



Health and  
Wellness

# Prince Edward Island Guidelines for the Management of Possible Rabies Exposure

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**Department of Health and Wellness**  
**Chief Public Health Office**



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## **I INTRODUCTION**

The purpose of these guidelines is to prevent a case of human rabies by standardizing animal bite investigation follow-up and rabies post-exposure protocols in the province. These guidelines were adapted with permission from Alberta Health: Rabies Post-exposure Prophylaxis Guidelines.

This document provides information on rabies epidemiology in the province of PEI, as well as guidelines on:

- risk assessment,
- management of animals involved in biting incidents, and
- management of individuals following possible exposure to rabies.

## II POST-EXPOSURE RABIES MANAGEMENT IN PEI

The Department of Health & Wellness, Chief Public Health Office plays a leadership role in the prevention of human rabies. Exposure of a person to an animal suspected or known to be infected with rabies is a reportable event within one hour to the Chief Public Health Office in accordance with the *Public Health Act* (Sections 33, 34 and 36) and the [Notifiable Diseases and Conditions and Communicable Diseases Regulations](#) (Section 9.2). This ensures appropriate steps are taken to locate the animal, arrange for an observation period or testing, and make appropriate and timely decisions regarding post-exposure prophylaxis.

The Chief Public Health Office coordinates the management of rabies exposure by:

- investigating all incidents of animal bites/exposures which have the potential to transmit rabies to humans,
- assessing rabies risk,
- deciding on action required,
- ensuring that the animal is observed and/or tested (based on risk assessment),
- authorizing the release of Rabies Immune Globulin (RIG) and vaccine for a client if required (by the Chief Public Health Officer or designate),
- arranging for client follow-up and the administration of RIG and vaccine if required, and
- ensuring completion of the Rabies Control: Animal Bite Incident Form.

Other individuals or agencies with roles/responsibilities in the management of rabies exposure in PEI include:

### **Environmental Health and Public Health Nursing**

An Environmental Health Officer (EHO) in Environmental Health Services of the Chief Public Health Office or a Public Health Nurse (PHN) with Health PEI may directly receive a report of a possible human exposure to rabies and will initiate the appropriate follow-up. The EHO is responsible for making contact with the animal owner and possibly the person exposed. If the exposure is to a wild or stray animal, the EHO will coordinate locating and potentially trapping the animal. Subsequent decisions around post-exposure prophylaxis will be made in consultation with the CPHO. Public Health Nurses are responsible for referring information collected on an animal immediately to the Chief Public Health Office to allow for timely assessment and follow-up. PHN are also responsible for administering post-exposure prophylaxis, including rabies vaccinations, to those offered the treatment under the direction of the CPHO and the Coordinator for Vaccine Preventable Disease and Immunization programs.

## **PEI Humane Society**

The PEI Humane Society is the Island's only Shelter for homeless, injured, lost, and abused companion animals. They also enforce animal control bylaws in a number of municipalities including Charlottetown, Cornwall and Stratford. When an observation period is required for a stray or surrendered animal, the Humane Society provides a location for the animal to be held and cared for. The staff veterinarian provides an assessment of the animal upon arrival and following the observation period.

## **Communities, Land and Environment (Forests, Fish & Wildlife Division)**

The assistance of a wildlife technician may be required in cases involving human exposure to a wild animal. The wildlife technician may provide assistance with trapping and/or euthanizing a wild animal that must be submitted for rabies testing.

## **Department of Agriculture & Fisheries (Policy and Regulatory Division)**

In cases where a human has been exposed to a bite or salivary contamination from livestock such as a horse, cow or swine, the Director of Policy and Regulatory division must be notified. The director coordinates follow-up with respect to the animal, which may include a veterinary assessment and/or confinement and observation of the animal on the farm as per the *Recommendations of the Canadian Council of Chief Veterinary Officers Subcommittee for the Management of Potential Domestic Animal Exposures*.

