

Cleveland County Salmonella Outbreak



Church Barbeque-
September 7, 2013

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Outline

1. Background
 - Setting
 - Disease
2. Methods
 - Active surveillance
 - Case Definition
 - Case-control study
3. Results
4. Conclusions
5. Recommendations



Background

- Report of multiple cases of lab confirmed Salmonella

Setting

- Sandy Plains Baptist Church Annual Barbeque

Disease

- Salmonella



Sandy Plains Baptist Church Barbeque

- Large event serving 5000 persons in 2013
- Walk through or drive-in/pick-up
- Fundraising event for church- held annually
- Non-profit organization
- Exempt from environmental health inspection
- NCGS 130A-250-7

Salmonella

- Bacterial infection
- 2nd most common etiology of foodborne illness outbreaks
- Mode of transmission- ingestion of food contaminated by feces of infected animal or person







Methods

- Active and enhanced surveillance
- Case interviews by county

- Outbreak Case Definition

Outbreak case definition

Onset of illness in a person who ate food at or from the **Sandy Plains Baptist Church Barbeque** on September 7, 2013, or in a person who did not attend the barbeque but who became ill after contact with a case, with illness meeting either of the following descriptions:

Confirmed Case:

Three or more episodes of diarrhea within 24 hours following consumption of food or beverage at or from the **Sandy Plains Baptist Church barbeque AND a salmonella culture positive result.**

Probable Case:

Three or more episodes of diarrhea within 24 hours following consumption of food or beverage at or from the **Sandy Plains Baptist Church barbeque with no laboratory confirmation.**





