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## In This Issue

- Biosurveillance Performance Measures: How Complete are Florida Outbreak Reports?
- Confirmed *Salmonella* Anatum Outbreak Associated with a Sumter County Wedding Reception
- Florida Year-to-Date Mosquito-Borne Disease Summary
- Reportable Diseases in Florida: June 2010
- Upcoming Events
- This Month on EpiCom

## Biosurveillance Performance Measures: How Complete are Florida Outbreak Reports?

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### Introduction

Epidemiological investigations are valuable in our efforts to mitigate the effects of a disease. The stages of an investigation include the identification and characterization of the event, the development of a case definition, the identification of the population at risk, the investigation of the source, and the implementation of appropriate intervention and control measures. Careful investigation allows investigators to make recommendations and prevent future outbreaks through education and awareness efforts. Investigators generate reports that result from their investigation of a disease outbreak, and these reports can serve as a tool for making future quality assessments, as well as provide documentation of the event that can be used for analysis.

The Centers for Disease Control and Prevention (CDC) is proposing a set of five Biosurveillance Performance Measures that will be required for use by all project areas funded under the Public Health Emergency Preparedness Cooperative Agreement, starting in 2011. These measures have had extensive input from federal, state, and local epidemiologists and preparedness officials. The present analysis is a baseline assessment before these measures are put into place, and before specific program guidance and training are provided. Similar baseline assessments are being conducted for several of these measures in Florida.

Epidemiological Investigation Measure 2 assesses the percentage of outbreak investigation reports that contain all of a set of minimal elements as outlined by the CDC. The CDC suggests that there are six minimal elements that all investigation reports should contain which include:

- 1) Context/Background,
- 2) Initiation of Investigation,
- 3) Methods,

- 4) Results,
- 5) Discussion/Summary, and
- 6) General Reporting Information.

Within each element, several components make up each essential element. The Context/Background element contains four components that include the setting, suspected or known etiology, the number of people exposed, as well as the number of people who are ill. The Initiation of Investigation element contains four components that include the method of initial notification, the date/time of initial notification, the date/time the investigation was initiated, and the initial investigation activity. The Methods element contains two components that include the case definition as well as the epidemiologic methods used. The Results element contains only one component that describes what the investigation revealed, laboratory reports, analytic findings, or other pertinent information that was collected during the investigation. The Discussion/Summary element contains components that include interventions, control measures, and strengths and weaknesses of the investigation. Finally, the General Reporting Information element contains two components that include the name of the person primarily responsible for the completion of the report, and the date that the report was written.

Epidemiological Investigation Measure Three assesses the percentage of corrective actions identified in an outbreak investigation report. Corrective actions include specific areas during an investigation that are identified by the investigator that, when addressed, may improve efficiency and effectiveness of future investigations.

### Methods

An assessment was conducted to determine the number of recent outbreak investigation reports that contain all six of the minimal elements. Reports assessed include Florida Department of Health (FDOH) EpiCom outbreak reports, foodborne outbreak reports, and the 2009 Annual Morbidity CHD outbreak reports. Individual case reports from EpiCom were not included in the analysis. A scoring rubric was created in Excel, and this rubric was used to score whether each report contained all the components within each essential element.

### Results

**Table 1. Frequencies for Components of the Six Essential Elements of Outbreak Investigation Reports and Corrective Actions Collected from FDOH EpiCom postings, Foodborne Outbreak Reports, and 2009 Annual Morbidity CHD Outbreak Reports**

	EpiCom (N=168)		Foodborne (N=11)		Annual Morbidity (N=38)	
	N	%	N	%	N	%
<b>Six Essential Elements of Outbreak Investigation Report</b>						
<b>1. Context/Background</b> – Statement of what initiated the investigation and demographic information including:						
Setting, location, venue	168	100.0	11	100.0	38	100.0
Suspected or known etiology	167	99.4	11	100.0	38	100.0
# of persons exposed	119	70.8	9	81.8	25	65.8
# of persons ill (identified as cases)	166	98.8	11	100.0	38	100.0