## **Canadian Wildlife Health Cooperative (CWHC)**

The CWHC coordinates Canada's national wildlife health surveillance program and provides educational programs, information and consultation to both government and non-government agencies, as well as to the public. The purpose of the CWHC is to apply the veterinary medical sciences to wildlife conservation and management in Canada. A memorandum of understanding exists between the Chief Public Health Office and the CWHC with respect to preparation of an animal that must be sent for rabies testing. Preparation and shipment of the sample are the responsibility of the CWHC.

## **Canadian Food Inspection Agency (CFIA)**

The Canadian Food Inspection Agency Laboratory in Ottawa accepts animal specimens for rabies testing. As noted above, the CWHC under agreement with the Chief Public Health Office is responsible for preparation and shipment of a specimen to the CFIA laboratory.

### **III EPIDEMIOLOGY**

#### **Reservoir**

Rabies is a viral disease of both domestic and wild mammals. In Canada, it is most commonly associated with wild and domestic animals including foxes, dogs, coyotes, wolves, ferrets, skunks, raccoons, cats and bats. Rabbits, hamsters, guinea pigs, gerbils, squirrels, chipmunks, rats and mice are rarely infected.

#### **Transmission and Risk Factors**

Rabies is transmitted to humans when the virus in the saliva of an infected animal enters through a bite, scratch, broken skin, the mucous membranes or the respiratory tract. The virus then gains access to the central nervous system through peripheral nerves. Transmission has also been reported following organ transplants from undiagnosed infected persons. Corneal transplants are the most common non-bite exposures leading to human rabies.

People who work in close contact with animals, such as veterinarians and veterinary staff, animal control and wildlife workers, and laboratory workers who handle the rabies virus are at higher risk for exposure to rabies. Other people at risk include hunters and trappers who come in contact with potentially rabid animals like foxes, skunks and raccoons. Pre-exposure prophylaxis with rabies vaccine is recommended for those individuals who work closely with wildlife and other animals and should be considered as part of the workplace occupational health and safety procedures.

Children are considered at higher risk for exposure to rabies because they often play with animals and are less likely to report bites or scratches. Additionally, bites in children are usually higher on the trunk or face, and are often more severe.

#### **Incubation Period**

The incubation period in humans is usually 3-8 weeks but may vary from several days to years. The incubation period is dependent on the severity of the wound, site of the wound in relation to the richness of the nerve supply, distance from the brain, the amount and strain of virus introduced, if protective clothing was worn, and the age and immune status of person exposed.

Dogs and cats are infectious 3-5 days before the onset of clinical disease and throughout the course of the disease. Some wild animals may shed virus for 8-12 days before the onset of clinical signs and up to 18 days following. Bats shed virus for approximately 12-14 days before clinical signs appear.

## Clinical Illness

Rabies is an almost always fatal viral infection of the central nervous system. Early symptoms of rabies in humans may include headache, malaise, fever and fatigue. There may be discomfort or pain at the exposure site (i.e. the site where the person was bitten). Symptoms progress quickly as the central nervous system is attacked, and the illness generally presents in one of two ways. The more common, agitated (furious) form presents with the symptoms of hydrophobia and aerophobia (severe laryngeal or diaphragmatic spasms and a sensation of choking when attempting to drink or when air is blown in the face) with a rapidly progressing encephalitis and death. The paralytic form of the disease manifests in progressive flaccid paralysis and is more difficult to diagnose.

## Global and National Occurrence of Human and Animal Rabies<sup>1</sup>

Rabies occurs worldwide, however most deaths occur in Asia and Africa. In Canada, human rabies occurs very rarely. According to the Canadian Immunization Guide (7<sup>th</sup> Edition), between 1924 and 2009, 24 people in six provinces died of rabies (Table 1).

**Table 1: The Number of deaths from rabies in Canada between 1924 and 2009**

	QC	ON	SK	AB	BC	NS
Number of Deaths	12	6	2	2	1	1

The three most recent human cases in Canada were bat-related. The cases occurred in Quebec in 2000, British Columbia in 2003 and Alberta in 2007. Between 1990 and September 2007, 36 bat-related human rabies cases were identified in Canada (3 cases) and the US (33 cases).

