Expert Discussion Reveals the Unique Parasite Control Approach Required for a Unique Species

The 4th Scientific Roundtable Parasitology, hosted by Vetoquinol, once again saw an esteemed group of global leaders in parasitology, pharmacology and feline medicine meet and discuss the latest developments in feline parasitology. Held in Venice, Italy in March 2025, the packed three-day agenda examined the challenges and opportunities that exist in the sector. The event was structured around four key pillars, ensuring that a full spectrum of relevant topics was covered.

"This event uniquely brings together a global team of stakeholders in the field of feline parasitology. Facilitating inter-disciplinary and inter-generational interactions is so key to eliciting meaningful change that is backed by experience, evolving knowledge and innovation."

Katrin Blazejak, Vetoquinol Global Medical Manager - Parasitology

Thought-provoking presentations and subsequent animated discussion revealed a strong theme relating to the unique nature of cats. This distinctiveness applies to both individual animals and features of the species as a whole, with many consequences for the parasitic risk profile that cats both face and present. As such, strategies to improve feline parasitological care need to be equally unique and innovative in their approach and implementation.

Feline Medicine and Behaviour

Individual cats can present with many contradictions to others within their species. For example, indoor pet cats, those with outdoor access, street cats and feral animals all differ drastically in terms of their exposure to parasites, their needs for parasite prevention and treatment, and thus their health risk profiles.

Dr. Samantha Taylor (Specialist Veterinary Consultant to the International Cat Care Veterinary Society, UK) argues that this is further compounded by the fact that currently defined 'cat types' neglect an important group– the 'inbetweener cat'. These cats present the seemingly impossible challenge of reliance on humans for survival, while experiencing significant stress from confinement and forced interaction with people. Dr. Taylor believes that applying this new important description will help develop more effective strategies to maintain a balanced feline population that better caters to the welfare needs of many more individual animals. This is of particular importance for rescue cats (especially foreign rescues) with many of their would-be rescuers not appreciating that a domestic setting doesn't respect their individual needs.

Cat 'types'
As proposed by International Cat Care

- **Pet cat:** socialised with people as a kitten, lives with people as a companion and well adapted to life in a domestic home setting.
- **Inbetweener cat:** has previously lived as a pet but unsuccessfully, either due to lack of socialisation with people as a kitten, or negative experiences. Not adapted to free-roaming or domestic home living. Lives in inhabited areas and relies on humans for survival but doesn't want to interact with them closely.
- **Street cat:** born outside the domestic setting and adapted to free roaming in inhabited areas. Not socialised with people.
- **Feral cat:** adapted to free-roaming and avoids people, living in uninhabited (or very low population density) areas.

Despite this variability in how they live, a lot of feline behaviour is ubiquitous to all cats while remaining diverse from other species. A higher rate of accidental breeding means that genetic control is much lower than in the dog population, and many wild traits are retained by cats as a result. Expression of these entirely normal behaviours are often at odds with human expectations of their pets however, causing friction and compromise of both human and animal welfare.

"Expression of normal cat behaviour often clashes with human expectations but it's important to remember that problem behaviours are usually not behaviour problems."

Dr. Samantha Taylor, Specialist Veterinary Consultant to the International Cat Care Veterinary Society, UK

Dr. Rachel Korman (Veterinary Specialist Services, Qld. Australia) described how understanding of feline behaviour must be applied to a cat's experience at the veterinary clinic to promote clinical success – including the routine visits that appropriate, targeted parasite control often relies on. Appreciating cats as very 'sense focused' creatures can help improve the yield of information from clinical examinations. In addition, a more positive experience for the cat and their owner increases the probability of that cat returning to the clinic for future successful clinical experiences and outcomes.

Education for veterinary staff and owners is key to be able to identify behaviours that signal potential stress and allow appropriate adjustment to environment, handling and procedures. One useful way to implement more 'cat friendly' principles for veterinary visits is to apply the '4 'C's'.

