



Vets For Informed Choice

PROMOTING AWARENESS OF THE EVIDENCE BASE FOR VETERINARY MEDICINE AND PRACTICE

Pesticide

Is the Veterinary Industry, and Pet related business, participating in the systemic destruction of human and animal health as well as the environment?

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Concern for the environment and its destruction due to human influence has never been greater. Public demand for change is forcing governments around the world to look to targets and set proactive agendas like never before. People are making lifestyle changes to do their part even if there is direct personal cost.

And yet, illogically and in what seems a wholly irresponsible way, the Veterinary Industry in the UK is promoting mass application/dosing of pesticides and worm treatments for pets. There seems little to no recognition of the consequences for the environment, or for the direct human and animal health concerns.

BUGLIFE, the charity dedicated to conservation of invertebrates, highlighted the fact that chemicals used for prevention/treatment of ticks, fleas and other parasites of pets are being recorded in water supplies downstream of/associated with major conurbations, and that these can only be due the products Vets and Pet Stores are selling. These chemicals are extremely toxic to many aquatic organisms and are persistent in the environment for long periods of time. They called in 2016 for an immediate ban on the sales of these products but have been ignored (1).

Little consideration has yet been given to (or raised publicly about) the widespread dissemination of these chemicals through urine and defaecation to parks and gardens, through dander and fur to household environments, and yet these can be seen as significant sources of environment pollution and even the latter a risk to human health (in addition to exposure via direct contact with a recently treated pet).

As single chemical products fail, many newer Veterinary products now combine multiple chemicals to achieve their aims. Chronic exposure to mixtures of pesticides is one of the major causes of the collapse (est. 50%) in the biomass of insects, many of which we need to maintain the now fragile ecosystems that support human life. Each and every one of us should be very concerned. (2).

Exposure to even tiny doses of pesticides can have complex and unpredictable sublethal impacts on insect behaviour. On top of this there can be unexpected and synergistic interactions between different pesticides and other stressors such that the combined effects can be much worse than one might expect from data captured by the regulatory process for pesticides. That process only focuses on short term exposure of otherwise healthy individuals. As a result, even DEFRA's chief scientist recently admitted that it is not currently possible to predict the environmental repercussions of landscape-scale use of large quantities of multiple pesticides (3) to which the Veterinary use is compounded

Prophylactic use of pesticides is contrary to all of the principles of Integrated Pest Management, a widely accepted approach that seeks to minimise pesticide use as expressed in the EU's Sustainable Pesticides

Directive (3) However, recent restrictions on the use of some pesticides by the EU do not cover use when applied as flea treatments for dogs and cats – considering the above it surely is time for legislating against prophylactic medications if the profession will not take a responsible approach to the problem

We urgently need to stop ALL routine and unnecessary use of pesticides that are only adding to the problem, and start to build a network where nature can recover.

If other countries can do this, and prophylactic sale/use of these chemicals can be a disciplinary offence for Vets, why have we not followed suit?

Worse, somewhat bizarrely in the UK we have even allowed some to be available over the counter in pet stores and on-line (without prescription) so use is completely unregulated, unrecorded and without any realistic control without re-visiting legislation

I have previously written and published articles along these lines in the wider media and I have encountered from within the Veterinary profession attacks on my person and my integrity, as well as threats of legal action. In response I challenged representative of an organisation claiming independence of thought, yet linked to a parent organisation sponsored by the pharmaceutical giants, to produce the “wealth of peer-reviewed research to support routine treatments as an essential part of prevention”, that they claimed existed; unsurprisingly perhaps, none were ever forthcoming. Perhaps it was because I asked them to provide such where it could be shown there was NO commercial support/direction to the studies, no commercial vested interest, and where all the environmental risks and consequential health challenges to “in-contacts” had been fully considered. (4)

The role of scientists is to tell the truth, but the bearers of bad tidings do not always fare well. Historically they have been belittled, ignored or worse. So the nature and aggression of the attacks suggested something was even more seriously wrong and added weight to the argument this debate must be brought to prominence in the environmental agenda.

“Anyone who asserts his or her therapies should not be criticised should have his or her therapies questioned closest of all”. (Campaign for Rational Vet Medicine, Vet Times April 2018)

