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

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

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* O157:H7, in feces, in a viable state, and provides an isolate for submission to a health department if needed. Minnesota healthcare providers are required to report all confirmed or suspected cases of *E coli* O157:H7 and other Shiga toxin-producing *E coli* to the Minnesota Department of Health. Mayo Clinic Laboratories clients should refer to their local health departments regarding public health submission of *E coli* O157:H7 and other Shiga toxin-producing *E coli* isolates.

Method Name
Conventional Culture

NY State Available
Yes
Specimen

Specimen Type
Fecal

Additional Testing Requirements
In some cases, local public health requirements may impact Mayo Clinic Laboratories clients, requiring, for example, submission of isolates to public health laboratories. Clients should familiarize themselves with local requirements and are responsible for submitting isolates to appropriate public health laboratories. Clients can obtain isolates of Escherichia coli O157:H7 species recovered from specimens submitted to Mayo Clinic Laboratories by calling 800-533-1710 as soon as possible after reporting (to ensure viability of the bacterium).

Shipping Instructions
Specimen must arrive within 96 hours of collection.

Necessary Information
Specimen source is required.

Specimen Required
Patient Preparation: Medications: Do not use barium or bismuth before specimen collection.
Supplies: Culture and Sensitivity Stool Transport Vial (T058)
Specimen Type: Preserved Feces
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. Place feces in preservative within 2 hours of collection.
3. Place vial in a sealed plastic bag.

Specimen Minimum Volume
1 mL

Reject Due To

<table>
<thead>
<tr>
<th>Unpreserved feces</th>
<th>ECOFIX preservative</th>
<th>Formalin or PVA fixative</th>
<th>Reject</th>
</tr>
</thead>
</table>

Document generated June 07, 2023 at 08:41 PM CT
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 provider 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 pathogen

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).

Check local public health requirements, which may require submission of isolates to a public health laboratory.

Primary testing for Shiga toxin-producing E coli using Shiga toxin PCR 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 provider contemplating a request for susceptibility testing on E coli O157:H7 should consult with the Laboratory Section Director for guidance.

Clinical Reference
Test Definition: E157C
Escherichia coli O157:H7 Culture, Feces


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
Rochester

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
Test Definition: E157C
Escherichia coli O157:H7 Culture, Feces

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

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC® Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>E157C</td>
<td>E. coli O157:H7 Culture, F</td>
<td>10851-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result ID</th>
<th>Test Result Name</th>
<th>Result LOINC® Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>E157C</td>
<td>E. coli O157:H7 Culture, F</td>
<td>10851-4</td>
</tr>
</tbody>
</table>