Louisiana

DEPARTMENT OF HEALTH AND HUMAN RESOURCES
OFFICE OF HEALTH SERVICES AND ENVIRONMENTAL QUALITY
BOX 60630 NEW ORLEANS, LOUISIANA 70160

MONTHLY MORBIDITY REPORT

Provisional Statistics

REPORTED MORBIDITY
JULY, 1980

from

EPIDEMIOLOGY UNIT AND PUBLIC HEALTH STATISTICS

RABIES REVIEW

INTRODUCTION

Although rabies now rarely affects humans in the United States (last Louisiana case in 1953), physicians continue to face the dilemma of whether to treat hundreds of persons each year who have been bitten, scratched or potentially exposed to animals suspected of being infected with rabies. The number of human rabies cases has decreased from an average of 22/year in 1946 - 1950 to less than 5/year since 1960. The number of cases of rabies in domestic animals has similarly fallen; however, that in carnivorous wild animals has steadily increased. For example, in 1953 there were 5688 cases in dogs and only 8 in bats, whereas in 1979 there were only 198 in dogs and 756 in bats. Thus, the likelihood of human exposure to rabies in domestic animals has greatly decreased. Since

(continued on page 2)

BULLETIN

ALERT! - ST. LOUIS ENCEPHALITIS

The last laboratory-confirmed case of arboviral encephalitis in Louisiana was in 1977. Since then avian serologies have been negative until very recently when the Division of Laboratories reported a positive HI titer to St. Louis Encephalitis virus in juvenile sparrow blood obtained 7/24/80 in the Ninth Ward area of Orleans Parish. Over the past month several more specimens from the wild bird monitoring program have yielded positive HI titers; all have been from the same area of Orleans Parish. Additionally, although the mature *Culex quinquefasciatus* population is somewhat low for this season, numerous *Culex* larvae have been noted throughout New Orleans by mosquito control workers. In response to the initial positive avian serologies, control measures (malathion insecticide spraying) were accelerated. Nonetheless, on 8/7/80 two clinical cases of St. Louis Encephalitis (SLE) in residents of the Ninth Ward section of Orleans Parish were reported to the Disease Control Division. HI titers performed the following day on sera from these patients were positive for SLE, strongly supporting the clincal diagnosis. Since that time there have been 5 additional laboratory documented cases of SLE in Louisiana. (Four in Orleans Parish, one in Evangeline Parish.*)

Saint Louis Encephalitis is the most commonly diagnosed arthropod-borne encephalitis and is transmitted to man by the peridomestic mosquitoes, *Culex pipens* and *Culex quinquefasciatus* (Southeast United States). The reservoir in the spring, summer and fall is birds, commonly sparrows, which rarely exhibit signs of infection. Epidemics usually occur in an urban focus during the late summer and early fall and are presumably preceded by avian epizootics. Human cases generally fall into one of three clinical syndromes:

1. Encephalitis characterized by fever and recent neurological abnormality (confusion, disorientation, severe lethargy, paralysis, tremor, coma).
2. Aseptic meningitis characterized by fever, nucal rigidity (positive Kernig's or Brudzinski's sign) or CSF pleocytosis ($\geqslant$ 10 leukocytes/mm^3).
3. Acute febrile headache characterized by fever and headache only. Early encephalitis can often mask as an unusual CVA or heat stroke.

Many cases are asymptomatic; in fact only one in 20 to 400 of those infected demonstrate clinical illness. Infection is more obvious and more severe in those over 50. Control measures include elimination of mosquito breeding sites such as water filled old tires and tin cans, intense adulticiding in the endemic areas and education of the population at risk regarding the best methods for avoiding contact with mosquitoes such as using mosquito repellant and protective clothing and avoiding outdoor activity at dusk.

