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IN FOCUS Common neurological causes of micturition disorders in small animals / SMALL ANIMAL Feline paraneoplastic alopecia / LARGE ANIMAL The influence of progesterone pre- and post-service / NURSING The role of the veterinary nurse in the management of senior pets / PRACTICE MANAGEMENT Crafting a successful newsletter / OPINION “While a virus may cause havoc for us humans, some things in nature never change”
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StreetVet is a charity dedicated to providing veterinary care for the dogs of the homeless.

Too often, spatial provisions are decided by what is thought convenient for owners rather than what is better for animals.

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Two Improve International CPD courses confirmed as meeting requirements for RCVS Advanced Practitioner status

Improve International’s Postgraduate Certificate (PgC) programme in Dentistry and Oral Surgery, delivered and awarded in partnership with Harper Adams University (HAU) and the International School of Veterinary Postgraduate Studies (ISVPS), has been added to the list of qualifications conferring eligibility for applications for the RCVS Advanced Practitioner status in Small Animal Dentistry.

The Postgraduate Diploma (PgD) in Advanced Veterinary Practice Sciences, achieved by obtaining the PgC in Small Animal Surgery plus the ISVPS General Practitioner Advanced Certificate (GPAdvCert) in Small Animal Orthopaedic Surgery (together with two further modules with HAU), has also been recognised as an eligible entry qualification for application for the RCVS Advanced Practitioner status in Small Animal Orthopaedics.

The PgC is accredited at Masters Level 7 and provides 60 credits, at least 40 of which are in the designated clinical area. This places it at the same academic level as those offered by other CPD providers and termed as eligible entry qualifications for RCVS Advanced Practitioner status – a middle tier of veterinary accreditation, sitting between an initial veterinary degree and RCVS Specialist status. It joins 11 Improve PgCs, including its flagship Small Animal Medicine and Small Animal Surgery programmes, in offering this eligibility.

The GPAdvCert in Orthopaedics is one of four new next-step level programmes launched by Improve International in 2018 to advance the learning opportunities for veterinary surgeons following the completion of an ISVPS General Practitioner Certificate (GPCert) or PgC. These programmes can be attended without first achieving the PgC or GPCert; however, the GPAdvCert qualification can only be awarded with this prior achievement.

The GPAdvCert programme in Orthopaedic Surgery is set to start in September 2020 with the PgC programme in Dentistry and Oral Surgery commencing in January 2021. More information can be found at improveinternational.com/uk/

With the safety of its delegates, speakers and staff in mind, Improve International is following government advice closely and preparing for the fact that some COVID-19-induced restrictions may still be in place towards the end of this year and into 2021. The company will provide appropriate PPE for attending delegates and arrange for live sessions to be streamed online if physical attendance is not possible. Practical sessions will be rescheduled for the earliest possible date and the company has also revised its terms and conditions to provide maximum flexibility to delegates in case their circumstances change.

VMG and VDS join forces to help veterinary staff deliver “sustainable change”

“Practical strategies for delivering change in the real world” will be on offer during a series of one-day online workshops, called “Leading Change in Veterinary Practice”, run jointly by the Veterinary Management Group (VMG) and VDS Training on 8 July 2020, 23 September 2020 and 13 October 2020.

The two associations have teamed up to support veterinary leaders coping with an unprecedented rate of change in the profession and in the way it delivers its services to patients and owners, which has only been accelerated by the effects of the COVID-19 pandemic. The workshops will be practical and interactive with delegates carrying out exercises and self-assessments, as well as practising new skills. They will be invited to discuss common challenges and think about changes they plan to implement in their businesses, and will leave with tools and strategies tailored to their needs.

Commenting on the workshops, VMG President, Rich Casey, said: "Leading and working in a veterinary business today, especially one seeking to emerge successfully from the COVID-19 lockdown, involves a managing a diverse – and possibly anxious – team and client base, while coping with heightened financial pressures, rising consumer expectations and treatment costs and against the backdrop of a global sustainability emergency and the potential for further lockdowns.

“This ‘new normal’ will put extreme pressure both on veterinary leaders and on other team members responsible for supporting the implementation of change in their practices. To succeed, they will need 21st century leadership skills and the confidence to put them into practice in a post-lockdown world. Our workshops will help them to do this.”

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At its June 2020 meeting, RCVS Council members agreed to consult on a set of recommendations that would see wide-scale changes to the legislative framework governing the regulation of the veterinary professions.

The report of the Legislation Working Party (LWP) contained a series of recommendations on the shape of the future legislation governing the veterinary professions and the principles that would underpin this legislation, such as the need for greater clarity, the incorporation of the entire vet-led team under one regulatory banner, and introducing greater flexibility and future-proofing.

The LWP was set up in 2017 to consider the principles governing any new legislation affecting veterinary regulation and come up with recommendations for what innovations could and should be included in any future replacement for the Veterinary Surgeons Act 1966. The group comprises members of RCVS Council, RCVS staff and representatives from the BVA and the BVNA, and has also made extensive use of external advice from other regulators and experts.

Some of the key individual recommendations include embracing the vet-led team, enhancing the VN role, assuring practice regulation, introducing a modern, compassionate "fitness to practise" regime and modernising the RCVS registration.

A full public consultation process on the recommendations is expected to take place later this year. After this has taken place, and depending on its outcome and Council’s final decision on how to proceed, a full set of proposals on legislative reform will be put to the Department for the Environment, Food and Rural Affairs in the hope of seeking support for new legislation.

At its June 2020 meeting, the RCVS Council decided, by majority vote, to consult with the professions on possible changes to the disciplinary system. The proposed changes were developed with the aim of making the system more compassionate and modern, whilst maintaining public protection at its heart.

At the meeting on 4 June 2020, Council members were asked to decide on how to proceed with three specific proposals on reforming the disciplinary system. These had come out of the discussions held by the Legislation Working Party (LWP) but, unlike the majority of the recommendations made in the LWP report, which was also presented at the meeting, they do not require new primary legislation so were discussed and decided on separately.

The specific proposals are: a change to the standard of proof used in deciding whether or not the facts of a case are proven from the current criminal standard (“beyond all reasonable doubt”) to the civil standard (“on the balance of probabilities”); the introduction of a “charter case protocol” in which cases that meet the threshold for a full disciplinary committee hearing, but which might be likely to attract a low sanction, may be concluded without a public hearing; and to end the current system of initial review of complaints via a case examiners group with the more complex of these cases then reviewed subsequently by the preliminary investigation committee.

Acknowledging some of the concerns that have been raised about changing the standard of proof, RCVS Registrar, Eleanor Ferguson, explains: “The RCVS is now one of just a few regulators that still uses the criminal standard of proof in determining the facts of a case. We have sought these changes as part of our ongoing aim to develop a compassionate and forward-looking disciplinary system with the protection of the public absolutely at its heart, whilst also acknowledging the huge toll the process takes on the mental health of veterinary professionals.

