



Centers for Disease Control and Prevention

Shipping Instructions for Specimens Collected from People Who May Have Been Exposed to Chemical-Terrorism Agents

SECTION ONE: COLLECTING AND LABELING SPECIMENS

Required Specimens

Unless otherwise directed, collect the following specimens from each person who may have been exposed:

Whole blood

- Collect blood specimens from adults only unless you receive specific instruction from CDC to collect blood from pediatric patients.
- Collect a minimum of 12 mL of blood.
- Use three 4-mL or larger vacuum-fill only (unopened), non-gel, purple-top (EDTA) tubes; use four tubes if using 3-mL tubes.
- Using indelible ink, mark each purple-top tube of blood *in the order collected* (e.g., # 1, # 2, # 3, # 4 [if using 3-mL tubes]).
- In addition, collect another specimen using one 3-mL or larger, vacuum-fill only (unopened), non-gel, green- or gray-top tube. Allow the tube to fill to its stated capacity.

Urine

- Collect at least 25-50 mL from potentially exposed adults and children.
- Use a screw-cap plastic container; do not overfill.
- Freeze specimen as soon as possible (-70°C or dry ice preferred).
- If other than “clean catch”, note method of collection on the specimen cup (e.g., obtained by catheterization).

Blanks

For each lot number of tubes and urine cups used for collection, provide the following to be used as blanks for measuring background contamination:

- Two (2) empty, unopened purple-top tubes.
- Two (2) empty, unopened green- or gray-top tubes.
- Two (2) empty, unopened urine cups.

Labeling Specimens

- Label specimens with labels generated by your facility and follow your facility's procedures for proper specimen labeling.
- In addition to unique patient identifiers (e.g., medical records number, specimen identification number) labels should convey the collector's initials, date and time of collection so that law enforcement officials may trace the specimen to the collector should investigations lead to legal action and the collector has to testify that he or she collected the specimen.
- If you use bar-coded labels, place the labels on blood tubes and urine cups so that when these containers are upright, the bar code looks like a ladder.
- Maintain a list of names with corresponding specimen identification numbers at the collection site so that results can be reported to patients. It is recommended that you record additional data for use in the interpretation of results. Additional data may include: time of potential exposure, method of urine collection if other than "clean-catch", indication if sample was collected post-mortem, and antidotes administered prior to sample collection.
- Information provided on labels and lists may prove helpful in correlating the results obtained from CDC's Rapid Toxic Screen and subsequent analysis with the people from whom the specimens were collected.



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SECTION TWO: PACKAGING SPECIMENS

Packaging consists of the following components: primary receptacles (blood tubes or urine cups), secondary packaging (materials used to protect primary receptacles), and outer packaging (polystyrene foam-insulated, corrugated fiberboard shipper).

Secondary Packaging for Blood Tubes

- To facilitate processing, package all blood tubes from the same patient together.
- Place absorbent material between the blood tubes and the first layer of secondary packaging. Use enough absorbent material to absorb the entire contents of the blood tubes.
- Separate each tube of blood collected from other tubes, or wrap tubes to prevent tube-to-tube contact. Regardless of the method used, the first layer of secondary packaging must be secured with one continuous strip of evidence tape and initialed half on the tape and half on the first layer of secondary packaging by the person making the seal. Examples of some ways to do this are to—
 - Pack blood tubes in a gridded box lined with absorbent material. Seal the top half of the box to the bottom half with one continuous piece of evidence tape and write your initials half on the tape and half on the box.
 - Pack a sealable polystyrene foam container or blood tube shipment sleeve and transport tube with individually wrapped tubes. Seal the polystyrene foam container or transport tube with one continuous piece of evidence tape and write your initials half on the tape and half on the container.
- Wrap and seal the first layer of secondary packaging (e.g., gridded box) with absorbent material.
- Seal one wrapped gridded box or alternative container inside a clear, leak-proof biohazard polybag equivalent to Saf-T-Pak product STP-701, STP-711 or STP-731.
- Place this bag inside a white Tyvek[®] outer envelope (or equivalent) and seal the opening with a continuous strip of evidence tape initialed half on the packaging and half on the evidence tape by the individual making the seal.
- According to 49 CFR 173.199(b), if specimens are to be transported by air, either the primary receptacle or the secondary packaging used must be capable of withstanding, without leaking, an internal pressure producing a pressure differential of not less than 95 kPa (0.95 bar, 14 psi). Verify in advance that the manufacturer of either the blood tube or secondary packaging used in your facility is in compliance with the pressure differential requirement.

Outer Packaging for Blood Tubes

- Use polystyrene foam-insulated, corrugated fiberboard shipper (may be available from your transfusion service or send-outs department).
- For cushioning, place additional absorbent material in the bottom of the shipper.
- Add a single layer of refrigerator packs on top of absorbent material.
- Place the packaged specimens on top of the refrigerator packs.
- Use additional cushioning material to minimize shifting while the shipper is in transit.
- Place additional refrigerator packs on top of the secondary packaging to maintain a shipping temperature of 1° C-10° C for the duration of transit.
- Place blood shipping manifest in a sealable plastic bag and put on top of packs inside the shipper.
- Keep chain-of-custody documents for your files.
- Place lid on shipper and secure with filamentous shipping tape.
- Place your return address in the upper left-hand corner of the shipper top and put CDC's receiving address in center.
- Affix labels and markings adjacent to the shipper's/consignee's address that appears on the shipper.
- Place the UN 3373 label and the words "Biological Substance, Category B" adjacent to the label on the front of the shipper.

