

The Rabies Reporter

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- Secondary Contact - Is It A Risk?
- 1992 Urban Rabies Project Annual Report
- New Raccoon Bait Works Well
- Update - Raccoon Rabies in New York

Secondary Contact -

Is It a Risk ?

In the February issue of the Rabies Reporter, the number of humans treated for exposure to rabies during 1992 in Ontario was reported as 2402. This was considered as "being high." According to data obtained from the Ontario Ministry of Health the correct number is 2202³. What could be the reason for this high number?

Using the total rabies incidence for Ontario in 1992 of 1303 cases gives an average of 1.6 humans treated for every rabies case. That figure represents a continuation or perhaps even an increase in a trend which started in 1981³ (Fig. 1). Except for a brief period in the late 1960's, the number of persons treated for rabies was always less than the number of rabies cases through the 1960's and '70's. Since 1981, the number of people treated has generally been higher than the number of rabies cases. Nineteen eighty-one also happens to be the year that the Ontario post-exposure rabies treatment regimen was changed from the old rather painful Pasteur treatment to the current and much safer and less painful procedure. In 1989, rabies control was made a mandatory program by the Ontario Ministry of Health with administration by the local health units. It has been my observation that over the past several years more people are receiving post-exposure treatment for

rabies as a result of 'secondary contact'.

It is my contention that there is no valid scientific reason why people should be given post-exposure rabies treatment as a result of 'secondary contact' with a rabid animal.

From 1956 to 1972 there have been 65,420 confirmed cases of rabies in Canada¹. In the 1960's, 40% of the cases were in domestic animal species, while for the period 1989-1992 the percentage of domestic cases declined to an annual average of 24% of the total cases. It is understandable that the number of human exposures is significantly higher from domestic rabies cases than from wildlife cases. It is therefore somewhat ironic that in spite of the relative decline in the incidence of domestic rabies cases, the number of human treatments relative to the total number of rabies cases has increased over the past 35 years (Fig. 1). It is my contention that this phenomenon is due in part to the practice of treating people as a result of 'secondary

contact' with rabid wildlife through cats or dogs.

Secondary contact would typically have been considered to occur when a pet has had direct physical contact with a wild rabid animal such as a fox or skunk and a person handles or is licked by the dog or cat shortly thereafter. No doubt concern over the possibility of the transfer of rabies virus stems from the concerns over the survivability of infective viruses outside of the carrier animal and their possible transfer to infect a person. Rabies virus can survive for several hours at 20C (70°F), and for days at 4C (50°F)².

According to *The Natural History of Rabies*, 2nd edition, "except for those cases of unknown exposure source, human rabies has never occurred without penetration of the skin or a mucous membrane by rabies virus." Indeed, since 1930, less than 30 cases due to non-bite exposure have appeared in the world literature⁴. They can be summarized as follows⁴:

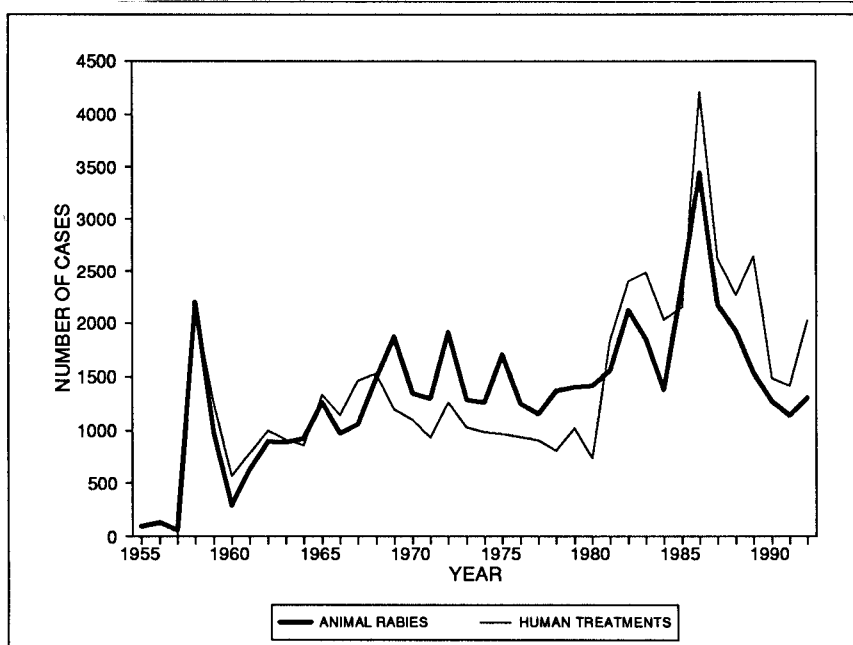


Figure 1. The number of animal rabies cases and the number of human treatments in Ontario Since 1955.

