

# EPIDEMIOLOGY BULLETIN

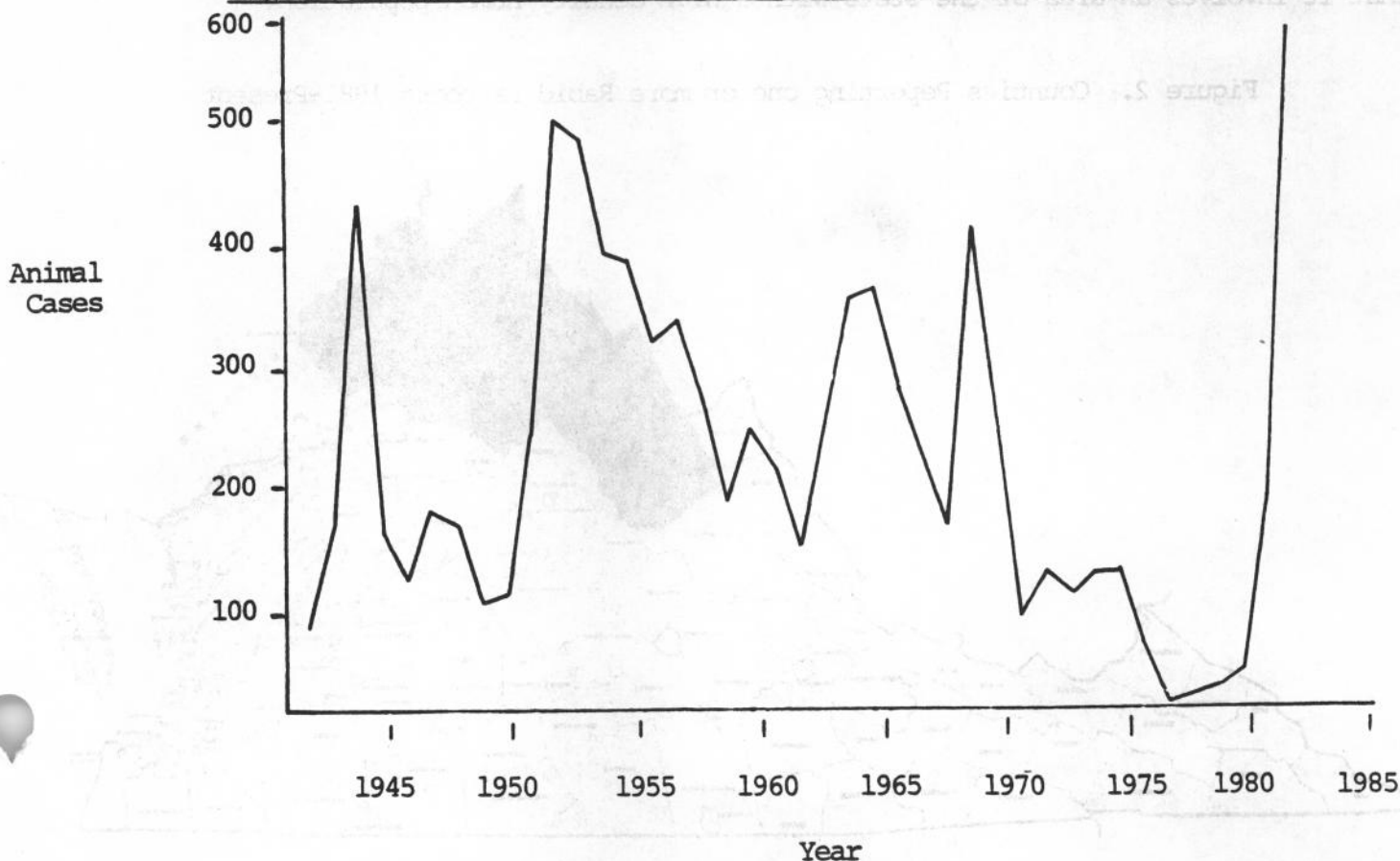
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EDITOR: Carl W. Armstrong, M.D.

## VIRGINIA RABIES EPIZOOTIC

We are currently experiencing the largest number of reported cases of animal rabies in Virginia since we began keeping records in 1942 (Figure 1). There have been 545 cases of rabies in animals reported to date in 1982; this represents a 470 percent increase over the 116 cases reported during the same period in 1981, and a 50 fold increase in cases over the number reported in 1977. Only one other state, Texas, has reported more cases of animal rabies to date during 1982.

