ISSUE 39

WINTER 2022

NATIONWIDE LABORATORIES WINTER NEWSLETTER

HERE FOR YOU: IN PERSON & VIRTUALLY

FREE CPD

HELP! IT'S A FERRET by Madonna Livingstone BVMS MRCVS

CLICK HERE →

Basic cytology for practitioners by Trevor Whitbread BSc BVSc DipECVP MRCVS

CLICK HERE →

Hypercalcaemia in dogs and cats: an Overview by Dr Stacey A. Newton BVSc Cert EM (Int Med) PhD FRCPath MRCVS

CLICK HERE →

Lunchtime Basic Bitesize Pathology: Small Animal Mammary Pathology by Sandra Dawson BSc BVMS FRCPath MRCVS

CLICK HERE →

What are you itching to know about feline atopic skin syndrome? by Dr Rosario Cerundolo DVM, Cert. VD, Dipl. ECVD, FRCVS

CLICK HERE →

Clinical Pathology in cats and dogs - why species, breed and age matter by Helen Campbell BVM&S FRCPath MRCVS and Alina Bodnariu DVM MSc PhD FRCPath MRCVS

CLICK HERE →

Haematology and biochemistry results in equines: interpretation and significance by Dr Stacey A. Newton BVSc Cert EM (Int Med) PhD FRCPath MRCVS

CLICK HERE →

Message from David Charvill

Dear friends,

Welcome to our newsletter. At NationWide Laboratories we're committed to making a positive impact on animal health by offering innovative products, technology and laboratory services to your veterinary practice. We have been providing a comprehensive range of veterinary diagnostic services since 1983 for companion, farm and exotic animals. We operate an independent National EQA scheme for all practices and for a wide range of analytical equipment brands. Our hydrotherapy pool testing programme is designed to assist you in demonstrating to your clients that your hydrotherapy facility meets the guidelines for water safety and quality. We're an exclusive UK distributor of allervet® and we also supply Artuvet.

Nationwide Specialist Laboratories are veterinary endocrine specialists with many years of experience in veterinary diagnostics, ELISA assay and radioimmunoassay development, optimisation and validation.

We are the centre of educational excellence and we are offering the vet community a wide range of free and reasonably priced CPD. Our virtual learning hub at THE Vet Exhibition welcomes veterinary professionals from all over the world. We are here for you both in person and virtually - talk to us! We welcome an opportunity to make a positive difference to your practice.

David Charvill,
Director of Laboratory Services

NWL ANNOUNCES LECTURES AT BSAVA 2022

NationWide Laboratories is going to be delivering lectures at BSAVA Congress in Manchester and at BSAVA Virtual Congress. Interactive Exhibition Theatre Session is going to take place on **Thursday the 24th March at 11:15-11:45am (Manchester Central, Theatre 1)** and the broadcast of the **Virtual Congress lecture is scheduled on Thursday the 24th March at 12.30-13.15pm.**

Interactive Exhibition Theatre Session: Interpretation of cytology and histology reports – an insight into the mind of a pathologist by Danilo Gouveia Wasques MV MSc DipACVP

Interpretation of histology and cytology reports is often quite straightforward, but it is not uncommon for clinicians to have to manage cases and make decisions in face of some degree of uncertainty that some reports convey.

In this presentation, a series of clinical cases will be presented, together with the results of a pathology report (cyto and/or histo), and the audience will have the opportunity to vote on how they would manage that case in light of these results.

It is intended to be an open discussion about management of clinical cases. Typical cases will be discussed, as well as more challenging ones. It will also be an opportunity to share with clinicians what exactly it is that we pathologists look at/for under the microscope. Cytological and histological images of some cases will be shared, with a brief discussion of the morphological features that we rely on when making a diagnosis.

Also, since nearly every diagnostic decision made by a pathologist has some degree of clinical impact, it will be an opportunity to give an insight into how the mind of a pathologist works. What are the types of questions that we pathologists ask ourselves when evaluating a case? How can we be certain that we are conveying the most clinically relevant information possible in the report? What is it that we think that the clinician expects from us?

