



Investigation by Broward and Miami-Dade Counties of a Foodborne Illness Outbreak at a Catered Event in a Dining Hall, March 2004

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On February 18, 2004, the Broward County Health Department (BCHD) received a positive report of Salmonella in a hospitalized complainant. The individual implicated a catered meal served at a dining hall attended by 94 participants on February 8, 2004. The attendees were mostly Broward County residents, although the banquet facility was located in Miami-Dade County.

The Miami-Dade County Health Department (MDCHD) and the Department of Business and Professional Regulations (DBPR) were contacted to inform them of the situation. Arrangements were made for the Department of Business and Professional Regulation to conduct on-site field investigations of the facility.

Environmental Investigation

Food Caterer

On Thursday, February the 19th, an inspector from DBPR visited the dining hall to obtain additional information on the preparation of the food served at the dinner. It was revealed

that a caterer in Miami-Dade County had prepared the food on Sunday morning, February the 8th. The food was then transported by the caterer in hot holding containers to the dining hall that afternoon.

The caterer was visited by a DBPR inspector and an environmental epidemiologist from MDCHD on Friday, February the 20th. Food preparation was evaluated by an inspection and a Hazard Analysis and Critical Control Point (HACCP) was conducted of this facility. Observations were made about holding temperatures, including measuring temperatures at various stages of food preparation. The pot roast, rice, and plantain preparation and cooking were described by the owner / manager / cook. Transportation to the different dining halls they cater was by truck and the food travels in hot holding plastic containers. The food is prepared daily and is delivered the same day. All business is pre-planned and arranged in advance. A warning was given to the facility by the DBPR inspector based on critical violations seen. The inspector proposed a HACCP plan to the facility

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and set a date for compliance in correcting the violations.

Dining Hall

On Sunday, February the 22nd, the dining hall was visited by a DBPR supervisor and the environmental epidemiologist from MDCHD. A similar event in size and complexity catered by the same facility was observed for a four-hour period that included from reception of the food to the washing of the dishes and utensils. Similar food was served at this event. It was observed at the time that the facility had very good hygienic practices and a very efficient flow in plating the food received. The only food preparation done at the dining hall kitchen was the salad. This was made from lettuce and dressing received from the caterer. The facility had state of the art kitchen equipment including a hot holding cabinet, steam tables, and dish washing machine. One person was working the kitchen assisted by two waiters. The bar was attended by one bartender. The drinks served on the day of the event of February the 8th were from a ready to serve commercial product. However, this facility was also given a warning because it was operating without the required DBPR license and had no certified food manager or trained employees according to the regulation.

It was recommended to both the caterer and the dining hall to check and document in writing the temperatures of the product before leaving the caterer and after arrival at the dining hall. All temperatures of the food products, upon arrival at the dining hall on the day of the visit, were in compliance with the hot holding temperatures for each food item.

Epidemiological Investigation

An interview with the complainant revealed that on February 8, 2004 a banquet was held at a dining hall located in Miami Lakes, FL. A list of all attendees and their telephone contacts was obtained from the organizers. According to the organizers, a set menu was pre-selected for the banquet and included:

- Round Pot Roast/Bolicho
- Yellow Rice with Ham
- Sweet Plantains/Maduros
- Caesar Salad
- Cake
- Bread
- Butter and
- Iced water

A beverage bar was set up to serve:

- Piña Colada/non-alcoholic
- Strawberry Daiquiri/non-alcoholic
- Sprite and
- Coke/diet
- Ice

A questionnaire was developed and administered to forty-six (49%) of the participants. They were asked about their food history in the prior 72 hours and at the catered event; whether they were ill; onset of symptoms; duration of illness and clinical history. Twenty-four (51%) of those interviewed reported illness with symptoms of abdominal cramps (68%); diarrhea (58%); nausea (58%); weakness (58%); headache (55%); chills (45%); dizziness (39%); vomiting (23%); and fever (19%). Additionally, some reported upper respiratory symptoms onset concurrent with or subsequent to the lower gastrointestinal symptoms and included sore throat (29%); cough (22%); congestion (21%); and rhinorhea (12%).

