

Rabies Response Plan



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Nova Scotia Rabies Response Plan - 2010

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Nova Scotia Rabies Post-Exposure Prophylaxis Guidelines

1.0 INTRODUCTION

The prevention and control of human exposure to rabies in Nova Scotia is the responsibility of multiple government agencies. NS Department of Health Promotion and Protection, Public Health Services (PHS), Canadian Food Inspection Agency (CFIA), Department of Agriculture and the Department of Natural Resources (DNR) are the primary agencies that collaborate and share a mandate to control rabies in the province. Other organizations and agencies may also be involved as required.

This document provides background information on rabies in Nova Scotia. The main element includes the collaboration and co-ordination of various agencies in the control and prevention of rabies. These guidelines may also be used to supplement other agencies' rabies prevention policies. The guidelines were developed in consultation with and by an interdepartmental provincial rabies working group. The members of the working group represent various government agencies. The document provides further guidelines on risk assessment, risk reduction and management of animals and humans with potential and confirmed cases of rabies.

It also outlines the procedures for authorization of dispensing Rabies Post Exposure Prophylaxis (RPEP) biologicals, obtaining additional RPEP biologicals during "after-hours" situations, and reporting requirements for Nova Scotia Department of Health Promotion and Protection.

2.0 GOAL AND OBJECTIVES OF THE RESPONSE PLAN

Goal:

To reduce the risk of rabies infection to humans and animals in Nova Scotia.

Objectives of the Response Plan:

1. To ensure that a working group with the necessary expertise and representation from the appropriate departments is in place to plan for and respond to rabies virus related issues in Nova Scotia.
2. To maintain a surveillance system to detect Rabies virus in Nova Scotia in animals and humans.
3. To increase the knowledge of the public regarding Rabies and to change behaviour towards personal protection against animal bites and exposures that increase the risk of rabies.
4. To increase knowledge of health professionals regarding rabies.
5. To keep Nova Scotians informed about rabies activity in Nova Scotia.

6. To recommend rabies control measures, as needed, based on assessment of risk and the many other factors related to rabies control.

3.0 BACKGROUND

Domestic and wild animals such as foxes, coyotes, wolves, skunks, bats and raccoons can serve as the source for rabies virus. Rats, rabbits, squirrels and mice are rarely infected. Domesticated animals such as dogs, cats and ferrets may be at risk of contracting rabies if exposed to infected animals and then pose a further risk to their owners. The virus can live in the saliva and the brain tissue of the infected animal and can be transmitted by a bite of an infected animal or contact with brain tissue of an infected animal. Additionally, non bite contamination of scratches, abrasions and open wounds or mucous membranes by saliva or other potentially infectious material such as brain tissue can transmit the virus.

3.1 Clinical Picture

Rabies almost always causes death. The incubation period after being bitten by an infected animal is usually 3-8 weeks. The incubation period is often influenced by the intensity and site of the wound.

Symptoms can include acute febrile illness with headache, fever, malaise, sensory changes at the bite site and increasing apprehension. These symptoms will progress to central nervous system change, including paresis or paralysis, dysphagia and convulsions. Death usually results from respiratory paralysis and cardiac failure.

3.2 Epidemiology

Rabies virus has been found in most provinces and territories of Canada, most often in wild animals. Few cases have been documented in domestic or farm animals.

Since 1998 there have been 5 lab confirmed cases of rabies in animals in Nova Scotia. Two fox were diagnosed in 2007, one cat in 2003 and two bats in 2000. All of these were bat strain rabies virus. Nova Scotia has not seen any raccoon strain rabies in the province, but the bordering province of New Brunswick has cases of raccoon rabies. There have been no lab confirmed human cases of rabies in NS.

4.0 KEY ELEMENTS RABIES RESPONSE PLAN

The key elements of the Nova Scotia Response Plan for rabies virus are noted below. Activities for the start of each season are outlined along with a response if rabies activity is detected.

4.1 Nova Scotia Rabies Working Group

The Rabies Working Group consists of experts in wildlife, and human health who are working together to ensure a consistent and co-coordinated approach to protecting Nova Scotians from rabies virus. This group of experts is responsible for developing and implementing this rabies virus response plan and for the ongoing assessment of risk to Nova Scotians. Members represented on the working group have different roles and responsibilities.

The working group meets regularly, to monitor all activities related to the response plan.

Nova Scotia has also been working with the other Atlantic Provinces to share expertise and resources in this area. The Nova Scotia Rabies Working Group has representatives on the National Rabies virus Human Sub-Committee co-coordinated by the Public Health Agency of Canada.

4.2 Human Illness Surveillance

National case definitions for rabies are available in <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/index-eng.php>. Rabies virus is on the list of Notifiable Diseases in Nova Scotia. Physicians and laboratories are required to notify the Medical Officer of Health of all cases of Rabies illness. The Medical Officer of Health will determine if the case meets the case definition and will then initiate investigation of the case.

Details on Public Health investigation and management, as well as rabies investigation report forms, are found in the Communicable Disease Prevention and Control Manual available at http://www.gov.ns.ca/hpp/publications/cdc_manual.pdf. Also, please refer to section 4.6 for information on laboratory diagnostics.

4.3 Other Animal Surveillance

Rabies in animals is a reportable disease to CFIA. All veterinary laboratories diagnosing positive rabies virus samples or suspect of rabies in domestic animals must immediately notify CFIA. CFIA will notify HPP (chair of Rabies working group) of any positive rabies tests.

Veterinary practitioners clinically suspecting/diagnosing rabies are to also contact their nearest CFIA Animal Health Veterinarian for a possible farm or premises visit and subsequent inspection or investigation.

As well, the Department of Agriculture will notify NS HPP (chair of the Rabies Working Group) if any positive reports of rabies virus are diagnosed or highly suspected.

