

**GUIDELINES FOR LABORATORY TESTING
AT THE NYSDOH WADSWORTH CENTER LABORATORY
FOR DETERMINATION OF EXPOSURE TO CHEMICAL TERRORISM AGENTS**

I. BLOOD SPECIMENS

II. URINE SPECIMENS

These guidelines are intended for samples collected throughout New York State,
excluding the 5 boroughs of New York City

NOTE: If you suspect exposure to a chemical terrorism agent, you must contact the NYSDOH Wadsworth Center *before collecting and submitting* any clinical specimens

**I. HOW TO COLLECT BLOOD SPECIMENS FOR SHIPPING TO NYSDOH
WADSWORTH CENTER LABORATORY FOR TESTING**

Persons responsible for blood specimen collection should follow the steps below. For any questions about specimen collection and transport please call the Wadsworth Center Laboratory at 518-474-7161 (daytime) or the duty officer 866-881-2809 (after hours)

NOTE: The general phlebotomy procedure is adapted to name the blood collection tubes specified by the Centers for Disease Control (CDC), and assumes a normal clinical setting where Standard Precautions are observed. The procedure is only applicable to adult patients. At this time, only urine will be routinely collected from pediatric patients. In the event that blood is requested from a child, CDC will provide a procedure.

General Principles

Blood is to be collected only by trained personnel using aseptic methods, and working under the direction of a qualified licensed physician. Correct identification is essential in each step, from patient registration to final disposition of each component. A numeric or alphanumeric system must be used that links the patient, the patient record, and all specimens collected from that patient. Use extreme caution to avoid any mix-up or duplication. If more than one skin puncture is needed, a new needle and a new tube must be used. The needle and any blood-contaminated waste must be disposed of safely in accordance with universal precaution guidelines. The needle must not be recapped unless a safety-recapping device is used, and disposal of the uncapped needle must be into a puncture-proof container. Observe all institutional requirements for needle safety.

Blood should be drawn from a large firm vein in an area (usually the antecubital space) that is free of skin lesions. While a tourniquet makes the veins more prominent, it should not be applied continuously. If it takes more than 30 seconds to select a vein, release the tourniquet while cleansing the site. Having the patient open and close the hand a few times is also helpful.

There is no way to make the venipuncture site completely aseptic, but cleanliness is important for both the patient’s safety and the integrity of the sample. After the skin has been prepared, do not touch it again to repalpate the vein. The entire site preparation must be repeated if the venipuncture site is touched.

NOTE: For your information, the materials designated for use in venous specimen collection, as specified by CDC, are provided below. Use it as a reference when creating your inventory so that in the event of a suspected chemical attack, resources can be readily accessed. If there are questions regarding materials, please contact Wadsworth Center lab staff at 518-474-7161.

- 3-mL or larger purple-top (EDTA) tubes, vacuum-fill only (unopened, non-gel)
- 3-mL or larger gray-top **or** green-top tubes, vacuum-fill only (unopened, non-gel)
- Multiple sample blood collection needle, 21x1 (BD Vacutainer 367212, or equivalent)
- Collection tube holder (BD Vacutainer 364893, or equivalent)
- Disposable tourniquet (BD Vacutainer 7200, or equivalent)
- Alcohol prep pad (Fisherbrand 06-669-62, or equivalent)
- Gauze sponge, 2x2 (Fisherbrand 22-362178, or equivalent)
- Adhesive strip bandage, 3/4x3 (NutraMax 15-200, or equivalent)
- Evidence/forensic tape (The tape can be purchased from National Law Enforcement Supply (www.ngscorp.com) or any other suitable vendor)
- Chain of Custody forms. Available on the HIN/HAN/HPN website
- Request for Chemical Analysis: Clinical Specimens Form. Available on the HIN/HAN/HPN website
- Mailing containers and gel packs for transport to Wadsworth Center Laboratory. Packaging must be certified to meet rigorous performance tests as outlined in the DOT, USPS, PHS and IATA regulations. **Gel packs should be stored at -20°C in a horizontal position so that they will be frozen flat and at the appropriate temperature for shipping**
- Appropriate Personal Protective Equipment (PPE)

Blood Specimen Collection Procedures

(Also refer to CDC Flowchart: *Specimen-Collection Protocol for a Chemical-Exposure Event*)

NOTE: This procedure is only applicable to adult patients. In the event that blood is requested from a child, CDC will provide a procedure

1. Each patient should be assigned a unique identifier. Medical record numbers are an acceptable identifier.
2. **Follow your facility’s procedures for proper specimen labeling.** For each patient label three 4-ml or larger vacuum–fill (unopened), non-gel, purple-top (EDTA) tubes or four tubes if using 3-mL tubes. Also, label one 3-mL or larger vacuum-fill (unopened), non-gel, green- or gray-top tube. Tubes may be either glass or plastic.

The labels should include at least the following information: Patient identification number, collector's initials, time and date of collection, and the patient's date of birth.

- The collector's initials and date and time of collection will allow law enforcement officials to trace the specimen back to the collector should the case go to court and the collector is needed to testify that they collected the specimen
- Information provided on labels may prove helpful in correlating the results obtained from the Rapid Toxic Screen and subsequent analysis with the people from whom the specimens were collected
- Maintain a list of names with corresponding specimen identification numbers at the collection site to enable results to be reported to the patients. It is recommended that you record additional data for use in the interpretation of results. Additional data may include: time of potential exposure, indication if sample was collected post-mortem, and antidotes administered prior to sample collection

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.