	EpiCom (N=168)		Foodborne (N=11)		Annual Morbidity (N=38)	
	N	%	N	%	N	%
<b>Six Essential Elements of Outbreak Investigation Report</b>						
<b>Total reports with all components of Element 1</b>	<b>118</b>	<b>70.2</b>	<b>9</b>	<b>81.8</b>	<b>25</b>	<b>65.8</b>
<b>2. Initiation of Investigation</b> – Information regarding receipt of notification and initiation of the investigation including:						
• Method of notification – Type of initial notification received (e.g., lab report)	78	46.4	3	27.3	19	50.0
• Date/time of initial notification – Date/time when the initial notification was received by the agency	111	66.1	9	81.8	27	71.1
• Date/time investigation initiated	31	18.5	9	81.8	11	29.0
• Initial investigation activity (e.g., verified lab results)	138	82.1	9	81.8	33	86.8
<b>Total reports with all components of Element 2</b>	<b>13</b>	<b>7.7</b>	<b>3</b>	<b>27.3</b>	<b>6</b>	<b>15.8</b>
<b>3. Methods</b> – List epidemiological or other investigative methods employed, case definition (as applicable), and data analysis. Include all pertinent instruments used that were relevant to the investigation such as:						
• Case definition	1	0.6	6	54.6	2	5.3
• Does the report describe the epidemiologic methods used? (These might include conducting a survey, interviewing cases, administering a questionnaire, developing an epidemic curve, doing a case-control study, or developing attack rate tables.)	143	85.1	9	81.8	33	86.8
<b>Total reports with all components of Element 3</b>	<b>0</b>	<b>0.0</b>	<b>6</b>	<b>54.6</b>	<b>3</b>	<b>7.9</b>
<b>4. Results</b>						
• Describe what the investigation revealed, laboratory reports, analytic findings, or other pertinent information collected during the investigation.	95	56.6	11	100.0	37	97.4
<b>Total reports with all components of Element 4</b>	<b>95</b>	<b>56.6</b>	<b>11</b>	<b>100.0</b>	<b>37</b>	<b>97.4</b>
<b>5. Discussion/Summary</b>						
• Describe the effectiveness of any interventions or control measures, unusual outcomes or findings, or important “lessons learned” during the investigation	120	71.4	11	100.0	31	81.6

	EpiCom (N=168)		Foodborne (N=11)		Annual Morbidity (N=38)	
	N	%	N	%	N	%
<b>Six Essential Elements of Outbreak Investigation Report</b>						
• Strengths of the investigation identified prior to/during/after the investigation	1	0.6	0	0.0	1	6.2
• Challenges identified prior to/during/after the investigation	4	2.4	0	0.0	0	0.0
<b>Total reports with all components of Element 5</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>
<b>6. General Reporting Information</b> (Administrative Info)						
• Name of person primarily responsible for report completion	168	100.0	11	100.0	14	36.8
• Date report submitted to designated public health official	168	100.0	11	100.0	13	34.2
<b>Total reports with all components of Element 6</b>	<b>168</b>	<b>100.0</b>	<b>11</b>	<b>100.0</b>	<b>13</b>	<b>34.2</b>
<b>Corrective Actions Identified in Reports</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>

Each report was scored according to the components that it contained (Table 1). Finally, all reports were tallied to determine the total amount of reports containing completed minimal elements (Table 2).

### EpiCom Outbreak Reports

The majority of reports contained every component of Element One, (70.2%). The component of setting, location, and venue was reported the most (100%), and the number of persons exposed during the outbreak was reported the least (70.8%). Only 7.7% of the total reports contained every Element Two component. Within Element Two, the initial investigation activity was reported the most (82.1%), and the date/time that the investigation was initiated was reported the least (18.5%). No reports contained all components of Element Three. The majority (85.1%) of the reports adequately described the epidemiologic methods used, whereas, only one (0.6%) of the reports contained the case definition, which is essential. Element Four contained only one component, and over half (56.6%) of the reports adequately outlined the results of the investigation and what the investigation revealed. No reports contained every component of Element Five. However, the majority of the reports outlined the effectiveness of the intervention and control measures (71.4%), whereas, only a few reports outlined the strengths (0.6%) and challenges (2.4%) of the investigation. All reports contained both components of Element Six.

Element 6 (100%) most frequently contained all of its necessary components in EpiCom outbreak reports, whereas, Element Three (0%) and Element Five (0%) least frequently contained all of their necessary components.

None of the EpiCom outbreak reports identified any corrective actions that could be implemented to make the investigation more efficient and effective (Table 1).

### Foodborne Outbreak Reports

The majority of reports contained every component of Element One (81.8%). The number of people exposed during the outbreak was reported the least (81.8%). Only 27.3% of the total reports contained every component of Element Two. The type of initial notification received was reported the least (27.3%). The majority of reports contained all Element Three components (54.6%). The majority of the reports adequately described the epidemiologic methods used (81.8%), and contained the case definition (54.6%) that is essential for this element. Element Four contained only one component and all reports adequately outlined the results and what the investigation revealed. No reports contained every component of Element Five. However, all reports outlined the effectiveness of the intervention and control measures, whereas, no reports outlined the strengths and challenges of the investigation. All reports contained both Element Six components.

Element Six (100%) most frequently contained all of its necessary components in the foodborne outbreak reports, whereas, Element Five (0%) least frequently contained all of its components.

None of the foodborne outbreak reports identified any corrective actions that could be implemented to make the investigation more efficient and effective (Table 1).