4.4 Public Awareness and Education Campaign

Actions taken by the general public play an important role in preventing human cases of rabies. The public will be provided with information on rabies including symptoms and how to avoid unprovoked animal encounters. Key messages include:

- Individuals in high-risk groups including, veterinarians, lab workers, wild life workers and conservationists, hikers or cave explorers and individuals traveling to areas where rabies is endemic should be immunized.
- Register, license and vaccinate all domestic animals such as dogs and cats.
- Pet owners should be aware of the signs and symptoms of rabies.
- The public should be aware of the dangers of picking up sick or hurt animals or domesticating wild animals.
- Wild animals should not be relocated to other areas of province or to other provinces.
- Do not feed wild animals or leave left over food around yards, parks etc. as it may attract wild animals
- Seal small holes and entryways where bats could potentially enter homes, cottages, sheds, and other areas where they might have contact with people, pets or farm animals
- Vaccinate farm animals and livestock

See section 9.0 for the detailed Communications Plan. Information on rabies virus is part of a comprehensive 'Enjoy the Outdoors Safely' campaign, which currently includes Lyme disease, and West Nile virus.

The Nova Scotia Department of Health Promotion and Protection website has been updated to include easy-to-find information on rabies virus. The public can get information on health aspects of rabies virus by calling local Public Health Services.

Press releases and media interviews will keep the public updated during the summer months as needed.

4.5 Information for Health Professionals

Physicians and health care providers are informed that rabies virus illness is reportable in Nova Scotia under the Health Protection Act. In addition, physicians and other health professionals are provided with information on the risk assessment for rabies and the need to contact public health services when treating bites and wounds

related to animal exposures. This is done through letters, newsletter articles and videoconferences. Please refer to section 9.0.

4.6 Diagnostic Testing for Human Illness

Rabies testing for a suspected human case would be coordinated through the laboratory network in the province.

4.7 Rabies Control Measures in Animals

A number of factors need to be weighed for consideration of wildlife rabies vaccination programs.

- probability of human cases of rabies
- time of the year, i.e. mobility and habitat of animals
- relative size of the wildlife population
- wildlife species composition
- probability that abatement will work in that area
- density of human population

If necessary, the Nova Scotia rabies working group will make a recommendation regarding wildlife vaccine programs after discussing the circumstances with help from outside experts as needed. The recommendation for such an initiative would require joint approval by all working group representative's departments.

The Department of Natural Resources will assist Nova Scotia Health Promotion and Protection in any wild life rabies vaccination program.

5.0 ROLES AND RESPONSIBILITIES

All potential rabies exposures should be reported immediately to the local Public Health Services (PHS) office within the District Health Authority (DHA). In some cases, exposures involving farm animals are first reported to the nearest CFIA Animal Health Office, or Department of Agriculture who will then inform local PHS.

Prompt reporting of exposures ensures that steps are taken to locate the animal (if possible), place it in confinement or have it euthanized, and make appropriate and timely decisions regarding post exposure prophylaxis.

5.1 Role of Public Health Services (PHS)

- Ensure that all human exposures to an animal which have a potential to transmit rabies to humans are identified, assessed (investigated), and provided education.
- Provide advice on the need for rabies Post Exposure Prophylaxis (RPEP) and for ensuring that required RPEP biologicals are provided and administered.
- Inform those in the community who might "hear" about animal bites (physicians, emergency department staff, police, veterinarians, animal control staff, SPCA, DNR, etc.) to contact PHS immediately. Bites or other exposures that could pose a risk should be promptly reported to PHS. They should be informed of the process for contacting PHS (both during and after normal working hours).
- Establish protocols for reaching the local CFIA veterinarian, DNR staff and local animal control officers during and after normal working hours.
- Liaise with First Nations Health Centre or Health Canada EHO if incident involves First Nation individual.
- Complete the reporting requirements (investigation forms, biological forms, if necessary) for HPP.
- Provide communication support for local public health rabies prevention initiative, media, news releases, issue management, print materials and others as required.

5.2 Role of Canadian Food Inspection Agency (CFIA)

- Receive reports of suspect rabid domestic animals and wildlife as well as human exposures.
- Promptly inform the appropriate local Medical Officer of Health (MOH) or designate of any confirmed or suspect rabid animals and any potential human exposure to a suspect animal.
- Make arrangements (in cooperation with PHS) to ensure that suspect domestic, farm, or wild animals are assessed, confined and observed or sacrificed for rabies testing as appropriate.
- Notify HPP (chair of Rabies working group) of any positive specimens for rabies virus.
- See **Appendix A** for contact information for CFIA Animal Health Offices.

5.3 Role of NS Department of Natural Resources (DNR)

- Report all human exposures to suspect rabid animals to the local PHS office.
- Assist with determining if location, capture and euthanasia of wildlife are necessary or possible when there has been human contact and the transmission of rabies is a possibility. If necessary or possible, will coordinate the required actions.

- Upon request from PHS, assist with location and capture of feral domestic animals when there has been human contact and potential transmission of rabies. If the suspect animal has escaped after the initial contact, it may not be possible to locate it or positively identify that it was the same animal that had been involved in the human contact incident.
- Assist in the shipping of specimens to the nearest CFIA Animal Health Office for rabies testing as required.
- Provide assistance (as able) to Health Canada EHO for capture and arrangement of testing of animals involved with cases from First Nations and Inuit Health.
- See **Appendix B** for contact information for Department of Natural Resources staff.

5.4 Role of NS Department of Agriculture (NSDA)

- Assist in arranging for testing of farm animals for rabies virus.
- Promptly inform the appropriate local Medical Officer of Health (MOH) or designate of any confirmed or suspect rabid animals and any potential human exposure to a suspect animal.
- Notify HPP (chair of Rabies working group) of any specimens in NS positive for rabies virus.

5.5 Role of First Nations and Inuit Health (FNIH)

If a First Nations client is exposed to an animal that may be infected with rabies, they should report the incident to:

- the local First Nations Health Centre or nearest Emergency Department

The First Nations Health Centre will notify the local PHS office of the exposure. PHS will follow up the exposure as outlined in this document.

Community Health Nurses at First Nations Health Centres cannot provide treatment for wounds inflicted by animals with suspect rabies infection. However, they may be able to provide RPEP (likely doses 2 – 5) if necessary.

