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APPLICATION NOTE

Experts Discuss the Benefits of a More 'Cat-centric' View on Parasitology



In March 2024, over thirty global leaders in parasitology, pharmacology, zoonoses and feline medicine came together to discuss the latest developments in feline parasitology, and debate where the focus needs to be to improve cat care most effectively. The 3rd Scientific Roundtable, hosted by Vetoquinol in Lisbon, Portugal, delivered a packed three-day agenda that facilitated knowledge sharing, lively discussion and even the promise of exciting collaboration to further existing research programmes.

Many topics were covered, following four key pillars of focus – 'Science and innovation', 'Feline parasitology', 'Feline medicine and behaviour', and 'One Health and zoonoses'. One of the key outtakes is that while lots of important work is being done, there could be huge benefits for both feline and human health if feline parasitology was placed higher on the agenda at multiple levels of the veterinary and scientific sector.

Science & Innovation

Despite the wealth of feline-specific research activity presented at the Roundtable event, wider evidence indicates that cats are generally neglected as a species within scientific literature. Cats outnumber dogs in many regions – there are 127 million cats and 104 million dogs living in Europe for example¹ – yet there is a clear mismatch when it comes to the number of published scientific articles specifically related to each of the species.²

This species gap may be reflected in clinical practice too, with anecdotal reports from multiple Roundtable delegates that fewer parasitological diagnostic procedures are performed on cats compared to dogs. This could be due to several factors – cats may not be presented for regular veterinary examination (the possible reasons for which are numerous), there may be feline-specific barriers to proceeding with diagnostic investigation, or veterinarians are not placing parasites as high on differential diagnostic

Living in Europe in 2022¹ 127m 104m lists for their feline as for their canine patients. Again, the root causes of this could be varied, including lack of awareness or confidence.

"Cats are just less parasitically investigated. For every cat faecal sample that is submitted to our diagnostic laboratory at the University of Adelaide, Australia there are 9 canine samples."

Dr. Ryan O'Handley, University of Adelaide, Australia

The Roundtable attendees commonly agreed that cats need to be studied more if we are to comprehend the true extent and nature of the feline parasite challenges that must be addressed. A big part of achieving this is understanding the barriers to feline-specific research projects being made possible, something that Vetoquinol is keen to facilitate.

Feline Parasitology

To truly understand parasitological risks, research relating to feline parasites is equally important at both micro- and macroscopic levels – from genome analysis to broader consideration of regional and global parasite distribution.

One example of the benefits of a research focus on the genetic make-up of parasites came from Dr. Jeba Jesudoss Chelladurai, Kansas State University, USA, who shared how genome sequencing research has uncovered that there are likely two species of *Dipylidium caninum* which demonstrate host specificity. She postulated that the praziquantel resistance experienced in dogs in some regions is likely not an issue for the feline-specific species of the flea tapeworm, meaning that the risk-benefit analysis of treatment for cats could be very different to dogs.

At the other end of the scale, taking a much more 'zoomed out' view of parasite distribution allows shifting trends to be identified – essential for us all to try and stay one step ahead in protecting both feline and human health from parasitic risks. There was lively discussion at the Roundtable about how encounters between parasites, domestic animals and

Number of published scientific articles relating to cats and dogs²



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humans are changing in nature and frequency, with the proposed reasons behind this being varied.

Time was spent analysing this from the parasite's perspective – for example discussing the impact that urbanisation has on the local climate of a particular area. However, shifting patterns of parasite distribution were also attributed to their host species, with many delegates noting in their observations that the presence of wildlife species – known to be a significant source of parasite and vector-borne disease (VBD) infection risk to domestic species – is increasing in urban areas.

"Towns are typically warmer than rural locations, and this may favour the development of tick populations. The presence of wildlife species in urbanised areas is also growing, increasing crossover between wild and domestic animal populations... and their parasites."