Accidental injection in a lab.	18
Corneal transplant	4
(from infected humans)	
Aerosols	4
(in bats caves or laboratory)	
Licks to wound *	1
Licks to mucosa*	1
Scratches*	1

* Directly from a rabid animal.

None of the above described cases involved indirect or secondary contact. They were all direct non-bite exposures.

As previously stated, there were 65,240 cases of rabies in animals in Canada between 1956 and 1992. During that period there were six confirmed cases in humans in Canada¹. The source of infection in all of these cases was a bite from a rabid animal. It is reasonable to assume that from those thousands of animal rabies cases that there were thousands of people who handled pets which had been recently exposed to those rabid animals. There is no documented instance of a single case of human rabies having resulted from such contacts.

In spite of all of this logical argument against the need for treatment of people who may have received 'secondary' exposure, front-line health care workers must deal with individual people in a variety of real life situations. How can physicians, public health personnel and veterinarians respond to the most typical question from a concerned citizen: "My dog just fought with a fox, the dog got all bloody so I washed the dog - am I at risk?" In my opinion the answer would be no. Fortunately, there are several guides and references which can be used for this type of situation. The United States 1991 Recommendations of the Immunization Practices Advisory Committee makes no mention of giving post-exposure treatment as a result of secondary contact. Indeed it states that "Other contact by itself, such as petting a rabid animal and contact with the blood, urine or feces of a rabid animal, does not constitute an exposure and is not an indication for

prophylaxis."⁵ provides an algorithm which states *The Natural History of Rabies 2nd Edition* that if the victim was not bitten or licked on an open wound or mucous membrane then no prophylaxis is necessary". More specifically the *1984 Report of the WHO Expert Committee on Rabies* states that if there is indirect human contact with a rabid or suspected rabid animal, no treatment is recommended". Interestingly, the 1992 WHO report does not even mention indirect contact in its guidelines for treatment, which would indicate that this expert committee does not consider secondary contact a possibility worthy of comment.

Finally, the *Guidelines to Management of Suspected Rabies Exposures* published by the Ontario Ministry of Health in 1989 states clearly that indirect contact is not an indication for post-exposure treatment.⁶

It is estimated that the direct cost of administering post-exposure rabies treatment to a single adult would be about \$600.00. This figure would not include extraneous costs such as costs to public health units and costs to patients and their employers for transportation and lost time from work in order to receive treatments. Some would argue that this expense is worth it in order to console people's worries and concerns for their health. I would argue that to the contrary, by treating people unnecessarily, health care workers are inferring that such people are at risk when in fact they are not. With the severe rationalization of health care funding that Ontario is presently enduring, I believe that this money could be better spent in other areas than on treatments which are not necessary. One such area would be maintaining the wildlife baiting program. Another would be surveillance for raccoon rabies.

I believe that an organized campaign by qualified people from Agriculture Canada and the Ontario Ministry of Health should be started in order to give consistent and factual information to physicians and public

health staff. This is in fact happening in some parts of the province but only as a result of local initiative. These local initiatives are to be commended but a province-wide campaign would be significantly more effective.

References.

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7. WHO Expert Committee on Rabies. Seventh Report. 75, 1984.
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Bert Carswell D.V.M.
Food Production and Inspection
Branch
Agriculture Canada
Belleville, Ontario

1992 URBAN RABIES PROJECT ANNUAL REPORT

TRAP-VACCINATE-RELEASE PROGRAM

During July to October 1992, live-traps were placed throughout a 60 km² area of Scarborough in an effort to capture and vaccinate a substantial portion of the skunk and raccoon populations against rabies. This marked the 6th consecutive year of the

Table 1. Trap-Vaccinate-Release Capture Summary, 1987 - 1992.

Year	Trap Nights	Total Captures	Skunks T(D)	Raccoons T(D)
1987	14119	1432	195(123)	606(378)
1988	5902	700	214(114)	174(128)
1989	22316	248	447(252)	885(543)
1990	24772	2362	438(216)	854(487)
1991	24292	2675	408(250)	1217(730)
1992	20760	2166	394(207)	1245(749)
TOTAL	112165	11347	2096(1162)	4981(3015)

trap-vaccinate-release (T-V-R) program. All captured skunks and raccoons were vaccinated with an intramuscular injection of Imrab inactivated rabies vaccine, ear-tagged for identification, and released at the point of capture. As part of a Ph.D. research program, some of the animals were also vaccinated against canine distemper with an intramuscular injection of Fromm D.