“Ultimately, the aim of the RCVS in regulating the veterinary professions is to protect the public and animal welfare as well as upholding the reputation of the professions. We believe these changes will better achieve that aim.”

The consultation on whether to change the standard of proof as well as to introduce the charter case protocol is now planned for later this year.
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OV Conference goes online

Tickets are now available for the UK’s only conference dedicated to the CPD needs of Official Veterinarians (OVs), taking place from 28 September to 2 October 2020. Moving online as a result of the COVID-19 pandemic, the 2020 OV Conference will offer up to 25 hours of CPD with lectures, workshops and Q&A sessions from world-class speakers in streams covering small animals, farm animals and equines.

This conference provides a unique forum in which OVs can discuss current topics and recent developments in their work. Organised by Improve International in association with the APHA, key themes will include notifiable diseases, biosecurity and disease control, and export certification.

In addition to the live lectures, delegates will be able to view recordings of all the sessions on-demand for three months following the conference. The CPD on offer counts towards OV revalidation qualifications with the event open to all vets, as well as animal health paraprofessionals, nurses and practice managers.

More information about tickets and the full programme can be found at officialvet.com

UK declared free from avian influenza, with continued vigilance required

The Chief Veterinary Officer has announced the UK has met international requirements to declare itself free from avian influenza (AI) H5N3, but reiterated calls for all poultry keepers to remain vigilant for signs of disease, as there is a real and constant threat.

Highly pathogenic avian influenza (HPAI) continues to circulate in Europe and as winter approaches later in the year, the risk of migratory wild birds infecting domestic poultry will rise. The UK was previously declared free of avian flu in September 2017 and has remained free of highly pathogenic avian influenza since then. But a low pathogenic strain of disease returned in December 2019 which was quickly met by government action.

In December 2019, a single case of low pathogenic avian flu of the H5N3 strain, which poses no threat to human health, was confirmed at a commercial chicken farm in Suffolk. The APHA put movement restrictions in place to limit the spread of disease and carried out thorough investigations into the source and possible spread of infection and concluded that the most likely source was indirect contact with wild birds.

The government continues to monitor the international situation and carry out surveillance in poultry and wild birds and publish regular disease updates.

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RCVS Leadership webinar series launched to help work through uncertainty and change

As a part of its leadership initiative, the RCVS is running a series of free webinars for veterinary surgeons and veterinary nurses to address the challenges of leading and working with colleagues and clients through the coronavirus pandemic.

The hour-long sessions are a collaboration with the Tavistock Institute, a not-for-profit organisation that applies social science methodologies to contemporary issues and problems, and will be led by experts in the field of organisational development and change. Each session will provide members with an opportunity to think about the wide-ranging effects the pandemic has had on our lives and our workplaces. In particular, the sessions will address themes such as the impact of being furloughed; returning to work and living one’s life in conditions of ongoing uncertainty; and working through change.

The four webinars, which will be hosted weekly, should be of interest to everyone in the veterinary team as they adapt to the changed circumstances and needs of clients, colleagues and staff. Tackling a specific theme each week, each of which builds upon the last, listeners will be provided with advice, guidance and coaching to enable them to grow their understanding and confidence so that they feel better placed to negotiate, lead or support others during these uncertain times.

The free lunchtime sessions will take place weekly, starting on Thursday 2 July at 1pm. Whilst valuable as standalone sessions, each webinar in the series is designed as a counterpart to the others so that members can achieve a deeper and richer appreciation and understanding of the issues. The sessions will also be recorded and made available later.

To register, find out more or be kept up to date with further information on the seminars and presenters as they are posted, visit rcv.s.org.uk/forms/rcvs-leadership-webinar-series/

RCVS and BVNA launch new VN Futures website

A new website dedicated to showcasing the work of the VN Futures project was launched at the end of May 2020. VN Futures was launched as a joint RCVS and BVNA project in 2016, associated with, but separate from, the Vet Futures project and with a focus on identifying, and finding solutions to, some of the specific issues facing the veterinary nursing profession.

The VN Futures report and action plan, published in July 2016, identified five key streams of activity (creating a sustainable workforce; structured and rewarding career paths; confident, resilient, healthy and well-supported workforce; proactive role in One Health; and maximising nurses’ potential) and the new website is designed to highlight how the project has, and will, work to meet these aims.

It includes information on activities such as the development of the Certificate in Advanced Veterinary Nursing qualification, the School Ambassadors Project (currently in abeyance due to COVID-19) and several case studies that demonstrate the wide variety of careers open to veterinary nurses.

More information about the VN Futures project can be found at vnfutures.org.uk

Patient-based assessment approved by VN Council as alternative to OSCEs

The RCVS VN Council has approved an alternative assessment method for those awarding organisations and universities who are unable to provide OSCEs under the current social distancing guidelines.

A special OSCE taskforce was set up in April to develop and draw up proposals for a safe yet comprehensive alternative to the OSCEs, where these could not comply with the social distancing guidelines and were therefore considered unsafe for students and examiners.

The taskforce developed a new “Patient-based Assessment” method, approved by VN Council on 17 June, which will allow student veterinary nurses to prove they meet the Day One Competences and Skills, allowing them to join the Register as fully qualified veterinary nurses.

The alternative assessment method is only relevant to student veterinary nurses whose awarding body or university has decided it is not able to hold its OSCEs under the current conditions. Those who are unsure whether this assessment method is applicable to them should contact their educational establishment for further advice and clarification.

More information can be found at rcv.s.org.uk/document-library/veterinary-nurse-patient-based-assessment-student-handbook/
Taking a closer look at veterinary nurse insurance during COVID-19

Are you self-employed? Do you work on a contract as a locum Veterinary Nurse? If you do, you may be finding things a little uncertain at the moment. While most veterinary practices remain open, the Coronavirus pandemic means that many are operating with skeleton staff and dealing with emergency cases only.

Why is now a good time to review your cover?

If you’ve been working as a Veterinary Nurse for a number of years it may be that you bought cover when you first started out on your own and haven’t reviewed it since. But over time, your work and responsibilities may have changed so it’s worth taking the time now to take a closer look at the details of your policy to make sure they still meet your needs and the risks you face.

If you have found yourself with time on your hands because of the current situation, it would definitely be worth putting some of that time to good use by reviewing your insurance. The insurers providing cover for Veterinary Nurses have changed too. At PLH Medical we’ve partnered with Tapoly who are on a mission to revolutionise the insurance landscape. Tapoly offer up to £5 million of Medical Malpractice Insurance for Veterinary Nurses which you can buy quickly and easily online.