Being an interactive presentation, it will also be an opportunity to exchange experiences and to give feedback on how clinicians manage common and uncommon cases. In this presentation, each case/question is not supposed to have a correct answer. Rather, different approaches to each case will be presented, and a brief discussion of each case will take place afterwards, with some approaches backed up by scientific evidence whenever possible. The final objective is to strengthen the communication between pathologists and clinicians.

BSAVA LIBRARY

Histiocytic diseases in dogs and cats: an overview of clinical presentation and diagnosis by Alison Lee BSc MVB MRCVS DipACVP

This is an overview of histiocytic diseases in dogs (histiocytoma, cutaneous Langerhans cell histiocytosis, cutaneous histiocytosis, systemic histiocytosis, histiocytic sarcoma and dendritic cell leukaemia) and in cats (progressive histiocytosis, histiocytic sarcoma and pulmonary Langerhans cell histiocytosis), including their cellular origins and clinical presentation. An overview of their diagnosis, including the use of cytology, histopathology and immunohisto-chemistry is also provided.

WATCH FREE →

Getting the best from your pathologist: post-mortems and surgical biopsies - tips and tricks for vets in practice by Alison Lee BSc MVB MRCVS DipACVP and Danilo Gouveia Wasques MV MSc DipACVP

WATCH FREE →

CPD BUNDLES IN PARTERSHIP WITH THE WEBINAR VET

5 hours of CPD with a certificate: Companion Animal Bundle £37.00 ex VAT

CLICK HERE →

2 hours of CPD with a certificate: Endocrinology Bundle £17.00 ex VAT

CLICK HERE →

2 hours of CPD with a certificate: Parasitology Bundle £27.00 ex VAT

CLICK HERE →

3 hours of CPD with a certificate: Cattle Bundle £27.00 ex VAT

CLICK HERE →

2.5 hours of CPD with a certificate: Exotics Bundle £17.00 ex VAT

CLICK HERE →

Virtual Congress Session: Canine Mast cell tumours: 50 shades of Grading. Prognostication and prediction of biologic behaviour by Alison Lee BSc MVB MRCVS DipACVP

Canine mast cell tumours (cMCTs) are common tumours in dogs, arising in the skin, subcutis and other sites such as mucous membranes and viscera. The biologic behaviour of cMCTs arising in the skin (cutaneous cMCTs) is extremely variable: some display a benign biologic behaviour and can be cured by marginal excision, while others demonstrate malignant behaviour, with recurrence despite wide margins, and metastatic spread to lymph nodes and other viscera. Predicting the behaviour of these neoplasms can be challenging for vets and pathologists alike.

This talk will provide a brief overview of the background to cutaneous cMCTs, followed by a discussion of the various means by which the potential biologic behaviour can be predicted. These include clinical assessment of the appearance and behaviour of the neoplasm, histologic grading (with both the three-tier/Patnaik and two-tier/Kiupel grading system), mitotic count, the immunohistochemical prognostic indicator Ki67, KIT staining pattern and PCR for mutations in exons 8 and 11 in the c-kit gene. This will give vets in practice an understanding of the various prognostic indicators available for assessment of these neoplasms, their potential limitations and in which practical scenarios they may be useful.

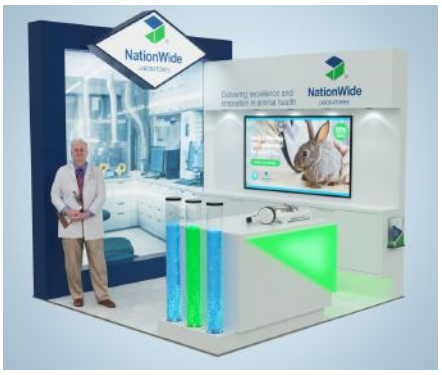
Learning outcomes:

Recap of general background information re cMCTs

1. How cMCTs are diagnosed
2. Gain an understanding of the histologic parameters used to predict the biologic behaviour of cMCTs
3. Gain an understanding of further laboratory tests used in the assessment of cMCT biologic behaviour:

- Immunohistochemical staining for Ki67
- KIT staining patterns
- c-kit PCR

Visit our FREE interactive online learning hub



Topic changes every month!
Full CPD with a certificate
"HOW TO" podcast
Literature library
Labfacts
and much more!
Chance to win up to 5 hours of CPD by filling in a short survey!