Physicians throughout Louisiana are urged to consider St. Louis Encephalitis in the differential diagnosis of patients with symptoms outlined above and to report suspicious cases immediately to the Division of Disease Control (504 - 568 - 5005). Serum for hemagglutination inhibition titer from such patients should be sent immediately (acute) and at two weeks (convalesent) to Division of Laboratories, 325 Loyola Avenue New Orleans, Louisiana 70112. Please direct any questions conserning arboviral disease to the Division of Disease Control.

* Infected in Corpus Christi, Texas.

RABIES REVIEW (continued from page 1)

all available methods of prophylactic treatment are complicated by instances of adverse reactions including (albeit, exceedingly rare) death and permanent disability, the question of postexposure prophylaxis is complicated. The physician must weigh the risk of rabies and its universally grim outcome against the significant risk associated with treatment.

Although the true probability of a person developing rabies following exposure is unknown, a study in 1963 by Veerarghoven in India provides an estimation[1]. Of 153 persons bitten by a known rabid animal between 1946 and 1962 who were not treated, 77 died, giving a death-to-case ratio of 50.3%. Additionally, during the same time period there were only 49 deaths among 581 (8.4%) persons who received a complete series of vaccine (NTV Semple vaccine). The combination of antirabies serum and vaccine is even more effective than vaccine alone; the incidence of rabies using this regimen following infective dog bites is less than 1%.[2] There have been no cases of rabies following treatment with the recently licensed human diploid cell rabies vaccine (HDCS) when used with antirabies serum. Adverse reactions appear to be less frequent and less severe with the new vaccine than with the older duck embryo vaccine (DEV). Local reactions were reported in 25% of recipients of HDCV and mild systemic reactions in about 20%; there have been no serious anaphylactic, systemic or neuroparalytic reactions reported as were rarely seen with DEV.

The efficacy, method of treatment and availability of the new HDCV are the subject of last month's morbidity report. The purpose of the present communication is to review the basic concepts and rationale of antirabies prophylaxis and to describe the epizootiology of animal rabies in Louisiana in the hope that such information will be useful to our state's physicians in confronting perplexing decisions regarding animal bites in their communities.

RATIONALE OF ANTIRABIES TREATMENT

The problem is confounded in that the decision of whether to administer vaccine must be made immediately for maximum effectiveness of the treatment. Rabies can be transmitted only by introducing the virus into open cuts or wounds in skin or via mucous membranes. There are two categories of exposure to be considered: (1) A "bite" is any penetration of the skin by teeth. (2) A "nonbite" includes scratches, abrasions, open wounds or mucous membranes contaminated with saliva or other potentially infectious material, such as brain tissue, from a rabid animal.

If the exposure is by bite or nonbite of a laboratory confirmed rabid animal the patient should immediately receive both human rabies immune globulin (HRIG) and HDCV. All persons exposed to carnivorous wild animals (particularly skunks, raccoons, foxes, coyotes, and bobcats) and bats, especially if unprovoked and in an infected area, should immediately receive serum plus vaccine as these animals are those most commonly infected with rabies and have been the cause of most of the human rabies in the United States since 1960. Treatment would not be necessary (or if begun, could be discontinued) only if the animal is killed and its brain examined at once, and found negative by fluorescent antibody (FA) technique. Likewise, an unprovoked bite by a dog or cat that escapes capture in an infected area should be regarded as rabid and the patient given serum plus vaccine.

Rodents including squirrels, hamsters, guinea pigs, gerbills, chipmunks, rats and mice as well as lagomorphs such as rabbits and hares are rarely found to be rabid and have not been known to cause human rabies in this country; hence, their bites seldom, if ever, require rabies prophylaxis.

Difficult situations which require careful evaluation generally involve animals that have escaped. In addition to the species of animal and prevailing endemicity of animal rabies, the particular circumstances leading to the animal bite should be sought. Was the animal teased? Was he feeding? Was the animal injured? Had the animal bitten or attempted to bite people before? These are important considerations as an unprovoked attack is more likely than a provoked attack to indicate that the animal is rabid.

