

Rabies Prevention and Control

Working with our communities to promote and protect health and to prevent disease.

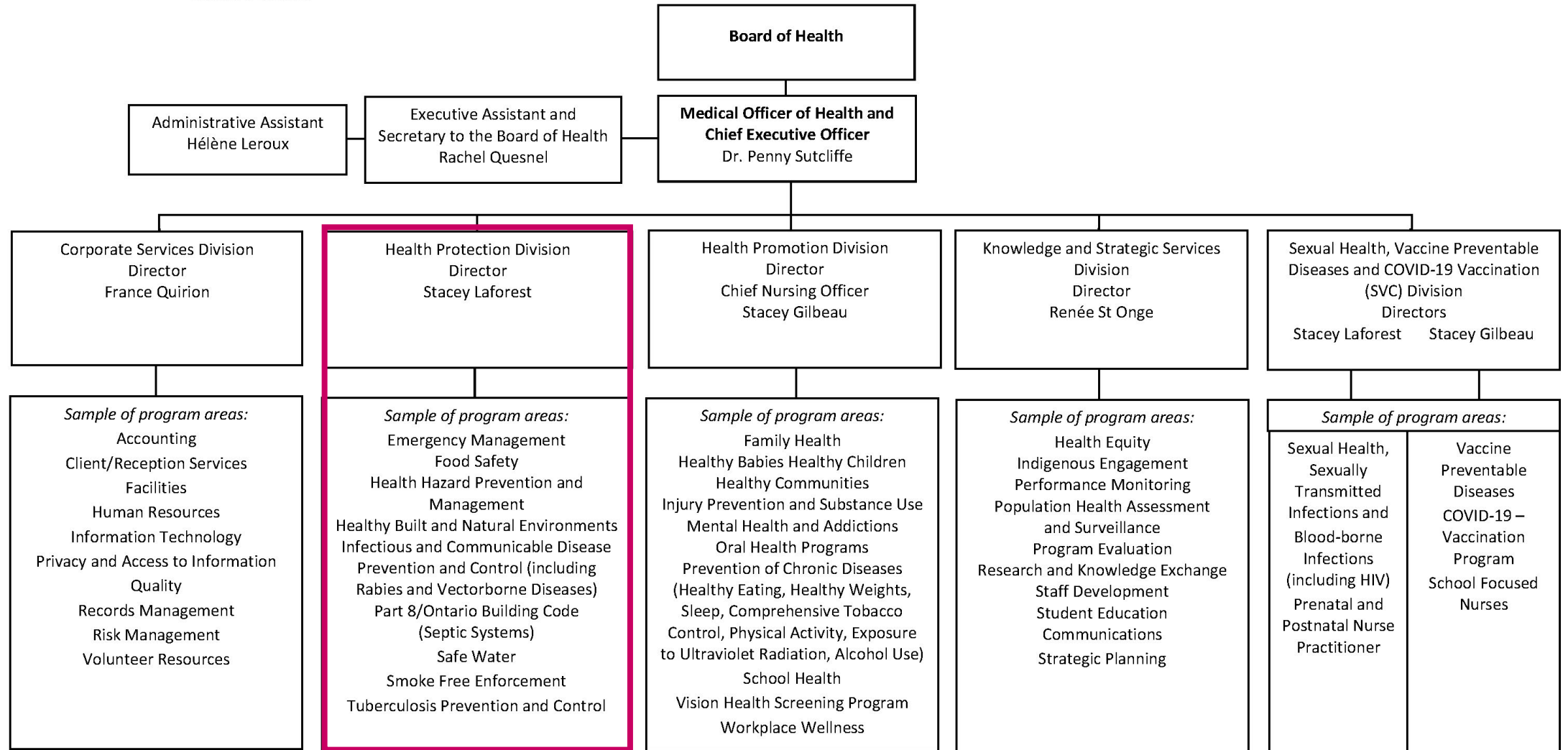
Rachel O'Donnell

Environmental Support Officer, Health Protection

May 18, 2023

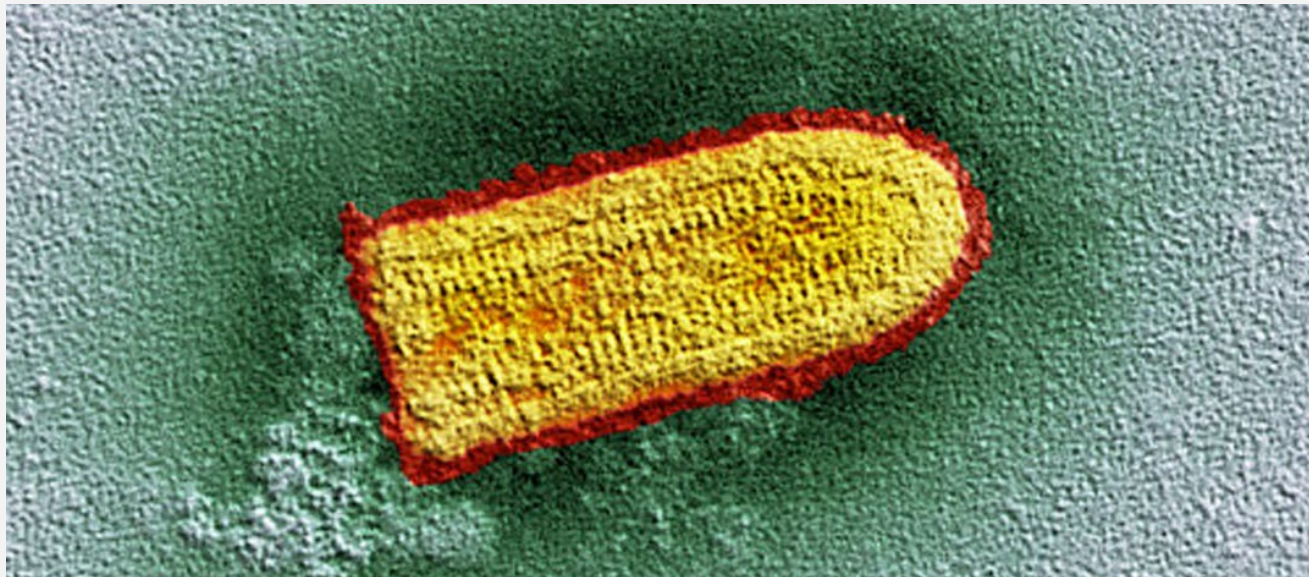


Public Health
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What is rabies?

Rabies is a fatal but preventable viral disease that is transmitted through the bite