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A comprehensive policy, which has an adjustable limit, provides you with flexibility and control over the amount of cover that you need. The cover includes:

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- Public/General and Product Liability cover in relation to any bodily injury and/or property damage caused by an accident in connection with your business
- Loss of documents (destruction, damage or loss) owned or are entrusted to you
- Breach of professional confidentiality during your business
- Libel and slander committed without malice in the conduct of your business
- Inquest costs in respect of unexpected deaths which may give rise to a claim
- Good Samaritan acts where you render assistance to a passer-by not under your direct care
Self-compassion is more than just self-care

When we are truly self-compassionate, we relate to our feelings in an accepting manner to defuse their hold on us.

A pandemic has enveloped the world, changing the way we live so dramatically and chipping away at our inner strength bit by bit until we were left anxious and on a rollercoaster of emotions aptly named the COVID-coaster. It’s difficult to maintain the inner strength we have spent so long cultivating right now.

It is often said to “treat yourself the way you would want others to treat you” – so, how would you treat a friend who is struggling, and how can you extend that effort towards yourself? Do you find yourself gawking for a coffee and then, when you get it, slugging it down while typing your notes frantically? Do you run yourself a bath and then spend your time in it scrolling through your long list of emails? Do you wonder why, if you are exercising self-care by making yourself a coffee and running a bath, you’re not feeling the benefits of it?

Ask yourself this. If a friend were struggling, anxious and exhausted, would you place a cup of coffee in their hand and then walk away, job done? Would you sit them in a comfortable seat and then scroll through your emails, ignoring them? No, of course you wouldn’t. So why do we do this to ourselves?

Why do we pay so little attention to ourselves and think that the material external aspects of self-care are enough to “fix” us? Why does looking after ourselves and offering loving kindness to ourselves end up on the long list of chores we really don’t have time for? So, we half-heartedly do it to “get it done”.

Self-care is so important if we are to maintain a stable mindset during challenging times. This pandemic has presented us with a unique set of challenges, the like of which we’ve never seen before and hopefully will never experience again. You may have children, colleagues and clients all depending on you to help them and it’s difficult not to experience emotional fatigue.

This state of sympathetic overdrive coupled with the knowledge that there is really no easy way out of this can send us on a downward spiral into a state where we are no good to anyone.

Taking time out to stabilise and to recharge is essential if we are to survive. Ironically keeping our heads just above water by running a bath and hoping that’ll be enough for now, is simply not enough.

The three elements of self-compassion

Mindfulness

Mindfulness helps with self-awareness in a balanced way. As we know, mindfulness is focusing on the present moment on purpose, as if your life depended on it. And yet, focusing on the present moment, when it’s nothing short of horrific, seems counterproductive. However, avoiding feeling what you’re feeling, in order to feel it a bit less, will allow those emotions to grow into something truly unmanageable before they come back to haunt you at a later time.

So, we need to deal with them as they happen.

It’s easy to ruminate and to get lost in the drama especially when the current situation is so overwhelming. Mindfulness helps us to relate to what we are feeling in an accepting manner. For example, “I feel anxious that the mental health fallout of this pandemic will be too enormous for me to bear.”

Rather than analysing the anxiety and the origins of the anxiety, instead of justifying it, instead of judging it, simply accepting that anxiety is the thing I’m feeling, and allowing myself to feel it, can defuse the hold that it has on me.

Have you ever noticed that, sometimes, when you talk about what’s upsetting you to a friend, they immediately begin a sentence with “well at least” or “never mind” or even “it could be worse”?

This is a genuine effort by a kind friend to help you. But active listening doesn’t respond with unhelpful comments. Active listening means being there in the moment with your friend, silently understanding, pausing to digest what
True empathy doesn’t sweep your friend’s uncomfortable feeling under the carpet

they’ve said, relating on a deep level to what they’re expressing. True empathy doesn’t sweep your friend’s uncomfortable feeling under the carpet in an effort to jolly them up. No, we pause, reflect and share the load by staying quiet.

So, can you do that with yourself? When you make yourself that coffee or run that bath for yourself, can you then spare yourself the time to just be there with yourself in that moment? Like you would with a friend in need? Truly listening instead of scrolling through your messages. Accepting and understanding that it hurts. Taking the time to just be and to breathe.

A sense of common humanity

By that, I mean taking some solace from the fact that we are not alone in our experiences and feelings. This awful suffering is part of the human experience. We have horrific pandemics every 100 years or less. This is the norm for humans. I’m not saying that it doesn’t hurt. It does. Enormously. But knowing that we are not alone, understandably eases the added anxiety associated with loneliness. And loneliness is rife at the moment due to social distancing and isolation. Repeatedly saying in your head “this shouldn’t be happening” is a judgement which is rarely helpful.

Loving kindness towards yourself

What does this mean? We need to cultivate a strong motivation to relieve our suffering. It’s vitally important. You can make it OK for you. You can make it better than OK for you. But it needs to be deeper than just physical well-being if it’s going to weather the long storm we have ahead of us in the post-pandemic phase. It needs to be hand-on-heart meditations and more.

A mini meditation for vets and vet nurses during times of anxiety

Hold your right hand on your heart as if to say to yourself “I’m here for you.” Like a close friend offering comfort. Close your eyes. Taking normal breaths, concentrate only on the in-breath for a while. Imagine you are breathing in strength, loving kindness and calm. Imagine it as a valve mechanism and the in-breaths “inflate” the inner well-being. Every in-breath adds to the strength, love and calm inside you. Feel the solace growing inside of you.

When you feel a calm, warm sensation within, when you are fully “inflated”, stay focused on it for as long as is comfortable.
Can gabapentin reduce the stress of cats when visiting the vets?

Gabapentin may be useful for reducing acute stress in cats stressed by veterinary interventions

Imagine this scenario: a post-audit survey of cat owner compliance with annual vaccination recommendations revealed that some owners are reluctant to bring their cat to the veterinarian, unless the cat is unwell, because their cat becomes visibly stressed and difficult to handle.

You want to improve compliance with your recommendations and reduce stress in cats undergoing clinical examinations. You have anecdotally heard that gabapentin could be used for this purpose, so you decide to review the published evidence. Does the evidence suggest that gabapentin can be used to lower levels of stress in cats visiting the vets?

Evidence

Van Haaften et al. (2017) investigated the use of a single dose of gabapentin (100mg) in pet cats, administered before transport and a veterinary examination. Each cat had two clinic visits one week apart and received one of two treatments on each visit, gabapentin or a placebo. The treatment on the first visit was randomly allocated to each, with the second being given on the remaining visit. The owner administered the treatment or placebo 90 minutes before placing the cat into a carrier and visiting the veterinary clinic. After a standard examination, video recordings were reviewed by two board-certified veterinary behaviourists. The owners, veterinarian and video observers were blinded to the treatments being administered and various parameters were recorded.

