



Southern Oregon
VETERINARY SPECIALTY CENTER

CATCHING CLUES – SAVE THAT URINE!

DID YOU KNOW?

Diana Schropp DVM

Some of the most valuable information that we can obtain from our patients exists in their urine samples. We have all failed to save or obtain that sample in the early stages of the diagnostics and spend countless time and money running tests to catch up. Educating staff and ourselves to remember to obtain and to save the urine is an important step. You can always throw it away! Ideally, get the sample *BEFORE* starting therapy. Following are a few important tips.

- **Normal urine volume- 1-2ml/kg/hour** -If not producing sufficient volumes, renal insufficiency, urinary obstruction dehydration or hypotension may be present.
- **Urine Specific Gravity**- Just a drop is needed. Urine specific gravity is an indirect indicator of your patient's serum osmolality, hydration status and a direct indication of renal health.
 - <1.008 hyposthenuria - indicates that the kidneys are working. They have to work hard to dilute to this extent. Now you need to figure out why the urine is so diluted.
 - 1.008-1.012 isosthenuria - indicates that the kidneys are not concentrating.
 - 1.013-1.030(dogs) 1.013-1.040(cats) –minimal or questionably concentrated
 - >1.035(dogs), 1.045 (cats) hypersthenuria–kidneys probably can concentrate urine, patient could be dehydrated or normal
 - Use serial specific gravities to monitor the patient's response to IVF therapy. For instance, you may not have properly rehydrated your Parvo patient if the specific gravity is still 1.050 after IV fluid therapy.
- **Are the kidneys are working hard or hardly working?** If you look at your blood work and are confused about whether the elevated BUN, creatinine, and phosphorus indicate renal failure, check the urine specific gravity. If you have pre-treatment isosthenuria, there is some level of renal insufficiency occurring.
- **Sedistix:**
 - Glucose- renal threshold for cats is greater than dogs, but stressed cats with very elevated glucose may have glycosuria. Animals with primary renal tubular disease may spill glucose into their urine. Not all animals with glycosuria are diabetic.
 - Protein- International Renal Interest Society (IRIS) guidelines¹ suggest measuring urine protein/creatinine ratios (UP/C) for staging and monitoring renal disease. Trace proteins or microalbuminuria warrant testing a UP/C.
 - pH- direct treatment for diagnose and treatment of such diseases as renal tubular acidosis, renal calculi/FLUTD,
 - Bilirubinuria-always abnormal in all cats. May be abnormal in dogs. Look for underlying causes
- **Urine culture** - This especially a concern when there is unexplained fever, infection or potential infection, metabolic disease (renal, diabetes, Cushings, renal insufficiency etc), or dilute urine. Even if you don't see evidence of bacteria or white cells on your microscopic examination, bacteria may be present. UTI's may be foci of infection for myocardial, spinal and prostatic infections. With the increase in resistant microbes, empiric use of broad spectrum antibiotics is leading to increasing microbial resistance and pathologic strains in our animals, our hospitals and in us. More owners are questioning the use of antibiotics or refusing them for their pets. Culture will help confirm therapy type and duration and give ambivalent owner's confidence in your treatment protocol. Quantitative cultures are important for determining relevance of bacterial presence and sensitivities of antibiotics. Check your lab for ability to perform quantitative urine cultures and MIC tests.
- **Toxicities**- urine samples can be tested for illicit drug exposure² or toxicities such as ethylene glycol exposure

References:

- www.IRIS-Kidney.com
- One step Multi-Drug ScreenTest Card
- Dibartola S, editor: Fluid, electrolyte and acid-base disorders in small animal practice, ed 3, St Louis, 2006, Saunders
- Smarick S. Urine Output. In Silverstein DC & Hopper Kate, Small Animal Critical Care Medicine, St Louis, 2009, Saunders

If we can help you with your cases don't hesitate to call 24/7!!

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3265 Biddle Road • Medford, Oregon 97504 • Tel: (541) 282-7711 • Fax: (541) 282-7999 • sovsc@hotmail.com