Report Use of a Reduced (4-dose) Vaccine Schedule for Postexposure prophylaxis to Prevent Human Rabies: cdc.gov/mmwr/preview/mmwrhtml/rr5902a1.htm

6 CDC rabies post-exposure prophylaxis: cdc.gov/rabies/hcp/prevention-recommendations/post-exposure-prophylaxis.html

7 ACIP General Recommendations on Immunization: cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm

8 NJDOH Infectious and Zoonotic Disease Program rabies information: nj.gov/health/cd/topics/rabies.shtml

ACRONYMS

ACIP	Advisory Committee Immunization Practices
HDCV	Human Diploid Cell Vaccine
HRIG	Human Rabies Immune Globulin
IM	Intramuscularly
IU	International Unit
IZDP	Infectious and Zoonotic Disease Program
Kg	Kilogram
LHD	Local Health Department
NJDOH	New Jersey Department of Health
PCEC	Purified Chick Embryo Cell Culture
PEP	Post-Exposure Prophylaxis
RFFIT	Rapid Fluorescent Focus Inhibition Test
RVA	Rabies Vaccine Adsorbed
VAERS	Vaccine Adverse Event Reporting System
WHO	World Health Organization

DECISION-MAKING ALGORITHM – BATS

WHAT IS A BAT EXPOSURE?

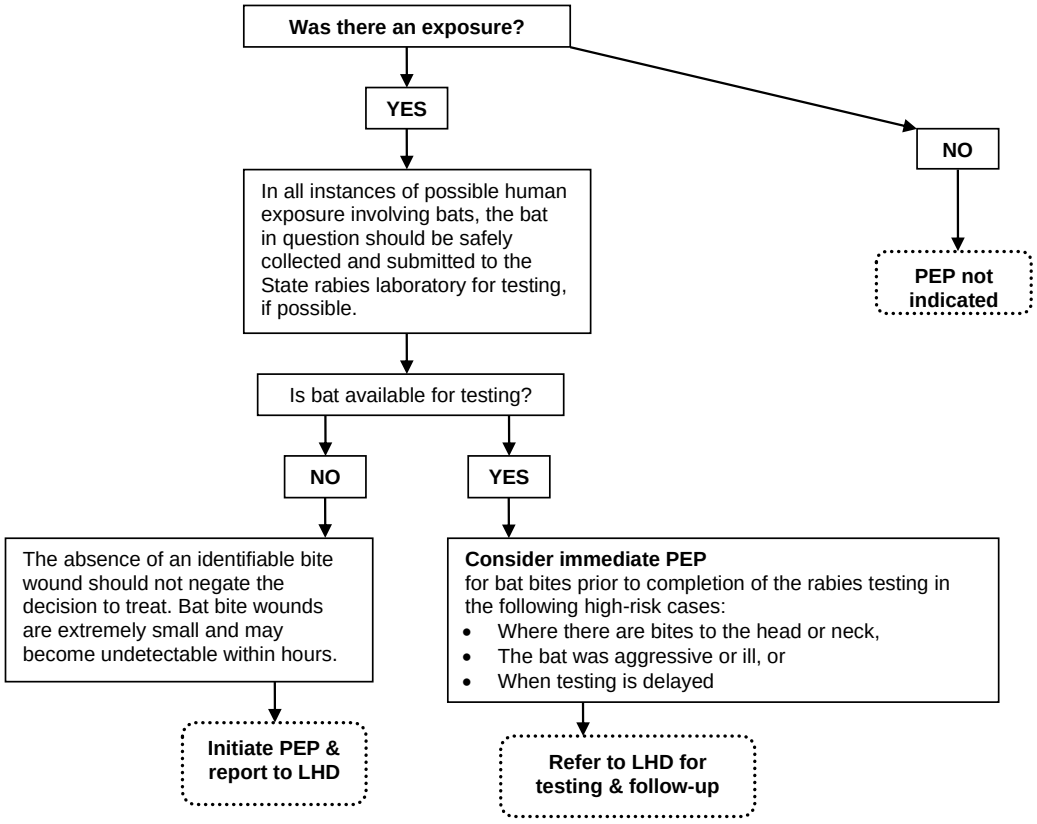
An exposure is a bite (any penetration of the skin by teeth) OR saliva or brain/spinal cord tissue introduced into an open wound, abrasion, or scratch in the skin (those that have bled in the past 24 hours), or into mucous membranes (eyes), from a known or suspect rabid animal. Note: Only mammals carry rabies.

Transmission of rabies virus can occur from minor or unrecognized bites from bats. In all instances of potential human exposures involving bats, the bat in question should be safely collected, if possible, and submitted for rabies testing.

PEP should be considered when direct contact between a human and a rabid bat, or a bat that cannot be tested, has occurred, unless the exposed person can be certain a bite, scratch, or mucous membrane exposure did not occur. Because bat bites may be very small and heal rapidly, they are more difficult to recognize than bites inflicted by larger mammals and PEP may be appropriate in the absence of a demonstrable bite. In instances in which a bat is found indoors and there is no history of bat-human contact, the likely effectiveness of PEP must be balanced against the extremely low risk such exposures present. PEP may be considered for persons who were in the same room as a bat and who might be unaware that a bite or direct contact had occurred (e.g., a sleeping person awakens to find a bat in the room or an adult witnesses a bat in the room with a previously unattended child, mentally disabled person, or intoxicated person) and rabies cannot be ruled out by testing the bat.