Between 2006 and 2010, a total of 1,005 cases of confirmed animal rabies were reported in Canada. The majority of these cases occurred in Ontario (35%), Manitoba (22%), Quebec (16%) and Saskatchewan (13%). North West Territories had 66 cases (6.5%), British Columbia 54 cases (5%), and Alberta 11 (1%). Nova Scotia reported 3 cases, New Brunswick 2 cases and PEI 1 case (see Occurrence in Prince Edward Island for other cases reported in PEI prior to 2006). The Yukon and Newfoundland/Labrador had no reported cases of animal rabies.

Over the same time period (2006 to 2010), skunks accounted for 37% of confirmed rabies cases, followed by bats (33%), raccoons (9%) and foxes (6%). Dogs accounted for 4% and cats accounted for 2% of animal rabies cases. The species most commonly identified as having rabies by region, based on total numbers of positive test results, were as follows: foxes in the

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<sup>1</sup>Public Health Agency of Canada: Canadian Immunization Guide (7<sup>th</sup> Edition)

Northwest Territories/Nunavut (70%), skunks in Manitoba (75%) and Saskatchewan (70%), and bats in British Columbia (99%), Alberta (81%), Quebec (70% since 2008 when raccoon rabies was last detected) and Ontario (56%).

### **Occurrence in Prince Edward Island**

There have been no documented cases of human rabies in PEI. However, five animals have tested positive for rabies in the province. Three were foxes found to have bat rabies in the early 1990's in the Summerside area. A cat from Mount Stewart was found to have bat rabies in 2004. A bat from the Mermaid area was found positive for rabies in 2009.

Although bat rabies was found in only two species of wild animals, the fox and the bat, there is concern about most species of wild animals being susceptible to rabies including skunks, raccoons, coyotes, beavers and muskrats. Of concern to Fish and Wildlife Officials is the potential for species such as raccoons to “hitchhike” on transport trucks or other conveyances and import rabies unintentionally into the province.

## **IV RISK ASSESSMENT**

The Chief Public Health Office investigates and assesses every report of human exposure to a potentially rabid animal. Post-exposure prophylaxis is always considered where the exposure was to a wild animal or an animal at risk of being exposed to the rabies virus. Less intrusive means are considered in the instance of human exposure to animals that are unlikely to have rabies. The need to confine or euthanize suspect animals as well as the need for human rabies post-exposure prophylaxis, is based on an evaluation of the following risk factors, which are described in greater detail in this section:

- A. The type of animal (wild animal versus domestic animal or livestock), including the risk of rabies in the animal species involved.
- B. The nature of the exposure (including severity and location of the wound).
- C. The circumstances of the exposure and the behavior of the animal (provoked or unprovoked attack) at the time of the exposure.
- D. The availability of the animal for observation and/or laboratory testing of the animal brain.
- E. Clinical signs of rabies displayed by the animal prior to the human exposure.

### **A. Type of Animal (Wild Animal versus domestic Animal or Livestock)**

Determine first whether the animal is a “domestic animal” (e.g. dog, cat or livestock) or a “wild animal”. The “wild animal” category for this purpose includes stray dogs/cats, wild animals and exotic animals. The species of animal and the risk of rabies transmission in the species need to be considered. The following recommendations apply to exposures in PEI:

#### **A.1 Domestic Dogs/Cats**

- Assess whether the animal is clinically normal and still eating/drinking, etc. This assessment can be done through discussion with the owner by phone. Even if the animal appears to be well, a ten day observation period is still recommended.
- If the owner reports the animal was experiencing signs of illness prior to, or at the time of the exposure, the EHO should contact the PEI Humane Society or a private veterinary clinic to make arrangements for evaluation by a veterinarian. If rabies is identified in the veterinarian’s differential diagnosis and a decision is made to euthanize the animal, it should be tested for rabies and the Chief Public Health Officer notified.

