Protocol for Management of Animal Exposures to Prevent Human Rabies

COMMUNICABLE DISEASE CONTROL

Notification of Local Public Health Unit/Nursing Station of Animal Exposures

Local Public Health Units or Federal Nursing Stations should be notified of animal exposures that occur in their jurisdiction. Call the appropriate local Public Heath Unit or Nursing Station (based on exposed person's current* address) if known, or if unknown, Health Links (788-8200 or 1-888-315-9257). The local Public Health Unit or Nursing Station can then ensure proper follow-up of the animal and, if necessary, arrange for release of Rabies Immune Globulin (RIG) and Rabies Human Diploid Cell Vaccine (HDCV) by a Medical Officer of Health. *If however,*

- *the biting animal is an apparently healthy wild mouse or a pet gerbil, hamster, guinea pig, rat, or rabbit which has never been outside of a building*

  OR

- *a 10-day observation period of a cat, dog or ferret is appropriate (see below) and reliable reporting of the animal's health and behaviour can be assured,*

reporting to the local Public Health Unit or Nursing Station is not required. If there is uncertainty as to whether the exposure should be referred to the local Public Health Unit/Nursing Station, please err on the side of caution and refer.

* For definition of "current," see section *Policy for follow-up of exposures that cross jurisdictional boundaries* below.

General Recommendations

The following recommendations are only a guide. An appropriate management strategy must consider:

1) the nature and circumstances of the exposure;[A]

2) local measures for the exposure site;[B]

3) the animal species involved (see below);

4) the vaccination status of the animal;[C]

5) the presence of rabies in the jurisdiction[D] and

6) the availability and condition of a head for laboratory testing.[M]

Animal Exposure Management (Adapted from ref. 1)

Species	Condition of Animal at Time of Exposure	Action
Domestic dog, cat or ferret	Healthy and available for 10 days of observation[E]	None unless animal develops rabies[F]
	Rabid or suspected rabid	RIG[G] and HDCV[H] prophylaxis
	Unknown (escaped; or killed before 10 days post-exposure observation and head not available)	Depending on individual circumstances, Public Health/Nursing Station will recommend one of: • No further action • Search up to 10-days post-exposure[I] • RIG[G] and HDCV[H] prophylaxis
Skunk[J], bat[K], raccoon, coyote, bobcat, fox, other wild carnivores	Regard as rabid unless proven negative by laboratory tests[L]	RIG[G] and HDCV[H] prophylaxis
Livestock	Consider individually and consult with veterinarian if observation for 10 days is being considered.	
Rodents and lagomorphs (rabbits and hares)	Apparently healthy wild mice or pet gerbils, hamsters, guinea pigs, rats, or rabbits which have never been outside of a building, can be considered to pose no risk for rabies transmission.	Bites of squirrels, rats, chipmunks, wild rabbits and hares rarely call for anti-rabies prophylaxis except in instances of clearly abnormal behaviour or health.[2] Woodchucks (groundhogs) have been found to be rabid in Manitoba.

For explanation of superscripts, please see accompanying "NOTES"

Notes

A. An exposure is defined as a bite, scratch, or contact of saliva or infected tissue with an open wound or mucous membrane of the exposed individual. Petting or contact with blood, urine or feces of a rabid animal *does not* qualify as an exposure.[3] Unprovoked attacks are more suggestive of rabies than provoked attacks, especially where rabies is endemic. The following table can be used to distinguish provoked from unprovoked attacks.

   Rabid animals do not always attack; "cats and dogs may become uncharacteristically quiet,"[2] and horses and cattle may present with difficulty swallowing.

Provoked vs Unprovoked (Dog) Attacks

Provoked Attack	Unprovoked Attack
1) entering a strange compound with a guard dog	1) attack by a dog for an unknown reason and from an unknown site (neutral territory)
2) walking past a dog	2) being bitten by the victim's own dog without prior history of dominance aggression
3) stepping on or bumping into a dog	
4) interfering a dog fight	
5) taking puppies from their mother	
6) taking food from a dog	
7) feeding a dog	
8) playing in an area where a dog is located	
9) beating a dog	
10) petting or playing with a strange dog	

B. Bites should be cultured if possible; send two swabs, one in anaerobic transport medium. Afterwards, the bite should be thoroughly cleansed with soap and water and irrigated with a virucidal agent such as povidone-iodine. Stitches should only be used if necessary, and should be placed after local wound infiltration with rabies immune globulin. If required, stitches should be loose and not interfere with bleeding or drainage. If anti-rabies treatment is indicated, both RIG and HDCV should be given as soon as possible, regardless of the interval from exposure (see G and H below).

