Outbreak of Shiga toxin-Producing *Escherichia coli* O157 Illustrates the Risk of Small Plastic Pools

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Background

- May 13, 2014: Kansas Department of Health and Environment (KDHE) was notified by a county health department of 2 children with illnesses caused by Shiga toxin-Producing *E. coli* (STEC) who attended a house party
- Additional illnesses were reported among attendees
- KDHE notified a second county health department about this outbreak and an outbreak investigation was initiated

Methods

Epidemiologic Investigation

- Outbreak-specific questionnaire developed
- In person interviews were conducted with parents
- Confirmed case: laboratory evidence of STEC O157 with Pulsed-field Gel Electrophoresis (PFGE) Xba1 pattern EXHX01.1379 & Bln1 pattern EXHA26.0630

Laboratory Analysis

- Initial testing on stool specimens was performed at hospital and reference laboratories
- All results were confirmed by culture at Kansas Health and Environmental Laboratories (KHEL)
- Toxin testing, serotyping, & PFGE were performed at KHEL

Environmental Assessment

- Stool samples were collected from the calf that was at the house party and were tested for STEC O157 by the United States Department of Agriculture's Agricultural Research Service in Lincoln, Nebraska

Results

Epidemiologic Investigation

- The house party was the only common exposure identified among primary cases
- Four children who attended the party tested positive for STEC O157 had primary cases
- One child who did not attend the party had a confirmed secondary case
- Four probable secondary cases were identified
- Three (60%) children were hospitalized; two (40%) developed Hemolytic Uremic Syndrome (HUS)
- All five ill children had exposure to water potentially contaminated with either calf or human feces

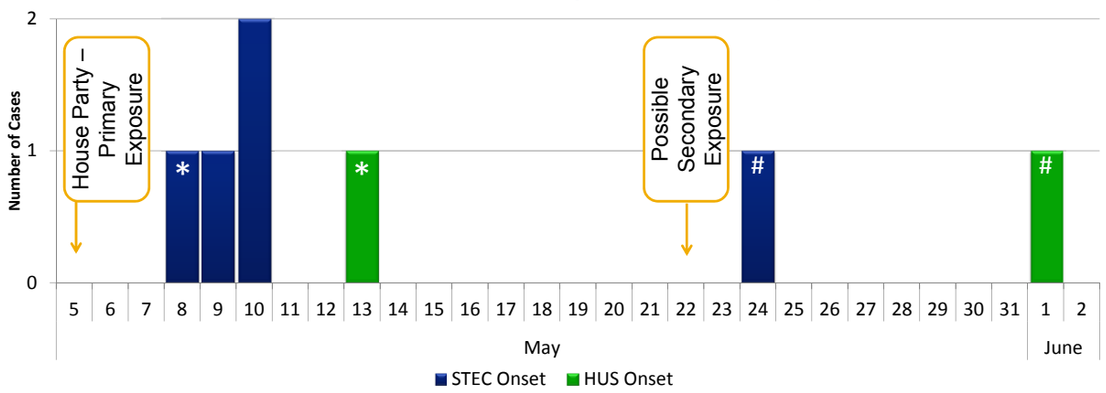
Laboratory Analysis

- Stool specimens were submitted by five persons; all five tested positive for STEC O157 and Shiga toxin type 2
- All STEC isolates were indistinguishable by PFGE

Environmental Assessment

- No STEC O157 was isolated from calf fecal samples

Number of Confirmed Cases by Illness Onset Date (n=5)



*HUS illness onset was 5/13/2014 for case with diarrhea onset 5/8/2014
#HUS illness onset was 6/1/2014 for secondary case with diarrhea onset 5/24/2014

Conclusions

- Four confirmed cases of STEC O157 were associated with attendance at a house party
- Activities included playing with baby chicks, bottle feeding a calf, & playing in a small plastic pool that was purchased the day of the party
- Parents reported that not all ill children had direct contact with the calf, but that there was calf manure in the yard where children were playing
- The four primary cases all played in the pool where water was reportedly splashed in their faces
- The child who developed a confirmed secondary case played in a different plastic pool with a child with a primary case who had a fecal accident in the pool

Discussion

- Accidental ingestion of contaminated water while playing in plastic pools is likely to have been the source for both primary and secondary STEC O157 cases
- Children should not play in areas where there is manure
- Plastic pools filled with tap water should not be used at gatherings especially if livestock is present
- Ill children should not be allowed in plastic pools while still symptomatic