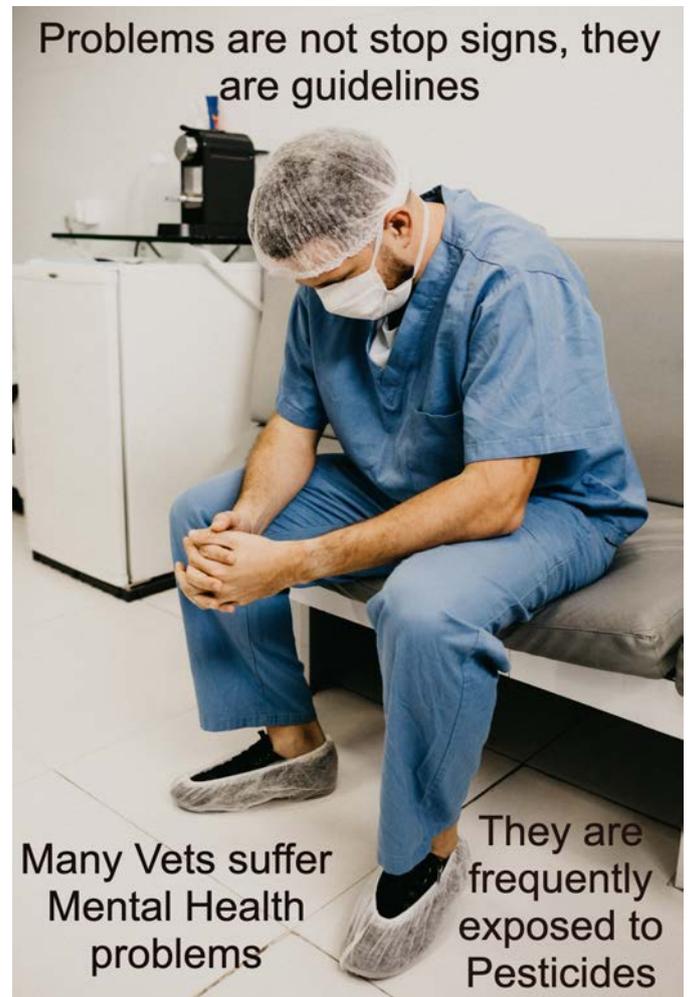
There are clearly huge profits to be made from marketing of pesticides for pets to a consumer society that is easily manipulated. April sees the annual increase in articles and adverts in the Veterinary Press to get Vets on-side, and television campaigns as well as emotive articles in the mainstream media warning of death and dire consequences for pets and their human companions if we don’t swamp them with these chemicals. Veterinary practice management software is set up to market these products creating text, email and postal reminders to encourage client compliance. Pet “Healthcare” programmes seek to bind clients into application of these chemicals, with supply paid for on easy to manage direct debit. Once hooked you become a valued client, maybe even getting discounts on other services for following the flock – all seemingly such a good deal. Software can target the non-compliant as well so there is little escape for the unwary, and Veterinary business journals even publish articles about “mining” clients data for gold ! (5)

I don’t actually believe, as individuals, the vast majority of Vets are in anyway uncaring or inconsiderate. Recent surveys have found 89% want to play a more active role in Sustainability. However, the use and marketing of these chemicals has become almost ubiquitous within Veterinary practice and sales a key part of the business model. The rise of large corporate owned chains of clinics, with shareholders, accountants, and targets for sales, as well as a weight of influence on regulators and the media, has fundamentally changed the profession and creates an environment that is difficult to confront. Such should never have been allowed to happen and it is for Veterinary practitioners to take back ownership and responsibility for pet care and respond to this crisis.

Of course to get any community to address concerns there has first to be recognition that there is a problem, and therein lies the rub. Aside from the financial pressures on the industry, Vets have little time in their busy lives to interrogate such issues, and there are so so many articles in the Veterinary Press that influence, promote and argue for ever more use. Such articles never (and I have read many) mention the environmental, pet, or human risks from the use of these products, instead they make claims of risk, and of the scale of disasters that may happen if products are not marketed, sold and applied endlessly, that on closer interrogation are more fiction than fact.

It is also widely acknowledged the profession is not in a healthy state as regards mental health which cannot help. There are multiple initiatives to try and address this, but are such missing a link? Vets are suffering an epidemic of suicide, and as chronic exposure to some of these pesticides can lead to depression, in an already stressful world are we adding to that risk for colleagues?

We know that there are risks from some of these chemicals to sperm viability and DNA integrity, development of the unborn child, for still-births and miscarriages from chronic exposure and yet this is never once mentioned in industry led articles promoting pesticide use. **In a young female dominated profession it would make sense to have that debate and apply a precautionary approach even if the research is currently thin on this. Consider that almost every dog or cat visiting a clinic promoting regular pesticide use will potentially expose staff to that product.** (6) Even in clinics where the use on the pet is not always known risk is there as products may have been purchased from pet supermarkets or on-line where some are freely available.



To add to the difficulties research is almost never done to investigate harm from product use long term, it is mostly only through surveillance systems and large volumes of data collected after years of use that these issues are belatedly realised.

Fortunately, some regulators are becoming more transparent and making such data more accessible with technology. The European Medicines Agency has set up an information site where you can type in the generic name of the chemical and it will show data on reported issues from exposure, both human and animal (if there is any difference). The link is listed below and a lot of the data on Flea and Worm products is pretty scary. Consider though, when accessing that data, it is recognised that only around 4% of human adverse reactions to medicines are ever recorded, it's possibly even less for animal reactions, and quite likely that the human reactions to veterinary products are rarely recognised and recorded. So without widespread recognition and acknowledgement of problems what are the true levels? I would suggest they can only be much higher than the already worrying levels reported in that data.

Humans aside, recent report in the Veterinary Record has acknowledged the probability of environmental risk from topical pet ectoparasiticides. The same report noted astoundingly that the process of authorising these products may not have taken sufficient account of their possible environmental impacts and that risk assessment stops early on as it is assumed the products are not used in large volumes! However, there are a lot of dogs, and with a high concentration of these products in use, so the effects are now being seen. (6a)

My own experience of asking clients, transferring from other practices and who request these products, as to whether they are aware of the side effects, the potential environmental concerns, and the actual level of need to worm, flea and chemicalise is that not one has ever been informed by the previous Vets. Few have read the information on the packaging either (potentially relied on as a get out clause for the vendor). Almost all are shocked, even angry, at the fact they had not been fully apprised that there might even be a problem at all. There was no informed consent, no understanding of the potential for problems, no instruction how to mitigate risks, and no explanation of the concerns for animal and human health in the process of sale -it was just what they were told to do.