CLICK HERE TO VISIT FREE →

MEET OUR BSAVA SPEAKERS

Danilo Gouveia Wasques

MV MSc DipACVP

Danilo graduated from the University of São Paulo in Brazil in 2008 and became a resident in veterinary pathology in Londrina State University the next year. After gaining experience with cytology and surgical pathology of small animals in commercial diagnostic laboratories, Danilo went back to the University of São Paulo and obtained in 2018 a Master's degree in comparative and experimental pathology, with a focus in oncopathology. In October 2021 Danilo passed the ACVP Phase II Certifying Examination in Veterinary Anatomic Pathology and earned the status of Diplomate. He has specialist interest in oncology, gastrointestinal pathology and dermatopathology.

Alison Lee

BSc MVB MRCVS DipACVP

Alison studied veterinary medicine in University College Dublin (UCD). She also undertook an intercalated degree in veterinary pathology at the Royal Veterinary College. After a year in small animal practice, she completed her anatomic pathology residency in UCD and became a diplomate of the American College of Veterinary Pathology. Her interests include dermatopathology, oncology and exotic animals.

IN FOCUS: Zoonotic diseases in companion animals in the UK

Zoonoses are diseases that can be transmitted from animals to humans. According to the health and safety executive there are approximately 40 potentially zoonotic diseases currently identified in the UK and approximately 300,000 people in a variety of occupations which are potentially vulnerable to these zoonotic diseases.

The increased freedom of movement of animals across borders over the last twenty years, the increase in imported rescue dogs and effects of climate change have all contributed to significant changes in the distribution of infectious diseases across the globe. Therefore, the location of the UK as an island nation in the cooler climate of northern Europe is no longer a guarantee that many of these potential pathogens will be excluded from our animal populations.

In this review we would like to highlight three zoonotic diseases that may occur in companion animals in the UK: leptospirosis, brucellosis and tuberculosis.

Leptospirosis

Leptospirosis is a zoonosis caused by spiral-shaped bacteria of the genus *Leptospira* (also referred to as *leptospires*), which may be either pathogenic or saprophytic. Hosts become infected either by contact of mucous membranes or broken skin with contaminated soil or surface water or alternatively by contact with the urine from infected animals.

There are over 250 known pathogenic serovars infecting a variety of species. Pathogenic *leptospires* belong to the sub-group Leptospira interrogans and non-pathogenic ones to the subgroup Leptospira biflexa. Antibody prevalence data indicate that dogs in Europe are mainly exposed to serogroups Icterohaemorrhagiae, Grippotyphosa, Australis, Sejroe and Canicola. The serogroup Grippotyphosa is common in continental Europe, but rare in the UK and Ireland.

Leptospirosis is more common in tropical areas of the world and is still uncommon in the UK. Clinical leptospirosis is common in dogs, but uncommon in cats. Both asymptomatic cats and dogs can shed leptospires in urine and pose a risk to humans.

In dogs, acute leptospirosis most commonly causes acute kidney injury (AKI) and liver disease, however pulmonary disease and haemorrhagic disease may also occur. Common haematological abnormalities include anaemia, thrombocytopenia and leukocytosis or leukopenia. Frequent biochemical abnormalities include elevated hepatic enzymes, urea and creatinine, as well as electrolyte disturbances. Urinalysis reveals isosthenuria in the majority of cases, with occasional hyposthenuria reported. Glucosuria, haematuria, pyuria and granular casts may be seen. Proteinuria of glomerular and tubular origin occurs in the majority of dogs.

The most useful diagnostic tests for canine leptospirosis are the Microscopic Agglutination Test (MAT) to detect antileptospiral serum antibodies and the PCR for detection of leptospiral DNA.

Recent infection is best confirmed with MAT testing of paired serum samples, collected one or two weeks apart. A fourfold or greater rise in MAT is highly suggestive of leptospirosis.

