Test Definition: E157C

Escherichia coli O157:H7 Culture, Feces

Overview

Useful For

Determining whether *Escherichia coli* O157:H7 may be the cause of diarrhea

Reflexive testing for Shiga toxin and/or *E coli* O157:H7 nucleic acid amplification test-positive feces

This test is generally **not useful for** patients hospitalized more than 3 days because the yield from specimens from these patients is very low, as is the likelihood of identifying a pathogen that has not been detected previously.

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
GID	Bacteria Identification	No, (Bill Only)	No
ISAE	Aerobe Ident by Sequencing	No, (Bill Only)	No
REFID	Additional Identification Procedure	No, (Bill Only)	No
EC	Serologic Agglut Method 2 Ident	No, (Bill Only)	No
RMALD	Ident by MALDI-TOF mass spec	No, (Bill Only)	No

Testing Algorithm

When this test is ordered, the reflex tests may be performed at an additional charge.

For more information see Laboratory Testing for Infectious Causes of Diarrhea.

Special Instructions

- Laboratory Testing for Infectious Causes of Diarrhea

Highlights

This test provides evidence of the presence of the bacterium, *Escherichia coli O*157:H7, in feces in a viable state, and provides an isolate for antibacterial susceptibility testing.

Method Name

Conventional Culture

NY State Available

No

Specimen

Specimen Type
Fecal

Additional Testing Requirements
If susceptibility testing is needed, also order ZMMLS / Antimicrobial Susceptibility, Aerobic Bacteria, Varies. If susceptibility testing is not needed (eg, due to lack of recovery of *Escherichia coli* O157:H7 species from feces), it will not be performed, and the ZMMLS order will be canceled at time of report.

Shipping Instructions
Specimen must arrive within 96 hours of collection.

Necessary Information
Specimen source is required.

Specimen Required
Patient Preparation: Patient **should not** use barium or bismuth for 7 to 10 days before specimen collection.
Supplies: Culture and Sensitivity Stool Transport Vial (T058)
Container/Tube: Commercially available transport system specific for recovery of enteric pathogens from fecal specimens (15 mL of non-nutritive transport medium containing phenol red as a pH indicator, either Cary-Blair or Para-Pak C and S)
Specimen Volume: Representative portion of fecal specimen
Collection Instructions:
1. Collect fresh feces and submit 1 gram or 5 mL in container with transport medium.
2. Within 2 hours of collection, place feces in preservative
3. Place vial in a sealed plastic bag.

Specimen Minimum Volume
1 mL

Reject Due To

Unpreserved feces	Reject
ECOFIX preservative	Reject
Formalin or PVA fixative	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Fecal	Ambient (preferred)	4 days	

	Refrigerated	4 days	

Clinical & Interpretive

Clinical Information

Diarrhea may be caused by a number of agents, including bacteria, viruses, parasites, and chemicals; these agents may result in similar symptoms. A thorough patient history covering symptoms, severity and duration of illness, age, travel history, food consumption, history of recent antibiotic use, and illnesses in the family or other contacts will help the healthcare professional determine the appropriate testing to be performed.

Shiga toxin-producing *Escherichia coli* (STEC) are *E coli* strains capable of producing Shiga toxin, which can result in diarrhea that can be bloody. The incubation period between exposure and symptom onset is 1 to 9 days. Hemolytic-uremic syndrome (HUS) is a systemic complication of STEC infection and is characterized by kidney failure, microangiopathic hemolytic anemia, and nonimmune thrombocytopenia. HUS complicates approximately 15% of STEC infections in children younger than 10 years and 6% to 9% overall.

Treatment of STEC infection consists of supportive care. Antibiotic therapy is generally not beneficial in patients with STEC infection and has been associated with development of HUS in some studies. Thus, when STEC is clinically suspected, antibiotics should be withheld. Antiperistaltic agents also increase the risk of systemic complications and should be avoided.

Reference Values

No growth of *Escherichia coli* O157:H7

Interpretation

The growth of *Escherichia coli* O157:H7 identifies a potential cause of diarrhea.

Cautions

The yield of *Escherichia coli* O157:H7 is reduced when specimens are delayed in transit to the laboratory (>2 hours from collection for unpreserved specimens).

Primary testing for Shiga toxin-producing *E coli* using Shiga toxin polymerase chain reaction and not specifically just for *E coli* O157:H7 is recommended because roughly half of Shiga toxin-producing *E coli* are not O157:H7.

Susceptibilities should **not** be performed on *E coli* O157:H7 since antibiotics are not used for treatment. Any healthcare professional contemplating a request for susceptibility testing on *E coli* O157:H7 should consult with the Laboratory Section Director for guidance.

Clinical Reference

1. DuPont HL. Persistent diarrhea: A clinical review. JAMA. 2016;315(24):2712-2723. doi:10.1001/jama.2016.7833
2. Page AV, Liles WC. Enterohemorrhagic *Escherichia coli* infections and the hemolytic-uremic syndrome. Med Clin North Am. 2013;97(4):681-695
3. Nelson JM, Griffin PM, Jones TF, et al. Antimicrobial and antimotility agent use in persons with shiga toxin-producing Escherichia coli O157 infection in FoodNet Sites. Clin Infect Dis. 2011;52(9):1130-1130

Performance

Method Description

The fecal specimen is inoculated onto sorbitol MacConkey agar. After incubation, suspect colonies are identified using one or a combination of the following techniques: matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometry, conventional biochemical tests, carbon source utilization, serologic methods, or nucleic acid sequencing of the 16S ribosomal RNA gene. Isolates are reported as *Escherichia coli* O157:H7 or *Escherichia coli* O157, unable to detect H7 antigen.(Pillai DR, Griener T. Culture for *Campylobacter* and related organisms. In: Leber AL, Church DL, eds. Clinical Microbiology Procedures Handbook. 4th ed. ASM Press; 2016:Section 3.8.2)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

2 to 4 days

Specimen Retention Time

7 days

Performing Laboratory Location

Mayo Clinic Jacksonville Clinical Lab

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

87046-*Escherichia coli* O157:H7 Culture, Stool-with isolation and preliminary examination
87077-Bacteria Identification (if appropriate)
87153-Aerobe Ident by Sequencing (if appropriate)
87077-Additional Identification Procedure (if appropriate)
87147-Serologic Agglut Method 2 Ident (if appropriate)

87077-Ident by MALDI-TOF mass spec (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
E157C	E. coli O157:H7 Culture, F	10851-4

Result ID	Test Result Name	Result LOINC® Value
E157C	E. coli O157:H7 Culture, F	10851-4