The RCVS Guide to Professional Conduct clearly states:

4.1 The responsible use of veterinary medicines for therapeutic and prophylactic purposes is one of the major skills of a veterinary surgeon and crucial to animal welfare and the maintenance of public health.

6.1 Veterinary surgeons must seek to ensure the protection of public health and animal health and welfare, and must consider the impact of their actions on the environment.

Surely articles in the media designed to educate vets, and similarly adverts to the profession should be required to consider and present the potential risks from marketing of these products to clients?

In my response to one attack I suffered for raising these concerns I noted to the antagonist: "Not once, in any article you have written that I have read (and there are many) do you consider or reference the risk to the environment, or to the humans exposed chronically (even at low level) to these pesticides. Not once have you referred to the growing evidence of adverse reactions in pets; the many, many sick and chronically ill that result, and the many deaths thought to be due to these chemicals use". (4) The recent concerns from the FDA (7), as well as the reports from the VMD (8) provide ample evidence of this. And lets not forget the ignored public who are ever louder clamoring for consideration through forming networks and campaign groups to highlight the problems they and their pets are experiencing from use of these poisons." (see list of concerned groups)

I raised the challenge: "With your position and contacts in the profession you have the opportunity to contribute to ensuring a better future for us all. Will you do this, or will you continue to market excessive and injudicious use of pesticides and lead the world further towards another mass extinction? I challenge you to look deep within and decide." (4)

I heard nothing more.....

And yet – that very week an article was published by the same antagonist in a business journal warning vets that client fears over use "will reduce compliance". Compliance being a word used frequently, at times in the same sentence as maximising sales. (9)

Frankly the whole episode was beyond belief.



Are there arguments justifying Mass pesticide use on Pets?

It is worth looking at some of the arguments put forward as to why in the UK dogs and cats are regularly doused with chemicals to try and prevent infestation with fleas, worms and ticks? Why are we advised to try and prevent infestations that may not happen? Is there any logic and good science behind it?

Obviously I tried to get some good scientific unbiased data to support the use of these chemicals, as noted above, but none was forthcoming (4)

Worming

In the journal "Companion" published by the British Small Animal Veterinary Association in December 2017 it was notable in a report from Norway that there "We don't routinely worm dogs other than pups and nursing bitches (because there is no need, not because we don't bother..)" (10) Norwegian Vets are not allowed to sell prescription only medicines (POMs), so there is also no financial incentive to prescribe other than for actual need anyway. This contrasts the position in the UK.

Similarly in Denmark prescriptions of POMs are only allowed after a positive diagnosis of infection and there is greater awareness of environmental concerns from use of these products (11)

Are our worm problems so different to those countries? Of course not, they have the same worms. This includes lungworm but clearly they do not see that as a such major issue as we seem to in the UK despite similar levels of incidence, and certainly not worth the risk of the products without good cause.

Part of being a scientist is to question everything, especially when practices are based on tradition rather than a clear evidence base. It has become increasingly clear to me that in the UK regular worming of adult pets for roundworms and tapeworms due to the risks to pet and human health is just not based on a sustainable or even an evidence-based argument.

Worming of a pet only treats the current infestation and after just a few days new infestations can begin to establish as the eggs and infective forms of these parasites are pretty much endemic in the environment. When I was at University, long before the advent of many of the newer chemicals, we were categorically told that to worm too frequently also led to a reduced immunity in the host species and greater levels of worms and egg shedding. Within only a few weeks of worming infestations have often re-established and eggs are being shed into the environment – this certainly happens more quickly than a month, the now commonly recommended interval now by the pharmaceutical companies for the application of topical pesticides and wormers. Question has to be raised therefore – are we actually increasing possible risk by continuing current practices of monthly dosing of pets?

Lets look at some of the confusion and mixed messages in the Veterinary Press:

Quotes from just one article: (12)

"To achieve good worm protection, a parasite risk assessment should be considered. Indeed, prior to prescribing any preventive antiparasitic therapy, a full parasite risk assessment should be performed."

"Due to the lack of a robust scientific evidence, veterinary professionals use clinical judgement to figure out what works best for each pet."

"Some guidelines, developed by professional organisations, recommend the use of antiparasitics at a certain frequency based on "expert opinion", but without substantial evidence to support such recommendations."

To add to the confusion:

“it is important to minimise the risk of clinical disease – especially in high-risk cases – treatment at a frequency close to the pre-patent period (monthly for convenience) will help achieve this.”

And yet:

“No definite evidence exists that resistance to commonly used anthelmintics in dogs and cats is an emerging problem.....However, experiences with worm species – particularly those with the quick spread of anthelmintic resistance (AR) in livestock – should warn small animal clinicians against the extensive use of anthelmintics for the control of helminth infection in dogs and cats.”

So, like antibiotics, if used indiscriminately and excessively resistance to currently effective pesticide medications is inevitable.

I'm sure most Vets in practice would acknowledge many products are fast becoming ineffective, and some would argue that is why combinations are appearing with ever more frequency.

It is acknowledged:

“The quest for optimal deworming frequency is ongoing, due to the diversity and complex nature of parasites, and because a solution that can fit all scenarios simply does not exist.”