A total of 2,166 animals were captured utilizing 20,760 trap-nights during the 1992 T-V-R program. That total included 207 different skunks (394 total captures) and 749 different raccoons (1245 total captures) (Table 1).

We estimated that the population density of skunks in the 60 km² area was 234 (mean) individuals (209-259, 95% Confidence Interval {C.I.}) during the summer of 1992 (modified Petersen model using capture-recapture data). This value is a 36% decrease

over the 1991 estimate (Figure 1). An estimated 70% (mean) of the 1992 T-V-R skunk population was vaccinated between July and October (63%-79%, 95% C.I.) (Figure 1).

The 1992 raccoon population estimate in the T-V-R area during the summer of 1992 was 913 (mean) individuals (850-974 95% C.I.), a 6% decrease from the 1991 population estimate (Figure 2).

We captured and vaccinated about 70% (mean) of the raccoons in the T-V-R area during 1992 (66%-75%, 95% C.I.) (Figure 2).

The T-V-R area has been free of reported cases of rabid skunks since May 1989 (4 years). Based on the past prevalence of rabies in Scarborough, one would expect at least 20 cases during that period. However, in the absence of reported rabies, one has to wonder just what is regulating the skunk population?

METROPOLITAN

TORONTO PROGRAM

RAVINE BAITING

During June 8-12 and October 19-23, 1992, we hand-placed 21,635 tallow-wax baits (each containing 2 ml of liquid rabies vaccine {ERA} in a blister pack) throughout the 6 major ravine systems of Metropolitan Toronto. Mean density of baits was 60.4 per kilometer of ravine waterway. To date we have been notified of 2 dogs contacting a total of 6 baits (1 dog contacted 5 baits in June and 1 dog contacted 1 bait in October). There was no contact with the vaccine on the part of either dog or human as far as

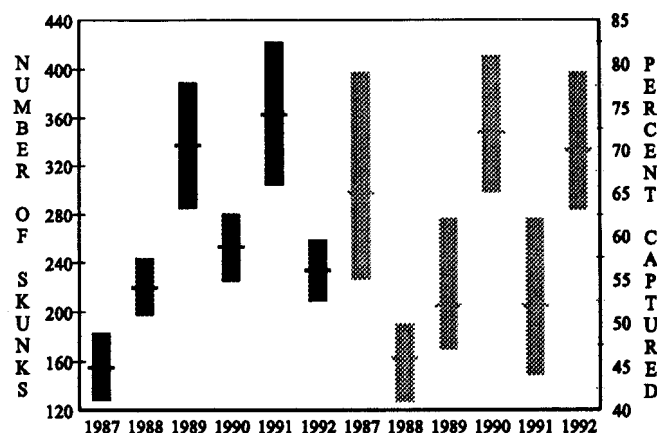


Figure 1. Population and percent captured estimates for skunks in the T-V-R area in Scarborough.

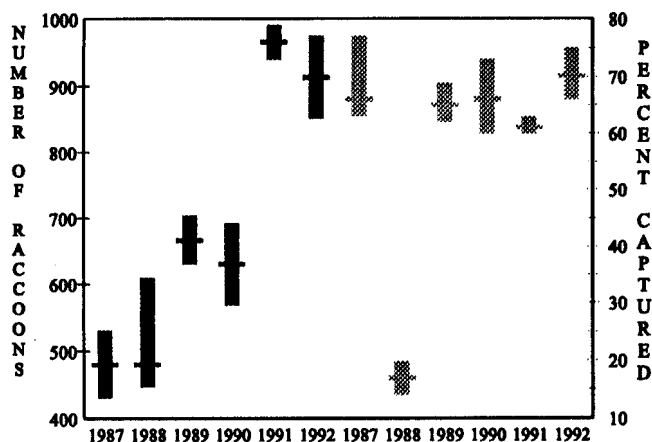


Figure 2. Population and percent captured estimates for raccoons in the T-V-R area in Scarborough.

we can determine.

Metropolitan Toronto has had 1 case of reported rabies in a fox since October 1990 (2 1/2 years). One would expect 22 cases during that period based on the past prevalence of rabies in foxes in Toronto.