One Health and Zoonoses

Outdoor access, very little control over defecation – even in pet animals – and roaming and hunting behaviour are all important factors that contribute to the unique zoonotic risks that cats present compared to other pet species. Increasing overlap between domestic cats, other cat types (and their differing lifestyles) and wildlife further complicates the spread of feline parasites. Owners of cats with unsupervised outdoor access often cannot control, or are even aware of these interactions, unlike other pet animals such as dogs.

A 'risk-based' approach is frequently advocated for parasite control protocols in pet animals, but the variability discussed can make it extremely challenging to identify and target the 'high risk' cats. This is further compounded by biological and physiological factors. For example, parasitic egg shedding and disease are poorly correlated. With any contribution to zoonotic parasite populations from cats representing a risk to human health, there is a logical argument that cats should be treated routinely and regularly to achieve adequate parasite control.

As well as relying on factors such as pet owner compliance to be fully effective, this approach is at odds with mounting concerns over anthelmintic resistance and environmental contamination with parasiticides. Recent studies demonstrating contamination of waterways and bird's nests with ectoparasiticides have turned up the spotlight on the animal health sector to act now to prevent any potential long-term harm. Demonstrating how seriously Vetoquinol takes its responsibility to One Health, an open discussion about the topic of responsible use of parasiticides was included into the roundtable meeting for the first time this year.

As an obviously complex issue, the group agreed that diverse and reliable information gathering is essential to better understand and therefore tackle the problem. Current data certainly suggests towards 'it's present' but provides very few answers to the next important question – 'how is it a problem?'. Tracing the true sources of these chemicals, understanding how they degrade in the environment and gaining valuable perspective on their potential impact within various ecosystems is key to coming up with strategies that most effectively mitigate any harm.

If needed, these strategies could include exciting future innovations, such as the development of more 'environmentally friendly' active ingredients for commercial antiparasitic products. Many of the roundtable discussions demonstrated the potential for genetic targeting as a promising avenue of exploration to tackle parasitic challenges in the future, with a likely lower environmental impact risk. More informed global regulatory guidelines would be another welcome development, along with appropriate veterinary and public information from credible organisations, to minimise the spread of misinformation.

It was agreed that it is important that the animal health sector is able to have an informed voice in the discussion. As advocates of the One Health approach, it is vital that the 'welfare' of each group (animals, humans and environment) remains balanced, with the animal health sector naturally advocating most strongly for animal health. For this

conversation to remain balanced, cross-discipline discussion needs to take place to include environmental scientists and human health representatives. Similarly, companion animal colleagues should take advice from within our sector too; associates working in large animal medicine will have a lot of important insight.

Ultimately, any interventions, changes or strategies should be in response to science, not political or social pressure. It is vital to acknowledge the importance of the issue as a sector though and be proactive in addressing it.

"In my role at Vetoquinol and involvement with industry representative bodies, such as HealthforAnimals, I am acutely aware of the responsibility that the animal health industry has to wider society. Facilitating meetings like this, which encourage important and sometimes even uncomfortable conversations to take place, is a big part of fulfilling that responsibility. It is only through discussion and collaboration that we can proactively contribute to addressing key concerns and advancing global health, following One Health principles."

Norbert Mencke, Vetoquinol Global Medical Manager - Parasitology

Feline Parasitology

Better understanding of risk is an important immediate way to mitigate the threat of parasites and their management. The variability in lifestyle seen across the feline population is one major factor that makes addressing the parasitic care needs of cats a huge challenge though – particularly when it comes to the development of meaningful guidelines for parasite control.

Many meeting attendees expressed the view that the importance of cats in the perpetuation of some parasites – both established and emerging – is often overlooked. There were multiple examples shared which demonstrated how this is often fuelled by assumptions. Veronica Risco Castillo (Alfort Veterinary School, France) shared study data looking specifically at indoor cats that demonstrated infection with helminths, challenging the commonly held belief that indoor cats are at extremely low risk of worms. Similarly, cats are often considered at low risk for ticks and some other ectoparasite infestations due to their grooming behaviour, yet the presentations from both Filipe Dantas-Torres (Aggeu Magalhães Institute, Brazil) and Lindsay Starkey (Oklahoma State University, USA) suggested otherwise. The US based

'Show us your ticks' campaign has seen almost 900 tick samples taken off cats submitted from 39 states. Perhaps most surprising is that 4.2% of these cats were reported to spend no time outdoors at all! US prevalence data looking at evidence of tick-borne diseases in cats demonstrates that ticks are feeding on cats long enough to transmit disease too. These findings highlight how failing to embrace the 'if you don't look, you won't find' mantra may be limiting important investigative studies.

