VETSCAN

Blood Sample Handling Best Practices

Keys to Successful Testing

Quality of sample analyzed = Quality of result

Avoid vein collapse when drawing samples

- Minimize suction on the syringe, and do not draw back too quickly.

Prevent hemolysis

- Use the largest vein and needle appropriate for blood collection.
- Never use any needle smaller than a 23 gauge size.
- Use minimal alcohol on fur/skin.
- Remove the needle from the syringe before dispensing into the blood tube, unless using a closed vacuum blood collection system.

Ensure the correct ratio of anticoagulant to blood

- Always use the smallest collection tube needed.
- Fill lithium heparin and EDTA tubes to minimum fill line.
- Fill sodium citrate tubes exactly to the fill line.

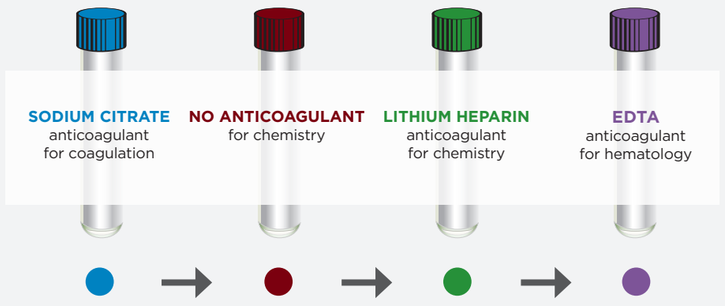
Prevent unwanted blood clotting

- **Do not** hold off the vein for more than a few seconds before venipuncture.
- For feline samples collected from the medial saphenous vein: a vacuum blood collection system instead of a syringe is recommended.

Do not allow samples to degrade

- Run the sample as soon as possible after drawing.

Collection Tubes & Fill Order

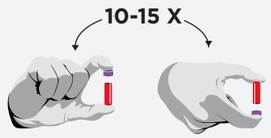


Always fill blood tubes in the correct order to avoid contamination. EDTA contamination of chemistry samples may affect electrolyte results, and cause a falsely low Ca and falsely high K+.[1]

Tube Handling

Chemistry [2, 4]
Whole blood samples must be inverted 8-10 times after collection and re-inverted just prior to use.

Hematology [3, 4]
Samples must be inverted 10-15 times after collection and re-inverted just prior to use.

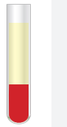


Never shake blood sample tubes.

1.3 mL and smaller tubes may need additional inversions for proper mixing.

Do not rely on a rocker to mix blood samples properly; rockers do not take the place of proper tube inversion.

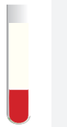
Sample Quality



NORMAL plasma and serum samples are straw colored, and do not have a yellow, red, or pink tinge.

HEMOLYZED plasma and serum samples have a pink/red tint due to broken red blood cells.

Avoid hemolysis by using proper sample collection and handling techniques.[1]



LIPEMIC plasma and serum samples have a milky appearance due to a high concentration of fat in the blood.

Avoid lipemia by using a fasted patient sample whenever possible.[1] *Remind clients to refrain from feeding their pets prior to their appointment.*

ICTERIC plasma and serum samples have a yellow color due to a disease or condition that causes excess bilirubin in the blood.

CLOTTED samples may have visible red clots that stick to wooden applicator sticks when swirled in a sample. Traumatic or delayed blood collection can lead to micro and /or macro clots.[1]

Avoid clotted samples by inverting blood tube appropriately immediately after filling. Re-draw any clotted hematology samples.

NOTE: *Never run a clotted sample for analysis on the HM5.*

Sample Storage[5, 6]

Chemistry [2]
Lithium Heparin whole blood samples at room temperature+ must be run within 1 hour,[8] or separated to serum* or plasma* and run as soon as possible.[7] Serum and plasma samples may be stored refrigerated++ for up to 48 hours.[8]

Hematology [3]
EDTA whole blood samples must be run within 1 hour at room temperature+, and may be stored refrigerated++ for up to 12 hours[7].
Blood should return to room teperature prior to running on the HM5.

* Stored plasma and serum samples must be separated and kept in a stoppered test tube containing no additive.
+Room Temperature (68-77 °F)
++Refrigerated Temperature (36-46 °F)

[1] Monti P, Archer J. Quality Assurance and Interpretation of Laboratory Data [Chapter 2]. BSAVA Manual of Canine and Feline Clinical Pathology. 3rd ed.; 2016: p. 12.
[2] VETSCAN VS2 Operator's Manual. 2013. 1200-7063 Rev. A. Data on file, ABX-00101
[3] VETSCAN HM5 Operator's Manual. 2018. 790-7013 Rev. F. Data on file, ABX-00248.
[4] Weiser, G. Laboratory Technology for Veterinary Medicine [Chapter 1]. Veterinary Hematology and Clinical Chemistry. 2012: p. 3.
[5] Wu, DW, et al., How Long can we Store Blood Samples: A Systematic Review and Meta-Analysis. EBioMedicine. 2017: p. 283-284.
[6] Kitchens, JL. Title The effects of the blood storage time on the accuracy of the comprehensive metabolic panel results. Maryville College, 2006.
[7] Monti P, Archer J. Quality Assurance and Interpretation of Laboratory Data [Chapter 2]. BSAVA Manual of Canine and Feline Clinical Pathology. 3rd ed.; 2016: p. 13.
[8] Weiser, G. Sample Collection, Processing, and Analysis of Laboratory Service Options [Chapter 2]. Veterinary Hematology and Clinical Chemistry, 2012: p. 36.

zoetis