5.6 Role of NS Health Promotion and Protection (HPP)

- Review and analyze data regarding exposures to possible and positive rabies virus
- Secure biological procurement of provincial Rabies Immune Globulin and Rabies Vaccines and manage provincial supply

- Provide program response to public health case management of humans with rabies and investigation of suspect possible exposures to rabies
- Provide support to those involved in the provincial rabies program
- Coordinate and chair the provincial rabies working group
- Provide communication support for provincial rabies prevention initiative, media, news releases, issue management, print materials and others as required

5.7 Role of Municipalities

- If a municipality employs animal control staff, then Public Health Services may request their assistance in following up suspect rabies exposures from stray and domestic animals.

6.0 RISK ASSESSMENT OF NEED FOR RPEP

Overall, in Nova Scotia, the risk is low for exposures to rabies infected animals but the potential is present. Additionally, inter-provincial and international transport of goods and products via rail, air, boat, and truck into the province can potentially introduce animals with rabies virus into the province.

PHS must be promptly notified of all incidents where transmission of rabies to humans may be possible. PHS staff will determine whether rabies Post Exposure Prophylaxis should be provided after careful examination of all the risk factors in a particular exposure situation.

The assessment of all suspect rabies exposures by PHS should include the evaluation of all the following risk factors:

- a) The nature of the exposure (including bite or non-bite, severity and location of the wound),
- b) The type of animal (wild animal versus domestic animal), including the risk of rabies in the animal species involved,
- c) Behaviour of the animal (provoked or unprovoked attack) at the time of the bite,
- d) The availability of the animal for observation and/or laboratory testing of the animal brain.

The assessment may include consultation by PHS staff with the nearest CFIA Animal Health Office and/or DNR staff or others as appropriate. Once a decision is made that the client requires prophylaxis, both Rabies Immune Globulin and rabies vaccine should be given to previously unvaccinated clients. Those with previous rabies immunizations may only require vaccine and not RIG – This will be determined in the assessment of the situation.

6.1 The Nature of Exposure

Rabies is a viral infection transmitted in the saliva of infected mammals. Transmission occurs when virus-laden saliva of a rabid animal is introduced by a bite or scratch through intact skin or onto mucous membranes. If there is no such exposure, post-exposure prophylaxis is not indicated.

6.1.1 Bites

- Rabies is most commonly transmitted through bites (any penetration of the skin by teeth)
- Bites from bats may not always be apparent therefore, it is important to obtain details on whether there was direct contact with a bat and a bite, scratch or saliva exposure into a wound or mucous membrane cannot be ruled out. See section 6.1.2 for further information on direct contact
- A bite with prominent salivary contamination (i.e. through exposed skin) is more likely to produce rabies than one through thick clothing that removes saliva from the animal's teeth. Multiple bites are more likely to transmit the disease than a single bite
- 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 can influence the incubation period. It has been reported that the incubation period may be shorter when the site of the bite is on the head than when it is on an extremity. Bites on the face are more likely to result in disease than those on the extremities.
- When a domestic animal has inflicted a facial bite (due to distance from the brain and influence on the incubation period), PHS staff may decide to initiate RPEP before the end of a 10-day observation period. PHS should consult with the nearest CFIA Animal Health Office to decide whether immediate euthanasia and testing of the animal may be warranted.

6.1.2 Non-Bite Exposures

- "Non-bite" contamination of scratches, abrasions and open wounds or mucous membranes by saliva or other potentially infectious material, such as the brain tissue of a rabid animal, can transfer the virus.
- When direct contact between a human and a bat has occurred and the bat is not available for testing, RPEP should be considered, when both of the following conditions apply:
 - 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

“Direct contact is defined as the bat touching or landing on a person. NACI no longer recommends RPEP when this is no contact involved. Any direct contact of a bat with skin or mucous membranes is considered a reason for intervention unless a bite, scratch, or saliva exposure into a wound or mucous membrane can be ruled out. In an adult, a bat landing on clothing would be considered reason for

an intervention only if a bite, scratch, or saliva exposure into a wound or mucous membrane could not be ruled out. In a child, any direct contact with a bat should be considered a reason for an intervention, including contact through clothes, as a history to rule out a bite, scratch, or mucous membrane exposure may not be reliable. When a bat is found in a room with a child or an adult who is unable to give a reliable history, assessment of direct contact can 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 an obvious bite or scratch mark. Intervention is defined as testing the bat for rabies, if it is available, and/or RPEP as indicated.”

If possible, the bat involved in the exposure should be captured and tested to determine whether it is infected and if RPEP is required.

6.1.3 Non-Risk Exposures

- Petting a rabid animal or handling its blood, urine or feces does not constitute an exposure (Human Rabies Prevention - United States, 1999, MMWR January 8, 1999/Vol.48/No. RR-1),
- Being sprayed by a skunk is not considered to be an exposure,
- Rabies virus is inactivated by desiccation and ultraviolet irradiation. In general, if the material containing the virus is dry, the virus can be considered noninfectious.

6.2 Type of Animal (domestic animal or pet versus wild animal)

PHS staff must determine whether the animal is a “domestic animal” (horses, cattle, etc.), “pet” (dog, cat, ferret, etc.) or a “wild animal”. The wild animal category for this purpose includes stray dogs/cats/ferrets, wild animals (such as coyotes, raccoons, skunk, etc.) and exotic animals. The species of animal, the risk of rabies infection in the species and the geographical location where the exposure occurred, all need to be considered. The CFIA Animal Health Office can provide PHS staff with information about the likely risk of infection in various species. The likelihood of rabies in wildlife and domestic animals in Nova Scotia is considered low.

6.2.1 Domestic Pets (cats, dogs, ferrets) and Other Domestic Animals

- If the exposed person owns the animal or knows the owner of the animal well, PHS staff should advise the person to observe the animal for ten days. The owner must be instructed to have the animal assessed by a veterinarian and immediately inform PHS if the animal becomes unwell during the observation period. PHS staff must inform and consult with the MOH and the nearest CFIA Animal Health Office if the animal becomes unwell. The exposed individual should also be advised to seek medical treatment for the wound if necessary.