Prof. Ezio Ferroglio, University of Turin, Italy

The reality is that these changes are likely the result of a combination of many factors, but the important end outcome is the same – parasite infection risks are constantly changing. This is already manifesting in many regions as emerging disease risks for pets and veterinarians must stay informed to ensure they are giving the best advice to pet owners.

In some instances, perceptions need to change too – one example highlighted at the meeting being the range of respiratory worms that can affect cats. With some species almost disregarded as an incidental finding in certain regions, established attitudes were challenged with the presentation of evidence demonstrating surprising pathogenesis and reasoned discussion of the challenges that these parasites can present.

Prof. Angela Di Cesare, University of Teramo – Italy, explained how *Capillaria aerophila* can cause lung parenchyma damage and chronic bronchitis in cats and Prof. Manuela Schnyder, University of Zurich – Switzerland shared case studies of *Aelurostrongylus abstrusus* which demonstrated that even mild or inapparent infections can lead to substantial damage to lung tissue. The difficulties of diagnosis were acknowledged as a compounding factor in identifying and managing these infections, but the takeout message remained the same – it is important for veterinarians to remain vigilant, open-minded and unbiased when it comes to parasite risks in cats.

"All cats with outdoor access are at risk of lungworm infection, therefore lungworm treatment cover should be considered for them."

Prof. Manuela Schnyder, University of Zurich, Switzerland

Feline Medicine & Behaviour

To deliver the best parasitological care, veterinarians must first overcome another key barrier, getting cats to veterinary clinics in the first place. It's a challenge that has been identified in many regions – for example, in the UK, 3.9 million cats are only taken to the veterinarian when they are ill.³

"The difficulties associated with bringing a cat to a clinic or hospital often presents a massive barrier for owners and results in failed attempts and less veterinary visits compared to their canine counterparts".

> Dr. Rachel Korman, Veterinary Specialist Services, Feline Specialist, Underwood, Qld. Australia



"Cat owners will be much more likely to bring their cats to a clinic where they feel their cat's welfare is prioritised, both physical and mental wellbeing, by respecting their need to avoid dogs, be handled gently and kindly and kept in a quiet space with somewhere to hide. Simple clinic changes can make a huge difference to the cat's, and therefore the owner's, experience at the veterinary clinic."

> Dr. Samantha Taylor, International Society of Feline Medicine (ISFM) Academy Lead and Specialist Veterinary Advisor to ISFM, UK

"Educational opportunities are being missed when owners can purchase parasite products over the counter – veterinarians have to work hard to proactively encourage cat owners into the clinic".

Dr. Ryan O'Handley, University of Adelaide, Australia

So, the question remains as to how best we reach these owners who have little veterinarian contact and encourage better engagement with their cat's health?

It was here that Dr. Korman, and Dr. Taylor had some excellent advice for clinical veterinarians: Dr. Korman has developed 'The 4 C's' – an easy way for clinicians to consider all the ways that stress can be minimised for cats, and therefore their owners, when making a veterinary visit.

Multiple sensory assaults, which occur on a trip to the veterinary clinic, result in 'stressor stacking', and when paired with the inability to exhibit the normal flight response, lead to fear.

Remembering and addressing the 4 C's can help reduce some of the stressors:

- Catching
- Carrier
- Courier
- Clinic

Further to this, Dr. Taylor explained how to improve the clinic experience for cats via many of ISFM 'Cat Friendly Clinic' (CFC) principles, stressing that any aspects that can be implemented from this scheme – however small – will reap benefits for everyone. It has been shown that cats visit CFC clinics more frequently and more diagnostic tests are carried out, improving patient care and increasing clinic revenue. Applying CFC principles has also been shown to have practical benefits too, such as reducing staff injury.

One Health and Zoonoses

Protecting feline health is clearly a compelling reason to strive for constant improvement in parasitological care, but for the many parasites that have zoonotic potential, human health is a concern too.

