

LOUISIANA MONTHLY MORBIDITY LHSASA

DISEASES REPORTED DURING THE MONTH OF

MARCH, 1973

BY PARISH OF RESIDENCE

MYSTERIOUS ILLNESS IN A HOUMA FAMILY

A description of a mysterious illness involving a family residing in Houma, Louisiana, appeared in the January issue of the Louisiana Monthly Morbidity Report. At the time this article was prepared for the Morbidity Report, the etiology of this illness had not been identified, though it was indicated that further investigations were being undertaken. These investigations have yielded new information regarding this tragic outbreak, however, as will be apparent, have not unequivocally established its etiology.

As previously reported, the six members of this family had been well until early one Sunday morning when the maternal grandmother found them afflicted with a mysterious neurological disorder. The father was dead, the four children were comatose and the mother was stuporous, though conscious, rocking in a chair with her youngest child in her arms.

Physical examination of the children at the time of their admission to a local hospital revealed normal skin color, marked tachycardia, S₃ and S₄ gallops, mydriasis, marked irritability with frequent high pitched

BUREAU OF VITAL STATISTICS

DIVISION OF HEALTH MAINTENANCE AND AMBULATORY PATIENT SERVICES

Prepared by:

**DIVISION
OF TABULATION &
ANALYSIS**

APRIL 6, 1973

	ASEPTIC MENINGITIS	DIPHTHERIA	ENCEPHALITIS	ENCEPHALITIS, POST INFECTION	INFECTIOUS AND SERUM HEPATITIS	TUBERCULOSIS, PULMONARY	MENINGOCOCCAL INFECTIONS	PERTUSSIS	POLIOMYELITIS, PARALYTIC	RABIES IN ANIMALS	RHEUMATIC FEVER	RUBELLA *	SHIGELLOSIS	TYPHOID FEVER	OTHER SALMONELLOSIS	TETANUS	MEASLES	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY
TOTAL TO DATE 1972	8	4	0	0	181	140	18	6	0	11	3	45	15	0	38	2	23	3945	208
TOTAL TO DATE 1973	19	0	2	1	199	191	12	5	0	10	2	38	71	0	43	1	33	5002	187
TOTAL THIS MONTH	8	0	1	0	70	60	8	1	0	5	0	25	24	0	10	1	18	1752	46
ACADIA					3		1								1				1
ALLEN																			3
ASCENSION					2														2
ASSUMPTION					1														28
AVOUELLES						5													2
BEAUREGARD					1														2
BIENVILLE																			1 1
BOSSIER					1														15
CADDO					3	2				1							1	202	2
CALCASIEU					2	1									1				43
CALDWELL												2					2		1
CAMERON																			
CATAHOULA										1									
CLAIBORNE																			2
CONCORDIA					2														1
DESOTO																			8
EAST BATON ROUGE					6	7									1	1	8		54
EAST CARROLL																			8
EAST FELICIANA					1														1
EVANGELINE					2	1													4
FRANKLIN						1													
GRANT																			2
IBERIA																			5
IBERVILLE																			2

* Includes Rubella, Congenital Syphilis

1973

crying and a tendency to assume a rigid hyper-extended "opisthotonic" posture when stimulated. The children were noted to have frequent atypical seizures. Their laboratory studies were all essentially within normal limits. Three of the children recovered completely after 48 hours of supportive therapy. A fourth child, however, with a past history of a seizure disorder, remained comatose for almost six weeks before demonstrating any signs of recovering a normal state of consciousness.

At the time of their hospitalization little additional information was available concerning this family's illness. However, with the recovery of the mother, she was able to provide these additional facts concerning their illness: family members had been having daily headaches for a period of approximately two weeks preceding the abrupt onset of coma. At the time these headaches began, the father had removed the air filter from their gas heating unit. This unit had not been working as well as it had in previous years and required a thermostat setting of 85°F to maintain a comfortable temperature in their house. At the time of these complaints Louisiana had been experiencing an unusually cold spell. According to the mother, it was so cold the day prior to their hospitalization, that the children were not permitted to leave the house. The mother, who was the least affected member of the family stated that she spent the night prior to her husband's death in the only room in the house with an open window. Her husband fell asleep on the living room floor where there was no open window. Finally, the family dog, who spent this same night inside their house was listless and vomited frequently during a two day period following the outbreak.

