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A PROGRAM OF THE **FOODBORNE & DIARRHEAL DISEASES BRANCH**

# Foodborne Outbreak Response and Surveillance Unit

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## Guidelines for Specimen Collection

Guidelines for collection and transportation of samples related to foodborne disease outbreaks.

Instructions for Collecting Stool Specimens <sup>1</sup>				
Instructions	Bacterial	Parasitic <sup>2</sup>	Viral <sup>3</sup>	Chemical
<b>When to collect</b>	During period of active diarrhea (preferably as soon as possible after onset of illness).	Anytime after onset of illness (preferably as soon as possible).	Within 48-72 hours after onset of illness.	Soon after onset of illness (preferably within 48 hours of exposure to contaminant).
<b>How much to collect</b>	Two rectal swabs or swabs of fresh stool from 10 ill persons; samples from 10 controls also can be submitted. Whole stool is preferred if non-bacterial stool testing considered	A fresh stool sample from 10 ill persons; samples from 10 controls also can be submitted. To enhance detection, 3 stool specimens per patient can be collected >48 hours apart.	As much stool sample as possible from 10 ill persons (a minimum of 10 mL of stool from each); samples also can be obtained from 10 controls.	A fresh urine sample (50 mL) from 10 ill persons; samples from 10 controls also can be submitted. Collect vomitus, if vomiting occurs within 12 hours of exposure. Collect 5-10 mL whole blood if a toxin/poison is suspected that is not excreted in urine.
<b>Method for collection</b>	For rectal swabs, moisten 2 swabs in an appropriate transport medium (e.g., Cary-Blair, Stuart, Amies; buffered glycerol-saline	Collect bulk stool specimen, unmixed with urine, in a clean container. Place a portion of each stool sample into	Place fresh stool specimens (liquid preferable), unmixed with urine, in clean, dry containers, e.g., urine specimen	Collect urine, blood, or vomitus in prescreened containers *. If prescreened containers are not available, submit field

	<p>is suitable for E. coli, Salmonella, Shigella, and Y. enterocolitica but not for Campylobacter and Vibrio). Insert swab 1-1.5 inches into rectum and gently rotate. Place both swabs into the same tube deep enough that medium covers the cotton tips. Break off top portion of sticks and discard. Alternatively, swab whole stools and put them into Cary-Blair medium.</p>	<p>10% formalin and polyvinyl alcohol preservative (PVA) at a ratio of one part stool to three parts preservative. Mix well. Save portion of the unpreserved stool placed into a leakproof container for antigen or PCR testing.</p>	<p>cups.</p>	<p>blanks with samples<sup>†</sup>. Most analyses from blood require separation of serum from red cells. Cyanide, lead and mercury analyses require whole blood collected in prescreened EDTA tubes. Volatile organic compounds require whole blood collected in a specially prepared gray-top tube.</p>
<p><b>Storage of specimens after collection</b></p>	<p>Refrigerate swabs in transport media at 4°C. When possible, test within 48 hours after collection; otherwise, freeze samples at -70°C. Refrigerate whole stool, process it within 2 hours after collection. Store portion of each stool specimen frozen at less than -15°C for antigen or PCR testing.</p>	<p>Store specimen in fixative at room temperature, or refrigerate unpreserved specimen at 4°C. A portion of unpreserved stool specimen may be frozen at less than -15°C for antigen or PCR testing.</p>	<p>Immediately refrigerate at 4°C. Store portion of each stool specimen frozen at less than -15°C for antigen or PCR testing.</p>	<p>Immediately refrigerate at 4°C and if possible freeze urine, serum, and vomitus specimens at less than -15°C. Refrigerate whole blood for volatile organic compounds and metals at 4°C.</p>
<p><b>Transportation</b></p>	<p>For refrigeration: Follow</p>	<p>For refrigeration: Follow</p>	<p>Keep refrigerated. Place</p>	<p>Immediately refrigerate at 4°C and if</p>

<p>instructions for viral samples. For frozen samples: Place bagged and sealed samples on dry ice. Mail in insulated box by overnight mail.</p>	<p>instructions for viral samples. For room-temperature samples: Mail in waterproof container.</p>	<p>bagged and sealed specimens on ice or with frozen refrigerant packs in an insulated box. Send by overnight mail. Send frozen specimens on dry ice for antigen or PCR testing.</p>	<p>possible freeze urine, serum, and vomitus specimens at less than -15°C. Refrigerate whole blood for volatile organic compounds and metals at 4°C. Place double bagged and sealed urine, serum, and vomitus specimens on dry ice. Mail in an insulated box by overnight mail. Ship whole blood in an insulated container with prefrozen ice packs. Avoid placing specimens directly on ice packs.</p>
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<sup>1</sup> Label each specimen in a waterproof manner, and put the samples in sealed, waterproof containers (i.e., plastic bags). Batch the collection and send in overnight mail to arrive at the testing laboratory on a weekday during business hours unless other arrangements have been made in advance with the testing laboratory. Contact the testing laboratory before shipping, and give the testing laboratory as much advance notice as possible so that testing can begin as soon as samples arrive. When etiology is unclear and syndrome is nonspecific, all 4 types of specimens may be appropriate to collect.

<sup>2</sup>For more detailed instructions on how to collect specimens for specific parasites, please go to <http://www.dpd.cdc.gov/dpdx/>

<sup>3</sup>For more detailed instructions on how to collect specimens for viral testing, please go to <http://www.cdc.gov/mmwr/PDF/RR/RR5009.pdf>

\*The containers have been tested for the presence of the chemical of interest prior to use.

† Unused specimen collection containers that have been brought in to the field and subjected to the same field conditions as the used containers. These containers are then tested for trace amounts of the chemical of interest.