

## **Title: The clinical utility of glomerular filtration rate measurement in dogs**

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GFR measurement is considered the gold standard for assessment of renal function given direct proportionality to functional renal mass. Although widely used in research settings, there is little published on clinical utility. The aim of this study was to describe the clinical utility of GFR measurement in dogs.

The Royal Veterinary College has offered a GFR service since 2013 using 3 sample iohexol clearance. In addition to serum sample submission, clinical data pertaining to the patients are requested as part of the laboratory submission facilitating GFR interpretation. GFR results and records were reviewed and submitting practices contacted in order to obtain outcome data. Descriptive analysis provides a preliminary assessment of clinical utility of GFR measurement.

Between 2013-2017, 132 canine GFR assessments were performed; the most common reasons for submission being screening for pre-azotaemic chronic kidney disease (CKD; n=103), cutaneous and renal glomerular vasculopathy (n=18) and carboplatin dose adjustment (n=3). Clinical and laboratory findings prompting GFR measurement included polyuria/polydipsia (n=74), urinary incontinence (n=20), proteinuria (n=14) and isosthenuria (n=12). Follow-up data were available for 78.8% and a final diagnosis in 84.6% of dogs. GFR confirmed pre-azotaemic CKD in 11% dogs and psychogenic polydipsia in 13.6%. 84 dogs were alive at follow-up. In only 1/18 dogs that died/were euthanised was death attributed to CKD. Three dogs developed azotaemic CKD during the follow-up period, with median time to onset being 281 days.

This study suggests that GFR measurement is useful to distinguish dogs with pre-azotaemic kidney disease from dogs with psychogenic polydipsia.