

Rapid Toxic Screen (RTS) and Hospital Preparedness

Chemical threat incidents may occur accidentally (e.g., an overturned tanker or railcar) or intentionally (by a terrorist). Early detection and accurate identification of the chemicals are critical for guiding effective treatment of exposed persons and preventing additional exposures.

The **Rapid Toxic Screen (RTS)** is a CDC testing capability that analyzes urine and blood samples to detect chemical exposures during a public health emergency or terrorist event. It is a series of tests that can detect up to 150 chemical agents in 40 samples within 36 hours of receipt at CDC. After identifying the chemicals involved, CDC can scale up to process 1,000 samples per day during an emergency. Results of the RTS help identify which chemicals were involved, who was exposed, and the extent of each individual's exposure. This information is critical for medical and public health personnel managing a chemical incident.

Specimen Collection Requirements

For each adult, collect:

- **Three EDTA-preserved whole-blood tubes and one sodium heparin or one sodium fluoride/potassium oxalate whole-blood tube.** Blood specimens must be shipped to the Montana Laboratory Services Bureau (LSB) on ice packs to maintain temperatures of 1-10°C.
- **AND one urine specimen.** Urine must be frozen (optimally at -70°C) and shipped on dry ice.

For pediatric patients, collect:

- **A urine specimen only**, unless otherwise directed by the CDC. Urine must be frozen (optimally at -70°C) and shipped on dry ice.

Montana Laboratory Services Bureau's Role

The LSB Environmental Laboratory is the only **Laboratory Response Network – Chemical (LRN-C) Level 2 Laboratory** in Montana, designated by the FBI and the CDC, for the packaging and shipping of evidentiary blood and urine specimens obtained from victims of a chemical-agent event. Hospitals are directed to collect the specimens and send them to the LSB. LSB will package and ship them to the CDC for RTS testing and will communicate the CDC results back to the hospitals.

The LSB laboratorians are trained in nine core methods for detecting chemical threat agents, including ricin/abrin, metals, tetramine, volatile organic compounds, mercury, cyanide, and organophosphate nerve agents. If the chemical agent detected by the RTS is detectable by these methods, the LSB lab can continue testing additional samples from affected individuals.

If you have any questions or would like further information, please contact:

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