of a rabid animal. The virus is found in the saliva of infected animals.



How is rabies spread?



- Most cases of rabies in Ontario occur in the bat population.
- Domestic animals can contract rabies from interactions with the wild animal population.
- Birds, snakes, and other reptiles are not mammals and cannot acquire or transmit rabies.

Signs and symptoms of rabies in animals

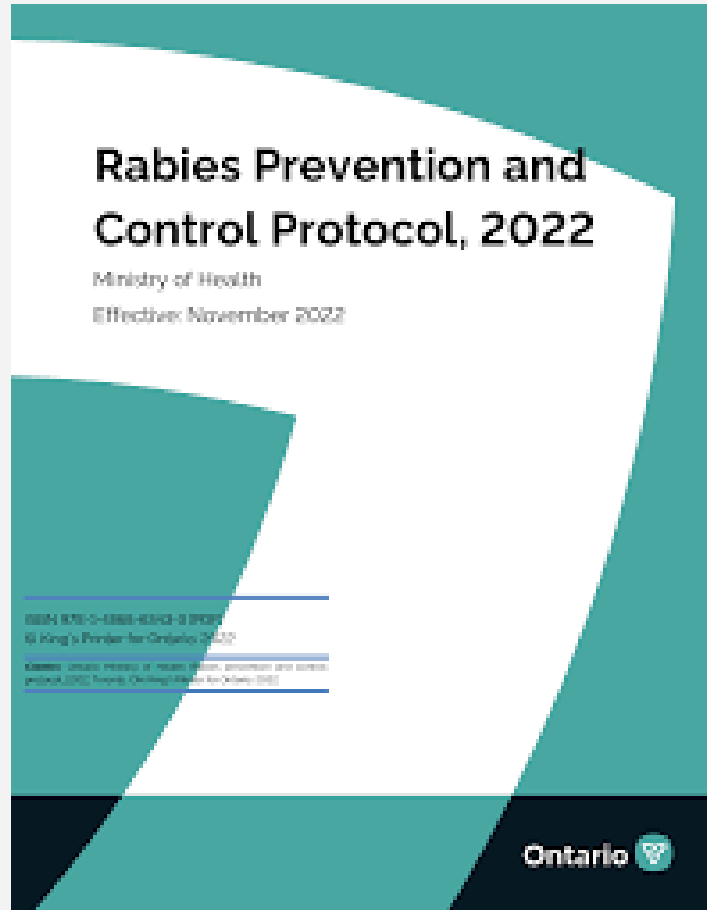
Dumb (paralytic) form:

- lose their fear of humans
- become partially paralyzed
- become depressed and retreat to isolated places

Furious form:

- act extremely excited and aggressive
- gnaw and bite at their own limbs
- attack objects, animals, or the air
- alternate between being agitated and depressed

Infectious and Communicable Diseases Prevention and Control Standard



Rabies in humans

- Human cases in Canada are rare.
- Rabies is a serious public health problem, mostly in Asia and Africa.
- Globally, dog bites cause 99% of human rabies cases.

RABIES: THE FACTS World Health Organization

VIRUS TRANSMISSION
Saliva of infected animals
99% of human cases are caused by **dog bites**
The virus attacks the brain
Rabies is **fatal** once symptoms appear

FATALITIES
Rabies affects **poor rural communities** mostly in Asia and Africa
Risk to humans of contracting rabies: HIGH, MODERATE, LOW
About **One death every 15 mins**
40% of the victims are children younger than 15

TREATMENT
Thorough washing of the wound with soap, and, vaccine injections can avoid symptoms and **save lives.**
Seek immediate medical care if bitten.

HOW TO PREVENT RABIES TRANSMISSION FROM DOGS?
Learn **dog body language**
Raise public awareness
NO DOG BITE = NO RABIES

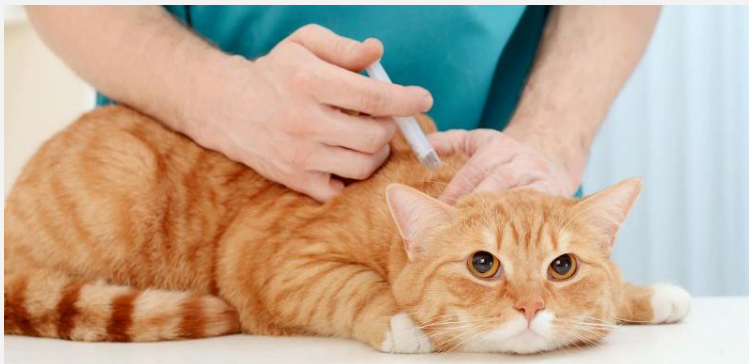
VACCINATING DOGS SAVES HUMAN LIVES
Rabies is **100% preventable**
Vaccinating **70%** of dogs **breaks rabies transmission cycle** in an area at risk
Every dog owner is concerned

