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LOUISIANA MORBIDITY REPORT

EPIDEMIOLOGY PUBLIC HEALTH STATISTICS

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TULANE UNIVERSITY

A Restaurant's "Special" Staphylococcus Food Poisoning Orleans Parish

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The Orleans Parish Sanitarian Services Office (OPSS) was notified on April 21, 1988 of a suspected foodborne outbreak. The manager of a local restaurant described the following events:

1. On Monday, April 18, a couple ate dinner at 8:30 P.M. Both became ill at approximately 11:30 P.M.; one with diarrhea, the other with vomiting followed by diarrhea. The couple was seen and treated at a local hospital emergency room at approximately 2:30 A.M.

2. An additional complaint was made by another customer to a waiter on Tuesday, April 19 that the red beans he had eaten on April 18 had made him ill.

3. On Wednesday, April 20, a man who had eaten jambalaya on Tuesday reported to the restaurant staff that he had experienced chills and vomiting as a result of the meal.

4. On Wednesday, still another customer indicated complaints of illness following

the meatloaf he had eaten on Tuesday.

5. On Thursday, April 21, four couples were brought to a local hospital emergency room between 2:00-3:00 A.M. after having consumed one of two daily specials served for dinner on Wednesday, April 20th.

6. On April 21, during the investigation, an additional couple was discovered to have become ill as a result of Wednesday night's dinner specials.

The restaurant owner voluntarily closed the restaurant to business at 10:30 A.M. on April 21, pending further investigation.

INVESTIGATION:

As there was no way to determine any food histories or symptoms on the second, third, or fourth

events (contact was eventually made with the first couple several days later and case histories were obtained), investigation centered on the five couples and the dinner specials served on Wednesday, April 20th. The two specials included:

Special # 1

Veal Parmesan/tomato sauce
Pasta
Cole Slaw
Bread Pudding
Rum sauce

Special # 2

Grilled chicken breast
Mushroom/onion cream sauce
Cole Slaw
Bread Pudding
Rum sauce

Food histories were obtained from the five couples; one individual did not eat any of the specials and did not become ill. The case history consisted of a listing of all foods eaten within 72 hours of having become ill, as well as where and when the food was eaten. Stool samples or rectal swabs were obtained from seven of the above individuals. Samples of the cole slaw, bread pudding and the rum sauce were also available for laboratory testing.

The restaurant was inspected by the OPSS on April 21. The staff was interviewed concerning food preparation techniques but food handling practices were not directly observed. Information on illness history were obtained as well as observation for signs of cuts or lesions on the staff's hands/arms. Rectal swabs were obtained from all eight (8) food service employees regardless of symptoms of illness. In addition, a scraping from a rash

on the hand of a food service worker who had prepared the daily specials on Wednesday, April 20, was submitted. Samples were tested for staphylococcus, salmonella, shigella, and campylobacter.

DESCRIPTION OF ILLNESS:

For the purpose of this investigation, a case was defined as the occurrence of one or more of the following symptoms: nausea, vomiting, diarrhea, or abdominal cramps in a person who had dinner on Wednesday, April 20. Nine individuals (100%) meeting the case criteria were identified. A total of seventeen (17) specials were served on Wednesday, April 20, for an attack rate of at least 53%. The average incubation period was 3.5 hours (range of two to five hours). It was not possible to determine the duration of illness as those who had become ill were visitors to the city and were in the process of leaving when the case histories were taken. No further follow-up was instituted.

Symptoms of illness included diarrhea (100%), vomiting (67%), dizziness (67%), weakness (67%), nausea (45%), chills (45%), and abdominal cramps (33%). Four persons (45%) reported dehydration and one person (11%) reported fainting. Seven persons (78%) sought medical care at a local hospital emergency room because of their illness; none required hospitalization.*

*This does not include the couple who became ill and were treated on April 18.

LABORATORY RESULTS:

Stool specimens or rectal swabs were obtained from seven (78%) of the nine individuals who had become ill. Five of these seven stool samples were positive for *Staphylococcus aureus*, as well as one of the stool samples from the eight restaurant employees. The employee is a porter and reportedly had no contact with the food specials during the storage, preparation or serving process. The rum sauce was positive for *Staphylococcus aureus* with a direct plate count of 540,000,000/gm. All samples were subsequently forwarded to the Centers for Disease Control for phage typing. Results indicated that the rum sauce and the specimens from the ill persons matched for phage types 6/47/54/75. The specimen submitted by the restaurant employee was non-reactive at the standard dilution but was positive for phage type 71 at 100XRTD (Routine Test Dilution).