Owner-assessed cat stress scores (CSS) during transportation were significantly lower when cats received gabapentin compared to the placebo. Owner-assessed, but not video observer-assessed, CSS during veterinary examination were significantly lower when cats received gabapentin compared to the placebo. After controlling for fixed effects and individual variation, the combined owner and video observer CSS during the examination showed a statistically significant stress-reducing effect of gabapentin.

The combined veterinarian and video observer examination of ease of handling of the cat (compliance score; CS) showed a significant stress-reducing effect of gabapentin, with the cats reportedly easier to handle after its administration. Some temporary adverse effects were exhibited by some cats on gabapentin, including ataxia and vomiting, all of which disappeared within eight hours of administration.

Pankratz et al. (2018) examined the use of a single dose of gabapentin in community cats in a randomised, placebo-controlled, double-blinded trial with three treatment groups: placebo, low dose gabapentin (50mg) and high dose gabapentin (100mg). A veterinarian blind to treatment and not involved in data collection allocated the treatment groups and administered the treatment. A baseline measurement was taken, then the treatment was administered and the cats were observed for the next 12 hours.

Cats in the low and high dose gabapentin groups had a significantly lower CSS at two and three hours post-treatment compared to the placebo group with no significant differences between gabapentin groups. Cats in the high dose gabapentin group had a significantly lower respiratory rate at one and three hours post-treatment, compared to the placebo group. No adverse effects that were unique to gabapentin-treated cats were identified.

Conclusion

There is moderate to strong evidence that gabapentin may be useful for reducing acute stress in cats stressed by veterinary interventions. A single dose of 100mg/cat was associated with a reduction in the levels of behavioural parameters associated with feline stress, as observed 90 to 180 minutes post-administration of the gabapentin. This effect was observed in cats given gabapentin prophylactically and in cats already showing a behavioural stress response. A lower dose of 50mg may also be sufficient. Consideration of these findings may encourage potentially stressful clinical procedures to be planned within the 90 to 180-minute period post-dosing where possible.

Some limited physiological measures were recorded that support the use of gabapentin as a stress reducer, eg reduced respiratory rate with high dose gabapentin, but additional objective physiological measures would be beneficial.

No studies demonstrated the use of repeated dosing of gabapentin, which may limit clinical application for longer duration stressors (eg during hospitalisation periods). Further research to determine multiple-dose efficacy or safety over longer-term stressor exposure would be useful.

The full Knowledge Summary can be read in RCVS Knowledge’s open access journal Veterinary Evidence veterinaryevidence.org/index.php/ve/article/view/227

A full reference list is available online
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Raising awareness of serious grass seed complications

Your experience of foreign body tracts due to grass seeds will vary depending on the type of grass in your local area.

The barbed grass seeds typically affect an animal’s feet – especially hairy feet – and ears, but we also see claims where they have travelled to the eyes, nose and other areas of skin. With the awns of the seed allowing it to travel only one way, they are unlikely to easily fall out.

Every year we see many claims for grass seed-related issues. In the case of two-year-old Jet (pictured below), the result was very traumatic for both the dog and the owner, as the owner explains:

“Jet had shown some pain in his back on and off for some time. He was given anti-inflammatory drugs when he showed symptoms, and it seemed to get better each time. The last time it happened though, the drugs didn’t help, and our bouncy boy looked very sorry for himself. He’s usually so happy and wags his tail constantly, but we could tell something was seriously wrong.

“A CT scan showed that he had a massive abscess on his back legs and spine, which appeared to have been caused by a grass seed which he’d inhaled several months previously. It had worked its way down to his back legs and caused an abscess, which required Jet being opened up from his chest to his pelvis. This caused significant muscle damage which required a lot of therapy to build up again.

“Our poor boy has gone through a lot in his short life, this operation was a very traumatic experience for both us and him. We have kept the extracted grass seed as a keepsake!”

Other claims we have handled connected with grass seeds include:

- April, a three-year-old cat with a grass seed stuck under her upper eyelid. She required a local anaesthetic to remove the seed, leaving a shallow ulcer where the seed had been rubbing on the cornea. Fortunately, due to the rapid removal of the seed, the ulcer resolved rapidly with no scarring. The cost of her treatment came to £244.46
- Ludo, a two-year-old Springer Spaniel, was seen with a two-week history of general lethargy. On physical examination a mass on the costal arch was observed. Ultrasound revealed a fluid pocket and it was discovered that damage had been done to the rib where the grass seed had lodged at the costophrenic junction. The cost of removing the grass seed was £2,849.81
- Tayto, a three-year-old Cockerpoo, was presenting with pyrexia and lethargy. Antibiotics saw a slight improvement before he deteriorated. Clinical examination observed a soft swelling on the caudal thorax. CT revealed a foreign body caudomedial to the 10th rib at the costochondral junction. The grass seed had migrated from the nasal passages to the lung and had then lodged in the costochondral junction. Due to additional complications of pneumothorax, the total veterinary treatment came to £6,216.97

Helping to raise awareness of the dangers of grass seeds can be a great help – especially if you are in an area where they are a particular problem. While social distancing remains in place, it’s a great time to make the most of email newsletters and your website to remind clients to take care.

Simple advice to check their dog after a walk and remove any grass seeds that are there can save a lot of discomfort and cost. And at the same time, it’s also a good opportunity to remind owners about checking for ticks – which in some areas are hugely prevalent this year.

Short videos on grass seeds and ticks, presented by Robin Hargreaves, are ideal to share with your clients, and can be found at agriapet.co.uk/blog
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The business case for sustainability

Integrating sustainability into your organisation presents many commercial opportunities, as well as being a moral imperative.

We are all familiar with the compelling scientific argument for integrating sustainability into our daily lifestyles and workplace, and the moral responsibility as veterinary professionals to exercise stewardship over the natural world around us, but the business opportunities created from integrating sustainability within our organisations are less discussed.

Veterinary professionals operate across the agricultural sector, pharmaceutical industry and business sector, and also interact directly with the general public. Therefore, we have the power to drive change across a diverse sphere of influence and are presented with an opportunity to demonstrate sustainability leadership to great effect.

Financial
Sustainability goals are largely focused on reducing resource use. Cost savings can be achieved through energy saving measures, water saving measures and waste reduction. Adhering to the waste hierarchy (from most to least optimal: reduce, reuse, recycle, recover, dispose (gov.uk, 2011)) and by performing correct waste segregation it is possible to reduce overall waste disposal costs.

Increasing demand for sustainable procurement will influence change at supplier level, resulting in a greater choice of sustainable products and services at a more cost-effective price. Buying reusable, long lasting products with minimal packaging can reduce purchasing volumes and waste production.