### 2009 Annual Morbidity CHD Outbreak Reports

The majority of reports contained every component of Element One, (65.8%). The number of people exposed during the outbreak was reported the least often (65.8%). Only 15.8% of the total reports contained every Element Two component. The initial investigation activity was reported most frequently (86.8%) and the date/time the investigation was initiated was reported least frequently (29.0%). Only 7.9% of reports contained all components of Element Three. The majority of the reports adequately described the epidemiologic methods used (86.8%), but only 5.3% contained the case definition, which is essential. Element Four contained only one component and the majority of reports adequately outlined the results of the investigation and what the investigation revealed (97.4%). No reports contained every component of Element Five. However, 81.6% of reports outlined the effectiveness of the intervention and control measures, 6.2% of reports outlined the strengths, and no reports outline the challenges of the investigation. Only 34.2% contained both Element Six components.

Element 6 (100%) most frequently contained all of its necessary components in the 2009 Annual Morbidity CHD outbreak reports, whereas, Element 5 (0%) least frequently contained all of its necessary components was.

**Table 2. Number of Complete Minimal Elements in all Outbreak Investigation Reports Collected from FDOH EpiCom Postings, Foodborne Outbreak Reports, and 2009 Annual Morbidity Reports**

	EpiCom (N=168)		Foodborne (N=11)		Annual Morbidity (N=38)	
	N	%	N	%	N	%
<b>Total Complete Elements in Outbreak Investigation Reports</b>						
One element	30	17.9	0	0.0	7	18.4
Two elements	58	34.5	1	9.1	19	50.0
Three elements	72	42.9	3	27.3	9	23.7
Four elements	8	4.8	6	54.5	3	7.9
Five elements	0	0.0	1	9.1	0	0.0

Six elements	0	0.0	0	0.0	0	0.0
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None of the reports that were scored contained all six of the elements necessary for a complete outbreak investigation report (Table 2). The majority of EpiCom reports contained only three of the elements (42.9%). The majority of foodborne reports contained only four of the elements (54.5%). The majority of 2009 Annual Morbidity CHD reports contained only two of the elements (42.9%).

### Conclusion

Outbreak investigations involve several steps that include verifying the disease diagnosis, creating a case definition, identifying and contacting cases and their contacts, collecting and analyzing data, and implementing control measures to stop the outbreak and prevent future outbreaks. It is important to document the outbreak in a written report to inform others about what is happening in the investigation. Outbreak reports can be used as a reference for policy makers to make recommendations based on the outcome of investigations and change policies. Investigation reports can also be used to enhance the quality of future investigations by identifying strengths and weaknesses encountered during the investigation.

Many EpiCom reports are probably shortened or preliminary versions of longer reports on file at the CHD level, which contain more detail and thus more of the recommended elements. This may be true of some of the reports submitted for the 2009 Annual Morbidity Summary as well.

None of the investigation reports contained all of the essential elements. There are 67 counties in Florida, and at any point in time, anyone from any county may write a report for an outbreak investigation. With so many people submitting reports, there is no way to guarantee that each report will be consistent with other reports in terms of the way it is written, what is included, and the depth of the topic. Specific guidelines for outbreak investigation report submissions should be implemented and training provided, in preparation for statewide use of the CDC Public Health Emergency Preparedness cooperative agreement performance measures in 2011. Implementation of a standard set of guidelines would increase the frequency and consistency of reporting all essential elements for an effective and efficient outbreak investigation report.

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## Confirmed *Salmonella* Anatum Outbreak Associated with a Sumter County Wedding Reception

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### Introduction

The Sumter County Health Department (CHD) and the Regional Environmental Epidemiologist for North Central Florida were notified on April 19, 2010 of a cluster of gastrointestinal (GI) illnesses following a wedding reception in Sumter County. The reception was hosted at a community center in Lake Panasoffkee on April 17 at 5:00 p.m. Approximately 68 guests attended the dinner.

Foods, served buffet style, were either purchased as take-out items from a local chain restaurant or brought to the event by family members. The side dishes were picked up the same day as the event and stored in the refrigerator at the community center. These included the following items: macaroni and cheese, potato salad, coleslaw, baked beans, sweet tea, and unsweetened tea. Friends and family brought hamburger dip, ranch dip, rolls, punch, wedding cake, and ice to the event. Pork and chicken were brought by another contact of the bride and groom. One family member functioned as the wedding coordinator and assisted in preparing the buffet at the community center.

## **Methods**

The wedding reception was the only meal that ill attendees had in common, as many guests came from out of town and spent only one day with their family members. A line-list of the names and telephone numbers of wedding reception attendees was obtained. The outbreak case definition included attendees who developed either vomiting or diarrhea within 72 hours of attending the wedding reception. Both ill and well attendees were interviewed using a standardized food and waterborne outbreak questionnaire to assess food and exposure histories. A food-specific section of the questionnaire was designed based on the menu of items served at the event. Food-specific attack rates were calculated for each of the foods served. Interviews were conducted by the Sumter CHD Nursing and Epidemiology staff and the regional environmental epidemiologist. Data were analyzed using Epi Info v3.5.1 and Microsoft Excel software programs.