So as a GP practitioner what to do?

In line with the very good advice in this article to first conduct a risk assessment (12), we advise clients to do worm counts on faeces samples to assess actual need for worming. Almost all find there is no need to worm adult pets, and for some there is no need even to worm younger animals. Lungworm can be checked for and treated (if manufacturers claims are correct) if there.

And if you are worming without infestation what does that achieve? There is now debate over evidence that wormers can alter the animals microbiome, some wormers can certainly affect bone marrow function and immunity (likely only short term – but with repeated use?), levels of wormer may be higher with nothing to use them up making risk of adverse events from the product worse, and excretion into the environment is possibly higher.

Even if there is some evidence of low level of parasites, it is important to realise that rarely do parasites have lifecycles that compromise or kill their hosts under normal evolutionary conditions. We do of course create a potential problem by our manipulation of the environmental conditions under which we keep many animals, but for pets it's not really that intensive. And as adults all species have evolved to live with a low level of infection, even some argue it is important to maintain health. It is at times of reproduction that parasites seek to spread to new hosts and that is why worming of bitches/queens with young is still important as these are the times of increased risk to life (never, ever, worm in pregnancy as these chemicals are teratogens). Ask yourself – if most humans have worms anyway, including tapeworms, why are we not wormed regularly?

Risks to Human health of worms in Pets?

So if worming almost certainly fails to completely prevent, should we really be concerned over human risk from worms?

Looking at a couple of examples:

Toxacara

With the common roundworm – Toxacara – there is a known risk of 3 forms of disease. Of particular concern is ocular toxocariasis where the larva migrates into the eye of small children. It can cause blindness along with some other associated conditions such as epilepsy. So obviously serious if the child is unlucky enough to be affected. However, a very large study in Ireland failed to conclusively show that infection was linked to dog and/or cat ownership, not least because laboratory results showed a high seropositive rate (31%) of children to exposure to the parasite, but only at worst 12 cases per 100,000 of eye problems relating to the worm. What did seem linked was geophagia (earth eating) and there was a suggestion that climatic conditions that supported the survival of the infective larval stage may have an impact on the higher level of cases in Ireland than other areas. (13)

Whatever, it is clear, for all the worming of Cats and Dogs done there is no demonstrable decrease in human risk of this disease. It is even reported there are 34 million Toxacara eggs released per square kilometre per day (14), and yet it is at times described in the veterinary literature as the most common zoonosis to pass from dogs and cats to humans. Whilst exposure levels are clearly high, also clear is the very low risk of consequent disease from Toxacara. Compare this to Toxoplasma (a protozoan) transmission from Cats which is some 10 times more commonly reported as actually causing eye problems, as well as risking the unborn child (15) And yet we don't preventatively treat for that at all – personal hygiene is the way forward there. Hygiene is arguably the way forward for Toxacara too as the eggs only become infective in the external environment and contaminated food/pica/infected water sources are the main routes to human infection.

Echinococcus multilocularis

In Europe and other countries (fortunately not the UK at the moment) there is a serious disease caused by a Tapeworm called Echinococcus multilocularis. It is not that long ago I sat in a committee meeting where the Human health risks of Echinococcus multilocularis entry into the UK through imported pets was raised. Human deaths occur in Europe, including in children, from this tapeworm. With an asymptomatic incubation period of 5-15 years before clinical signs are triggered treatment is not always successful even if diagnosed. In dogs it causes no symptoms. Some have concerns (myself included) the Pets Passport scheme rules are not stringent enough to prevent this crossing onto our shores, and that scheme arguably has made the illegal import of dogs into the UK more prevalent. Considering in the UK our pets live in our houses and sleep in our beds, it would be devastating if this parasite ever got over here. In dogs that travel there would certainly be a legitimate argument for more and targeted worming on return to the UK. Some would say why travel a dog and put it at risk at all? We certainly need more action on illegal imports and our loose borders before we have a mass panic when the first child dies and dogs are abandoned on the streets.

However, at this time it is not here and so for now not an argument for chemical use unless the dog travels.

Lungworm: Angiostrongylus vasorum

On the surface this appears to be a special case, with reports of it spreading throughout the UK, or at least the reports have increased and are recorded cumulatively as the marketing has raised awareness. However, the very marketing that seeks to strike fear into our hearts that our beloved pets will die a terrible death also contains the information to calm those fears –or does it? (16) It is stated that one product effectively resolves infections after just two doses 32 days apart. Do I believe that? No, I don't at all as nothing is that perfect, the treatment group was small, and reports are coming in of failures in preventative programmes from discussions with laboratories. That said my experience is that it works mostly, and I would prescribe it more frequently to an infected case as it seems illogical to treat at greater intervals than the pre-patent period of the worm and expect 100% efficacy anyway. It doesn't happen that way in other species, so I don't see why it would in dogs.

At least the number of deaths is not huge. Around 6-8 every quarter if reports are to be believed (there may be other cases missed diagnostically, or just not reported). From that figure one has to suspect clinically asymptomatic infection is more likely and the Danish approach already discussed is more logical as a way forward. Compare that to the estimated number of Road Traffic Accidents involving dogs in the UK, at around 100,000pa - clearly investment in training and a collar might be a better focus for marketing campaigns targeting responsible dog ownership.