There are many cost-saving sustainability measures that can be easily implemented. For example, using reusable clinical waste containers. These result in 84 percent lower greenhouse gas emissions than their single-use counterparts (Grimmond and Reiner, 2012) and are more cost-effective. Reducing paper use is also an easy way to be more sustainable, through paper-free management software and only printing double sided. Using reusable surgical gowns and caps, hand towels and patient bedding to avoid single-use disposables can also help, as well as using low flow anaesthesia and volatile agent-sparing techniques to reduce harmful anaesthetic gas greenhouse emissions and oxygen consumption (Jones and West, 2019). There is also an opportunity to apply for the government funding available for sustainability initiatives, such as electric vehicles, renewable energy generation and improving the energy efficiency of new and existing buildings (Workspace).

Reputational
With large corporate groups beginning to appoint sustainability managers, it is likely we will see a big shift towards more sustainable operations and facilities in the near future. There is scope within every veterinary practice – corporate or independent – to embark on sustainability initiatives. Being seen to act in an environmentally responsible manner is appealing to clients, both existing and new, to help grow the client base. It could even tarnish an organisation’s reputation if they are not addressing the climate crisis we are facing, despite sustainability efforts from com-
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petitors. The fact that millennials, with their high rate of pet ownership, are the generation who spends the most on their pets (Packaged Facts, 2019) and are also the most sustainability conscious generation yet, is not to be overlooked.

Future-proofing the business
Climate change, loss of biodiversity and extreme weather events will certainly have implications on future business activities: disrupting supply chains, damaging property, hiking insurance premiums, affecting food security and increasing the risk of infectious and zoonotic diseases as we have recently experienced with COVID-19. Government policies will change, in order to reduce carbon emissions, and align business activities with the UN Sustainability Goals. Large businesses already have to conform with the energy savings opportunity scheme (ESOS), but if all businesses introduce robust sustainability changes sooner rather than later, this may help to minimise operational disruption and financial uncertainty in the future.

Recognition
Practices embarking on sustainability initiatives can gain official recognition for their efforts from bodies such as Investors in the Environment and the Carbon Trust, who offer accreditation schemes. This is looked upon favourably by clients and employees alike.

Employee engagement
In a recent BVA survey, 89 percent of vets said that they would like to play a more active role in the UK sustainability agenda. Integrating sustainability into your practice’s ethos may well improve employee retention as well as attract new graduates, as being eco-friendly leads to a positive self-image (Venhoeven et al., 2016). Practising sustainability can also drive innovation among the workforce (Sarni and Capozucca, 2012).

Integrating sustainability into your organisation is the future, and it makes business sense to stay ahead of the curve, rather than being left behind.

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The business case for sustainability
Reproductive disease in small exotic mammals is a fairly common occurrence and can be quite alarming to the client, especially when haemorrhage occurs.

**Small mammal reproductive disease**

Reproductive presentations are fairly common in exotic small mammal species. Clinical signs can vary but often reproductive disease presents with some degree of lethargy, anorexia, swelling of the affected area and, in females, vaginal discharge can be seen with a range of ovarian and uterine conditions. Abdominal ultrasonography can be very useful in cases of reproductive disease; however, smaller patients often need to be sedated to allow a diagnostic scan. Abdominal radiography can also be useful, although can be less sensitive than ultrasound. Some commonly encountered reproductive diseases in our small exotic mammals are discussed in brief below.

**Dystocia**

Dystocia is encountered in all small mammal species; however, it is less commonly seen in rodent species with large litter sizes such as rats and mice (Martorell, 2017). More commonly affected species include guinea pigs and chinchillas, as they tend to have smaller litter sizes and larger foetal sizes (Bennett, 2012). Older guinea pigs can be at a higher risk of dystocia if not bred before six months of age as a cartilaginous fusion of the pelvic symphysis occurs up until six to nine months of age and, if parturition has not occurred by this time, this matures to a bony fusion (Peters, et al., 2015). This bony fusion makes it difficult for the pelvis to expand to pass foetuses and results in an obstructive dystocia. Chinchillas have an average of two young per litter (Keeble, 2009) and so if only one foetus is present then this can grow to a larger size and cause obstructive dystocia during parturition (Figure 1). Other causes of dystocia in small mammals can include uterine inertia, uterine torsion or malpositioned foetuses (Hoefer and Crossley, 2002).

Dystocia should be treated in a similar way to our canine and feline patients; however, the majority of cases are obstructive in nature and so calcium gluconate and oxytocin should not be administered until obstructive dystocia has been ruled out. Radiographs and ultrasonography are useful tools in diagnosis and potential surgical planning (Kondert and Mayer, 2017). Surgical caesarean is usually indicated in small mammals and is recommended in cases of dystocia lasting greater than four hours (Hoefer and Latney, 2009).

**Pregnancy toxaemia**

Pregnancy toxaemia occurs in guinea pigs from approximately two weeks prior to parturition up to two weeks post-partum (Hawkins and Bishop, 2012; Figure 2). It occurs when the energy requirements of the sow are higher than the energy intake, due to the demands of pregnancy and lactation, resulting in a negative energy balance. As a result, the body catabolises fat stores which results in a metabolic acidosis and ketosis (Hoefer and Latney, 2009). Clinical signs are acute in onset and include purulent or haemorrhagic vaginal discharge, abdominal distension, lethargy, anorexia, pyrexia and death (Hawkins and Bishop, 2012). Urinalysis will show ketonuria and proteinuria with blood-work showing hypoglycaemia, hyperlipidaemia, hyperkalaemia and metabolic acidosis (Hoefer and Latney, 2009). This is a medical emergency and fluids with dextrose should be administered via intravenous or intraosseous routes, along with administration of calcium gluconate, oral glucose and magnesium sulphate (Hoefer and Latney, 2009). Nutrition via syringe feeding or a nasogastric tube should be instigated and maintained until the patient has fully recovered; however, prognosis is grave. Prevention is important and involves reducing stress in pregnant and post-partum sows, not breeding obese sows and avoiding changes in the diet or environment (Hawkins and Bishop, 2012).

