


Canadian Food Inspection Agency / Agence canadienne d'inspection des aliments



# RABIES GUIDANCE INFORMATION FOR PROVINCES AND TERRITORIES

MODULE 1

## Determining the Risk of Rabies

START

Canada

### OBJECTIVES

- A** Brief Overview of CFIA'S Rabies Program
- B** Understanding the Disease & Distribution
- C** Understanding Exposure
- D** Determining the Risk of Rabies - Assessing a Possible Rabies Event
- E** Summary

00:00 / 00:52

### **A** Brief Overview of CFIA'S Rabies Program

- The Federal *Health of Animals Act* and associated *Regulations* provide the authority to name / control diseases; Rabies is a federally reportable disease;
- CFIA's rabies policies protect the public by focusing on domestic animals as the conduit between wild animals and the public;
- CFIA's rabies program:
  - investigates potential rabies events (involving domestic animals and/or humans)
  - collects / submits samples when indicated
  - performs diagnostic testing (e.g., FAT, virus typing)
  - applies disease control actions when indicated
  - collects and reports rabies statistics
  - licenses rabies vaccinations for domestic animals
  - enforces import / export restrictions with respect to rabies
  - undertakes rabies research as Centre of Expertise; OIE Reference Laboratory for Rabies

00:00 / 03:19

**B Understanding the Disease & Distribution**

The disease: the rabies virus

- Rabies is a zoonotic disease caused by lyssaviruses (*Rhabdoviridae* family)
- principle wildlife reservoirs in Canada - bats, fox, raccoons, and skunks
- rabies virus (type species of *Lyssavirus*) can infect all mammals; **extremely rare** in rodents, lagomorphs;
- does **not** infect reptiles, birds or amphibians
- different rabies virus variants are associated with different animal species

**Short Video**

00:00 / 01:39

**B Understanding the Disease & Distribution**

The distribution:

- endemic in certain geographic populations of wildlife species
  - e.g. MB & SK - majority of cases are in striped skunks; NU, Labrador, northern QC, northern MB and NWT - majority of cases are in Arctic or red fox
  - recent years - most positive results from bats in various regions
- virus variants associated with vector species; can infect other species

"Geographic epidemiology":

00:00 / 01:41

**B Determining the Risk of Rabies**

**RABIES IN CANADA: 2012**

**SPECIES & RABIES VARIANT**

- ARCTIC FOX
- BAT
- BOVINE
- CAT
- DOG
- EQUINE
- HUMAN
- RED FOX
- SKUNK
- WOLF
- BAT VARIANT
- WESTERN SKUNK VARIANT
- DOMINICAN REPUBLIC/CHAD/DOG VARIANT
- FOX VARIANT

➔ "spill-over" into domestic animals  
 ➔ "spill-over" and translocation of domestic animals

00:00 / 01:56

**C Understanding Exposure**

**1. Understanding Exposure - as defined by World Health Organization (WHO)**

- WHO Expert Consultation on Rabies - Rabies document 2004-5 categories describe interaction levels with a **known rabid animal**
- a guide for determining need for rabies post-exposure prophylaxis (rPEP) based on extent of interaction
  - Category I** - touching, feeding, licks on intact skin = **No Exposure**
  - Category II** - nibbling of uncovered skin, minor scratches or abrasions without bleeding = **a Minor Exposure**
  - Category III** - transdermal bites (1or>) or scratches, licks on broken skin, mucous membrane contamination with saliva = **a Severe Exposure**

**2. Understanding Exposure - as applied by CFIA**

- based on the interaction descriptions in the WHO categories
- used to determine necessity for sample submission / disease control
- CFIA - exposure = **a minimum of Category II**

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**D Determining the Risk of Rabies - Assessing a Possible Rabies Event**

Several variables need to be evaluated when assessing a possible event

- Determining the presence of rabies
- Determining the circumstances of rabies virus transfer
- Evaluate behaviour of involved animal(s) - wild/domestic
- Is provocation involved in the event?
- Determine if there was a potential for exposure to rabies virus
- A word about bats!

00:00 / 00:27

**D Determining the Risk of Rabies - Assessing a Possible Rabies Event**

- Determining the presence of rabies
  - the virus needs to be present in the local geographic area, and
  - reservoir species need to be present in local geographic area; OR
  - domestic animal returned to area from a known rabies infected area

The possibility of an event being due to rabies is extremely unlikely when there is no geographic epidemiology of rabies.

00:00 / 00:27

**D** **Determining the Risk of Rabies - Assessing a Possible Rabies Event**

**2** Determination of possibility of exposure to rabies virus

- historical support of possible transfer of rabies virus from wildlife to domestic animals
- assess the circumstances / possibility of a transfer of virus e.g., dog fighting with an abnormally acting skunk in MB

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**D** **Determining the Risk of Rabies - Assessing a Possible Rabies Event**

**3** Evaluate behaviour of involved animal(s) - wild/domestic

**ask Q.** "Is this behaviour normal under these circumstances?"  
e.g., nocturnal animals active during the day is abnormal

**ask Q.** "Are there other reasons that could explain this behaviour?"  
e.g., - Canine distemper in raccoons can cause abnormal behaviour;

- A mother animal protecting her young can become aggressive
- Cattle with some metabolic conditions can become aggressive

00:00 / 00:32

**D** **Determining the Risk of Rabies - Assessing a Possible Rabies Event**

**4** Is provocation involved in the event?

- understanding the triggers of the fight / flight response in animals
  - trapped / cornered animals may become aggressive
  - injured animals may become aggressive e.g., a normal animal hit by a car may bite while being attended
  - abuse can cause aggression e.g., hitting a dog with a stick; pulling a cat's tail, etc.

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**D** **Determining the Risk of Rabies - Assessing a Possible Rabies Event**

**5** Determine if there was a potential for exposure to rabies virus

**ask Q.** "Was there a potential for exposure to rabies virus?"  
It is critical to understand what an exposure to rabies virus means. In order for a rabies exposure to have occurred, rabies **MUST** be present and the circumstances must support a history of rabies virus transfer, at some point, from wild to domestic animals.

**ask Q.** "What is the category of exposure?"  
Once it has been assessed that an event may be due to rabies, **and** that an exposure of a domestic animal / human to rabies virus is possible, a determination of the category of exposure will guide further actions.

- CFIA sample collection, submission and disease control decisions are based on a minimum of a Category II exposure.

00:09 / 00:44

**D** **Determining the Risk of Rabies - Assessing a Possible Rabies Event**

**6** A word about bats!

Difference between CFIA / National Advisory Committee on Immunization (NACI) - exposure vs. direct contact;

All CFIA's actions are based on exposure as described by WHO, and the application of epidemiological information

All recent Canadian origin cases of human rabies have been caused by bats

- Bats constitute the highest number of rabies submissions
- Bats constitute the highest number of positive rabies submissions but **only a small % of all bats submitted are positive.**

Not all bats need to be tested - abnormal behaviour; geographic prevalences

- humane euthanasia issues
- increased risk of exposure to individuals trying to catch bats

00:00 / 01:35

**SUMMARY**

**Answering Key questions**

- Where is rabies, and in what species?
- Has there been a potential exposure? Is it a minimum of a Category II?
- Should a sample be submitted?

00:00 / 00:41