The likelihood that rabies will result from exposure to a rabid animal varies directly with the nature and extent of the exposure, being lowest with minor scratches and abrasions and highest with mutliple penetrating wounds caused by the teeth of the rabid animal. Immediate and vigorous washing of the wounds with soap and water is an effective means of rabies prevention and has been shown experimentally to reduce mortality by 50%. Tetanus prophylaxis and measures to control bacterial infection should be given as indicated. Specific treatment with HRIG plus HDCV were outlined in the previous edition of this publication

MANAGEMENT OF BITING ANIMAL

A healthy domestic dog or cat that bites a person should be confined and observed by a veterinarian for ten days. If any signs suggestive of rabies develop, the animal should be humanely sacrificed and its head removed and shipped under refrigeration to the state laboratory. Of course, the animal may be tested and examined by the FA technique before developing signs of rabies if the owner agrees. Any stray or unwanted animal that bites a person should be killed immediately and examined using the FA technique.

Early signs of rabies in wild animals cannot be interpreted reliably; therefore, any such animal that bites or scratches a person should be killed at once (without unnecesary damage to the head) and the brain submitted, as decribed above, for FA examination. If the brain is negative for rabies by this method, one can assume that the saliva contains no virus and the exposed person need not be treated (or if already instituted, the remaining vaccine need not be given).

