



MEDIA RELEASE

KNOX COUNTY HEALTH DEPARTMENT
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FOR IMMEDIATE RELEASE

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Evidence links E. coli illnesses to two sources

Knoxville, Tenn. – The Knox County Health Department (KCHD) is concluding its investigation into a cluster of Escherichia coli (E. coli) O157 infections. Fifteen confirmed cases of E. coli O157 were reported to KCHD recently. All cases were among children, nine were hospitalized and seven developed a complication of the infection called Hemolytic Uremic Syndrome (HUS). Of the children who were hospitalized, one remains in fair condition at East Tennessee Children’s Hospital. Lab results from the Tennessee Department of Health have confirmed two different strains of E. coli O157 caused the children to become ill.

“While it is rare, it appears we had two sets of children sickened by two different strains of E. coli O157 at the same time. The epidemiological evidence overwhelmingly supported the two-source theory: consumption of raw milk and some type of contact, most likely indirect, with ruminant animals,” said KCHD Director Dr. Martha Buchanan. “The investigation revealed no definitive connections between the two sources or the two groups of ill children. And this is now supported by the state’s lab results confirming it was two different strains of E. coli O157.”

Ten of the 15 children consumed raw milk from French Broad Farm, Knox County, Tenn., the only common link among all ten children. The lab results have confirmed these children had the same strain of E. coli O157. The lab also confirmed that this strain is a DNA fingerprint match to the E. coli O157 found in cow manure samples collected from French Broad Farm.

To date, the lab did not find E. coli O157 in the raw milk samples. This is not uncommon, and it does not mean the milk consumed was free of contamination. E. coli bacterium do not distribute themselves uniformly in milk, meaning a portion of even the same glass of milk can be contaminated while another portion is not. This is one reason why raw milk is inherently risky. Due to the nature of E. coli and other pathogens that can be present, and even with the strictest safety precautions in place at a dairy, including testing the milk, there is no way to guarantee raw milk is safe for consumption. This is why health officials recommend the public consume only pasteurized milk and dairy products. Based on the dates when the children became ill (i.e., onset of symptoms) and allowing time for the milk to be distributed and time for incubation of the illness, officials believe the contamination event occurred in mid-May.

The only common link among the other five ill children was attending the same child care facility, Kids Place, Inc., Mascot, Tenn., where goats, a type of ruminant animal, are present. The lab results confirmed these five children had the same strain of E. coli O157. Additionally, the lab results showed this strain was a DNA fingerprint match to the E. coli O157 found in the goat fecal samples and one hay sample collected from the child care facility. To date, the lab did not find E. coli O157 in the other environmental samples from inside the facility. Again, this is not uncommon, and one reason testing environmental samples is only part of the disease investigation process.

E. coli O157 is naturally found in the intestinal tracts of many farm animals (ruminants), including healthy cattle, sheep and goats. Animals can carry E. coli O157 and shed it in their stool while still appearing healthy and clean. E. coli can contaminate the animals’ skin, fur, and the areas where they live and roam.





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Both Kids Place, Inc. and French Broad Farm have fully cooperated throughout KCHD's investigation, including sharing contact information of those who may be at risk, supporting sample collection and ceasing operations as requested. KCHD lifted the directive for Kids Place, Inc. on June 8, 2018, by following existing state and national procedures for infection control and mitigation at a permitted, regulated facility. KCHD lifted the health directive requesting French Broad Farm temporarily cease operations on June 14, 2018. While the investigation thus far has revealed no specific problems with French Broad Farm, the risk in consuming raw milk cannot be mitigated. The E. coli outbreak appears to be over as KCHD is not seeing ongoing transmission.

Following national epidemiological standards and methodology, the health department's investigation included standardized and in-depth interviews; examination of all potential sources; analysis of symptom onset and incubation to aid in determining the timeline, potential exposures and the type of outbreak; and testing samples.

Most people become infected with E. coli O157 from contaminated food, such as undercooked ground beef, but E. coli O157 can also be passed directly to people from the stool of ruminant animals. Historically, the major source for human illness is cattle, which can carry E. coli O157 but show no signs of illness. E. coli O157 can also be spread from person to person via a fecal-to-oral route as these bacteria are invisible to the human eye.

While it is possible to get sick from many other foods, raw milk is one of the riskiest. As stated in the American Academy of Pediatrics policy statement on unpasteurized dairy, only an estimated 1 to 3 percent of dairy products consumed in the U.S. are unpasteurized. Yet between 1973 and 2009, these products accounted for 82 percent of the milk- or milk product-associated foodborne outbreaks reported to the Centers for Disease Control and Prevention. Health officials recommend the public consume only pasteurized milk, dairy products, juices and ciders.

Symptoms of E. coli infection vary for each person, but often include severe stomach cramps, diarrhea (often bloody) and vomiting. Some may have a low fever (less than 101°F). Some infections are mild, but others can be severe. E. coli O157 can cause disease by making a Shiga toxin; these are referred to as Shiga toxin-producing E. coli or STEC. This can cause severe diarrhea and even life-threatening complications, especially in children, older adults, pregnant women and those with compromised immune systems. Approximately 5 to 10 percent of those diagnosed with a STEC infection develop a potentially life-threatening complication known as hemolytic uremic syndrome (HUS).

More information on preventing E. coli can be found on the [CDC's website](#).

About Knox County Health Department

As the first health department in Tennessee to achieve national voluntary accreditation by the Public Health Accreditation Board, the Knox County Health Department (KCHD) is dedicated to ensuring the conditions in which every resident can be healthy. KCHD investigates disease outbreaks, identifies community health threats, conducts extensive outreach and education, prepares for public health emergencies, provides and connects the public with medical care, enforces food safety and air quality laws, and more. For more information, visit www.knoxcounty.org/health.

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