



Monthly Morbidity
May, 1979

DEPARTMENT OF HEALTH AND HUMAN RESOURCES
OFFICE OF HEALTH SERVICES AND ENVIRONMENTAL QUALITY
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RECEIVED MONTHLY MORBIDITY REPORT

Provisional Statistics

from
EPIDEMIOLOGY UNIT AND PUBLIC HEALTH STATISTICS

CHOLERA - Follow-up on 1978 Louisiana Outbreak

A total of 11 cholera infections occurred last year in Louisiana between August 10th and September 27th. All infections were biotype El Tor, serotype Inaba. Eight of eleven infected individuals had clinical symptoms, only 3 were totally asymptomatic. Five of the eight clinical cases had symptoms severe enough to require hospitalization. All 8 clinical cases recovered completely and there was only one major complication. A 52 year old female was admitted to the hospital with no detectable blood pressure and a history of severe watery diarrhea. She developed acute renal failure requiring transient hemodialysis. There have been no new cases of cholera since September 27, 1978.

PATIENT SURVEILLANCE

All 67 hospitals in Southern Louisiana between Texas and Mississippi (South of Interstate 10) were asked to use TCBS, a relatively specific culture medium for vibrio. They were asked to use this medium for all stools submitted to them for routine culturing. If hospitals felt they did not have a sufficient volume of cultures to warrant purchase and use of TCBS, the Parish Health Units provided Cary-Blair transport medium to hospitals and private physicians and arranged for transportation of specimens to the nearest Regional State Lab for testing. Over 3,000 stools have been

BULLETINS

CHOLERA (LATE BULLETIN)

While the above cholera article was being prepared, a sewage swab in Jefferson Parish was positive for *Vibrio cholerae* 01. The swab tested the sewage draining the area of Jefferson Highway from the Orleans Parish line to Harahan. On further testing the isolate was found to be non-toxigenic. Since cholera is felt to cause disease by elaboration of a toxin, the finding of a non-toxigenic strain indicates that this cholera isolate is probably incapable of causing human diarrheal illness.

Only a few days prior to the above discovery, a patient with a leg ulcer had *V. cholerae* 01 cultured from the ulcer. The patient lived in the area of Jefferson Highway which drains into the sewage plant where the swab was positive.

The patient was debriding his wound and putting the bandages into the toilet. Isolates from the patient and from the sewage were both non-toxigenic and the phage typing on both were identical. It is thus presumed that *V. cholerae* from the leg ulcer was the cause of the positive swab from the sewage. Isolation of *V. cholerae* 01 has not previously been reported from a cutaneous lesion.

GONORRHEA

Penicillinase - producing *N. gonorrhoeae* (PPNG) has now been identified in the majority of states. Louisiana had its first case in January of this year. Although the percentage of gonorrhea that is PPNG is very small, it is of grave concern since penicillin is the front-line drug against gonorrheal infections. It is strongly recommended that a test-of-cure culture be done on all patients five to seven days after treatment for gonorrhea. Penicillin sensitivity should be done on gonorrhea isolates recovered from positive test-of-cure cultures. A test for B-lactamase production should be requested on all isolates which are penicillin resistant. This test is done free of charge at the State Laboratory in New Orleans. If a resistant gonorrhea strain is B-lactamase producing, this confirms the presence of PPNG. Spectinomycin 2 gm. IM is the treatment of choice for all penicillin resistant gonorrhea cases and contacts. The Venereal Disease Control Unit is anxious to halt the spread of any resistant gonorrhea strains in the state. The VD Control Unit located in New Orleans would greatly appreciate prompt notification if PPNG is confirmed or even suspected. The phone number is 504-568-5275.

sampled by the regional labs and the largest hospitals since last September.

SEWAGE SURVEILLANCE

Gauze swabs have been placed at regular intervals, as frequently as weekly, in many towns with sewage systems in Southern Louisiana. A less intensive monthly sampling program was employed over the winter. There were 6 towns last year which had positive samples for brief periods of time. The swabs would be positive even when the patient lived far upstream and the swabs were placed at the point of maximal dilution just outside the sewage treatment plant. When a positive swab was found, additional swabs were placed back through the system to try to pinpoint the street or streets where a presumed cholera infected individual lived. In 3 towns (Abbeville, Kaplan, and Lafayette), the positive swabs were easily explained by diagnosed patients. However, in 3 communities (Gueydan, Franklin, and Lake Arthur), no patient could be found despite intense publicity and occasionally even door-to-door searches.

