



# TECHNICAL NOTICE

## SOUTH BEND MEDICAL FOUNDATION

February 2010

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### Culture, Feces, Routine, with *Campylobacter* and Shiga Toxin Antigens, by EIA

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**Effective Date:** March 1, 2010

**Performing Department:** Microbiology

**Method:** • Conventional culture with selective media and Enzyme immunoassay (EIA)

**Use:** To screen stool specimens for Shiga toxin-producing *Escherichia coli* (STEC)

**Replaces:** Culture, Feces, Routine, with *Campylobacter* Antigen, by EIA    Test #: 21013

**Clinical Significance:**

Shiga toxin-producing *Escherichia coli* (STEC), formerly known as enterohemorrhagic *E. coli* or enterotoxigenic *E. coli*, causes approximately 100,000 illnesses in the United States and can result in a serious complication, hemolytic uremic syndrome (HUS). Most reported STEC infections are caused by *E. coli* O157:H7, however, non-O157 STEC are also important causes of diarrheal illness.

**In October 2009, the CDC published guidelines recommending that all stools from patients with acute onset community-acquired diarrhea, and patients with possible HUS be tested for STEC.** Specimens submitted to clinical laboratories for routine culture for enteric pathogens, including O157 STEC, should be simultaneously tested for non-O157 STEC with an assay that detects Shiga toxins. This recommendation is regardless of patient age, season of the year, or the presence or absence of blood in the stool. It is expected that this recommendation will improve the accuracy of diagnosing STEC infections, promote prompt diagnosis and treatment, and improve detection of outbreaks in the community.

O157 STEC is detected in routine feces cultures by the incorporation of selective culture media, sorbitol MacConkey agar. However, there is no selective culture media for the detection of non-O157 STEC serotypes, which are indistinguishable from other *E. coli*. In order to detect all STEC infections, a Shiga toxin specific assay must be included.

**The South Bend Medical Foundation will begin routinely screening for Shiga toxin antigen by enzyme immunoassay (EIA), simultaneously with culture for O157, on all feces cultures.** Culture Feces, Routine, with *Campylobacter* Antigen, by EIA, test number 21013, is no longer available and when ordered will be replaced with Culture, Feces, Routine, with *Campylobacter* and Shiga Toxin Antigens, by EIA, test order number 21002.

To increase the sensitivity of this non-culture assay, the stool sample is inoculated into an enrichment broth and incubated for 24 hours. The following day, the broth is tested by EIA. The detection of O157 STEC by culture and/or Shiga toxin antigen is considered a reportable disease and is reported promptly to the physician and the local health department. The enrichment broth and/or specimen is then sent to the state health department laboratory for confirmation by polymerase chain reaction (PCR) and further characterization.

**Reference Range:** Negative for enteric pathogens

**Specimen Requirements and Collection:**

Patient Preparation:

- Collect fecal specimens early in the course of the diagnosis process or in the acute phase of diarrheal illness, before antimicrobial therapy has been initiated.
- Caution the patient against the use of antacids, barium, bismuth, etc. prior to collection of specimen.

Preferred Specimen: Feces Culture Transport Medium, filled to the indicated line with feces

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Elkhart (574) 293-8441 • (800) 544-0925

Robert J. Tomec, M.D. • *Medical Director*

Collection:

• Random Feces Specimen:

1. Collect in sterile bedpan not contaminated with urine, residual soap, or disinfectants
2. Transfer portions of feces, particularly those containing pus, blood, or mucus to “Feces Culture Transport Media” container
3. Do not fill container beyond designated “fill line”

• Rectal Swab Specimen:

1. Swabs of rectal wall or sigmoid colon lesions collected during proctoscopy or sigmoidoscopy – or – swab passed beyond anal sphincter, carefully rotated, and withdrawn
2. Place swab in container of “Feces Culture Transport Media” and break off sufficient portion of swab shaft to allow tightening of container lid

Storage/Transport: Room temperature; transport within 24 hours of collection time

Causes For Rejection:

- Transport container filled beyond indicated line • Dry swab • Not received in transport medium
- Specimen refrigerated or frozen • Contains interfering substances

**Testing Schedule:** • Performed Sunday–Saturday (daily)

**Order:**

- **Shiga Toxin *E. coli* Antigen, by EIA, Feces** ..... Test #: **21902** ..... CPT: • 87427 – or –
- **Culture, Feces, Routine, with *Campylobacter* and Shiga Toxin Antigens, by EIA** .... Test #: **21002**...  
CPT: • 87045 • 87427 • 87449

Please direct comments regarding this notice to C. Kurtis Kim, M.D., Mary G. Stepney, Microbiology Specialist, or Nan Boston, Microbiology Manager, South Bend Medical Foundation, (574) 234-4176 or (800) 544-0925.

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