

Medical Standard: Rabies Vaccine

BACKGROUND

Rabies is a rare viral central nervous system infection most often transmitted to humans through the bite of an infected mammal. Transmission of rabies from salivary contamination of scratches, broken skin or the mucous membranes without a bite is rare. Rabies occurs worldwide, a map of the areas where rabies transmission occurs is available from the World Health Organization (WHO) website: [Rabies countries or areas at risk](#).

The US Centers for Disease Control (CDC) and Prevention, Public Health Agency of Canada (PHAC) recommend rabies vaccine for specific groups at increased risk of acquiring rabies. These groups include the following: (1) Travellers involved in outdoor and other activities in remote areas that put them at risk of animal bites (such as adventure travel and caving). (2) People who will be working with or around animals (such as veterinarians, wildlife professionals, and researchers). (3) People who are taking long trips or moving to remote areas.

GUIDANCE AND SCOPE

This Standard is a component of the Occupational Health Management System and Post exposure management as outlined in the Occupational Health Policy. Where available, rabies immunization should be offered to workers at high risk of occupational exposure to potentially rabid animals or the rabies virus. Rabies immunization and human rabies immune globulin (HRIG) will be offered to workers post-exposure.

Pre-exposure vaccination:

Pre-exposure immunization for high-risk persons produces rabies neutralizing antibodies. Pre-exposure vaccination should be offered to people at high risk of close contact with rabid animals or the rabies virus (e.g., people with occupational exposure to animals; laboratory workers handling the rabies virus; certain travellers; trappers in areas with confirmed rabies).

1. Three [rabies vaccine](#) doses of 1.0 mL intramuscular (IM) or 0.1 mL intradermal (ID) doses given on days 0, 7 and any time between days 21 to 28. Rabies vaccine must never be given into the gluteal muscle due to the risk of a decreased immune response.
2. Post vaccination serology should be obtained every 2 years. A booster dose of rabies vaccine should be given if antibody levels no longer show protection.

POST EXPOSURE FOLLOW-UP

Post-exposure prophylaxis (PEP)

Post-exposure prophylaxis is highly effective in preventing rabies. Post-exposure rabies prophylaxis is recommended when:

- There has been direct contact with a bat, **AND** a bite, scratch, or saliva exposure into a wound or mucous membrane cannot be ruled out.
- If other potentially infectious material is introduced into fresh, open cuts in skin or onto mucous membranes.

Not previously immunized:

For people who have never been vaccinated against rabies previously, post exposure prophylaxis (PEP) should always include administration of both HRIG and rabies vaccine. The combination of HRIG and



vaccine is recommended for both bite and non-bite exposures, regardless of the interval between exposure and initiation of treatment.

1. 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.
2. [human rabies immune globulin \(HRIG\)](#) (20 IU/kg body weight) given on day 0
3. Four [rabies vaccine](#) doses of 1.0 mL intramuscular (IM) given on days 0, 3, 7 and 14
4. A fifth dose of vaccine may be recommended on day 28 in those who are immunocompromised.
5. Post vaccination serology should be obtained every 2 years. A booster dose of rabies vaccine should be given if antibody levels no longer show protection.

Previously immunized:

Rabies immunoglobulin should not be given to persons who have previously received appropriate rabies vaccinations. Vaccination schedules for post-exposure prophylaxis should be adhered to as closely as possible; it is essential that all doses be received. Post-vaccination serology is recommended: after pre-exposure immunization using the ID route; following immunization of immunocompromised individuals or people taking chloroquine; or if there has been a significant deviation from the recommended vaccination schedule.

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2. [rabies vaccine](#) 1.0 mL IM doses given on days 0 and 3
3. Post vaccination serology should be obtained every 2 years. A booster dose of rabies vaccine should be given if antibody levels no longer show protection.

DEFINITIONS:

Exposure: Rabies is transmitted only when the virus is introduced into a bite wound, open cuts in skin, or onto mucous membranes such as the mouth or eyes. Transmission of rabies occurs most commonly through bites.

Bat exposure: Direct contact with a bat is defined as a bat touching or landing on a person. In an adult, a bat landing on clothing would be considered reason for intervention only if a bite, scratch or saliva exposure into a wound or mucous membrane cannot be ruled out. When there is no direct contact with a bat, rabies post-exposure prophylaxis is not recommended.

Intramuscular: Situated or taking place within, or administered into, a muscle. An intramuscular (IM) medication is given by needle into the muscle.

Intradermal: Situated, occurring, or done within or between the layers of the skin. An intradermal injection involves the injection of an amount of fluid into the dermis.

REFERENCES:

https://www.cdc.gov/rabies/medical_care/index.html
[Rabies vaccine: Canadian Immunization Guide](#)
[WHO Rabies countries or areas at risk](#)
<https://www.moh.gov.sa/en/HealthAwareness/EducationalContent/Diseases/Infectious/Pages/002.aspx>
<http://wwwnc.cdc.gov/travel/destinations/traveler/none/saudi-arabia>
<https://www.moh.gov.sa/en/HealthAwareness/EducationalContent/Diseases/Infectious/Pages/002.aspx>
<https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/rabies-virus.html>