

## 6.8 Rabies

### Case Definition

Human rabies is defined as a case of acute encephalomyelitis with laboratory confirmation of infection, including: detection of viral antigen, rabies virus, or a rabies-neutralizing antibody titre greater than or equal to five in an appropriate clinical specimen.

Case Definitions for Diseases under National Surveillance CCDR Volume 26S3  
<http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/index-eng.php>

### Policy

All animal biting incidents and/or reports of potential human/animal rabies will be investigated; followed up with appropriate wound treatments, rabies prophylaxis, and animal observation/testing; and reported to the Regional Medical Officer of Health (RMOH) or designate. Laboratory confirmed cases are reported to the DHCS as per List A of the Communicable Disease Act.

**Definition of “biting incident”:** an episode when an animal bites (e.g. dog, cat, fox, bat) or scratches a person, or transmits saliva to a person’s mucous membranes or to an open wound. A bite from a bat may go unnoticed; therefore extra precaution is necessary in these cases.

### Roles and Responsibilities

#### Regional MOH or designate will:

- Carry out biting incident investigations.
- Manage appropriate rabies vaccine treatments for victims of biting incidents for appropriate observation/testing of implicated animals.
- Notify local physicians, nurse practitioners, Environmental Health Officer (EHO), Community Health Nurse (CHN) as well as the infection control practitioners (ICP) in that region, as required, for investigation and follow-up of victims of biting incidents, or management of suspect or confirmed cases.
- Report human cases to provincial office as per list A.
- Report all suspected or confirmed animal cases to the Canadian Food Inspection Agency (CFIA).

#### Provincial Public Health will:

- Supply the vaccine and rabies immune globulin to the regions as needed.
- Notify the Provincial Veterinarian of any suspect or confirmed animal or human cases.
- Report the human case to the Public Health Agency of Canada and other regions.

- Conduct analysis of cases and report in the Communicable Disease Report (CDR)

## **Clinical Presentation**

**Symptoms:** May be mild and result in headache, fever and malaise that can last for days; followed by paresthesia at the exposure site. Usually progresses to anxiety, confusion, and agitation progressing to delirium, abnormal behavior, hallucinations and insomnia. Rabies is almost always fatal once the clinical symptoms are present.

## **Epidemiology**

### **Occurrence**

Worldwide

### **Transmission**

From saliva of an infected animal, through a bite, a break in the skin, or through the mucous membranes. Caution is advised for healthcare workers to avoid exposure to respiratory secretions and saliva from such an individual. Transmission from an infected individual through a corneal transplant has been documented. Airborne spreading has been reported in caves where bats were roosting, but this rarely occurs.

### **Incubation Period**

Nine days to seven years, but most often three to eight weeks, depending upon the extent and location of the wound, if it was in a vascular area or if it was near a nerve supply.

### **Period of Communicability**

Usually three to seven days in dogs and cats (in bats this could be up to 12 days) before clinical signs develop, and throughout the disease. Time frame varies for different animals.

## **Education and Preventive Measures**

**Animal control:** Animal owners must ensure that their pets are vaccinated and are kept on a leash. Town councils must take care that stray animals are apprehended and do not roam freely in their communities. In regions where rabies is endemic, or is a growing concern, animal control may be used to reduce the at-risk animal population. Stray animals can be removed from the community by either municipal animal control officers, provincial animal health officials, or the RCMP/RNC. These animals may be confined for at least three days to determine if human exposure has occurred, prior to being destroyed, with the option to test for rabies.

**At-risk individuals:** Individuals who work with animals should seek advice on their need for rabies vaccination. For those who are vaccinated and have

continuous exposure to rabies, they should have a rabies titre level checked to confirm their immunity to rabies at least every two years. For those who work in a laboratory with live rabies virus then serological testing for immunity should be done every six months. (Reference: Canadian Immunization Guide 7<sup>th</sup> Edition see page 294.)

**International travel:** Travelers to developing countries should seek advice regarding rabies.

**Investigation of “biting incidents”:** Biting incidents must be investigated, as outlined in Figure 1, to determine if the animal was rabid and may have passed on the virus at the time of the incident. In regions where rabies is endemic, or where rabies has been recently detected, the animal may be placed under observation for 10 days after the incident (see Appendix H-2). If the animal is alive and healthy at the end of this observation period, no treatment of the human is necessary.