OTTAWA BAITING PROGRAM

On November 14, 1992, about 10,250 rabies vaccine baits were placed throughout the green-belt areas of Ottawa as that city had not been targeted by the rural aerial bait drop in eastern Ontario. A total of 15 people from O.M.N.R., the National Capital Commission, the Ottawa Field Naturalists, Sir Sanford Flemming College and the Ottawa Hunt Club participated

in the baiting program. To date Ottawa has been free of reported fox rabies during 1992/93. We were notified of 2 dogs contacting baits but no adverse reactions to the baits were noted.

1993/94 ACTIVITIES

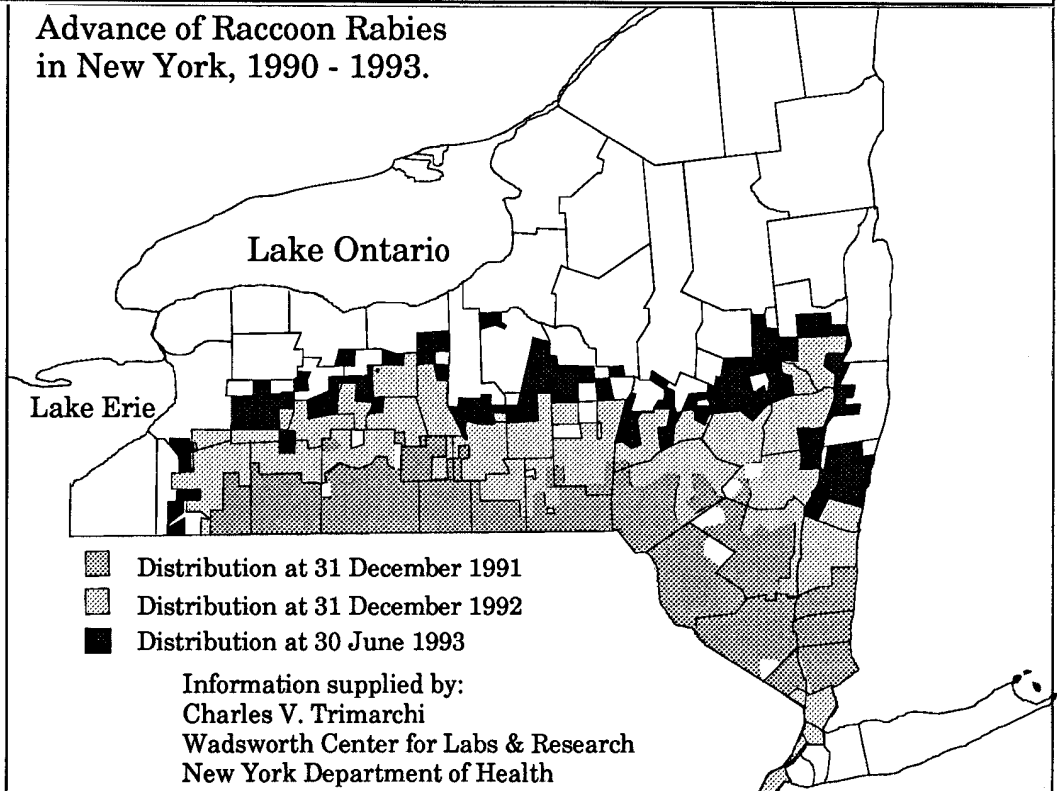
We plan to continue the trap-vaccinate-release and vaccine baiting programs during 1993. As well, we will be testing a number of candidate baits in an attempt to produce a feasible bait to deliver oral rabies vaccine to raccoons in light of the advancing raccoon rabies epizootic which is presently about 50 km from the Ontario/New York border at Niagara Falls.

Rick Rosatte
OMNR Rabies Unit

NEW RACCOON BAIT WORKS WELL

The rabies unit has been busy through the summer working on a better bait for raccoons. One of the busiest people has been Ken Lawson, retired scientist from Connaught Laboratories, working for MNR as a volunteer. Ken started a year ago testing a variety of flavours and mixtures, often putting out a smorgasbord for the family of raccoons which visit his patio every night. In March he narrowed the choices to six bait formulas, which were tested on captive raccoons at the Rabies Unit Animal Compound. Those tests narrowed the choices to two - which Rick Rosatte, Laurie Calder and Mike Peddie took to the field in a variety of urban and rural sites. Both were equally attractive. We made the choice, which is an icing sugar-marshmallow essence mixture, on Ken's recommendation that it would be easier to

Advance of Raccoon Rabies in New York, 1990 - 1993.



mass-produce. Ken and several student helpers made 30,000 i during June and July. On 4 August 22,500 of these were dropped from an MNR Turbo-Beaver onto two 150 km² plots on either side of highway 400, south of Barrie and north of Bradford. The following week, Rick and Laurie started live-trapping raccoons in 9-km² plots inside the larger baited areas. A premolar tooth is removed from each animal, ground to 100μ, and examined under the ultraviolet microscope. The results look excellent. Of the first 23 teeth examined, 18 were positive for tetracycline, indicating they had eaten a bait. The other interesting facts are that the trapping is very successful, with over 180 individuals captured in the first two weeks.

