WBC Differential Lab Value

White blood cells (WBC) are a collection of cells that function as part of the body's immune system. The WBC differential analyzes the leukocyte distributions, which are the formed elements of whole blood. Each leukocyte has its own function and responds to body insults and injury. It is important to watch trends in the blood to see how the body is responding to an infection or to an intervention (chemotherapy, radiation therapy).

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White Blood Cells (WBC)
White-mac-man
WBCs are called leukocytes. They appear white when blood is separated (hence their name). They originate from the stem cells within the bone marrow.

4.5-11 (4,500-11,000)
(4.5) Fork Hand to (11) Double-wand
An increased WBC count (greater than 11,000) is often indicative of infection, while a decreased WBC count (less than 4,500) indicates the patient is becoming immunosuppressed. Remember that steroids will elevate the WBC count even though the patient does not have an infection.

Leukocyte Differential

Segmented Neutrophils (54%-62%)
Segway Nude-trojans with (54) 50-cent with a (4) Fork and (62) Social-security-card in a (2) Tutu
Neutrophils are the primary-acting leukocytes in the body. A neutrophil is a phagocytic cell that responds to an inflammatory response. Segmented neutrophils are mature neutrophils. They are the most effective at phagocytosis. An increase in segmented neutrophils indicates that the body has and is responding to an infection or tissue injury.

Band Neutrophils (3%-5%)
Band Nude-trojans with (3) Tree and (5) Hand
Bands are immature neutrophils. If there is an increase of band neutrophils in the system, it is called a "shift to the left," which is seen in patients with an acute infection.

Lymphocytes (25%-33%)
Lime-cell with (25) Quarter and (33) Double-tree
Lymphocytes are primarily activated during an immune response (cellular and humoral). There are three different types of lymphocytes: Natural Killer (NK) cells, B cells, and T cells. They are increased in chronic bacterial and viral infections but decreased in sepsis.

Monocytes (3%-7%)
Monocyte-monkey with (3) Tree and Lucky (7) Slot-machine
Monocytes are found in the bloodstream and are effective phagocytic cells. However, when monocytes migrate into the tissue, they are known as macrophages.

Eosinophils (1%-3%)
Eosinophil-eagle with (1) Wand and (3) Tree
Eosinophils have a phagocytic function but are not as effective. These cells assist in engulfing antigen-antibody complexes during an allergic response. The exact mechanism is unknown, but they also help in defending against parasitic infections

Basophils (0%-0.75%)
Bass-fish with (0) Zero and Lucky (.75) Slot-machine Hand
Basophils have a similar function to mast cells. When activated, they release histamine and leukotrienes, which help mediate allergic and hypersensitivity responses.

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