Stool collection kits were distributed to the homes of attendees or picked up at the Sumter CHD. Six human stool samples were collected and shipped to the Bureau of Laboratories (BOL) in Jacksonville for both enteric and viral testing. All six stool samples were tested for *Salmonella*, *Shigella*, *Campylobacter*, *E.coli* 0157, and Norovirus. An additional seventh sample was tested by a private laboratory when an attendee was hospitalized. Food samples of the leftover meats (pork and chicken) were shipped in sterile plastic bags to the BOL Bacteriology Department and tested for *Staphylococcus aureus*, *Clostridium perfringens*, *Salmonella*, and *Bacillus cereus*.

The Department of Business and Professional Regulation (DBPR) was notified regarding the restaurant that supplied the side dishes (macaroni and cheese, potato salad, coleslaw, baked beans, sweet tea, and unsweetened tea) for the reception dinner. An environmental assessment with the DBPR, Sumter CHD, and Regional Environmental Epidemiologist was conducted on April 22. The manager met with the team at the restaurant, demonstrated how each food item was prepared, and gave a tour of the facility.

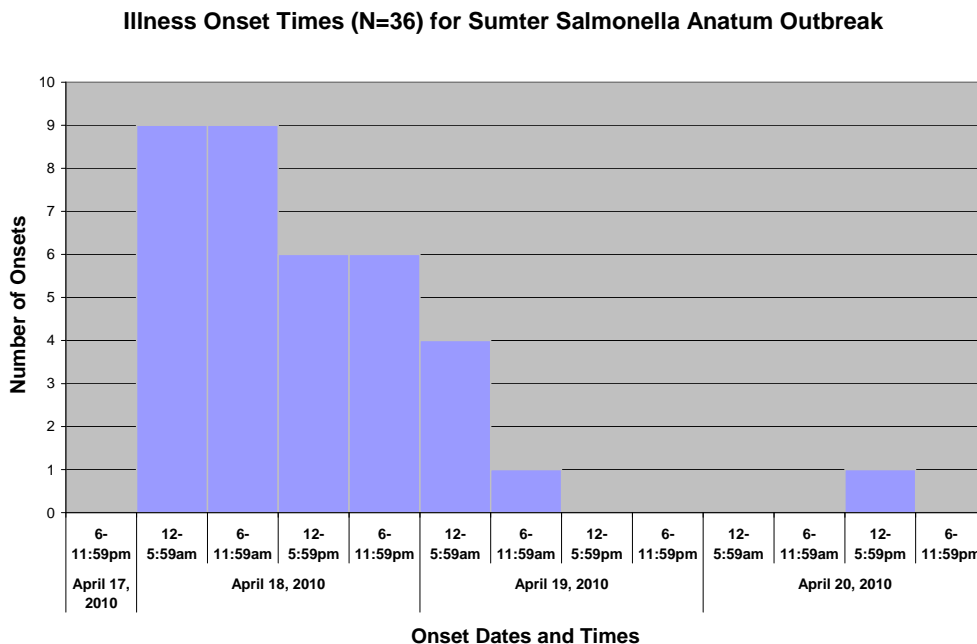
Surveillance was conducted early in the investigation to determine if other foods purchased from the restaurant were associated with illness in other restaurant patrons. The manager provided the Sumter CHD with the contact information of a patron who purchased a similar menu of take-out side dishes as the wedding party on the same date for a separate large event. The organizer of this separate event was contacted to determine if any event attendees reported illness.

## **Results**

Thirty-seven attendees reported illness and each met the outbreak case definition (attended the wedding reception and developed either vomiting or diarrhea within 72 hours). An additional 11 well attendees were interviewed. All attendees were interviewed using a standardized questionnaire.

A data analysis of the responses from the 37 ill attendees was conducted. Females comprised 57% of ill attendees, compared to 43% males. Ill attendees had a mean age of 35 years

(range=4-72). None of the attendees reported experiencing GI illness within two weeks prior to attending the reception. When attendees were asked if they washed their hands before going through the buffet line, 86% replied “yes”. The majority (84%) of attendees developed symptoms on April 18; the remaining became ill on April 19 (14%) and April 20 (3%).



Symptoms reported by the 37 ill attendees included: diarrhea (100%); abdominal cramps (97%); fatigue (89%); fever (81%); headache (76%); nausea (76%); chills (65%); vomiting (62%); sweating (58%); muscle aches (56%); dizziness (38%); and numbness or tingling sensation (8%). A mean incubation period of 21 hours (median=18.5 hours; range=9.5-67 hours) was reported. The mean duration of illness was 57 hours (median=57.5; range=9-120 hours). In total, 41% or 15 attendees received medical treatment for their symptoms.

