

I. Purpose:

Accurate test results begin with patient preparation and sample collection. Following the recommended order of draw for blood specimens is important for specimen integrity. When collecting several tubes of blood, one must follow an “order of draw” to diminish the possibility of cross contamination between tubes due to the different additives present. Errors in the “order of draw” can affect chemistry and hematology results.

II. Procedure:**A. Order of Draw for Evacuated Tube**

When drawing multiple vacutainer tubes during a single venipuncture the following order of draw should be followed:

<u>Tube Type</u>	<u>Additive</u>
1. Blood Culture - Aerobic	Sterile Specimen
2. Blood Culture - Anaerobic	Sterile Specimen
3. Yellow Isolater	Microbial Tube
4. *Blue	Sodium Citrate
5. SST/Gold	Clot Activator
6. Red	Clot Activator
7. Green	Heparin
8. Lavender	EDTA
9. Gray	Sodium Fluoride/Potassium Oxalate

Blue tubes must be completely filled in order for the test to be run. Partially filled blue tubes will cause erroneous test results. Partially filled blue top tubes will be rejected.

***NOTE:** When using a **push button butterfly** blood collection set for venipuncture and a coagulation tube is the first tube to be drawn, a discard tube should be drawn first. The discard tube is used to fill the blood collection tubing dead space. This assures maintenance of the proper anticoagulant/blood ratio. The discard tube does not need to be completely filled. The discard tube can be another blue top tube or a plain, non clot activator vacutainer.

B. Order of Draw for Syringe draws

<u>Tube Type</u>	<u>Additive</u>
1. Blood Culture - Aerobic	Sterile Specimen
2. Blood Culture - Anaerobic	Sterile Specimen
3. Yellow Isolator	Microbial Tube
4. Blue	Sodium Citrate
5. SST/Gold	Clot Activator
6. Red	Clot Activator
7. Green	Heparin
8. Lavender	EDTA
9. Gray	Sodium Fluoride/Potassium Oxalate

C. Order of Draw for Heel/Fingerstick

If multiple specimens are to be collected by skin puncture (heel or fingerstick), anticoagulant tubes must be collected first to avoid microclots from forming because of a prolonged collection.

1. Capillary Blood gases
2. Slides/smears
3. EDTA tubes
4. Other additive tubes
5. Serum tubes

D. Errors

1. Anticoagulant cross contamination

a. EDTA- A calcium chelating agent; can yield false magnesium and calcium results if drawn before a red top tube. Can falsely elevate potassium results if drawn before a green top Gold, or SST.

b. Potassium Oxalate- Interferes with cell membranes

c. Sodium Fluoride- Alters cell morphology, if drawn before a lavender top tube.

2. Tube inversion

a. Blood collected in tubes with anticoagulants must be thoroughly mixed with the anticoagulant to prevent clotting. **DO NOT SHAKE THE TUBE.**

b. Mix by inverting the tube 5-10 times so the anticoagulant is thoroughly mixed with the blood. If mixing is not thorough, a partial clot may form and could render the specimen unacceptable for use. Serum Separator tubes should also be inverted. There is a clot activator present and inversion expedites the clotting process.

III. References:

CLSI Guidelines, "Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture"; Approved Standard-Sixth Edition. H3-A6, Vol.27 No.26 p.17.2007