



BURSARY SUPPLEMENT

INTERVET CONNECT BURSARY

The Intervet Connect Bursary Award is celebrating its 16th successful year and we're proud to be able to support such a wide range of worthwhile projects.



With this year's topics ranging from a study of the intestinal parasites in dogs in Palau, Micronesia to bovine uterine prolapse and prognosis after treatment, the sheer diversity of projects and enthusiasm from the veterinary students involved continues to impress me.

Included in this supplement you will find a review of these inspiring projects, together with an overview of the Intervet Connect Bursary Presentation Day, which gave award recipients the opportunity to present their findings in person, and details of the overall Intervet Connect Bursary Award winner, Joe Neary from Cambridge Veterinary School.

Jim Hungerford
General Manager, Intervet UK Ltd

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Intervet Connect Presentation Day



Students and staff from the UK's vet schools attended the Intervet Connect presentation day

After the successful launch of the Intervet Connect Bursary Presentation Day in 2006, I eagerly looked forward to see how the 2007 award entrants had completed their projects, using knowledge, skill and sometimes cunning, to achieve their goals. And I was not disappointed. The audience were taken from the Visakha SPCA, India where the Animal Welfare Education Programme was explained (over 27,500 dogs within the vicinity had been neutered to date), then on to Africa, in particular Cameroon, where two projects were undertaken. The first was an investigation into *Onchocerca armillata*, a parasite of North Cameroon, and the other in the small fishing village of Limbe where anaesthesia and analgesia in non-human primates were compared. Then back to the West for another comparative study, this time looking at the effects of financial constraints, group sizes and rapid throughput on analgesic and anaesthetic techniques in an American Charity Clinic (Seattle) and the prestigious Dick Vet Hospital (Edinburgh). We were then taken to unfamiliar territory – the island of Palau in Micronesia where we were

treated to some glorious photos of the beautiful island – and canine parasites! Finally back to the UK, mainly Cumbria, where bovine uterine prolapse was discussed and prognostic indicators identified, which should give more clarity in identifying cows unlikely to survive.

The enthusiasm of all participants was evident to see as they described their achievements with well deserved pride. Some of the magnificent photographs could have won awards in themselves, and had the power to transplant the audience to the locality. After much deliberation, the judges chose the project by Joe Neary (Cambridge) on his study into whether *O. armillata* carries the Rickettsia, *Wolbachia*, in Cameroon. This was a fascinating study in that it was postulated that certain *Onchocerca* species may survive long-term in the host due to the host's inflammatory cell environment around the nematode stimulated by the presence of *Wolbachia*. Not only did the recipient show that *O. armillata* carried the bacterium, but most of the laboratory work – histopathology, PCR gels,

immunohistochemistry - was performed by the student. A well deserved award winner on many counts, showing objective, application, dedication and use of scientific principles.

I hope that students reading this supplement will be encouraged to apply for the next awards and discover the satisfaction of carrying out their own research programme and the exhilaration in many cases of finding something new. It all adds to our knowledge of veterinary medicine, for this generation and those to come.



Stuart Chalmers BSc PhD CBiol MIBiol
R&D Director, Intervet UK Ltd

An investigation into *Onchocerca armillata*, a cattle parasite in North Cameroon

Joe Neary from Cambridge Vet School was awarded the overall Intervet Connect Bursary Prize for his research into the cattle parasite, *Onchocerca armillata*, in North Cameroon.



Joe Neary obtaining samples in North Cameroon

Filarial nematodes are major pathogens responsible for debilitating diseases in human and animal populations of the tropics. 'River Blindness', caused by *Onchocerca volvulus*, infects an estimated 37 million people, with 90 million at risk of infection in Africa. Sadly, there is no safe drug for mass treatment to kill adult worms.

However, many, but not all, filarial nematodes carry endosymbiotic, Rickettsia-like bacteria of the genus *Wolbachia*. Furthermore, it has been shown unequivocally that treatment of cattle infected with the *Wolbachia*-positive (W+ve) *O. ochengi* with an appropriate antibiotic kills adult worms, and this is the result of the prior, sustained depletion of *Wolbachia*, suggesting that worm survival depends on this bacterium.

The objectives of the study were to determine if *O. armillata* (which infects cattle, with large numbers of the adult worms developing in the sub-endothelium of the aorta), carries the *Wolbachia* bacterium; and to

explore the hypothesis that *Wolbachia* aids the long-term survival and reproduction of certain *Onchocerca* species (including *O. volvulus* which causes river blindness). The research also included an analysis of the host inflammatory cell environment around the parasite.

Whilst undertaking the study, Joe collected samples from cattle at an abattoir in North Cameroon, which he then examined in the laboratory at the Liverpool School of Tropical Medicine. *O. armillata* adult worms were found in the aorta of 92.6 per cent of the 54 cattle examined. The presence of *Wolbachia* in *O. armillata* was confirmed using immunohistochemistry and PCR techniques. The host inflammatory cell response was unusual for a W+ *Onchocerca* species suggesting that the mechanism of worm survival involved for this motile species may differ from other W+ species.

