

# Specimen Collection, Handling, and Transport

## Proper Blood Collection & Preparation

### Quality Testing Starts with Proper Specimen Collection and Preparation

Accurate collection and preparation of patient blood specimens are essential for minimizing errors, preventing inaccurate results, and reducing delays or cancellations in testing. The following instructions provide details on the most commonly used evacuated blood collection tubes for specimens sent to the Diagnostic Laboratory of Oklahoma (DLO).

This guide includes information on the additives present in each tube, the required number of inversions, and the recommended order of draw. Please note that the order of draw and the number of inversions are applicable only to specimens collected in plastic tubes.

### Order of Draw

To ensure a blood specimen is suitable for testing, it must be collected in a specific sequence. The following *Order of Draw* procedure must be followed to obtain an appropriate specimen and to prevent cross-contamination from additives that may be present in previously filled tubes or containers.

#### Blood Collection Tube Guidelines

- Blood Culture Bottles**  
 Color: Varies  
 Inversions: 8–10 gentle inversions  
 Volume: 8–10 mL
- Citrate Tube (Coagulation) – Light Blue**  
 Inversions: 3–4 gentle inversions  
**Critical Volume Requirement:** The tube **must** be filled to the designated volume to ensure accurate results.  
**Special Collection Instruction:** When using a winged blood collection set (butterfly needle) and the light blue citrate tube is the first tube drawn, a discard tube must be collected first. This discard tube fills the tubing dead space and preserves the correct blood-to-additive ratio in the citrate tube. The discard tube should be filled with 5–10 mL of blood.
- Serum Separator Tube – Red (No Gel)**  
 Inversions: 8–10 gentle inversions  
 Volume: 6 mL
- Serum Separator Tube – Red/Yellow (Gel)**  
 Inversions: 8–10 gentle inversions  
 Volume: 3.5 mL or 8.5 mL
- Heparin Tube – Green or Tan**  
 Inversions: 8–10 gentle inversions  
 Volume: 4.5 mL
- EDTA Tube – Lavender**  
 Inversions: 8–10 gentle inversions  
 Volume: 4 mL or 10 mL
- EDTA (K2) Tube – Royal Blue**  
 Inversions: 8–10 gentle inversions  
 Volume: 6 mL
- Sodium Fluoride (Glucose) Tube – Gray**  
 Inversions: 8–10 gentle inversions  
 Volume: 5 mL or 10 mL

SPECIMEN MUST BE COLLECTED IN THE LISTED SEQUENCE TO PREVENT CROSS-CONTAMINATION (top to bottom)

TUBE/COLOR	ADDITIVE	INVERSIONS	VOLUME
 Clear/White	Blood Cultures	8-10	8-10mL
 Light Blue	Sodium Citrate	8-10	See <i>Critical Volume Requirements</i>
 Red	No Gel, Serum (Clot Activator)	8-10	
 Red/Yellow	Gel, Serum (Clot Activator)	8-10	8.5mL 3.5mL
 Green	Lithium Heparin	8-10	4.5mL
 Lavender	EDTA	8-10	4mL 10mL
 Royal Blue	(K2) EDTA	8-10	6mL
 Gray	Sodium Fluoride (Glucose)	8-10	5mL 10mL

*Note: All inversions should be performed gently to avoid hemolysis.*