

## **Clinical Testing Enterics**

### **Specimen Requirements**

Stool specimens must be in Cary-Blair transport media or equivalent and must be received by the laboratory within 72 hours of the time of collection. Stool specimens that are older than 72 hours are tested, but negative results are reported as unsatisfactory; a second specimen has to be sent for a valid testing result. Specimens for *Campylobacter* are an exception and must be received by the laboratory within 24 hours of the time of collection. Specimens in Cary-Blair transport media can be kept in the refrigerator (not frozen) before being delivered to the post office.

### **Special Requirements for Clinical Specimens**

Stool specimens should be collected early in the course of enteric disease, before initiation of any treatment. These specimens are to be collected in Cary-Blair transport media or equivalent. The Cary-Blair Vial is the preferred collection device, and it is supplied in the laboratory collection kit.

### **Requirements for Suspected Viral Gastroenteritis Specimens**

Before collecting specimen, contact Division of Infectious Diseases, phone 217-782-2016.

Whole stool is to be used for suspected viral gastroenteritis only. Submit whole stool (about the size of a walnut) in a clean, dry, leak-proof container (available by request). Refrigerate immediately after collection and during transportation to testing lab. **DO NOT FREEZE.**

### **Information Required**

Completed Communicable Diseases Laboratory Test Requisition (IL482-1039), *Salmonella/Shigella* specimens. Viral, *Aeromonas*, *Vibrio*, *Yersinia enterocolitica*, and *Campylobacter* testing is not normally performed unless specifically indicated on the request form.

### **Collection Materials**

There are three ways of submitting stool specimens for bacteria isolation. Whole stool, without Cary-Blair transport media, is used only for **suspected viral gastroenteritis**.

1. Cary-Blair Vial: Use Cary-Blair vial for the detection of *Salmonella*, *Shigella*, *Escherichia coli*, *Campylobacter*, *Yersinia*, and *Vibrio*. The amount of stool needed is about the size of half a walnut. The same specimen from the vial can be used for testing *Clostridium perfringens* and *Bacillus cereus*.
2. Cary-Blair swab: Specific instructions on how to collect stool specimens are included in the collection instructions. The more stool material provided the better the probability of detecting the pathogen. Therefore, a visible amount of stool must be present on the swab. Two swabs would provide even more material.
3. Rectal swab: Rectal swabs can be used but feces must be visible on the swab. The swab should be immersed in the Cary-Blair medium immediately after the collection. Use rectal swab only when the patient is unable to pass a specimen. Specific instructions on how to collect rectal swab specimens are included in the collection instructions.

### **Referred Culture Requirements**

Submit only pure cultures in screw-cap test tubes. Any solid media that will support growth may be used. Do not submit isolates on petri dishes or in liquid media. For *Campylobacter*, use media that is suitable for culturing *Campylobacter* (blood agar slant). Transport media, such as Cary-Blair, also can be used for *Campylobacter* specimens.

### **Test Methodology**

Conventional and manufacturer prepared biochemicals are used. *E. coli* 0157:H7 is performed with a latex agglutination kit. Enzyme immunoassay is used in Shiga toxin detection and confirmed by Polymerase Chain Reaction.

### **Interfering Substances**

Antibiotics or over-the-counter remedies the patient may be taking can preclude the successful isolation and identification of suspected pathogens.

### **Criteria for Rejection**

No date of collection; specimens that leaked in transit; fecal material not visible in media; specimens with no requisition form; specimen vials not labeled with patient's full name or ID number (barcode); improper specimen collection kit; clinical specimens older than 72 hours (*Campylobacter* specimens older than 24 hours).

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Table 2. Enterics

Disease or Agent	ID	Group/type	Performed at	TAT (Days)
<i>Clostridium perfringens</i> <sup>1,2</sup>			Ch	6
<i>Salmonella</i> <i>Salmonella typhi</i>	[X]	X	Ca, Ch, Sp	5
<i>Shigella</i>	X	X	Ca, Ch, Sp	5
Shiga Toxin <i>Escherichia coli</i> (STEC)	X	X	Ca, Ch, Sp	5
Shiga toxin			Ca, Ch, Sp	3
<i>Campylobacter</i>	X	X	Ch, Sp	5
<i>Yersinia</i> (enterocolitica)	X	X	Ca, Ch, Sp	5
<i>Vibrionaceae</i>	X	X	Ch, Sp	5

<sup>1</sup>Toxin test only

<sup>2</sup>Illinois Department of Public Health will ship to CDC; refer to “Services Available at U.S. Centers for Disease Control and Prevention.”