- If the animal is not available for observation, post-exposure prophylaxis may be offered to the client, depending on the circumstances and discussion with the Chief Public Health Officer.
- If the animal is not available for observation but is available for testing, the Chief Public Health Officer will determine if post-exposure prophylaxis should be offered to the client in addition to having the animal tested for rabies. This precautionary measure would be discontinued if the results of the testing are negative.
- An animal with a history of up-to-date rabies vaccinations reduces but does not completely eliminate risk. The vaccination history by itself should not influence the need for prophylaxis or euthanizing the animal for testing.

## **A.2 Wild Animals, Exotic Animals, Stray Dogs/Cats and Other Domestic Animals**

Any biting incident involving a wild animal (other than a stray dog/cat or bat) and a human must be reported to the Forests, Fish & Wildlife Division of the Department of Communities, Land and Environment. Decisions going forward will be made in consultation with Fish & Wildlife officials.

- All wild animal bites (foxes, raccoons, skunks, bats, etc.) are of concern. If the wild animal is captured, it should be euthanized and a specimen sent for testing. If the animal in question is a bat, it should be safely collected and the entire bat submitted for rabies testing.
- For all biting incidents involving wild animals, post-exposure prophylaxis may be started pending animal laboratory results, which typically takes 72 hours.
- Exotic animals in captivity should be treated as wild animals in terms of risk but may be confined and observed depending on the animal and the circumstances. Risk assessment should include an examination by a veterinarian. Euthanasia and testing should be done if rabies is part of the veterinarian's differential diagnosis.
- Stray dogs and cats should be located and assessed. If they are clinically normal and the suspicion of rabies is low, they should be held and observed at the PEI Humane Society for ten days. If this is not feasible, they should be euthanized and a specimen submitted for rabies testing.

- Human exposures to domestic livestock include exposure to salivary contamination and/or biting incidents. The Director of Policy and Regulatory Division (Department of Agriculture & Fisheries) must be contacted for follow-up of the animal. Follow-up may include a clinical assessment and/or confinement and observation of the animal on the farm.
- Rabies in both wild and domestic hamsters, guinea-pigs, gerbils, rats, mice and rabbits is rare in Canada. Post-exposure prophylaxis should be considered only if the animal's behaviour was highly unusual.

## **B. Nature of 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. Three categories of exposure can be considered: bite exposures, non-bite exposures and bat exposures.

### **B.1 Bite Exposure**

- Rabies is most commonly transmitted through bites (any penetration of the skin by teeth). Bites inflicted by most animals are readily apparent with the exception of bats. Bites inflicted by bats may not be felt and may leave no obvious bite marks.
- The severity of the wound, the site of the wound in relation to the richness of the nerve supply, and its distance from the brain are factors in the potential transmission of the virus. Bites to the head, neck and arms are most likely to lead to transmission.
- When a clinically normal domestic dog/cat has inflicted a bite to the face or neck, the animal should be held for the normal ten day observation period and consideration should be given to starting post-exposure prophylaxis immediately. Prophylaxis can be discontinued if the animal is healthy after the ten-day observation period.

### **B.2 Non-Bite Exposure**

- Post-exposure prophylaxis is not recommended unless the non-bite exposure involves saliva or neural tissue being introduced into fresh open cuts or scratches in skin or onto mucous membranes.

- The risk assessment should consider the likelihood of saliva contamination (e.g. did the animal lick the wound?), the prevalence of rabies in Prince Edward Island, the species involved (domestic or stray dog or cat, wild animal or bat) and the circumstances of the exposure (e.g. provoked or unprovoked, the behaviour of a domestic animal).
- Contact by itself, such as petting a rabid animal or handling its blood, urine or feces does not constitute an exposure.

### **B.3 Bat Exposure**

- When there is no direct contact with a bat, the risk of rabies is extremely rare and post-exposure prophylaxis is not recommended. With respect to an adult, a bat landing on clothing would be considered reason for concern only if a bite, scratch or saliva exposure into a wound or mucous membrane cannot be ruled out. In a child or an adult who is unable to give a reliable history, a bat landing on clothing could be considered a reason for concern, as exposure information given may not be reliable.
- When a bat is found in the room with a child or an adult who is unable to give a reliable history, assessment of direct contact may be difficult. Factors indicating that direct contact may have occurred include the individual waking up crying or upset while the bat was in the room or observation of a bite or scratch mark.