**Cystic ovaries**

Cystic ovaries are commonly encountered in guinea pigs and is reported to be the most common disease of the guinea pig reproductive tract (Minarikova et al., 2015). Numerous studies exist, citing the incidence from 58 to 100 percent in sows of three months to five years old (Kondert and Mayer, 2017). Clinical signs include bilateral, non-pruritic flank alopecia, aggression, weight loss and anorexia, with occasional haematuria or haemorrhagic vaginal discharge (Bennett, 2012). Diagnosis can be made with palpation, abdominal ultrasound and abdominal radiography (Hoefer and Latney, 2009). Ultrasound-guided fine needle aspiration of the cysts can relieve symptoms temporarily; however, these inevitably refill within a few days to weeks (Kondert and Mayer, 2017). Medical management can involve the injection of leuprolide acetate, gonadotrophin-releasing hormone or human chorionic gonadotrophin.
Mammary neoplasia is closely linked with reproductive disorders and in rats increased oestrogen administration increases the incidence of mammary adenocarcinomas (Orr, 2002). In rats, benign fibroadenomas make up the majority (80 to 95 percent) of mammary neoplasias seen in males and females (Hoefer and Latney, 2009); however, in mice 90 percent of mammary tumours are malignant adenocarcinomas or fibrosarcomas (Sayers and Smith, 2010). Ovarian adenocarcinomas, uterine leiomyomas and leiomyosarcomas have been reported in guinea pigs (Bishop, 2017). Ovarian neoplasias have also been reported in mice, hamsters and gerbils (Martorell, 2017). Ovarian adenocarcinomas, uterine leiomyomas and leiomyosarcomas have been reported in rats with adenomas seen most commonly (Gregson et al., 1984). Ovarian neoplasias have also been reported in mice, hamsters and gerbils (Martorell, 2017). Ovarian adenocarcinomas, uterine leiomyomas and leiomyosarcomas have been reported in guinea pigs (Bishop, 2002). Clinical signs include anorexia, lethargy, abdominal pain and distension and in some instances vaginal discharge. Abdominal ultrasound or radiography aid in diagnosis and the treatment of choice is surgical ovariohysterectomy.

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Pyometra

Pyometra (Figure 3) has been observed in a range of small mammal species such as hamsters, guinea pigs, chinchillas and rats; however, it is quite a rare presentation. Clinical signs can include acute onset anorexia and lethargy, mucoid to mucopurulent or haemorrhagic vulval discharge and anogenital fur staining (Donnelly, 2012), with some guinea pig owners reporting polyuria and polydipsia. Diagnosis is often by ultrasonography (Hawkins and Bishop, 2012) with additional testing considered, including abdominal radiography, vaginal cytology, haematology and biochemistry (Kondert and Mayer, 2017). Ovariohysterectomy is the treatment of choice for non-breeding females; however, in those that are destined for future breeding, treatment with algepristone can be considered (Kondert and Mayer, 2017) in conjunction with appropriate analgesia, antibiotics and supportive care such as fluid therapy and syringe feeding as required.

In summary

Reproductive disease in small exotic mammals is a fairly common occurrence, and can be quite alarming to the client, especially when haemorrhage occurs. Ultrasonography and radiography can be very useful diagnostic tools. Often surgery with or without ovariohysterectomy or orchietomy is the treatment of choice. In these cases, adequate pre-, peri- and post-operative care should involve supportive nutrition, adequate analgesia and antibiotic coverage as necessary. A full reference list is available online.
Happy minds and healthy bodies

Why we need to consider the mental well-being of our pets in the same way as we need to think about our own mental health

Mental health and well-being have come to the forefront of people’s considerations about their quality of life over recent years, with high profile names being attached to initiatives that help us think more about the impacts of stress and anxiety on our well-being. Especially in the difficult times we are currently living through, taking care of your mental health and managing stress is all the more important. We also need to consider mental well-being for our non-human animal friends and companions. Good health means more than the absence of disease, and similarly, good mental well-being is more than the absence of any “problem behaviours” (Hetts et al., 2004).

Pets that live in a positive mental state are more enriching for their owners’ lives too, enhancing the human–animal bond with all the related benefits this brings to both parties. Many species, even when domesticated, have instinctive behaviour patterns that they will use to try to remove themselves from stressful or potentially threatening situations. For example, prey species may become reclusive or hide away and predatory species may become more aggressive. The performance of these behaviours can show that a pet or companion animal’s physical and/or psychological welfare is compromised, and steps should be taken to alleviate the stress response, by removing the stressor and improving the environment that the animal lives in and interacts with. Knowing the normal disposition of a pet is really helpful in signalling unusual changes to behaviour that may indicate poorer well-being (Figure 1). Veterinary surgeons can advise owners on the species-specific ways to improve welfare through changing how the owner engages with the animal (e.g., tone of voice, body language, posture and movement around the animal), altering the animal’s social environment (more company, less company with others of its kind), changes to diet and husbandry, and use of environmental enrichment to provide behavioural stimulation.

Dogs, cats and livestock (such as cows and horses) will provide signals in their behaviour that, to their owner’s expert eye or the experienced veterinary surgeon, can be easier to pick up and help with earlier identification of issues pertaining to welfare and mental well-being. Specialised veterinary practices that focus on exotic species, such as parrots, tortoises and rabbits, can provide species-specific guidance on health issues in less familiar species that are often related to welfare problems. It is important to remember that we understand what is meant by animal welfare and that animal welfare science is different to the ethics of animal keeping and care. Animal welfare is the state that the individual is in as it tries to cope with its current environment (Broom, 1986). Welfare is experienced

PAUL ROSE
ANIMAL BEHAVIOUR LECTURER, UNIVERSITY OF EXETER

Paul Rose, PhD, completed his PhD on the use of social network analysis to assess behaviour and welfare in captive animal populations. Paul is Co-Chair of the IUCN Species Survival Commission Flamingo Specialist Group and Vice-Chair of the BAZA Research Committee.

FIGURE (1) Constant exposure to the normal personality and behavioural traits in a family pet can provide an instant and instinctive estimation of the animal’s mental state. How the animal responds to the owner, to other humans and to other animals provides information on health and well-being, with any unusual changes to character being worthy of further investigation.

FIGURE (2) The interaction between what a pet or companion animal is provided with (i.e., the factors that make up its daily care) and the consequences of these factors as expressed by the animal’s response to them. Behavioural change and the effect of the daily care on the individual can be observed and used as a welfare indicator. Such outcomes can change as the animal grows and develops; therefore, the inputs need to be individual-specific on many levels (life stage, physiological state, age, maturity and sex). It is always important to remember that welfare indicators should be regularly measured to ensure the best possible interpretation.
by the animal on a sliding scale; it can change from good to bad (and back again) across time (Figure 2).

Behavioural indicators of welfare can be used in conjunction with physical signs that an animal is “not doing well” to try to identify the causative factor. Many health problems associated with a change to a pet’s welfare are multifactorial and hence thorough investigation of all areas of how the animal is looked after and interacted with are required to reach a clear decision to alleviate the poor welfare and promote the good. Ethically, however, we have a duty to do the right thing by the animals that we keep and this includes providing them with excellent welfare across all of their life stages. Education of owners or caregivers about the physical and emotional needs of the species that they are keeping goes a long way to ensuring that mental well-being of the animals that share our lives is good.

As per McMillan (2002), a pet’s emotional needs will include social companionship, mental stimulation, a degree of self-control over its choices and actions and predictability in the care routine provided by the owner. Such a constructive and secure environment will enable the animal to develop the skills required to cope with challenges (eg stressful events) without resorting to abnormal, unwanted or injurious behaviours (Figure 3). It is important to discuss with an owner what aspects of the animal’s daily life could be changed to improve overall mental well-being and quality of life in cases where a pet’s physical and psychological health are poor.