28 September • World Rabies Day 2015 • #rabies

Disease prevention and Health Protection

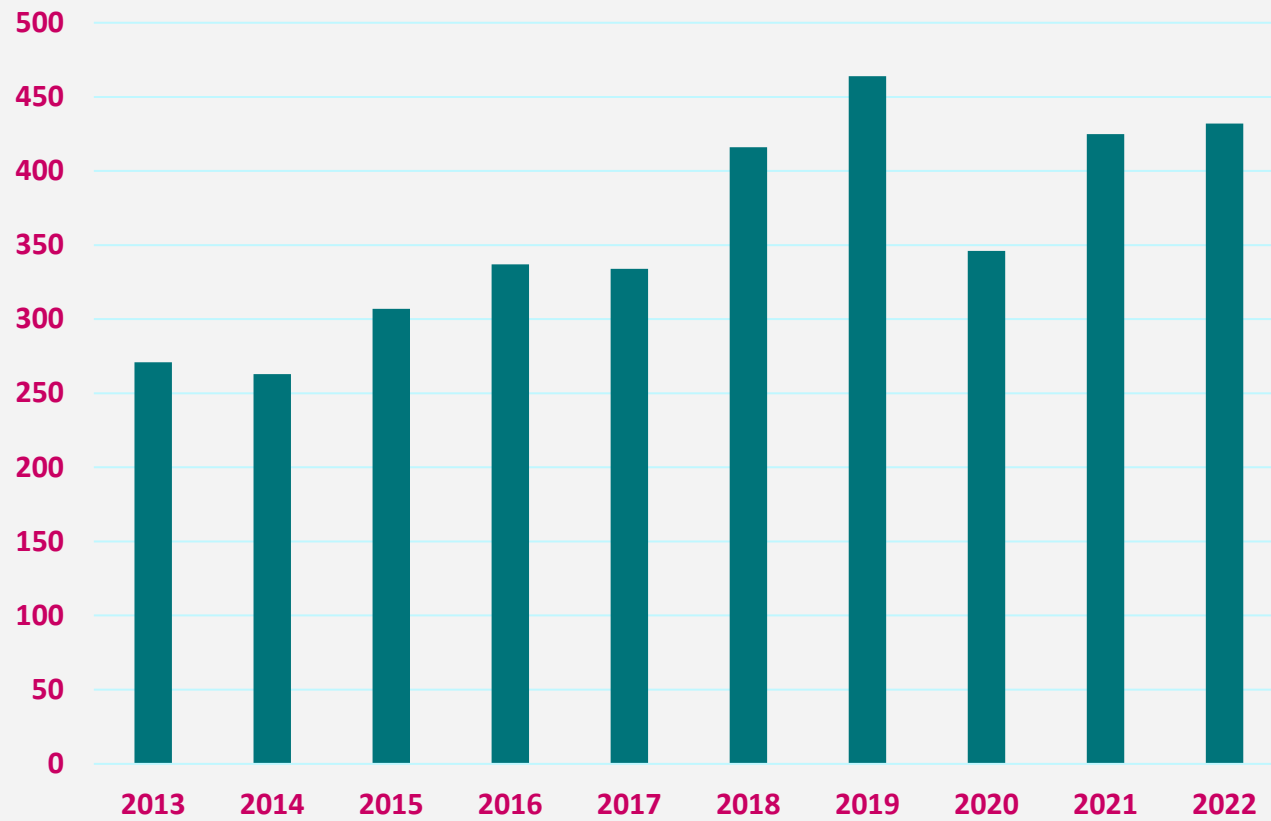
The public health inspector investigates rabies by:

- observing the animal at the beginning and end of a 10-day observation period
- verifying that the animal is vaccinated against rabies as part of the investigation
- following-up with the animal owner to ensure compliance, if the animal is not up to date on its rabies vaccine




Disease prevention and Health Protection

Animal exposures investigated



Rabies in an imported dog


In January 2022, a dog imported from Iran developed rabies, which led to an extensive public health investigation.

 RAPID COMMUNICATION

Rabies in an imported dog, Ontario, Canada, 2022

Paul Di Salvo^{1*}, Maureen Anderson², Christine Fehlner-Gardiner³, Francesca Di Mauro⁴, Howard Shapiro⁵, Anna Miranda⁶, Heather McClinchey⁶

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Abstract

Importation of rabies-infected dogs results in significant and costly public and animal health risks. In January 2022, a dog in Ontario, Canada, which was imported from Iran in June 2021, developed rabies, leading to an extensive public health investigation and administration of rabies post-exposure prophylaxis to 37 individuals. The dog was infected with a rabies virus variant known to circulate in Iran. This is the second reported case of a rabies-infected dog imported into Canada in 2021 from a high-risk country for canine mediated rabies. This case emphasizes the need for public education regarding the risks associated with importing dogs from high-risk countries for canine-mediated rabies and the benefits of establishing a public health team specializing in rabies exposure investigations.

