



# ACCURACY OF THE HEMOCUE® WBC SYSTEM IN PERFORMING TOTAL WHITE BLOOD CELL COUNTS IN DOGS.



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## Introduction

Determination of the total white blood cell (WBC) counts at the point of care can be important in the emergency setting to guide immediate clinical decision-making. The Hemocue® WBC System is a point-of-care device for determination of total WBC counts in human medicine. The aim of this prospective study was to evaluate the accuracy of this device in performing total WBC counts in canine blood samples.

## Methods

Blood samples were taken from 86 dogs that were presented for various disease conditions. The sample was immediately put in an EDTA tube (Vacutainer®). For each animal one drop was immediately analyzed in-clinic using the Hemocue® WBC System, while the rest of the sample was sent to a referral lab (Synlab, Belgium) for measurement of the total number of WBC.

## Results

Results from both measurement methods could be obtained in 79 cases (91.9%). For these cases, mean total WBC count (quartile 1-3) was 11.3 (8.05-14.15)  $\times 10^9/L$  with the Hemocue® WBC System and 10.9 (7.28-13.4)  $\times 10^9/L$  when measured by the referral lab. Agreement between the two methods was shown by a mean bias of 0.5 and a narrow range of agreement (lower level of agreement: -4.0; upper level of agreement: +4.95).

Mean bias was 4.1% and did not exceed the method quality specifications for total allowable error (6.5%). Bland-Altman plot of data did not show significant differences in data sets. Measurements could not be obtained with the Hemocue® WBC System in 7 cases (8.1%). In 3 animals the device indicated 'High' while the total WBC counts performed by the referral lab (respectively 38.9, 41.7 and 48.9  $\times 10^9/L$ ) were above the reference range (6-15  $\times 10^9/L$ ). In 4 animals the device indicated 'Error' while the total WBC count measured by the referral lab was below the reference range for 2 animals (respectively 4.5-4.6  $\times 10^9/L$ ) and within the reference range for the remaining animals.

## Conclusion

The Hemocue® WBC System can be used reliably for obtaining total WBC counts in EDTA blood from dogs. In 8.1% of cases, no measurements could be obtained.