   Puncture wounds and wounds contaminated with saliva are "dirty wounds"; tetanus-diphtheria combined toxoids should be given according to recommendations in the Canadian Immunization Guide. Deep cat and dog bites/scratches/punctures, especially in the hand, may become infected with oral aerobic and anaerobic bacteria, including *Pasturella multocida*, *Staphylococcus aureus* and *Capnocytophaga canimorsus*. Prophylactic antibiotics are recommended in this situation. The first choice is amoxicillin/clavulanate 250 F (mild wounds) or 500 F (more severe wounds) p.o. for 3-5 days. For penicillin-allergic patients, *in vitro* tests suggest TMP-SMX tablets BID or doxycycline 100 mg BID, plus metronidazole 250 mg TID, both for 3 to 5 days. Splenectomized persons who have been bitten by dogs should receive penicillin or clindamycin to prevent *Capnocytophaga canimorsus* bacteremia.

C. Vaccination Status: Dogs, cats and ferrets have to be boosted every 1 to 3 years depending on the vaccine.[4] "A small number of vaccinated animals have developed rabies; therefore symptoms suggesting rabies even in a vaccinated animal must be carefully evaluated."[2]

D. Rabies is endemic in Manitoba, especially in rural areas. Rabid animals have been identified throughout the province but primarily in the southern half. Between 24 and 235 cases have been identified in the last 10 years.

E. Healthy dogs, cats and ferrets will normally be confined to immediate premises and observed for behaviour changes by a responsible owner for 10 days. If this is not feasible, alternate arrangements can be made. Arranging confinement of the animal and follow-up in 10 days is the responsibility of Public Health/Nursing Station.

F. Public Health/Nursing Station will instruct the owner to seek veterinary attention immediately should the dog, cat or ferret exhibit abnormal behaviour during the 10-day holding period. If rabies is suspected, Public Health/Nursing Station must be notified so this information can be relayed to the physician. Treatment with RIG and HDCV should be initiated (see G & H below) while the animal is euthanized and the head sent for testing (see K below).

G. **Dose of RIG is 20 I.U./kg. This dosage is applicable to all age groups, including children. If anatomically feasible, the full dose of RIG should be thoroughly infiltrated in the area around and into the wounds. Any remaining volume should be injected intramuscularly at a site distant from vaccine administration. Do not use more than the recommended dosage.** In healing wounds, the wound and the area around it should be infiltrated, with remaining RIG administered in the same limb proximally. RIG is not necessary if the exposed person has been previously vaccinated with an approved intramuscular regime of human diploid cell vaccine (HDCV) (either a pre-exposure or post-exposure course) or has previously demonstrated adequate levels of rabies antibody following alternate vaccine and/or route of administration (e.g., intradermal) pre- or post-exposure series.

H. Two (2) doses of human diploid cell vaccine (HDCV) I.M. (days 0 and 3) if previously immunized with an approved HDCV I.M. series (either a pre-exposure or post-exposure series) or previously demonstrated to have adequate levels of rabies antibody following alternate vaccine and/or route of administration (e.g., intradermal) pre- or post-exposure series; otherwise five (5) doses of HDCV I.M. on days 0, 3, 7, 14 and 28. Persons who received a pre- or post-exposure series with an alternate vaccine and/or were given their vaccine through an alternate route and who do not have previously documented protective antibody levels, should have blood drawn for antibody level determination with subsequent administration of RIG and a five (5) dose post-exposure series of HDCV I.M. If these antibody levels are determined to be protective, the post-exposure series can be discontinued provided at least two (2) doses HDCV I.M. have been given.

