

White Blood Cells



Some Fun WC Facts

- Make up about 1% of blood
- Also called Leukocytes
- They protect you against illness & disease
- Imagine they are your warrior cells, constantly at battle
- They are made in the bone marrow.
- They are stored in in blood and lymph tissues.
- They last around 1-3 days so bone marrow is always making more



Most Popular WBCs



01 Segmented
Neutrophils

04 Eosinophils

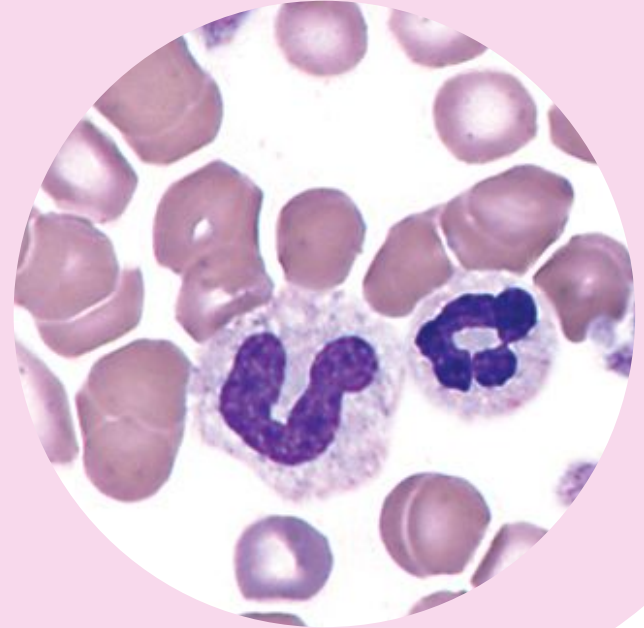
02 Lymphocytes

05 Basophils

03 Monocytes

Segmented Neutrophils

- Kill & Digest Bacteria & Fungi
- 60-70% of Differential
- Seen in Inflammation, Immune Mediated DZ & Corticosteroids
- Multi-Lobed, Cytoplasm Picks Up Red/Pink Dye & a Mild Granulocyte



BAND Neutrophils

- A Step in Maturation Before Segmented Neutrophils
- It means the bone marrow has signaled for WBCs to be sent out prematurely
- Curved Horseshoe Shape with no lobes.



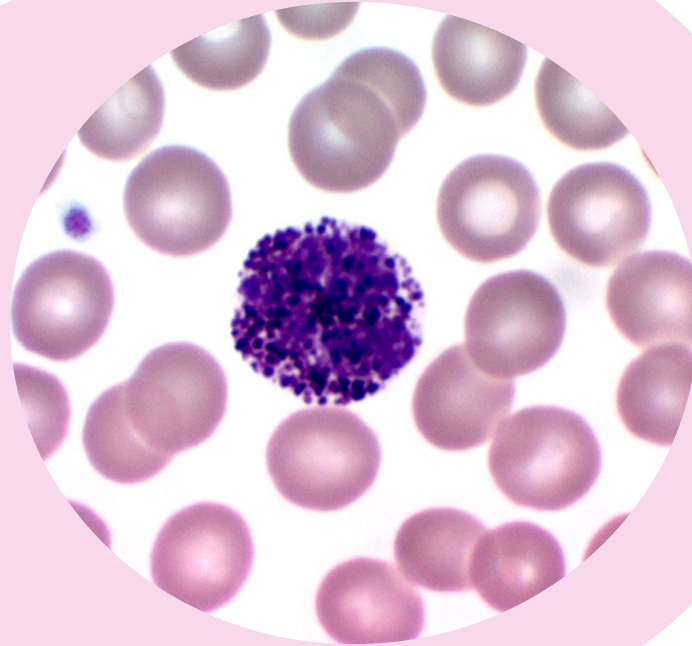
Eosinophils

- Attack Parasites, Cancer Cells & Help With Allergic Reactions
- 0-6% of Differential
- Can also be seen in Addisonians
- Bi-Lobed, Densely Granulocyte and Picks Up Pink/Red Dye