"Ticks are a very real and constant parasitic threat to cats in the US. We receive ticks taken off cats every month of the year – often found incidentally during a visit to the vet clinic."

Lindsay Starkey, Oklahoma State University, USA, ref. the 'Show Us Your Ticks' campaign

Assumptions are just one of the factors that limit parasite investigation and understanding in cats. Wholesale lack of knowledge is something that many of the meeting attendees are working hard to address. One clear example of this relates to *Hepatozoon felis*. Despite prevalence being high in many regions, the complete lifecycle of *H. felis* – including its vector – was previously unknown. By looking for the sporogenic life stages of this parasite in ticks removed from cats and studying the activation and encystation of the sporocysts stage from the vector, Gad Baneth (Koret School of Veterinary Medicine, Israel) and his team have successfully demonstrated that *Rhipicephalus* spp. ticks are vector species for this parasite.

"Closing the lifecycle of Hepatozoon felis by identifying its vector in cats is an important step for the development of more effective strategies to control this parasite."

Gad Baneth, Koret School of Veterinary Medicine, Israel

Better understanding of *Sarcoptes* mites came from Jacques Guillot (Nantes University, France), who explained how fascinating genetic microsatellite research has revealed that there is evidence of variants of this parasite which demonstrate a degree of host preference. Interestingly, this variation is entirely independent of geography for some host species, but not others. This knowledge helps us build a more complete picture about the spread of this parasite between host populations and may even eventually provide some insight as to the rise in human cases of scabies that are being reported across the globe.

While improved knowledge of specific parasites is useful for assessing risk, practical implementation of some study findings can sometimes remain a bit abstract. This was not the case for the presentation of Emilie Bouhsira (Université de Toulouse, France) however, which clearly defined risk factors for gastrointestinal and respiratory helminth infection in cats. The study that she presented investigated helminth infections in clinically well, privately owned cats in France with the objective of helping to homogenise deworming advice and promote European Scientific Counsel Companion Animal Parasites (ESCCAP) guidelines. While some results were unsurprising, other, less well-known risk factors emerged too. Echoing the findings of the work of other attendees, even indoor cats without contact with any other animals who live in urban areas showed infection. Cats also showed increased diversity of helminth parasites compared to dogs – yet another demonstration of how they differ from other pet species.

Risk Factors for Helminth Infection in Cats

- Outdoor access
- Hunting behaviour
- Age (<12 months)
- Being male and intact
- Other animals in the household

Science and Innovation

It is clear that a unique approach to investigating and addressing the parasitic risk relating to cats is required. Reassuringly, there was plenty of evidence that this is happening from the meeting!

Exciting examples of cutting-edge innovations are opening up new opportunities for resistance surveillance and the development of more effective parasite control strategies. One example is the Nemabiome Project, presented by Vito Colella (Melbourne Veterinary School, Australia). The use of a long-read genetic sequencing technique is allowing characterisation of parasites more efficiently than ever, with the potential to revolutionise research and diagnostics. Christopher Fernandez Prada (Université de Montréal, Canada) presented latest insights from his research group, including how oxygen-consumption rate (OCR) correlates to drug resistance in *Leishmania*, presenting a potential new way to screen for resistance in this parasite.

As well as completely novel research findings, better utilisation of existing information was also celebrated as a way to gain new insight. Analysis of parasiticide adverse event data in cats from Wolfgang Bäumer (School of Veterinary Medicine, Freie Universität Berlin, Germany) revealed a reassuringly low incidence, particularly for neurological disorders. This can be useful for clinicians when reassuring pet owners that parasiticides are safe to use, combatting misinformation that is often spread on social media. Another good example of using existing data to gain valuable understanding was demonstrated by Ian Wright (ESCCAP Chairman & Director), who shared the most frequently asked questions submitted to ESCCAP by veterinary professionals and pet owners. It would seem that veterinary professionals are more anxious about the environmental impact of parasiticide use than pet owners, but that pet owners worry most about zoonotic risk. Knowing this helps direct educational efforts that will resonate the most with various audiences and therefore have the most positive impact.

