



**Department of Anesthesia Techniques**

**Title of the lecture**

**Leukocyte count (WBCs)**

**by**

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## Leukocyte count (WBCs)

- **White blood cells (WBCs)**, also called leukocytes, are an important part of the immune system. These cells help fight infections by attacking bacteria, viruses, and germs that invade the body. White blood cells originate in the bone marrow, but circulate throughout the blood stream. There are five major types of white blood cells:

1-neutrophils

2-lymphocytes

3-eosinophils

4-monocytes

5- basophils

- A WBC count is a test that measures the number of white blood cells in your body.

This test is often included with a complete blood count (CBC). Your blood contains a percentage of each type of white blood cell.

**Normal value : 4,000-10,000 cells/mm<sup>3</sup>.**

# Leukocyte Disorder

- **Leukopenia:** is the medical term used to describe a low WBC count. Conditions or illnesses that can trigger a low number include:

1- HIV

2- Bone marrow disorders/damage

4- Lymphoma

5- Severe infections

6- Liver and spleen diseases

7- Radiation therapy

- **Leukocytosis:** is the medical term used to describe a high WBC count. Conditions or illnesses that can trigger a high number include:

1- Anemia

2- Tumors in the bone marrow

3- Leukemia

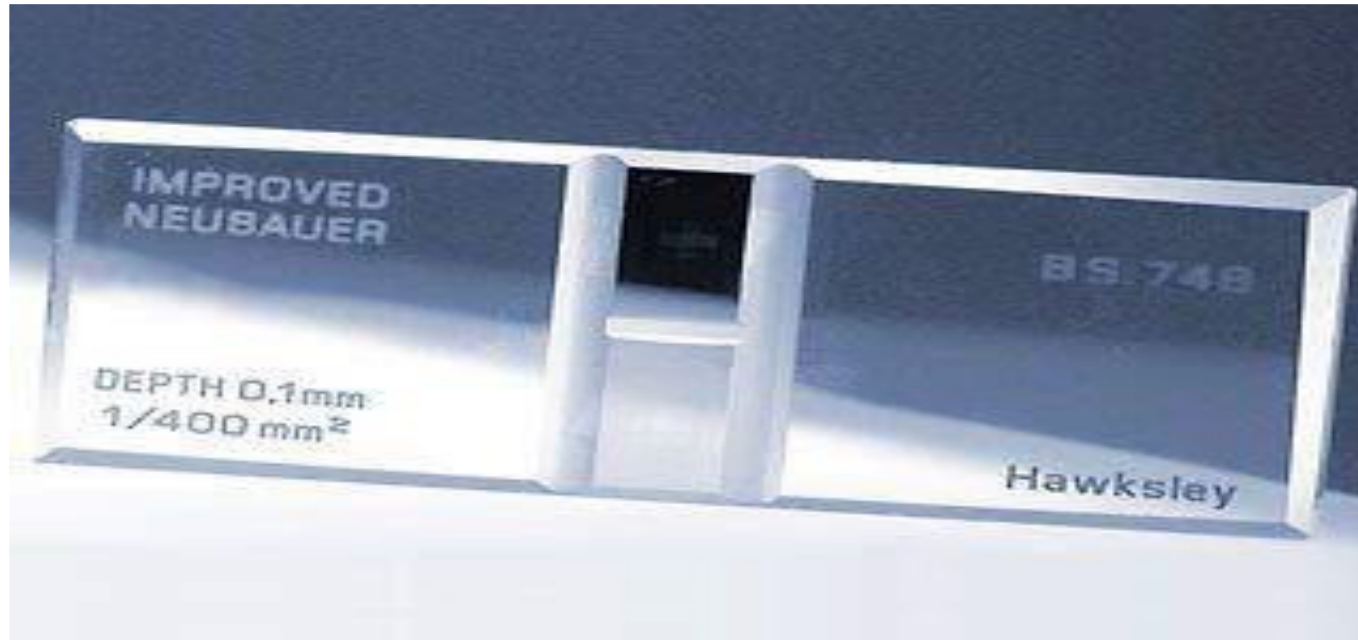
4- Inflammatory conditions, such as arthritis and bowel disease

5- Pregnancy

7- Allergies

8- Asthma

- The **hemocytometer** counting chamber (**Neubauer**) is used for cell counting. The surface of the chamber contains two ruled areas separated by an **H-shaped** moat.