[X] = contact laboratory before submitting

### Instructions for Enteric Specimen Collection and Submission

Please review the following instructions with your patient(s) to ensure proper specimen collection:

1. Write the patient’s full name and/or identifier on the outside of the capped swab tube or transport vial. **By federal regulation, only specimens that bear the patient’s full name or unique identifying information may be accepted for testing.**
2. Collect feces (stool) into a dry container or on wax paper.
3.
  - a. **Use of swab as Enteric Specimen Collection Kit (Cary Blair Swab) for *Salmonella*, *Shigella*, Shiga-toxin producing *Escherichia coli* (e.g. *E. coli* 0157:H7), *Campylobacter*, *Yersinia*, and *Vibrio* (collect stool on two swabs if more than two or three pathogens are to be tested).** After removing the tube from its protective wrapper, add the patient’s identifier (name) to the tube. Dip the swab into the stool. The swab may be used to collect a specimen rectally if it is not possible to obtain a stool specimen. The quantity of specimen is important. Visible fecal material must be present. Remove and discard the cap on the tube. Place the stool-coated swab into the tube, pushing it below the surface of the semi-solid Cary Blair preservative. The opposite end of the swab now serves as a tight-fitting cap. **Wash hands carefully!**
  - b. **Use of preferred Enteric Specimen Collection Kit (Cary Blair Vial) for all of the pathogens in No. 3 and *Bacillus cereus* and *Clostridium perfringens*.** Add the patient’s identifier (name) to the outside of the vial. Using the plastic spoon, add stool (the size of a cherry or a teaspoon) to the fluid inside the vial. Recap and secure the vial lid (it is not necessary to remove the spoon). Shake vigorously. For *C. toxin* testing, to avoid over-diluting and lowering the concentration of toxin, discard half the fluid in the Cary Blair vial before adding stool to the vial. For outbreaks of *B. Cereus* and *C. perfringens*, submit two or more stool specimens (different patients) from the same outbreak. **Wash hands carefully!**
4. *Norovirus*, *B. cereus* and *C. perfringens* toxin testing are only performed in association with an ongoing outbreak investigation conducted by the Illinois Department of Public Health, Infectious Diseases Section. Please contact the Infectious Diseases Section (217-782-2016) for approval. **Use a leak-proof empty plastic cup (walnut size stool) for Norovirus (please contact the laboratory in advance).** Norovirus should be stored at 4 C until shipped. Ship specimens overnight in cold packs.
5. For stool Shiga toxin testing, contact the Chicago laboratory at 312-793-4754.
6. Completely fill out the information on the test requisition. The patient identifier on the test requisition must match the identifier given on the specimen. **For valid results, include the date of collection.**
7.
  - a. By ground transport
    - i. Wrap specimen(s) individually in absorbent material.
    - ii. Place wrapped specimen(s) into a biohazard labeled bag and seal securely.
    - iii. Place the test requisition(s) in the biohazard bag outside pouch so that it does not come in contact with the specimen sealed inside the bag.
    - iv. Place the sealed biohazard bag and test requisition(s) inside the shipping container.
    - v. The shipping container must be rigid such as a cooler and labeled with the UN 3373 Biological Substance Category B marking.
    - vi. Close securely.
  - b. Commercial carrier by ground/air transport

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- i. Wrap specimen(s) individually in absorbent material.
  - ii. Place the wrapped specimen(s) inside a biohazard labeled 95 kPa bag and seal following the instructions on the bag.
  - iii. Place the test requisition(s) in the 95 kPa bag outside pouch so that it does not come in contact with the specimen sealed in the bag.
  - iv. Place the sealed 95 kPa bag and completed test requisitions(s) inside the outer shipping container and close securely.
  - v. Label the outer shipping container with the appropriate Illinois Department of Public Health laboratory address.
  - vi. Complete the return address section to include the name of the person shipping the package, business name and address and a business phone number.
  - vii. The shipping container must include the UN3373 Biological Substance Category B marking.
8. Avoid shipping specimens on Fridays. ***Salmonella, Shigella and E. coli 0157:H7* specimens must reach the laboratory within 72 hours of collection. *Campylobacter* specimens must reach the laboratory within 24 hours of collection.**

Ship to:

Illinois Department of  
Public Health Laboratory  
1155 S. Oakland Ave.  
Carbondale, IL 62901  
Phone: 618-457-5131  
Fax: 618-457-6995

Illinois Department of  
Public Health Laboratory  
2121 W. Taylor St.  
Chicago, IL 60612-4224  
Phone: 312-793-4760  
Fax: 312-793-1322

Illinois Department of  
Public Health Laboratory  
825 N. Rutledge St.  
Springfield, IL 62702-4910  
Phone: 217-782-6562  
Fax: 217-524-7924