Although the attendees had not shared a common meal in the 72 hours prior to the catered event, it was later revealed during the interviews that many attended Sunday services February the 8th, prior to the catered event. Participation in Communion, including taking the host and drinking a cup of grape juice was widespread. Anecdotally, most of the event attendees are also participating members of the church. The exact numbers of catered event attendees who participated in the communion was



not determined. Due to the time lapse from discovery of participation in Communion, coupled with the preliminary findings of the investigation that the illness was of short duration, it was decided not to expend the time doing re-calls.

Onset of illness from the time of the catered meal ranged from 2-69 hours with a median incubation period of 10 hours. Disease onset ranged from 10-77 hours after exposure with a median incubation period of 18 hours. Median duration of illness was 27 hours (range 1-192 hours).

Two attendees were hospitalized, however, in one case positive for salmonella, the implicated meal could not be substantiated as the vehicle of the diagnosed agent. The laboratory findings of salmonella in a stool specimen may have been incidental to the illness and not the causative agent. The illness of the second attendee hospitalized may have been due to pre-existing conditions. In all, five (5) attendees reported seeking medical help. Stool sample was tested in only one attendee. There were no food samples remaining from the event and no food samples of subsequent preparation were tested. There were no deaths associated with this outbreak.

Analysis of the data collected was done using the Epi6 CDC statistical software. Univariate analysis of all the individual food items showed illness association with consumption of sweet plantain, consumption of bread and consumption of beef pot roast. There was no statistical significance shown with any of the food items on the menu. However, as shown in the tables below, the odds ratio could not be calculated because no one was ill who did not eat sweet plantain nor did not eat pot roast.

SWEET PLANTAIN	IIL	NOT ILL	TOTAL
YES	24	16	40
NO	0	7	7
TOTAL	24	23	47

Fisher exact p=0.0039

POST ROAST	IIL	NOT ILL	TOTAL
YES	24	18	42
NO	0	5	5
TOTAL	24	23	47

Fisher exact p= 0.0219

BREAD	IIL	NOT ILL	TOTAL
YES	23	14	37
NO	1	8	9
TOTAL	24	22	46

Fisher exact p=0.0098

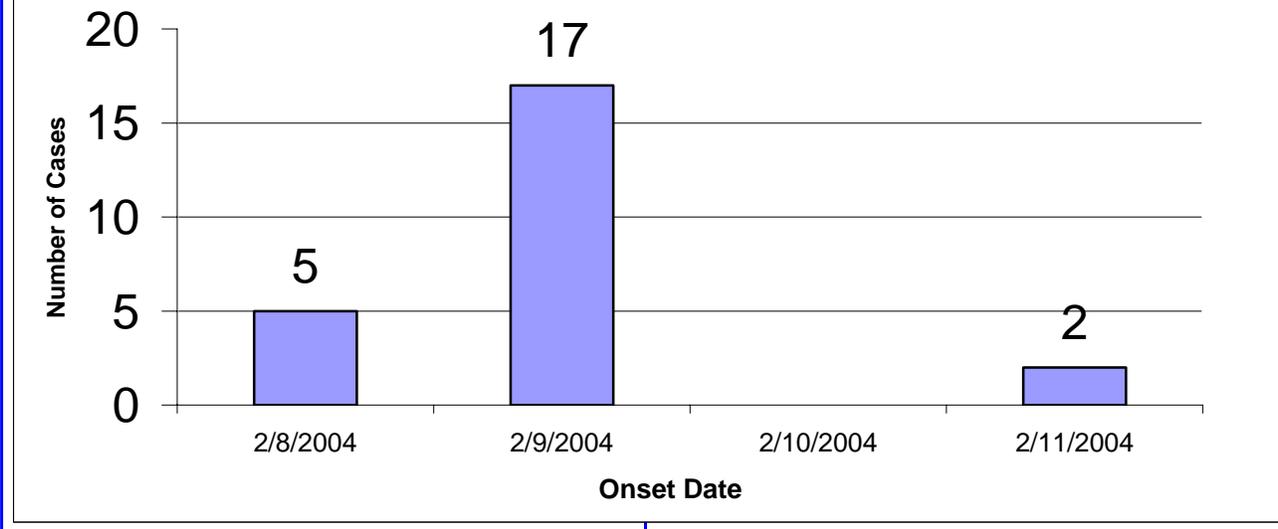
The odds ratio for consumption of bread was OR=13.14 (CI 95% 1.35-317). However, of 24 who reported illness, all ate pot roast, and plantain; of the 24-reported ill, 1 reported not eating bread.