Figure 1. Reported Cases of Animal Rabies in Virginia, 1942-1982\*

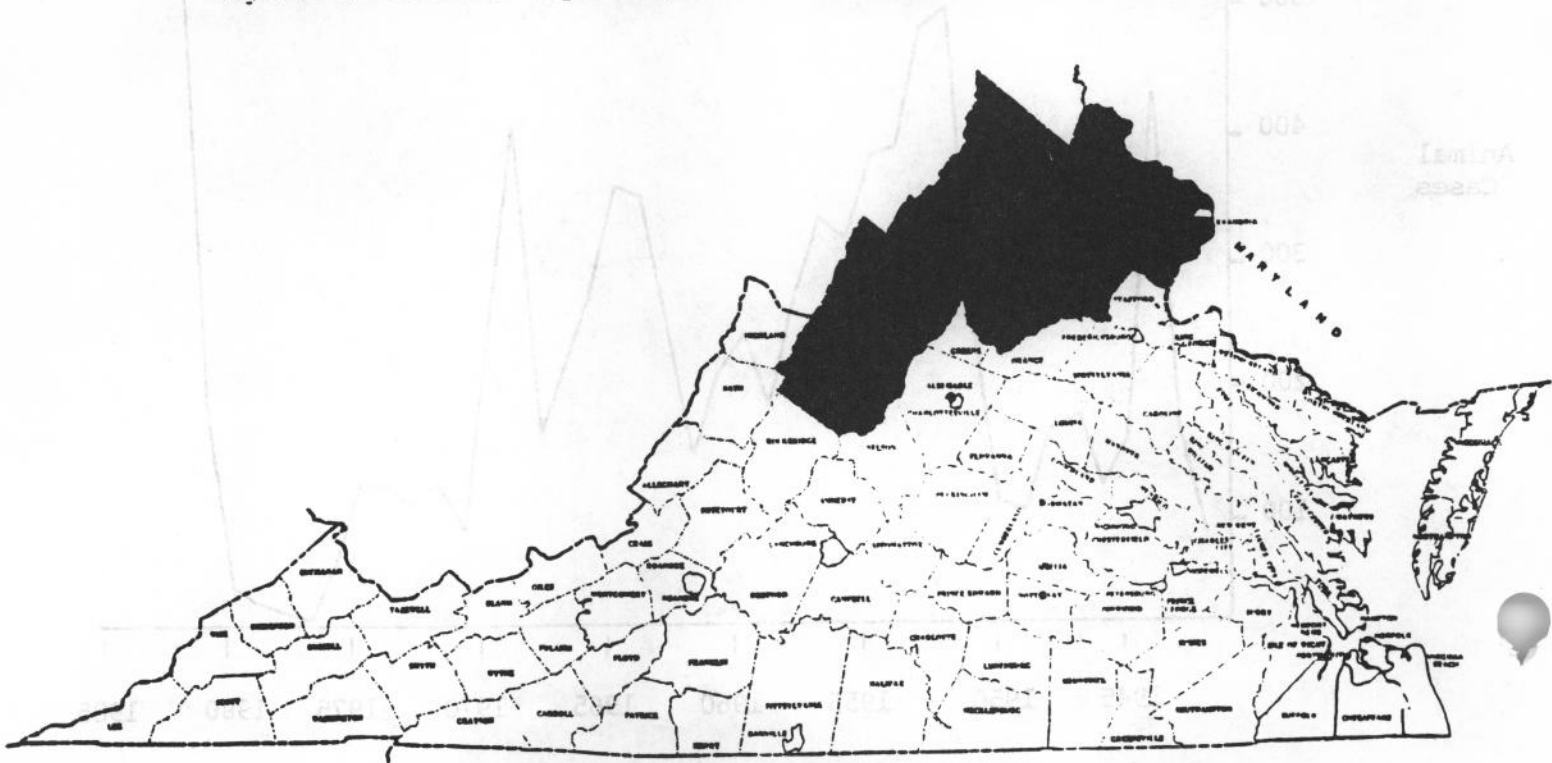


\*The 1982 total is provisional; based on reports January-October.

The raccoon is the most frequently reported animal species infected with rabies virus in the current outbreak, accounting for 86 percent of all reported cases. Skunks and foxes comprise 7.3 percent and 2.2 percent of the total, respectively. This represents a shift in the predominant species since the outbreaks of animal rabies during the 1960's and 1970's, when foxes were primarily involved. Prior to 1980, there had never been more than four cases of rabies in raccoons reported in any year.