Other baits were hand-placed in parts of the Scarborough study area, to see how city raccoons react. Rick also tested baits on some city raccoons which are fed dog food every night. The raccoons ate every scrap of the icing sugar-marshmallow baits, and subsequently turned up their noses at the dog chow which is their regular handout. All indications are that Ken Lawson has produced another winner!

RACCOON RABIES IN NEW YORK STATE

The first six months of the year have seen major advances of the raccoon rabies front in the Syracuse and Rochester areas (Fig. 1). The advance has been slower. Last year's record of 1761 rabies cases was surpassed by early August.

The Rabies Reporter, a scientific newsletter about current issues in rabies research and control, is a joint effort of the Rabies Research Unit, Ontario Ministry of Natural Resources; the Food Production and Inspection Branch of Agriculture Canada; The Ontario Ministry of Health and the Department of Geography, Queens University, Kingston. Article for future issues will be welcomed by the editor. Comments, letters, submissions and enquiries should be sent to:

The Rabies Reporter
Rabies Research Unit,
Wildlife Research
Ontario Ministry of Natural Resources
P.O. Box 5000,
Maple, Ontario L6A-1S9
Telephone: (416) 832-7110
Fax: (416) 832-7149

Animal Rabies Report: April to June 1993

Animal Type	Fox			Skunk			Other Wildlife			Dog			Cat			Livestock			Total		
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		93	92		93	92		93	92		93	92		93	92		93	92		93	92
Eastern																					
Stormont																			0	0	0
Dundas																			0	0	0
Glengarry			1		1														0	1	1
Prescott	1	1	1		1											1			1	3	1
Russell																			0	0	0
Carleton																			0	0	0
Renfrew					1														0	1	0
Lanark			2																0	0	2
Grenville																			0	0	0
Leeds							1	2											1	2	0
Frontenac																			0	0	0
Lennox-Addington							2	3											2	3	0
Central																					
Hastings	1	2	12			3			5			2			4			5	1	2	31
Prince Edward			8			2			2			1					1	7	0	1	20
Northumberland		1	2			2			1	5								2	0	2	11
Victoria	5	7	6	2	4	8	1	1										9	8	12	23
Haliburton						1													0	0	1
Peterborough	8	11	4			4							1	1		1	1	1	8	13	10
Durham	20	28	2	8	14	7			1			1			1	5	5		33	47	12
York Region	11	13		2	4				1	1	1				2	5			16	23	1
Scarborough																			0	0	0
East York																			0	0	0
City of Toronto																			0	0	0
City of York																			0	0	0
North York																			0	0	0
Etobicoke																			0	0	0
Simcoe	6	8	6		1	3	1	1		2	2	1	2	2		1	1	4	12	15	14

Animal Rabies Report: April to June 1993

[illegible]

Animal Rabies Report: April to June 1993

Animal Type	Fox			Skunk			Other Wildlife			Dog			Cat			Livestock			Total		
County or Area	#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative		#	Cumulative	
		93	92		93	92		93	92		93	92		93	92		93	92		93	92
Northern (continued)																					
Thunder Bay																					
Rainy River																					
Kenora																					
Subtotals																					
Eastern	1	1	4		3		3	4									1		4	9	4
Central	51	70	40	12	23	30	2	3	14	3	3	5	2	3	6		8	12	29	78	114
Western	51	92	55	15	32	44	1	1	3	1	1	5	5	8	9		18	48	34	91	182
Southern	45	84	76	6	15	20	2	2	6	3	7	3	8	19	7		5	22	13	69	149
Northern	7	14	119	1	1	15		1	3	2	2	6							28	10	18
Totals	155	261	294	34	74	109	8	11	26	9	13	19	15	30	22	31	83	104	252	472	574

Statistics for Northern Ontario unavailable at this time

Livestock this quarter: 29 Cattle; 1 Horse; 1 Sheep
 Other Wildlife: This quarter: 15 Bats; 1 Coyote; 2 Raccoons.