Such considerations are many but some examples are:

- Increasing occupational activities to alleviate boredom or frustration. For example, toys where a pet works for a reward can fill time when an animal is left alone for short periods (Garvey et al., 2016).
- Changing feeding times or way of feeding to provide more challenge when foraging. For example, placing food in different receptacles and in different areas to increase activity and the range of behaviours performed (Clarke et al., 2005).
- Changing the type of food provided. For example, some diets for parrots that are low in essential fatty acids can contribute to feather plucking behaviour – a symptom of chronic stress (Clark, 2013).
- Evaluating the impact of solitary housing for sociable species. For example, singularly housed rabbits that have not been socialised can be excessively fearful or aggressive as a stress response (Magnus, 2009).
- Evaluating the impacts of keeping “less than social” species in multi-individual households. For example, competition over resources in multi-cat households can lead to behavioural signs of stress (Clark, 2016).

The links between provision (animal care, diet, housing, social environment) and the animal’s mental well-being and behaviour patterns are clear to see. Animals that are provided with resources that meet their biological requirements and live in an environment where they have a degree of autonomy over what they do and when they do it will be more likely to maintain positive affective states (ie an individual’s tendency to experience positive emotions and hence interact with other animals and challenges around it in a positive way) and thus have better psychological health. Such animals will have an enhanced relationship with their owner or caregiver, cementing a mutually beneficial bond that ultimately provides benefit to the mental health and well-being of both parties. Veterinary surgeons are important “guardians of good welfare”, being well placed to offer advice on correct husbandry, interpret behaviour to explain to an owner what their animal is asking for and provide medical intervention when needed to safeguard the welfare of companion animals.

References
Behind the scenes of the charity StreetVet

StreetVet has over 650 volunteer vets and qualified veterinary nurses dedicated to providing veterinary care for the dogs of the homeless

How many times do we walk past homeless people on our streets? Like many in the current times, it is often something that we take for granted. The national press works hard to promote their well-being and many charities do their utmost to support them in time of need. However, one thing that draws the average passer-by to glance in their direction a second time is the welcoming paw and waggy tail of that person’s beloved doggy companion.

I must admit as writer of this feature that I find it heart-warming whilst at the same time wondering about the well-being of the animal. I am glad to say I was not the only person to share such concerns. Another was Jade Statt (Figure 1) who qualified as a vet from Glasgow Vet School in 2002.

It was on a night out in London that she came across a homeless man and his dog in 2016. “I stopped to talk to Dave and his dog, Brick, and he told me about his dog’s sore skin. I could see in his eyes how helpless he felt: I thought to myself – ‘What would I have done if this was my dog, Oakley?’ I knew that if I’d had my vet kit with me, I could have treated this dog. There and then, I realised how I could make a difference.”

One has to admire Jade for her initial efforts – it was not easy – and she started to find support from others, including Josh Coombes who has become known among the homeless community and started by giving free haircuts on the street. The rest is history. “We met over a coffee one day and I soon realised that we shared the same concerns about the well-being of the homeless community and their animals and we continue to this day to keep in touch.”

Like Jade, fellow vet Sam Joseph (Figure 1) felt he could offer more; so, one evening in 2015 when he was a student at Bristol Veterinary College, he decided to have a walk about with his stethoscope and offer to check over any homeless people’s dogs. “What pleased me was to see their relief when I told them their dog was fit and well. I then moved back to London and started to visit the many homeless people in North London with worming tablets and a bag of veterinary supplies. It was then that I met Jade who was doing the same thing in Westminster and before we knew it StreetVet was born.”

Interest in StreetVet abounded from within the UK veterinary profession and Sam and Jade received lots of support from like-minded vets and nurses to sign up, volunteer and set up StreetVet locations in their own cities and towns.

StreetVet currently has over 650 volunteer vets and qualified veterinary nurses who provide veterinary care to the dogs of the homeless (Figures 2 and 3) in 16 locations within the UK. Jade went on to say, “StreetVet operates in fixed locations every week, normally in conjunction with a social care provider such as food provision by a third-party partner. Stations are held consistently every week so that owners know that they are able to visit at certain times and to have a presence in the community which builds trust and engagement.”

John Periam

John is a photojournalist; he worked as a veterinary salesman in the 1960s and still has strong links to the profession through his equestrian work. John is also a regional correspondent for a trade paper for the UK fishing industry.
Sally’s story
Sally is a very special Staffie and adored by her owner Rob who rescued her as a puppy. Sadly, Rob suffered several strokes and Sally was at his side all the time often being seen at their outreach station at Hackney where they collected food and medications. It was in November 2018 that Sally was spooked by some nearby fireworks and ran on to a railway line only to be hit by a passing train. She was found with life-threatening injuries by an RSPCA inspector and was taken to Harmsworth Veterinary Hospital. She survived the night and StreetVet was contacted, who arranged for transport to Wanstead Veterinary Hospital.

Sally’s injuries were extensive and life-threatening (too many to go into here) which resulted in an amputation of one leg and the loss of one eye linked to severe jaw injuries (Figure 4). Jade said, “as vets and nurses, we often have to counsel owners through the process of caring for pets that have undergone major surgery. Linked to this, we need to prepare the owner for the psychological impact when they first see their pet after life-changing injuries.

“As a result of this, two of our StreetVets, Rebecca and Emma, wanted to ensure Rob was fully prepared and supported, by driving him to the hospital themselves to visit Sally where they were humbled to witness an overwhelmingly emotional reunion. Sally and Rob continue to visit us at Hackney almost every week where we ensure that she is happy, pain-free and of course well fed!”

What’s next for StreetVet?
The expansion of StreetVet continues with more volunteers joining the organisation every week which as a result allows StreetVet to extend its services into new locations. StreetVet became a registered charity in January 2019. A small behind-the-scenes team supports the vet and vet nurse volunteers: Jade as Clinical Director, an operations manager and a general manager. The success of StreetVet has been supported by the veterinary profession and the wider vet and pet industry. “We have also built a strong partnership with Battersea Dogs and Cats Home; they have been instrumental in providing emergency kennels for dogs in London when their homeless owners require hospitalisation.”

As StreetVet has grown, so has its celebrity support. StreetVet is delighted to have Paul O’Grady, Sue Perkins and Anna Richardson, CBBC vet James Greenwood and Blue Peter vet Rory Cowlam as its ambassadors.

StreetVet is looking to launch a StreetVet Accredited Hostel Scheme and was recently named as the winner of the Purina Better with Pets 2020 Changemaker prize. Jade said, “By helping create more pet-friendly hostels, we can protect the human–animal bond and keep our clients and pets together.”

More information about StreetVet UK can be found on its website streetvet.org.uk

StreetVet is an RCVS registered veterinary practice and its Charity Number is 1181527
Animals, space and welfare

Too often, spatial provisions are decided by what is thought convenient for owners rather than what is better for animals.

