



UC DAVIS

VETERINARY MEDICINE

California Animal Health and Food Safety Laboratory System

CAHFS CONNECTION

LEADING DIAGNOSTICS NATIONALLY, PROTECTING CALIFORNIA LOCALLY • JULY, 2016



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News Diarrhea Panels Available

CAHFS is now offering two diarrhea panels for calves to enhance detection of causative agents. The first panel is for calves over 7 days of age and screens for Salmonella, Bovine Coronavirus, Rotavirus, and Cryptosporidium. The second panel is for calves 7 days or younger and includes the same agents plus a screen for K99-positive *E. coli*. For sample and pricing information, contact your nearest CAHFS laboratory.

CAHFS welcomed two new faculty members in June. Dr. Arathy Nair, MVSc, PhD, DACVM, joined the San Bernardino laboratory on June 1, 2016. Dr. Nair has a microbiology background and will be managing the activities of the Bacteriology and Milk & Dairy Laboratories.

Bovine

Severe **coccidiosis** was diagnosed in 3- to 4-week-old Jersey calves on an organic dairy where the animals were on pasture for up to two days with their dams, before being moved into individual calf pens. Samples from a calf that died following 4-5 days of diarrhea revealed necrotizing and ulcerative typhlocolitis associated with coccidia oocysts. The pre-patent period for coccidia is three weeks, so exposure probably occurred right after birth while on pasture.

Anaplasmosis was diagnosed in a 1-year-old cow with a history of sudden death. Yellow fat, pleural and pericardial effusions, and splenomegaly was seen on gross examination. *Anaplasma*-like organisms were seen in more than 60% of erythrocytes in blood smears stained with Giemsa; serology demonstrated antibodies to *Anaplasma marginale*.

Small ruminants

Photosensitization of unknown cause was diagnosed in lambs and ewes of a large commercial flock on alfalfa pasture which exhibited head swelling, followed by sloughing of the skin which occurred over several weeks. One 4-month-old lamb submitted had swollen lips and ears, with necrotizing dermatitis. In addition, the lamb had heart and skeletal muscle necrosis with mineralization, consistent with nutritional myopathy. The lamb had low liver selenium, vitamin E and copper.

Wildlife

Two orphaned juvenile opossums died after brief illnesses while being cared for in a wildlife rescue facility.

Streptococcus didelphis septicemia was diagnosed in both opossums which had disseminated lesions associated with intraleisional gram positive cocci.

Equine

A **disseminated hemangiosarcoma** involving vertebrae, paravertebral muscles and lung was diagnosed in a 20-year-old gelding that was euthanized following a 3-day course of recumbency, not responsive to treatment. Gross lesions consisted of scattered small dark hemorrhagic tumors in the lungs, vertebra and adjacent muscle. Microscopically there was degeneration in the spinal cord attributed to compression caused by epidural hemorrhage.

Vitamin E and selenium deficiency was diagnosed in a foal that was born with contracted limbs dying shortly after birth. All skeletal muscle examined had polyphasic degenerative myopathy. Milk aspiration pneumonia and meconium aspiration were also seen on microscopic examination.





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Continued

Pig

Proliferative enteritis caused by *Lawsonia intracellularis* was diagnosed in a 6-month-old Yorkshire pig. The animal had a history of severe clear liquid diarrhea of two weeks duration that progressed to dark brown diarrhea shortly before it was euthanized. On necropsy, the majority of small intestine was markedly thickened, giving it a corrugated appearance. The mucosal lining was overlaid by a thick, dull, yellow, friable pseudomembrane that was easily peeled off. Microscopically, the mucosa of the small intestine was markedly hyperplastic and arranged in broad folds. Crypts were often dilated and filled with aggregates of sloughed necrotic epithelium, mucus and cellular debris. Intestinal enterocytes contained many short, silver-staining positive bacterial rods in their apical cytoplasm, consistent with *Lawsonia intracellularis*.

Fish

Seven days after introduction of juvenile Koi into a fish pond containing 10 adult Koi, the latter became sick, lateral and eventually all died. Three dead Koi were submitted to CAHFS. Histologic examination of the gills revealed multifocal ulceration and inflammation with the presence of ciliated protozoan parasites typical of ***Ichthyophthirius multifiliis* infection (Ich)**. These are common ectoparasites of freshwater fish, which are highly infectious, causing high mortality in susceptible populations. Koi Herpes virus infection was ruled out by PCR.

Poultry and Other Avian

Numerous cases of **Reovirus**-induced tenosynovitis were diagnosed in multiple broiler chicken flocks. Clinical signs of swollen hocks and lameness were seen as early as 12 days of age, but were typically present after day 30. Histologically, the tendon sheaths were thickened by ede-

ma and infiltrates of lymphocytes that often formed aggregates. Reovirus was isolated from the tendons of affected birds, and serology revealed high titers to this virus.

Colibacillosis was diagnosed in a 3-week-old broiler flock with a clinical history of birds with leg problems and variation in size. On necropsy, the hocks were swollen and edematous, with increased cloudy joint fluid. Histopathology confirmed pericarditis, perihepatitis, osteomyelitis, and arthritis of the hocks. *Escherichia coli* was isolated from the joints, heart and liver.

Inclusion body hepatitis (IBH) was diagnosed in several flocks of broilers, ranging in age from 14 to 18 days. Increased mortality as high as 1.8% per day was noted. At necropsy, the most striking lesions were swollen, pale, mottled reddish and yellowish livers, with petechial and ecchymotic hemorrhages, swollen and pale kidneys, small bursas and, in a few birds, hydropericardium and hemorrhages in the pancreas. Large numbers of basophilic intranuclear adenovirus-type inclusions associated with extensive areas of necrosis were seen histologically in liver and pancreas. IBH is caused by Fowl adenovirus group 1, which is transmitted horizontally and vertically.

New Faculty *(continued)*

Dr. Ben Moeller, PhD, DABT, joined CAHFS on June 9, 2016. Dr. Moeller, who has a background in analytical chemistry, will help oversee the equine drug testing services in the K.L. Maddy Equine Analytical Chemistry Lab.