All six human stool samples submitted to the Bureau of Laboratories (BOL) tested positive for *Salmonella Anatum*. The two food samples submitted (chicken and pork) tested positive for *Salmonella Anatum* and had a pulsed field gel electrophoresis (PFGE) pattern identical to the pattern observed in the six human samples. *Salmonella* was detected using a standard plate count test at counts greater than 1,000,000/gram. Three samples were tested for Norovirus; all were negative. One additional stool sample tested positive for *Salmonella* at a private laboratory, but was not tested at the BOL.

When comparing food-specific attack rates, pork had the highest risk ratio followed by the baked beans. Chicken was not statistically associated with illness, but tested positive for *Salmonella Anatum*. This may suggest a potential cross-contamination, since both the chicken and pork were grilled together at the community center and prepared by the same chef. The attack rate among pork consumers was 91% compared to 38% in attendees who did not eat the pork with an elevated risk ratio of 2.4 and a significant p-value and confidence interval (p-value=0.0008; CI=1.186, 4.763). The risk ratio, although less significant, was also elevated for the baked beans.

**Table 1: Attack Rates for the Wedding Reception Dinner**

<b>Food Items Served at the Wedding Reception</b>	<b>Attack Rates for People Who Ate Food Item</b>	<b>Attack Rates for People Who Did Not Eat Food Item</b>	<b>Risk Difference</b>	<b>Risk Ratio</b>	<b>Confidence Interval for Risk Ratios</b>	<b>P-Value (two-tailed)</b>
Pork	91%	38%	53%	2.4	1.19, 4.76	0.0008
Baked beans	87%	40%	47%	2.2	1.01, 4.68	0.01
Mac & cheese	84%	56%	29%	1.5	0.83,2.76	0.16
Coleslaw	91%	64%	27%	1.4	1.04, 1.96	0.05
Rolls	84%	65%	19%	1.3	0.88,1.90	0.25
Potato salad	85%	67%	19%	1.3	0.91,1.80	0.24
Hamburger dip	82%	73%	9%	1.1	0.83, 1.52	0.71
Ranch dip	83%	75%	8%	1.1	0.81,1.52	0.87
Wedding cake	81%	73%	8%	1.1	0.81,1.51	0.78
Punch	80%	75%	5%	1.1	0.77,1.47	1.00
Sweet tea	78%	76%	2%	1.0	0.75,1.40	1.00
Chicken	77%	77%	0%	1.0	0.73,1.36	1.00
Ice	77%	80%	-3%	1.0	0.60,1.53	1.00
Unsweetened tea	33%	80%	-47%	0.4	0.08,2.08	0.25

A contact of the bride and groom prepared both the chicken and pork. An extensive interview with the meat chef was conducted. Both the chicken and pork were purchased from a wholesale grocery store one day prior to the reception. The chef oven-roasted the pork butts in his home kitchen the morning of the reception beginning at 3:00 a.m. The chef then transported the meats to the community center at 8:00 a.m. to finish cooking the meats on the outdoor community center grill. The chicken and pork were both handled and grilled together, allowing for cross-contamination.

The chef rinsed the raw chicken in the sink and sliced it on the community center kitchen counter and grilled the raw chicken along side the partially cooked pork butts. The chef said both meats were finished cooking at 1:00 p.m. and placed in trays on the counter, wrapped in foil, and left at room temperature for several hours before they were reheated in chafing dishes prior to food service, which began at 5:30 p.m. The chef left the community center at 1:00 p.m., once the meats were “done”. Several attendees stated that the chicken was very pink and undercooked; therefore, chicken was not a popular dish at the reception. The majority of attendees ate the pork instead. The majority of the side dishes purchased from the restaurant came to the facility pre-packaged and pre-cooked and the cooking process primarily involved reheating. The restaurant was deemed satisfactory and no recent illnesses amongst staff were identified based on interviews with management and employees.

The restaurant patron who purchased several side dishes from the restaurant for a separate event held the same day as the wedding reception stated that none of the approximately 40 people who attended this separate event reported any GI illness.

### **Discussion**

*Salmonella* infections are common and, while the illness is self-limiting, affected persons can experience symptoms such as diarrhea, vomiting, abdominal cramps, nausea, headache, chills, and fever beginning 8 to 72 hours following exposure.<sup>4</sup> *Salmonella* is gram-negative, rod-shaped

bacilli, with over 2,300 identified serotypes.<sup>4</sup> In most cases, symptoms subside within four to seven days.<sup>4</sup> People with compromised immune systems, those who are either young children or elderly, as well as pregnant women need to be particularly careful to monitor the duration of illness as they may experience a longer symptomatic period and are more susceptible to dehydration.