- If the exposed person does not know the owner of the animal or requests assistance, PHS staff will contact the owner of the animal and advise the owner to observe the animal for ten days. The owner must be instructed to have the animal assessed by a veterinarian and immediately inform PHS if the animal becomes unwell during the observation period. The CFIA Animal Health Office and/or local animal control staff should be contacted if assistance is required. The exposed individual should also be advised to seek medical treatment for the wound if necessary.
- PHS staff must inform and consult with the MOH and the nearest CFIA Animal Health Office if the animal becomes unwell. PHS staff will assess whether the exposure was provoked, the animal is clinically normal, will determine its rabies immunization status and will ensure that the animal will be assessed, observed and confined (as required) for ten days. If the animal's behavior during the 10-day observation period remains normal, the client need not receive post-exposure prophylaxis beyond proper wound care. The nearest CFIA Animal Health Office should be consulted to assist with the assessment as necessary.
- PHS staff should contact their nearest CFIA Animal Health Office immediately if illness develops in the animal during the observation period. If signs and symptoms suggestive of rabies develop, the CFIA Animal Health Office will ensure that the animal is euthanized and tested for rabies infection.
- An animal's history of up-to-date rabies immunization makes the chance of rabies much less, but does not eliminate risk. The vaccination history in itself should not solely influence the need for prophylaxis or the need to sacrifice the animal for testing. An up-to date rabies immunization for pets varies with the product used so it is important to inquire details on all rabies vaccine. Some products are administered yearly and others are every 3 years. Missed doses can lead to decreased immunity.
- Recent studies regarding rabies pathogenesis and viral shedding patterns, and evidence of the efficacy of the IMRAB3 vaccine in ferrets has led to the recommendation of including domestic (pet) ferrets with domestic cats and dogs rather than with wild animals.

6.2.2 Other Domestic Animals (horses, cattle, swine, etc.)

- PHS staff should consult with the nearest CFIA Animal Health Office to determine whether sacrifice and testing are needed when rabies is suspected as part of the differential diagnosis.

6.2.3 Wild and Stray Animals

- All wild and stray animal (foxes, raccoons, skunks, bats, etc.) bites and hazardous non-bite exposures are of concern and PHS should be immediately notified (by person bitten, their parent or guardian, health care professional, local animal control officer, DNR staff, etc.).

- PHS staff may consult the nearest CFIA Animal Health Office as required to help determine the risk of rabies in the species to which a person was exposed.
- Bites from rabbits or small rodents (such as squirrels, rats, gerbils, mice, and chipmunks) seldom, if ever, call for rabies prophylaxis (only if the behavior is highly unusual).
- Exotic animals (lions, monkeys, etc.) 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. The nearest CFIA Animal Health Office must be consulted. Risk assessment would include an examination by a veterinarian. Sacrifice and testing should be done if rabies is part of the veterinarian's differential diagnosis and/or the CFIA Animal Health Office recommends it. Monkey bites should be reported to the District MOH and the CFIA Animal Health Office due to risk of B-virus infection.
- PHS staff should request whether a local animal control officer or staff from DNR could locate and confine a stray dog, cat, or ferret. A veterinarian should assess the animal. If it is clinically normal and the suspicion of rabies is low, it should be held and observed for ten days in a secure facility. If this is not feasible or if there is any suspicion of rabies illness, the animal should be euthanized and the head submitted for rabies testing.

6.2.4 Animal Exposures outside Nova Scotia

The nearest CFIA Animal Health Office should be consulted for current information about the risk posed by the animal species where the exposure occurred.

6.3 Behaviour of Animal

The behaviour of the animal in relation to the human behaviour (provoked attack or unprovoked attack) at the time of the bite must be considered. The CFIA Animal Health Office can provide advice to PHS staff about this assessment if required.

- 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 incite 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 the animal's litter
 - Coming too close to an injured animal
 - Trying to break up 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

- Signs of rabies cannot be reliably interpreted in wild animals.
- An unprovoked attack may indicate that the animal is rabid. Rabid cats and dogs may, however, become uncharacteristically quiet.
- The symptoms in different animal species can vary considerably, but almost always there is a change of temperament and evidence of paralysis, with death ensuing within a few days of the onset of symptoms.
- The overall period from onset of clinical symptoms to death rarely exceeds ten days in dogs, cats, and ferrets. In the earlier stages, a common factor is that the animal undergoes a change of temperament so that a normal friendly animal may become snappy and seek to avoid his owner's company. Timid, shy animals may become less restrained and unnaturally approachable.
- PHS staff should consider recommending RPEP while awaiting the results of rabies testing or the outcome of an animal confinement if the behaviour of the animal is highly suspicious of rabies. The CFIA Animal Health Officer can provide advice about interpretation of animal symptoms and the MOH should be consulted.

6.4 Availability of Animal (for observation and/or laboratory testing)

(Also refer to Section 7.0 Management of Animals Involved in Biting Incidents)

6.4.1 Animal is available for Observation

- PHS staff should ensure that every effort has been made to locate pet dogs, cats, and ferrets before recommending RPEP. Local animal control officers (where available) can assist PHS staff in ensuring that the animal is located and assessed.
- An apparently healthy pet dog, cat or ferret that bites a person should be confined and observed for ten days (the day of the bite would be day one). This may eliminate the need for RPEP and unnecessary laboratory testing of the animal brain for rabies. The nearest CFIA Animal Health Office may be consulted as needed to ensure that this occurs.
- PHS staff should contact DNR staff and local animal control officers (where available) to attempt to locate and capture a stray dog/cat/ferret. If clinically normal and the suspicion of rabies is low, the animal should be held in a secure facility and observed for ten days. If the animal remains clinically normal throughout this ten-day period, then rabies can be ruled out.
- Circumstances of the exposure as well as the location and severity of the bite may, however, may justify early initiation of RPEP.

6.4.2 Animal available for Laboratory Testing of the Brain

- PHS staff should ensure that any wild animal that has bitten a person, is captured if possible, sacrificed and tested for rabies infection. PHS staff should contact their nearest CFIA Animal Health Office to make arrangements for the testing of the animal.
- PHS staff should contact the local office of DNR to request that a wild animal be captured if possible. DNR can also pick up a dead animal that has

exposed a person after normal working hours (evenings, weekends, and holidays) and store it until the CFIA Animal Health Office can be reached. It may not be possible to reach the CFIA Animal Health Office outside of regular office hours.