One fascinating insight into how animal parasite studies could benefit human health relates to *Toxocara*. In her presentation looking at neurotoxocarosis, Prof. Christina Strube, Veterinary University Hannover – Germany, shared the results of mice model studies that demonstrate how *T.cati* and *T.canis* have a preference for differing regions of the brain. What's more, these differences translate into marked differences in neurobehavioural signs. This raises many questions and exciting opportunities for further research. *Toxocara* seroprevalence in humans has increased across Europe in the past few decades and it was noted that cats are more likely to defecate, and the faeces remain unremoved, in areas frequented by at-risk groups such as children. In Hannover, *Toxocara* was found to be present in up to 41% of playgrounds.⁴

Research like this underlines the importance of the role veterinarians have in ensuring the successful implementation of preventative parasite protocols in pet cats. Effective products exist but compliance can be a key barrier with cats and about more than just the product and the owner. Good compliance for cats starts long before a prescription event, including consideration at product development and through owner education.

"Compliance is a daily challenge in feline medicine. All the best research and pharmacological R&D in the world is wasted if that medication does not make it into the cat."

> Dr. Rachel Korman, Veterinary Specialist Services, Feline Specialist, Underwood, Qld. Australia

Poor disease awareness amongst owners was cited as a major contributing factor to the struggles faced in controlling zoonotic parasitic diseases. The importance of public health education programmes to help combat this was highlighted at the meeting, as well as the need for these efforts to be ongoing over decades. This is to prevent these programmes from becoming victims of their own success - when public awareness becomes high, communication urgency is reduced, and important information is therefore not conveyed to the next generation.

"The general public tends to assume direct host-tohost transmission of parasites, but lifecycles can obviously be much more complicated. The public not knowing this can lead to inadvertent introduction of infection risk – for example, via BARF diets.

Dr. Ryan O'Handley, University of Adelaide, Australia

The principle of 'contextualised care' was also proposed as a key part of ensuring better compliance with parasite prevention protocols. This is where importance is placed on empathetic and considered clinical decisions which take into account the realistic expectations of the owner. Balancing clinical requirements and owner capabilities is one part of this. For example, can the number of prescribed medications be reduced perhaps to improve the chances of the cat receiving the most critical ones? Is there an alternative formulation that could be prescribed that will aid compliance?

Proactivity and Collaboration is Key

The Roundtable discussions highlighted that changing and

increasing infection risk, a shortage of research relating specifically to cats and potential lack of awareness are all factors that could contribute to inadvertent and risky complacency when it comes to feline parasites.

"Parasitism of cats is increasing in the USA, with positivity highest in samples from young cats. In the human world, this would set off alarm bells."

Dr. Cassan Pulaski, University of Georgia, USA

With veterinarians being such a vitally important part of ensuring the delivery of the best parasitological care for cats, their proactive involvement in taking on parasite risks will subsequently have a significant positive impact. This can be as simple as placing parasites higher on the differential diagnosis list and remaining open-minded when investigating clinical disease. Straightforward diagnostics can reveal a lot and it is always prudent to remember that if parasites aren't looked for, they won't be found!

Another key component is knowledge sharing and awareness, so that veterinarians can remain vigilant and informed as to their local parasite risks. One of the primary objectives of this Roundtable event has always been to facilitate the dissemination of the latest developments beyond the meeting room for exactly this reason. Many of the discussions from this year are already being translated into practical and accessible resources for clinical veterinarians, to help them deliver better parasitological care, protecting feline and human health.

Ultimately, a collaborative approach from across the veterinary sector such as clinicians, the pharmaceutical industry, and wider scientific community, is essential to facilitate the development of solutions that are meaningful and robust. This is why events like this are so important, bringing together the full spectrum of stakeholders within the veterinary sector – from research through to delivery of front-line clinical care. Only then can a multi-perspective view of the challenges be achieved, and true progress be made.

"Sharing knowledge across countries can improve our impact in our world; parasites have no borders, neither should we."

