



REPORTED MORBIDITY
MAY, 1977

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DEPARTMENT OF HEALTH
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OFFICE OF HEALTH SERVICES
AND ENVIRONMENTAL QUALITY

MONTHLY MORBIDITY REPORT

Provisional Statistics

from the

OFFICE OF PUBLIC HEALTH STATISTICS

REVISED RECOMMENDATIONS FOR MANAGEMENT OF MENINGOCOCCAL CARRIERS

In view of the ongoing high incidence of meningococcal infection in Louisiana (see accompanying article) and continuing questions regarding management of contacts of cases, the Louisiana Department of Health and Human Resources recently reconvened its special committee on meningococcal contacts. The committee of consultants met on March 3, 1977, and issued the following recommendations, similar to those published in the Louisiana Monthly Morbidity Reports, December, 1976 and February, 1975, but containing some revisions.

1. Household contacts (especially children under 5 years of age), romantic contacts, and persons who have given mouth-to-mouth resuscitation to cases of meningococcal diseases should be placed under close clinical surveillance. The median interval for onset of secondary cases in household contacts is fifteen days after onset of the first case. Objective signs of illness in contacts, such as fever, headache, sore throat, exanthem, otitis, or stiff neck warrant immediate medical evaluation for possible meningococcal infection, regardless of whether or not chemoprophylaxis has been given.
2. There is no evidence that school room, school bus, office, hospital, or other casual type contact with a case places a person at any higher risk of developing the disease than other persons in the general population. Nursery schools and day care centers are an exception to this statement; nursery school or day care center classmates of a case should be regarded as household contacts and observed very closely whether or not chemoprophylaxis (see #1 and #4) is used.
3. When a case of meningococcal disease occurs in a school (other than a day care center

or a nursery school), it is not necessary for school officials to send notices home to the parents of asymptomatic children nor to suggest that they seek prophylaxis. Such actions are unwarranted and are often responsible for creating community confusion bordering on panic. School officials should consult the local health unit for advice.

4. When a case of meningococcal disease occurs in a day care center or nursery school, that facility's officials should consult local health unit for advice, and notify parents, asking them to consult their own physicians for advice regarding further precautions to be taken.
5. There is currently no ideal chemoprophylaxis for meningococcal disease. Rifampin may be used, and has been recommended for household

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MENINGOCOCCAL DISEASE IN LOUISIANA

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Cases of meningococcal illness continue to occur in Louisiana at a rate considerably greater than noted in the past several years (Figures 1 and 2). The Epidemiology Unit has received reports of 99 cases, including 13 deaths, occurring in the period December 1, 1976-May 31, 1977. Of the 49 which have been serogrouped, 45 (92%) are group B, 3 (6%) are group C, and 1 (2%) is group Y. Since 1973, group B has been the most common serogroup nationwide, accounting for 58% of isolates sent to the Center for Disease Control (CDC) during 1976. During that same period, group C accounted for 20% of isolates; group Y, 12%; group A, 6%; and other or non-typable specimens 3%.¹

The fact that group B accounts for such a large portion of cases is important for several reasons. One is that sulfonamide resistance varies markedly among groups, group B being a sulfa sensitive group. During 1976, 62% of CDC isolates of group C meningococcus were sulfonamide resistant, whereas only 5% of group B isolates were resistant, 5% of group A, and 2% of group Y.¹ The recent experience in Louisiana reflects these national trends - 43 of the 45 (95.6%) group B isolates have been sulfa sensitive, while all 3 group C isolates were resistant. None of the Louisiana isolates has shown resistance to Rifampin or Penicillin.

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REVISED RECOMMENDATIONS

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and other intimate contacts (kissing, mouth-to-mouth resuscitation) by the Center for Disease Control, United States Public Health Service. It has been shown to be 80%-90% effective in eradicating the carrier state, but data do not currently exist to prove its efficacy in preventing secondary cases.

Because of the persistence of sulfa-resistant strains, sulfonamides are not currently recommended, unless the strain causing a case or an outbreak is known to be sulfa sensitive. Chemoprophylaxis for contacts should not substitute for close surveillance of those contacts. Rifampin is given every 12 hours for four doses in a dosage of 600 mg for adults, 10 mg/kg for children 1-12, and 5 mg/kg for children under 1. Sulfonamides are given for two days; 1 gram every 12 hours for adults, 500 mg every 12 hours for children 1-12, and 500 mg every 24 hours for children under 1. Sulfonamides are contraindicated for use in infants under 2 months of age. Minocycline is currently felt to be unacceptable in chemoprophylaxis of meningococcal infection because of the incidence of vestibular reactions following minocycline administration.