- DNR will notify PHS whether capture of the wild animal has been possible. PHS should contact their nearest CFIA Animal Health Office on next business day if after hours or on a weekend.
- The CFIA Animal Health Office will make arrangements with DNR staff for the animal to be euthanized and for the head to be sent for testing. A bat should be safely collected and the entire bat can be submitted for rabies diagnosis.
- If a person brings a dead animal to which they or another person has been exposed (most likely a bat) directly to a PHS office, PHS staff should make arrangements with the nearest CFIA Animal Health Office for testing of the animal.
- Dogs, cats, ferrets and other domestic animals and stray pets that exhibit any signs of illness during an observation period should be sacrificed and submitted for rabies testing (in consultation with the CFIA Animal Health Office).
- RPEP may be started pending animal examination results if the exposure is felt to be high risk. Factors to consider include the severity and location of bites (head and neck of greatest concern), the health and behavior of the biting animal, availability of test results and the reliability of victim to recognize or report the nature of the exposure. In high-risk situations, PHS may recommend that prophylaxis be started. The need for completion of RPEP will be determined by the animal test results.
- Negative test results obtained by appropriate and systematic examination of specimens can be interpreted reliably so that no RPEP is required or RPEP that was initiated can be stopped.

6.4.3 Animal not available for Observation or Laboratory Testing

PHS staff can obtain advice on the risk of rabies exposure when the animal is not available for testing or observation from the CFIA Animal Health Office. Such situations should be discussed with the local MOH.

If the animal is not available for observation and/or testing, PHS staff should generally consider and recommend RPEP for exposure from:

- wild animals,
- stray dogs, cats and ferrets
- pet dogs and cats in an unprovoked attack (especially if no previous history of unprovoked attacks and incomplete or inadequate immunization against rabies)
- bat exposures when both of the following conditions apply:
 - 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. See section 6.1.2 for further details.

- small rodents almost never warrant prophylaxis

7.0 RISK REDUCTION AND MANAGEMENT OF ANIMALS INVOLVED IN INCIDENTS

7.1 Risk Reduction

To reduce the risk of rabies virus illness in general, a number of steps can be considered:

- Maintain a surveillance system for animals and human illness in order to detect rabies
- Educate the public on ways to reduce exposures to wild animals including not feeding wildlife and ensuring homes are sealed from bats
- Encourage vaccination of domestic pets and farm animals

It is not practical to carry out any degree of detailed planning for rabies vaccination program in wildlife at this time but if necessary, this will be addressed.

7.2 Management of Animals

The management of animals that have bitten/exposed a human depends on whether the animal is a pet or other domestic animal or a wild animal.

PHS staff should ensure that all possible effort is made to locate animals that have exposed humans to the risk of rabies (bite or non-bite exposures). Locating the animal for observation or testing, as appropriate, can reduce unnecessary RPEP.

- PHS staff should notify the nearest CFIA Animal Health Office of any animal suspected of being rabid, regardless of whether it has been involved in a biting incident. If the MOH and CFIA Animal Health Office agree that the animal should be euthanized, CFIA will make arrangements for this.

PHS staff must consult with the MOH and the CFIA Animal Health Office about the need to euthanize any domestic animal for rabies testing.

7.2.1 Domestic Animals

- PHS staff should ensure that domestic animals are located and observed. The nearest CFIA Animal Health Office and local animal control services (if available) should be contacted to provide assistance if necessary.
- Apparently healthy, non-stray dogs/cats/ferrets, and if feasible, clinically normal strays, should not be euthanized before a ten-day observation period. PHS staff must discuss the destruction and testing of an animal before the end of the observation period with the MOH and the CFIA Animal Health

Office. Rarely, if the animal is indeed rabid, but is not exhibiting signs of rabies, the virus may not have reached the brain and the test results may be falsely negative. If the animal remains clinically normal throughout this ten-day period, then exposure to rabies can be ruled out.

- If an attack by a domestic non-stray dog/cat/ferret was provoked and there are no clinical signs of rabies in the animal, the animal can be confined at home. It should be confined in a building or secured area so that it cannot run away. Local animal control officers (if available) can provide assistance to ensure that the necessary arrangements are made.
- If the owner refuses to quarantine an animal, the CFIA Animal Health Office can issue an order for the animal to be secured alive and uninjured and confined in a secure place at the owner's expense for up to ten days. Municipalities, PHS and/or the CFIA Animal Health Office should develop a list of kennels where pet dogs/cats/ferrets under observation could be detained (at the owner's expense) if the owners refuse to confine them at home.
- If the animal is euthanized, PHS and the CFIA Animal Health Office should ensure that the head is tested in order to rule out rabies.
- At the first sign of illness during confinement, PHS staff must be immediately notified by the owner or the persons responsible for confining and observing the animal.
- PHS staff will immediately contact their nearest CFIA Animal Health Office who will ensure that the animal is examined and will arrange for euthanization and testing as required. If signs suggestive of rabies develop, the animal should be euthanized and its head removed and shipped for testing.
- In cases where a domestic dog/cat/ferret does not appear to be clinically normal, is dangerous or has inflicted a facial bite, the MOH and/or the CFIA Animal Health office can decide whether immediate euthanasia and testing is warranted.
- Stray domestic pets (cats, dogs, ferrets) should be confined for observation instead of being immediately euthanized if possible and appropriate. PHS staff should make this decision in consultation with the MOH and the CFIA Animal Health Office.
- A stray dog, cat, or ferret that bites/exposes a person and is aggressive or displaying abnormal clinical signs may be euthanized immediately and have its head sent for testing. Otherwise, euthanize only if observation for ten days in a secure facility is not feasible.
- Sacrifice and testing of non-feline/non-canine domestic animals such as horses, cattle and swine should be done if rabies is part of the CFIA Animal Health Office's differential diagnosis.