*Salmonella* Anatum comprised 0.6% of all *Salmonella* laboratory results tested at the Centers for Disease Control and Prevention (CDC) from 1996 to 2006.<sup>1</sup> The CDC's OutbreakNet Foodborne Outbreak Online Database contained 12 reports of *Salmonella* Anatum outbreaks occurring from 1998 to 2007 nationwide.<sup>2</sup> The last notable *Salmonella* Anatum outbreak reported in Florida occurred in 1999 and was associated with unpasteurized orange juice purchased from a roadside vendor in Sarasota County.<sup>3</sup> In 2006, BBQ pork was the implicated food item associated with a large outbreak of *Salmonella* Anatum in Tennessee.<sup>2</sup>

### **Conclusion and Recommendations**

During the outbreak investigation, it was determined through laboratory evidence that the chicken and pork served at the wedding reception were associated with illness. Laboratory evidence showed that the strain of *Salmonella* Anatum isolated in the chicken and the pork samples were identical to the strain of *Salmonella* Anatum isolated in human stool samples. Due to the receipt of a positive laboratory result in both the chicken and pork and the potential for cross-contamination to occur during preparation, it was unknown which meat was the primary source of the *Salmonella* Anatum. Statistical analysis gathered through epidemiologic interviews indicated that the pork and baked beans were statistically associated with illness. The environmental assessment and interview with the chef who prepared the chicken and pork indicated several practices and procedures that may have compromised food safety such as cross-contamination of the chicken and pork and time-temperature abuse.

The following recommendations were communicated to the host of the wedding reception and the chef who prepared the BBQ pork and chicken. To reduce cross-contamination, meats must be handled separately with gloved hands and grilled and stored separately during food processing. Foods must be stored at the proper temperature prior to food service in an oven or refrigerator and then reheated to the appropriate temperature prior to food service. When using chafing dishes to reheat foods, temperatures need to be checked to ensure that reheating was effective. Foods should be checked with a thermometer to make sure the internal temperature of 145°F (pork) and 165°F (chicken) is reached and then heated for a minimum of 15 seconds.

### **References**

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## Florida Year-to-Date Mosquito-Borne Disease Summary Through July 17, 2010

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During the period from January 1 through July 17, 2010, the following arboviral activity was recorded in Florida:

### **Eastern Equine Encephalitis Virus (EEEV) Activity**

Positive samples were obtained from 50 horses, 71 sentinel chickens, 18 live wild birds, and three mosquito pools in 34 counties.

### **West Nile Virus (WNV) Activity**

Positive samples were obtained from 55 sentinel chickens and one live wild bird (flavivirus positive) in six counties.

### **St. Louis Encephalitis Virus (SLEV) Activity**

No activity reported in 2010.

### **Highlands J Virus (HJV) Activity**

Positive samples were obtained from 14 sentinel chickens in seven counties.

### **California Encephalitis Group Viruses (CEV) Activity**

No activity reported in 2010.

### **Dengue Virus (DENV)**

Seventeen locally-acquired cases of dengue were reported from Key West in Monroe County. Of these, 14 are Key West residents, two are residents of other Florida counties, and one resides out of state. Thirty-six imported cases with onset in 2010 in Florida residents were reported. Places of origin include Brazil, Columbia (5), Costa Rica (2), Dominican Republic (4), El Salvador, Guatemala, Haiti (3), Honduras (3), Jamaica, Nicaragua, the Philippines, Puerto Rico (8), and Venezuela (4), and Malaysia/Dubai/Bangladesh (case traveled to more than one country).

### **Malaria**

Fifty-four imported cases of malaria with onset in 2010 were reported in Florida residents. Places of origin included Angola, Dominican Republic, Ghana, Guyana, Haiti (38), Honduras (3), India, Nigeria (4), Uganda, West Africa, and Zambia/South Africa. Forty-six (85%) were diagnosed with *Plasmodium falciparum*, five (9%) with *Plasmodium vivax*, and three were unidentified.

### **Dead Bird Reports**

The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. Since January 1, 2010, 189 reports representing a total of 612 dead birds (21 crows, 10 jays, 36 raptors, 545 others) have been received from 43 of Florida's 67 counties. Please note that FWC collects reports of birds that

have died from a variety of causes, not only arboviruses. Dead birds should be reported to [www.myfwc.com/bird/](http://www.myfwc.com/bird/).

See the following web site for more information  
<http://www.doh.state.fl.us/Environment/medicine/arboviral/index.html>.

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# Reportable Diseases in Florida

Up-to-date information about the occurrence of reportable diseases in Florida, based on the Merlin surveillance information system, is available at the following site: <http://www.floridacharts.com/merlin/freqrpt.asp>. Counts can be displayed by disease, diagnosis status, county, age group, gender, or time period.