Penicillin, though the drug of choice for treatment of cases, is not suitable for chemoprophylaxis. Cases of meningococcal meningitis have been observed to develop in patients receiving penicillin "prophylaxis."

Ampicillin, erythromycin, oxytetracycline, chloramphenicol, cephalexin, doxycycline, nalidixic acid, and immune serum globulin have been demonstrated to be of little or no value in eliminating meningococci from the asymptomatic subject, and are not recommended.

6. Neisseria meningitidis cultured from blood, spinal fluid, skin lesions, or other sites from symptomatic patients, should be forwarded to the Central Laboratory of the Office of Health Services and Environmental Quality for serogrouping. The address is: 325 Loyola Avenue, New Orleans, Louisiana 70112.

When Group A or Group C is identified, physicians should consider immunizing household and other intimate contacts with Group A or Group C vaccine, which are now commercially available. Physicians should be aware that the vaccines are probably not efficacious in children under 2 years of age. Since 50% of cases of contacts of meningococcal disease occur within one week of contact, and since the vaccines do not induce immunity until one week after administration, the vaccine is not a substitute for chemo-

prophylaxis or close observation.

7. Nasopharyngeal cultures from asymptomatic contacts of cases serve no useful purpose, because if chemoprophylaxis of household contacts were employed, it should be used before the results of cultures of contacts are known.
8. When a case of meningococcal disease is diagnosed, the patient should be treated immediately with the indicated intravenous antibiotic in the closest appropriate local hospital. If it becomes necessary to transfer a diagnosed or suspected case, immediate local treatment should not be withheld, but should be continued until the patient's condition is stable enough to allow for safe transfer.
9. Crystalline penicillin G is the drug of choice for the treatment of meningococcal disease. The recommended dose for children is 400,000 units/kg/day in divided intravenous doses, or 15 to 20 million units intravenously per day for adults. For patients sensitive to penicillin, the treatment of choice is chloramphenicol 100 mg/kg/day in 4 divided intravenous doses for children, or approximately 4 grams/day for adults.
10. Rifampin and minocycline are not effective for treating meningococcal disease.
11. If Neisseria meningitidis is discovered as an incidental finding on a throat culture done for another purpose in a person without recent exposure to meningococcal disease, no treatment is indicated.
12. When a person dies with meningococcal disease, there is no justification for requiring a closed casket funeral nor for restricting attendance at the funeral of the deceased.

ST. LOUIS ENCEPHALITIS

Now that the arbovirus season (June-October) is upon us, the Epidemiology Unit is once again requesting the assistance of the physicians of Louisiana in reporting cases of suspect or confirmed St. Louis (SLE) or other arbovirus encephalitis. Control of St. Louis encephalitis is based on control of the mosquito vector, primarily the night feeding *Culex* species. We rely on a two-fold system for deciding where to carry out intensive mosquito control activities: (1) reporting of human cases by physicians and (2) systematic serological study of birds trapped at a variety of locations around the state.

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MENINGOCOCCAL DISEASE
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Table 1

Comparison of Meningococcus Age Specific Yearly Incidence for Louisiana (December 1976-May 1977) and U.S. (August 1973-August 1974)

	Louisiana (Cases/100,000)	U.S. (Cases/100,000)	La/US
Age			
< 1	54.0	9.47	5.7
1-4	21.0	2.27	9.3
4-19	4.2	0.67	6.3
≥ 20	1.6	0.17	9.4
All ages	5.2	0.60	8.7

Secondly, the recent development of group-specific meningococcal polysaccharide vaccine² has made vaccine control of some outbreaks possible. However, current vaccines are effective only against group A or group C meningococcus, and therefore are not relevant to the current outbreak.