The Regional Medical Officer of Health (RMOH) or designate must be kept informed of any reported biting incidents at the earliest possible stage of the investigation. The intake form (see Appendix H-3) should be used to document the details of the incident and must be forwarded to the RMOH or designate following the investigation. The information collected during the investigation will be used to determine the risk to the individual.

Please note the following when completing biting incident investigations:

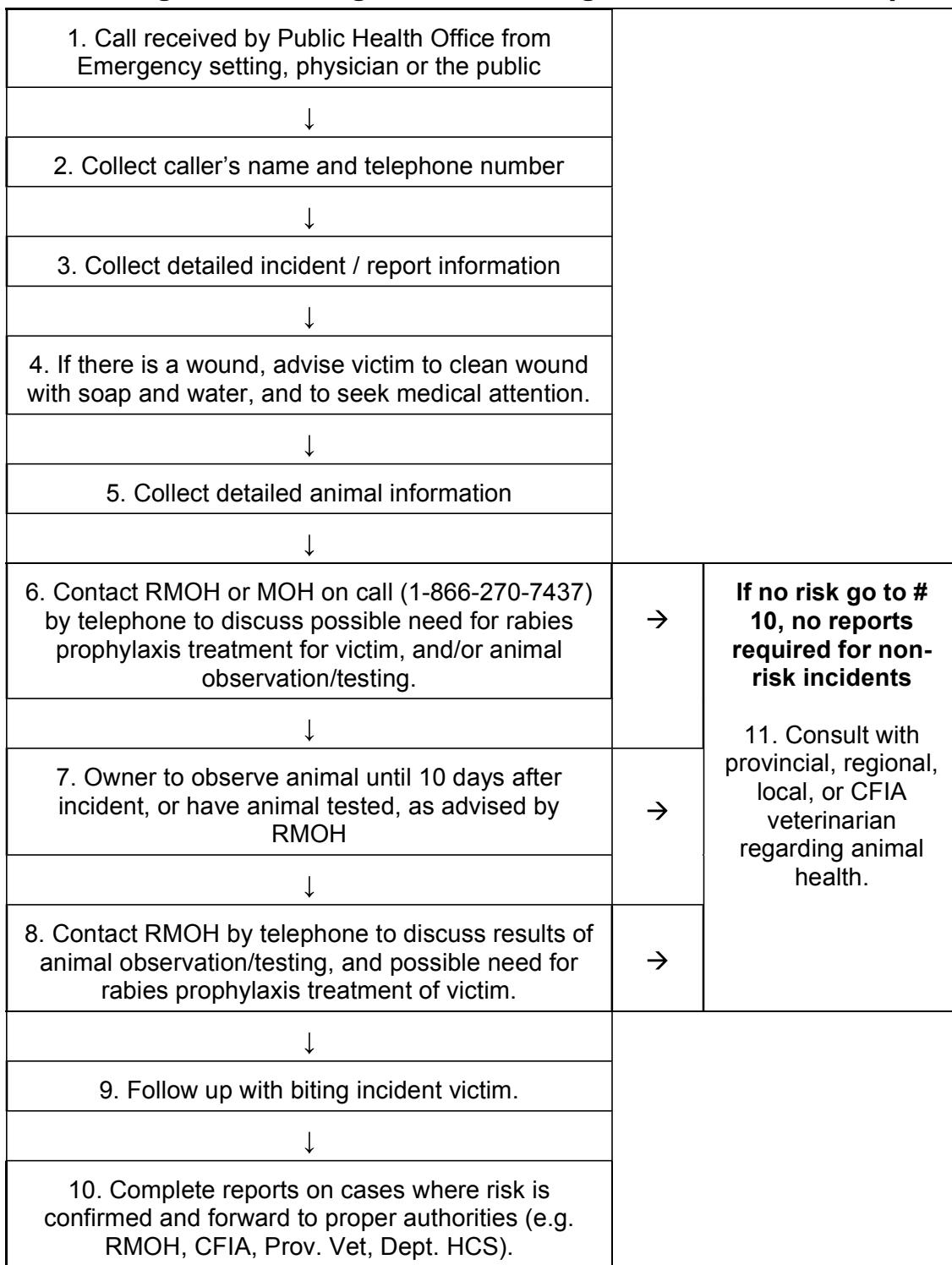
- **Vaccination status** - An animal that was initially vaccinated (excluding boosters) within 30 days prior to the incident is to be considered unvaccinated.
- **“Provoked” vs. “unprovoked”** - A “provoked” incident is defined as an incident that was the result of **human-initiated actions** (regardless of human intent) such as:
  - invading or interrupting an animal’s territory or actions
  - approaching or handling a sick or injured animal
  - interfering with an animal’s food or possessions
  - provoking the animal’s attention
  - rough handling of the animal
  - throwing objects at the animal
  - prodding, trapping, or cornering the animal.