### **C. Circumstances of the Exposure (and Behavior of Animal at Time of Bite)**

The behavior of the animal in relation to the human behavior (provoked attack or unprovoked attack) at the time of the bite should be considered. This is a key decision in assessing risk when pet dogs or cats are involved. An unprovoked attack by an animal is more likely than a provoked attack to indicate that the animal is rabid.

- an unprovoked attack is one where the person did not surprise, antagonize or threaten the animal or enter its territory,
- a provoked attack is one where the human did something to “provoke” the animal (even if the action was unintentional) and the attack would be the animal’s normal response to such a human action. Examples of such human actions could include:
  - attempting to corner or trap an animal,

- entering an area that the animal considers its territory (dog in a yard) or approaching an animal's litter,
  - Coming too close to an injured animal,
  - intervening in a fight between two animals,
  - picking up an animal and attempting to take it elsewhere,
  - petting an unfamiliar animal,
  - interfering with an animal's food,
  - interfering/wrestling with an animal's owner.
- Additional factors that should be considered in determining the risk of rabies transmission from a domestic animal exposure include:
    - the health of the animal at the time of the human exposure,
    - the animal's vaccination status,
    - any history of aggression or abnormal behavior of the animal,
    - potential for previous exposure of the animal to a wild animal (including a bat, raccoon, fox, etc.).
  - Wild animal behavior is difficult to accurately assess and therefore should not be considered part of the risk assessment.

## **D. Availability of the Animal for Observation and/or Laboratory Testing<sup>2</sup>**

### **D.1 Animal is Available for Observation**

- Efforts should be made to locate domestic dogs and cats. Observation of a domestic dog/cat may eliminate the need for post-exposure prophylaxis and unnecessary laboratory testing of the animal for rabies, requiring euthanasia.
- Stray dogs/cats should be located, and if clinically normal and the suspicion of rabies is low, be held and observed in a secure facility, such as the PEI Humane Society, for ten days if feasible.

### **D.2 Animal Specimen Available for Laboratory Testing**

- If the animal is not available for observation but a specimen is available, the CPHO will make the appropriate arrangements for rabies testing.

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<sup>2</sup>Also refer to Section V: Management of Animals Involved in Biting Incidents

### **D.3 Animal not Available for Observation or Laboratory Testing**

- If the animal is not available for observation and/or testing, post-exposure prophylaxis is recommended for exposure from:
  - wild animals (except small rodents),
  - stray dogs and cats,
  - domestic (pet) dogs and cats in certain circumstances.
- Post-exposure prophylaxis may be discussed with the client and offered for any other exposure where the Chief Public Health Officer deems appropriate.

### **E. Clinical Signs of Rabies Displayed by the Animal**

- Signs of rabies cannot be reliably interpreted in wild animals.
- An unprovoked attack is more likely to indicate that the animal is rabid. Rabid cats and dogs may, however, become uncharacteristically quiet.
- If an animal is suspected to be rabid, arrangements for an assessment should be made by a veterinarian or the PEI Humane Society. If the veterinarian's differential diagnosis suggests rabies, a decision must be made to complete the remainder of the observation period or immediately euthanize the animal and send for rabies testing.
- The overall period from onset of clinical symptoms to death rarely exceeds ten days in dogs and cats. In the earlier stages, a common factor is that the animal undergoes a change of temperament so that a normally friendly animal may become hostile and seek to avoid his owner's company; whereas timid, shy animals may become less restrained and unnaturally approachable.

## **V MANAGEMENT OF ANIMALS INVOLVED IN BITING INCIDENTS**

Exposure of a person to an animal suspected or known to be infected with rabies is a reportable event and must be reported to the Chief Public Health Office as per the *Public Health Act* and Regulations. Where necessary, the Chief Public Health Officer or designate, in consultation with a provincially licensed veterinarian, will arrange for the animal to be observed or euthanized and tested as deemed appropriate in this document.