Thirdly, the great increase in cases of one serogroup, unaccompanied by increases in the others, indicates that the current experience represents an outbreak, rather than either a true intensification of endemic disease or a reporting artifact, since in those cases, a roughly proportionate increase in all serogroups would be expected. Outbreak or epidemic meningococcus may behave somewhat differently from endemic illness. During several small outbreaks of meningococcus over the past ten years, a shift upward in the age distribution of cases and a shift towards the occurrence of cases in poor, crowded neighborhoods has been observed. Secondary attack rates also tend to be higher in outbreaks.¹

Most cases in the current outbreak have occurred in southern Louisiana (Figure 3). Based on the period December 1, 1976 - May 31, 1977, the projected annual incidence, is 5.2/100,000 statewide and 6.6/100,000 for the area of the state below the line drawn on the map,* compared to 0.60 cases/100,000 nationwide for the 12 months August 1973 - August 1974.³ The approximate range of yearly incidence for Louisiana during the past 40 years has been 1-10 cases/100,000.⁴ Since meningococcus characteristically has its highest attack rate in young children, age specific incidences are of interest. For the same period and population base, the age specific incidences compared to nationwide figures are shown in Table 1.

The racial breakdown for the 88 cases for which

race is known is 63 whites (71.2%) and 25 blacks (28.8%), very close to the statewide racial distribution (70.2% white, 29.8% non-white). Forty-nine cases are males and 49 are females.

The Epidemiology Unit has collected detailed information on 27 cases thus far in an effort to detect clustering of cases by geography, school, school of siblings, employment, employment of parents, or relationship to military bases. No clustering has been apparent thus far, except for five examples of two cases in a household. In fact, other than showing a tendency to occur in the southeast corner of the State, cases have been strikingly sporadic. This pattern is the rule rather than the exception for meningococcus, and is probably related to the fact that a very large number of people are colonized with meningococcus for every case of disseminated disease. The ratio of colonized cases to cases of disease has been estimated to be as high as 10,000:1.⁵ Thus the pattern of cases may be determined largely by host factors rather than merely by where the etiological organism has spread.

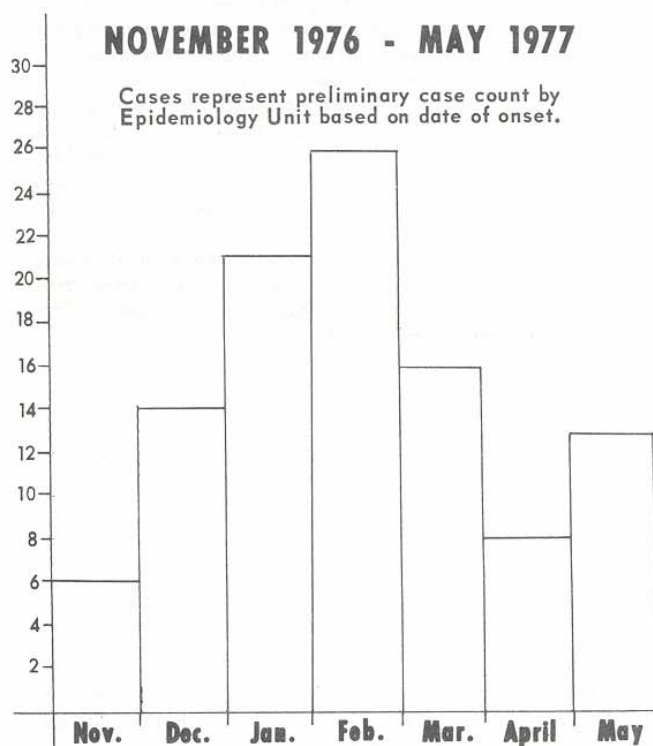
There have been five families in which pairs of cases occurred. In four of these families the second case occurred between 24 hours and 30 days following

Figure 1

MENINGOCOCCAL CASES IN LOUISIANA BY MONTH

NOVEMBER 1976 - MAY 1977

Cases represent preliminary case count by Epidemiology Unit based on date of onset.



* Based on 1976 estimated population.

the first case, thus fulfilling CDC's definition of a secondary case.⁶ In the fifth pair, both children were ill at the same time, and may represent a common exposure. The 27 intensively investigated cases had an average of 4 household contacts. Using this figure, the secondary attack rate (cases in household contacts/total number of household contacts) for all of the 99 cases between December 1, 1976 and May 31, 1977 is roughly 1% (4/376).^{*} Another way of viewing the same data is that 4/99 (4.0%) of the cases are secondary cases. The secondary attack rate of 1% contrasts with a secondary attack rate of 0.3% determined by the Center for Disease Control for endemic meningococcal cases in the United States.⁶ The relatively high secondary attack rate observed in Louisiana is consistent with observations of high secondary attack rates in previous meningococcal outbreaks.¹ The secondary attack rate of 1% (1,000/100,000/year) also contrasts with an attack rate for the population at large of 5.2/100,000/year in this current outbreak, and illustrates the greatly increased risk to household contacts.