DISCUSSION:

The occurrence of gastrointestinal illness of short incubation time and the identification of *S. aureus* in 5 of 7 stool samples tested indicate *S. aureus* as the likely responsible agent of this foodborne outbreak. The identical phage pattern of *S. aureus* isolates in the stool samples and in the rum sauce is supportive of the rum sauce being the vehicle of infection.

There were conflicting reports as to the actual date of preparation of the rum sauce. The initial interviews indicated that the sauce was prepared as early as Sunday, April 17 and was so documented as the "length of time in stock" on the request for

laboratory analysis form. During the second interview in the presence of the restaurant owner, it was stated that it was prepared every other day, indicating that it would have been prepared on either April 19 or 20. The night cook prepares the specials for the following day. The standard method of preparation was to whip 10 to 12 raw eggs with sugar, margarine, brandy and rum. The sauce was neither cooked nor refrigerated, but left at ambient air temperature on the cook's workstation to be spooned over the bread pudding when ordered.

It was not possible to identify the source of the organism. Human carriers are presumed to be the source of *S. aureus*, (can be found in purulent discharges of an infected finger, infected eyes, abscesses, acneiform facial eruptions, nasopharyngeal secretions or apparently normal skin), but carriers often do not have visible lesions. Thus the absence of nasal or hand lesions is no guarantee of safety. No nasal swabs were obtained from food service employees.

Food items eaten by the individuals identified in events two through four were varied; case histories were unattainable. Of particular note, however, is the fact that all of the main courses identified (red beans, jamabalaya, and meatloaf) were part of the "daily specials" served on those days. Bread pudding and rum sauce were part of the daily specials.

The hotel chain hired their own team of specialists who conducted an environmental inspection. According to their report, the restaurant had numerous violations. One environmental sample was positive for

Salmonella group G (wooden cutting board). E. coli was identified in the mayonnaise and boiled egg in the condiment tray. All other samples were negative.

As in this outbreak, the most frequently found problem is a critical error in food handling that facilitates bacterial contamination and growth. Proper education and supervision, along with timely and thorough investigation of outbreaks are the important keys to prevention.

RECOMMENDATIONS:

1. It was recommended that strict attention be directed to proper temperature control. Perishable foods must be maintained at temperatures of 45° F or below or 140°F or above.

Product thermometers and numerically scaled indicating thermometers for each refrigeration unit were required and food service workers were instructed to periodically monitor temperatures of potentially hazardous foods.

2. Food handlers with boils, abscesses, rashes, or other purulent lesions of the hands, face or nose, as well as those having communicable diseases capable of being transmitted through food, must be temporarily excluded from preparing or serving food. Plastic disposable gloves could be used to protect skin lesions from contaminating food.

3. Food service workers must be educated on proper food handling techniques, general sanitation, the importance of handwashing, personal cleanliness and good hygienic practices.

ACELLULAR PERTUSSIS VACCINE *

Because of insufficient efficacy and a perceived though unproven concern for serious adverse effects of nonadsorbed diphtheria-tetanus-pertussis vaccine, this vaccine was discontinued in Sweden in 1979. In 1981, acellular pertussis vaccines were developed in Japan which combined the filamentous hemagglutinin and pertussis toxin of Bordetella pertussis. These vaccines had good immunogenicity and seemed to have few adverse effects.

Blennow and colleagues now report findings from a controlled, double-blind, randomized phase 2 clinical trial of a Japanese two-component vaccine given to previously nonimmunized 6-month-old infants. The study was intended to compare the rate of adverse reactions to acellular vaccine, whole-cell vaccine, and placebo injections. Secondary objectives were to examine antibody responses of the acellular vs the whole vaccine and to define whether two or three doses of vaccine were needed. Finally, the authors compared the response of patients who had a one-month interval between doses vs those with a two-month interval.

After informed consent was obtained from the parents, 319 infants were randomized to one of five groups; 200 infants received acellular vaccine 79 whole-cell vaccine, and 40 a placebo injection. The acellular vaccine selected - JN1H-6 - was developed by the National Institute of Health in Japan. A single human

* Copied from Infectious Diseases Alert ISSN 0739-7348.

dose contained 7.5 ug of protein nitrogen per milliliter of filamentous hemagglutinin and 7.5 ug of protein nitrogen per milliliter of pertussis toxin. Each 0.5-ml dose of either vaccine or placebo was administered deep subcutaneously at the lateral side of the thigh.

