



To protect, promote and improve the health of all people in Florida through integrated state, county, and community efforts.

Integrated Foodborne Outbreak Response Management Conference

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# **Gastrointestinal Illness Outbreak Associated with a Theme Park Safari Excursion**

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# Presentation Outline

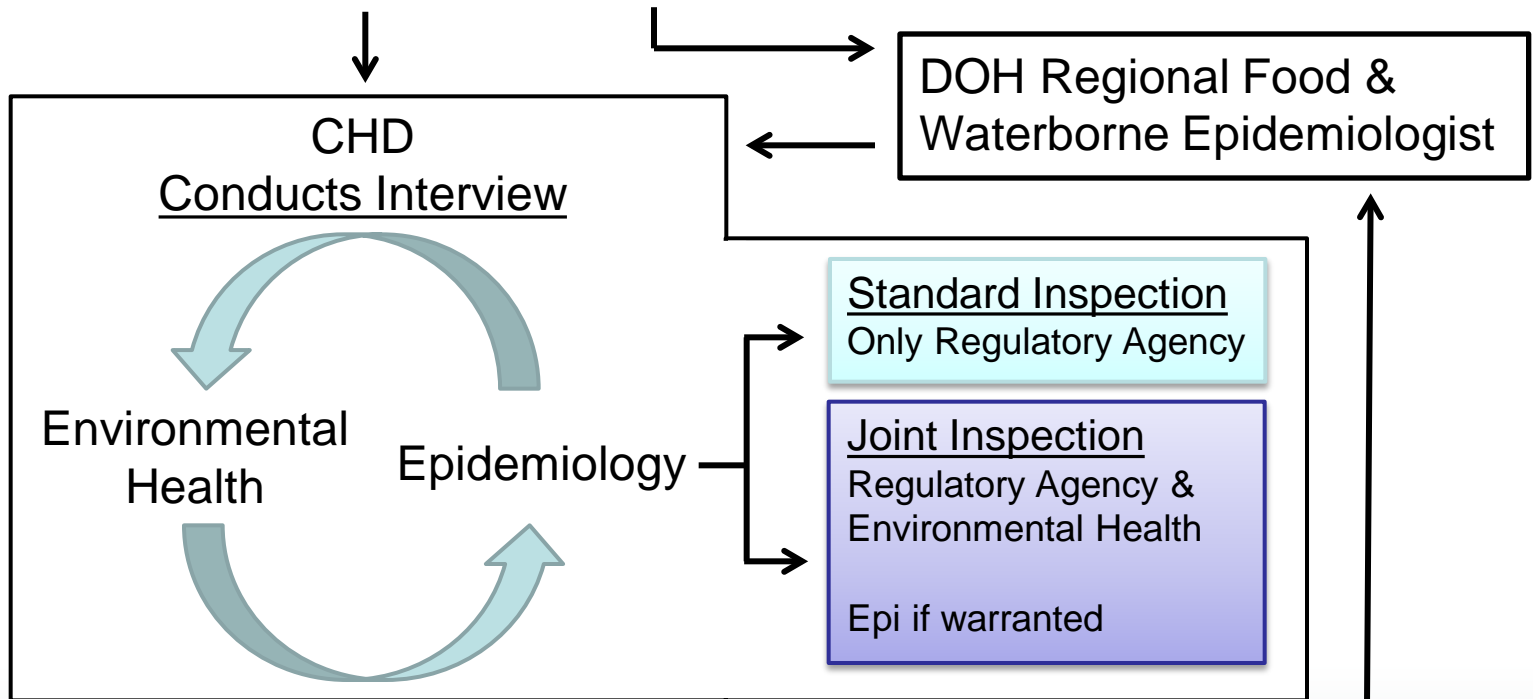
- Introduction
- Methodology
- Results
- Conclusions