If, after extensive investigation, the nature of the incident is uncertain because of conflicting reports or insufficient information, the incident will be handled in the same manner as an ‘unprovoked’ incident.

**Animal health/behaviour** - The possibility that rabies was transmitted to the victim will also be assessed in light of any signs of illness or unusual behaviour in the implicated animal. Assessment of animal health will likely require the consultation of a provincial, regional, local, or CFIA veterinarian (see Figure 1, Step 11.)

More information is available at:  
<http://www.faa.gov.nl.ca/agrifoods/animals/health/rabies.html>

***Figure 1: Management of Biting Incident/Rabies Reports***



**If rabies is suspected in any animal, regardless of human exposure, it must be reported to the CFIA, in consultation with the RMOH/designate.** The federal “Health of Animals Act and Regulations” (1990, c. 21) gives power to inspectors designated by the President of the Canadian Food Inspection Agency (CFIA) to remove, confine, and destroy animals. This power can be used in situations where animal rabies is found or suspected. Suspicion of rabies in animals will be determined in consultation with the RMOH/designate and provincial, regional, or local veterinarians, and/or CFIA Animal Health Veterinarians (see figure 1, step 11).

Suspect cases **may** include, but are not limited to, the following:

- An animal exposed to, or suspected of exposure to, a bat or other wild carnivorous mammal.
- Depending on regional epidemiology, unprovoked biting incidents where the animal was not vaccinated for rabies.
- An animal showing signs of illness or unusual behavior, suggestive of rabies, as determined in consultation with a veterinarian.

**Animal observations:** In regions where rabies is endemic, or there has been recently confirmed rabies in the area animals may be held for observation. The RMOH in consultation with the district veterinarian may decide to keep an animal under observation to eliminate the possibility that it was carrying rabies at the time of the incident. If testing is required CFIA officials are trained to handle and transport carcasses of potentially rabid animals. **Do not attempt to collect an animal carcass yourself.** In some circumstances the RMOH may request the CFIA to test an animal for rabies.

If the biting animal was infectious at the time of the bite, signs of rabies will usually follow within 3-5 days, with a change in behaviour, and excitability or paralysis. Once an animal begins shedding active virus, death usually occurs within 8 days. If the animal is alive and healthy 10 days after the incident, it could not have been infectious at the time of the bite.

**The 10 day observation period will be counted from the date of the incident.** Thus, late reporting of incidents may make observation unnecessary once the animal is verified to be healthy.

- A letter of observation (see appendix) may be sent to the owner to provide supportive documentation of the action.
- Educational materials, such as the Animal Observation for Rabies Information (see appendix), may also be supplied to the owner at this time.

The owner should be instructed to notify the RMOH/designate as soon as the animal shows any of the following signs:

- biting indiscriminately (i.e. its limbs or other objects)
- paralysis or weakness of hind limbs
- drooping jaw and/or neck
- abnormal facial expressions

- hiding away or depressed
- change in the animal's usual behaviour
- increase in drool or saliva

If there is any question about the health status of the animal, seek the advice of a veterinarian.

- During the observation period, the animal must be kept either:
  - indoors;
  - in a caged pen; or
  - on a leash.
- It may not be taken on walks beyond the owner's property.
- It must be kept separated from people and other pets, with the exception of animals with unweaned young.
- Instruct the owner to feed and provide water for their pet as normally during this time.
- The animal must not be sold, given away, or euthanized during the 10 day confinement.

If the animal is healthy on the tenth day of confinement (as confirmed by a field visit in endemic areas), it may be released from confinement. An animal should not be released if there is any doubt about its state of health. A letter of release (see appendix) may be sent to the owner (and cc to animal control, where available) to provide supportive documentation of the action.

**Management of animal outbreaks:** During an outbreak, strategies would be in place to educate the community on how to decrease the chance of exposure to rabies. Provincial and Regional Veterinarians may use their powers under the Department of Natural Resources' "Dog Act" (RSNL 1990 Chapter D-26) and "Livestock Health Act and Regulations" (RSNL 1990 Chapter L-22) to confine and/or destroy animals when disease is suspected or confirmed. Peace officers, such as the RCMP/RNC, also share these powers under the "Dog Act".