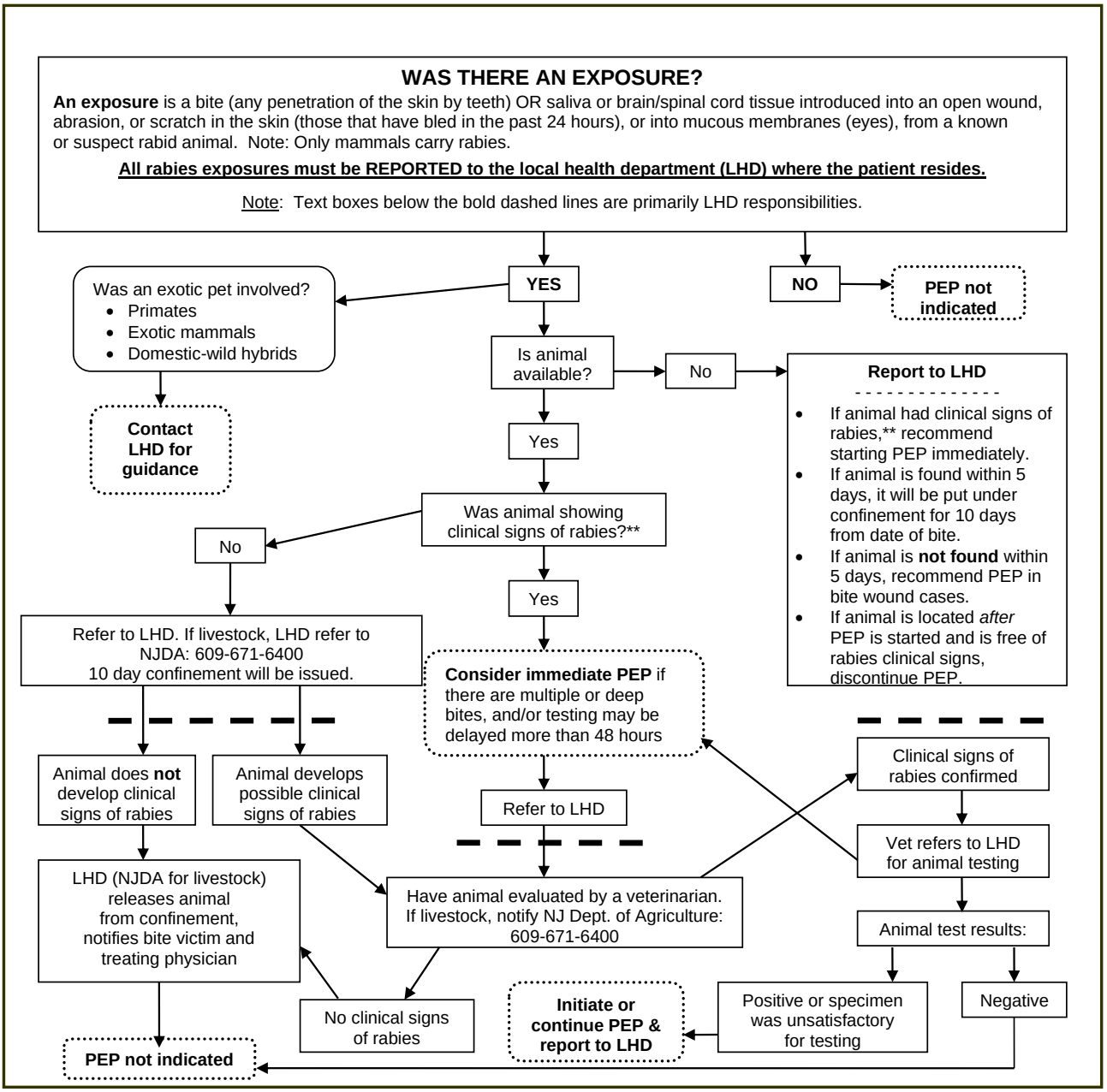
PEP is <u>not</u> recommended for other persons present in the household during the incident.

<u>All rabies exposures must be REPORTED to the local health department where the patient resides.</u>



DECISION-MAKING ALGORITHM – DOMESTIC ANIMALS

Domestic animals are defined as a population of animals that have had their behavior altered as a result of being under human control for many generations and live in close proximity with people (i.e., domesticated). Domestic species include pets (e.g., dogs, cats - including feral/free-roaming cats, ferrets, and caged rabbits and rodents) and livestock (e.g., horses, cattle, sheep, goats and pigs).



** Clinical signs of rabies include bizarre and/or aggressive behavior, such as extreme viciousness that may be expressed by biting tires or other objects. Other clinical signs of rabies include neurologic impairment such as difficulty swallowing, strange vocalization, stumbling, circling, self-mutilation, or paralysis.

DECISION-MAKING ALGORITHM – WILD ANIMALS

not including bats or feral/free-roaming cats