NEW SDMA ASSAY

This assay has been validated against Liquid Chromatography – Mass Spectrometry method which is the Gold standard. This is an immunoturbidimetric assay and has been validated for dogs, cats and horses. Li-hep plasma or serum are suitable samples for this assay. THE RESULTS ARE AVAILABLE SAME DAY.

LEISHMANIA PCR TESTING: IMPORTANT NOTICE

A negative Leishmania PCR result on blood cannot be used to rule out disease.

The sensitivity of detection by PCR: bone marrow or lymph node aspirates > skin aspirates > conjunctival swabs > buffy coat > whole blood. So, although blood is often positive by PCR in clinical Leishmania disease, a negative result cannot be used to rule out disease.

The high titre of Leishmania antibodies in this case must be interpreted in conjunction with the clinical history, including vaccination history, clinical signs and other diagnostic tests. Continuing monitoring in 4-6 months time may be considered.

GERIATRIC PET PROFILES

Comprehensive testing is recommended for senior dogs and cats, due to the higher risk of underlying disease. There are four main categories of wellness testing for senior pets: **complete blood count, biochemistry profile, urinalysis, and thyroid hormone testing**. Our canine and feline geriatric profiles include a chemistry panel to **evaluate kidney and liver function, antibody and protein levels, blood sugar, cholesterol, electrolytes and more**.

For more information, please contact us at info@nwlabs.co.uk.

Leptospires are generally detected by PCR in blood for the first 10 days after infection and thereafter in urine. The European consensus statement on leptospirosis in dogs and cats recommends PCR testing of both blood and urine collected before antibiotic administration in each dog with a clinical suspicion of leptospirosis, regardless of the duration of the clinical signs. A clinical suspicion of leptospirosis can be confirmed post-mortem by applying PCR to renal tissue.

According to the European consensus statement positive PCR on blood together with consistent clinical signs is highly suggestive of acute leptospirosis. A positive PCR on urine indicates renal shedding, which can occur in both acutely infected animals and chronic renal carriers. Negative results on blood or urine do not rule out leptospirosis. PCR on urine is the test of choice to detect renal carriers.

The European consensus statement on leptospirosis in dogs and cats includes a list of recommendations for hygiene measures in Veterinary Hospitals related to potential cases of leptospirosis.

Brucellosis

It is important to highlight the recent increase in cases of Brucella canis infection diagnosed in the UK. Since summer 2020, the APHA has been notified of more than 40 cases of canine brucellosis. Almost all cases have been imported dogs, the vast majority from Romania. Brucella canis is not considered endemic in the UK and historically it has only rarely been diagnosed in imported dogs.

Brucella canis infection in dogs is predominantly associated with reproductive failure, but other clinical signs include discospondylitis and uveitis. Infection can also be subclinical. Diagnostic tests available in the UK are Brucella canis serum antibodies and PCR for detection of Brucella canis on EDTA blood, urine, semen, aborted material or swabs of presumed infected tissue.

Zoonotic infection with *Brucella canis* is infrequently reported in humans but may be under-diagnosed, due to often vague clinical signs and lack of testing. Infected dogs pose a significant risk to owners, veterinary staff and laboratory staff processing pathology samples, particularly in individuals with certain underlying health conditions.

In order to identify cases and minimise the risk of infection and transmission to other dogs or humans the following measures are recommended:

- Highlight risk to clients importing dogs from Eastern Europe (particularly Romania) or those travelling with their pets to this region.
- Encourage potential owners to request pre-export testing and consider pre-breeding testing.
- Highlight risk to the veterinary team and routinely record the origin and travelling history of dogs (and their parents) when they are registered and seen.

Tuberculosis

Tuberculosis (TB) is an infectious disease caused by a number of different, but closely related bacteria. Relevant members of the tuberculosis complex group include *Mycobacterium (M.) tuberculosis, M. bovis* and *M. microti.*

M. tuberculosis causes over 90% of tuberculosis cases in people, but rarely infects other mammals, except for dogs. M. bovis is the main cause of tuberculosis in cattle. It can also infect various other mammals, including humans, dogs, cats, deer, llama and pigs. *M. microti* causes tuberculosis in voles and cats (the disease in humans due to *M. microti* is incredibly rare).