The New Orleans metropolitan area (Orleans, Jefferson, St. Bernard, and St. Tammany parishes) has been heavily affected, with 51 of the 99 statewide cases between December 1, 1976 and May 31, 1977. These have been assigned to census tracts, and the census tracts analyzed for median income. The average median income for involved census tracts is \$6,200 compared to \$7,000 for the metropolitan area as a whole,[†] supporting the impression of the Epidemiology Unit that there is some tendency for cases to occur disproportionately among the poor.

Two of the factors mentioned above make public health control of the outbreak difficult; namely, the lack of vaccine for group B meningococcus and the inability to define clusters (other than households) of people at high risk. In the absence of more dramatic possibilities, the most important measures are high level of physician suspicion of meningococcus, leading to early antibiotic treatment of cases, along with close surveillance with or without prophylactic treatment of household contacts. The Epidemiology Unit urges and appreciates early reporting of all cases.

REFERENCES:

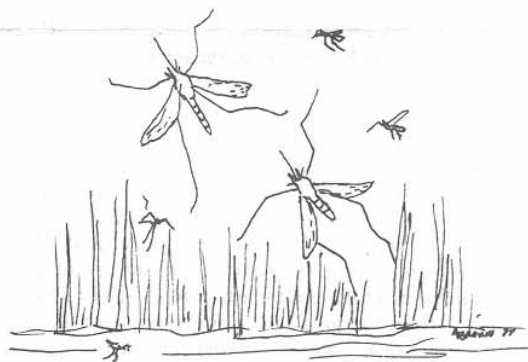
- ¹ David Frazier: Center for Disease Control, Special Pathogens Division, personal communication.
- ² *Morbidity and Mortality Weekly Report*, 24:381-82, Center for Disease Control, November 11, 1975.
- ³ Jacobson, J.S., Weaver, R.E., and Thornsberry, C.: Trends in meningococcal disease, 1974, *Journal of Infectious Disease* 132:480-484, October, 1976.
- ⁴ Office of Public Health Statistics, Louisiana Department of Health and Human Resources.
- ⁵ Eickhoff, T.C.: Meningococcal infections in the

United States: A status report with reference to the state of Louisiana. *Journal of the Louisiana State Medical Society* 118:485-92, December, 1966. Meningococcal Disease Surveillance Group: Meningococcal disease secondary attack rate and chemoprophylaxis in the United States, 1974. *Journal of the American Medical Association*. 235:261-263, January 19, 1976.

ST. LOUIS ENCEPHALITIS

(continued from Page 2)

The only practical way to make the diagnosis of SLE is by serological testing, since the virus is extremely difficult to isolate. Both acute phase and convalescent phase sera, drawn two to three weeks apart, are required to confirm the diagnosis. (Either a sero-conversion or a 4-fold titer rise is confirmatory). The hemagglutination-inhibition test is done by the Central Laboratory. Serum specimens should be mailed (freezing not necessary) either directly to the Central Laboratory, 7th Floor, 325 Loyola Ave., New Orleans, La. 70112, or to one of the Regional Laboratories. The local health unit or the Epidemiology Unit (504-568-5006) should also be notified of all suspect cases. Please do not delay notification until the diagnosis is confirmed because the several week delay may make an important difference in disease control activities. Health Unit assistance is available in obtaining follow-up serum specimens after patients have been discharged from the hospital.



^{*} The number of household contacts is estimated by multiplying the number of households (94) by the number of contacts per household (4).

[†] Based on 1970 Census data.