Efforts to locate animals such as dogs and cats should be made when possible. The responsibility for locating, trapping and transporting of animals involved in a biting incident may be coordinated by the Chief Public Health Office. At the request of the Chief Public Health Officer, assistance may be provided by a wildlife technician (Department of Communities, Land and Environment) or an animal protection officer (PEI Humane Society).

The following recommendations apply to the management of animals involved in biting incidents:

### **A. Observation of Animals**

Healthy domestic (non-stray) dogs and cats, and where possible, clinically normal strays should not be euthanized before a ten-day observation period unless authorization by the Chief Public Health Officer is given.

If the owner of a domestic dog/cat refuses to responsibly observe the animal, the Chief Public Health Officer can issue an order for the animal to be observed in a secure location (to be determined based on logistics).

If the owner is unable to observe the animal, arrangements can be made for the confinement and observation of the animal at the PEI Humane Society. The owner may be given the choice to surrender the animal (release all rights of ownership) or to release the animal into the care of the Humane Society until the observation period has been satisfied and the animal is deemed safe to return to the owner's home.

If the owner wishes for the animal to be euthanized prior to the completion of an observation period, the Chief Public Health Officer will determine if the animal should be tested to rule out rabies and if post-exposure prophylaxis should be offered to the client.

An owner observing an animal at home should be instructed to contact the EHO at the first sign of illness in the animal during the observation period or if the animal escapes during the

observation period. Arrangements will be made with the owner to have the animal examined by a veterinarian. If clinical signs suggestive of rabies are confirmed, the animal should be euthanized and submitted for testing and consideration given to offering the client post-exposure prophylaxis.

If the animal remains clinically normal throughout the ten day period, human rabies exposure can be ruled out.

An examination by a veterinarian is preferred over an observation period for livestock such as horses, cattle and swine which have unknown incubation periods. The Chief Public Health Office will consult with the Director of Policy and Regulatory Division (Department of Agriculture & Fisheries) to coordinate with a provincially licensed veterinarian to determine if an assessment or observation is appropriate.

Signs of rabies cannot be reliably interpreted in wild animals therefore an observation period is not recommended. As previously noted, if the wild animal (including a bat) is captured, it should be euthanized and a specimen sent for testing.

## **B. Laboratory Testing of Animals**

Rabies diagnosis is based on the observation that, in all mammals, the rabies virus reaches the salivary glands and is excreted in saliva only after replication in the central nervous system. Absence of the rabies virus antigen in the brain of the animal essentially precludes the presence of virus in saliva, the risk for rabies transmission, and the need for post-exposure prophylaxis. Clinical signs leading to a suspicion of rabies occur only after substantial virus replication. At that time, most tests for rabies reveal considerable amounts of viral antigen in all areas of the brain.

The Fluorescent Antibody Test (FAT) is recommended today as the “gold standard” test for rabies diagnosis by the World Health Organization (WHO) and the World Organization for Animal Health (OIE). The Rabies FAT provides a reliable diagnosis in 98–100% of submissions for all rabies virus strains if a potent conjugate is used (OIE Terrestrial Health Manual 2011).

Currently, CFIA conducts rabies diagnostic testing at two locations: Ottawa Laboratory Fallowfield (OLF) and Lethbridge Laboratory in Alberta.

The turn-around time for the FAT on fresh tissue is 72 hours, and 10 days for the immunohistochemistry Test on formalin-fixed tissue after receipt of the sample at the

laboratory. Delays may be experienced if the sample is frozen, because it must be completely thawed before testing can begin.

If an animal has already been euthanized and cremated, there is no further opportunity for testing. If an animal has been euthanized and buried, a decision may be made to exhume the animal and submit the remains for testing.

## **VI MANAGEMENT OF INDIVIDUALS FOLLOWING POSSIBLE EXPOSURE**

Rabies post-exposure prophylaxis must be considered in every incident in which potential exposure to the rabies virus has occurred. In evaluating each case, The Chief Public Health Officer must be consulted. Rabies in humans can be prevented by providing exposed persons with prompt local treatment of wounds combined with appropriate passive and active immunization.