# Introduction:

# Foodborne Complaint System

## Complaint Filing Methods

Fax Mail Phone Online

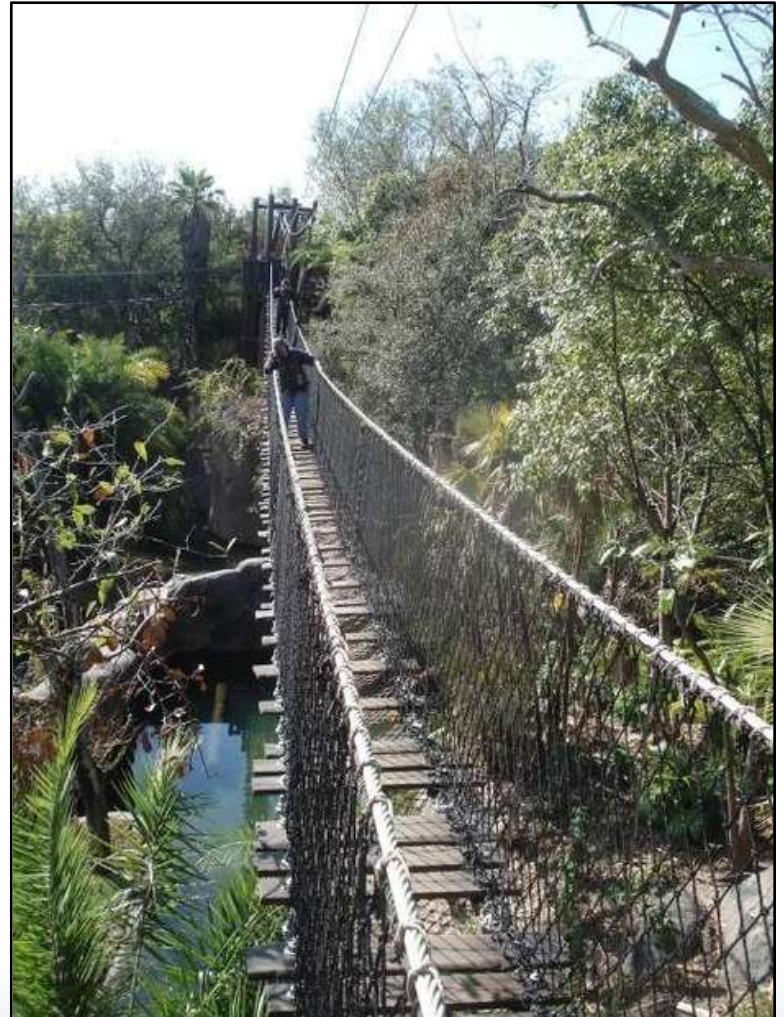


### Regulatory Agency

- Department of Business and Professional Regulation
- Department of Agriculture and Consumer Services
