Rabies kills approximately 60,000 people each year, mainly in sub-Saharan Africa and Asia, of which 40% of victims are less than 15 years old. Once clinical signs develop, the disease is almost invariably fatal. Globally, rabies has been estimated to cause 3.7 million disability-adjusted life years and $8.6B in economic losses annually. The vast majority of human rabies cases are caused by bites from rabies infected dogs. Despite this loss of human life and resultant economic and societal costs, rabies can be prevented in both humans and dogs by vaccination. This has been demonstrated in many countries, notably in Central and South America, where large-scale, high coverage mass dog vaccination programmes have dramatically reduced the incidence of rabies. Even in parts of Africa and Asia, projects have shown that rabies can be eliminated locally. Nevertheless, rabies remains an important cause of mortality in many sub-Saharan and Asian countries. The reasons why some countries have been able to effectively eliminate rabies whereas others have not are complex and often impossible to definitively identify; commonly cited explanations include political, economic, logistical and societal barriers.

Gastrointestinal effects following acupuncture at Pericardium-6 and Stomach-36 in healthy dogs: a pilot study

D. I. Radkey, V. E. Writt, L. B. C. Snyder, B. G. Jones, R. A. Johnson

Objectives
To quantify changes in gastric and intestinal emptying times in the conscious dog following gastrointestinal acupoint stimulation.

Materials and Methods
In a randomised, blinded crossover study, six dogs were fed 30×1.5 mm barium-impregnated polyethylene spheres and underwent: (1) no acupuncture (Control); (2) stimulation of target points PC6 and ST36 (Target) and (3) stimulation of non-target points LU7 and BL55 (Sham). Abdominal radiographs were assessed immediately after feeding the spheres and every hour for 12 hours and their number in the stomach and large intestines was counted.

Results
The number of barium-impregnated polyethylene spheres found distal to the stomach was less in the Target group compared to the Control and Sham groups between hours 2 and 4, but no differences between groups were seen for the remainder of the treatment period. The number of spheres found within the colon/rectum was less in the Target group compared to the Sham group.

Ureteral ectopia and urethral sphincter mechanism incompetence: an update on diagnosis and management options

L. J. Owen

The two leading causes of urinary incontinence in dogs are ureteral ectopia in juveniles and urethral sphincter mechanism incompetence in adults. While the accuracy of diagnosis of ectopic ureters has improved due to increased use of CT and/or cystoscopy, the diagnosis of urethral sphincter mechanism incompetence largely remains one of exclusion. New treatment options have been developed for both conditions, which have reduced morbidity and mortality, although the rate of long-term urinary continence has not significantly improved for either and neither has our understanding of the pathophysiology behind these failures. This review provides updates on the management of both of these conditions, with discussion of controversial areas and thoughts for future directions.
Control and Sham groups between hours 4 and 6, and compared to the Sham group only at hour 7 but no differences between groups were seen after hour 8.

**Clinical Significance**
Acupuncture targeted at the gastrointestinal tract of dogs was associated briefly with slowed gastric emptying and gastrointestinal transit time. This foundational study lays the groundwork for additional studies of acupuncture effects associated with altered physiologic states.

Health-related quality of life following surgical attenuation of congenital portosystemic shunts versus healthy controls


**Objectives**
To design a health-related quality of life questionnaire for dogs with congenital portosystemic shunts, use it in a cohort of dogs treated with suture attenuation and compare results with those obtained from a healthy control cohort.

**Materials and Methods**
Data were collected from the hospital records of dogs treated with suture ligation of an intrahepatic or extrahepatic congenital portosystemic shunt at two referral centres. Owners were asked to complete a questionnaire assessing their dog’s health-related quality of life preoperatively (retrospectively) and at the time of follow-up. Owners of control dogs also completed the questionnaire.

**Results**
One hundred and twenty-eight dogs with congenital portosystemic shunts and 131 control dogs were recruited. Median follow-up time was 64 months (range 19.7 to 157.2). The median long-term health-related quality of life score was excellent for both intrahepatic and extrahepatic shunt cases and similar to that of control dogs. The long-term portosystemic shunt clinical sign scores for both intrahepatic and extrahepatic congenital portosystemic shunt dogs were significantly worse than the those of the control group.

**Clinical Significance**
Suture attenuation of congenital portosystemic shunts is associated with an excellent health-related quality of life score at long-term follow-up.

The addition of metronomic chemotherapy does not improve outcome for canine splenic haemangiosarcoma


**Objectives**
To determine whether the addition of metronomic chemotherapy improved outcome for dogs with splenic haemangiosarcoma treated with splenectomy and adjuvant maximum tolerated dose chemotherapy.

**Materials and Methods**
Medical records were examined retrospectively for dogs with splenic haemangiosarcoma that had undergone splenectomy followed by anthracycline-based chemotherapy. Thirty-nine dogs underwent splenectomy followed by maximum tolerated dose chemotherapy with an anthracycline, cyclophosphamide, or both (Group 1). Twenty-two dogs underwent splenectomy followed by adjuvant maximum tolerated dose chemotherapy with an anthracycline, cyclophosphamide, or both, plus metronomic chemotherapy (Group 2). Dogs in both
groups were further separated into those treated with either maximum tolerated dose anthracycline or maximum tolerated dose anthracycline and cyclophosphamide.

**Results**
Median progression-free survival was 165 days and median overall survival time was 180 days in Group 1. Median progression-free survival was 185 days and median overall survival time was 212 days in Group 2. In both groups, the overall survival was shorter in dogs that had received maximum tolerated dose cyclophosphamide.

**Clinical Significance**
The addition of metronomic to maximum tolerated dose chemotherapy protocols does not appear to improve outcome in dogs with splenic haemangiosarcoma treated with splenectomy and maximum tolerated dose chemotherapy.