Figure 2

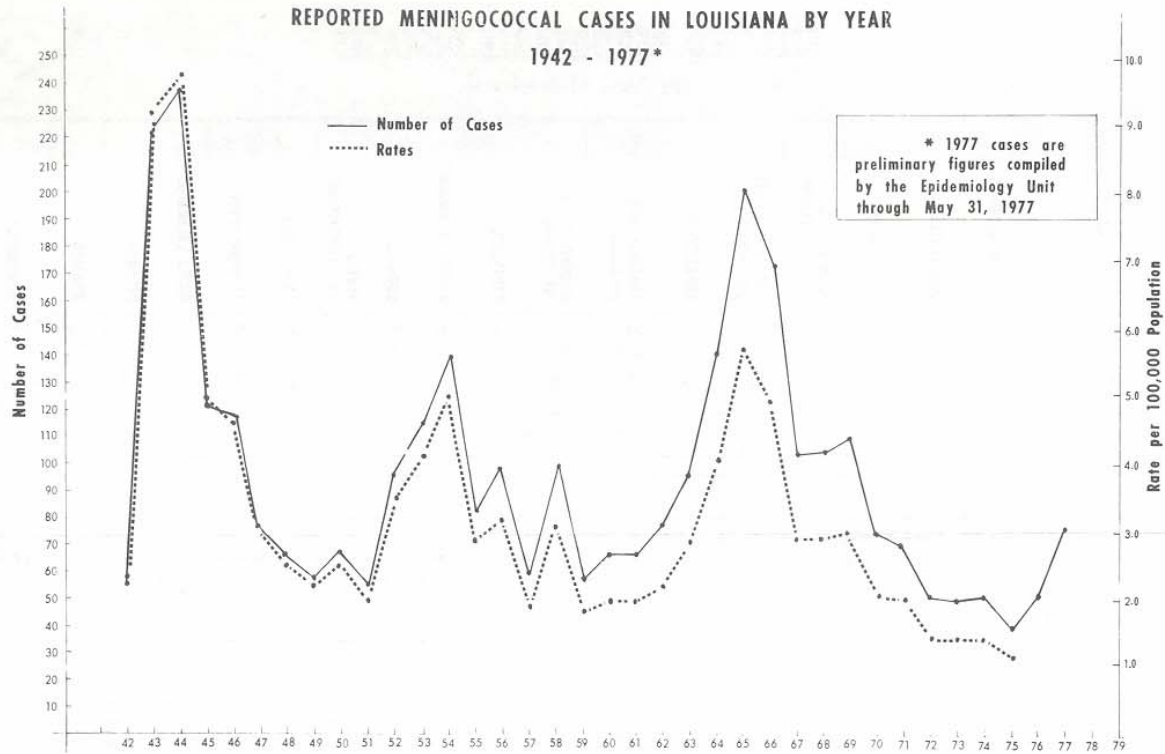
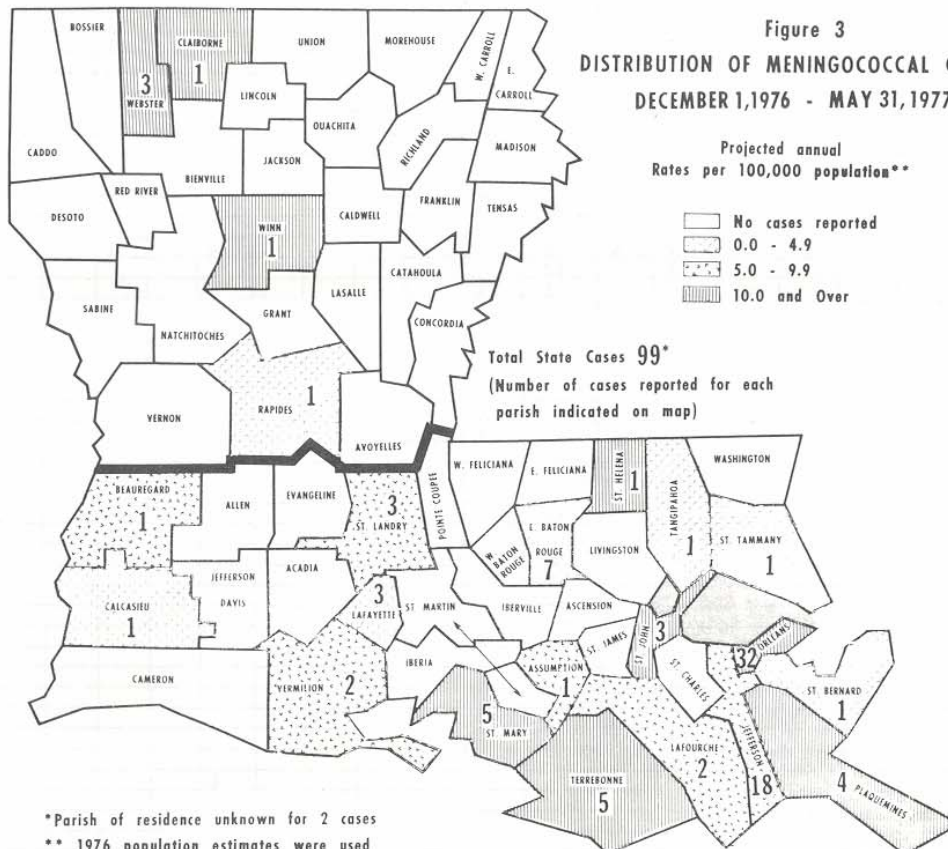