All these factors strongly suggested the possibility of carbon monoxide poisoning. This diagnosis was reinforced by the findings of investigations made by the Health Department in cooperation with the Gas and Electric Co. which revealed an improperly installed heating unit in the family's home. At the time of the examination the unit was emitting 75 ppm of carbon monoxide from its outlet vents. Samples of ambient air taken from each room in the house contained 50 - 75 ppm of carbon monoxide.

However, when these measurements were taken, the weather was considerably warmer than it had been at the time of the outbreak. It is possible that during the very cold period preceding the outbreak substantially higher levels of carbon monoxide accumulated within the house.

Carbon monoxide is, in essence, a physiologically inert gas which exerts its effects almost entirely by blocking oxygen transport by hemoglobin. Because hemoglobin has a very high affinity for carbon monoxide, this gas may accumulate in mammalian blood to critical levels when very low levels (relative to oxygen) are present in the air. W. F. von Ottingen has calculated that after 10 hours of continuous exposure to carbon monoxide 12% of a man's hemoglobin will be converted to carboxyhemoglobin if the ambient air he breaths contains 100 ppm carbon monoxide. If the concentration of carbon monoxide is increased to 500 ppm, 1,000 ppm and 2,000 ppm, his carboxyhemoglobin will increase from 20% to 61% to 78%, respectively.

As an individual's blood becomes saturated with carboxyhemoglobin he may note a variety of symptoms. At 10 - 20% carboxyhemoglobin the individual usually begins to experience tightness across his forehead. As the level increases, this progresses to severe headache with weakness, dizziness, dimness of vision, nausea, vomiting and ultimately collapse. At 50 - 60% carboxyhemoglobin, convulsions, Cheyne - Stokes respiration, increased respiration and pulse, and coma are common. A level of greater than 70% carboxyhemoglobin is generally incompatible with life.

Bour and Ledingham reviewed 20 fatal cases of carbon monoxide poisoning admitted to the Hotel Dieu in Paris during 1959. The most basic neurological manifestation noted in these patients was coma. This was accompanied by disturbances of neuromuscular tonus, often in the form of marked hypertonia and symptoms of bilateral pyramidal irritation. The classical "cherry red coloring" was not a common finding in this series and was discarded as a diagnostic aid. These investigators concluded that the encephalopathy of carbon monoxide origin does not present any lesions fundamentally different from those caused by other anoxic conditions.

The symptoms experienced by the Houma family were typical of carbon monoxide poisoning. Furthermore, blood specimens submitted to the State Crime Lab showed carboxyhemoglobin levels of between 7.6% and 9.8% in the children and father. A sixth blood specimen labeled only with the family's surname contained 75% carboxyhemoglobin. This specimen may actually have represented the one which had been obtained from the father at autopsy since a concentration of 75% carboxyhemoglobin represents a fatal level. The specimen labeled as the father's blood, which contained only 9.8% carboxyhemoglobin may, in fact, have been an improperly labeled sample of the mother's blood. This specimen, as well as those from the children, were obtained after 12 hours of oxygen therapy and, no doubt, after a considerable portion of their carboxyhemoglobin had been reconverted.

Up to this point, the mysterious illness involving the Houma family seemed to conform completely to a diagnosis of carbon monoxide poisoning. The investigation of the outbreak, in turn, lent itself to a

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	JACKSON																			
JEFFERSON	1				11	2	1						3		1			103	3	
JEFFERSON DAVIS						1												8		
LAFAYETTE	1				2										1			28		
LAFORCHE						1												15		
LASALLE																				
LINCOLN																		43	1	
LIVINGSTON						1												1	2	
MADISON																		13		
MOREHOUSE						1												24		
NATCHITOCHES						1												23		
ORLEANS	4		1		15	18	4	1					20		5			685	21	
OUACHITA					5					3								79	4	
PLAQUEMINES						7												1		
POINTE COUPEE																				
RAPIDES					1		1					6						69	1	
RED RIVER																		1		
RICHLAND																		13	1	
SABINE						1												1		
ST. BERNARD					1													3		
ST. CHARLES	1																	1		
ST. HELENA																		3		
ST. JAMES																		2		
ST. JOHN					1								1					2		
ST. LANDRY						3	1											18		
ST. MARTIN					1							13						5		
ST. MARY						1												12	1	
ST. TAMMANY					4							3					1	28		
TANGIPAOHA					2													26	1	
TENSAS																		1		
TERREBONNE																		15	2	
UNION						1												8	1	
VERMILION						2											2	5		
VERNON					3							1					4	78	2	
WASHINGTON																		25		
WEBSTER	1					1												6		
WEST BATON ROUGE																		2	1	
WEST CARROLL																		5		
WEST FELICIANA																		11		
WINN																		6		
OUT OF STATE																				