Suggested citation: Di Salvo P, Anderson MEC, Fehlner-Gardiner C, Di Mauro F, Shapiro H, Miranda A, McClinchey H. Rabies in an imported dog, Ontario, Canada, 2022. *Can Commun Dis Rep* 2023;49(1):1-4. <https://doi.org/10.14745/ccdr.v4901a01>

Keywords: imported dog, rabies, canine-mediated, risk assessment, animal importation, zoonoses

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Introduction

The rabies virus is primarily transmitted through saliva, most commonly via animal bites, and causes infection in mammals, including humans, that is almost invariably fatal, with the clinical course rarely lasting beyond seven days in humans (1-3). In humans, rabies causes an estimated 59,000 deaths annually worldwide (4). The majority of cases occur in rabies-endemic areas, with approximately 99% resulting from canine-mediated rabies (4,5). There are many variants of the virus, and these variants tend to be present in specific animal species and/or geographical locations (6).

Canine-mediated rabies was eliminated from the United States (US) in 2007 and has not been detected in Canada since rabies variant typing began in the 1980s (7). Animal importation, however, has the potential to introduce rabies and other zoonotic diseases into domestic animal and human populations. Countries such as Canada and the US have established control programs and regulations for rabies, which include rabies vaccination requirements for imported dogs, but these regulations do not always prevent the importation of infected dogs during their incubation phase: between 2015 and 2021, four dogs with canine-mediated rabies were imported into the US (8). In July 2021, a dog from Iran became the first reported case of canine-mediated rabies imported into Canada (9,10).

In July 2021, the US Centers for Disease Control and Prevention (CDC) implemented a temporary suspension of dogs entering the US from 113 countries considered high-risk for canine-mediated rabies, following a 52% increase in imported dogs from these countries being denied entry on arrival over the preceding years, mainly due to fraudulent rabies certificates (11,12). The temporary suspension was implemented while the CDC evaluated options to address the issue long term. It has been estimated that 23% of commercial dog imports to Canada from 2013 to 2019 originated from countries considered high-risk for canine-mediated rabies (personal communication, Jillian Blackmore, March 11, 2022).

In January 2022, a dog in Toronto, Canada, developed rabies following importation from Iran in June 2021. This is the second reported case of dog infected with canine-mediated rabies imported into Canada in 2021. Local public health units investigated the case and worked with human and animal health agencies to manage the risk to human health.

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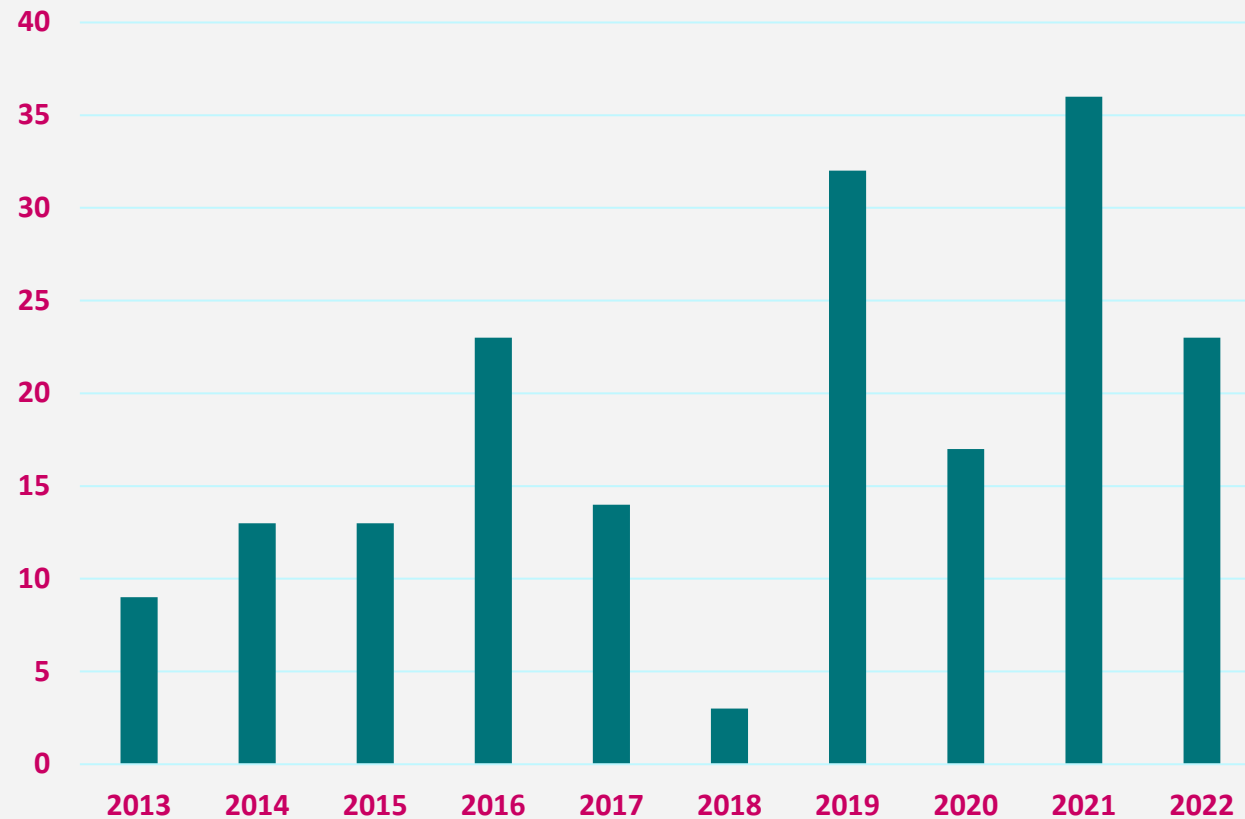
Disease prevention and Health Protection

