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Preanesthetic Bloodwork

Why is preanesthetic bloodwork valuable?

Preanesthetic bloodwork is typically recommended for most animals that are undergoing anesthesia. This bloodwork allows your veterinarian to assess your pet's overall health, ensuring that your pet is a good candidate for anesthesia. If preanesthetic bloodwork shows any abnormalities, these abnormalities can be addressed by making any necessary adjustments to your pet's treatment plan.

What does preanesthetic bloodwork assess?

While the exact biochemical parameters measured in preanesthetic bloodwork vary, depending on the particular bloodwork panel your veterinarian recommends, preanesthetic bloodwork typically involves two primary components. These two components are a **complete blood count (CBC)** and a **serum biochemistry**. These tests provide valuable information about your pet's internal health status.

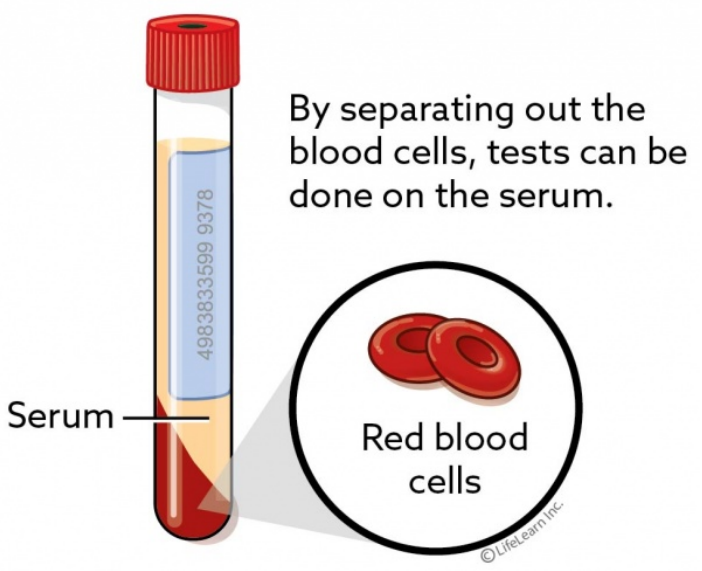
What is a complete blood count (CBC)?

A complete blood count assesses the cells that are present in your pet's blood. Abnormalities in your pet's cell counts may indicate underlying disease and affect your pet's surgical/anesthetic risks.

A complete blood count specifically looks at three types of cells that are found in the blood:

- **Red blood cells.** These cells carry oxygen through the blood to your pet's tissues. A CBC assesses the quantity, shape, and hemoglobin content of your pet's red blood cells. These tests detect a number of diseases, including **anemia** (low red blood cells) and **polycythemia** (elevated red blood cells).
- **White blood cells.** These cells typically respond to inflammation or infection. A CBC not only measures your pet's overall white blood cell count, but also provides separate counts for each unique type of white blood cell. Elevated white blood cell counts often indicate infection or inflammation; the specific white blood cell type that is abnormally elevated can often provide additional information about a possible diagnosis. Abnormally low white blood cell counts may indicate a more serious infection or possible immunodeficiency. Less commonly, dramatic white blood cell count abnormalities may indicate cancer.
- **Platelets**. Platelets are responsible for blood clotting. A low platelet count suggests that your pet may be at greater risk of excessive blood loss during surgery.

What is the serum biochemistry?



The serum biochemistry examines levels of a number of chemicals in the blood associated with organ function. The exact parameters that are checked in a blood panel will vary depending the particular panel your veterinarian recommends; young, healthy pets may receive a smaller biochemistry panel than senior pets. In general, however, a serum biochemistry will include values that assess your pet's liver, kidneys, blood glucose, serum proteins, and possibly other parameters.

- **Liver function** is assessed through a number of values on the serum biochemistry. These values include alkaline phosphatase (ALP), alanine transferase (ALT), aspartate aminotransferase (AST), gamma-glutamyl transferase (GGT), and total bilirubin (Tbili). Elevations in these values may suggest an increased risk of liver disease in your pet.
- **Kidney function** is assessed by measuring the blood urea nitrogen (BUN) and creatinine (BUN). Both of these substances are normally cleared by the kidney. Increased blood levels of BUN and creatinine suggest that they are not being effectively cleared by the kidney, due to dehydration or kidney disease.
- **Glucose** is a measure of the sugar in the blood. Dramatically elevated blood glucose levels may indicate diabetes.
- **Serum proteins** include albumin (ALB), globulin (GLOB), and total protein (TP). Low protein levels are associated with a number of medical conditions. Pets with low protein levels may experience delayed post-surgical healing. Elevated serum protein levels may indicate dehydration.
- **Electrolytes**, such as potassium (K), sodium (Na), chloride (Cl), may become increased or decreased with various disease states that may affect surgical healing or suitability for anesthesia.

How might preanesthetic bloodwork affect my pet's treatment?

If your veterinarian finds abnormalities on your pet's preanesthetic bloodwork, there are several potential outcomes.

Some abnormalities are mild and unlikely to be clinically relevant. For example, a white blood cell count that is just marginally above the normal range, in the absence of clinical signs, may be an indication of stress and not of any underlying disease.

A marginally elevated blood glucose without other abnormalities may also be seen with stress. If your pet has a very mild elevation, your veterinarian may proceed with anesthesia without any further testing or interventions. In some cases, your veterinarian may recommend rechecking the value in the future, to ensure that more significant abnormalities do not develop, even if the elevation does not appear to be significant at the time of testing.

In some cases, preanesthetic bloodwork detects abnormalities that can be corrected prior to anesthesia. For example, if your pet's preanesthetic bloodwork indicates mild dehydration, your veterinarian may administer intravenous fluids for several hours prior to anesthesia. This allows your pet to be as medically stable as possible prior to undergoing anesthesia.

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In other cases, however, more significant abnormalities might be detected on preanesthetic bloodwork. In these cases, your veterinarian may recommend postponing surgery until additional testing or treatment can be performed. Examples of situations where this may occur include severe anemia, significantly elevated liver or kidney values, or diabetes. In the case of significant bloodwork abnormalities, postponing surgery until the pet's condition can be thoroughly diagnosed and addressed helps maximize the chances of a safe anesthetic procedure.

Your veterinarian will interpret your pet's preanesthetic bloodwork in light of your pet's physical examination and medical history, using the bloodwork to make rational recommendations regarding your pet's anesthetic drugs and any changes that may need to be made in your pet's treatment plan.