Lab Dept: Microbiology

Test Name: STOOL CULTURE

General Information

Lab Order Codes:	STLC
Synonyms:	Culture, *E. coli* 0157; Culture, *Campylobacter* sp.; Culture, *Salmonella* sp.; Culture, *Shigella* sp.; Feces Culture; Enterohemorrhagic *E.coli* (EHEC) for Shiga toxin
CPT Codes:	87045 – Culture, bacterial; feces, with isolation and preliminary examination, *Salmonella* and *Shigella* species 87046 x2 – Culture, bacterial; stool, additional pathogens, isolation and preliminary examination, each plate (e.g. *Campylobacter, E. coli 0157*) 87899 & 87899-59 – Infectious agent, not otherwise specified (EHEC) 87015 – Concentration (any type), for infectious agents (EHEC) The following testing may be added if appropriate based on findings for organism identification (multiple additions are possible if more than one organism is identified). 87046 – For each individual additional pathogen (e.g. *Yersinia, Vibrio, Aeromonas* if appropriate) 87077 – Aerobic isolate, additional methods required for definitive identification of isolates (if appropriate) 87106 – Culture, fungi definitive identification, each organism; yeast (if appropriate) 87147 – Culture, typing; immunologic method, other than immunofluorescence (e.g., agglutination grouping), per antiserum (if appropriate)
Test Includes:	Culture for *Salmonella, Shigella, Campylobacter* and *E. coli 0157;* EHEC assay for Shiga toxins 1 (SLT1) & 2 (SLT2)

Logistics

Lab Testing Sections:	Microbiology
Phone Numbers:	MIN Lab: 612-813-5866 STP Lab: 651-220-6555
Test Availability:	Daily, 24 hours. Requests are limited to one specimen per day.
Turnaround Time:	Culture: Preliminary report available at 1 day, final report within 3 - 5 days. EHEC Immunoassay: 16 – 36 hours

Special Instructions:

● Other enteric pathogens such as *Yersinia, Aeromonas, Staphylococcus*, or *Vibrio* must be specifically requested since special isolation procedures are required.
●The EHEC assay has not been validated for and will not be performed on:

- Stool received in transport media (with the exception of Cary-Blair)
- Rectal swabs
- Stool received in preservatives (such as SAF, PVA or formalin
- Endoscopy stool aspirates
- Gram negative (GN) broths that do not exhibit growth after the incubation period.

Culture for predominant organism must be specifically requested since special isolation procedures are required.

- Coagulase-negative staphylococci will be identified on infants whose diagnosis is necrotizing enterocolitis (NEC) if requested.

● **Specimen site** and **date/time of collection** are required for processing.

Specimen

Specimen Type:

Fresh random stool (preferred) or rectal swab**.**

- **The specimen of choice for diagnosing the bacterial agent of diarrhea is fresh random stool, not a swab.**
    - The EHEC assay will not be performed on endoscopy stool aspirates or rectal swabs
    - Only a culture for *Salmonella, Shigella, Campylobacter* and *E.coli 0157* will be performed on endoscopy stool aspirates or rectal swabs

Container:

Plastic, leakproof container or swab transport system;

Para-Pak® C&S system (Cary-Blair transport media) for delayed transport of more than 1 hour (available in from Materials, Storeroom Item# 9976).

Volume:

2 grams formed stool or 2 mL liquid stool (preferred specimens) into clean container

One swab

Para-Pak® C&S - add stool until fluid level is at the red line. Do not overfill.

Collection:

Submit up to 2 specimens (1 per day) during the first 2 days of illness.

Fresh Stool (Onsite collections ONLY):
1. Collect fresh, diarrheal stool in a clean, dry bedpan or on a newspaper over the toilet. Do not contaminate with urine, residual soap or disinfectants.
2. Transfer to a plastic, leakproof container.
3. Those portions of stool containing blood and mucous are especially significant and should be transferred into the container.
4. Specimens in diapers are not acceptable. Pediatric patients with severe diarrhea may use a U bag collection system. Place the bag over the anal area in an attempt to retrieve the specimen before it soaks into the diaper. The diaper can also be reversed with the plastic side toward the skin to prevent the specimen from soaking into the diaper. Transfer specimen into a plastic, leakproof container.
5. If there is a delay in transport of more than 1 hour, preserve specimen in a Para Pak® (C & S) orange vial.