Bovine tuberculosis in cattle and badgers receives most attention from the veterinary profession in the United Kingdom. However, recent outbreaks in companion animals have raised the profile of tuberculosis in companion animals and other species.

For example, an outbreak of *Mycobacterium bovis* infection was reported in a pack of English Foxhounds (2016-2017). Whilst the source of infection was uncertain, it seems likely that contaminated fallen stock carcasses were involved. One kennel worker was diagnosed with latent TB, potentially due to exposure to infected hounds and/or their contamined food.

Another outbreak of *Mycobacterium bovis* infection was reported in pet cats across England and Scotland associated with feeding commercial raw food (2018-2019). Four owners and one veterinary surgeon were found to have high likelihood of latent tuberculosis infection. One owner required treatment. Although it was not possible to conclusively demonstrate zoonotic origin for these infections, neither was it possible to eliminate the suspicion.

In what concerns testing for tuberculosis, intradermal tuberculin testing and interferon gamma release assays (IGRA) are at the forefront of bovine TB testing. The IGRA is showing promise for detecting *Mycobacteria* in dogs and cats. Tuberculin testing is not thought to be useful in cats and is not often used in dogs.

To confirm mycobacterial involvement in dogs and cats, aspirates and/or biopsy samples of affected tissues should be stained with ZN stain. Finding acid fast bacilli confirms the presence of mycobacteria, but identification of the organism by culture or PCR is required to identify the organism and evaluate the zoonotic risk.

General measures to minimize risk of transmission of these pathogens from animals to humans:

- Ensure appropriate testing is performed and PPE is used in suspected clinical cases.
- Notify diagnostic laboratories clearly on submission forms of the suspected zoonotic disease when submitting samples to enable the laboratory staff to take appropriate precautions.
- Ensure sample packaging is biosecure.

Alina Bodnariu
Clinical Pathologist
(DVM MSc PhD FRCPath MRCVS)

Rita Figueiredo
Clinical Pathologist
(LMV MRCVS)

Helen R Campbell
Clinical Pathologist
(BVM&S FRCPath MRCVS)

Sandra Dawson
Veterinary Pathologist
(BSc BVMS FRCPath MRCVS)

How often do you see a bearded dragon or a chameleon in your practice?

We are pleased to present to your kind attention short case study videos:

Fungal disease in bearded dragons by Karina Fresneda

WATCH FREE →

Curious chameleon case by Alison Lee

WATCH FREE →

Outbreak of Gastrointestinal Disease in Dogs: SAVSNET plea

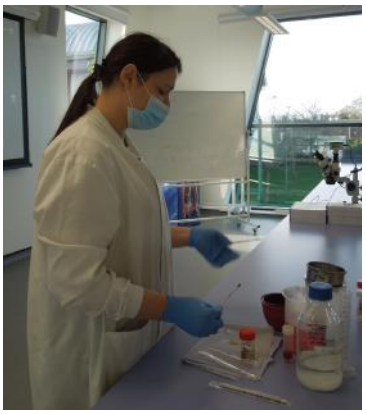
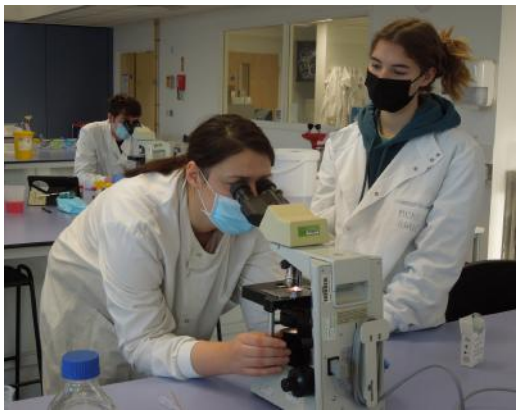
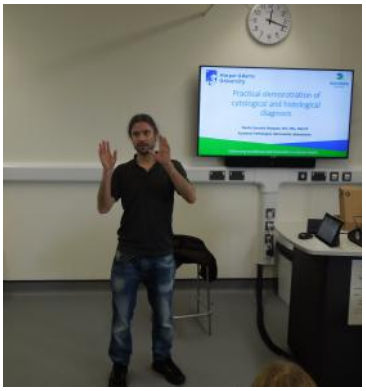
SAVSNET, a joint BSAVA and University of Liverpool initiative has now initiated a suspected outbreak investigation response. To support the investigation, help is needed from veterinary practices, laboratories and pet owners.