Figure 3
DISTRIBUTION OF MENINGOCOCCAL CASES,*
DECEMBER 1, 1976 - MAY 31, 1977



SELECTED REPORTABLE DISEASES

(By Place of Residence)

STATE AND PARISH TOTALS	ASEPTIC MENINGITIS	DIPHTHERIA	ENCEPHALITIS	ENCEPHALITIS, POST INFECTION	HEPATITIS - A AND UNSPECIFIED	HEPATITIS B	TUBERCULOSIS, PULMONARY	MENINGOCOCCAL INFECTIONS	PERTUSSIS	RABIES IN ANIMALS	RUBELLA*	SEVERE UNDERNUTRITION	SCHISTOSOMIASIS	TYPHOID FEVER	OTHER SALMONELLOSIS	TETANUS	MEASLES	GONORRHEA	SYPHILIS, PRIMARY AND SECONDARY
Reported Morbidity May, 1977																			
TOTAL TO DATE 1976	24	0	5	3	188	54	244	20	1	0	83	5	28	0	32	1	154	7565	191
TOTAL TO DATE 1977	5	0	4	0	254	50	248	60	2	5	23	4	27	0	32	1	71	7521	267
TOTAL THIS MONTH	3	0	0	0	42	9	50	16	2	1	14	0	13	0	12	0	15	2025	76
ACADIA																		3	
ALLEN							2											1	
ASCENSION					1													10	
ASSUMPTION																		1	
AVOUELLES							1											6	1
BEAUREGARD																		7	
BIENVILLE																		1	1
BOSSIER										1								14	
CADDO						2	6										1	100	5
CALCASIEU							1				1				1			97	5
CALDWELL																			
CAMERON																			
CATAHOULA																		2	
CLAIBORNE																		2	2
CONCORDIA							1												1
DESOTO																		10	1
EAST BATON ROUGE	1				3		6	3							1			158	10
EAST CARROLL					1													6	
EAST FELICIANA																		3	1
EVANGELINE																		1	
FRANKLIN																		9	1
GRANT																		3	
IBERIA																		10	1
IBERVILLE															6			18	
JACKSON											4								
JEFFERSON					10		2	5			1		7		1		6	104	3
JEFFERSON DAVIS						1												4	1
LAFAYETTE							2											34	7
LAFOURCHE					2													18	1
LASALLE																			
LINCOLN							1											14	
LIVINGSTON																		3	
MADISON					3													7	
MOREHOUSE							1											18	1
NATCHITOCHES																		28	1
ORLEANS	1				2	4	6	5					4		1		5	911	17
OUACHITA					1		12											86	1
PLAQUEMINES							1	1											
POINTE COUPEE																			
RAPIDES					1		1											93	2
RED RIVER																			1
RICHLAND							1											4	
SABINE																		1	
ST. BERNARD					2				1									5	
ST. CHARLES						1		1										6	
ST. HELENA																		3	
ST. JAMES																		11	5
ST. JOHN																		6	3
ST. LANDRY	1				1		3		1								1	4	
ST. MARTIN															2			5	
ST. MARY					1												1	12	1
ST. TAMMANY					1						6		1					32	
TANGIPAHOA							1											29	
TENSAS																			
TERREBONNE					2			1										18	
UNION																		9	
VERMILION					4														
VERNON					6	1					2							63	1
WASHINGTON							2											15	
WEBSTER																	1	1	1
WEST BATON ROUGE					1													13	1
WEST CARROLL													1					2	
WEST FELICIANA																		1	
WINN																		2	
OUT OF STATE																		1	

* Includes Rubella, Congenital Syphilis