Most critical step in specimen collection

Correct patient identification
If you collect blood from the wrong patient, the lab results go into the wrong chart → wrong diagnosis → wrong treatment.
This is the #1 cause of lab errors.

Proper specimen labeling must include

Patient name, DOB, date/time, collector's initials
Why?
• Name + DOB = confirms identity
• Date/time = shows specimen freshness
• Initials = shows who collected it
Room number and insurance don't prove identity.

Blood cultures must be collected

Using strict aseptic technique
Because blood cultures test for bacteria in the blood.
If your skin germs contaminate the sample → false positive → patient gets unnecessary antibiotics.

Tube that must be completely filled

Light blue (coagulation tube)
Why? It has sodium citrate.
If underfilled → too much additive → clotting results become inaccurate (PT/INR errors).

Specimen that must be chilled

Ammonia
Ammonia increases quickly at room temp.
Must be:
• Collected
• Placed on ice
• Sent to lab immediately

Specimen that must be protected from light

Bilirubin
Light breaks bilirubin down → falsely low result.
Tube must be wrapped in foil or special amber tube.

Timed test measures

Peak and trough drug levels
These check medication levels in the blood at specific times (before and after a dose).
Used for drugs like vancomycin or gentamicin.

Patient not fasting for fasting glucose

Collect anyway and note "non-fasting"
Phlebotomists do not cancel orders.
Doctor decides what to do with the result.

Cause of hemolysis

Shaking tube vigorously
Shaking breaks red blood cells → potassium falsely high → specimen rejected.

Gray-top tube is used for

Glucose / lactic acid
Gray top contains:
• Sodium fluoride (stops glycolysis)
• Potassium oxalate (anticoagulant)

Must be transported on ice

Ammonia
Keeps levels from rising after collection.

Plasma requires

Tube with anticoagulant
Plasma = liquid portion of blood with clotting factors
Serum = after clotting
So plasma needs anticoagulant to prevent clotting.

Separating blood cells from plasma/serum

Centrifugation
Spins blood fast → cells go to bottom → plasma/serum on top.

24-hour urine test

Creatinine clearance
Measures kidney function over a full day.

Wrong additive result

Rejected or inaccurate
Wrong tube = wrong chemistry = bad data.

Chain of custody

Forensic drug testing
Used when results may be used in court or employment decisions.
Requires:
• Signatures
• Seals
• Documentation

When to label specimen

After collection in presence of patient
Prevents mix-ups.
Never label in hallway or later.

Additive that prevents glycolysis

Sodium fluoride
Found in gray-top tube
Prevents glucose from being used up by cells.

Tourniquet time limit

60 seconds
Longer than 1 minute → hemoconcentration → falsely high labs.

Why specimens get rejected

• Incomplete label
• Hemolysis
• Wrong tube
Any one of these can invalidate results.