From January 1 through March 31, the following cases were also reported:
 2-Brucellosis; 1-Malaria (contracted outside the U.S.A.)

timely communication from the Health Department to practitioners throughout the State regarding an additional peril related to one of the "coldest winters to hit Louisiana in a long time."

The Crime Lab, however, continued to do their work and in so doing detected high levels of "Thorazine" in each of the six blood specimens they had received. This altered the complexion of our investigation considerably. A careful interview of the entire family and numerous relatives as well as examination of the records of the local pharmacy failed to indicate that any member of the family had obtained Thorazine at any time. It was, however, learned that the father had taken one Synalogs DC capsule for headache the afternoon prior to his death. He had obtained this from a relative and had not apparently taken additional capsules. Synalogs DC contains numerous ingredients. One of these, Promethazine (6.25 mg) has the same basic chemical structure as Thorazine and may well have been confused for Thorazine in the chromatographic analysis of the blood specimens. Nonetheless, 6.25 mg of Promethazine would not have produced the level of 0.73 mg % Thorazine detected by the Crime Lab in the father's blood, nor could it have explained similar levels detected in the blood of the children.

The symptoms of Promethazine intoxication are very similar to those that have already been described for carbon monoxide poisoning. These include hallucinations, excitement, ataxia, incoordination, athetoid convulsions (heralded by athetoid movements and muscle tremors) and fixed dilated pupils frequently accompanied by flushed face and fever.

In summary, the mysterious illness reported in the January Morbidity Report appears to have developed as a consequence of either carbon monoxide poisoning or Promethazine poisoning or perhaps a combination of both with one potentiating the effects of the other.

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EVIDENCE OF WIDESPREAD RUBELLA IN LOUISIANA

On February 16 the Health Department investigated an outbreak of a mild disease among 10 students attending a single high school in Rapides parish. This disorder was characterized by a mildly pruritic generalized red macular rash and tiny tender occipital nodes. The rash typically lasted three days and was not associated with additional constitutional symptoms.

Similar illness is being reported in many areas of the state, and has received a variety of diagnostic labels. The most frequent diagnoses have included fifth disease, measles and rubella. The illness in almost all cases involves young adults without prior histories of immunization against rubella. The largest single concentration of reported cases at this time is at Fort Polk, Louisiana where there were 85 cases of nonspecific illness with rash reported in February. In these cases, diagnoses of measles and rubella were made with equal frequency. Neither diagnosis has, as yet, been confirmed by either viral isolation or demonstration of rising antibody titers.

The illness which occurred in the Rapides parish high school has been confirmed as rubella. Clinically, the mild illness with its transient rash and tender posterior cervical nodes in a population which had not previously received rubella vaccine favored this diagnosis. A rise in HI antibodies against rubella in 2 affected students during the early convalescent period, as well as elevated titers noted in single samples of convalescent sera obtained from 5 additional cases, provided laboratory confirmation of the diagnosis.

The Center for Disease Control in Atlanta has been receiving reports of increased rubella activity in recent months from many regions of the country. The preliminary investigations described above seem to indicate that Louisiana is experiencing similar activity. Because of the importance of this disease with respect to its potential for causing birth defects, careful attention must be given to the differential diagnosis of illness with rash. Blood specimens may be submitted to the State Laboratory for this purpose through the parish health units. In addition to this, a concerted effort should be made to see that all prepuberal children have adequate immunization against rubella. Pregnant mothers with nonspecific febrile illnesses, particularly in association with an evanescent rash, should have acute and convalescent sera examined for rubella titers and receive appropriate prenatal counseling when positive results are reported. Extension of the rubella vaccine program to include adolescent girls and adult women is highly desirable and may be undertaken with the following precautions: each potential vaccinee in these groups must be considered individually. They should receive vaccine only if they are shown to be susceptible by serological testing and if they agree to prevent pregnancy for 2 months after immunization.