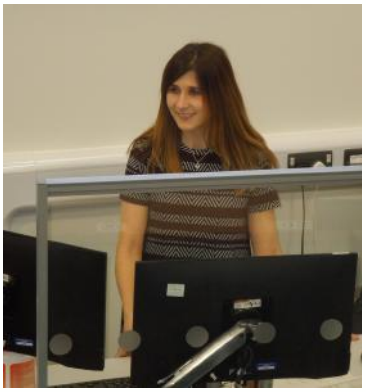
READ MORE →

Workshop for Harper & Keele Veterinary School students, February 2022: photo report

NationWide Laboratories team was invited to conduct one-day tutoring at Harper & Keele Veterinary School. **Alan Garnett** and **Jana Leontescu** focussed on ectoparasites, endoparasites and work in the laboratory. **Danilo Gouveia Wasques** did a class on histology and cytology correlation with case studies and practical training on punch biopsies and FNA. **Alison Lee** gave an interactive presentation about a career in veterinary pathology. The audience was interested and engaged and it was an exciting opportunity for us to raise aspirations, illuminate careers and support learning.






Meet Alan Garnett

I joined the Veterinary Investigation Service in 1984 as a Laboratory Attendant in Liverpool. I transferred to Preston a year later where I was responsible for looking after the post mortem room. I was promoted to the laboratory in 1990 where I rotated through all disciplines. In recent years, my main specialism has been in the bacteriology laboratory isolating and identifying significant pathogens from a range of clinical specimens. I joined NWL in 2017 where I have consolidated my small animal and exotics bacteriology and parasitology.

Meet Jana Leontescu

I am from Romania and I studied veterinary medicine in the University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca. I used to work as a vet in a 24-hour animal hospital but the world of science has always been fascinating for me, so now I pursue a career in a diagnostic laboratory in the microbiology department at NWL. My specialist interest is parasitology.

NationWide Laboratories in press

Mammary tumours in dogs and cats by Sandra Dawson

CLICK HERE →

Soft tissue sarcoma: case study by Alina Bodnariu and Sandra Dawson

CLICK HERE →

Atopic dermatitis in dogs, cats and horses

CLICK HERE →

What do I need to know about allergy testing? by Stacey Newton

CLICK HERE →

Investigation of calcium disorders and sample preparation by Stacey Newton

CLICK HERE →

Sampling and packaging techniques for histology samples, and how to deal with unusual biopsy specimens by Sandra Dawson

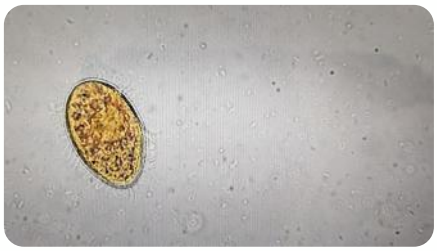
CLICK HERE →

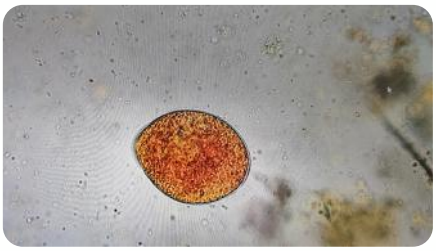
Immunochemistry at NationWide Laboratories by Sandra Dawson

CLICK HERE →

PARASITOLOGY INSIGHTS

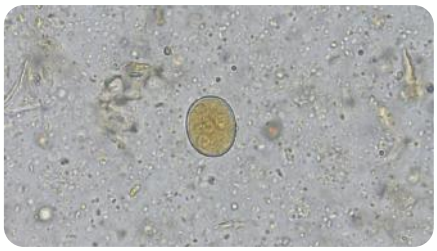
Balantidium sp. cyst and trophozoite in a dog