"Sharing science on feline parasitology will help to find answers faster together, everything for the sake of our clients but also for the environment."

"There is an incredible wealth of knowledge in the veterinary world and a great number of exciting research projects occurring. Events that enable this information to be distributed and further collaboration between scientists and veterinarians is welcomed."

> Prof. Norbert Mencke & Dr. Katrin Blazejak, Veterinary Parasitologists Vetoquinol during 3rd Scientific Roundtable (2024)

About Vetoquinol

Vetoquinol is a leading global animal health company that supplies drugs and non-medicinal products for the livestock (cattle and pigs) and pet (dogs and cats) markets.

As an independent pure player, Vetoquinol designs, develops and sells veterinary drugs and non-medicinal products in Europe, the Americas and the Asia Pacific region. Since its foundation in 1933, Vetoquinol has been pursuing a strategy combining innovation with geographical

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diversification. The Group's hybrid growth is driven by the reinforcement of its product portfolio coupled with acquisitions in high-potential growth markets.

Vetoquinol is committed to advancing feline parasitology, working with leading parasitology organisations, ESCCAP, CAPC and WAAVP. We support key parasitology conferences across the globe to encourage progress and The Vetoquinol Scientific Roundtable in Parasitology is just one example of this.

REFERENCES

- 1. European Pet Food Industry Federation (FEDIAF)
- Image adapted from how cat-astrophic are the knowledge gaps in feline parasitology. Prof. Andrei Mihalca. April 2024
 CATS (Cats and their state) 2022 UK Penert.
- 3. CATS (Cats and their stats) 2022 UK Report
- Kleine A, Springer A, & Strube C. (2017). Seasonal variation in the prevalence of Toxocara eggs on children's playgrounds in the city of Hanover, Germany. Parasites & Vectors. 10:1-8 doi:https://doi.org/10.1186/s13071-017-2193-6

Additional Reading

Morelli S, Diakou A, Colombo M, Di Cesare A, Barlaam A, Dimzas D, & Traversa D. (2021) Cat respiratory nematodes: Current knowledge, novel data and warranted studies on clinical features, treatment and control. Pathogens, 10 (4), 454. doi: https://doi. org/10.3390/pathogens10040454

- https://catfriendlyclinic.org/vets-nurses/applicationsupporting-documents/
- Rousseau J, Castro A, Novo T, Maia C. (2022) Dipylidium caninum in the twenty-first century: epidemiological studies and reported cases in companion animals and humans. Parasit Vectors. 15(1):131. doi: https://doi.org/10.1186/s13071-022-05243-5
- Bonilla-Aldana JL, Espinosa-Nuñez AC, Bonilla-Aldana DK, Rodriguez-Morales AJ. (2024) Toxocara cati Infection in

Cats (Felis catus): A Systematic Review and Meta-Analysis. Animals (Basel). 14(7):1022. doi: https://doi.org/10.3390/an



Katrin Blazejak

Katrin Blazejak studied Veterinary Medicine at the University of Veterinary Medicine, Hannover, Germany. After graduation in 2015, she commenced her specialisation in parasitology with a doctoral degree

(Dr. med. vet.), and obtained a German veterinary specialisation degree as a certified Veterinarian for Parasitology (Fachtierarzt für Parasitologie) in 2020. In September 2021, she joined Vetoquinol as Global Medical Manager Parasitology and is based in Paris, France.



Norbert Mencke

Norbert Mencke studied Veterinary Medicine at the University of Veterinary Medicine, Hannover, Germany. After graduation in 1987, he commenced his PhD studies at the Department of Agriculture in

Adelaide, Australia. In 1995 he became a certified Veterinarian for Parasitology, and in 2003 a European Veterinary Specialist in Parasitology. He has lectured in veterinary parasitology and tropical veterinary medicine at the University of Hannover since 2003. In 2020, he joined Vetoquinol and holds the position of Global Medical Manager Parasitology, Paris France.