ENVIRONMENTAL SAMPLING

An extensive amount of sampling of coastal waters and both live and cooked seafood has revealed only a very rare positive sample (See Table 1 below). One positive shrimp and 2 positive water samples from Moore swabs were found and all 3 specimens came from implicated fishing areas. On March 20th of this year, a water sample from Hopedale Lagoon east of New Orleans was positive for cholera. Further testing demonstrated, however, that the cholera organism isolated was non-toxigenic and therefore probably not capable of producing diarrheal disease in humans.

LAB TESTING

A great deal of basic lab research has been done on the Louisiana cholera isolates over the winter months.

I. Hemolysis Studies

When the current cholera pandemic began in Indonesia in 1961, all of the isolates were hemolytic. They rapidly became non-hemolytic and have remained so over the years. The Louisiana isolates and the one isolate from Port Lavaca, Texas in 1973 all demonstrate a marked ability to hemolyse red blood cells.

II. Phage Typing

The Louisiana and Texas isolates have been tested against several others around the world and the pattern of sensitivities that emerged again demonstrated that the United States isolates are unique. The results from hemolysis and phage typing studies strongly suggest that the Texas isolate from 1973 and the Louisiana isolates from 1978 are a distinct strain different from that found in the rest of the world. They also indicate that cholera has been present in the Gulf States for at least 5 years and possibly much longer.

III. Cholera Survival in the Environment

It has been known for many years that *Vibrio* organisms can live and grow in the environment. *V. parahaemolyticus*, *V. alginolyticus*, Non-agglutinable vibrios, and other vibrio organisms form an integral part of the coastal waterway ecosystem. Some are pathogenic to humans and some are not. There is now an accumulating body of evidence that indicates that the O1 or epidemic strain of cholera also can survive for long periods of time without continuing re-introduction from infected individuals. An isolate in Yokohama Harbor was recently traced back through river tributaries to a septic tank where artificial kidney dialysate fluid was being dumped.¹ A river in the South Pacific has been positive for epidemic cholera for over 1 year despite the fact it is far removed from human habitation. There have also been unconfirmed reports of cholera surviving in a barrel of sea water for at least 120 days.

Table 1

Results of Cultures for *V. cholerae* O1 from Environmental Samples from Louisiana - September, 1978 - May 18, 1979

<u>Specimens</u>	<u>Number of Lots Cultured</u>	<u>Number of Specimens</u>	<u>Number Positive</u>
Live Crab	519	2627	0
Cooked Crabmeat	203	—	0
Shrimp	109	1448	1
Water(Moore swabs)	—	339	2
Sewage swabs	—	1344	21
Crab plant drains (Moore swabs)	—	153	0

VIBRIO-CAUSED DISEASE

The epidemic strain of cholera is not the only vibrio that causes diarrhea in humans. Last summer, there was a large outbreak of *V. parahemolyticus* involving approximately two-thirds of 1700 people who attended a shrimp dinner in Port Allen. In this outbreak shrimp was cooked, placed into the original storage containers and kept unrefrigerated for several hours prior to being eaten. A recent article by Blake et al. in the "New England Journal of Medicine" describes a new unnamed lactose positive vibrio which has been identified as causing disease.² These isolated cases have occurred primarily in persons with chronic liver disease. The "Annals of Internal Medicine" in 1978 reported a series of 28 non-agglutinable vibrios (non-O1) received by the CDC over a 3 year period.³ These vibrios caused both acute diarrheal disease and septicemia. In the diarrheal surveillance system conducted by the Louisiana DHHR* since September of last year, 6 "non-O1" cholera infections have been uncovered. Two of these have been hospitalized with severe diarrheal illnesses indistinguishable from epidemic cholera. Cholera and other vibrios cause a spectrum of disease ranging from mild to severe diarrhea. Many infections are asymptomatic. Adequate fluid and electrolyte replacement and tetracycline (250 mg 4X a day for 5 days) is the treatment of choice.