3. For each lot number of tubes used for collection, provide (2) empty, unopened purple-top tubes and (2) empty, unopened green- or gray-top tubes to serve as blanks for measuring background contamination. All of these tubes are needed for a complete chemical agent characterization, and none of them may be opened. If blood is needed for other procedures, add appropriate tubes. **NOTE:** Blanks do not have to be labeled.
4. **Collect a minimum of 12mL of blood.** Perform the venipuncture as described by your agency/facility's guidelines and following Standard Precautions.
5. **Tubes must be filled in a particular order.** First fill the purple-top 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]). Mix the EDTA tubes by inverting 5-6 times.
6. Next, fill one 3-mL or larger green- or gray-top tube. Allow the tube to fill to its stated capacity. Mix tube by inverting 5-6 times.
7. After specimen collection is complete, all protective materials worn by the specimen collector and all used sample collection materials must be placed in red biohazard bags and autoclaved or incinerated prior to disposal. Needles should be disposed of in an appropriate sharps container. **Thorough hand-washing using soap** should be done immediately after specimen collection and following removal of PPE.
8. Fill out Chain of Custody form: Use your full name (excluding nicknames) and date and time, as well as when and where you placed specimens to be stored. Be sure that the Chain of Custody and Request for Chemical Analysis: Clinical Specimens forms are completely filled out and kept with the specimens at all times.
9. Store specimens from 4-8°C and, if possible, in a locked refrigerator.

II. HOW TO COLLECT URINE SPECIMENS FOR SHIPPING TO NYSDOH WADSWORTH CENTER LABORATORY FOR TESTING

Persons responsible for urine specimen collection should follow the steps below. For any questions about specimen collection and transport please call the Wadsworth Center Laboratory at 518-474-7161 (daytime) or the duty officer 866-881-2809 (after hours)

General Principles

Urine is to be collected from patients exposed to or suspected of being exposed to certain chemical agents, including heavy metals. Correct identification is essential in each step, from patient registration to final disposition of each component. A numeric or alphanumeric system must be used that links the patient, the patient record, and all specimens collected from that patient. Use extreme caution to avoid any mix-up or duplication. If the patient is conscious and able to, have the patient collect his/her own urine in a urine cup. If the patient is unconscious or unable to collect his/her own urine, a registered licensed nurse or physician should either insert a catheter or perform a suprapubic tap for urine collection.

NOTE: For your information, the materials designated for use in urine specimen collection, as specified by CDC, are provided below. Use it as a reference when creating your inventory so that in the event of a suspected chemical attack, resources can be readily accessed. If there are questions regarding materials, please contact Wadsworth Center lab staff at 518-474-7161.

- Gloves
- Sterile Urine Container (plastic and screw-capped)
- Foley Catheter Set
- Suprapubic Aspiration Needle
- Evidence/forensic tape (The tape can be purchased from National Law Enforcement Supply (www.ngscorp.com) or any other suitable vendor)
- Chain of Custody forms. Available on the HIN/HAN/HPN website
- Request for Chemical Analysis: Clinical Specimens Form. Available on the HIN/HAN/HPN website
- Specimen Biohazard Bag
- Mailing containers and gel packs for transport to Wadsworth Center Laboratory. Packaging must be certified to meet rigorous performance tests as outlined in the DOT, USPS, PHS and IATA regulations. **Gel packs should be stored at -20°C in a horizontal position so that they will be frozen flat and at the appropriate temperature for shipping**
- Appropriate Personal Protective Equipment (PPE)

Urine Specimen Collection Procedures

(Also refer to CDC Flowchart: *Specimen-Collection Protocol for a Chemical-Exposure Event*)

NOTE: For pediatric patients, collect urine only, unless otherwise directed by CDC

1. Each patient should be assigned a unique identifier. Medical record numbers are an acceptable identifier.

2. **Follow your facility's procedures for proper specimen labeling.** For each patient, label one sterile, plastic, screw-capped urine cup.

The labels should include at least the following information: Patient identification number, collector's initials, time and date of collection, and patient's date of birth.

- The collector's initials and date and time of collection will allow law enforcement officials to trace the specimen back to the collector should the case go to court and the collector is needed to testify that they collected the specimen
- Information provided on labels may prove helpful in correlating the results obtained from the Rapid Toxic Screen and subsequent analysis with the people from whom the specimens were collected
- Maintain a list of names with corresponding specimen identification numbers at the collection site to enable results to be reported to the 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

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.

3. For **each lot number** of urine cups used for collection, provide (2) empty, unopened urine cups to serve as blanks for measuring background contamination. **NOTE:** Blanks do not have to be labeled.
4. **Collect at least 25-50 mL of urine.** Do not overfill the urine cup. Make sure that urine is not contaminated with dust or dirt from improper handling. If other than clean catch, note method of collection on the specimen cup (e.g., obtained by catheterization).
5. After urine specimen collection is complete, place the urine cup in a specimen biohazard bag.
6. Following specimen collection, all protective materials worn by the specimen collector and all used sample collection materials must be placed in red biohazard bags and autoclaved or incinerated prior to disposal. Needles should be disposed of in an appropriate sharps container. **Thorough hand-washing using soap** should be done immediately after specimen collection and following removal of PPE.
7. Fill out Chain of Custody form: Use your full name (excluding nicknames) and date and time, as well as when and where you placed specimens to be stored. Be sure that the Chain of Custody and Request for Chemical Analysis: Clinical Specimens forms are completely filled out and kept with the specimens at all times.
8. Freeze specimens as soon as possible (-70°C or dry ice preferred). Ship the specimen on dry ice. Do not use large chunks or flakes of dry ice.