Vaccine should be administered I.M. in deltoid or in the upper anterolateral thigh in infants. *Under no circumstances should vaccine be administered in the same syringe or at the same site as RIG.* Local reactions to vaccine are common and do not contraindicate continuing treatment. Discontinue vaccine if fluorescent antibody tests of the animal brain are negative unless the person being immunized is at high risk of being exposed again, in which case a three (3) dose pre-exposure series may be completed (days 0, 7 and 21).

I. Public Health/Nursing Station should advise exposed person to enlist assistance of local animal control services in searching for animal (in Winnipeg: Animal Services 986-2155 Mon.-Sun. 8:00 am - 6:00 pm; other times Police Dispatch 986-6222).

J. Skunk spray does not contain active rabies virus.

K. Bat-variant rabies has occurred in persons without clear histories of bat bites. Therefore, anti-rabies prophylaxis should be given in instances of known, direct contact, as well as situations where contact cannot be ruled out unless testing reveals that the bat is negative for rabies. Examples would include the presence of a bat with a young unsupervised child, an intoxicated or mentally challenged person, or someone asleep in a room at the time of entry.

L. The animal should be killed with special care taken to ensure that the head is undamaged and appropriately preserved during transport to the rabies testing laboratory. Veterinarians, the RCMP or hunters/trappers will be contacted by Public Health/Nursing Station to remove the animal's head (video and manual for instructions for head removal and preparation for transportation should be available at all Public Health Units and Nursing Stations in areas where a veterinarian is not readily available). Public Health/Nursing Station should contact the District Federal Veterinarian as indicated on the envelope of the shipping container to advise that the shipment is on its way. Holding for observation is not recommended.

M. Specimens that are several days old and which have not been refrigerated or frozen (especially in the summer), may not be reliably interpreted by the rabies testing laboratory. Where this is the case, this will be stated on the report.

Policy for follow-up of exposures that cross jurisdictional boundaries

(of particular relevance to Regional Health Authority Public Health, First Nations and Inuit Health Branch and Transferred Community nurses as well as Health Links):

Preamble:

Public health investigation and follow-up of persons exposed to potentially rabid animals includes determination of the risk of rabies transmission and the coordination and/or provision of rabies prophylaxis if necessary. Periodically situations arise where more than one jurisdiction could be involved, for example:

- The person exposed lives in a community served by one Regional Health Authority (RHA) and the exposure occurs in a community served by another.
- The person exposed lives in a community served by one RHA and seeks initial medical care in a community served by another.
- A person bitten lives on a Reserve but seeks initial care off-Reserve.

Policy:

- *Jurisdiction of current residence of person exposed has ultimate responsibility*. The jurisdiction that has authority in the community of the *current residence* of the person exposed ("*jurisdiction of current residence*") has ultimate responsibility to ensure that appropriate public health investigation and follow-up occurs. *Current residence* is defined as where the person is living during the exposure follow-up period (normally between 0-38 days after exposure depending on whether prophylaxis is begun immediately, after a 10-day observation period, or not at all).
- *Responsibility when exposed person moves to a different jurisdiction during follow-up period.* It is the responsibility of the exposed person to alert health care providers of any move. The *jurisdiction of current residence* that began follow-up must alert the jurisdiction the person moved to of the type of follow-up required.
- *Animal exposure occurs in different jurisdiction from current residence.* In this situation, the *jurisdiction of current residence* must contact the jurisdiction where the exposure took place and notify it that animal follow-up is required. The jurisdiction where the exposure took place must report the required follow-up information back to the *jurisdiction of current residence*.
- *Referral of animal exposure when follow-up period is unclear.* When hospitals, clinics and Health Links refer animal exposures for public health investigation and follow-up, the duration of the follow-up period may not always be obvious. In this case, *current residence* is defined based on location in the first 10 days following exposure.

References:

1) Chin, J. (ed.) *Control of Communicable Disease in Man*, 17th ed., 2000. American Public Health Association.

2) *Canadian Immunization Guide*, 6th ed., 2002. Health Canada.

3) Fishbein, D.B., Robinson, L.E. "Rabies." *New England Journal of Medicine*. 1993;329: 1632-1638.

4) National Association of State Public Health Veterinarians, Inc. "Compendium of Animal Rabies Control." *MMWR Recommendations and Reports* April 2, 1999 Vol. 48/No.RR-3.