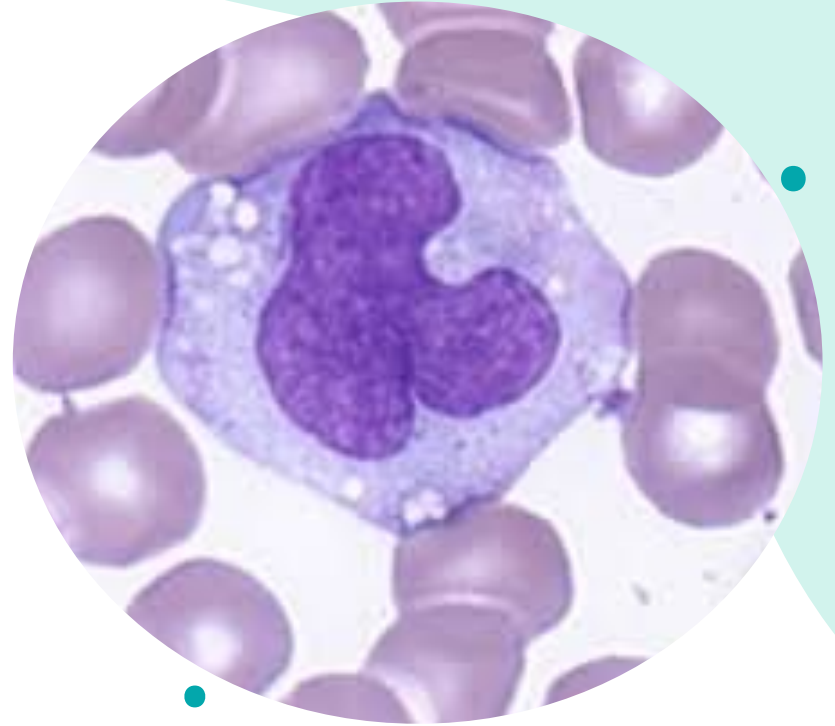
Basophils

- Seen in Allergic Reactions and Asthma Attacks
- 0-1% of Differential
- Rarely Seen in Patients
- Bi-Lobed, Densely Granulocyte and usually the granules are a dark purple color.



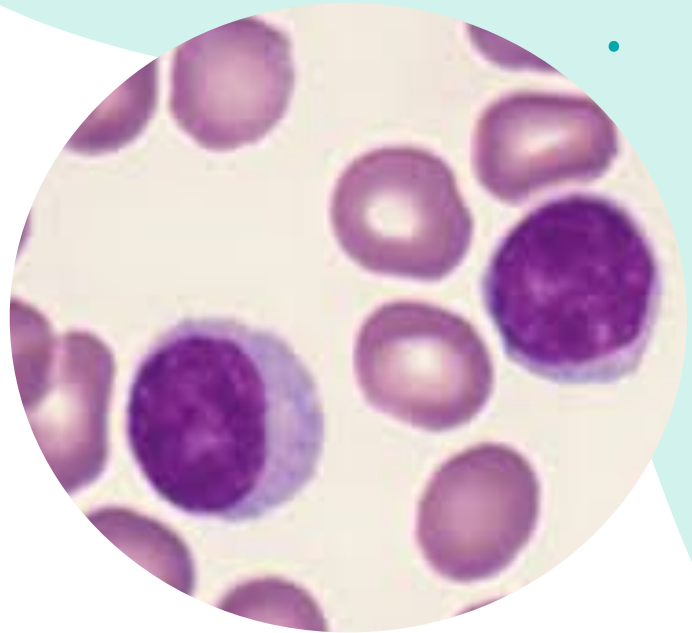
Monocytes

- Seen During Stress Response, Inflammation, and After Chemo
- Largest of the WBCs / 2-10% of Differential
- No distinct Granules in Cytoplasm
- Attracted to Pale Blue/Purple Dye
- 1-3 lobes, Kidney Shaped, Cleavage, Vacuoles in the Cytoplasm



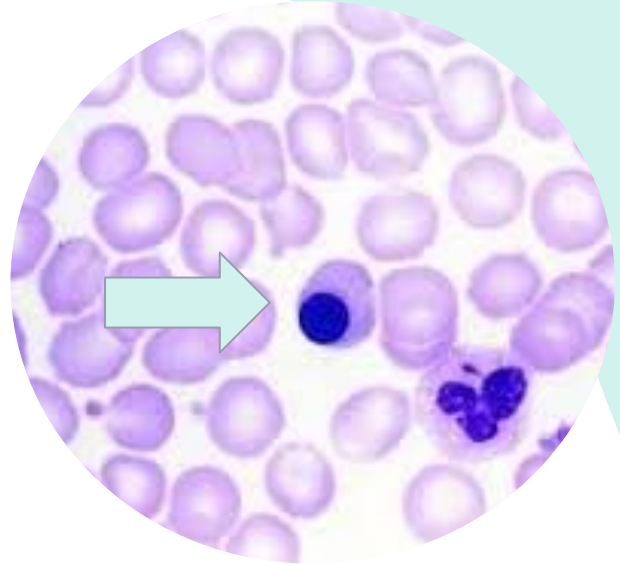
Lymphocytes

- Seen with infection, cancer, and viruses.
- 20-50% of Differential
- Smallest of the WBCs
- Dense Nucleus About the Size of Red Blood Cell
- Spherical Nucleus Shape

