

STOOL CULTURE:

Testing includes: Routine Stool culture and Enterohemorrhagic *E.coli* (EHEC) Shiga-like toxin Antigen

I. GENERAL CONSIDERATIONS:

Stool is generally submitted to the Microbiology Lab to diagnose the agent of acute infectious diarrhea. A wide variety of microorganisms may be involved including bacteria, viruses, or protozoans. Collection of specimens for the latter two groups of microorganisms is described in other areas of this Guide.

The following procedures are designed for recovery and detection of common bacterial agents including culture for *Salmonella*, *Shigella*, *Campylobacter*, *Yersinia*, *Aeromonas* and *E.coli* O157 and direct antigen testing of stool for Shiga toxin-producing *Escherichia coli* (STEC) by enzyme immunoassay (EIA). The EHEC antigen test is more sensitive than routine stool culture for detection of O157:H7 strains. It is also able to detect non-O157 shiga-like toxin producing strains that are not recovered by routine stool culture.

STECs are a leading cause of bacterial enteric infections in the US. Prompt, accurate diagnosis of STEC infection is important because appropriate management may decrease the risk for serious complications such as renal damage. Recent studies have shown that simultaneous culture of stool for *E. coli* O157 and EIA testing for Shiga toxin detect more cases of STEC infection than the use of either technique alone. It is often **not** appreciated that 25% or more of cases of STEC infection may be due to non-O157 *E. coli* serotypes carrying the *stx 1* and/or *stx 2* gene(s) and that **only** *E. coli* O157 among Shiga-toxin producing *E. coli* is readily detected in culture.

II. SPECIMEN COLLECTION: Routine Stool culture and EHEC Testing.

- (1) Generally, it is preferable to obtain passed stool directly into a clean cardboard, plastic, or glass container; however, feces can also be collected from a clean bedpan provided it is free of any residual soap, detergent, or disinfectant and there is no contamination by urine.
- (2) At least 2-4 mL of liquid stool or 2-4 gm (more, if possible) of formed stool should be placed in a Cary-Blair transport medium vial. Those portions of stool which contain pus, blood, or mucus should be submitted for examination.
- (3) If passed stool is not readily obtainable, a rectal swab may be obtained with the general culture swab dual culture swab system swabs. The dual swabs are passed beyond the anal sphincter, carefully rotated for 10 seconds, and withdrawn. **Be sure the swab tips contact the transport fluid-filled sponge at the bottom of the swab tube holder.**
- (4) **A minimum of two swabs should be collected;** this allows adequate material for culture. Please note that although swabs are acceptable for culture, they are unacceptable for ova and parasite exam.



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- (5) **A second sample may be submitted** to increase the probability of isolating a pathogen, particularly in situations where the initial culture is negative. If two samples are submitted, they should ideally be collected on different days; same day collections are acceptable provided they were obtained from different stool passages several hours apart. Multiple stool specimens collected at the same time and requesting the same test will be combined and processed as one specimen.
- (6) Aside from processing routine stool cultures for *Salmonella*, *Shigella*, *Campylobacter*, *Yersinia*, *Aeromonas*, and *E.coli* 0157, the Lab routinely screens for and reports the presence of other potential stool pathogens including *Plesiomonas sp*, *Edwardsiella sp*, and predominant growth of *Staphylococcus aureus*, *Candida sp*, and *Pseudomonas aeruginosa*. When other pathogens are suspected (e.g. *Vibrio sp.*), consult Laboratory Services at (800) 934-6575 to be sure that specimens are submitted appropriately.