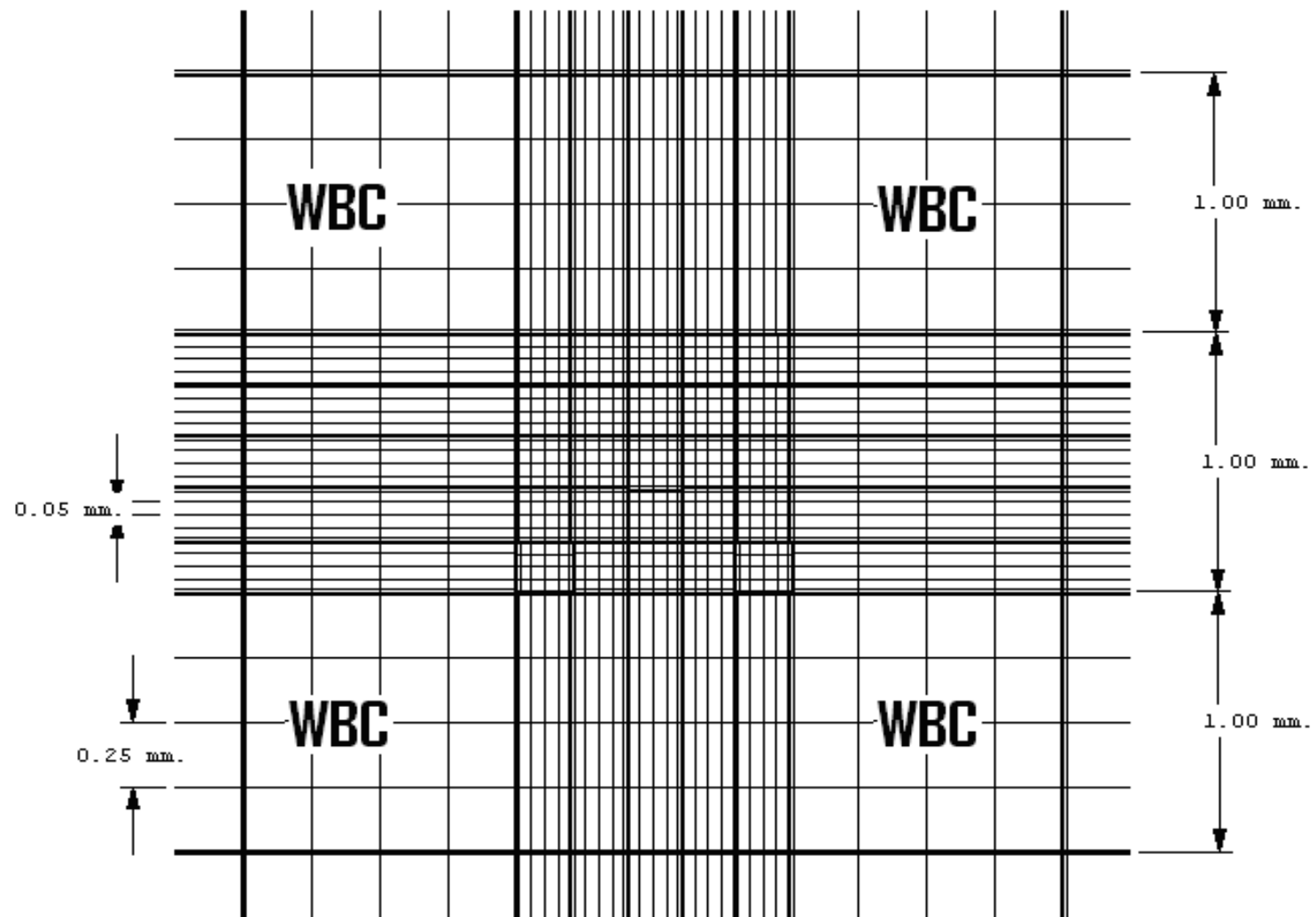


Figure 3.

## **BLOOD DILUENT**

- **Acetic Acid (20%).....20mL.**
- **Methylene blue.**
- **Distilled water.....1L.**

For WBC count, This diluting fluid contains acid solution that lyses the RBC and stains the nuclei of WBCs and allows for easy identification and counting.



## PROCEDURE

1. Cells are scanned under a 10X objective to determine the distribution.
2. Use the 40X objective to count WBC in each of the four of the corner secondary square on both sides of the chamber.
3. Count cells starting in the upper left corner square, continue counting to the right hand square, drop down to next row continue counting from the right square to the left square.
4. Count all cells that touch any of the upper and left lines, Do not count any cell that touches a lower or right line.