- Agency for Health Care Administration

# Introduction: Safari Excursion

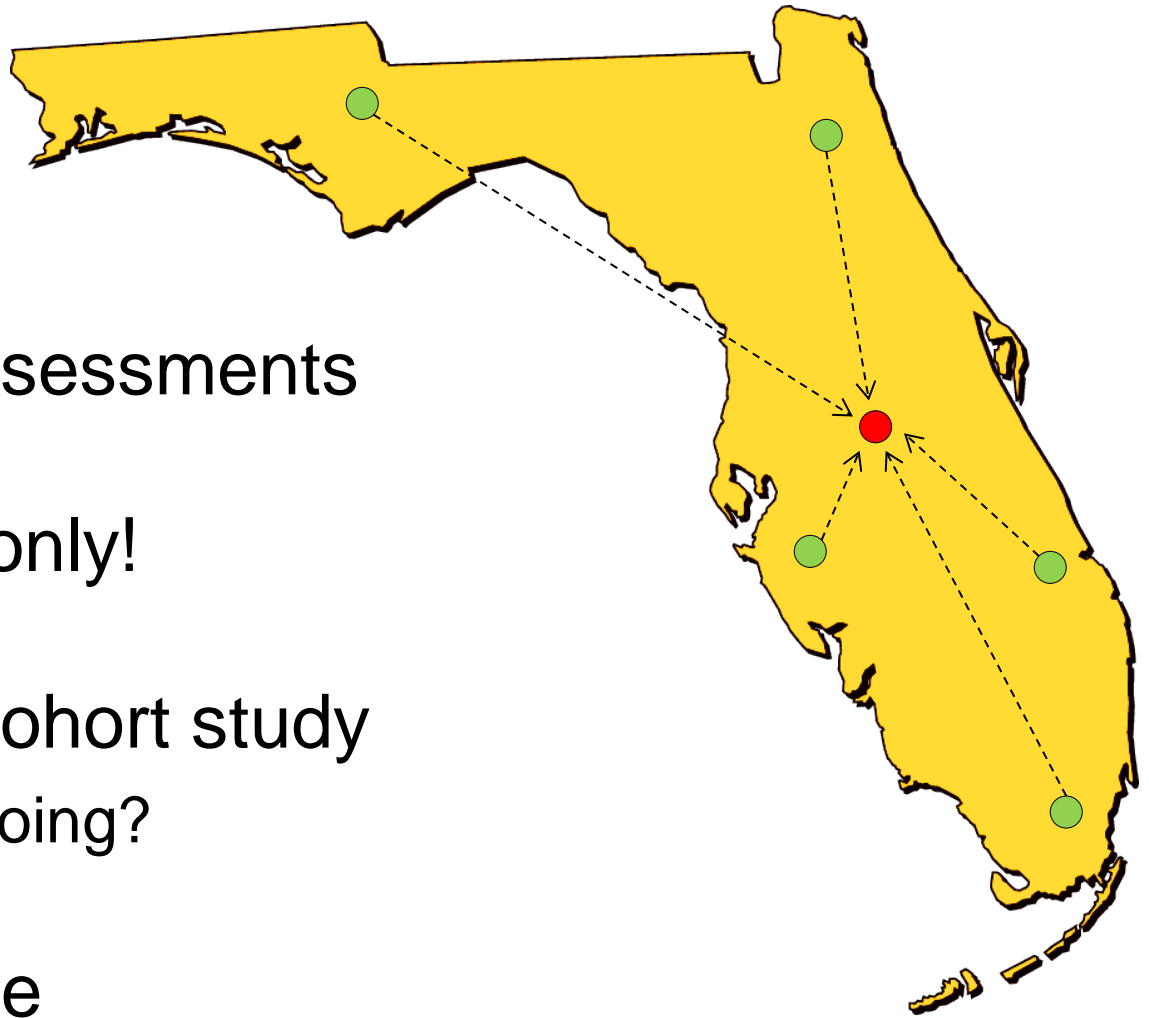
- Nature walk
- Ropes course
- Safari truck ride
- Themed meal
- Additional cost
- ~12 person group
- Excursion: ~3 hours