### **A. Local Treatment of Wounds**

Immediate and thorough cleaning of all wounds is one of the most important aspects of rabies prevention. Wounds should be thoroughly washed and flushed with running water and then with an antiseptic.

At the time medical attention is sought, if the wound is caused by a known rabid or highly suspect rabid animal, suturing of the wound should not be done. Rabies Immune Globulin should be infiltrated in the area around and into the wound by a qualified physician (e.g. emergency physician). If suturing is unavoidable, it should be done after local infiltration of RIG. If at the time medical attention is sought the animal is being held for observation to rule out rabies, suturing can proceed.

Tetanus immunization should be given as indicated and an assessment by a physician/nurse practitioner regarding measures to control bacterial infection (antibiotic therapy).

### **B. Immunizing Agents**

There are two types of immunizing agents:

1. Rabies vaccine, Human Diploid Cell Vaccine (HDCV), available in one ml vials, contains inactivated virus and induces an active immune response beginning in seven to ten days and persisting for at least one year.
2. Rabies Immune Globulin, available in 300 IU/ 2 ml vials, provides rapid protection that persists for only a short period of time (half-life is about 21 days).

### **C. Post-Exposure Prophylaxis**

When post-exposure rabies prophylaxis is recommended:

1. Determine the immunization status of the person; (Immunization or post-exposure prophylaxis started in another country requires individual assessment and consultation with the CPHO as necessary).

2. RIG should always be administered before suturing as above in section A;
3. The consent for immunization and its timing should be discussed with the client;
4. Determine the client's willingness and commitment to accept and complete rabies post-exposure prophylaxis;
5. Plan the immunization schedule with the client and confirm the location where the remaining doses will be given;
6. Rabies vaccine and RIG should be administered concurrently for optimum post-exposure prophylaxis, except in certain previously immunized persons (see below);
7. For the initiation of the immunization, ensure that one deltoid is available for the first dose of rabies vaccine;
8. If at any time post-exposure prophylaxis is initiated while awaiting a rabies test result on the animal, discontinue the vaccine if the result is negative.

Note that pregnancy is not a contraindication to post-exposure prophylaxis. Also, if the person needs to complete a post-exposure series outside the province of PEI, arrangements with the outside province will be coordinated by the Chief Public Health Officer or designate.

**Table 2: Post-exposure Prophylaxis for Persons Potentially Exposed to Rabies, by Animal Type**

Animal Species	Condition of Animal at Time of Exposure	Case Management
<b>Dog or cat</b>	Healthy and available for a 10-day observation period	<ol style="list-style-type: none"> <li>1. Local treatment of exposed person’s wound.</li> <li>2. At first indication of rabies in the animal, give the exposed person RIG and begin four dose series of vaccine.</li> </ol>
	Unknown or escaped	<ol style="list-style-type: none"> <li>1. Local treatment of exposed person’s wound.</li> <li>2. Complete risk assessment.</li> </ol>
	Rabid or suspected to be rabid	<ol style="list-style-type: none"> <li>1. Local treatment of exposed person’s wound.</li> <li>2. Give the exposed person RIG and begin four dose series of vaccine.</li> <li>3. Arrange to have animal tested for rabies if available.</li> </ol>
<b>Skunk, bat, fox, coyote, raccoon and other carnivores.</b>	Regard as rabid unless geographic area is known to be rabies-free	<ol style="list-style-type: none"> <li>1. Local treatment of exposed person’s wound.</li> <li>2. Give the exposed person RIG and begin four dose series of vaccine immediately. If the animal is available for rabies testing, in some instances post-exposure prophylaxis may be delayed for no more than 48 hours while awaiting results.</li> <li>3. Arrange to have animal tested for rabies if available.</li> </ol>
<b>Livestock, rodents or lagomorphs (hares and rabbits)</b>	<p>Consider individually. Consult the Director of Policy and Regulatory Division (Department of Agriculture and Fisheries) regarding an assessment by a provincially licensed veterinarian of the animal if exposure was to livestock. The decision to offer post-exposure prophylaxis will be made by the CPHO after this consultation. Bites of squirrels, chipmunks, rats, mice, hamsters, gerbils, guinea pigs, other small rodents, rabbits and hares would only warrant post-exposure prophylaxis if the behaviour of the biting animal was highly unusual. Bites from larger rodents (e.g., ground hogs (woodchucks), beavers) require a risk assessment.</p>	