## Monthly Notifiable Disease Data

Table 1. Provisional Cases\* of Selected Notifiable Diseases, Florida, June 1-30, 2010

Disease Category	Month				Cumulative (YTD)	
	2010	2009	Mean <sup>†</sup>	Median <sup>‡</sup>	2010	2009
<b>A. Vaccine Preventable Diseases</b>						
Diphtheria	0	0	0	0	0	0
Measles	1	0	0	0	1	5
Mumps	2	2	0.8	1	12	9
Pertussis	23	52	23.8	17	135	248
Poliomyelitis	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Smallpox	0	0	0	0	0	0
Tetanus	0	0	0	0	4	0
Varicella	78	72	N/A	N/A	647	853
<b>B. CNS Diseases &amp; Bacteremias</b>						
Creutzfeldt-Jakob Disease	2	4	2.0	3	6	11
<i>H. Influenzae</i> (invasive)	19	25	12.0	3	104	144
in those ≤5	5	4	3.8	4	14	16
Listeriosis	15	2	1.8	3	30	6
Meningitis (bacterial, cryptococcal, mycotic)	23	11	1.8	11	32	27
Meningococcal Disease	5	3	5.8	5	43	34
<i>Staphylococcus aureus</i> (VISA, VRSA)	1	0	0	0	1	3
Streptococcal Disease, Group A, Invasive	28	24	26.6	24	38	53
<i>Streptococcus pneumoniae</i> (invasive disease)						
Drug resistant	47	38	52.0	50	526	497
Drug susceptible	47	46	44.4	46	429	434
<b>C. Enteric Infections</b>						
Campylobacteriosis	113	117	100.0	97	521	475
Cholera	0	0	0	0	0	0
Cryptosporidiosis	31	28	23.8	25	180	139
Cyclospora	6	5	34.8	6	17	17
<i>Escherichia coli</i> , Shiga-toxin producing (STEC)**	23	14	2.8	3	85	81
Giardiasis	187	157	104.8	101	926	919
Hemolytic Uremic Syndrome	2	1	0.4	1	6	2
Salmonellosis	504	585	434.0	414	1,892	1,909
Shigellosis	114	51	131.6	120	368	227
Typhoid Fever	0	1	0.4	1	7	7
<b>D. Viral Hepatitis</b>						
Hepatitis A	16	14	12.0	11	76	108
Hepatitis B, Acute	24	27	30.0	31	158	164
Hepatitis C, Acute	5	11	6.4	7	53	32
Hepatitis +HBsAg in pregnant women	37	40	44.0	43	230	297
Hepatitis D, E, G	0	1	0.2	1	1	3

\* Confirmed and probable cases based on date of report as reported in Merlin  
Incidence data for 2010 is provisional, data for 2009 was finalized on April 1, 2010

† Mean of the same month in the previous five years

‡ Median for the same month in the previous five years

\*\* Includes *E. coli* O157:H7; shiga-toxin positive, serogroup non-O157; and shiga-toxin positive, not serogrouped

†† Includes neuroinvasive and non-neuroinvasive

N/A indicates that no historical data is available to calculate mean and median

Table 1. (cont.) Provisional Cases\* of Selected Notifiable Diseases, Florida, June 1-30, 2010

Disease Category	Month				Cumulative (YTD)	
	2010	2009	Mean <sup>†</sup>	Median <sup>¶</sup>	2010	2009
<b>F. Vector Borne, Zoonoses</b>						
Dengue	17	3	1.8	3	38	17
Eastern Equine Encephalitis <sup>††</sup>	0	0	0	0	0	0
Ehrlichiosis/Anaplasmosis	4	3	2.0	2	6	6
Leptospirosis	0	0	0	0	0	0
Lyme Disease	8	6	2.2	4	37	25
Malaria	8	5	3.2	3	54	40
Plague	0	0	0	0	0	0
Psittacosis	0	0	0	0	0	0
Q Fever (acute and chronic)	1	0	0.6	1	1	1
Rabies, Animal	6	10	15.6	15	64	82
Rabies (possible exposure)	214	156	153.2	156	1,014	770
Rocky Mountain Spotted Fever	7	0	0.4	1	19	2
St. Louis Encephalitis <sup>††</sup>	0	0	0	0	0	0
Toxoplasmosis	0	0	0	0	4	1
Trichinellosis	0	0	0.2	1	0	0
Tularemia	0	0	0	0	0	0
Typhus Fever (epidemic and endemic)	2	0	0.2	1	2	0
Venezuelan Equine Encephalitis <sup>††</sup>	0	0	0	0	0	0
West Nile Virus <sup>††</sup>	0	0	0	0	0	0
Western Equine Encephalitis <sup>††</sup>	0	0	0	0	0	0
Yellow Fever	0	0	0	0	0	0
<b>G. Others</b>						
Anthrax	0	0	0	0	0	0
Botulism-Foodborne	0	0	0	0	0	1
Botulism-Infant	0	0	0	0	0	0
Brucellosis	1	0	0.4	1	8	3
Glanders	0	0	0	0	0	0
Hansen's Disease (Leprosy)	1	1	0.4	1	3	2
Hantavirus Infection	0	0	0	0	0	0
Legionella	16	12	11.6	12	80	71
Melioidosis	0	0	0	0	0	0
Vibriosis	14	8	8.8	9	38	33