Bevil, D., Orlando Sentinel, January 14, 2011, orlandosentinel.com

# Methodology: Techniques

- Multiple joint assessments
- By reservation only!
- Retrospective cohort study
  - Source / ongoing?
- Scaled response
- Remote strike team



# Methodology:

## Case Definition

- A staff member or guest who experienced diarrhea or vomiting within 6 days of attending the Safari Excursion during June 4 – 11 or July 1-11, 2012

# Results:

## Epidemiology

Cohort Results	June	July
Source Population	617	248
Response Rate (%)	59	58
Study Population	351	132
➔ Attack Rate (%)	33	14
Female (%)	58	52
Age (years) - Median	40	35
- Range	7-71	8-86

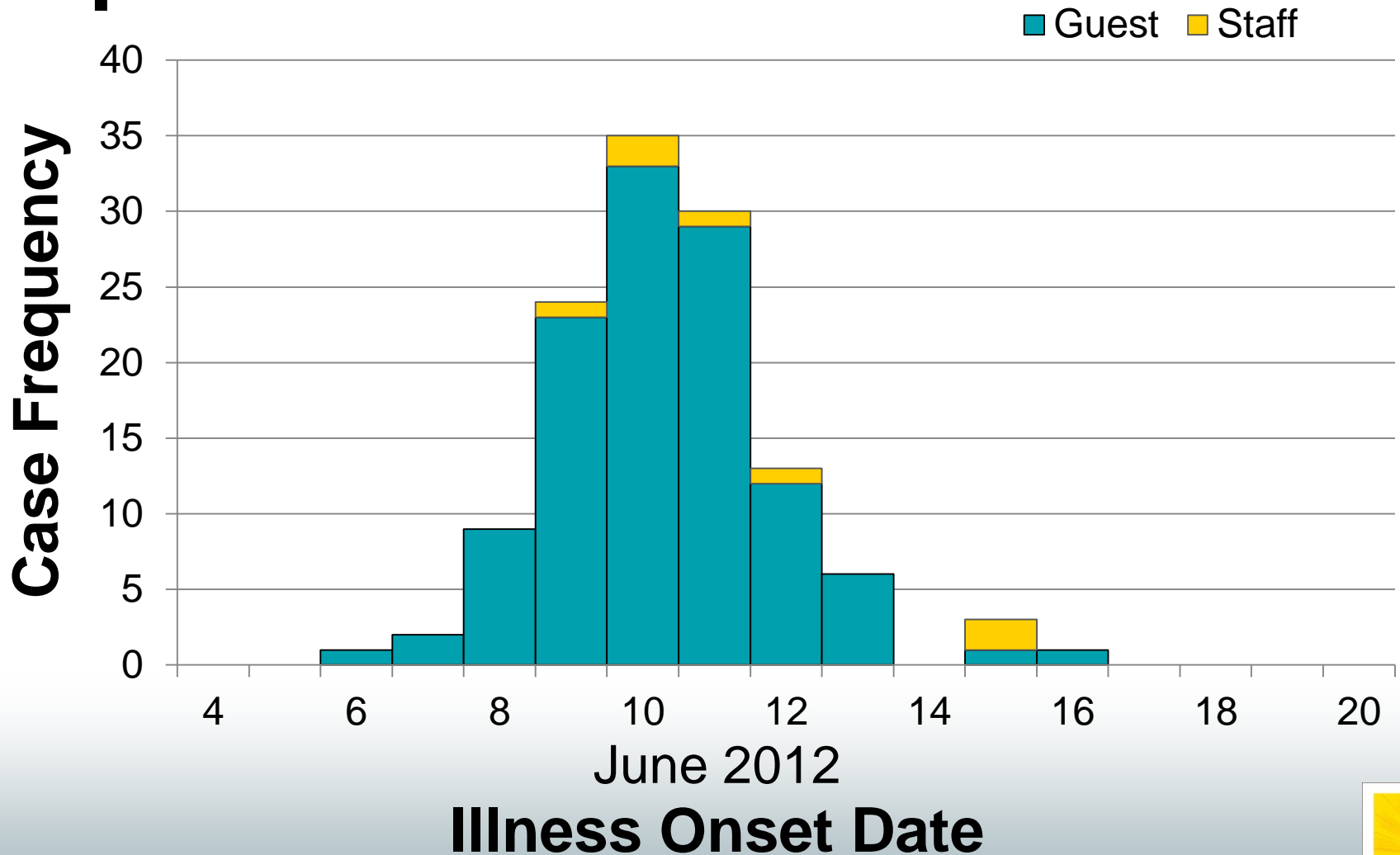
# Results:

## Epidemiology

<b>Cohort Results Symptomology</b>	<b>June (%)</b>	<b>July (%)</b>
Diarrhea – Watery	<b>78</b>	58
- Mucous	<b>80</b>	42
- Bloody	3	<b>58</b>
Body Aches	22	<b>42</b>
Fatigue	37	<b>68</b>
Headache	23	<b>47</b>
Incubation (Hours) (Avg±SD)	<b>50 ± 28</b>	39 ± 26
Duration (Days) (Avg±SD)	<b>5.1 ± 3.3</b>	3.4 ± 5.0



