SAN MATEO COUNTY HEALTH
PUBLIC HEALTH, POLICY & PLANNING

Kismet Baldwin-Santana, MD, Health Officer
Tamarra Jones, DrPH, Director

Public Health, Policy & Planning
2000 Alameda de las Pulgas
Suite 240
San Mateo, CA 94403
smchealth.org

HEALTH ADVISORY:

Updated Practice Standard: Rabies Post-Exposure Prophylaxis (PEP)

July 15, 2025

This advisory is intended for emergency medicine, urgent care providers, infectious disease, primary care, internal medicine, family practice, pediatric, and OB/GYN providers. Please distribute as appropriate.

San Mateo County is a rabies endemic area! We need your help to control rabies in our county.

GUIDELINES FOR CLINICIANS:

For unvaccinated persons, the combination of human rabies immune globulin (HRIG) and vaccine is recommended regardless of the time interval between exposure and initiation of PEP. If PEP has been initiated and appropriate laboratory diagnostic testing (i.e., direct fluorescent antibody testing) indicates that the animal that caused the exposure was not rabid, PEP may be discontinued.

VACCINE USE:

- A regimen of **four** 1-mL doses of FDA approved (HDCV or PCECV) vaccine should be administered intramuscularly to previously unvaccinated, immuno-competent individuals.
- The first dose of the 4-dose regimen should be administered as soon as possible but can be initiated at any time after exposure. **The date of the first dose is day 0 of the PEP series. Additional doses should be administered on days 3, 7, and 14 after the first vaccination.**
- Adults should be given the vaccine in the deltoid area; the anterolateral aspect of the thigh is acceptable for children. The **gluteal area should not be used** because administration of vaccine in this area might result in a diminished immunologic response.
- Children should receive the same vaccine dose (i.e., vaccine volume) as adults.
- Previously vaccinated individuals only need 2 vaccine doses on days 0 and 3; HRIG should NOT be given.
- For persons with broadly defined immunosuppression, PEP should be administered using 5 doses of vaccine (on days 0, 3, 7, 14 and 28).

IMMUNE GLOBULIN/HRIG USE:

- HRIG is administered once on day 0 at the time PEP is initiated, in conjunction with human rabies vaccine.
- If HRIG was not administered when vaccination was begun on day 0, it can be administered up to, and including, day 7 of the PEP series.

- HRIG is administered to individuals who have never received a complete pre- or post-exposure regimen.
- HRIG is administered regardless of whether a wound is evident or not. If there is no wound, such as following a bat-in-the-bedroom exposure, then administer the entire dose of HRIG in the quadriceps or deltoids.
- If anatomically feasible, the full dose of HRIG (20 IU/Kg) is infiltrated around and into any wounds.
- Any remaining volume is injected intramuscularly at a site distant from vaccine administration such as the deltoid or the quadriceps (on the same side as the wound and on the opposite side of the rabies vaccine). The gluteal area should not be used.
- **HRIG should not be administered in the same syringe or at the same anatomic site as the first vaccine dose**. However, subsequent doses (i.e., on days 3, 7, and 14) of vaccine in the 4-dose vaccine series can be administered in the same anatomic location in which HRIG was administered.

ANIMAL BITE REPORTING:

Please help the San Mateo County Health Communicable Disease Control Program by filling out an **Animal Bite Report** whenever you provide care to an individual who has been in contact with saliva or brain/nervous system tissue of an animal through a bite, open cut in the skin, or mucous membrane exposure (i.e., mouth or eyes). The form can be found on the Rabies Information for Medical Providers page at http://smchealth.org/providers/rabies. Please fax the completed form to the Peninsula Humane Society and SPCA at 650-685-0102.

BACKGROUND:

Rabies is a preventable zoonotic disease, usually transmitted when the rabies virus is introduced into a bite wound, open cuts in skin or onto mucous membranes. In developed countries, rabies is usually a disease of wild carnivores, with sporadic spillover infection to domestic animals. In 2013, a young dog was surrendered to the San Mateo County Peninsula Humane Society and SPCA for euthanasia because of its aggressive behavior. The animal's brain tested positive for rabies and 8 people received rabies post-exposure prophylaxis (PEP).

Four major animal reservoirs for rabies have been identified in the United States: bats, raccoons, skunks, and foxes. According to the most recent national rabies surveillance data available, in 2022, 54 US states and territories reported 3,579 animal rabies cases, which is a 2.3% decline from the 3,663 cases that were reported in 2021. More than 50% of the reported rabies cases occurred in six states: Texas, Virginia, Pennsylvania, New York, North Carolina, and California. Out of the total reported rabies animal cases, 3,234 (90.4%) were attributed to wildlife, with bats (1,218 [34.0%]), raccoons (1,014 [28.3%]), skunks (660 [18.4%]), and foxes (269 [7.5%]) representing the primary hosts confirmed with rabies. Rabid cats (222 [6.2%]), cattle (42 [1.2%]), and dogs (50 [1.4%]) constituted > 90% of reported domestic animal rabies cases.. According to data from the California Department of Public Health, in 2022, rabies was confirmed in 241 animals, with 189 rabid bats, 40 rabid skunks, 9 rabid foxes, 1 rabid bobcat, 1

rabid domestic cat and 1 rabid domestic dog. In San Mateo County, 2 bats tested positive for rabies. More recently, according to provisional data from the California Department of Public Health, 169 animals tested positive for rabies in 2024: 153 bats, 13 skunks, 2 foxes and 1 cat. None of the animals that were tested in San Mateo County tested positive for rabies.

