



# clinical protocol 1

## Anaemia in the cat 1: Investigation

**Anaemia** is a reduction in the numbers of red blood cells, decreased PCV or decreased haemoglobin content. Cats are very prone to anaemia because they have a short RBC lifespan (70d), a small RBC mass and their RBCs are particularly prone to oxidative damage. Normal PCV in the cat is 37%.

Mild anaemia	PCV 20-24%	Moderate	PCV 14-19%
Severe	PCV 10-13%	Very severe	PCV <10 %

### Is the anaemia regenerative or non-regenerative?

**Assess all haematological parameters, a blood smear and reticulocyte count.**

It is very important to establish if the anaemia is regenerative or non-regenerative before deciding on a diagnostic work up. Non-regenerative anaemia is more common in cats. It is important to remember that it takes three to five days for reticulocytes to be released from the bone marrow in regenerative anaemias so they may initially appear non-regenerative.

Regenerative	Non-regenerative
MCV – normally elevated: macrocytic (see exceptions in Causes of anaemia fact sheet)	MCV – often normal: normocytic (see exceptions in Causes of anaemia fact sheet)
Smear examination: polychromasia, anisocytosis, nucleated RBCs	Smear examination: No/minimal evidence of polychromasia, anisocytosis, nucleated RBCs
Reticulocyte per cent (corrected*)	Reticulocyte per cent (corrected*)
Slight 0.5-2%	Normal: <0.4%
Moderate response 3-4%	
Marked response >5%	

\*Corrected reticulocyte per cent =  $\frac{\text{Observed per cent reticulocytes} \times \text{patient PCV}}{\text{Normal PCV (37\% in cats)}}$

**Routine testing.** Detailed biochemical analysis and urinalysis should be performed to assess for evidence of any underlying systemic disease. Radiographic and ultrasonographic imaging may also be indicated.

**FeLV and FIV testing.** Retroviruses are an important cause and thus all anaemic cats should be screened. FeLV may be localised to the bone marrow and hence cannot always be detected on routine screening tests. In these cases a sample of the bone marrow aspirate can be submitted for FeLV testing or PCR.

**Bone marrow sampling.** Indicated if the degree of regeneration is inadequate. A bone marrow aspirate can be taken for cytological analysis of individual cells. A bone marrow core biopsy allows more detailed histopathological analysis, evaluation of the degree of cellularity and presence or absence of infiltration with fat or fibrous tissue. Bone marrow samples are collected under GA and can be collected from the pelvis, femur or proximal humerus.

**Further tests.** In cases of suspected haemolysis a Coombs' test, Haemoplasma PCR, phosphate levels, smear evaluation for Heinz bodies may be indicated, d-dimers and coagulation times may be indicated in cases of suspected DIC. In cases of suspected blood loss coagulation times, buccal mucosal bleeding time, platelet count and imaging may be indicated. In cases of suspected non-regenerative anaemia, ruling out other systemic disease followed by bone marrow sampling is indicated.

### ISFM Clinical Protocol Series

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