Figure 1

CASES OF ANIMAL RABIES LOUISIANA, 1975-79

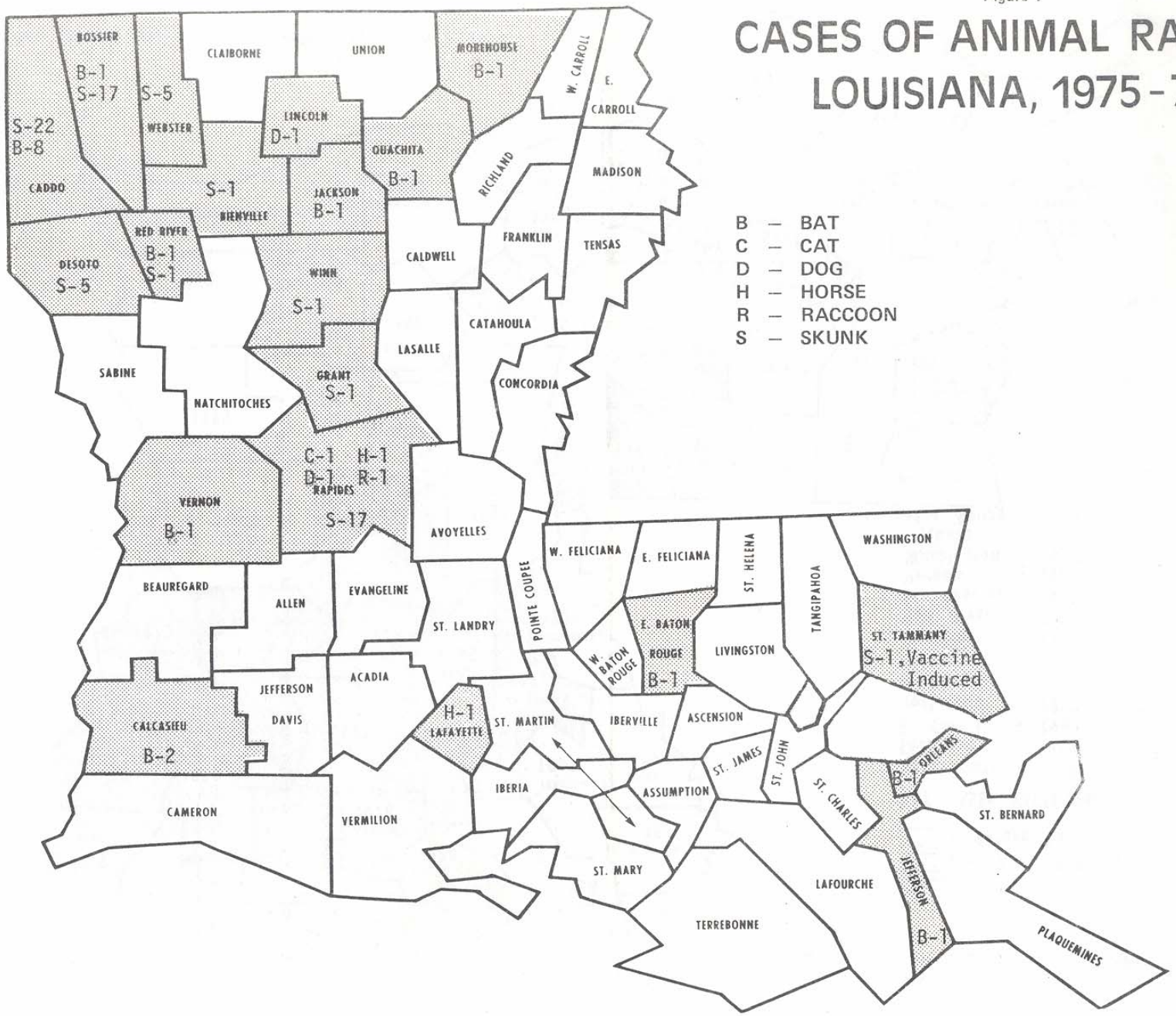
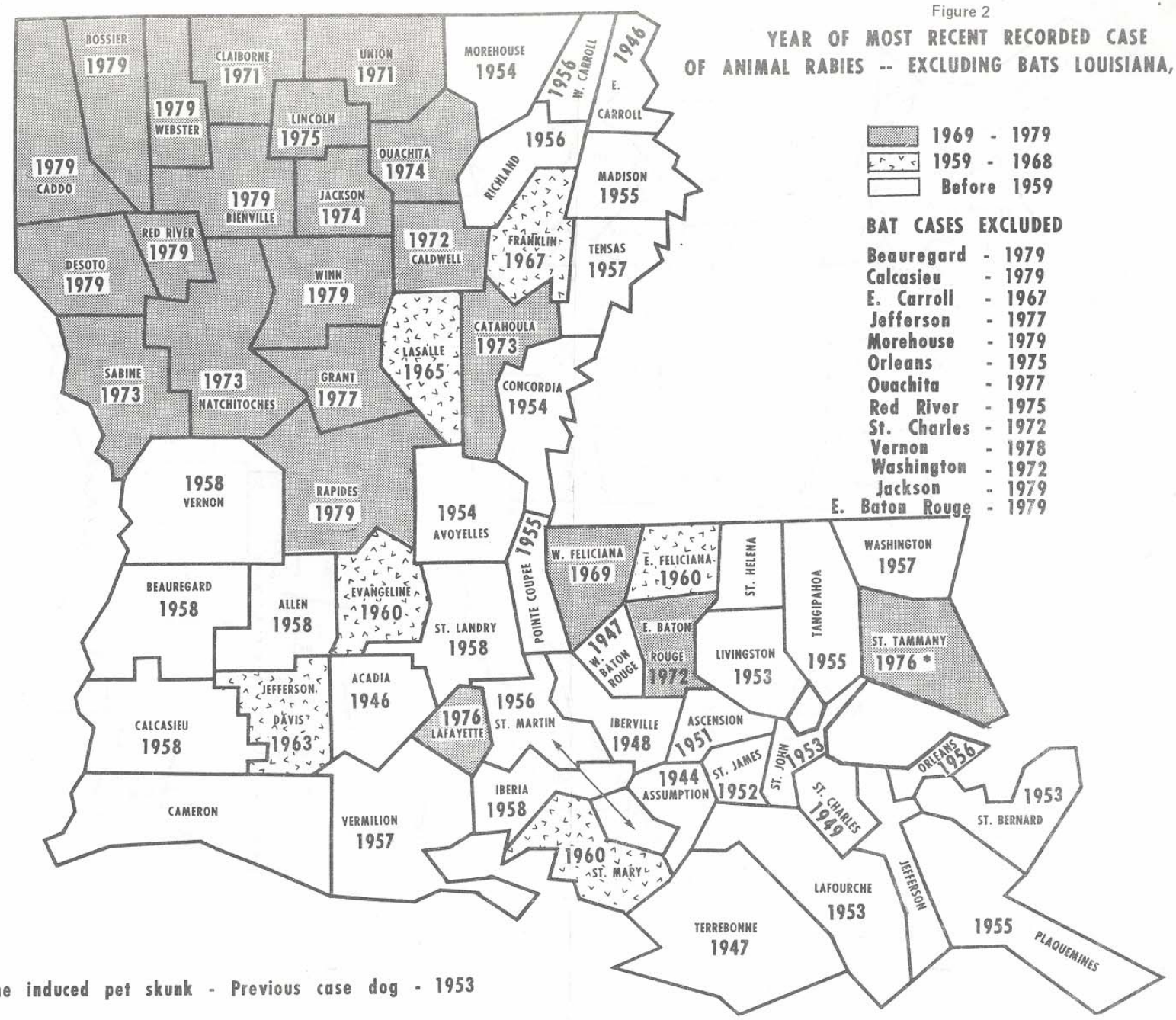