The most common adverse effects of the vaccine were fever, irritability, and excessive sleeping. Recipients of whole-cell vaccine reported significantly more of these reactions than did the acellular vaccine recipients. Persistent crying of any duration was more frequent in whole-cell vaccine recipients after the first two doses. That reaction was rare among the acellular or placebo recipients. Rates of local reactions after the first two doses in the acellular vaccine recipients were low and differed significantly from the higher rates in the whole cell vaccinees. There was no difference in the rate of redness after the third dose. No acellular or placebo injection was associated with redness >5 cm, although many of the whole-cell vaccinations caused this amount of redness, particularly at the first or second dose.

Antitoxin response was measured in serum samples drawn from all 304 enrolled infants before the first and third doses. Seropositive antitoxin levels were found in the postimmunization samples of 97-100% of infants receiving either two or three doses of acellular vaccine vs 59% of those receiving three doses of whole vaccine. Even one dose of the acellular vaccine gave better serological responses than three doses of the whole cell vaccine.

Both the rate of response serologically and the height of the response were better in the acellular vaccine group. Two doses of the acellular vaccine given two months apart produced far better results than two doses given only one month apart. (Blennow M, et al: Pediatrics 1988;82:293-299.)

Comment: These results suggest that an acellular vaccine is more antigenic than the whole-cell vaccine studied in this investigation. Results also suggested that severe reactions to the vaccine were minimized with the acellular vaccine. The dangers of pertussis vaccine have been over-emphasized, and the fact remains that pertussis vaccines need to be given - either whole-cell or acellular - because there is real risk involved when infants are not immunized. Several regions of Europe where such vaccinations were stopped experienced devastating new outbreaks of this illness; such outbreaks were clearly preventable with only rare risk to vaccine recipients. The acellular vaccine for pertussis appears to be a superior product and will probably replace the current vaccine. Until this superiority is proven and until the vaccine is approved, pertussis vaccinations need to be continued without interruption.

Ehrlichia Canis Infection

The first human case of Ehrlichia canis known to occur in the United States was described in 1986 in a 51-year-old man from rural Arkansas. Early symptoms included fever, malaise, myalgia and headaches occurring approximately 12 days after being

bitten by ticks.

Since the reporting of this initial case, over 45 additional cases have been identified. Most of the cases were detected by testing serum samples from suspected Rocky Mountain Spotted Fever (RMSF) and finding them seronegative for Rickettsia rickettsii. The majority of the cases have occurred in males from the northeastern and south central areas of the country with onsets of illness between March and October. History of tick exposure between 1-4 weeks prior to illness is reported in 83% of the cases with approximately 20-90 of patients exhibiting a rash.

The illness appears to respond to tetracycline administered at the same dose and schedule used for RMSF. Serologic testing is available at the Centers for

Disease Control (CDC) on acute and convalescent serum specimens (no single sample accepted) submitted through the state health department laboratory.

The only reported case in Louisiana was confirmed by CDC in July of 1988. An astute family practitioner (Dr. Sam Abshire from Haynesville) and his colleagues had the foresight to send paired sera to Atlanta for Ehrlichiosis testing on a 15 year old male from the northeastern part of the State. The young man was admitted to the hospital in serious medical condition, was appropriately treated for 7-10 days and left the hospital in good physical condition.

We encourage physicians to send paired sera to the State Laboratory when patients present with a febrile illness and a history of recent tick exposure.

LOUISIANA AIDS UPDATE

	CASES	DEATHS	PERCENT
1989 (thru 2/28/89)	20	2	10
TOTAL ALL YEARS	1,153	729	63

BULLETIN

The Office of Public Health, Division of Laboratories conducts serologic testing of rats throughout the year from several test sites in Louisiana. The majority of blood samples are submitted from the New Orleans wharf areas (near grain elevators). The number of positive rat bloods in New Orleans have increased from 5% of samples submitted in 1987 to 25% of samples submitted for 1989.

Endemic typhus tends to occur more often in adult males and is most common during the summer and autumn occurring primarily in the Eastern coastal and Southern border states, especially Texas. Infection is maintained by a rat-flea-rat cycle. The case fatality rate for all ages is about 2% but increases with age.

