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# Specimen collection guide and packaging

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## ***Definition of a diarrhoeal case***

A person (infant, child or adult) with three or more, looser than normal stools in past 24 hours; with or without vomiting.

## ***Specimen collection***

Accurate diagnosis of pathogens associated with gastroenteritis is dependent on the collection of high- quality specimens of adequate volume and appropriate storage before laboratory testing. Viruses associated with gastroenteritis are best detected in raw stool specimens collected during the acute phase of infection.

At least **6-10** raw stool specimens are required per suspected gastroenteritis outbreak in order to accurately diagnose cause of the outbreak.

## ***Sampling time***

Specimens should be collected as soon as possible, preferably during the first 72 hours (3 days) after onset of clinical symptoms in the acute phase of illness when greatest amount of pathogen shedding occurs and within 24 hours of treatment at a hospital or clinic or within 48 hours of admission to hospital. However, specimens can be taken up to 14 days after the onset of symptoms.

## ***Type of specimens to be collected***

Raw stool specimens collected from the nappy, underpants, bedpan or toilet bowl of the affected person. Parents should collect stool of affected children and affected adults should collect their own specimens. Please note that it is advisable to wear protective gloves during the collection of stool specimens and to wash hands thoroughly after collection. Collection containers should be sealed

after collection to prevent leakage and further spread of the gastroenteritis infection.

**Note:** Stool swabs are not ideal for the detection of pathogens associated with gastroenteritis although they can be used in situations where a specimen cannot be obtained. Rectal swabs with visible stool material (brown swabs) should be placed directly in a stool collection container and should **NOT** be placed in viral transport media if molecular screening for viruses, bacteria or parasites is required. For collection of swabs for bacterial culture where a delay in transport to the laboratory is anticipated, swabs may be placed in Cary & Blair media.

### ***Materials and procedures for specimen collection***

Wooden tongue depressors can be used to scrape solid stool material out of the nappy/underpants and into a specimen container. In cases where the stool is very liquid, nappies can be turned inside out and the liquid stool collected from the plastic side of the disposable nappy. In cases where the stool is very liquid and cloth nappies are used, nappy linings may be sent. For the collection of adult stools, plastic shopping bags (without holes) can be placed on top of or under the toilet seat, over the toilet bowl (Figure 1). After diarrhoeal episode, stool material can be scrapped into the specimen container. After specimen collection, the shopping bag contents can be emptied into toilet and the collection bag placed into a second bag and discarded in the refuse. Please note that it is advisable to wear protective gloves during the collection of stool specimens and to wash hands thoroughly after collection.



Figure 1. Plastic shopping bags without holes may be placed on top of or under the toilet seat and over the toilet bowl prior to a diarrhoeal episode.

### ***Collection containers***

Plastic specimen containers should be used for storage of raw stools or nappy liners. Each container should contain at least a brown rectal swab, a 10cm x 10cm (palm sized) nappy liner, a R5 coin sized solid stool or 5ml liquid stool specimen. Ideally, try to fill the container with as much raw stool as possible as this permits the laboratory to conduct multiple tests. The collection containers should be marked with the patients' name, age, date of collection and date of onset of diarrhoeal symptoms. An indelible and alcohol resistant marker should be used as stick on labels can easily come off, especially when the specimens are chilled.

**Note:** The container itself and not the cap should always be marked with identifying details.

### ***Labelling of specimens***

As soon as the specimens are collected, the following information should be recorded on the Data Collection Form: patients' name, age, date of collection and date of onset of diarrhoeal symptoms

and contact information of person completing the form.

### ***Specimen storage at sentinel site***

Specimens should be kept refrigerated (4°C) and should be transported as soon as possible to the laboratory. Stability of the specimen: 2 hours at ambient temperature and 7 days at 4°C. **DO NOT** freeze raw stool specimens.

**Note:** Freezing at -20° C is unacceptable because of freeze-thaw cycles which will destroy the pathogens. It is better to keep a sample in the refrigerator for a week, than to allow the sample to freeze and thaw multiple times.

### ***Packaging and transport***

Three packaging layers should be used to pack specimens for transportation from the sentinel site to the laboratory in order to protect specimens from damage during transportation. The first packaging layer, the specimen container must be properly sealed to prevent leakage of stool material. Second layer, a ziplock bag or specimen bag enclosing the specimen container should be watertight and sealed to prevent leakage of specimen into cooler box, should the specimen container fail. The third layer is the cooler box and should be sealed with packaging tape to keep specimens cool and to protect the person transporting the specimens. The specimens must be kept cold during transport and a cooler box filled with ice packs can be used for this purpose. Ensure coordination of the shipment with the laboratory. In all specimen shipments, include an itemized list of specimens, with specimen identification numbers.

### ***Spill clean-up procedure***

Wearing appropriate personal protective equipment including coats/ refuse bags with head and arms holes and gloves (latex or kitchen), wipe up liquid or solid stool with paper towel and discard in the toilet or a biohazard box. Clean the area with an appropriate disinfectant solution (10% bleach) or ethanol-based disinfectant. Discard the paper towels, refuse bags and gloves after use in refuse bin or biohazard box. Wash coats, towels, bedding, clothing at temperature of 60°C or higher and dry properly to prevent re- infection.

**Centre for Enteric Diseases  
National Institute for Communicable Diseases**

*Specimen Form*

Please include a form with each participant's specimens

**Patient Information**

Patient name or initials: \_\_\_\_\_

Patient Surname: \_\_\_\_\_

Date of Birth: YYYY/MM/DD ☐ Male ☐ Female

Date of onset of symptoms: YYYY/MM/DD

**Specimen collection**

Date: YYYY/MM/DD Time: \_\_\_\_\_

Specimen type	Number of specimens
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<input type="checkbox"/> Stool	_____
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<input type="checkbox"/> Carrie & Blair	_____
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<input type="checkbox"/> Nappy lining	_____
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Name of sender: \_\_\_\_\_

Contact number of sender: \_\_\_\_\_

Fax number or e-mail of sender: \_\_\_\_\_

**Deliver to:**

Prof NA Page

Virology Division, Centre for Enteric Diseases

National Institute for Communicable Disease

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