Rectal Swab (swabs for stool culture must show feces. Anal swabs are not acceptable for culture for agents of diarrhea)**:**
1. Insert swab approximately 1 inch into anal canal.
2. Gently move the swab from side to side to sample the anal crypts. Feces should be evident on the swab.
3. Place swab in transport medium.

Instructions for Para Pak® (C & S) system when delayed transport >1 hour is expected:

1. Fill vial by using the spoon built into the lid of the vial and transferring small scoopfuls of stool from areas which appear bloody, slimy or watery **until the contents rise to the "Fill Here" red line**. **Do not overfill**.
2. If the stool is formed, sample small amounts from each end, sides and the middle.
3. Mix the contents of the vials with the spoon. Screw cap on tightly and shake the vial vigorously until the contents are well mixed. Make sure there is no leakage.
4. Label vials with patient's name, date and time of collection.
5. Store vials at room temperature.
6. Return collection kit to laboratory within 72 hours.

Transport/Storage:	**Onsite collections:** Transport fresh, unpreserved specimens or rectal swab to the Microbiology Laboratory within 1 hour at room temperature. **Offsite collections:** Para Pak® (C & S) System or rectal swab Do not refrigerate, store at room temperature. Specimens must be promptly transported to the laboratory, with the next available courier, not to exceed 24 hours from the time of collection.
Sample Rejection:	**No diapers accepted**. Fresh, unpreserved specimens with a transit time exceeding 2 hours after collection; multiple specimens collected on the same day; improperly labeled specimen; overfilled or underfilled Cary Blair container, specimen contaminated with urine and/or water; leaking container; insufficient volume; specimen containing interfering substances such as castor oil, bismuth, Metamucil®, barium, Vaseline®, or other cream contaminants. If an unacceptable specimen is received, the physician or nursing station will be notified and another specimen will be requested before the specimen is discarded.

Interpretive

Reference Range:	No *Salmonella, Shigella, Campylobacter* or *E. coli 0157* isolated. No *Aeromonas* or *Yersinia* isolated if specifically requested. Negative for SLT1; Negative for SLT2
Alert Value:	Cultures that are positive for *Salmonella, Shigella, E. coli O157,* and *Campylobacter* spp. or positive Shiga Toxin GN broth cultures will be called to the physician or patient's nurse.
Methodology:	*Salmonella, Shigella, Campylobacter, E. coli 0157*: Culture EHEC: Immunoassay for SLT1 & SLT2
Contraindications:	Stool cultures on patients hospitalized ≥3 days are not productive and should not be ordered unless special circumstances exist and in consultation with the Microbiology Medical Director. If patient's length of stay was >3 days and admitting diagnosis was not gastroenteritis, consider *Clostridium difficile* toxin.
References:	Weissfeld, A and Baselski, V (2010) Specimen receipt and accessioning. Section 1. Aerobic bacteriology, 1.2.1-4. In LS Garcia (ed) Clinical Microbiology Procedures Handbook. American Society for Microbiology, Washington DC Miller, J Michael (1999) A Guide to Specimen Management in Clinical Microbiology, American Society for Microbiology, Washington DC Miller, J Michael, and HT Holmes (1999) Specimen Collection, Transport, and Storage in PR Murray et al, (ed), Manual of Clinical Microbiology, 7th edition, American Society for Microbiology, Washington DC, pp 33-104

Blankenheim, T (2011) Shiga Toxin Detection, Version 1.0, Children's Service Online Manual

Meridian Diagnostics, Inc, Cincinnati OH, ImmunoCard STAT! EHEC pkg insert, SN11169CLSI 1/07

Updates:

3/24/2010: CPT Updates
6/27/2011: Addition of EHEC Shiga toxin assay testing to stool culture.
6/20/2012: Addition of Alert Value
11/20/2014: Addition of offsite collection information
5/30/2017: Collection frequency update.