

**Shiga Toxin-Producing *E. coli* O157:H7
Outbreak in an Unlicensed Daycare Center,
Tennessee, 2012**

**Katie Garman, MPH, CHES
Tennessee Department of Health**

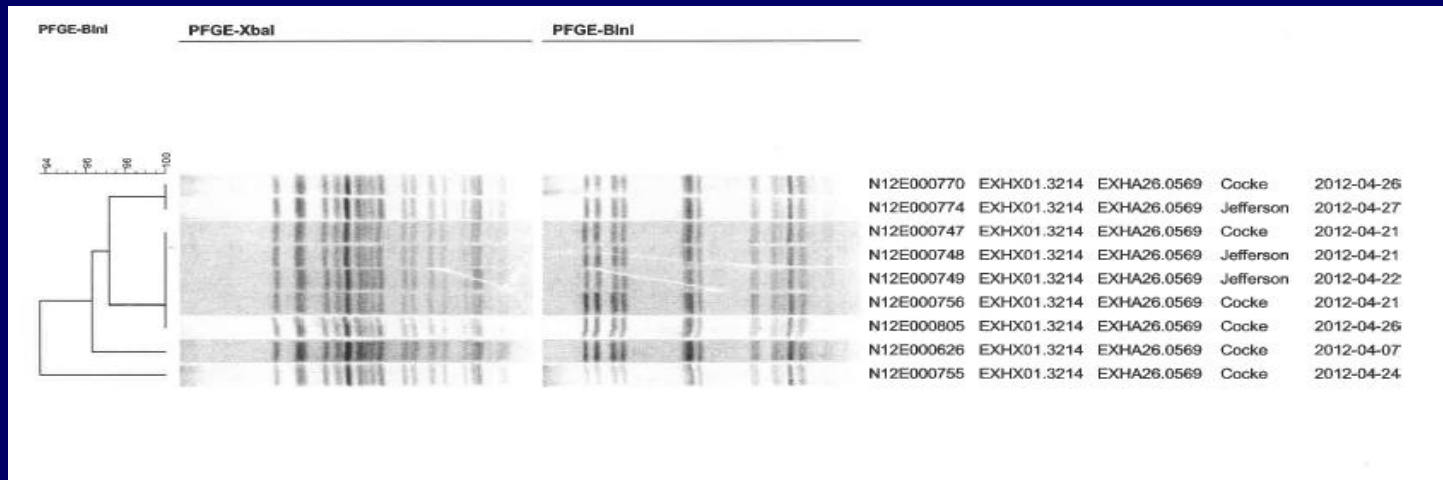
**8th Annual OutbreakNet Meeting
Session V: Stories from the States
Wednesday, August 29th 2012**

Background

- Shiga toxin-producing *Escherichia coli* (STEC) cause an acute diarrheal illness
- STEC O157:H7 most common STEC reported
- ~95,400 cases/year
- Approximately 5-15% of STEC O157 cases develop hemolytic uremic syndrome (HUS)
 - Children < 5 years old are at highest risk

Initial Report

- April 23, 2012
 - Children's Hospital reports two STEC cases
 - Reside in county with increased STEC
 - Attend same daycare center (Daycare A)



Daycare A Investigation

- **Additional ill/exposed persons identified**
- **Facility inspected**
- **Stools collected from ill and well**
- **No records of foods served**
- **Ground beef and goat feces collected**
- **Environmental swabs not collected**

“Daycare A”



Case Definition

- **A person reporting either vomiting or diarrhea who was associated with Daycare A**

Results

- **Unlicensed home-based daycare center**
- **16 part-time and full-time children enrolled**
 - 11 daycare; 5 aftercare
- **23/24 (96) exposed were interviewed**
- **11 (46) reported illness**

Case Characteristics

Cases, No. (%)
(N = 11)

Age, years

Median

3

Range

1, 40

Female

6 (54.5)

Hospitalized

3 (27.2)

HUS

1 (9.1)

Symptoms

Cases, No. (%)
(N = 11)

Diarrhea

10 (91)

Fever

9 (82)

Stomach cramps

8 (73)