In multivariate analysis, the univariate statistical significance was eroded and no particular food item was notably implicated.

Following is the epidemic curve of the outbreak:



Epidemic Curve of Catered Dinner Broward/Miami-Dade County 2004



The onset dates of the epidemic curve suggest a point source outbreak. The illness onsets on 2/11/04 included an attendee with pre-existing conditions.

Discussion

Univariate analysis of the data showed significant association of illness with consumption of sweet plantain, pot roast, and bread, but this may be a reflection of a favorite food, and because of the limited menu, most everyone interviewed, ill and not ill, ate some or all of the food menu items. Multivariate analysis controlling for each food item relative to other food item's association with illness, eroded the statistical significance and no particular food item was notably implicated.

Attempts were made to contact all the attendees, however, the respondents may have been the ones with reported illness, and those not ill may not have had the interest to return the messages for a call back, thus skewing the outcome towards a higher attack rate. The late discovery, anecdotally, of the exposure of many of the attendees to Sunday services communion, which potentially could have been a common source exposure as well, was not

fully explored, although the lack of reports from other members of the church could dispel the possible association

Conclusion

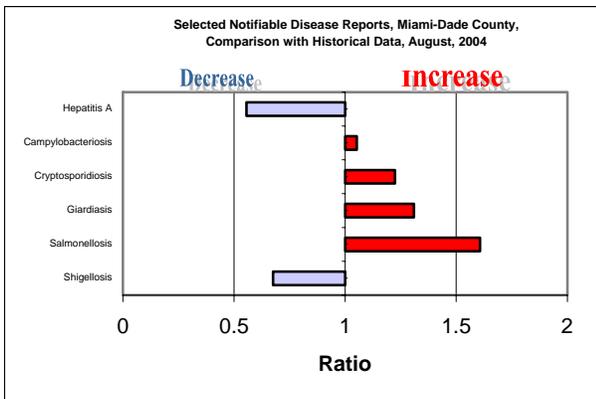
Despite the shortcomings, it is clear that an outbreak occurred at this event, however, the causative agent was not determined, nor could a specific food item be implicated as the vehicle. Though five of the respondents sought medical help, only one stool sample was taken and was confirmatory for a bacterial agent. The duration of illness of the laboratory confirmed case was not consistent with the duration of illness of the majority of reported illnesses. Whereas, the median duration was 27 hours (mode 24 hours), the confirmed case's duration was 192 hours, which is more consistent with the confirmed pathogen and not consistent with the duration of illness of this outbreak.



The relatively short incubation period, predominantly lower gastrointestinal symptoms, and the duration of illness of this outbreak, and the epidemic curve are suggestive of, and consistent with, a toxin-mediated infection of *Clostridium perfringens*. Meats are frequently associated vehicles of this agent. At the time of the investigation/inspection, food preparation reviews did not reveal any food handling deficiencies. Testing of similarly prepared meats and other foods were not conducted. The investigation did not determine a causative agent nor determine a food vehicle, but the epidemiological data suggest the common source exposure point was the catered dinner party.

