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## DIFFERENTIAL DIAGNOSIS OF A NON-REGENERATIVE ANEMIA

### **Non-regenerative anemia's and the relevance of cytopenia's**

A non-regenerative anemia may be caused by diseases inside the bone marrow such as leukemia's, aplasia or dysplasia, myelofibrosis, infections such as Leishmania or Ehrlichia. Also diseases outside the bone marrow such as chronic inflammatory disease, endocrine disorders (hypothyroidism, hypocortisolism), deficiencies (iron, copper), renal disease may cause a suppression of red cell regeneration. Non-regenerative anemias are characterized by a slow-onset anemia. In most cases the owner notices signs caused by the anemia weeks before the presentation that slowly increase in severity. Careful history and physical exam focused on the specific signs and symptoms that characterize each of these differential diagnoses helps to set up a diagnostic route. It is helpful to assess the level of anemia since it can help to prioritize in the differential diagnosis. The hemogram, and especially the presence of bi- or pancytopenia is helpful in identifying diseases that originate from the bone marrow, as is the presence of suspect neoplastic cells in the white cell differentiation. A bone marrow biopsy is indicated in cases of non-regenerative anemia if diseases that cause a suppression of erythrocyte regeneration are unlikely or excluded, and, alternative, if bone marrow disease is suspected. Bone marrow biopsies in dogs and cats are mostly take from the ileum or the humerus. It is a relatively straightforward procedure, however, it should be realized that a great deal of experience is required to regularly obtain good-quality cytology slides.