Looking at things from a different perspective is another useful way to prompt innovation and there were some great examples of this shared at the meeting too. Anja Joachim (Institute of Parasitology Vetmeduni Vienna, Austria) took inspiration from how the clinical presentation of *Encephalitozoon cuniculi* differs in cats compared to other species to change the diagnostic approach of this parasite. By looking at direct ocular samples, rather than serology in cats with cataracts, it was demonstrated that this parasite is likely causative in many more cases than originally thought. Diagnostic overhaul was also a theme within the presentation given by Cassan Pulaski (University of Georgia, USA). She explained how the discovery that heat-treatment yields much more accurate heartworm antigen test results was one factor that prompted the American Heartworm Society to completely change their diagnostic guidelines.

These examples reiterate the importance of a thorough and considered diagnostic process when it comes to tackling parasites – both at an individual and population level. While exciting modern diagnostic tools open new avenues to explore parasitic infection, they must not be considered 'shotgun' solutions. To create the most appropriate diagnostic plan, clinicians should maintain a targeted diagnostic objective for each case presented to them. This includes building a clear differential list and critically assessing the diagnostic tools available to them by understanding their strengths and limitations. The importance of this was highlighted in Barbara Kohn's (School of Veterinary Medicine, Freie Universität Berlin, Germany) presentation of a clinical dermatology case, in which the complicated presentation of Feline Atopic Syndrome required a structured and systematic diagnostic approach to reach eventual successful clinical management.

A Unique Meeting for a Unique Species

Unrivalled in the sector, this meeting continued its legacy of facilitating the sharing of knowledge, prompting important discussions and enabling exciting collaborations.

"This meeting has elicited partnerships for my lab. It is so valuable, and it is important to continue for future advancement."

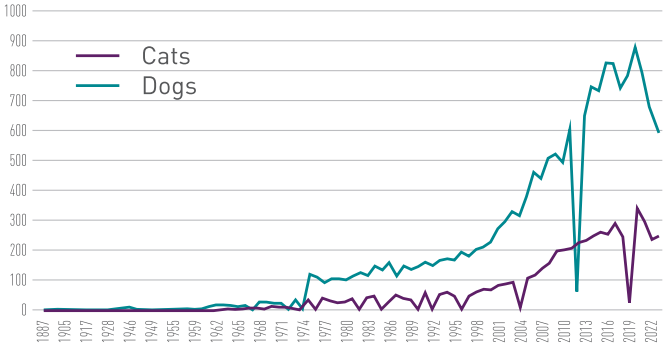
Christopher Fernandez Prada,
Université de Montréal, Canada

This year, the message came through loud and strong that cats must be considered separately from other pet species. There are 127 million cats and 104 million dogs living in Europe[1] – yet there is a clear mismatch when it comes to the number of published scientific articles specifically related to each of the species. To ensure the improvement and protection of both feline and human health, everyone in the sector must place as much importance on further investigation and consideration of the parasitic risks presented to and from cats that is seen for other pet species.

About Vetoquinol

Vetoquinol is a leading international player in animal health, with operations in Europe, the Americas and Asia/Pacific. Independent and a pure player, Vetoquinol innovates, develops and markets veterinary medicines and non-medicated products for farm animals (cattle, pigs) and pets (dogs, cats). Since its creation in 1933, Vetoquinol has combined innovation and geographic diversification. The strengthening of the product portfolio and acquisitions in high-potential territories ensure hybrid growth for the Group. At December 31 2024, Vetoquinol employed 2501 people.

Number of published scientific articles relating to cats and dogs[2]



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1. European Pet Food Industry Federation (FEDIAF)
2. Image adapted from 'How cat-astrophic are the knowledge gaps in feline parasitology?' Prof. Andrei Mihalca. Vetoquinol 3rd Scientific Roundtable, March 2024.

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.

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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.