## Control Measures

### Management of Human Case and Contact

Transmission of rabies from person to person has not been documented; however, the potential for exposure does exist. If a health care worker is caring for an infected individual, caution is advised to prevent contact with respiratory secretions. In cases where humans have been exposed to the saliva of an infected individual, it is recommended that the exposed individual be treated with post-exposure prophylaxis (see Figure 2 Post-Exposure Prophylaxis).

If there is a chance that an individual has been exposed to rabies it is important to **begin wound management as quickly as possible**:

- The injury should be cleaned thoroughly with soap and water (see Figure 1, Step 4).
- Medical treatment should be sought as soon as possible, for assessment and

care of the wound.

- When there is a high suspicion of exposure to a rabid animal then, upon the approval of the RMOH, care would include post-exposure prophylaxis (see table below).
- The wound should be also assessed by a physician the same as for any other wound: the tetanus status of the individual must be updated and consideration given to the use of antibiotics.

NOTE: RPEP to be given to persons of all ages when they wake up to a bat found in the same room because the possibility of a bite cannot be reasonably be excluded (see Canadian Immunization Guide).

**Figure 2: Post-Exposure Prophylaxis**

| Patient History  | Prophylactic Treatment                   | Dosage*  | Location  | Time*                                 |
|--|--|--|---|---------------------------------------|
| No previous rabies vaccination   | Rabies Immune Globulin (RIG); <b>and</b> | 20 IU/kg body weight                           | Large injury: infiltrate wound and surrounding area; remainder to be injected intramuscularly at a site distant from vaccine administration | Day 0                                 |
|  | Rabies Vaccine                           | 4 doses * of Human Diploid Cell Vaccine (HDCV) | Deltoid Muscle  | Days 0, 3, 7, 14, booster if required |
| Previously vaccinated with complete series of approved HDCV, or, an unapproved schedule, <b>and</b> demonstrating neutralizing rabies antibodies when tested | Rabies Vaccine ( <b>only</b> )           | 2 doses of HDCV                                | Deltoid Muscle  | Days 0 and 3                          |

|   |  |  |   |                          |
|---|--|--|---|--------------------------|
| Previously vaccinated but not meeting above criteria  | Rabies Immune Globulin (RIG); <b>and</b> | 20 IU/kg body weight   | Large injury: infiltrate wound and surrounding area; remainder to be injected intramuscularly at a site distant from vaccine administration | Day 0                    |
|   | Rabies Vaccine                           | Rabies antibodies <b>not</b> present before immunization:<br>5 doses of HDCV | Deltoid Muscle  | Days 0, 3, 7, 14, and 28 |
|   |  | Rabies antibodies present before immunization:<br>2 doses of HDCV            | Deltoid Muscle  | Days 0 and 3             |
| <p><b>* Note:</b> Check with product monograph and current Canadian Immunization Guide</p> <p><a href="http://www.phac-aspc.gc.ca/publicat/cig-gci/p04-rabi-rage-eng.php#sched">http://www.phac-aspc.gc.ca/publicat/cig-gci/p04-rabi-rage-eng.php#sched</a></p> |  |  |   |                          |

**(Rabies) Appendix H-1 Contact Information**

|  |                                      |              |  |
|--|--------------------------------------|--------------|--|
| MOH On-Call (24 Hour Emergency Number)               | <b>1-866-270-7437</b>                |              |  |
| <b>Canadian Food Inspection Agency</b>               | <b>Phone Number</b>                  | <b>Fax #</b> | <b>E-mail Address</b>  |
| Dr. Karla Furey                                      | <b>709 772-5286<br/>709 687-9012</b> | 709 772-3013 | <a href="mailto:karla.furey@canada.ca">karla.furey@canada.ca</a>           |
| <b>Animal Health</b>                                 | <b>Phone Number</b>                  | <b>Fax #</b> | <b>E-mail Address</b>  |
| Dr. Laura Rogers                                     | 709 729-6897<br>709 697-5302         | 709 729-0055 | <a href="mailto:laurarogers@gov.nl.ca">laurarogers@gov.nl.ca</a>           |
| <b>Medical Officers of Health</b>                    | <b>Phone Number</b>                  | <b>Fax #</b> | <b>E-mail Address</b>  |
| Dr. Claudia Sarbu<br>Chief Medical Officer of Health | 709 729-3433<br>709 697-9134         | 709 729-4647 | <a href="mailto:claudiasarbu@gov.nl.ca">claudiasarbu@gov.nl.ca</a>         |
| Dr. Janice Fitzgerald<br>Medical Officer of Health   | 709 729-3019<br>709 631-4980         | 709 729-4647 | <a href="mailto:janicefitzgerald@gov.nl.ca">janicefitzgerald@gov.nl.ca</a> |

***(Rabies) Appendix H-2 Sample Animal Observation Letter***

[Name of Animal Owner]  
[Address of Animal Owner]

Dear [Name],

It has been reported that your [species of animal] was involved in a biting/scratching incident on the [date].

