



Reported Morbidity
November, 1981

MONTHLY MORBIDITY REPORT

Provisional Statistics

**PUBLIC HEALTH STATISTICS and
DIVISION OF DISEASE CONTROL**

AN OUTBREAK OF CHOLERA ON A GULF COAST OIL RIG

On September 28, 1981 *Vibrio Cholerae* O-Group 1 serotype Inaba was cultured from the stool of a patient in Louisiana; the isolate has subsequently been determined to produce cholera toxin by an ELISA assay and to contain genetic material encoding the toxin by DNA hybridization studies. The patient had developed watery diarrhea on 9-20-81, five days after beginning his seven day "hitch" on an oil rig south of Port Arthur, Texas, where he is employed as a roughneck. His diarrhea occurred 25 times per day at its peak and he also experienced nausea, vomiting, abdominal cramps and orthostatic presyncope before consulting a physician on 9-28-81.

As the oil rig was owned and operated by a Louisiana firm and employed mainly Louisiana residents, a cooperative investigation was under taken by the Texas and Louisiana Health Departments. Personal interviews with permanent rig employees revealed that 10 of the 13 other individuals present during the week of the patient's hitch had also experienced a diarrheal illness with onsets on 9-22-81 and 9-23-81. None of the 16 individuals present during the preceding or following week had developed diarrhea. In addition, 8 of 43 service personnel present on the rig for varying periods of time during the latter half of September gave a history of diarrhea with similar onset dates. Although rectal swabs from all workers except the initial patient have been negative for *V. Cholerae*, vibriocidal and anti-toxic antibody determinations have identified 16 definite infections of *V. Cholerae* 01 Inaba among this population. Of the 17 individuals with cholera infections, two remained asymptomatic. Moore swabs placed in the sewage tank, drinking water reservoir and river water surrounding the rig have been negative for *V. Cholerae*.

The source of infection for the index case has not been determined; however, a seafood meal served on 9-18-81 is the suspect. The investigation has established that on 9-21-81 an inadvertent cross-contamination occurred between the rig's river water system used for drilling and the fresh water system used for drinking. Because of the close proximity of the raw sewage discharge pipe and the intake port for the drill system, it is likely that the unchlorinated drinking water became contaminated with viable cholera organisms from the initial patient at this time. Drinking water, concentrate drinks made from fresh water and food prepared using fresh water probably served as vehicles of transmission for the acute outbreak that then ensued. Indeed, presence on the rig on the day of water contamination (9-21-81) was statistically associated with the sub-

sequent development of diarrhea ($p \ll 001$).

Household studies including stool cultures and cholera serologies of all family members of confirmed infections as well as cultures of the sewage effluent of their residences have not revealed further cases of cholera. Thus, these infections appear to have resulted from an acute common source waterborne outbreak of cholera with no evidence of continued transmission or secondary spread. The investigation is continuing.

Editorial Comment:

These 17 infections represent the largest and in fact, the first acute common source outbreak of *V. Cholerae* 01 in the United States since 1873. Although laboratory testing is not yet complete, the isolate from the index case appears to possess unique characteristics identical to those of three previous cases of cholera in Texas¹ and 11 infections detected in Louisiana in 1978² as well as to sewage isolates of toxigenic *V. Cholerae* 01 from southwestern Louisiana obtained in 1980 and 1981. The continued occurrence of cholera along the Gulf Coast coupled with these unique laboratory features which differentiate these organisms from Asian El Tor organisms strongly supports the concept of endemic cholera in this region of the United States.

The waterborne nature of this outbreak and its high attack rate (79% among employees present on the day of contamination) clearly establishes the public as well as personal health significance of cholera in this country. None of the cases in the current outbreak were diagnosed although several were seen by physicians and 2 were hospitalized. In fact, the reported case was recognized after 8 days of illness only because the private laboratory performing his stool culture routinely uses TCBS media. Cholera should be considered in the differential diagnosis of diarrheal illness occurring in coastal areas of the United States. Appropriate culture media (TCBS) should be used for the routine plating of stool swabs and specimens in these areas. As *Vibrio* excretion lasts an average of only 5 days, serological methods may be used for diagnosis as in the reported outbreak³.

REFERENCES

1. Weissman JB, DeWitt WE, Thompson J, et al. A case of cholera in Texas, 1973. *Am J Epidemiol* 1974; 100:487-98.
2. Blake PA, Allegra DT, Synder JD, et al. Cholera - a possible endemic focus in the United States. *N Engl J Med* 1980; 302:305-9.
3. Snyder JD, Allegra DT, Levine MM, et al. Serologic studies of naturally acquired infection with *Vibrio cholerae* serogroup 01 in the United States. *J Infect Dis* 1981; 143:182-7.

SELECTED REPORTABLE DISEASES (By Place of Residence)

STATE AND PARISH TOTALS Reported Morbidity November, 1981	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, 19 81)	
	MEASLES	RUBELLA*	MUMPS	PERTUSSIS	TETANUS															
TOTAL TO DATE 19 80	13	13	66	34	5	75	809	273	5	47	87	212	446	2	181	7	20888	1257	16	
TOTAL TO DATE 19 81	4	9	5	7	2	94	1000	333	3	11	105	133	381	2	200	2	20708	1536	33	
TOTAL THIS MONTH	0	0	0	2	0	3	150	27	2	2	1	18	35	0	19	1	1841	162	0	
ACADIA																				
ALLEN													1							
ASCENSION																				
ASSUMPTION												1	1							
AVOYELLES																				1
BEAUREGARD																				
BIENVILLE												2								3
BOSSIER						2						1	1							1
CADDO							1					3	2		5	1				1
CALCASIEU							1	1					1							1
CALDWELL																				
CAMERON																				
CATAHOULA							1													
CLAIBORNE																				
CONCORDIA																				
DESOTO																				
EAST BATON ROUGE							1													
EAST CARROLL																				
EAST FELICIANA																				
EVANGELINE													1							1
FRANKLIN							3													1
GRANT																				
IBERIA															1					
IBERVILLE																				
JACKSON																				
JEFFERSON							63	5	1	1			1		1					
JEFFERSON DAVIS																				
LAFAYETTE							3	3				2	2		1					
LAFOURCHE								1				5								
LASALLE																				
LINCOLN							1													1
LIVINGSTON				1									1							
MADISON																				
MOREHOUSE																				
NATCHITOCHE							2													7
ORLEANS							30	7	1	1		1	16		1					
OUACHITA							16													1
PLAQUEMINES								2												
POINTE COUPEE																				
RAPIDES							1						1							7
RED RIVER																				
RICHLAND						1														1
SABINE																				
ST. BERNARD							2	1												
ST. CHARLES							1													
ST. HELENA																				
ST. JAMES																				
ST. JOHN							2	2					1							
ST. LANDRY							1						1							
ST. MARTIN							1													5
ST. MARY								1												
ST. TAMMANY								1												2
TANGIPAOHA							1					1	1							1
TENSAS																				
TERREBONNE							17	1							1					2
UNION							1						1							
VERMILION								1				1			4					1
VERNON							1					1			2					
WASHINGTON													1							5
WEBSTER								1					2							3
WEST BATON ROUGE																				1
WEST CARROLL																				
WEST FELICIANA																				3
WINN																				2
OUT OF STATE															1					1

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

From January 1, 1981 - November 30, 1981, the following cases were also reported:
2 - Leptospirosis; 14 - Cholera; 1 - Tularemia; 1 - Psittacosis; 1 - Brucellosis;
1 - Actinomycosis; 2 - Cryptococcosis; 2 - Rocky Mountain Spotted Fever; 3 - Reyes Syndrome.