The Department of Business and Professional Regulation will continue to monitor and ensure compliance of the retail facilities with the appropriate applicable rules and regulations.

The complainant was notified of the efforts and was satisfied with the discussions and findings of the investigation.



*Ratio of current month total to mean of 15 month totals (from previous, comparable, and subsequent month periods for the past 5 years).



The Office of Epidemiology and Disease Control has moved!

Our new contact information is as follows:

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Miami, FL 33126

Phone: 305-470-5660

Fax: 305-470-5533

TO REPORT ANY DISEASE AND FOR INFORMATION CALL:



Office of Epidemiology and Disease Control

- Childhood Lead Poisoning Prevention Program** (305) 470-6877
- Hepatitis** (305) 470-5536
- Other diseases and outbreaks** (305) 470-5660
- HIV/AIDS Program** (305) 324-2459
- STD Program** (305) 325-3242
- Tuberculosis Program** (305) 324-2470
- Special Immunization Program** (786) 845-0550

Nights, weekends, and holidays
(305) 377-6751



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Monthly Report

Selected Reportable Diseases/Conditions in Miami-Dade County, August 2004

Diseases/Conditions	2004 this Month	2004 Year to Date	2003 Year to Date	2002 Year to Date	2001 Year to Date	2000 Year to Date
AIDS ^{*Provisional}	116	1009	692	800	931	926
Animal Rabies	0	0	0	0	1	0
Campylobacteriosis	16	103	88	69	86	104
<i>Chlamydia trachomatis</i>	476	3193	2966	3221	2370	2056
Ciguatera Poisoning	0	0	0	0	0	1
Cryptosporidiosis	4	15	9	4	10	10
Cyclosporiasis	0	1	1	1	0	0
Diphtheria	0	0	0	0	0	0
<i>E. coli, O157:H7</i>	0	2	0	0	0	0
<i>E. coli, Non-O157</i>	0	0	2	1	1	0
<i>E. coli, Other</i>	0	0	0	0	0	0
Encephalitis (except WNV)	0	0	0	1	0	0
Encephalitis, West Nile Virus	8	11	1	0	0	0
Giardiasis, Acute	33	202	117	143	171	143
Gonorrhea	206	1183	1261	1396	1223	1422
Granuloma Inguinale	0	0	0	0	0	0
Hepatitis A	9	29	29	96	99	54
Hepatitis B	2	26	40	21	42	67
HIV ^{*Provisional}	161	1259	1125	1372	1187	1193
Lead Poisoning	20	197	172	186	156	282
Legionnaire's Disease	1	7	3	0	1	0
Leptospirosis	0	0	0	0	0	0
Lyme disease	1	3	2	1	5	3
Lymphogranuloma Venereum	0					
Malaria	1	11	8	8	12	18
Measles	0	0	0	0	0	0
Meningitis (except aseptic)	0	8	6	4	7	11
Meningococcal Disease	0	12	3	10	13	19
Mumps	0	0	0	0	0	1
Pertussis	2	9	7	4	1	7
Polio	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Rubella, Congenital	0	0	0	0	0	1
Salmonellosis	69	289	299	197	167	173
Shigellosis	15	124	213	164	85	147
<i>Streptococcus pneumoniae, Drug Resistant</i>	4	55	79	73	126	138
Syphilis, Infectious	20	138	115	139	143	88
Syphilis, Other	59	576	704	715	549	500
Tetanus	0	0	0	0	1	0
Toxoplasmosis	0	4	6	14	10	0
Tuberculosis ^{*Provisional}	19	152	143	147	139	160
Typhoid Fever	0	2	3	2	0	1
<i>Vibrio cholera Type O1</i>	0	0	0	0	0	0
<i>Vibrio cholera Non-O1</i>	0	0	0	1	0	0
<i>Vibrio, Other</i>	0	0	1	0	0	0

* Data on AIDS are provisional at the county level and are subject to edit checks by state and federal agencies.

** Data on tuberculosis are provisional at the county level.