You are asked to keep this animal under household observation until [date of release] to ensure that your animal has not passed rabies virus to the victim.

Please ensure the following during this period:

- Keep your pet separated from other animals and people, including family members.
- Feed and provide water for your pet as normal during this time.
- Use a leash when walking your pet on your outdoor property.
- Refrain from allowing your animal to roam free outside.
- Notify me **immediately** if your pet begins to show any of the following signs:
  - change in animal's usual behavior or any signs of illness
  - biting indiscriminately (i.e. its limbs or other objects)
  - weakness or paralysis of hind limbs
  - drooping jaw and/or neck
  - abnormal facial expressions
  - hiding away or depressed
  - increase in drool or saliva

You will be contacted at the end of this observation period to ensure that your animal is healthy. If deemed healthy, the animal may be released from observation at that time.

Thank you for your cooperation in this regard.

Yours truly,

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[Name of Investigator]  
[Phone number]  
cc. [MOH or designate]

### ***Animal Observation for Rabies Information***

#### **1. What is Rabies?**

Rabies is a deadly disease of animals which can also affect people. It is caused by a virus that can be passed in the saliva of an infected animal. The virus can infect another animal or a person when the infected saliva enters a bite, scratch, or a mucous membrane such as the eyes, mouth, or nose. The virus then slowly travels to the brain of the infected animal or person, at which point it will cause changes in their behavior.

#### **2. Why do I need to keep my pet under observation?**

Your animal is being observed as a result of a biting or scratching incident. An animal infected with rabies can pass the virus as early as ten days before showing rabies symptoms. If your pet shows symptoms of rabies within ten days of the incident, then there may be a chance that the rabies virus was passed in its saliva.

#### **3. How do I look after my pet during the observation period?**

Your pet must be kept indoors, in a caged pen, or on a leash during the observation period. It may not be taken on walks beyond your property. It must be kept separated from people and other pets. Please feed and provide water for your pet as normal during this time.

#### **4. Is my family at risk by keeping our pet in the house?**

There is no risk of getting rabies if you keep your pet confined and separated from you and your family.

#### **5. Can I keep my pet around other animals?**

No. Your pet must be kept apart from animals and people during the ten day observation period. One exception is in the case of pets with unweaned young, which may continue to be fed by its mother.

#### **6. Can I sell or give away my pet, or have my pet 'put to sleep'?**

No, only in exceptional circumstances. You must have permission from the investigator to have your pet destroyed, sold, given away, or otherwise disposed of during the observation period.

#### **7. What should I do if my pet starts to act strangely?**

Please notify the investigator **immediately** (see phone number below) if your pet begins to show any of the following signs:

- change in the animal's usual behavior or any signs of illness
- biting indiscriminately (i.e. its limbs or other objects)
- paralysis or weakness of hind limbs
- drooping jaw and/or neck
- abnormal facial expressions
- hiding away or depressed
- increase in drool or saliva

**8. Is it too late to get a rabies shot for my pet?**

If your pet is healthy after the observation period, and has not had its rabies shots, **we strongly recommend** that you arrange for your pet to have its shots.

**9. Do any of my family members need to get rabies shots?**

If your pet is healthy after the 10 day observation period, you do not need to worry about getting rabies shots. If your pet is found to have rabies, the Medical Officer of Health will decide on the course of action to avoid the risk of rabies to you and your family.

**10. How can I keep this from happening again?**

- Ensure that your pets have all of their rabies shots up to date.
- Keep your pets under control indoors, or on a leash when outdoors.
- If your pet tends to bite or scratch people, talk to a vet about its' behavior.
- Keep away from, and refrain from feeding, any stray pets and wild animals.
- Report to public health officials or wildlife conservation officers, if you see any animals acting strangely.

**Contact Information:****Investigator:**

Name: \_\_\_\_\_

Telephone #: \_\_\_\_\_

### ***Sample Animal Release Letter***

[Name of Animal Owner]  
[Address of Animal Owner]

Dear [Name],

It has been reported that your [species of animal] was involved in a biting/scratching incident on the [date].

