Achievable

CCMA DUMP SHEET

Phlebotomy

Order of draw — venous

Stopper	Additive	Inversions	Tests
Blood culture	Sterile media	—	Blood cultures
Light blue	Sodium citrate	3—4	PT/INR, APTT
Red / gold (SST)	None / clot activator + gel	5 (gold)	Serum chemistry, serology
Green	Heparin	8	STAT chemistry (plasma)
Lavender	EDTA	8	CBC, hematology
Gray	Na fluoride / K oxalate	8	Glucose, blood alcohol

- **The same order applies when filling from a syringe**
- **With a butterfly set**, draw a red top first, even if not ordered, to fill the tubing's dead space before the light blue
- **Mix by gentle inversion only.** Never shake. Avoid a short draw; check expiration dates
- **Blood is about half cells, half liquid:** 2 mL of serum needs at least 4 mL of whole blood

Order of draw — capillary (different)

Sample	Additive
Capillary blood gas	Heparin
Blood smear	—
Lavender	EDTA
Green	Lithium heparin
Other anticoagulant tubes	Varies
Red or gold	Clot activator
Red	None

Needle, site and angle

Gauge	Used for
16	Blood bank pint collection
20—21	Routine adult venipuncture
22—23 (butterfly)	Small veins, back of hand, pediatric
23	Small or fragile veins

- **Higher gauge number = smaller lumen.** A high gauge with a large vacuum tube hemolyzes
- **Median and cephalic veins are the veins of choice:** cephalic on the thumb side, median at a slight angle to the antecubital fold. **Avoid the basilic** (little-finger side): it sits close to the brachial artery and median nerve
- **Three Ds of vein selection:** depth, diameter, direction
- **Tourniquet:** 3—4 inches above the elbow, **1 minute maximum**; wait 2 minutes before reapplying
- **Antiseptic:** 70% isopropyl alcohol, 30—60 seconds, air dried, cleaned **back and forth, not in a circle.** Do not touch the site afterwards
- **Insert at 15 degrees, bevel up.** Steeper passes through the back of the vein; shallower skims the top. Both make a hematoma
- **Anchor** by stretching the skin 2—3 inches below the site. Do **not** have the patient pump a fist
- **Release the tourniquet as the last tube starts filling.** Use folded gauze, not a cotton ball
- **Avoid** burned, scarred, infected or edematous areas; the IV or transfusion arm; the **mastectomy side**

When it goes wrong

Problem	What to do
Hematoma	Stop at once. Pressure for **minimum 3 minutes**, then ice. Notify the provider, file an incident report
Nerve damage	Never blind-probe. **Two attempts maximum**: a third needs the patient's permission and another phlebotomist
Syncope	Remove tourniquet and needle, lie flat, cold compress. **No ammonia inhalants.** Stay 15 minutes, no driving for 30
Petechiae	Loosen the tourniquet
No blood	Manipulate the needle slightly, or redraw with a syringe or butterfly

Hemolysis is the leading cause of specimen rejection. It cannot be seen until the cells are separated; the serum or plasma looks rosy to bright red. It falsifies potassium, sodium, bilirubin, total protein and liver enzymes.

Capillary puncture

Puncture	Depth
Finger stick	3.0 mm
Heel stick	2.0 mm (width not over 2.5 mm)
Heel stick, premature infant	0.65—0.85 mm (width 1.75 mm)
Bleeding time	1.0 mm (length 5 mm)

- **Ring or middle finger only.** Avoid the thumb (callused), index (painful nerve endings) and pinky (too little tissue)
- **Puncture across the fingerprint whorls**, not parallel to them
- **Under 2 years:** medial or lateral **plantar** surface of the heel. Never bandage an infant under 2 (choking hazard)
- **Warm an infant's heel** with a moist towel no hotter than 108 °F (42 °C) for 3—5 minutes
- **Wipe away the first drop:** it carries tissue fluid
- **Capillary vs venous:** hemoglobin and glucose read higher in capillary; potassium, calcium and total protein read higher in venous
- **Guthrie card:** to the referral lab within 24 hours