### **C.1 Administering Rabies Immune Globulin (RIG)**

- The recommended dose is 20 IU/kg (0.133ml/kg) of body weight. Excessive dosages can interfere with active antibody production;
- If anatomically feasible, the full dose should be infiltrated in the area around and into the wound by a physician. Any remaining volume should be injected intramuscularly at a site distant from vaccine administration;
- When more than one wound exists, each should be locally infiltrated with a portion of the RIG;
- Since vaccine-induced antibodies begin to appear within one week, there is no value in administering RIG more than eight days after initiating a vaccine course;
- RIG and rabies vaccine must never be given at the same site, or delivered through the same syringe and needle;
- If RIG was not administered concurrently with a rabies vaccine series, a rabies titre should be collected 10 to 14 days following the fourth dose of vaccine

### **C.2 Administering Rabies Vaccine (HDCV)**

- The history of any previous hypersensitivity reaction to rabies vaccine (HDCV) should be elicited. Hypersensitive individuals should be vaccinated only under strict medical supervision;
- For healthy individuals, a series of four doses (1.0 ml each) of rabies vaccine intramuscularly (at a site separate from RIG) on each of days 0, 3, 7, and 14 is required. An additional dose on day 28 is required for individuals on corticosteroids, other immunosuppressive agents, anti-malarial drugs and in those with immunosuppressive illness.
- Rabies vaccine should not be given in the gluteal region as administration in this area results in lower neutralizing antibody titres (gluteal injections may miss the muscle). For adults, the vaccination should be administered intramuscularly in the deltoid area. For younger children, the anterolateral aspect of the thigh is also acceptable;

- The vaccine schedule, once initiated, must be maintained. The correct timing of the first three doses is very critical;
- The course of vaccine may be discontinued if the direct fluorescent antibody test of the brain of the animal euthanized and tested for rabies following the human exposure proves to be negative unless the client is at continued risk of rabies exposure;
- Rabies antibody titre determination is not usually necessary following treatment.
- Persons receiving steroids or immunosuppressive therapy should have a rabies antibody determination (two weeks after completion of a post-exposure course of rabies vaccine) to ensure that an adequate response has developed. Immunosuppressive agents should not be administered during post-exposure prophylaxis unless essential for the treatment of other conditions.
- The prevalence of rabies in developing countries is generally higher than in Canada, and there may be concerns about the potency of available vaccines in these countries. Options for consideration in the management of travelers exposed in developing countries include initiating or repeating all or part of the post-exposure management obtaining post-vaccination serology or both.

#### **D. Post-Exposure Immunization of Previously Immunized Persons**

Post-exposure prophylaxis for persons who have previously received rabies vaccine depends on whether an immune response has demonstrated or was highly likely to have developed (course of immunization completed with approved vaccines and schedules). Rabies serology results are now reported in IU/ml. A result of < 0.5 IU/ml indicates an inadequate response and a result > 0.5 IU/ml indicates a satisfactory response.

Two doses of rabies vaccine (HDCV) without RIG, the first dose injected immediately and the second dose injected three days later are recommended for exposed individuals with the following rabies immunization history:

- Completion of an approved course of pre or post exposure prophylaxis with HDCV;
- Completion of immunization with other types of rabies vaccine or with HDCV according to unapproved schedules but in whom neutralizing rabies antibody is demonstrated in serum.

If vaccine other than HDCV was used for pre-exposure immunization and the person's immune status is not known, a full course of treatment, including RIG, should be initiated. A serum sample may be collected before vaccine is given, and if antibody is demonstrated, the course may be discontinued, provided at least two doses of HDCV have been administered.

## REFERENCES

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