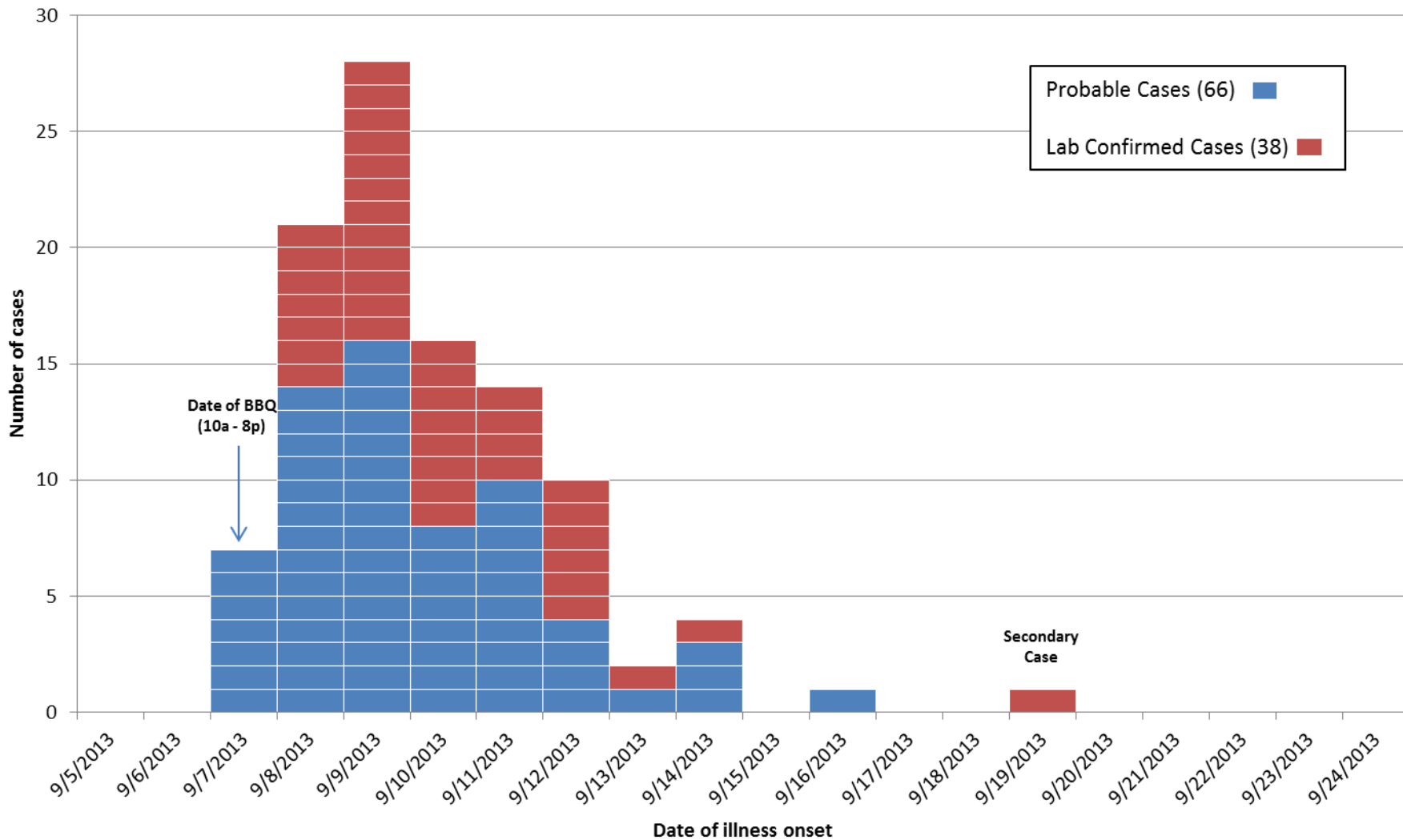
Case Control Study

- A case-control study is an analytical study which compares individuals who have a specific disease ("cases") with a group of individuals without the disease ("controls").
- Initiated on September 21, 2013, NCDPH, in conjunction with local health departments

Results

Confirmed and probable cases of *Salmonella* infection by date of illness onset, North Carolina, September 2013 (n=104)

as of 2:00pm 10/10/13



RESULTS

- Lab confirmed: 38 (37%)
- Probable: 66 (63%)



Demographic characteristics of persons meeting case definition

Age Range: 3-85

Median: 50

Less than 18 Years: 13 (13%)

18 years and above: 91 (88%)

Gender:

Male 48 (46%)

Female 56 (54%)

County of Residence of persons meeting case definition

- **Rutherford** 52 (50%)
- **Cleveland** 45 (43%)
- **Gaston** 2 (2%)
- **McDowell** 2 (2%)
- **Mecklenburg** 2 (2%)
- **Spartanburg, SC** 1 (1%)

Total Cases 104

Clinical characteristics of persons meeting case definition, Cleveland County - NC, 2013

	Frequency	%
Symptomology		
Diarrhea	104 / 104	100%
Bloody diarrhea	8 / 103	8%
Abdominal cramp	87 / 102	85%
Nausea	69 / 101	68%
Fever	54 / 100	54%
Vomiting	44 / 102	43%
Healthcare Utilization		
Hospitalization	14 / 104	13%
Total Cases	104	

Clinical Lab Results

- NC State Lab Public Health is part of PulseNet, a database of PFGE patterns for all Salmonella specimens submitted to state lab across US.
- Total 38 specimens positive for Salmonella
 - 30/38 (79%) were serotype Infantis
 - 7/38 (18%) were serotype Adelaide
 - 1/38 (3%) grew both serotype Infantis & Adelaide

- Infantis serotypes PFGE pattern (DNA fingerprint) never seen in North Carolina prior to this event
- Adelaide serotype PFGE pattern never seen in N.C. or nationwide at time of outbreak (specific to this event)

- Total of 165 persons enrolled in case-control study
 - 77 persons classified as cases (ill individuals meeting case definition)
 - 88 persons classified as controls (non-ill individuals who also attended church barbeque)

Case-control Study

ILL (77)

Age:

3-85 (50 median)

Gender:

Male 34 (44%)

Female 43 (56%)

Age Type:

Adult 66 (86%)

Food Source:

Self serve 61 (82%)

WELL (88)

Age:

7-88 (59 median)

Gender:

Male 45 (51%)

Female 43 (49%)

Age Type:

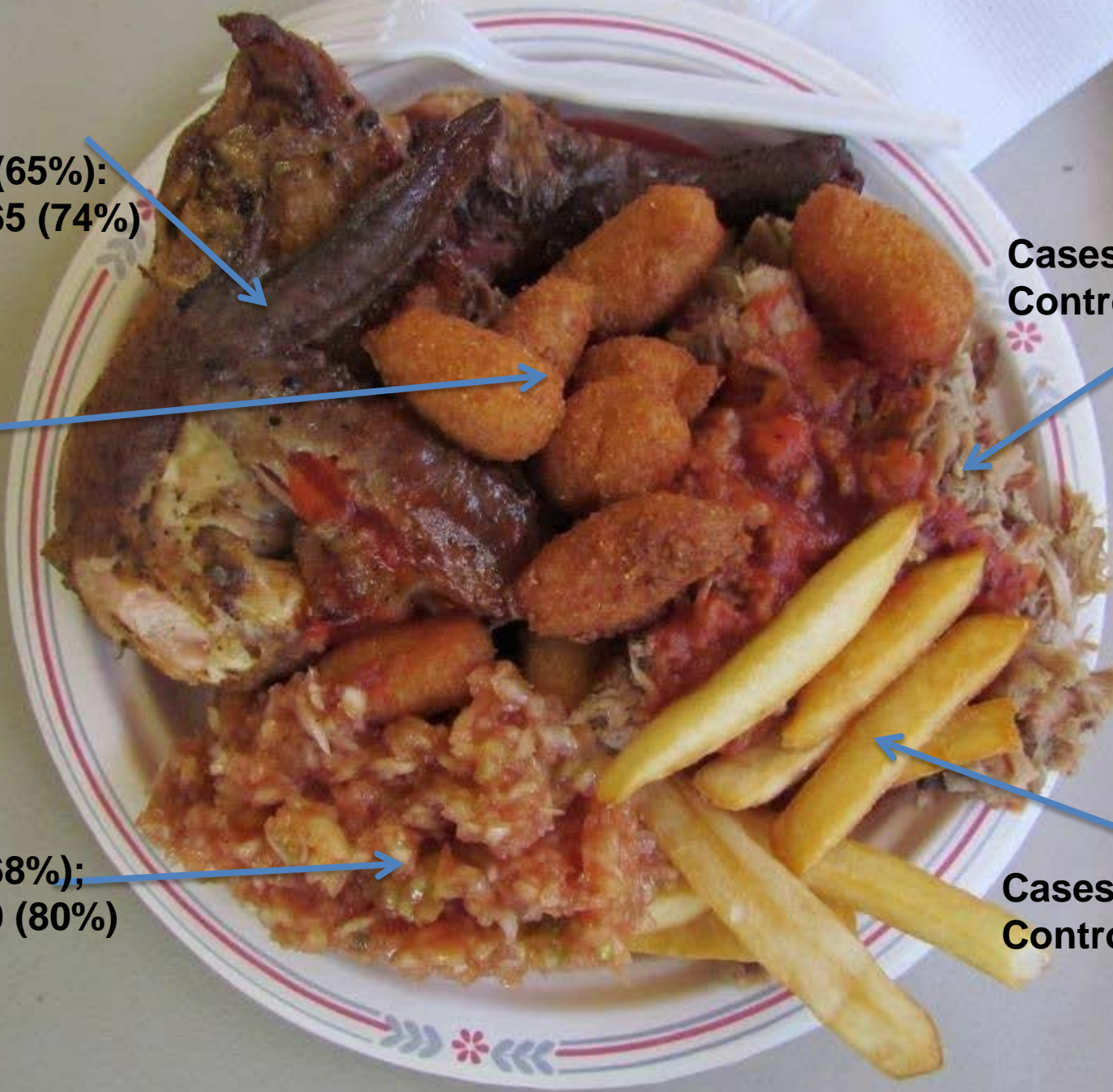
Adult 85 (97%)

Food Source:

Self serve 81 (92%)

Results

Exposure	Cases # (%)	Controls # (%)	Odds Ratio	Minimum Value	Maximum Value
FOODS					
BBQ pork	71 (92)	84 (95)	0.6	0.2	2.1
BBQ chicken	50 (65)	65 (74)	0.7	0.3	1.3
French fries	58 (76)	68 (78)	0.9	0.4	1.9
Slaw	51 (68)	70 (80)	0.5	0.3	1.1
Pickles	34 (46)	41 (48)	0.9	0.5	1.7
Hush puppies	64 (84)	79 (91)	0.5	0.2	1.4
Buns	32 (42)	20 (23)	2.4	1.2	4.8
Baked beans	15 (20)	21 (24)	0.8	0.4	1.7
Other item	4 (6)	5 (7)	0.9	0.2	3.3



**Cases 50 (65%);
Controls 65 (74%)**

**Cases 71 (92%);
Controls 84 (95%)**

**Cases 64
(84%);
Controls
79 (91%)**

**Cases 51 (68%);
Controls 70 (80%)**

**Cases 58 (76%);
Controls 68 (78%)**







Conclusions

- Consuming food or beverages at Sandy Plains BBQ did cause illness among 104 cases
- Investigation did not identify one particular food or beverage exposure that caused outbreak
- Buns did have an association with illness; thought to be cross contamination

- Historical photographs provided by the church food management staff revealed breaches of safe food techniques



Recommendations

- Non-profit organizations exempt from environmental health inspections and organize food related fundraisers could benefit from partnering with local environmental health specialists
- Children should not participate in food handling, especially without gloves

Acknowledgements

- Cleveland County Health Department
 - Communicable Disease
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