CANINE STRUVITE AND CALCIUM PHOSPHATE CARBONATE UROLITHS
Both struvite and calcium phosphate carbonate form as a consequence of urinary tract infection with bacteria that produce the enzyme urease. Uroliths recur when urinary tract infections are inadequately prevented.

This urolith commonly forms in breeds that are also at risk for calcium oxalate (Shih Tzu, Bichon, miniature Schnauzer, etc.). We hypothesize that increased calcium excretion in combination with urinary tract infection are important risk factors for this compound stone. Therefore, prevention therapy should not increase the risk for calcium oxalate (i.e. do not overly acidify urine).

**PREVENTION**

**DIAGNOSTIC CONSIDERATIONS**
Identify and eradicate structural and functional risk factors for recurrent infections.
Culture the urine.

**MEDICAL CONSIDERATIONS**
Culture and susceptibility testing provides the most accurate method for selecting effective antimicrobials. Penicillins (e.g. amoxicillin) are usually effective against the most common urease producing bacteria (i.e. Staphylococcus sp.).

**NUTRITIONAL CONSIDERATIONS**
Canned foods for older dogs which are lower in protein, phosphorus, and calcium (<5.5g, <170mg, <150mg per 100 kilocalories, respectively), that do not over-acidify (pH < ~6.5) urine (e.g. Hill’s g/d, c/d Multicare, diets for senior dogs with moderate to low protein, others).

**MONITORING CONSIDERATIONS**
Periodic urine cultures (e.g. every 3 months) to manage recurrent infections before uroliths recur.

** Review manufacturer’s therapeutic food literature to determine indications/contraindications. For pets with multiple health concerns, consult a veterinary nutritionist to select an optimal food.**

In depth recommendations and references are available on our website: urolithcenter.org under the resources tab.