We do not know at this time how significant Vibrio-caused diarrhea is in Louisiana and other coastal states. Since the culture medium for vibrios (TCBS) was not routinely used for stool cultures until last autumn, it is quite possible that cholera and other vibrio diarrheas have been present in the U.S. for years without ever being detected.

COOKING STUDIES

The Louisiana cholera cases were all linked to privately cooked crabs. Although the length of time the crabs were boiled was often not known, the impression in most of the cases was that the crabs were either improperly cooked or recontaminated when placed back in the original storage containers. Crabs are by custom cooked only until they are red. Experiments at LSU this winter have shown that crabs can become red even after only a few seconds of boiling. Crabs should be put into boiling water and a full 15 minutes should be timed after a second boil is reached. Cooking for 15 minutes has not been shown to alter the

quality of the crabmeat. Crabs should also be stirred occasionally or have a grate or lid placed on them to keep them submerged during boiling. After cooking, crabs should not be placed back into the original uncleaned storage ice chest nor should they be left unrefrigerated for long periods of time.

THE FUTURE

Since cholera tends to be a seasonal disease, we re-intensified our surveillance with the onset of warmer weather. All hospitals in Southern Louisiana have again been asked to use TCBS culture media to test for vibrios on all stool specimens submitted to them. If the hospital lab does not process enough specimens to warrant the purchase of TCBS medium, the Parish Health Units will again provide Cary-Blair Transport medium to store specimens while they are being transported to the nearest Regional State Lab. This lab will provide free testing of specimens submitted for vibrio testing. Diarrhea is a common problem in infants and toddlers. Since these age groups are unlikely to have eaten seafood, we recommend that only stool cultures from teenagers and adults be routinely tested for vibrios. Younger children should be tested only if there is a history of seafood ingestion within one week prior to illness.

Besides diarrheal surveillance, we have also increased the frequency of our sewage testing. Most towns in Southwestern Louisiana with sewage treatment systems will be tested every 2 weeks and those in Southeastern Louisiana will continue to be monitored on a monthly bases. Environmental sampling of waters and seafood will continue this summer but at a much decreased rate from last year.

SUMMARY

We do not expect a major problem with epidemic cholera either this year or in years to come. However, we have learned that pathogenic vibrios do exist in the environment and perhaps that even cholera itself may be endemic in United States waters at a very low level of contamination. We would not be surprised if a few additional cases occur this summer. *V. cholerae* and other vibrios may be responsible for cases of "stomach flu" and "nonspecific diarrhea" and we are urging all physicians and health personnel to think of cholera in the differential diagnosis of any diarrheal disease particularly if there has been seafood ingestion within one week of onset of illness.

REFERENCES

1. Center for Disease Control: MMWR 28 (9): 98-99, March 9, 1979.
2. Blake, P.A. et al: Disease Caused by a Marine Vibrio, NEJM 300:

- 1-5, January 4, 1979.
3. Hughes, J. M. et al: Non-Cholera Vibrio Infections in the U.S. Annals of Internal Medicine 88 (6): 602-606, June 1978.

* DHHR - Department of Health and Human Resources

IMMUNIZATIONS FOR FOREIGN TRAVEL

(No. 3 in Series)

CHOLERA

The risk of cholera to United States travellers is so low that persons following the usual tourist itinerary and using standard accommodations in countries affected by cholera are virtually at no risk of infection. The vaccine is at best 50-60% effective and immunity is short-lived, averaging 3 months. Also, there are mild to moderate side effects of the shots. Almost all recipients develop a sore arm and some develop constitutional symptoms including malaise, generalized aches, and fever lasting 24 to 48 hours. For the above reasons, cholera vaccination is not routinely recommended for travellers to countries that do not require it as a condition for entry. Vaccination is medically indicated only for persons considered at high risk, such as those with impaired gastric acidity or those who must remain in highly endemic areas under poor sanitary conditions. The cholera endemic areas are primarily in Africa and Asia. No country in the Western Hemisphere or in Europe requires cholera vaccinations of travellers arriving from non-infected countries. The only countries that now require proof of cholera vaccination from all travellers are Maldives, Mozambique, Papua New Guinea, and Saudi Arabia (during the period of Moslem pilgrimages August 23 - November 19).