7.2.2 Wild Animals

- PHS staff should contact DNR officers to request assistance for capturing stray or wild suspect animals. DNR officers can attempt to locate/euthanize the suspect animal (if not already done) and will collect the head to submit it

to the CFIA Animal Health Office for testing. DNR will only provide assistance when resources are available and if the suspect animal is identifiable (trapped in a closed area).

- If the wild animal is captured, it should be euthanized and the head sent by DNR staff to the CFIA Animal Health Office for testing.
- A bat should be safely collected, if possible, and the entire bat submitted for testing.
- Sacrifice and testing of exotic animals should be done if rabies is part of the veterinarian's differential diagnosis and only in consultation with the nearest CFIA Animal Health Office.

7.2.3 Laboratory Testing of Animals

- Testing of animal specimens for rabies in Nova Scotia is done at the Animal Disease Research Institute (ADRI) in Nepean, Ontario. The CFIA Animal Health Office will ensure the collection and shipping of appropriate specimens for diagnosis. The specimen must be shipped appropriately and classified as "dangerous goods".
- 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 RPEP. 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) for detection of rabies virus antigen in brain tissue is used as the primary diagnostic test. The test has a sensitivity approaching 100%. Results are usually available within 24-hours of receipt of the specimen at the ADRI. When there has been human exposure, positive results are immediately phoned to the nearest CFIA Animal Health Office who will ensure that PHS is also immediately notified. If the FAT is negative, a rabies tissue culture test is performed. The results of this test are available in four to five days. A positive tissue test culture result is always phoned-in as well.
- If the animal has already been euthanized, burned or buried, there may still be enough matter suitable for testing. PHS staff should discuss such situations with the local MOH and the nearest CFIA Animal Health Office.

7.2.4 Quarantine of Exposed Animals

- In some cases, a pet or domestic animal may have been attacked by or fought with a suspected or confirmed rabid animal. Consequently, the animal may remain at risk for developing rabies in the future. PHS staff should consult with the nearest CFIA Animal Health Office for direction on the assessment and any required quarantine and observation of the animal.

7.3 Management of Exposed People

- Rabies RPEP must be considered in every incident in which potential exposure to the rabies virus has occurred. In evaluating each case, PHS staff must be consulted. Rabies in humans can be prevented by providing exposed clients with prompt local treatment of wounds combined with appropriate passive and active immunization.

7.3.1 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, flushed with running water and then treated 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, and RIG should be infiltrated in the area around and into the wound. 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 prophylaxis should be given as indicated. There should be an assessment by a physician regarding measures to control bacterial infection (antibiotic therapy).

7.3.2 Immunizing Agents

There are two types of immunizing products:

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

7.3.3 Post-Exposure Immunization

When post-exposure rabies prophylaxis is recommended:

- PHS staff must determine the immunization status of the client.
- Refer to Section 7.3.6, "Post-Exposure Immunization of Previously Immunized Clients", if applicable.
- RPEP started in another country requires individual assessment and consultation with the MOH.
- PHS staff must discuss with the client their willingness and commitment to accept and complete rabies prophylaxis.
- If PHS staff administers RPEP, informed consent for immunization must always be obtained from the client.
- PHS staff should plan the immunization schedule with the client and confirm the identity and location of the health care provider who will give RPEP.

- Rabies vaccine and RIG must be used concurrently for optimum RPEP except in certain previously immunized clients.
- Pregnancy is not a contraindication to post-exposure prophylaxis, if it has been determined that the client is at risk of infection.
- If notification of an exposure is delayed, RPEP may be started as late as 6 months or more after exposure. The combination of RIG and rabies vaccine is recommended regardless of the interval between exposure and initiation of treatment.
- If the client needs to complete the post-exposure series outside of the PHS area, PHS staff should ensure that arrangements are made to complete the series.

7.3.4 Administering RIG

- The recommended dose is 20 IU/kg (0.133ml/kg) of body weight. Excessive dosages can interfere with active antibody production and should be avoided.
- If anatomically feasible, the full dose should be infiltrated in the area around and into the wound. If not anatomically feasible, any remaining volume of RIG should be injected, using a separate needle and syringe, intramuscularly at a site distant from vaccine administration. (Canadian Immunization Guide, Seventh Edition, 2006).
- 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.

7.3.5 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.
- A series of five doses (1ml each) of rabies vaccine is provided intramuscularly (at a site separate from RIG) on each of days 0, 3, 7, 14, and 28.
- Rabies vaccine should **never** 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.
- A course of vaccine started before rabies-testing results are available may be discontinued if the direct fluorescent antibody test of the brain of the animal responsible for an attack proves to be negative unless the client is at continued risk of rabies exposure and requires pre-exposure prophylaxis.
- Rabies antibody titer determination is not usually necessary following treatment. However, clients 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.

For additional information please refer to the Canadian Immunization Guide, (Seventh Edition, 2006) and the product insert.

7.3.6 Post-Exposure Immunization of Previously Immunized Clients

- RPEP for clients who have previously received rabies vaccine depends on what preparation of rabies vaccine was previously received (please refer to the Canadian Immunization Guide, Seventh Edition, 2006 and the Errata/Clarification of the CIG, 2008).
- Two doses of rabies vaccine (HDCV), one injected immediately and the other three days later without RIG, are recommended for exposed individuals with the following rabies immunization history:
 - Completion of an approved course of pre- or post-exposure prophylaxis with HDCV or PCECV; or
 - Completion of immunization with other types of rabies vaccine or with HDCV according to unapproved schedules so long as neutralizing rabies antibody has been demonstrated in serum.
- If vaccine other than HDCV was used for pre-exposure immunization and the client'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. (Canadian Immunization Guide, Seventh Edition, 2006 and Errata/Clarification of the CIG, 2008).

8.0 OBTAINING RABIES BIOLOGICALS

A limited supply of RIG and rabies vaccine is kept in each PHS district. Only the MOH or delegate can authorize the release of RIG and vaccine for a client.

8.1 Authorization of Biologicals

- Only the District MOH (or MOH on-call after-hours) or delegate can authorize release of Rabies Immune Globulin (RIG) and rabies vaccine for a client.
- The Chief Medical Officer and Deputy Chief Medical Officer of Health are available for consultation if required by the MOH.
- RIG and Rabies vaccine should be stocked within the PHS district where it can be accessed by appropriate staff when authorized by the MOH.