Figure 2



*Vaccine induced pet skunk - Previous case dog - 1953

Table I

ANIMAL BRAIN SPECIMENS EXAMINED FOR RABIES
LOUISIANA, 1950 - 1979

ANIMAL	TOTAL EXAMINED	POSITIVE	ANIMAL	TOTAL EXAMINED	POSITIVE
Armadillo	14	0	Flying Squirrel	12	0
Bat	947	78	Mole	44	0
Bear	5	0	Monkey	202	0
Beaver	2	0	Mouse	678	0
Fowl	68	0	Muskrat	51	0
Bobcat	26	1	Nutria	115	0
Cat	11,752	62	Opossum	354	0
Cattle	518	77	Otter	16	0
Chinchilla	2	0	Prairie Dog	1	0
Chipmunk	39	0	Rabbit	1,198	0
Coati	4	0	Raccoon	753	2
Deer	12	0	Rat	1,805	1
Dog	20,272	1,322	Salamander	12	0
Equine	69	6	Sheep	6	0
Ferret	7	0	Shrew	1	0
Fox	1,766	983	Skunk	532	144
Gerbil	203	0	Squirrel	2,313	1
Goat	23	4	Swine	34	2
Gopher	48	0	Turtle	1	0
Guinea Pig	131	0	Weasel	9	0
Hamster	1,701	0	Wolf	101	11
Iguana	1	0	Woodchuck	2	0
Mink	102	0			

GEOGRAPHIC DISTRIBUTION OF RABIES IN LOUISIANA

Both the geographic prevalence and the species specific incidence of animal rabies are important considerations in determining the risk of an exposure. The parish distribution of laboratory proven (FA) cases of animal rabies in Louisiana from 1975 through 1979 is shown in Figure 1. With the exception of one equine case and a vaccine-induced case of rabies in a pet skunk, southern Louisiana has experienced only a few positive insectivorous bats. Such bats do harbor rabies virus and can transmit the disease to man by bites; however, natural transmission to other terrestrial animals by their bite has never been documented. Therefore, insectivorous bats are probably of little importance in the endemicity of rabies. Excluding these bats, the year of the most recently recorded case of animal rabies in each parish is indicated in Figure 2. With the exception of four parishes, there have been no cases in southern Louisiana since 1963 and most occurred in the 1950's.