**Materials and Methods**
Medical records of three referral centres were reviewed from 2008 to 2016 to identify a cohort of dogs diagnosed and treated for suspected inflammatory meningoencephalitis after testing for evidence of exposure to these pathogens.

**Results**
In our sample of 400 dogs the prevalence for exposure (IgG≥1:50) to *Toxoplasma gondii* was 8/201 (3.98%). Active infection (IgG titre ≥1:400 or/and an IgM titre >1:64 and/or positive PCR in CSF) was suspected in 1/400 (0.25%). The prevalence for exposure (Indirect fluorescent antibody (IFA) titre ≥1:50) and active infection (IFA titres ≥1:400 and/or positive PCR in CSF) with *Neospora caninum* were 14/201 (6.96%) and 9/400 (2.25%), respectively.

**Clinical Significance**
In view of the low prevalence of protozoan infections, the risk associated with starting immunosuppressive medication in dogs with evidence of inflammatory meningitis or encephalitis in the UK appears low.

**Serological prevalence of toxoplasmosis and neosporosis in dogs diagnosed with suspected meningoencephalitis in the UK**
A. M. Coelho, G. Cherubini, A. De Stefani, A. Negrin, R. Gutierrez-Quintana, E. Bersin, J. Guevar

**Objectives**
To assess the prevalence of antibodies to *Toxoplasma gondii* and *Neospora caninum* in a population of dogs with a diagnosis of suspected inflammatory meningoencephalitis.

**Materials and Methods**
Medical records of three referral centres were reviewed from 2008 to 2016 to identify a cohort of dogs diagnosed and treated for suspected inflammatory meningoencephalitis after testing for evidence of exposure to these pathogens.

**Results**
In our sample of 400 dogs the prevalence for exposure (IgG≥1:50) to *Toxoplasma gondii* was 8/201 (3.98%). Active infection (IgG titre ≥1:400 or/and an IgM titre >1:64 and/or positive PCR in CSF) was suspected in 1/400 (0.25%). The prevalence for exposure (Indirect fluorescent antibody (IFA) titre ≥1:50) and active infection (IFA titres ≥1:400 and/or positive PCR in CSF) with *Neospora caninum* were 14/201 (6.96%) and 9/400 (2.25%), respectively.

**Clinical Significance**
In view of the low prevalence of protozoan infections, the risk associated with starting immunosuppressive medication in dogs with evidence of inflammatory meningitis or encephalitis in the UK appears low.

**Evaluation of compounded aqueous milbemycin oxime: issues with formulation potency and reproducibility**

**Objectives**
To determine the potency and reproducibility of milbemycin oxime when compounded as an aqueous suspension (20 mg/mL).

**Materials and Methods**
Preparation choice reflected current prescribing practices. Samples were acquired by prescription from two national veterinary compounding pharmacies at three time points. Two different storage conditions were evaluated and sampled at four time points from the order date (day 7, 14, 21 and 28). Milbemycin oxime recovery was performed by solid-phase extraction and concentration strength measured via high-performance liquid chromatography.

**Results**
The average concentration on day 7 for Pharmacy A samples was 16.29 mg/mL (confidence interval (CI): 15.66 to 16.92) with a coefficient of variation (CV) - 11%, while for Pharmacy B it was 20.46 mg/mL (CI: 19.83 to 21.08) with CV - 22%. The mean decrease
Comparison of short-term complications between unilateral and single-session bilateral surgery for medial patellar luxation in small/medium breed dogs

L. B. Sanders, J. M. Bevan

Objectives
To compare the short-term complications of unilateral versus single-session bilateral medial patellar luxation surgery in small dogs.

Materials and Methods
The medical records of dogs weighing less than 13.6 kg that underwent medial patellar luxation surgery were reviewed. Dogs were included in one of two groups based on the type of surgery performed (unilateral or single-session bilateral). Postoperative patellar luxation grade and complications were compared between the groups.

Results
Two hundred and fifty-one dogs were included. In the bilateral treatment group, there was less improvement in patellar luxation grade and postoperative medial patellar luxation grade was higher. The frequency of major complications was higher in the bilateral group (23%) compared with the unilateral group (12%).

Clinical Significance
Single-session bilateral medial patellar luxation surgery was associated with a higher complication rate compared to unilateral surgery in this non-randomized observational study. Staged rather than single-session bilateral surgery should be considered in dogs with bilateral medial patellar luxation to improve clinical outcome and reduce the chance of major complications.

CASE REPORT
Presumptive migrating gall bladder mucocoele in two dogs with gall bladder rupture

R. K. Burchell, L. Thornton, C. K. Lim, M. Murakami, Y. Nakamura, A. Gal

A 10-year-old neutered female soft-coated wheaten terrier and a 10-year-old, entire female Pomeranian were presented for vomiting and anorexia. Using ultrasound, an oval structure with a stellate, kiwifruit-like appearance typical of a gall bladder mucocoele was observed in the caudal abdomen of the soft-coated wheaten terrier and adjacent to the liver in the Pomeranian. There was also a moderate volume of abdominal effusion in both dogs. Cytology of the peritoneal fluid indicated a sterile exudative process but varied between the two dogs, with an absence of bile pigment in the soft-coated wheaten terrier and marked bile peritonitis in the Pomeranian. An entire free-floating ectopic mucocoele was confirmed via exploratory laparotomy with concomitant gall bladder rupture and common bile duct obstruction. Both dogs recovered completely after surgery. This is the first report of cases of gall bladder rupture with entire free-floating gall bladder mucocoeles in dogs.

LETTER TO THE EDITOR
Life-threatening arterial haemorrhage following venous occlusion during nephrectomy for renal carcinoma

T. Charlesworth

A report of a 33 kg, 11-year-old Weimaraner.