8.2 Requirements for Additional Biologicals

- If more RIG and vaccine is needed than what is available in the stock supply (multiple cases occurring at a time, or more RIG being required), then

During regular business hours:

- PHS staff should contact the Provincial Biological Depot Coordinator to arrange the shipment of the required biologicals.

Outside of regular business hours:

- If necessary, the MOH (or on call CD PHN) should page the Provincial Biological Coordinator, or delegate, to arrange for the release and delivery of additional vaccine or RIG.
- The Provincial Biological Depot Coordinator will check to ensure that the release of the vaccine has been authorized by the MOH on-call before releasing it.

9.0 COMMUNICATION STRATEGY

Objectives:

- To raise awareness of and prevent Rabies within Nova Scotia
- Provide Nova Scotians with consistent, up to date and reliable information about Rabies
- Ensure health care providers have access to information regarding Rabies including legislature regarding disease reporting
- Emphasize the importance of individual responsibility in preventing the spread of Rabies

Target Audiences:

- General public
- Media
- Health care professionals
- Tourists/Outdoor recreationalists

NSHPP provides information and resources about the risk of Rabies in NS as well as recommendations to prevent unwanted exposures from potential animals with rabies to the public, media and health care workers. The tools used to provide information include:

- NSHPP Rabies pamphlets
- NSHPP Rabies poster (to create awareness of potential “hitchhiking critters”)
- Annual NSHPP letters to NS health care providers
- NSHPP updates provided to Doctors NS
- Media articles and press releases from NSHPP
- NSHPP website

The pamphlets and posters are distributed by PH staff to various community and health care setting (hospitals, clinics, physician offices, school boards, community and recreation centres, municipal offices, visitor information centres, campgrounds, golf courses, parks, etc.).

The key messages provided include:

- Individuals in high-risk groups including, veterinarians, lab workers, wild life workers and conservationists, hikers or cave explorers and individuals traveling to areas where rabies is endemic should be immunized.
- Register, license and vaccinate all domestic animals such as dogs and cats.
- Pet owners should be aware of the signs and symptoms of rabies.
- The public should be aware of the dangers of picking up sick or hurt animals or domesticating wild animals.
- Wild animals should not be relocated to other areas of province or to other provinces.
- Do not feed wild animals or leave left over food around yards, parks etc. as it may attract wild animals.
- Seal small holes and entryways where bats could potentially enter homes, cottages, sheds, and other areas where they might have contact with people, pets or farm animals.
- Vaccinate farm animals and livestock.

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National Advisory Committee on Immunization (2009). *Recommendations Regarding the Management of Bat Exposures to Prevent Human Rabies.* CCDR, Volume 35, November 2009.

Nova Scotia Department of Health Promotion and Protection (2009). *Nova Scotia Communicable Disease Control Manual.* Halifax, Nova Scotia.

Public Health Agency of Canada (2006). *Canadian Immunization Guide, 7th ed.* Ottawa, Ontario: Public Works and Government Services Canada.

Public Health Agency of Canada (2008) *Errata/Clarifications to the Canadian immunization Guide.* CCDR, Volume 34, Number 05, 2008

