



December, 2009

## Client Notification of CDC's Latest Shiga-toxin Recommendation

July 1, 2009 - Multistate Outbreak of *E. coli* O157:H7 Infections Associated with Beef - 380,000 pounds of beef recalled

June 30, 2009 - Multistate Outbreak of *E. coli* O157:H7 Linked to Raw Refrigerated, Pre-packaged Cookie Dough

July 18, 2008 - Multistate Outbreak of *E. coli* O157:H7 Infections Associated with Beef - 531,707 pounds of beef recalled

With greater frequency of headlines such as the above, and increasing outbreaks and deaths/hospitalizations due to Shiga-Toxin producing Escherichia coli,(STEC) the Centers for Disease Control and Prevention (CDC) recently reiterated and reinforced its 2006 recommendation of routinely testing for these organisms, not only from bloody diarrhea cases, but from **“All stool specimens from patients with acute onset of community-acquired diarrhea” in order to prevent fatal complications.**

According to CDC, “Evidence indicates that STEC might be detected as frequently as other bacterial pathogens.” Also, “Many infections are missed with selective STEC testing strategies (e.g. testing only specimens from children, testing only during summer months, or testing only stools with white blood cells or blood).” Also, testing only for *E. coli* strain O157:H7 may not be adequate, because “Non-O157 STEC bacteria also are important causes of diarrheal illness in the United States”.

“Stools should be tested as early as possible in the course of illness; bacteria might be difficult or impossible to detect in the stool after 1 week of illness, and the Shiga-toxin genes might be lost by the bacteria”.

These strongest recommendations from CDC has prompted Doctors Laboratory to issue this special report for the benefit of its clients, and to remind them what testing is available at DLI.

### Background Information on STEC-associated Infections and their Complications:

<b>Diseases and complications due to STEC</b>	<ul style="list-style-type: none"><li>■ Self-limiting diarrhea</li><li>■ HC (hemorrhagic colitis)</li><li>■ Often fatal hemolytic anemia and renal failure in children and adults</li></ul>
<b>Incubation Period</b>	1 – 8 days
<b>Signs and Symptoms</b>	Severe diarrhea that is often, <b>but not always</b> , bloody; abdominal pain and vomiting. Usually little or no fever is present. .
<b>Duration of Illness</b>	6 – 10 days
<b>Associated Foods</b>	Undercooked beef, especially hamburger, unpasteurized milk and

	juice, raw fruits and vegetables (e.g. sprouts), salami (rarely), and contaminated water
<b>Laboratory Testing</b>	(a) Stool Culture with screening media for E. coli 0157:H7 (does not detect non-0157:H7 organisms) (b) Detection of Shiga toxin Antigen by Immunoassay (c) Detection of Shiga toxin DNA by PCR
<b>Treatment</b>	Supportive care, monitor renal function, hemoglobin and platelets closely. E. coli 0157:H7 infection is also associated with hemolytic uremic syndrome (HUS), which can cause lifelong complications. Studies indicate that antibiotics may promote the development of HUS.

Doctors Laboratory offers Immunoassay method for the Shiga-toxin detection because::

- (a) it is much quicker than the culture method – results are available on second day after receipt of specimen ,
- (b) it is 100% sensitive and 98% specific,
- (c) it also detects non-0157:H7 E. coli, which may also be significant cause of diarrhea, and
- (d) it is most widely used for testing in the USA

**Test details are provided below:**

<b>Test Description</b>	<b>Test(s) to Order</b>	<b>Specimen required</b>	<b>CPT Code(s)</b>
<b>Stool Culture, including Shiga-Toxin (CDC- Recommended):</b> Detects Salmonella, Shigella, Campylobacter, and Shiga-toxin producing E. coli (0157:H7 and non-0157:H7). Incidental detection of other pathogens e.g., Aeromonas, Plesiomonas is also reported.	202 & 2253	Random stool specimen in a sterile, securely capped container.  Store and transport at room temperature.	87045, 87046, 87015 & 87427
<b>Shiga-Toxin Only:</b> Detects Shiga-toxin producing E. coli (0157:H7 and non-0157:H7).	2253	Random stool specimen in a sterile, securely capped container. Store and transport cold or at room temperature.	87015 & 87427
<b>Stool Culture Only:</b> Detects Salmonella, Shigella, and Campylobacter. Incidental detection of other pathogens e.g., Aeromonas, Plesiomonas is also reported.	202	Random stool specimen in a sterile securely capped container. Store and transport at room temperature.	87045 & 87046

**Reference:**

Recommendations for Diagnosis of Shiga Toxin-Producing Escherichia coli infections by Clinical Laboratories; Morbidity and Mortality Weekly Report; Vol. 58. No. RR-12. October 16, 2009. Centers for Disease Control and Prevention.

**For additional information please call Microbiology Laboratory at 229-671-2252**