Case Study 01: Clinical Evaluation of the Ani Hb/Hct, A Portable Anaemia Device for Testing Canine, Feline and other Animal Blood Samples.

AniPOC
Animal Point-of-Care Diagnostics

Dr Kishor Modha, Dr Mark Dunning & Dr Onne-Marju Russak

Background

Anaemia develops in animals via a number of underlying conditions. Irrespective of the aetiology, anaemia reduces the number of circulating red bloods cells thereby reducing the patient's total oxygen concentration, leaving it breathless and lethargic and in some cases jaundiced and unwell.

The diagnosis of anaemia relies upon the determination of Packed Cell Volume (PCV), or Haematocrit (Hct) and Haemoglobin (Hb) concentration. PCV equipment is readily available in all registered practices but can be arduous to setup and perform. Not all practices have in-house haematology analysers to determine Hct and Hb concentration.

Aim of the Study

AniPOC have launched a small portable point-of-care (POC) device to measure Hct and Hb in less than 10 seconds from start to finish. This study compares the accuracy of the Ani Hb/ Hct POC device with a commercial haematology analyser and the manual PCV method used by most veterinary practices.

Study Design

EDTA venous blood samples (n=81) from various species were analysed using the System XT2000i haematology analyser, a PCV micro-haematocrit centrifuge and the AniPOC Hb/Hct POC device, all according to the manufacturer's instructions.

Data Analysis

The results generated from this case study were analysed using the regression best-fit plot to compare linearity of the POC device to the other two methods. R^2 is a measure of goodness-of-fit.

Conclusion

The accuracy of the Ani Hb/Hct device was comparable to the commercial haematology analyser for Hct (R^2=0.938) and Hb (R^2=0.968). The PCV determined by a micro-haematocrit centrifuge and Hct by the POC device was very good as reflected by the R^2 value of 0.988.

A total of 81 blood samples were analysed at an independent central laboratory in UK; Canine n=51, Feline n=19, Equine n=9, and Bovine n=2

Figure 1 : Comparison of haematocrit results determined by haematology analyser and POC device.

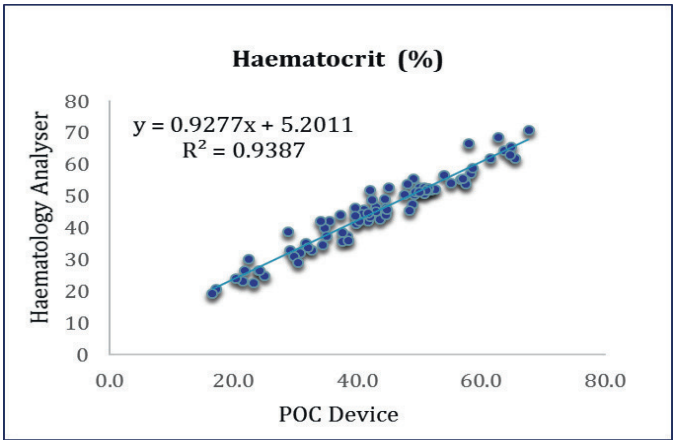

Figure 2 : Comparison of haemoglobin results determined by the haematology analyser and POC device.

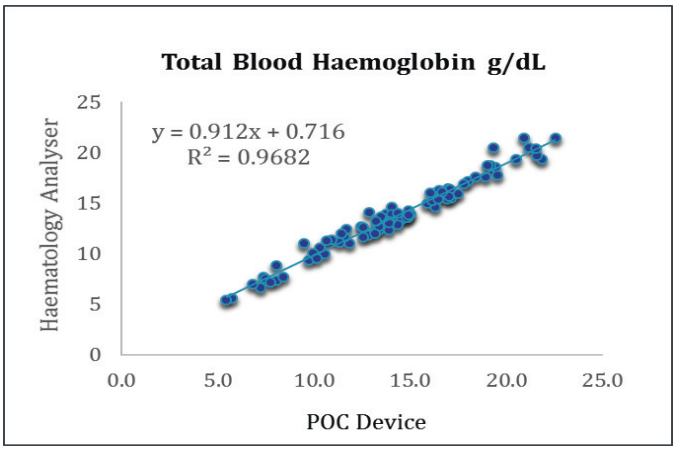

Figure 3 : Comparison of PCV (%) results determined by micro-haematocrit centrifuge and Hct (%) by the POC device.