Due to the increase in the number of positive rat blood specimens, the Epidemiology Section recommends that physicians consider typhus fever in the differential diagnosis when an individual who may have been exposed to rats presents with a sudden onset of fever, chills, diffuse aching accompanied by headache and malaise and a maculopapular rash that appears four to seven days later (begins on the trunk and spreads to the limbs and is not usually present on the face, palms, and soles).

The state laboratory in New Orleans can perform an indirect fluorescent antibody test on serum if submitted within 7 to 10 days of onset. If the blood is not obtained within this time frame, a second specimen may be required for a comparative test approach, as in a complement fixation (CF) test.

BULLETIN

The Office of Public Health, Epidemiology Section has received notification of a newly installed electronic routing service for inquiry calls concerning the Centers for Disease Control Morbidity and Mortality Weekly Report (MMWR). This feature will allow CDC staff to respond more efficiently to inquiries relating to the MMWR (including questions about types and sources of subscriptions, requests for information about material already published, and questions regarding submitting and scheduling material for publication), while minimizing the occasions on which the caller must be placed on hold or transferred to another staff member. Although the inquiry routing service is electronically based, a caller may elect at any point in the routing cycle to request a staff member come on the line to assist him/her. The telephone number for this service is 404-332-4555.

Monthly Record of Disease Reports Received By OPH, By Parish
January 1989

PARISH	AIDS	ASEP MEN	ENCEP OTH	HEP A	HEP B	INFL HU	MEN H-FLU	MEN N CIV	MUMPS	SALMONEL	SHIGEL	TOTAL
CADDO	0	0	0	0	0	0	0	0	0	0	1	1
E. BATON ROU.	0	1	1	0	0	0	0	0	1	2	2	7
E. FELICIANA	0	0	0	0	0	0	0	0	2	0	0	2
JEFFERSON	0	0	0	0	0	0	0	0	1	0	0	1
LAFAYETTE	1	0	0	0	0	0	0	0	4	0	0	5
ORLEANS	1	0	0	0	1	2	2	1	1	0	1	9
ST. BERNARD	0	0	0	1	0	0	0	0	0	0	0	1
ST. LANDRY	0	0	0	0	0	1	1	0	0	0	0	2
ST. TAMMANY	0	0	0	0	0	0	1	0	0	0	1	2
TERREBONNE	0	0	0	0	0	0	0	0	1	0	0	1
VERMILION	0	0	0	0	0	0	0	0	0	0	1	1
WASHINGTON	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL	3	1	1	1	1	3	4	1	10	2	6	33

Monthly Record of Disease Reports Received by OPH, By Parish

February 1989

	AIDS	AMEB	ASEP MEN	BLASTO	CAMPY	HEP A	HEP B	HEP NON A-B	INFL HUM	MEAS IND	MEN H-FLU	MEN N CIV	MUMPS	SAL	SHIG	TYPH	TOTAL
ACADIA	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2
ASCENSION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
AVOYELLES	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
BIENVILLE	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
BOSSIER	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	3
CADDO	1	0	0	0	0	5	1	0	0	0	1	0	0	2	18	0	28
CALCASIEU	0	0	0	0	0	4	2	0	0	0	0	0	1	1	0	0	8
CAMERON	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
CATAHOULA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
CONCORDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
DE SOTO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
E. BATON ROU.	2	1	1	0	0	3	1	1	1	0	0	0	1	4	2	0	17
E. FELICIANA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
GRANT	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
IBERIA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
IBERVILLE	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
JEFF. DAVIS	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
JEFFERSON	1	0	0	0	0	4	1	0	1	0	0	2	6	2	1	1	19
LAFAYETTE	1	0	0	0	0	0	0	0	0	0	1	0	17	4	2	0	25
LAFOURCHE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
LINCOLN	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
MADISON	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
NATCHITOCHES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
ORLEANS	6	0	0	0	0	1	5	0	0	0	1	1	3	2	2	0	21
OUACHITA	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
RAPIDES	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
ST. BERNARD	0	0	0	0	0	4	1	0	0	0	1	0	3	0	0	0	9
ST. CHARLES	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
ST. JOHN BAP.	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2
ST. MARTIN	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8
ST. MARY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
ST. TAMMANY	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3
TANGIPAHOA	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
TENSAS	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
TERREBONNE	1	0	1	0	1	0	1	0	1	0	0	0	0	1	0	0	6
VERMILION	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	4
W. BATON ROU.	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
WASHINGTON	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
	15	1	2	1	4	23	16	1	4	1	8	5	50	20	33*	1	185

* 1 parish unknown

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