The World Health Organization (WHO) classifies as cholera-infected any area where cholera has been isolated from a human within the preceding 2 weeks. Since Louisiana has not had a human case of cholera since September 27, 1978, the state has been certified by WHO as non-infected since mid-October of last year and no special vaccination requirements are being demanded of Louisiana residents travelling to other countries.

If vaccination is required, the traveller should receive one injection of vaccine before leaving the United States. A complete primary series (two doses at least 1 week apart) is recommended only for persons at high risk. Vaccination certificates are valid for 6 months.

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 special exception by Division of Administration. This material was printed in accordance with the standards for printing by state agencies established pursuant to R.S. 43:31.

SELECTED REPORTABLE DISEASES (By Place of Residence)

STATE AND PARISH TOTALS	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														
Reported Morbidity May, 1979																			
TOTAL TO DATE 1978	333	426	48	1	1	9	260	78	N.A.	3	66	38	214	1	31	3	8944	256	7
TOTAL TO DATE 1979	208	25	28	7	0	27	266	96	0	3	96	32	243	3	43	3	9340	374	11
TOTAL THIS MONTH	38	4	4	1	0	9	40	19	0	0	10	16	40	3	6	1	2154	102	6
ACADIA						3	1	1									9		
ALLEN							1										2		
ASCENSION							1						1				9		
ASSUMPTION																	6		
AVOUELLES																	7		
BEAUREGARD																	4	7	
BIENVILLE												1					2		
BOSSIER	5	1					2						1				24	1	3
CADDO	3							5				9	8				172	3	1
CALCASIEU							1	1							1		116		
CALDWELL																	2		
CAMERON																	2	2	
CATAHOULA																	6		
CLAIBORNE	1																2		
CONCORDIA																	3		
DESOTO																	3		2
EAST BATON ROUGE		1				2		1			1	3	2		1		181	12	
EAST CARROLL														3			6		
EAST FELICIANA																	4		
EVANGELINE											1						2		
FRANKLIN																	1		
GRANT																	2		
IBERIA													2				2	1	
IBERVILLE																	2		
JACKSON																	3		
JEFFERSON		1		1		1	16	3					5				182	7	
JEFFERSON DAVIS																	6	3	
LAFAYETTE	1										1		2				43	6	
LAFOURCHE																	8		
LASALLE																	2		
LINCOLN	3						1										28		
LIVINGSTON	1																2		
MADISON							1								1		11	2	
MOREHOUSE																	6	5	
NATCHITOCHE											1		1				11		
ORLEANS							11	5					7				882	34	
OUACHITA			4				1	1				3	3				119	7	
PLAQUEMINES							1										5		
POINTE COUPEE																	5		
RAPIDES	6					1	1						2				95	3	2
RED RIVER		1																	1
RICHLAND																	4	1	
SABINE																	9		
ST. BERNARD																	4		
ST. CHARLES																	10		
ST. HELENA																	2		
ST. JAMES													1				2	1	
ST. JOHN							1	1									4		
ST. LANDRY								1									4		
ST. MARTIN											3				3		8		
ST. MARY						1					1						6		
ST. TAMMANY																	13	1	
TANGIPAOHA													2			1	18		
TENSAS																			
TERREBONNE																	10		
UNION																	9		
VERMILION						1					1		1				2		
VERNON	2																12	6	
WASHINGTON	15						1										8		
WEBSTER											1						20		2
WEST BATON ROUGE													2				5		
WEST CARROLL																	4		
WEST FELICIANA																			
WINN	1																6		
OUT OF STATE																	17		

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

N.A. - Not Available.

From January 1, through May 31, 1979, the following cases were also reported: 1 - Typhus Fever, Endemic;
10 - Trichinosis; 1 - Psittacosis; 3 - Leptospirosis.