APPENDIX A

CFIA ANIMAL HEALTH OFFICES DISTRICT VETERINARIANS

Truro Animal Health office

Dr. Allan G Macaulay
District Veterinarian
Telephone: (902) 893-6863

Kentville Animal Health Office

Dr Susan Burzynski
Animal Health Veterinarian
Telephone: (902) 679-5742

Halifax District Animal Health Office

Dr. Shane Hood
Port Veterinarian
Halifax District AH Office

Telephone: (902) 679-5586

Updated: May 28, 2010

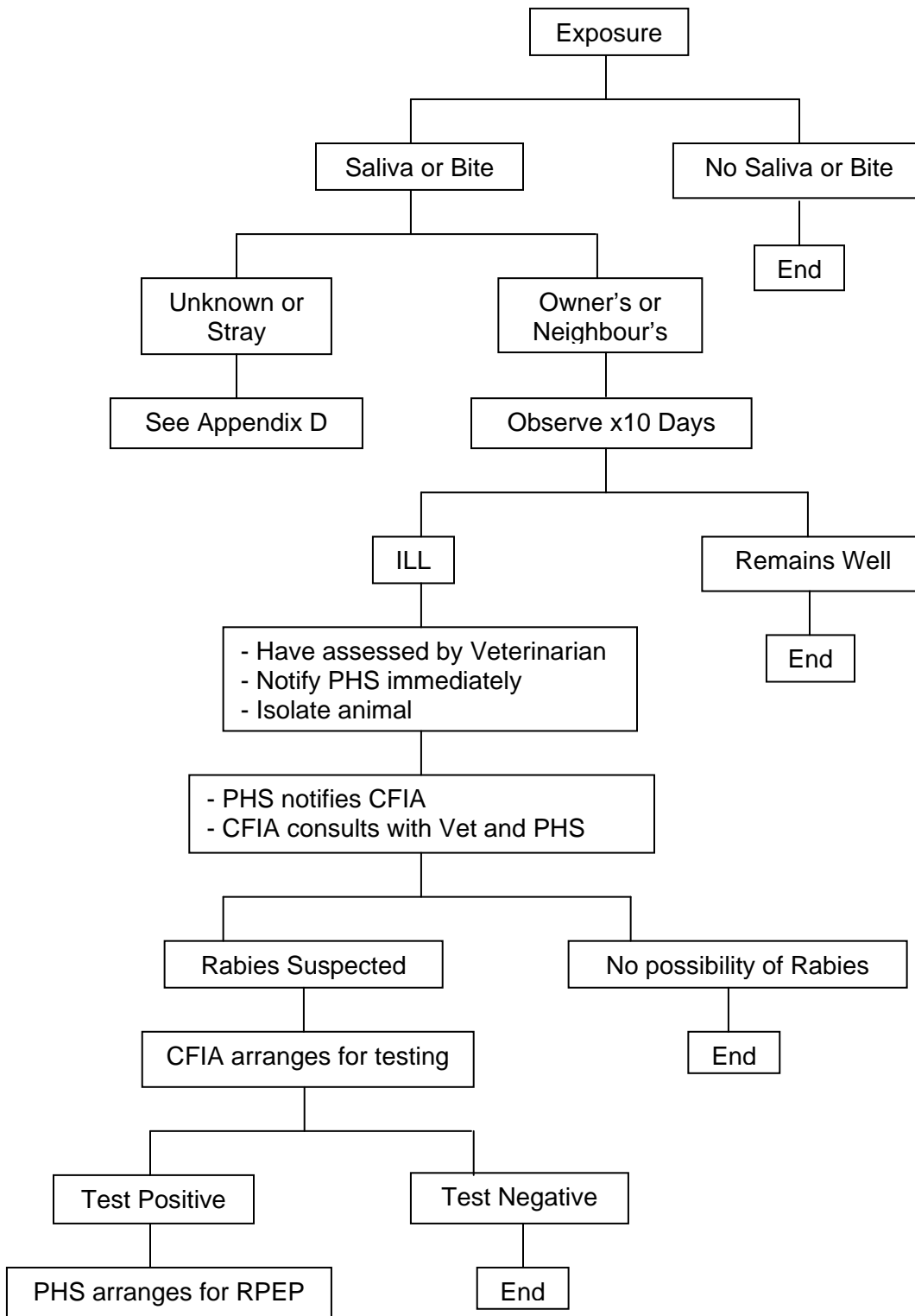
APPENDIX B

DNR SENIOR TECHNICIANS

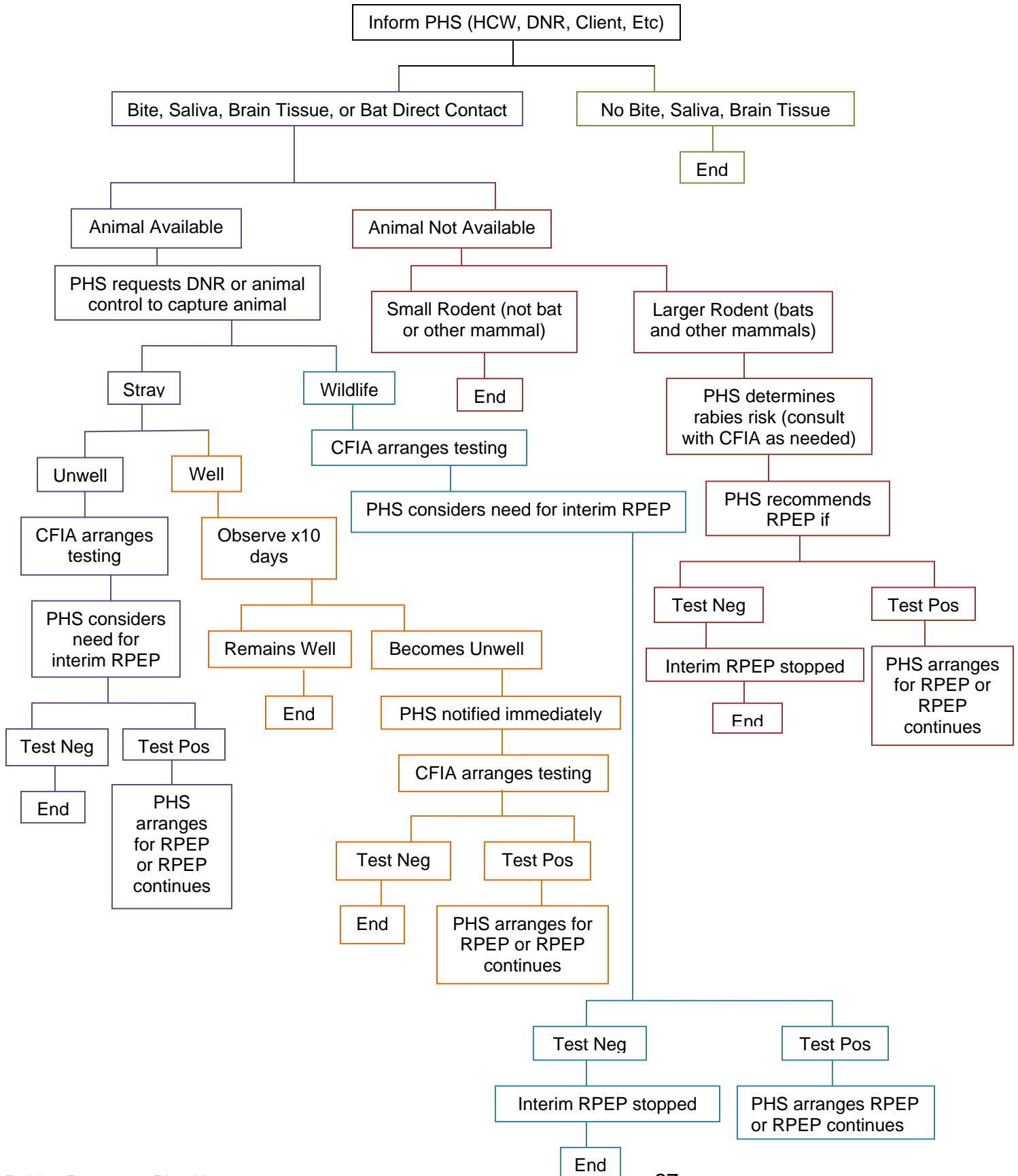
WESTERN	DIGBY	902-245-2164
	SHELBURNE	902-875-2501
	MILTON	902-354-4362
CENTRAL	WINDSOR	902-798-2016
	OXFORD	902-447-2115
EASTERN	STILLWATER	902-522-2024
	WHYCOCOMAGH	902-756-2339
	GUYSBOROUGH	902-533-3503

AFTER HOURS: 1-800-565-2224

APPENDIX C
Exposure from Owner's/Neighbour's Pet



APPENDIX D Exposure to Wildlife or Stray Animals



APPENDIX E Exposure to Domestic Animals