The main source of spread is the urban fox. Data shows infection rates of foxes at around 18% (50% in the south east) (16). Keen Springwatch fans will recall the coughing fox that was chased out of its territory in Brighton and travelled miles and miles before disappearing off the radar, presumably spreading infection along its path. It's perhaps not politically correct to blame the fox, but in my opinion the movement of pets around the country is not enough to explain the spread of a condition.

Interestingly the Kennel Clubs website explains "Not every snail or slug carries the disease and lungworm's geographical limitations means infection is currently relatively uncommon, but it does rear its head from time to time". There is debate in the Vet profession over the dramatic advertising (16) overstating risk as well and it is reported that "monthly treatment has been questioned by some clinicians who consider monthly lungworm preventives unnecessary - especially when the evidence for risk of infection is minimal." (12)

Logic says do not encourage urban foxes into your garden if you have a dog, and if there has been a case locally consider how best you protect your pet. **In my opinion the best route to take is to monitor your pet for infection and keep the products that are effective, effective, so they are there when you need them the most.**

Fleas and Tapeworm

In the UK it is said that children can accidentally ingest a flea infected with the larval stage of the Tapeworm, *Dipylidium caninum*. Infection can lead to diarrhoea and pruritis but is rarely serious in actuality - the stress of seeing tapeworm segments in a child's stool or nappy is probably the main concern rather than it being a significant issue for human health. So not really an argument for repeatedly chemically exposing everyone in reality.

What about Ticks?

Clearly there is growing concern over zoonotic diseases transmitted by Ticks, with Lyme Disease being the most commonly recognised problem. But the dog itself is not going to give its owner the Lyme Disease - that will only happen if the owner is bitten by an infected Tick, and there are plenty of precautions that can sensibly be put in place to manage ourselves.

Yes the dog is at risk itself, but there needs to be a logical approach to decrease risk by application of the least level of insecticide at an appropriate time that will kill the tick without it needing to bite the animal to get a lethal dose. Spot-on or oral chemicals that rely on systemic (throughout the whole body) dissemination of the active ingredient with risk of attendant side effects, and which rely on the tick biting, are not logical. There are now very effective collars with less systemic and environmental risk, and which kill without the need to bite, that can be used in affected regions.

So clearly the Human Risk, whilst not nil, is negligible and quite arguably resolved in the main by good personal hygiene. Education of pet owners I would argue would go a lot further towards reducing risk to human health than selling chemical products.

What are the Side effects of these chemicals? What are their impacts on the environment?

There are now so many chemicals on the market that it would be difficult in one article to assess and present them all even if they were all known about and even published. Side effects that can affect the animal, associated animals (including humans) and worryingly also the environment are rarely researched as long term issues, published or even reported. And researching a negative result takes years and massive population cohorts to determine.

To confound investigations, the trend now (as some chemicals seem to fail alone), is to combine products in one “cure all” product. This makes it even harder as clear inferences regarding individual toxicity of each chemical cannot be easily made.

Add to that the UK reporting system of reporting adverse reactions is reliant on voluntary engagement, and when various surveys in the human field with such systems suggest that as high as 96% of problems are never reported at all what hope have we if we rely on that? (17)

So we have to look at data sheets from manufacturers, and reports from other industries, for the acute reactions; and what few long term mammalian and human studies there are for more information.

Imidacloprid

Perhaps the most commonly used insecticide in spot-on preparations in pets is **Imidacloprid – a Neonicotinoid.**

Neonicotinoids are classified by the United States Environmental Protection Agency as both toxicity class II and class III agents and are labeled with the signal word “Warning” or “Caution.” Because the neonicotinoids block a specific neuron pathway that is more abundant in insects than warm-blooded animals, these insecticides are presented as more selectively toxic to insects than mammals (18). Note the words – more abundant – not therefore not present....

The most available toxicity data of the neonicotinoids is with imidacloprid. This data indicates that it is less toxic when absorbed by the skin or when inhaled compared to ingestion. It causes minor eye reddening from contact, but is non-irritating to the skin. Signs of toxicity in rats include lethargy, respiratory disturbances, decreased movement, staggering gait, occasional trembling, and spasms. (18) There are no accounts of human poisoning, but signs and symptoms of poisoning would be expected to be those similar for other mammals and indeed are what is seen in pets

Those are acute symptoms, but there are general population studies in humans reporting associations between chronic exposure and adverse developmental or neurological outcomes, including tetralogy of fallot (a developmental heart condition), anencephaly, autism spectral disorder, memory loss and tremors (19). Accepted these were limited and weak data, but enough to raise concerns and a call for more research. Other mammalian studies have raised concerns over high dose exposure leading to degenerative changes in the testes, thymus, bone marrow and pancreas. Cardiovascular and hematological effects have been observed. Longer term low dose exposure has been associated with effects on the liver thyroid and weight loss. In rabbits studies have raised concerns over reproductive toxicity, developmental retardation and neurobehavioural deficits.(20) If we think of the problems we are seeing in general practice today, there has to be concern that some of the problems we see are a consequence of acute and chronic exposure (including of Vets to animals that have had these applied) (6)

The emerging science suggesting neonic pesticides pose a health risk to people, coupled with environmental contamination of waterways and food, raises an alarm beyond the already significant risk to invertebrate life. Remember always absence of evidence is not evidence of absence – it is better in my opinion to adopt a precautionary approach than to find out later one could have avoided the avoidable. (21)

The Birds and the Bees

Bees.