SPECIES OF BITING ANIMAL IN LOUISIANA

To illustrate the relative importance of various animal species as sources of rabies, examinations for rabies by health department laboratories in Louisiana from 1950 through 1979 are presented in Table I. Since 1974 there have been only two positive dogs and one cat, whereas 20 bats and 71 skunks have been positive. Interestingly, there have been no positive foxes in Louisiana since 1974; fox rabies was formerly a major problem in the northern part of the state. Perhaps most striking is the number of species without any detectable rabies. Many of these species, particularly hamsters, rabbits and mice, have been examined in large numbers without a single case of rabies being noted. Additionally, rats and squirrels continue to be examined in large numbers without a single positive since before 1970. There has never been a report of either human or carnivorous animal rabies as a result of rodent exposure.[3]

The United States Public Health Service guide for rabies postexposure prophylaxis is included (Table II) to

summarize points stressed herein and to assist the physician in his decision regarding treatment. As a guide, these recommendations should be used with knowledge of the animal species involved, the presence of rabies in the region, vaccination status of the animal and circumstances of the exposure.

REFERENCES

1. Verraraghover, N. The Value of 5% Semple Vaccine in Human Treatment. Scientific Annual Report. The Pasteur Institute of Southern India. Coonor, 1963.
2. Boltzard M., Bahmanyar M. Prevention of Human Rabies. Bull Who 10:797, 1954.
3. Winkler, W.G. Rodent Rabies in the United States. Journal of Infectious Diseases. 126:5, 1972.
4. MMWR. 29:23, June 13, 1980.

Table II

RABIES POSTEXPOSURE PROPHYLAXIS GUIDE MARCH, 1980

The following recommendations are only a guide. In applying them, take into account the animal species involved, the circumstances of the bite or other exposure, the vaccination status of the animal, and presence of rabies in the region. **Local or state public health officials should be consulted if questions arise about the need for rabies prophylaxis.**

	Animal species	Condition of animal at time of attack	Treatment of exposed person*
DOMESTIC	dog and cat	healthy and available for 10 days of observation	none, unless animal develops rabies †
		rabid or suspected rabid	RIG ‡ and HDCV §
		unknown (escaped)	consult public health officials. If treatment is indicated, give RIG ‡ and HDCV §
WILD	skunk, bat, fox, coyote, raccoon, bobcat, and other carnivores	regard as rabid unless proven negative by laboratory tests ¶	RIG ‡ and HDCV §
OTHER	livestock, rodents, and lagomorphs (rabbits and hares)	Consider individually. Local and state public health officials should be consulted on questions about the need for rabies prophylaxis. Bites of squirrels, hamsters, guinea pigs, gerbils, chipmunks, rats, mice, other rodents, rabbits, and hares almost never call for antirabies prophylaxis.	

* **All bites and wounds should immediately be thoroughly cleansed with soap and water.** If antirabies treatment is indicated, both rabies immune globulin (RIG) and human diploid cell rabies vaccine (HDCV) should be given as soon as possible, **regardless** of the interval from exposure.

† During the usual holding period of 10 days, begin treatment with RIG and vaccine (preferably with HDCV) at first sign of rabies in a dog or cat that has bitten someone. The symptomatic animal should be killed immediately and tested.

‡ If RIG is not available, use antirabies serum, equine (ARS). Do not use more than the recommended dosage.

§ If HDCV is not available, use duck embryo vaccine (DEV). Local reactions to vaccines are common and do not contraindicate continuing treatment. Discontinue vaccine if fluorescent-antibody (FA) tests of the animal are negative.

¶ The animal should be killed and tested as soon as possible. Holding for observation is not recommended.