Figure 2. illustrates those counties which have reported raccoon rabies since 1981, when the current outbreak began. It is believed that raccoon rabies was introduced into Virginia during 1978 from bordering West Virginia counties. The outbreak has subsequently spread from the Shenandoah Valley northward into Maryland and eastward into its present focus in the Northern Virginia area. Four Northern Virginia counties (Loudoun, Fairfax, Fauquier, and Prince William) account for 92 percent (498/545) of the state's total animal rabies cases to date in 1982. Although, the focus is presently in Northern Virginia, cases of animal rabies continue to be reported from the counties where the outbreak began. The focus of the current outbreak of raccoon rabies in Northern Virginia differs from the traditional rural focus of fox rabies, in that it involves an area of the state with a high density human population.

Figure 2. Counties Reporting one or more Rabid Raccoons 1981-Present



The magnitude of the current outbreak of rabies has resulted in an increase in the number of animals submitted for testing during 1982. For the period, January-July, there were 2,592 animals submitted for testing in 1982, compared with 784 in 1981, an increase of 330 percent. Although the increase in reports of animal rabies could have been artifactual secondary to the increase in the number of animals submitted for testing, it is more likely that the increase was real. Consistent with this, was the increase in the proportion of animals submitted for testing which were found to be infected with rabies virus. This proportion, or positivity rate, increased from 5% in 1981 to 12% in 1982. For raccoons, the positivity rate for the same period increased from 21% (11/51) to 26% (278/1081).

Table 1 compares positivity rates for selected species in counties reporting at least one rabid raccoon in 1982 with other counties in the State. Skunks, foxes, and bats have relatively high positivity rates throughout the State, and thus constitute the most serious rabies risk to humans in counties without raccoon rabies. There is considerable variation among the epizootic counties in positivity rates, especially for raccoons. This variation most likely is the result of differences in policies regarding the submission of animals for testing. In Loudoun and Fauquier counties, where the submission policy is restricted to either those animals in which there has been human/animal exposure or in which the animal has exhibited aberrant behavior, the positivity rates for raccoons are 76 percent (153/202) and 75 percent (30/40), respectively. In Fairfax county, where there are relatively few restrictions placed on animals submitted for rabies testing, the positivity rate for raccoons is 7.5 percent (57/756). This 10 fold difference in positivity rates illustrates the powerful influence exerted by sampling techniques.

Wherever rabies is present in wildlife, there is a risk of spillover into the household pet and domestic animal populations. This spillover effect has been noted in Virginia as a result of the current outbreak. Since 1981, there have been 12 rabid cats and 2 rabid dogs reported in Virginia. All of these cases have occurred in counties experiencing the recent increase in wildlife rabies.

TABLE 1. Rabies Positivity Rates for Selected Species: Jan.-July, 1982

SPECIES	EPIZOOTIC COUNTIES*		REST OF STATE		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
Raccoons	278/1081	25.7	0/58	-	278/1139	24.4
Skunks	8/135	5.9	8/25	32.0	16/160	10.0
Foxes	7/48	14.6	1/32	3.1	8/80	10.0
Bats	4/146	2.7	1/72	1.4	5/218	2.3
TOTAL	296/1410	21.0	10/187	5.3	306/1597	19.1

\* Arlington, Augusta, Culpeper, Fairfax, Fauquier, Frederick, Loudoun  
Madison, Rockingham.

Editor's comment: The reason for the sudden emergence of this epizootic of rabies in raccoons is not clear. Enzootic raccoon rabies was confined to Florida until the early 1960's, when it spread to Georgia and subsequently to South Carolina.<sup>1,2</sup> The present epizootic is, therefore, over 300 miles from the closest established focus of raccoon rabies. A characteristic of raccoon populations is that they are able to thrive in suburban and semi-rural areas, thus increasing the chances for human rabies exposure.<sup>3</sup>

Prevention of human rabies from wildlife has included three facets: wildlife population reduction, vaccination of domestic animals, and pre- and post-exposure prophylaxis of humans. Methods of wildlife population reduction have included trapping<sup>4</sup>, use of poisoned bait<sup>5</sup>, and gassing of habitats.<sup>6</sup> None of these methods has been proven effective<sup>7</sup> and efforts have now shifted towards development of an effective means of vaccinating wildlife using vaccine-impregnated bait.<sup>8</sup> Although this method has been used experimentally, its safety and effectiveness in practice remain to be proven.