Perhaps much more importantly than the impact on our Pets, and us, is the fact that to members of the genus *Apis*, the **honey bees, imidacloprid is one of the most toxic chemicals ever created as an insecticide.** Several studies have found that sub-lethal levels of imidacloprid increase honey bee susceptibility to the pathogen Nosema. Research has found that bees consuming the pesticide suffered an 85% loss in the number of queens their hives produced, and a doubling of the number of bees who failed to return from food foraging trips.(22)

In May 2012, researchers at the University of San Diego released a study showing that honey bees treated with a small dose of imidacloprid, comparable to what they would receive in nectar and formerly considered a safe amount, became "picky eaters," refusing nectars of lower sweetness and preferring to feed only on sweeter nectar. It was also found that bees exposed to imidacloprid performed the "waggle dance," the movements that bees use to inform hive mates of the location of foraging plants, at a lower rate. (23)



This information becomes even more worrying when it is reported that in a survey of Honey's from around the world 75% contained neonicotinoid insecticides (3) There is just so much data now available on the damage to bees by are we just ignoring the unnoticed apocalypse and making it worse by use of these chemicals in the Veterinary industry on an industrial scale?

What about other insects?

It's worth looking at birds that feed on insects for Nature's own assessment of the scale of the concern; the figures are horrifying. Populations of the Grey Partridge have declined 92% since 1967, Nightingales by 93%, Cuckoos by 77% and Spotted Flycatchers by 93% (3) Insect decline is a massive problem and we must do all we can to halt it.

Researchers from the Canadian Forest Service showed that imidacloprid used on trees at realistic field concentrations decreases leaf litter breakdown owing to adverse sublethal effects on non-target terrestrial invertebrates. (24)

Aphids have been found to lead to altered behavior, such as wandering and eventual starvation. Very low concentrations also reduced nymph viability.(23)

In January 2013, the European Food Safety Authority stated that neonicotinoids pose an unacceptably high risk to bees, and that the industry-sponsored science upon which regulatory agencies' claims of safety have relied might be flawed, (23) The arguments of vested interests will go on and on as ever, no doubt until extinction is inevitable and governments then act.

The Birds

Imidacloprid has also been found to be highly toxic to four bird species: Japanese quail, house sparrow, canary, and pigeon (23) Worryingly the pervasiveness of these chemicals is illustrated by a recent study in Switzerland which found Neonicotinoids in the feathers of 100% of House Sparrows tested ! (25)

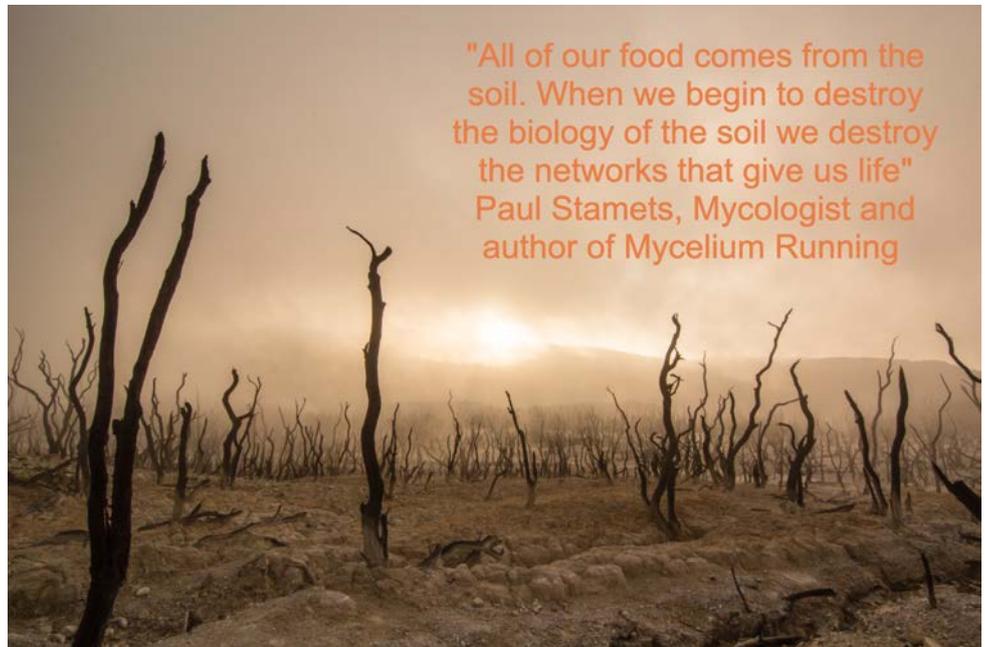
The European Food Safety Authority also has stated that imidacloprid poses a potential high acute risk for herbivorous and insectivorous birds and granivorous mammals. While at the same time chronic risk has not been well established. (23). Why are governments not completely banning these chemicals?

At imidacloprid concentrations of more than 20 nanograms per litre, bird populations tended to decline by 3.5 per cent on average annually. And this is not related to any other land use factor (26). Yet more reports show birds exposed to these chemicals become disorientated, lose their sense of direction, become unable to migrate.