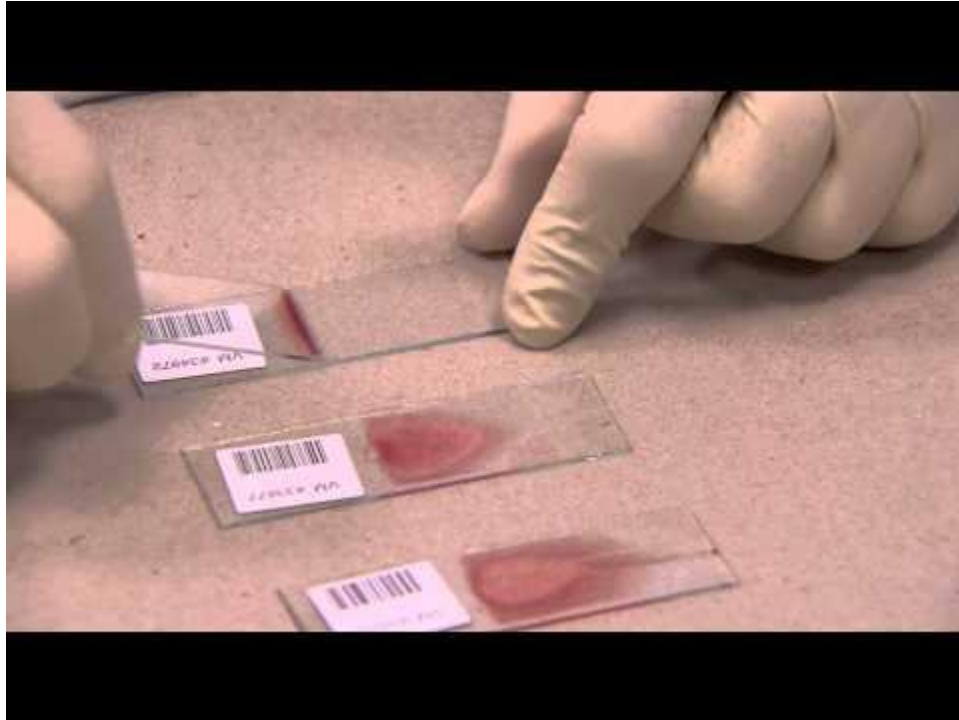


• Nucleated RBCs (nRBCs)

- Red Blood Cell that Contains a Baseball Shaped Purple/Blue Nucleus
- Immature Red Blood Cells usually seen in infant stages
- Indicates high demand from bone marrow to produce RBCs



Making Blood Slides



Blood Slides

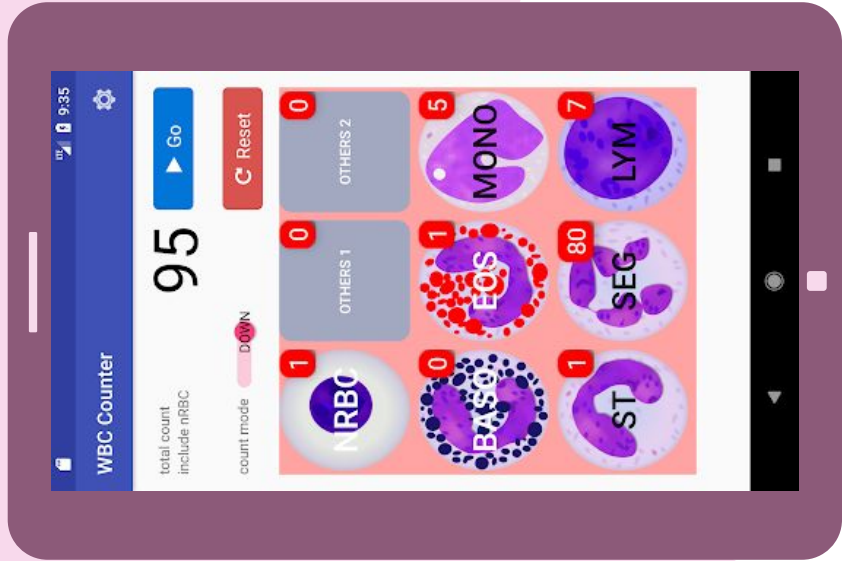
BEFORE STAINING

- Thumb Print Shape
- Feathered-Edge
- No Streaks
- Pet's First & Last Name on Frosted End with Pencil
- Allow to Dry



AFTER STAINING

- Should be dyed in all 3 of the colored dyes. In the order of Light Blue, Red & Purple. 5, 5, and 10-20 Dips
- Should be a good mix of pink and purple when done staining.