\* Confirmed and probable cases based on date of report as reported in Merlin

Incidence data for 2010 is provisional, data for 2009 was finalized on April 1, 2010

† Mean of the same month in the previous five years

¶ Median for the same month in the previous five years

†† Includes neuroinvasive and non-neuroinvasive

N/A indicates that no historical data is available to calculate mean and median

Note: The 2010 and 2009 case counts are provisional and are subject to change until the database closes. Cases may be deleted, added, or have their case classification changed based on new information and therefore the monthly tables should not be added to obtain a year to date number.

**Please refer any questions regarding the data presented in these tables to Kate Goodin at [Kate\\_Goodin@doh.state.fl.us](mailto:Kate_Goodin@doh.state.fl.us) or 850.245.4444 Ext. 2440.**

## Upcoming Events

### Bureau of Epidemiology Monthly Grand Rounds

Date: Last Tuesday of each month

Time: 10 a.m.-11 a.m., E.T.

Location: Building 2585, Room 310A

Dial-In Number: 877.646.8762 (password: Grand Rounds)

August 31, 2010: “*Clostridium difficile* Infections in Florida Hospital Inpatients” presented by Catherine Lesko

## This Month on EpiCom

*Christie Luce*



EpiCom is located within the Florida Department of Health’s Emergency Notification System (FDENS). The Bureau of Epidemiology encourages *Epi Update* readers to register on the EpiCom system by emailing the Florida Department of Health Emergency Notification System Helpdesk at [FDENS-help@doh.state.fl.us](mailto:FDENS-help@doh.state.fl.us). Users are invited to contribute appropriate public health observations related to any suspicious or unusual occurrences or circumstances through the system. EpiCom is the primary method of communication between the Bureau of Epidemiology and other state medical and public health agencies during emergency situations. The following are titles from selected recent postings:

- Typhoid fever in a male returning from India, Hillsborough County
- Update: Rash illness in nursing home, Escambia County
- St. Johns River health advisories issued for algal blooms and fish kills, Duval and St. Johns counties
- Mumps in a private school, Miami-Dade County
- Increase in reported Listeriosis cases, Miami-Dade County
- Probable case of imported Dengue hemorrhagic fever, Duval County
- Update: Dengue Fever, Key West
- Imported Dengue Fever Type 3, Alachua County
- Pseudorabies, Bay County
- Meningitis in a child due to an unknown agent, Lake County
- Unknown respiratory disease outbreak in a long-term care facility (LTCF), Pasco County
- Update: Confirmed *Chromobacterium violaceum*, Clay County
- Southern Africa travel-associated illness, Pinellas County
- Update: Probable *E. coli* 0157:H7 case, Okaloosa County
- Dengue in travelers, Key West
- Hepatitis A, Orange County
- Update: Gastrointestinal (GI) illness in an adult living facility (ALF), Hillsborough County
- Mosquito-borne disease alert, Miami-Dade County
- Abscesses following cosmetic injections by an unlicensed person, Hillsborough County
- Mosquito-borne disease advisory, Collier County
- Reported GI illness cluster at a halfway house, Leon County
- *Salmonella* outbreak associated with a fire department fundraiser, Polk County

- Imported Dengue, Marion County
- Scombroid poisoning investigation, Palm Beach County
- Rabid bobcat, Martin County
- Brucellosis in a pig hunter, Manatee County
- Hepatitis A, Sarasota County
- Rabid cat, Duval County
- Recent increase in shigellosis activity in Florida
- Imported Dengue case identified in ESSENCE, Seminole County
- Two cases of meningococcal disease, Miami-Dade County
- Update: Suspect locally-acquired Dengue, Miami-Dade County
- Suspect local Dengue, Miami-Dade County
- Update: *Vibrio vulnificus* illness, Citrus County
- Probable case of imported Dengue Fever, St Lucie County

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Epi Update is the peer-reviewed journal of the Florida Department of Health, Bureau of Epidemiology and is published monthly on the Internet. Current and past issues of Epi Update are available online: [http://www.doh.state.fl.us/disease\\_ctrl/epi/Epi\\_Updates/index.html](http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html). The current issue of Epi Update is available online at [http://www.doh.state.fl.us/disease\\_ctrl/epi/Epi\\_Updates/2010/July2010EpiUpdate.pdf](http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2010/July2010EpiUpdate.pdf).

For submission guidelines or questions regarding Epi Update, please contact Leesa Gibson at 850.245.4409 or by email at [Leesa.Gibson@doh.state.fl.us](mailto:Leesa.Gibson@doh.state.fl.us).