Bloody stool

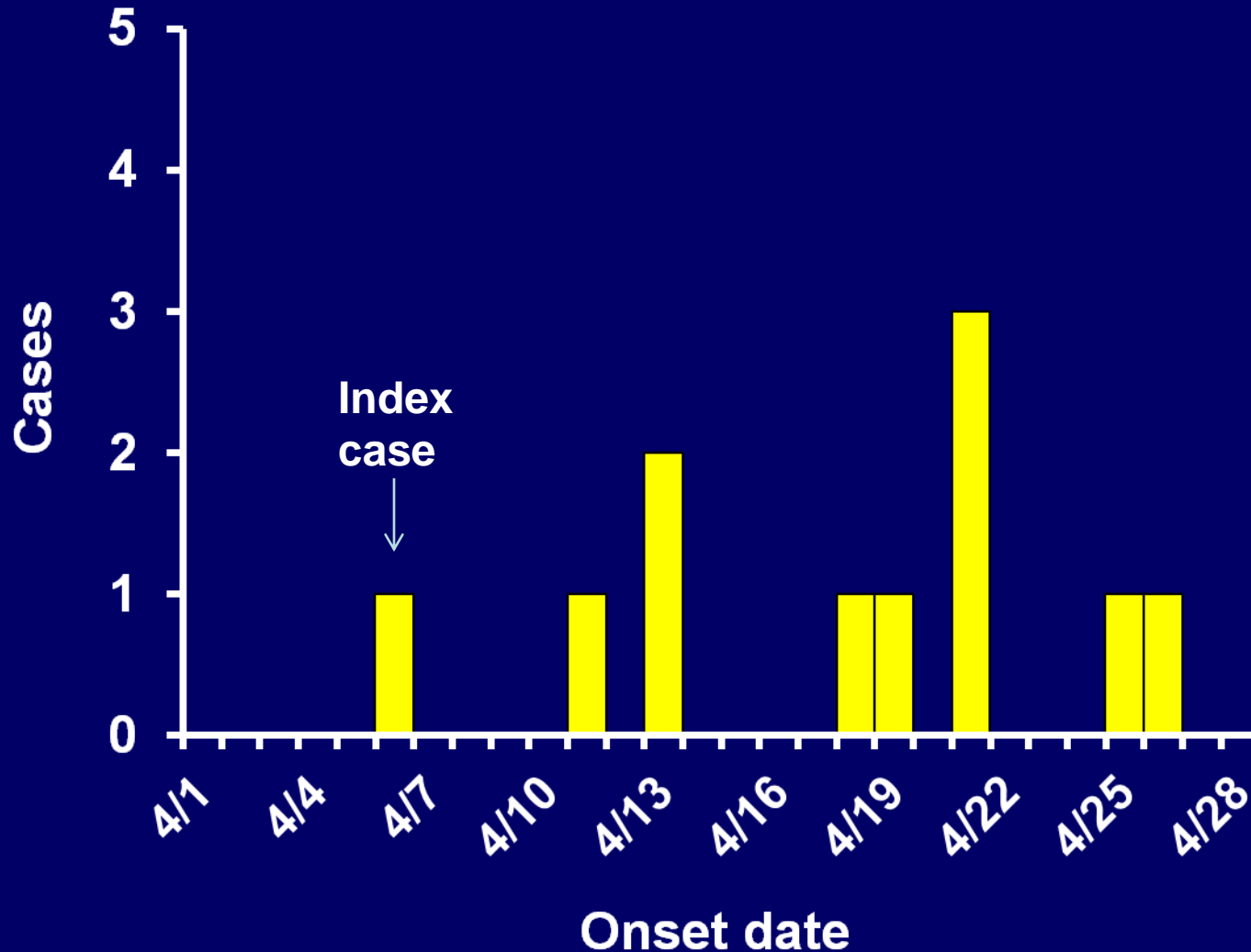
7 (64)

Vomiting

7 (64)

E. coli O157:H7 Cases — Daycare A

N=11



Results- Specimen Collection

- 19 exposed submitted stool specimens
 - 9 + for STEC O157
 - 8 symptomatic
 - 1 asymptomatic
- Indistinguishable PFGE
- Beef samples and goat feces negative for STEC

Results- DHS Inspection

- **Prior history of non-compliance**
- **Number of children was excessive**
 - **Limited to 4 children**
- **Diapering and food handling procedures did not meet DHS requirements**

Daycare A

Diaper Changing Station



Recommendations

- **Review and comply with daycare licensing regulations regarding diapering practices**
- **Ensure all high-contact surfaces are cleaned each day to reduce contamination**
- **Ensure that hand-washing facilities are properly supplied/used**

Recommendations (cont.)

- **Review and ensure adherence to food handling practices**
- **Two consecutive negative cultures**

Conclusion

- **Shiga toxin-producing *Escherichia coli* O157:H7 outbreak associated with Daycare A**
- **Unregulated environment likely cause of person-to-person transmission**
- **Public Health measures implemented**
- **Joint local and FoodCORE response reduced risk of additional transmission**

Limitations

- **Daycare A not captured on initial interview**
- **Limited communication between regional health office and DHS before the outbreak**
- **Likely cases returned to daycare before second stool culture were known**

Discussion

- **Daycare outbreak require rapid response**
- **TN FoodCORE has enabled health departments to place more resources in outbreak response activities**

Acknowledgements

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Cohort Study Results

	Ill (n=9)		Well (n=13)			
	No.	(%)	No.	(%)	OR	(95% CI)
Pizza	7	77.7	2	15.4	19.3	2.18 – 169.8
Ground Beef	4	44.4	7	53.8	0.69	0.12 – 3.78
Daycare vs. Aftercare	7	87.5	5	55.6	5.60	0.47 – 66.5