Earthworms

Such an important organism, and yet a significant body of research suggests that earthworms suffer reductions in their ability to reproduce as well as changes to their burrowing behavior. (20) Consider the impact therefore of dogs in parks and gardens urinating the defecating onto the soil and the persistence of the chemical in the environment.



As already noted Imidacloprid is highly toxic on an acute basis to aquatic invertebrates so it was especially worrying that the 2016 report by BUGLIFE on Neonicotinoid Insecticides in British Freshwaters (1) specifically implicated veterinary topical applications and flea collars as the most likely source of pollution with Imidacloprid in some catchment areas. Neonicotinoids are persistent, stable and long lasting in the environment. They recommended a thorough review of the use of ectoparasite treatments and their use should immediately be suspended in the UK . They have clearly been ignored !

Why do the data sheets that come with spot-on products containing imidacloprid not routinely carry the warning that the chemical should not be allowed to enter water courses as it has harmful effects on aquatic organisms? Quite arguably for these and oral products too, the pet should not be allowed to urinate or defecate anywhere where environmental contamination might result (so pretty much everywhere) and waste disposed of responsibly. This is in my opinion a travesty as harm is being done now.

Imidacloprid is just one of the many treatments marketed for regular use in the UK on pets. Controversies over this and other products are growing, with websites and social media sites are now picking up on concerns and gathering huge amounts of data on cases (see further reading). So why is more action not being taken in the UK to highlight and reduce the use of these products to a situation similar to that mentioned in Norway and Denmark?

And when will the use of regular treatments when there is no need produce resistance to the chemicals anyway in the fleas, worms and ticks? Whilst it is claimed there is no evidence yet (12) Speaking to one laboratory recently they are now seeing cases of Lungworm not responding to treatments so problems may well be already happening as a result of the madness of commercial marketing and promotion for prophylactic use.

So many different Products

There are so many different products now being marketed for use on Pets. Many of these individually not only risk and impact on our environment, but some combinations (and combining is the trend) are only now being found to be worse than the individual products alone ! (3) The marketing authorisations of many system insecticides worldwide has generally failed to assess the individual and joint ecological risks resulting from widespread and simultaneous use of multiple products with multiple formulations and multiple modes of action. Nor has it considered the impact of the multiple uses in multiple industries, of which the Vet component is but a player in the build-up of cumulative toxicity. (27)

Many of the Veterinary used products are chemicals now found in all environmental media including soil and water. Persistence can be long in these, worse in plants that take them up into their tissues (27) with the disaster moving up the food chain to us humans. Cumulative toxicity effects long term have not been studied

There are many gaps in knowledge of the eventual fate of many of these chemicals, but with DDT hanging around still some 50 years or so since last used sure common sense tells us to stop poisoning the planet and ourselves.

So how do we go forward logically and sensibly?

There needs to a common-sense proportionate risk-based assessment of the need for control of parasites in pets in the UK.

Even if the risk described for the individual pet is perhaps low, the cumulative effect of use cannot be denied – and why accept risk anyway, especially at this time of growing environmental crisis, and when the current mode of use is illogical anyway?

All products must be on Veterinary prescription only, not available over the counter in pet stores and on-line. Use must only be for confirmed infestation causing a health concern.

Vets must be responsible and face action if they breach prescribing rules. Corporations that now dominate the ownership of practices should be subject to sanctions if they force marketing of these products onto their veterinary employees.

Clearly other countries are leading the way and regard the environmental impacts as more important than occasional infection in pets. Treatment is not prevented, it just must be with correct diagnosis and investigation and the response be proportionate to the risks. This is no different than the initiatives in antibiotic reduction that are widely recognised as responsible, even if there are individual casualties from time to time.

Consumers in general and the pet-owning public in particular need to be more mindful and questioning rather than trusting what they are told by manufacturers and those with a vested interest in selling products. Vets need to take the lead and educate the public to only use these products when absolutely necessary and only after diagnosis and only in the correct amounts to resolve a problem efficiently and effectively with appropriate disposal of any contaminated waste and fluids (stools, urine, waste from shampooing).

If applying any topical insecticide keep the pet away from children and pregnant women until it can be absolutely guaranteed that it is safe for them to be in contact.

Our practice recommendation is

Firstly before putting chemicals on your pet ask yourself - would you willingly apply pesticides and other chemicals to your children on a monthly basis? If not then why are you doing this to your pets? And consider the low-level exposure of humans as a result a potential route for harm. In particular consider the risks for children and pregnant women. Consider the risks for the environment from using that product, dispose of faeces responsibly and avoid contamination of waterways, ponds and lakes from urine and pets swimming.

Then consider

1. For ALL Worms only to worm adults based on confirmed need. Send regular faeces samples to a laboratory for monitoring (2-4 times annually). Treat only for species identified as a concern, and at levels indicating a concern.
In all cases where worms are found in quantity investigate for concurrent disease that might have an impact on the immune system.
2. Worm Cats and Dogs once they have given birth, and worm puppies and kittens through the at-risk period.
3. Never worm in pregnancy due the teratogenic risks.
4. In Tick areas where they are known to carry disease risk use effective collars that act both as insecticide and repellent. Take these off on walks if the dog is going into water and avoid the dog coming into contact with children while wearing these collars
5. For Fleas and other ectoparasites, treat on first sign of infestation with an effective product until the problem is resolved, then stop. If there are long term problems use an effective collar during the spring/summer months, but take these off on walks if the dog is going into water. Address the pets environment.