Since the 1980s, **bat variant rabies viruses have emerged as the dominant source associated with indigenous human deaths in the United States.** Of the 34 naturally acquired bat-associated human cases of rabies in the United States between 1990 and 2007, 8 reported confirmed or probable bat bite, 15 reported physical contact with a bat but no bite was documented and 11 did not report a bat encounter. Bats were the most frequently reported rabid animal in California in 2020 as they have been each year since 2000. During the last 20 years bats have accounted for 62 to 95 percent of all rabid animals identified in California. According to the data from California Department of Public Health, 1,190 rabid bats were identified in California from 2015 to 2020, with 16 rabid bats identified in San Mateo County during that time period. Bats are considered a high-risk species as they can harbor and transmit the rabies virus, often without people even knowing they were exposed. Bite marks from bats are very small and often go unnoticed. Individuals who find a bat in their room when they awake or see a bat in the room of an unattended child, mentally impaired or intoxicated person, should seek medical advice and have the bat tested, if possible, even in the absence of an obvious bite wound. Many local bat species are small and can inflict tiny bites that heal quickly. Such small bites can still transmit rabies. Therefore, never assume that the lack of a visible bite wound rules out a bat bite. It is crucial that any bats found indoors in a home, or in areas where people or pets could have had contact or were sleeping, are not discarded, or released. This includes bats that could have been around children or individuals with disabilities. Any bat in this scenario should be reported to the Peninsula Humane Society at 650-340-7022 so the bat can be retrieved and tested for rabies. If the bat is released or discarded, the opportunity to test it is lost. Patients who develop bat-associated rabies usually present with **atypical features**, including neuropathic pain, sensory or motor deficits, choreiform movements of the bitten limb, cranial nerve palsies, myoclonus, and seizures.

After entry to the central nervous system, rabies causes an **acute, progressive encephalomyelitis**. The incubation period usually ranges from 1 to 3 months after exposure but can range from days to years. Rabies is associated with the highest case fatality rate of any infectious disease, and there is no proven effective medical treatment after the development of clinical signs. Patients who don't receive prophylaxis prior to the onset of clinical symptoms usually do not survive

From 2009 to 2018, 25 cases of human rabies were documented in the US, seven of which were contracted outside of the U.S. There were 5 human rabies deaths in 2021. While one victim was bitten by a dog in the Philippines and developed rabies after returning to the US, the other 4 cases involved an exposure to bats. In the past 50 years (from 1972 to 2023), 19 cases of rabies were identified in California residents. Three of these cases were diagnosed between

2007 and 2020, the most recent of which occurred in a Contra Costa County resident in 2012. More recently, in 2024, a Fresno County resident died from rabies after being bitten by a presumably rabid bat in Merced County.

Rabies can be prevented by avoidance of exposure to the virus and initiation of prompt medical intervention when exposure does occur. In a recent study in the United States, approximately 23,000 persons per year were estimated to have been exposed to potentially rabid animals and received rabies post-exposure prophylaxis (PEP). **Prompt wound care and the administration of human rabies immune globulin (HRIG) and vaccine are highly effective in preventing human rabies following exposure.** According to the CDC, PEP is known to be universally effective in preventing rabies when administered promptly and appropriately following an exposure. Of the >59,000 persons who die annually of rabies worldwide, the majority either did not receive any PEP, received some form of PEP (usually without HRIG) after substantial delays, or were administered PEP according to schedules that deviated substantially from current recommendations. In the United States, there has been an average of three fatal human cases per year since 1980. **While it is preferable to initiate PEP as soon as possible after an exposure, PEP should be administered after a documented or likely exposure regardless of the length of delay, provided that compatible clinical signs of rabies are not present in the exposed person.**

ADDITIONAL RESOURCES:

If you have questions or need more information regarding rabies, management of animal bites or reporting in general, please call **650-573-2346** during normal business hours and 650-363-4981 for after-hours emergencies.

For more detailed information about rabies and prevention of rabies, please visit the following:

- CDC Rabies webpage
- CDC Preventing Rabies from Bats
- CDC ACIP Recommendations
- CDPH Rabies Surveillance and Prevention webpage
- CDPH Veterinary Public Health Section Reported Animal Rabies Data
- Journal of the American Veterinary Medical Association Rabies surveillance in the United States during 2022
- CDC MMWR Use of a reduced (4-dose) vaccine schedule for post exposure prophylaxis to prevent human rabies – recommendations of the Advisory Committee on Immunization Practices
- CDC MMWR Notes from the Field: Three Human Rabies Deaths Attributed to Bat Exposures – United States, August 2021
- Demise of the Milwaukee Protocol for Rabies

The Communicable Disease Control Program is available to help meet the reporting needs of, and answer questions for, San Mateo County providers. To report a disease or outbreak, please call 650-573-2346, Monday through Friday, 8:00 am to 5:00

pm, or fax a Confidential Morbidity Report (CMR) to 650-573-2919. You may download an electronic copy of the CMR at smchealth.org/cmr. Web-based reporting via CalREDIE is also available. Please contact us if you would like to know more about, and sign up for, web-based reporting. Non-urgent questions and/or general inquiries may be directed to SMCCDControl@smcgov.org.

Categories of urgency levels:
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.
Health Update: provides information regarding an incident or situation; unlikely to require immediate attention.