



Acapulco

# COMPARISON OF POINT-OF-CARE (POCKETCHEM™ UA) AND REFERENCE LABORATORY PROTEIN:CREATININE RATIO MEASUREMENTS ON CANINE AND FELINE URINE SAMPLES FOR DIAGNOSIS OF PROTEINURIA.

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## Introduction

The Pocketchem™ UA (scil animal care company) is a point-of-care instrument designed for routine analysis of canine and feline urine. Analysis is based on dipstick reading by dual wavelength reflectance.

## Objectives

The aims of this study were to compare Urinary Protein:Creatinine (UPC) ratio measurements by the Pocketchem™ UA with measurements done at a veterinary reference laboratory (gold standard) and to examine agreement between both methods in classifying dogs and cats as being non-proteinuric (NP), borderline proteinuric (BP) or proteinuric (P) according to IRIS guidelines for staging chronic kidney disease. The reference laboratory 'gold standard' measurement of protein is based on benzethonium chloride turbidometry and measurement of creatinine is based on absorbance after picrate reaction.

## Materials and methods

76 urine samples were collected via cystocentesis or free catch from 63 dogs and 13 cats that had been referred for varying disease conditions to a cardiopulmonary referral practice and as part of their diagnostic work-up. Routine urinalysis was done in-clinic while UPC ratio measurements were performed by a veterinary reference laboratory (Synlab Laboratoires Collard, Belgium). Simultaneously, for each urine sample a second UPC ratio measurement was done in-clinic using the Pocketchem™ UA.

## Results

The UPC ratios measured by the veterinary reference laboratory and the Pocketchem™ UA were significantly different, both for dogs (median 0.29, IQR 0.03-1.53, range 0-16.48 vs median 0.1, IQR 0-0.5, range 0-20;  $p < 0.001$ ) and cats (median 0.16, IQR 0.14-0.2, range 0-1.98 vs median 0.1, IQR 0.05-0.1, range 0-0.3;  $p < 0.01$ ).

When each dog's UPC ratio was classified as NP ( $< 0.2$ ), BP (0.2-0.5) or P ( $> 0.5$ ), agreement between both methods was found in 48/63 cases (76.2%). 6 BP dogs were classified as being NP by the Pocketchem™ UA while 4 and 3 P dogs, respectively, were classified as NP and BP by the same instrument. Additionally, 2 NP dogs were classified as BP by the Pocketchem™ UA.

When each cat's UPC ratio was classified as NP ( $< 0.2$ ), BP (0.2-0.4) or P ( $> 0.4$ ), agreement between both methods was found in 6/13 cases (46.2%). All 3 BP cats were classified as NP by the Pocketchem™ UA while 2/3 P cats and 1 P cat, respectively, were classified as NP and BP by the same instrument. Additionally, 1 NP cat was classified as BP by the Pocketchem™ UA.

Variable	Dogs (n=63)			Cats (n=13)		
	Reference lab	Pocketchem™ UA	Agreement	Reference lab	Pocketchem™ UA	Agreement
Median UPC ratio (range)	0.29 (0-16.48)	0.1 (0-20)	no ( $p < 0.001$ )	0.16 (0-1.98)	0.1 (0-0.3)	no ( $p < 0.01$ )
NP	28	26	92,9%	7	6	85,7%
BP	10	4	40%	3	0	0%
P	25	18	72%	3	0	0%
Overall agreement			76,2%			46,2%

Table - Median UPC ratio and range measured by the in-clinic Pocketchem™ UA and by the reference laboratory for both dogs and cats and levels of agreement on classification into Nonproteinuric (NP) (UPC  $< 0.2$ ), Borderline proteinuric (UPC 0.2-0.4 for cats and UPC 0.2-0.5 for dogs) or Proteinuric (UPC  $> 0.4$  for cats and UPC  $> 0.5$  for dogs)

## Conclusion

Overall, Pocketchem™ UPC ratio classifications differed from the gold standard reference laboratory classifications in 28.9% of cases. The Pocketchem™ UA was not a reliable test for the measurement of UPC ratios in this cohort of dogs and cats.

### References:

1. IRIS (International Renal Interest Society). Treatment recommendations for CKD in cats (2015) and IRIS staging of CKD (modified 2016), IRIS website.
2. Rossi et al. Evaluation of factors that affect analytic variability of urine protein-to-creatinine ratio determination in dogs. Am J Vet Res 2012; 73:779-788.