In line with a growing number of colleagues, my stance that logical use, only as needed, is a more balanced, considered and responsible one is one that I will continue to advance in my practice and to anyone that seeks my advice.

To do otherwise would be to participate in condemnation of the planet and the future of humanity to **Suicide by Pesticide**, or **PETICIDE** as I like to call it..

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Note: When time I intend adding annexes looking at specific chemicals and their risks to pet and human health through 2020. In the meantime readers can access some surveillance data (albeit such that relies on recognition of link and actually reporting it) at European Medicines Agency – Public access to the reported side effects of Veterinary Medicines. <https://www.ema.europa.eu/en/news/public-access-suspected-side-effect-reports-veterinary-medicines>

And there is still hope: Steve Garland, entomologist and Chair of the Wildlife Trusts policy setting body for England said: “I really believe that the catastrophic decline of insects can be reversed by drastically reducing the use of chemicals in the environment and creating strong Nature Recovery Networks to give them space to live and thrive in safety.”(3).

References:

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16. Data in marketing literature for Advocate from Bayer
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22. Neonicotinoid Pesticide Reduces Bumble Bee Colony Growth and Queen Production". Whitehorn, P. R.; O'Connor, S.; Wackers, F. L.; Goulson, D. (2012). *Science*. 336 0036-8075.
23. Wikipedia: Imidacloprid – apologies, I don't usually reference Wikipedia, but there is some good summary data here
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25. A large scale survey of House Sparrows feathers reveals ubiquitous presence of Neonicotinoids in farmland. Humman-Guillemot, S et al. Science of the total Environment (2019) 660: 1091-1097
26. Declines in insectivorous birds are associated with high neonicotinoid concentrations. *Nature*. 511 (7509): 341–3. doi:10.1038/nature13531. PMID 25030173.
27. Conclusions of the Worldwide Integrated Assessment on the risks of neonicotinoids and fipronil to biodiversity and ecosystem functioning. Van der Sluijs JP Environ Sci Pollut Res DOI 10.1007/s11356-014-3229-5

Further Reading and information

For regular wormcounts to see if your pet has an infestation go to www.wormcount.com (note I have no financial association with this laboratory)

1. The Royal College of Veterinary Surgeons

The RCVS has committed to an evidence-based approach to Veterinary medicine. As such I call upon it to act now and tackle this issue, as other countries and regulators clearly are, and stop the mass prescription and supply of these chemicals without a clear and unequivocal need, to protect the environment, the welfare of animals, their human carers and veterinary professionals.

From its RCVS Knowledge website:

The commitment to evidence-based veterinary medicine:

Evidence-based veterinary medicine is key to the delivery of modern veterinary medicine. It means veterinary surgeons and veterinary nurses making clinical decisions according to their professional judgement, based on the best available evidence at the time and what is right for the individual animal and owner. When rigorous research underpins medical decisions, adverse events can be minimised and patient outcomes can be improved.

We believe evidence-based veterinary medicine reinforces the sound scientific principles of the profession and strengthens the commitment to put animal health and welfare at the forefront of all we do.

The RCVS needs to act to avoid accusations of regulatory dereliction and corporate capture NOW.

2. References not listed/ referred to in the text but useful information

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7. Neurotoxicity of Pesticides. Richardson JR 2019 Acta Neuropathica 138: 343-362
8. Critical windows of exposure to household pesticides and risk of childhood leukaemia. Xiaomei M et al 2002 Environmental health perspectives. 110, 9. 955-960
9. European Medicines Agency – Public access to the reported side effects of Veterinary Medicines. <https://www.ema.europa.eu/en/news/public-access-suspected-side-effect-reports-veterinary-medicines>

3. List of concerned groups:

There are many conspiracy theories about control of the internet, but I found it amazing how so many pages I planned to list had been removed from social media. I don't want this work to get pulled as well, so my suggestion now is to do your own research on Facebook, Twitter etc as well as the wider internet – there is still a lot there. Search under product names and the chemical ingredients.

4. Further reading, weblinks and articles of interest

Suicide by pesticide by Chris Martenson – found on-line

Insectageddon by George Monbiot <https://www.monbiot.com/2017/10/23/insectageddon/>

Europes Rivers riddled with pesticides <https://theecologist.org/2019/apr/23/europes-rivers-riddled-pesticides>

<https://www.scientificamerican.com/article/as-pesticide-turns-up-in-more-places-safety-concerns-mount/>

Death of the Birds and Bees across America (with commentary on human harm)

<https://www.globalresearch.ca/death-of-the-birds-and-the-bees-across-america/31699>

<https://www.theguardian.com/world/2018/mar/21/catastrophe-as-frances-bird-population-collapses-due-to-pesticides>

<https://www.organicconsumers.org/news/six-states-sue-epa-over-pesticide-tied-brain-damage>

Environmental toxins impair immune system over multiple generations

<https://www.sciencedaily.com/releases/2019/10/191002144257.htm>

<https://www.organicconsumers.org/blog/new-fda-report-84-percent-fruit-samples-53-percent-veggies-test-positive-pesticides>

How badly do you want to kill the fleas your dog doesn't have? <https://dogsfirst.ie/is-bravecto-safe-here-we-lay-out-the-facts/>

Calamitous declines in insect eating birds <http://www.ace-eco.org/vol5/iss2/art1/>