Individuals exposed to a rabid animal, or an animal that is unavailable for observation or submission to the Canadian Food Inspection Agency (CFIA), are advised to consult their physician regarding rabies post-exposure prophylaxis (PEP).



Disease prevention and Health Protection

Number of rPEP Requests

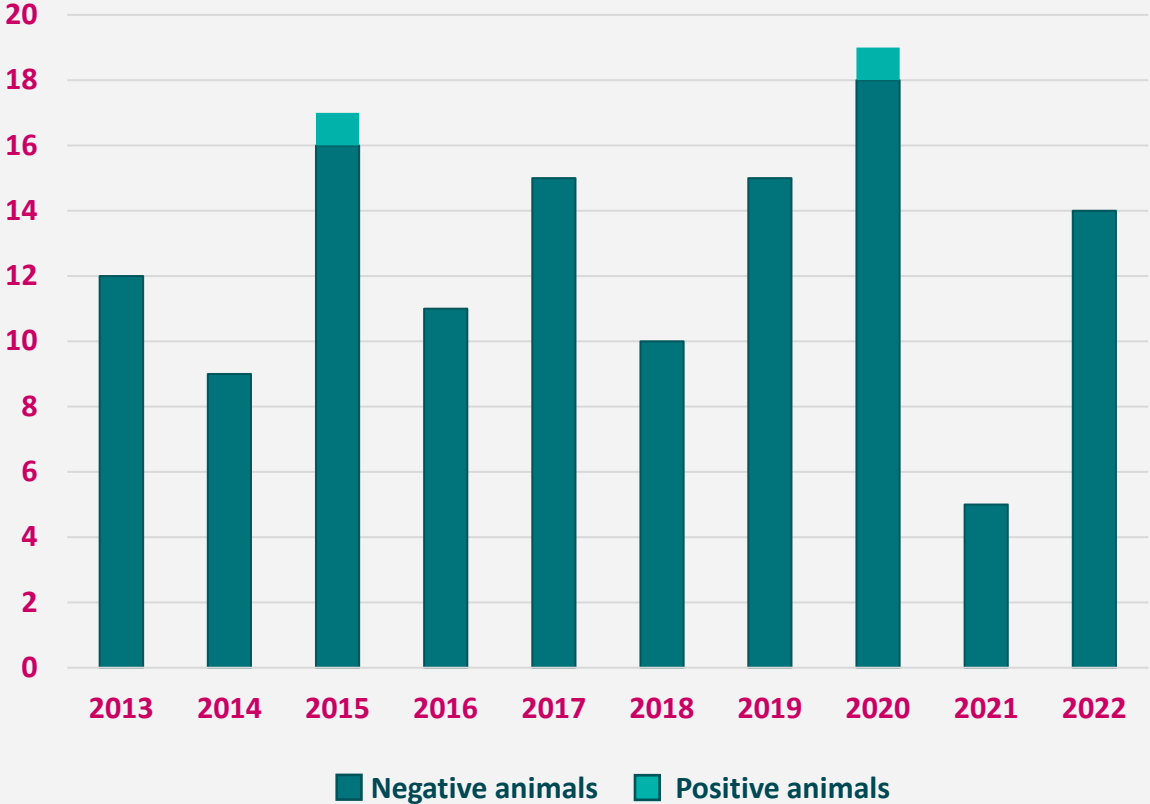


Assessment and surveillance



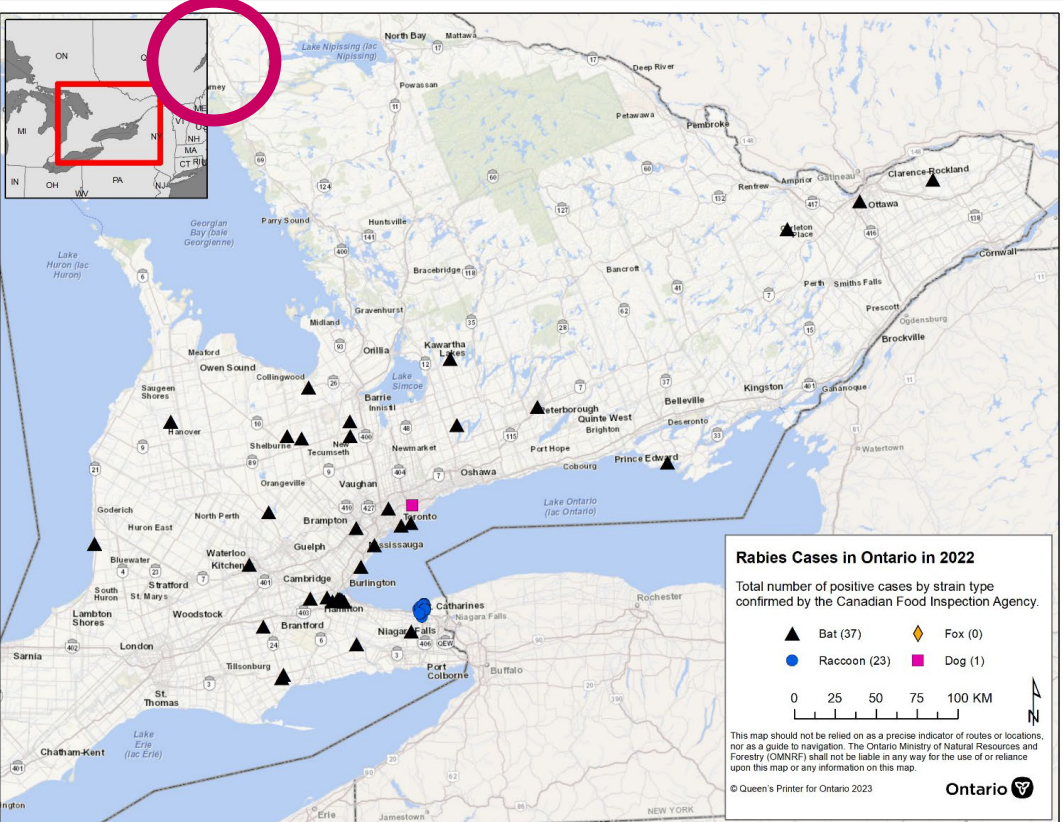
Assessment and surveillance

CFIA submission results



- These demonstrate the number of animals that have been submitted over the past 9 years by Public Health Sudbury & Districts.
- In 2015 and 2020, there was one positive animal. In each of these cases, the animal was a bat.

Assessment and surveillance of rabies in Ontario



- This is a map of all the reported rabies cases in Ontario for 2022.
- Black: Bat
- Blue: Raccoon
- Pink: Dog

Community partners





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**Public Health Sudbury & Districts plays
a key role in healthier communities.**



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