Based on the above results, *Wolbachia* may be responsible for the worm's survival in the host, but further research is required. In addition, given the very high prevalence of *O. armillata* (50 of 54 cattle examined) and the severity of the pathological lesions associated with infection, control of this parasite may be important in improving cattle productivity in endemic areas.



Jim Hungerford, general manager of Intervet with overall bursary award winner, Joe Neary, and Stuart Chalmers, R&D director at Intervet

Internship at the Visakha Society for the Prevention of Cruelty to Animals (VSPCA) in Visakhapatnam, Anrah Pradesh, South-Eastern India

Jennie Blenkinsop and Nicola Hayes, University of Bristol

The Visakha Society for the Prevention of Cruelty to Animals (VSPCA) is attempting to change the attitudes of locals towards animals, particularly cats and dogs, by teaching them that by caring for them they too can benefit.

Jennie and Nicola travelled to Visakhapatnam to help the centre develop its schools education programme.

Their work involved arranging workshop visits with school principals and writing presentations which included an overview of the charity together with information on how treating animals with respect can have a beneficial effect on humans. Although the project is still developing, VSPCA believes that its work will help to improve animal welfare in India.



The kennels at the VSPCA in Visakhapatnam

A comparison of anaesthetic and analgesic protocols in an American charity clinic and a British referral practice

Tara Rana, University of Edinburgh

Tara visited the Seattle-based Progressive Animal Welfare Society (PAWS) clinic for her bursary project which compared anaesthetic and analgesic protocols at the clinic and a British referral practice, the Dick Vet Hospital for Small Animals at Edinburgh Vet School.

PAWS is a charity funded by donations and fundraising activity, therefore cost is a major treatment constraint. In contrast the Dick Vet Hospital for Small Animals is a teaching centre that practices to the highest standards.

Information was gathered from both

practices on their basic anaesthesia and analgesia protocols for ovariohysterectomy of queens and



Tara Rana neutering a cat at the PAWS clinic

bitches. This included drugs used, together with dose rates.

As PAWS is a welfare society, a lot of emphasis was placed on the prevention of pain and suffering. Therefore, although the analgesia period was shorter than at the Dick Vet Hospital for Small Animals, this was compensated by the economical approach of closely monitoring patient behaviour for signs of pain and providing analgesia to those in need.

Tara concluded that all anaesthetic protocols were appropriate for their purposes, but it was impossible to suggest that any one was superior.

Assessing how VETAID UK impacts the lives of HIV and AIDS sufferers

*Emma Pearson and Angie McLaughlin,
University of Glasgow*

Angie and Emma travelled to Tanzania with VETAID UK to assess the charity's impact on the lives of HIV and AIDS sufferers.

There is a huge social stigma surrounding HIV and AIDS in Tanzania, and sufferers have an inability to maintain employment. The VETAID project allocates HIV positive people into peer educating groups and teaches them health and husbandry improvements on a two-week course. The project then provides them with livestock. This not only gives the members a sustainable income but an increasing plane of nutrition as they provide their families with eggs, milk and meat. As providers they are then regarded as important members of the social network.

There are thirteen projects running in North Tanzania involving 517 people. The projects also work as banking groups within the village community and VETAID assess the finances weekly.

Emma and Angie found that once the groups had become established VETAID could take a back step, as the projects

continued to be profitable and self-sufficient. They concluded that VETAID provided the villagers with a positive outlook on their life and what they could give to their community.



Emma and Angie assessing goat housing at a VETAID project

Review of anaesthesia techniques used on great apes at Limbe Wildlife Centre, Cameroon

Sophie Widdowson, University of Liverpool

Limbe Wildlife Centre (LWC) is a rescue, rehabilitation and education centre situated in the small Cameroonian fishing town of Limbe at the foot of Mount Cameroon. The centre cares for 180 animals including 50 chimpanzees and 10 western lowland gorillas. The centre was set up to provide a welfare solution for primates orphaned by the extensive bush meat trade in Cameroon. Ultimately, LWC aims to return the orphans to the wild and utilise them while in the centre's care as conservation educational tools.

Sophie studied the previous three years' anaesthetic records to identify the most reliable combination of drugs for immobilisation, sedation and general anaesthesia in chimpanzees and gorillas. Smooth and effective immobilisation of semi-wild chimpanzees, like those kept at LWC, is imperative for safety during veterinary procedures. However it does provide practical problems due to their intelligence and sensitivity to stressful situations.

During the six-week placement, Sophie looked at over 100 individual anaesthetic records from various species

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at the centre. She compared the records of 36 chimpanzee and gorilla sedations involving a single dart being administered resulting in smooth induction, steady maintenance and recovery, to avoid misleading doses.

The most commonly used drugs for immobilisation of the chimpanzees at LWC was medetomidine combined with ketamine. Doses were based on estimated weights and delivered intramuscularly in a single dart from a blowpipe. Xylazine and ketamine was the preferred regime (6/15 cases) for the western lowland gorillas at LWC and this was routinely reversed with yohimbine.