WBC Counter App

- Counts up to 100 for clinical WBC Manual Differentials
- Provides Example Photos
 - FREE

Tips For Using the Microscope



Focus First

Focus with the lower lens first and work up to 100x Lens



Right Side Up

Check your placement when you clip the slide in



Immersion Oil

Use 1 Drop of oil on 100x Lens



Turn Off The Light

To make your light bulbs last be sure to turn off the light when you are done.

Read Your Slide



1st

Find the
Monolayer



2nd

Start from Left
To Right & Up &
Down Zig
Zagging



3rd

Count What You
See Until You
Reach 100

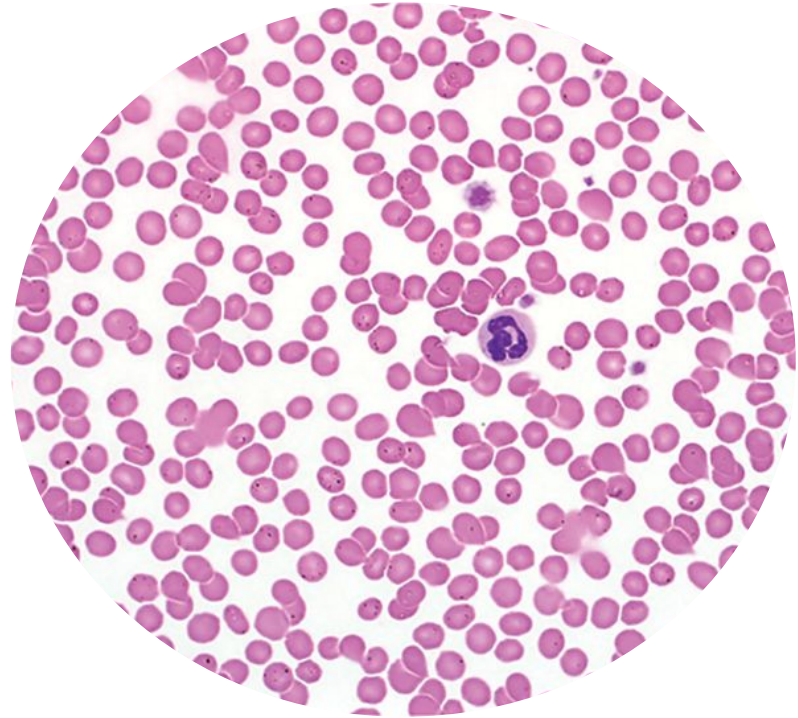


4th

Write the
Results on your
note card with
Wet Erase
Marker

The Monolayer

- In the Feathered-Edge is the Monolayer
- RBCs are Spaced Out Evenly



Results Notecard

PATIENT ID	555555	TIME	8:25pm
PATIENT NAME	Piper Garcia	TECH	SG
		WBC COUNT	10200
MANUAL PLT (<input checked="" type="radio"/> Y or N)		SEGS	87 %
60,000 PLTs		BANDS	0 %
NOTES	PCV 4% TS 6.5 Anisocytosis, PLT Clumping	LYMPHS	5 %
		MONO	7 %
		EOS	1 %
		BASO	0 %
		nRBCS?	3

- Black Text = Assistant Fill Out
- Red Text = Technicians Fill Out
- The WBC Count comes from the lab report.
- Circle Yes to Manual PLT if lab report shows less than 200,000 Platelets
- Always Write the PCV/TS Results
- Tech = Enters All Results in AI

Corrected WBC Count

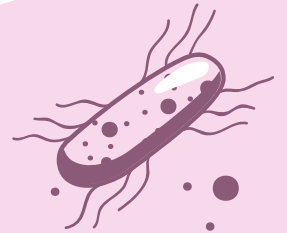
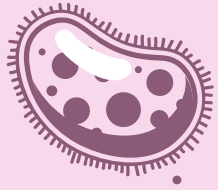


Do This When You Have Nucleated Red Blood Cells You Need to Add In with Your WBCs

$$\text{Automated WBC Count} \times \frac{100}{\text{nRBCs} + 100} = \text{Corrected WBC Count}$$

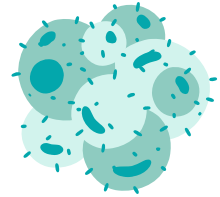

IT'S 10250 NOT 10.25K

MOVE THE DECIMAL OVER TO THE RIGHT 3 SPACES
WHEN ENTERING WBC COUNT INTO SYSTEM



Thanks!

Do you have any questions?
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