Secondary Packaging for Urine Cups

- Separate each urine cup from other urine cups, or wrap individual urine cups to prevent contact between urine cups. Regardless of the method used, the first layer of secondary packaging must be secured with one continuous strip of evidence tape and initialed half on the tape and half on the first layer of secondary packaging by the person making the seal. Examples of some ways to do this are to—
 - Pack urine cups in a gridded box lined with absorbent material. Seal the top half of the box to the bottom half with one continuous piece of evidence tape and write your initials half on the tape and half on the box.
 - Seal individually wrapped urine cups inside a clear, leak-proof biohazard polybag equivalent to Saf-T-Pak product STP-701, STP-711 or STP-731. Secure the closure of the bag with one continuous strip of evidence tape initialed half on the tape and half on the bag by the individual making the seal.
- Place urine cups, boxed or individually wrapped and secured properly with evidence tape, in the next layer of secondary packaging. An example of acceptable material is the Saf-T-Pak Disposable 2-Part Pressure Vessel system or its equivalent.
- Secondary packaging must have its closure secured with a single strip of evidence tape initialed half on the packaging and half on the evidence tape by the person making the seal.

Outer Packaging for Urine Cups

- Use polystyrene foam-insulated, corrugated fiberboard shipper (may be available from your transfusion service or send-outs department).
- For cushioning, place additional absorbent material in the bottom of the shipper.
- Place a layer of dry ice on top of the absorbent material. Do not use flakes or large chunks of dry ice for shipment because large chunks have the potential for shattering urine cups during transport.
- Ensure that specimens will remain frozen or will freeze during transport.
- Place packaged urine cups in the shipper.
- Use additional absorbent or cushioning material between wrapped urine cups to minimize shifting while shipper is in transit.
- Place an additional layer of dry ice on top of samples.
- Place the urine shipping manifest in a sealable plastic bag and put on top of dry ice inside the shipper.
- Keep chain-of-custody documents for your files.
- Place lid on shipper and secure with filamentous shipping tape.
- Place your return address in the upper left-hand corner of the shipper top and put CDC's receiving address in center.
- Place the UN 3373 label and the words "Biological Substance, Category B" adjacent to the label on the front of the shipper.
- Place a Class 9/UN 1845 hazard label on the same side of the shipper as the UN 3373 marking.
- If the proper shipping name, (either dry ice or carbon dioxide, solid) and Class 9/UN 1845 is not preprinted on the hazard label, add it in an area adjacent to the label.
- Note the weight of dry ice (in kg) on the preprinted area of the hazard label, or place that information adjacent to the Class 9/UN 1845 hazard label.
- Orientation arrows are not required on a shipper containing "Biological substance, category B." If you use arrows, be sure to orient the inner packaging so that closures are aligned with the arrows.
- If the shipper will be transported by a commercial air carrier, complete an airway bill. On the airway bill, note the proper shipping name and UN number for each hazardous material and identify a person responsible for the shipper per IATA packing instruction 650.



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SECTION THREE: SHIPPING SPECIMENS

Follow the guidance provided in your state's chemical-terrorism comprehensive response plan. If you are directed to ship the specimens to CDC, please ship the specimens to the following address:

Centers for Disease Control and Prevention
Attn: Lt. Ernest McGahee
4770 Buford Hwy.
Building 110 Loading Dock
Atlanta, GA 30341
(770) 488-7579

Preparing Documentation

- Since blood tubes and urine cups cannot be shipped together in the same package, prepare a separate shipping manifest for each.
- Note on shipping manifest if urine sample is collected by means other than clean catch (e.g., catheterization).
- Place each shipping manifest (with specimen identification numbers) in a plastic zippered bag on top of the specimens before closing the lid of the polystyrene foam-insulated, corrugated fiberboard shipper.
- Do not transport chain-of-custody forms with specimens. Each entity or organization handling the specimens is responsible for the specimens only during the time that it has control of the specimens.
- Each entity or organization receiving the specimens must sign-off on the chain-of-custody form of the entity or organization relinquishing the specimens to close that chain. Electronic procedures such as electronic chain-of-custody and barcode readers will expedite this process.
- When receiving specimens, each new entity or organization must begin its own chain of custody. The entity or organization relinquishing the specimens must sign its chain of custody to close the chain and indicate that they have transferred the specimens.

Note: When the person relinquishing the specimens (relinquisher) and the person receiving the specimens (receiver) are not together at the time of specimen transfer, the relinquisher must document on its chain-of-custody form that the receiver is the express courier (e.g., FedEx, Delta Dash, DHL, UPS) and must document the shipment tracking number or have the person transporting the specimens sign the chain-of-custody to indicate that he or she has taken control of the specimens. Likewise, when receivers get the specimens, they will document on their chain-of-custody form that the relinquisher is the express courier (and provide the tracking number) or have the person transporting the specimens sign the chain-of-custody form.

Questions

If you have any questions or problems with specimen packaging or shipment, please send an e-mail to or call one of the following contacts:

Centers for Disease Control and Prevention, National Center for Environmental Health, Division of Laboratory Sciences

- **Philip Holt, Incident Response Laboratory Coordinator**
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