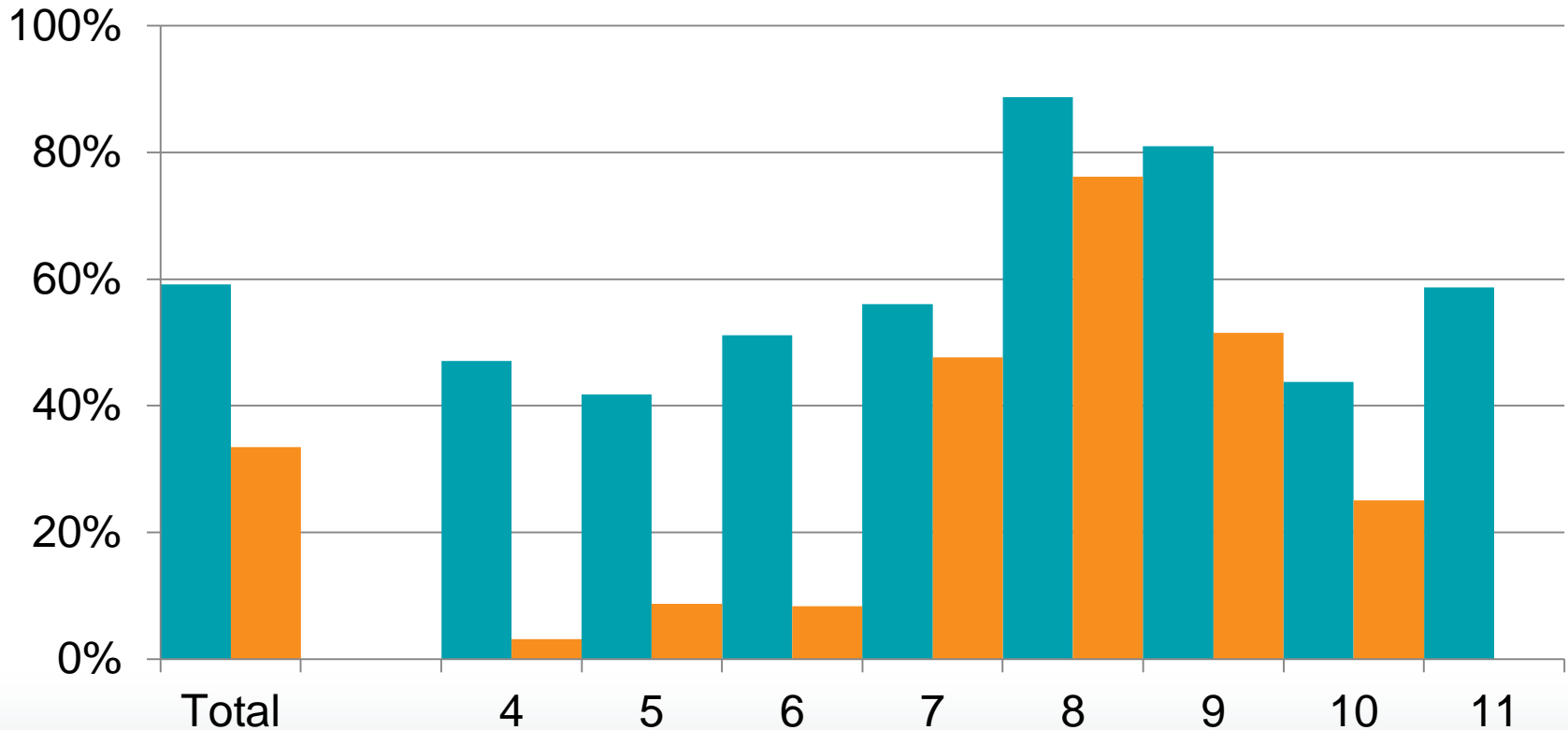
# Results: Epidemic Curve



# Results:

## Response/Attack Rate

■ Response Rate ■ Attack Rate



June 2012

Date Attended Trek

# Results:

## Exposure Analysis

❖ No statistically significant non-food exposures

<b>Food Items</b>	<b>Relative</b>
<b>Bivariate Analysis</b>	<b>Risk (95%)</b>
* Melon Balls	3.1 (1.2-7.8)
* Jicama	1.9 (1.3-2.8)
Smoked Salmon	1.8 (1.2-2.7)
Shrimp	2.3 (1.2-4.5)



Lannom, C., October 21, 2012, flickr.com

# Results:

## Environmental Health

First Joint Assessment - June 22

Information gathering at food preparation facility

- No ill food workers or safari guides
  - Absentee records
- Menu or food sources had not changed
- No safari specific food items
- No food samples available
  - Bulk Food: 3 days maximum

# Results:

## Environmental Health

### Second Joint Assessment - July 13

Risk assessment throughout safari excursion

- No direct animal contact
- Food transported in cooler - ~30 minutes
- Hand washing station available
- Re-interviewed food workers
- Changed food preparation practices
  - Previously: In-house hand scooping melon balls
  - Currently: Order pre-cut



# Results:

# Environmental Health

Third Joint Assessment – August 15

Full hazard analysis and critical control points (HACCP) assessment to identify deficiencies

- Violations
  - Improper use of thermometer
  - Improper hand washing
  - Black mold build-up in preparation sink
  - No hot water at hand washing sink
  - Improper use of hand washing sink

# Results:

## Laboratory Analysis

### Bureau of Public Health Laboratories

- Seven stool samples
  - Common enteric pathogens (i.e., viral, bacterial, protozoan)

### Centers for Disease Control and Prevention - Calicinet Laboratory

- Three stool samples

Norovirus

ETEC

Parechovirus

Sapovirus

EPEC

Bocavirus

Astrovirus

Shiga toxin

Rotavirus

Adenovirus

Aichi virus

# Study Limitations

- No food from outbreak time period
- No records on dates used bulk food
- Few quality clinical samples



# Conclusions

- Illness associated with safari excursion
  - Epidemiology and environmental evidence
- Outbreak limited in duration
  - June 4-10, 2012
- Foodborne outbreak
  - Jicama or melon balls

# Implications

## Facility

- Improved food preparation process
- Improved facility cleaning process

## Public Health

- Improved data collection capability

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