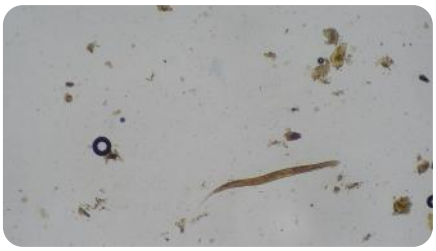
Balantidium coli, is natural inhabitant of digestive tract of mammals and widespread in swine. The vegetative forms may produce acute or chronic enteritis in human, monkeys and pigs. Alongside with well known *Balantidium coli*, there are more than 80 species described so far. In dogs *Balantidium* infection is rare and is frequently associated with exposure to swine. Trophozoites reside in the colon and result in ulcerative colitis. Size gauge in the pictures: *Balantidium sp.* dog trophozoite 40/25 um, cyst about 55/37 um. Sample: direct iodine stained faecal smear.

Entamoeba sp. cyst found in a sloth



Entamoeba is a genus that contain diverse protists found in human, nun-human primates and other animals. Some species of *Entamoeba* are pathogenic but the majority of them are non-pathogenic. One of the important species is *Entamoeba hystolitica* which is an important zoonotic pathogen and according to WHO in 1997 were about 50 million of human cases of haemorrhagic gastroenteritis and about 100,000 deaths annually due to this pathogen. Size gauge in the picture: *Entamoeba sp.* in a sloth, cyst size 28/18 um. Sample: direct iodine stained faecal smear.

Strongyloides sp. larvae from a non-human primate



Strongyloides spp. are obligate gastrointestinal nematodes that are relatively host specific, but transmission between species can occur. It is estimated that between 30-100 million people are infected by *Strongyloides spp.* worldwide. Size gauge in the picture: *Strongyloides sp.* larva 250/10 um. Sample: direct iodine stained faecal smear.

Jana Leontescu

References: *Heinz Mehlhorn, Encyclopaedia of parasitology 4 ed. 2016. Springer, pp 295.*

Regan CS, Yon L, Hossain M, Elsheikha HM. Prevalence of Entamoeba species in captive primates in zoological gardens in the UK. Peer J. 2014;2:e492. Published 2014 Jul 29. doi:10.7717/peerj.492

Bethony J., Brooker S., Albonico M., Geiger S.M., Loukas A., Diemert D.J., Hotez P.J. Soil-transmitted helminth infections: Ascariasis, trichuriasis, and hookworm. Lancet. 2006;367:1521–1532. doi: 10.1016/S0140-6736(06)68653-4

EQA SCHEME

NationWide Laboratories operates an independent National EQA scheme for all practices and for a wide range of analytical equipment brands. This ensures that equipment and reagent problems that uniformly affect a single brand will be identified. Reports will be generated from the data submitted and provided to individual participants or group practice headquarters.

Options:

- Biochemistry EQA and "paired sample" comparison testing for Haematology analysers
- Biochemistry EQA only
- "Paired sample" comparison testing for Haematology analysers only

For further information and to register contact us on 01253 899215 or via email info@nwlabs.co.uk.

HYDROTHERAPY POOL WATER TESTING

We all know that hydrotherapy in conjunction with veterinary treatment can assist in improving the rate of recovery and healing of animals after injury or surgery. At NationWide Laboratories we can assist you in demonstrating to your clients that your facility meets the guidelines for water safety and quality through our hydro pool testing service, which meets the requirements of hydrotherapy associations such as CHA and NARCH.

We will provide you with the sample bottle, guidance on how to take the sample and prepaid postage to get the sample to us. You will receive a report of printed enumerated results for total viable count at 37 degrees itemising *total coliforms, E. coli, Pseudomonas aeruginosa* and guidance for interpretation.

Simply call 01253 899215 or email info@nwlabs.co.uk for more information.

NationWide Laboratories is a trading business of National Veterinary Services Ltd. Unit 4, Jamage Industrial Estate, Talke Pits, Stoke-on-Trent, Staffordshire, ST7 1XW. 1627 83