As your animal was found to be healthy at the end of the observation period there was no risk that rabies virus was passed to the victim. Therefore, your animal is officially released from its home observation.

In spite of this release, please consider the following recommendations:

- Ensure your pet is vaccinated.
- Never allow your pet to roam free. Keep it indoors, caged, penned, or on a leash.
- If your animal tends to bite people or other animals, seek advice from a vet.
- Never approach or feed wild or stray animals.
- Report any unusual animals to the Department of Natural Resources.

Thank you for your cooperation during this observation period.

Yours truly,

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[Name of Investigator]  
[Phone number]

cc. [MOH or designate and animal control, where available]

**(Rabies) Appendix H-3**

| <b>Rabies Investigation And Referral Form</b>  |  |  |
|--|--|--|
| <b>1. Biting Incident Information</b>  |  |  |
| Victim's name: _____ DOB: _____ Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female   |  |  |
| Address: _____ Parent/Guardian name: _____   |  |  |
| City: _____ Province: _____ Postal Code: _____   |  |  |
| Phone: (Home) _____ (Work) _____   |  |  |
| Fax: _____   |  |  |
| Exposure date: _____ Kind of exposure: <input type="checkbox"/> Bite <input type="checkbox"/> Scratch <input type="checkbox"/> Other: _____  |  |  |
| Physician's name: _____  |  |  |
| Physician's phone: _____   |  |  |
| Short description of the incident:<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____   |  |  |
| <b>1.1 Wound Information</b>   |  |  |
| Location of wound: _____   |  |  |
| Description of wound: (Include the presence of bleeding, tissue or bone damage.)<br>_____<br>_____   |  |  |
| Treatment: (Advise victim to clean wound thoroughly with soap and water, as soon as possible.)<br>_____<br>_____   |  |  |
| Given By: _____<br>Date: _____   |  |  |
| <b>1.2 Public Health Information</b>   |  |  |
| Date of last Tetanus vaccination: _____ Tetanus vaccination given:<br><input type="checkbox"/> Yes <input type="checkbox"/> No   |  |  |
| Date of previous rabies vaccination _____ Patient Weight: _____  |  |  |
| <b>Rabies Vaccine is released only on authority of Regional MOH or MOH on Call.</b><br>Rabies vaccine required: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, dosage: _____<br>Lot #: _____ |  |  |

|  |
|--|
| Rabies Immune Globulin: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, dosage: _____   |
| Lot #: _____   |
| Tetanus vaccine required: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, dosage: _____ |
| Lot #: _____   |
| If no, date of previous dose: _____  |
| Is follow-up required? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____  |
| Follow-up completed by: _____ Date: _____  |

## 2. Animal Information

|  |
|--|
| Name: _____ Species: _____ Breed: _____  |
| Age: _____ Sex: _____ Colour: _____  |
| Tattoo: _____ Microchip: _____   |
| Other ID: _____  |
| Location of animal: _____  |
| Reason for complaint: <input type="checkbox"/> Human exposure <input type="checkbox"/> Signs of illness<br><input type="checkbox"/> Other: _____           |
| Animal alive: <input type="checkbox"/> Yes <input type="checkbox"/> No Contact with wild animals: <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Date of contact: _____   |
| Animal vaccinated: <input type="checkbox"/> Yes <input type="checkbox"/> No Last vaccination date: _____   |
| Name of vaccine: _____   |
| Specimen submitted for testing: <input type="checkbox"/> Yes <input type="checkbox"/> No Date submitted: _____   |
| Test results: _____  |

### 2.1 Animal Owner Information

|  |
|--|
| Name: _____ Address: _____                     |
| City: _____ Province: _____ Postal code: _____ |
| Phone: (Home) _____ (Work) _____               |
| Fax: _____                                     |

### 3. Animal observation to be conducted? Yes No

### 4. Animal Observation Information

*(This section is to be completed if the animal needs to be observed until 10 days after the incident.)*

Observation by:  GSC  CFIA  Other \_\_\_\_\_

|   |
|---|
| Date of referral : _____  |
| Date observation period started: _____  |
| Date observation period will end: _____   |
| Description of animal behavior prior to incident: _____<br>_____<br>_____   |
| Condition of the animal at the end of the observation period _____<br>_____<br>_____  |
| <b>5. Rabies suspected?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No (If rabies is suspected, it must be reported to the CFIA.) |
| Information completed by: _____<br>Date _____   |