A History of Buffy Coat Analysis

The buffy coat has long interested pathologists, as “buffy” was one of the four terms that dominated the medical thought of the ancients. In 1933, in a paper entitled “Macroscopic Examination of the Blood,” Wintrobe® was perhaps the first to suggest that quantitative examination of the buffy coat in centrifuged blood would provide useful information. He stated that its color and thickness were good guides for estimating the leukocyte and thrombocyte counts. Subsequently Bessis® described a way of separating the buffy coat into three layers. His work was amplified by Drucker® and by Zuckerman & Cressman®.

Wintrobe, Levine and Massey in 1937 developed the technique of centrifuging blood and collecting the buffy coat. This band may be particularly large (up to the thickness of the plasma) in the traditional percentage format presentations and also enhances the user’s awareness of the pathophysiology.

Expected Normal Hematological Values

![Expected Normal Hematological Values](image-url)

**Important Observations**

Inspection of QBC tube prior to reading is an important step in ensuring accuracy.

**Proper Technique Ensures Accuracy**

Correct filling of the tube, proper handling and preparation will enhance the accuracy of the test results.

**Incorrect Filling/Leakage**

- **Technique error**: Insufficient filling of the tube or improper handling causing contamination and dilution effect.
- **Corrective action**: Ensure proper filling of the tube to achieve accurate results.

**Omission of the Float**

- **Technique error**: Omission of the final causes a lack of appearance of a red blood cell reaction at the bottom of the plasma layer. This may cause errors in the measurement of the RBC count.
- **Corrective action**: Always ensure the inclusion of the float for accurate blood cell enumeration.

**Way Buffy Layers**

- **Technique error**: Any deviation between the buffy coat and the red blood cells is an indication of technical error. This may occur due to improper centrifugation or improper mixing of the blood samples.
- **Corrective action**: Ensure proper centrifugation and mixing to achieve accurate buffy coat layers.

**References**

- * Wintrobe MM, p1285-1287, Table 54-1.
- § Wintrobe MM, p1288, 1302, 1304.