Sophie Widdowson monitoring a gorilla at Limbe Wildlife Centre in Cameroon

Research into bovine uterine prolapse and prognosis after treatment

Alison Ball,
Royal Veterinary College

It is widely accepted amongst cattle vets that if a cow is recumbent at the time the attending vet leaves the farm after treating a uterine prolapse, the prognosis is poor.

Alison designed a questionnaire to be completed by veterinary surgeons attending cases of bovine uterine prolapse, which included questions on the length of time a cow was prolapsed and degree of damage to the uterus. Alison then distributed these to vets throughout the country.

Within five months, 118 cases of uterine prolapse were recorded and the data was analysed. This involved identifying cows that survived uterine prolapse and those that did not and then looking at the variables. The variables assessed included breed (beef/dairy), parity,

recumbency, history of prolapse, time to treatment and cleanliness of the environment. Utilising a Fishers Exact Test, Alison ascertained the significant variables and then applied a logistic regression analysis.

As a result she determined that if any two of the tested variables were present, the cow had a greater than 55% risk of death compared to a

cow not suffering from any of the variables. This figure increased to a 99% risk of death if three or more variables were true. Alison concluded that cows which are recumbent at the time of the vet leaving the farm will stand before 24 hours in 96% of cases, if they are ever going to be ambulatory again.



Alison Ball during her bovine uterine prolapse study

Research into canine parasites in Palau, Micronesia

Oliver King, University of Glasgow

Oliver King travelled to the remote pacific islands of Palau in Micronesia for his project which he carried out alongside the non-profit charity, Palau Animal Welfare Society (PAWS) and Palau's Koror State Government (KSG).

During his trip, Oliver investigated the prevalence of intestinal parasites in the canine population, the zoonotic risk and the efficacy of a modern anthelmintic in reducing faecal egg counts.

Intestinal parasite infections were found to be widespread, with hookworm egg counts identified in 100% of animals. Faecal egg counts from 82.6% (19/23) of animals suggested heavy hookworm infections. *Toxocara* spp egg counts were also high, and were identified in 13.0% (3/23) of animals: a two week old pup and in two recently whelped adult bitches. The pup displayed the classic pot belly, failure to thrive and even passed *Toxocara* spp adult worms in the faeces.

The highest faecal egg counts were identified in pups and stray animals, which unsurprisingly presented in the poorest body condition score. Heavy burdens of hookworms risk considerable damage to the small intestine, and compromise the surface area across which nutrients are absorbed. The combined actions of different parasites in the small



Oliver King carrying out a faecal egg count

intestine are likely to produce a parasitic gastroenteritis and failure to thrive syndrome. In addition, bloodsucking ectoparasites (fleas and ticks), which were invariably present, represented a further strain on the animals' limited bodily reserves.

Oliver's research demonstrated the level of parasitic infections in both pet and stray dogs and therefore the zoonotic risk to the public. None of the owners that Oliver spoke to about the importance of worming pets were aware of the risk to their health.



The Palau Animal Welfare Society



Intervet Connect is an information and support service for veterinary students which provides individuals and recognised groups and societies with educational and sponsorship assistance during college.

The scheme incorporates a number of benefits which include:

Literature – Intervet has an extensive collection of literature on a variety of subjects in the companion animal, livestock and poultry sectors. Simply e-mail Intervet’s Veterinary Support Group at support.uk@intervet.com to find out more.

Education support – Intervet has played an active role in sponsoring clinical club meetings and will continue to positively receive requests for presentations or lectures.

Sponsorship – If you have an activity that you would like to be sponsored, which is directly related to college, then Intervet might be able to help. Make your request in writing (or via email), remembering to put it on headed paper. If your request is accepted, all Intervet ask is that you become involved in some publicity and take some photos to mark the occasion.

Bursary Awards – The annual bursary provides financial assistance to students enabling them to undertake research in new and exciting areas of veterinary work.

To submit your proposal for 2008 simply contact Jessica Henman at Blue Zebra on 01235 833005 or the staff representative at your vet school:

- University of Bristol Philip Duffus
- University of Cambridge Katheryn Ayres
- University of Edinburgh Rod Else
- University of Glasgow Lesley Nicolson/Maureen McNulty
- University of Liverpool Frances Burford
- Royal Veterinary College Jenny Jones

Your Point of Contact...

Paula Boyden BVetMed MRCVS manages the Intervet Connect initiative, co-ordinating with both students and staff at vet schools.

Paula graduated from the Royal Veterinary College in 1992. After 11 years in practice, Paula joined Intervet as a Veterinary Adviser in 2002. She now combines her role as a Practice Development Consultant with technical responsibility for Nobivac Rabies and Scalibor.



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Intervet is dedicated to the research and development of high quality innovative animal health products and providing industry-leading technical support and customer service. For more information visit the following websites:

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