SELECTED REPORTABLE DISEASES
(By Place of Residence)

STATE AND PARISH TOTALS Reported Morbidity July, 1980	VACCINE PREVENTABLE DISEASES					ASEPTIC MENINGITIS	HEPATITIS A AND UNSPECIFIED	HEPATITIS B	LEGIONNAIRES DISEASE	MALARIA**	MENINGOCOCCAL INFECTIONS	SHIGELLOSIS	TUBERCULOSIS, PULMONARY	TYPHOID FEVER	OTHER SALMONELLOSIS	UNDERNUTRITION SEVERE	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY	RABIES IN ANIMALS (PARISH TOTALS CUMULATIVE, 1979)
	MEASLES	RUBELLA*	MUMPS	PERTUSSIS	TETANUS														
TOTAL TO DATE 1979	246	26	31	13	2	58	357	147	0	3	109	55	348	3	76	7	13188	545	17
TOTAL TO DATE 1980	13	10	65	9	2	46	479	156	1	39	61	162	274	0	55	2	13591	725	7
TOTAL THIS MONTH	0	1	1	5	1	9	74	38	1	2	0	13	54	0	11	0	2506	116	0
ACADIA							1	4									16	1	
ALLEN																	7	1	
ASCENSION							1					1			2		16		
ASSUMPTION							1										3		
AVOYELLES																	5	1	1
BEAUREGARD													1				5	1	
BIENVILLE																	5		
BOSSIER						1		3									31	1	
CADDO			1			3	4	4					6				221	4	3
CALCASIEU							1	2									153	3	
CALDWELL																	2		
CAMERON																	4		
CATAHOULA													1				3		
CLAIBORNE													2				4		
CONCORDIA							1						1				6		
DESOTO																	3		
EAST BATON ROUGE							1			1			2		1		267	14	
EAST CARROLL							1										2	1	
EAST FELICIANA																			
EVANGELINE								1					1		1				
FRANKLIN																	12		
GRANT													1				3		
IBERIA							3	2					1				20	5	
IBERVILLE								1									25	1	
JACKSON																			
JEFFERSON		1				1	24	5	1			2	6		1		145	7	
JEFFERSON DAVIS																	7		
LAFAYETTE				1		3	4	5					1		3		54	2	
LAFOURCHE							3										15	1	
LASALLE																	1		
LINCOLN								1					1				27	1	
LIVINGSTON							1						1				11		
MADISON																	21	1	
MOREHOUSE																	26	2	
NATCHITOCHES																	2		
ORLEANS				2	1		11	3		1		2	17				895	37	
OUACHITA							3						4				136	5	
PLAQUEMINES																	2		
POINTE COUPEE																			
RAPIDES								1									128	9	
RED RIVER																		1	1
RICHLAND																	7	1	
SABINE																	1		
ST. BERNARD							3	1									8		
ST. CHARLES				1		1		1									10		
ST. HELENA																	1		
ST. JAMES							1						1				6	2	
ST. JOHN																	4		
ST. LANDRY													2				4	1	
ST. MARTIN							1						1				3		
ST. MARY													1				2		
ST. TAMMANY							4	1							3		19		
TANGIPAHOA							1										38	2	
TENSAS																	1		
TERREBONNE													2				20	2	
UNION																	13		
VERMILION							1	1									8		
VERNON				1			1										4		
WASHINGTON							2	2				8					8	2	
WEBSTER													1				27		2
WEST BATON ROUGE																	17	1	
WEST CARROLL																	2		
WEST FELICIANA																	1	6	
WINN																	8		
OUT OF STATE																	11		

* Includes Rubella, Congenital Syndrome.
** Acquired outside United States unless otherwise stated.

From January 1, 1980 through July 31, 1980, the following cases were also reported : 3-Leptospirosis; 3-Brucellosis; 1-Blastomycosis; 1- Cryptococcosis ; 26 Trichinosis; 1-Poliomyelitis; non-paralytic; 1-Rocky Mountain Spotted Fever.

Department of Health and Human Resources
Office of Health Services and Environmental Quality
P.O. Box 60630, New Orleans, La. 70160

This public document was published at a cost of $.27 per copy by the Office of Health Services and Environmental Quality to inform Physicians, Hospitals, and the Public of current Louisiana morbidity status under authority of R.S. 40:36. This material was printed in accordance with the standards for printing by state agencies established pursuant to R.S. 43:31.