

Tip of the Month



Specimen Handling: Fact or Fiction?

Proper blood specimen collection is part science and part art. But how you handle, transport and process blood samples can determine if the test results obtained are fact or fiction. To see how your post-collection practices rate, test your knowledge with the true/false statements below:

It's not important to keep filled tubes upright during transport and processing.

False. Transport blood collection tubes closure-up to prevent jostling of samples that can rupture RBCs and lead to hemolysis. Keeping serum tubes upright after collection also promotes complete clotting of the sample and reduces the potential for fibrin to cling to the tube stopper.

Automated delivery systems aren't appropriate for all samples.

True. The vibrations and sudden impacts of some pneumatic tube systems can alter coag results, lead to hemolysis, and increase pO₂ values obtained from arterial blood gas samples transported in this manner. Analytes susceptible to the effects of vibration shouldn't be transported by automated means unless the system and its impact on test results have been evaluated. Analytes that must be kept at body temperature are also unsuitable for automated delivery.

For samples that require chilling, large ice cubes work best.

False. Immediately after collection place the sample in crushed ice or an ice slurry so that there is good contact between the cooling medium and the tube. Large pieces of ice don't provide sufficient contact with the sample.

Filled tubes should be kept closed.

True. When tube stoppers are removed, analyte concentration can be affected. Sample contamination, evaporation, spills and aerosols are also more likely. If tubes to be tested for potassium are centrifuged without their stoppers, the concentration of potassium drastically increases yielding falsely elevated results.

Serum tubes must be allowed to fully clot at room temperature prior to centrifugation.

True. If a sample has not completely clotted when centrifuged, fibrin formation can affect instrumentation leading to erroneous results. Avoid fibrin interference by adhering to the tube manufacturer's recommended clotting and centrifugation times.

When centrifuging gel tubes, fixed-angle centrifuges are preferable to swing-bucket centrifuges.

False. If a fixed-angle centrifuge is used, the gel will form at a 45-degree angle and may be perilously thin on one side of the tube. Gel barrier formation is more uniform and predictable with swing-bucket centrifuges. Regardless of the type of centrifuge used, spun tubes should be visually checked to ensure barrier integrity.

Serum or plasma should be removed from cells as soon as possible.

True. Unless longer contact times won't affect results, serum/plasma should be separated from contact with cells as soon as possible. Samples drawn at remote locations shouldn't be transported to the testing laboratory unspun unless centrifugation and serum/plasma separation will occur within two hours of collection.

Exposure to light can affect certain analytes.

True. Photosensitive analytes must be protected from light. If not collected in an amber light-blocking tube, wrap the sample in aluminum foil or place it in light-tight container immediately after collection.

Protecting the integrity of your patients' samples throughout the preanalytical phase of testing is a science. Anything less is just science fiction.