FUNdamentals of Haematology: What, When and Why?

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A comprehensive complete blood count (CBC) test consists of 2 components

A quantitative CBC and a qualitative blood smear[1]

Automated CBC: Quantitative evaluation

- Numerical data and indices
- Graphical representations

Blood smear: Qualitative evaluation

- **Estimated** counts for quality assurance
- Cellular morphology
- Polychromatophil count

The Comprehensive CBC

The complete haematology patient picture

Ideally, a blood smear evaluation should be performed as a part of every CBC[1]

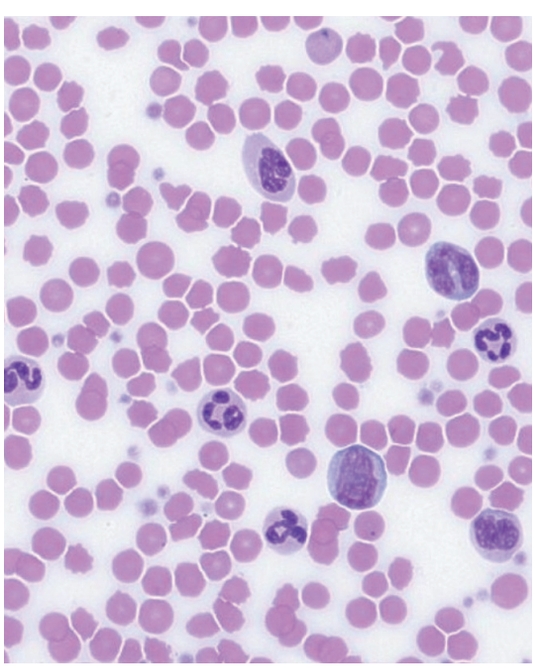
At a minimum, blood smears must be performed:

- On every sick patient
- In each instance of abnormal counts or automated cell count flags

Automated cell count flag	Abnormality
Red blood cells (RBCs)	Anemia[2,3]
White blood cells (WBCs)	Cancer, infection, inflammation[2,3]
Platelets (PLTs)	Disease and clumping[3]

Why aren't blood smears performed more often?[4]

- Lack of experience preparing blood smears
- Time- and labour-intensive process
- Lack of confidence and experience with interpretation
- Assumption that automated count is correct



High-resolution image from VETSCAN IMAGYST™.

A blood smear evaluation **should not be utilised** as a replacement for an automated cell count.
If properly maintained, automated analysers are more precise and accurate than manual cell counts.[5]

Failure to perform blood smears can lead to errors in clinical decisions

Blood smears inform clinical decisions and enable veterinarians to[6-9]:

- Confirm automated CBC results
- Assure quality
- Provide additional insights on cell morphology to guide diagnosis and treatment

Morphological changes that may be identified by a blood smear[1,5,10*]:

Red blood cells (RBCs)	White blood cells (WBCs)	Platelets (PLTs)
Polychromasia†	Left shift (increased neutrophil band cells)	Macroplatelets†
Anisocytosis	Toxic changes	
Spherocytes	Reactive lymphocytes	
Heinz bodies	Blast cells	PLT clumping†
Fragmented RBCs		
Nucleated RBCs†	Mast cells	
RBC parasites		

*Table includes common examples and is not intended to be an exhaustive list.
†Indicates morphological changes currently identified by VETSCAN IMAGYST™ artificial intelligence (AI) blood smear analysis. Other morphology can be assessed via VETSCAN IMAGYST digital cytology image transfer.

Integrating VETSCAN IMAGYST into a complete, in-hospital hematology solution

Use any point-of-care haematology analyser

The VETSCAN® HM5 is an easy-to-use option that reports a full, 5-part CBC differential with 22 parameters in <4 minutes

VETSCAN IMAGYST artificial intelligence (AI) technology can review blood smears automatically and quickly

- Confirm automated cell counts
- Follow up on abnormal automated CBC results
- If abnormalities are observed, expert review via digital image transfer is available*

Access expert review by a Zoetis clinical pathologist when needed*

Digitally submit images for further evaluation beyond AI review, including:

- WBCs—left shifts, toxic changes, malignancy
- RBCs—morphology, inclusions
- PLTs—thrombocytopenia

Optional complimentary consult

Obtain free consultations from veterinary specialists with the Zoetis Global Consultation Service whenever further guidance is needed†

*Option to send physical slide to our network of clinical pathologists as needed. Additional costs may apply.
†Service available through ZoetisDx platform. Speak to your Zoetis representative to learn more.

Request a demo today!

Learn more

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