Dogs and cats which have been vaccinated against rabies provide a "barrier" between wildlife rabies and humans. Unvaccinated dogs and cats, on the other hand, increase the probability of human rabies when they have access to the infected wildlife population. On occasion, wild raccoons have been kept as pets. This is particularly dangerous for two reasons. First, there are uncertainties for many wildlife species regarding the temporal relationships between the incubation period, the onset of rabies virus shedding, and the onset of symptoms. Second, it has been observed that raccoons infected with rabies virus may not exhibit any unusual behavior.<sup>3</sup>

Given the high rabies positivity rates for raccoons, skunks, foxes and bats submitted for testing, any human exposure (bite or scratch) to one of these species should be considered a high risk exposure anywhere in Virginia. If the animal is available for testing, it should ordinarily be submitted to the health department for testing. A negative result would thus eliminate the need for prophylaxis. If treatment is initiated and subsequent testing shows that the exposing animal is negative for rabies, treatment can be discontinued.

Recommendations for post-exposure prophylaxis with rabies immune globulin (RIG) and the new human diploid cell rabies vaccine (HDCV) were previously published in the VEB.<sup>9</sup> The HDCV vaccine is no longer in short supply, and is available through many commercial and hospital pharmacies. Duck embryo vaccine (DEV), used previously, is no longer available in the United States. Because of the higher efficacy of the new HDCV vaccine, routine serologic testing is no longer recommended for persons who have completed either pre- or post-exposure prophylaxis, with the exception of persons with compromised immunity. The accepted pre-exposure vaccination regimen consists of three 1.0 ml intramuscular doses. Recently, the pre-exposure prophylaxis recommendations were updated to include ACIP approval of a lower (0.1 ml) intradermal 3-dose regimen.<sup>10</sup>

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October, 1982

MONTH: \_\_\_\_\_

DISEASE	STATE					REGIONS				
	THIS MONTH	LAST MONTH	TOTAL TO DATE		MEAN 5 YEAR TO DATE	THIS MONTH				
			1982	1981		N.W.	N.	S.W.	C.	E.
CHICKENPOX	8	11	822	1630	915.2	0	1	2	1	4
MEASLES	0	0	14	9	1239.2	0	0	0	0	0
MUMPS	5	0	38	125	112.2	1	0	1	0	3
PERTUSSIS	4	5	27	8	12.8	0	1	1	2	0
RUBELLA	0	0	13	6	215.2	0	0	0	0	0
MENINGITIS - ASEPTIC	58	44	210	240	188.6	8	6	11	22	11
BACTERIAL	18	18	172	181	135.0	4	0	8	2	4
ENCEPHALITIS - INFECTIOUS	5	6	33	36	29.6	1	0	1	1	2
POST-INFECTIOUS	0	0	1	3	7.0	0	0	0	0	0
HEPATITIS A (INFECTIOUS)	32	12	169	179	231.6	1	4	5	3	19
B (SERUM)	59	47	426	452	352.4	4	11	7	21	16
SALMONELLOSIS	161	138	1278	1400	989.4	19	29	16	47	50
SHIGELLOSIS	14	14	131	1138	324.6	4	4	1	2	3
TUBERCULOSIS - PULMONARY	45	31	486	481	-	-	-	-	-	-
EXTRA-PULMONARY	12	9	98	97	-	-	-	-	-	-
SYPHILIS (PRIMARY & SECONDARY)	67	43	525	588	470.6	2	13	0	21	31
GONORRHEA	2354	1500	17,236	18,821	19686.4	-	-	-	-	-
ROCKY MOUNTAIN SPOTTED FEVER	2	14	71	104	108.6	2	0	0	0	0
RABIES IN ANIMALS	104	71	545	116	34.6	6	96	2	0	0
MENINGOCOCCAL INFECTIONS	7	6	61	87	60.2	3	0	2	1	1
INFLUENZA	22	26	362	4936	2628.0	0	1	10	1	1
MALARIA	6	5	39	29	29.4	0	6	0	0	0
OTHER: <i>Hepatitis Unspecified</i>	9	15	92	157	148.2	0	3	1	1	4

COUNTIES REPORTING ANIMAL RABIES: Arlington 4 rc; Fairfax 44 rc, 1 sk, 1 fox; Fauquier 2 rc, 1 sk; Frederick 1 rc, 1 sk; Loudoun 33 rc, 6 sk, 2 fox; Prince Wm. 3 rc, 1 sk, 1 cat, Rockingham 1 cow; Washington 2 sk.

OCCUPATIONAL ILLNESSES: Occupational pneumoconiosis 7, Occupational hearing loss 8, Asbestosis 3.

Published Monthly by the  
**VIRGINIA HEALTH DEPARTMENT**  
 Division of Epidemiology  
 109 Governor Street  
 Richmond, Virginia  
 23219

Bulk Rate  
 U. S. POSTAGE  
**PAID**  
 Richmond, Va.  
 Permit No. 1225