Whether running a ranch, managing a zoo or inspecting a pet shop, one of the primary considerations that literally set the scene for any environment is space. But space is not all about dimensions. Expanding our own understanding of space is currently a very big topic both for facility management and animal welfare.

Space and nature

In nature, space for animals is essentially unlimited. This does not imply that animals can or should go anywhere – only anywhere they need or want to go. Aquatic species, such as most fishes and cetaceans, are predictably and fundamentally “restricted” to water, save for the occasional brief excursion into the air or onto land to avoid predation, acquire prey or indulge in play – anything more than that spells doom. Likewise, terrestrial species, such as tortoises and primates, can pretty much wander as far and as wide on land as they wish and include the occasional dip, but again, no matter how expansive that additional watery world, staying in it must be brief. Amphibious species span these environments comfortably, but are typically also occupationally bound by the margin of both. So, no matter how much “extraordinary” natural space is available, no animal wants it all – at least not for long. The key issue here is that the limitations of the spatial environment for animals are set by the species’ evolutionary determinants – the amount and type of space that is good for it!

This does not mean that the great spaces of nature are always beneficial for animals. Tsunamis may strand aquatic species on land or wash terrestrial species into the sea – effectively bringing the wrong environment to the animal and vice-versa, with catastrophic results.

FIGURE (1) Snakes and many other animals are commonly confined to overly restrictive environments that do not allow for normal behaviour, physical exercise and mental stimulation.
Regular drought naturally shrinks some inland water pools diminishing usable space, and governing the lives for so-called “seasonal fish” species and others, again with fatal consequences. The key thing here is that such events, whether aberrant or regular, signal disaster and those elements of space can be considered outside of good welfare, whereas greater space in general signals good welfare.

Space and captivity
By definition, “captivity” includes deliberate spatial restriction over nature. Whilst many species and individual animals occupy extensive home ranges, some others (e.g. a few invertebrates) are more sedentary. Still, activity patterns vary due to many factors, none of which confirm that spatial drivers can be preset by rule of thumb. Therefore, no keeper can say their animal’s environment is enough. So, what is enough? For a start, there is no maximum for space – contrary to the folklore beliefs of many animal keepers who think some animals are stressed outside of small cages. Enough space also infers more than accommodating an animal’s behaviour and exercise.

In particular, for vivarium- or aquarium-held ectothermic species, the spatial environment cannot be considered reasonably addressed unless there are multiple refugia, thermal zones and habitat variants among others – all of which are essential and all of which take up space.

Recently, snakes have headlined the veterinary pages as an example of unjustifiable housing practices – being deprived of the fundamental need to straighten their bodies at will because enclosures commonly have dimensions less than the full length of the animal (Figure 1). This makes snakes the only vertebrates commonly kept in such conditions, despite the fact that plenty of evidence exists to show that free-living snakes occupy large home ranges and are often highly active, and that captive snakes suffer increased risks of stress and disease when restricted to small cages.

Remedying the conundrum of spatial provision within an existing spatially limited environment (society) inevitably implies compromise, and almost invariably such compromise impinges welfare. Also, recommending minimum enclosure sizes has a certain unpalatability because it risks appearance of approval that major restriction of freedom is OK – giving a nod to the jailer. Of course, for humans, imprisonment is a punishment, whereas for most animals – especially exotics – it is an imposed way of life, just not really their way.

Nevertheless, animals are where they are, with all of the attendant problems that captivity and its limitations bring, and simply moaning about the problem does not offer a lot. Bigger is better, and this is something to which many of the best zoological facilities are committed. Standard-raising may be most effective most of the time, hence new of the best zoological facilities are committed.

FIGURE (1) The recommended primary linear dimensions are for at least 10 times the animal’s body size. Additional exercise areas may also be required. The diagram is for spatial reference only and intentionally does not include furnishings (reproduced from Warwick et al., 2018)

size – nothing less, and rightly more, with no cages less than 100cm length (Figure 2, Warwick et al., 2018), and all animals must be able to use any facility (e.g. a refuge or water container) at any time.

Conclusions
The spatial itineraries of animals in nature must inform their husbandry in captivity. Undoubtedly, some things that happen in nature ought to stay in nature; captivity already has enough artificial catastrophes to deal with. Once in captivity, animals become our responsibility, and we have obligations to provide them with what they do need or want and to protect them from what they don’t.

Too often, spatial provisions are decided by what is thought convenient for owners rather than what is better for animals – simply because someone occupies a small apartment is no excuse for confining wild animals in a glass box the size of a plant pot. Such a spatially parsimonious mindset actually indicates poor care. Space is vital to welfare. Improving the lives of animals through greater space offers at least one welfare-progressive dimension, and there should be no room for overlooking the spatial needs or wants of captive animals.

References and further reading


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Feline paraneoplastic alopecia

Feline paraneoplastic alopecia is a cutaneous syndrome associated with internal malignancies

Some paraneoplastic syndromes, such as cachexia, leucocytosis, hypercalcaemia and hyperglycaemia, are common. They result from the systemic effects of hormones, or other agents, produced by tumours and/or their metastases. In some cases, dermatological signs may also result from the action of hormones, or other factors, produced by neoplastic cells. Feline paraneoplastic alopecia is one of the feline cutaneous syndromes associated with internal malignancies.

Paraneoplastic alopecia

This syndrome has been described in old cats in association with visceral tumours, which include pancreatic adenocarcinoma and bile duct carcinoma, as well as hepatic, splenic and intestinal tumours, with, or without, metastases. The direct relationship between the neoplasm and the cutaneous lesions has been established by resolution of the skin lesions in response to surgical excision of the tumour, and their subsequent recurrence with metastatic disease.

Many cats are presented only once the cutaneous signs have appeared. History soon reveals other non-specific signs that many owners may have attributed to old age. Generally, the condition is non-pruritic in its early stages, but with time and secondary infections the cat may exhibit pruritus.

The cutaneous signs, which usually begin acutely, include a bilaterally symmetrical alopecia, involving the ventrum (Figure 1) and the limbs (Figure 2). As the lesions progress, the skin develops a shiny glistening appearance, together with erythema and some pigmented macules. The hair is easily epilated. The footpads may also become dry and scaly and can fissure. Generally, affected cats show non-specific signs such as anorexia, lethargy, vomiting and weight loss, with abdominal pain and distension.

Secondary complications can occur, with concurrent bacterial and Malassezia infections being common.

Haematology and biochemical parameters are generally unremarkable, or they may show non-specific signs.

The histopathological examination of skin biopsies reveals marked atrophy of the hair follicles and adnexal structures and follicular telogenisation. In addition, the stratum corneum may be thin or absent. The sebaceous glands are generally unaffected.

Investigations into where the tumour is located, and the extent of the neoplasia, require ultrasonography and exploratory surgery.

Prognosis is generally poor due to the aggressive nature of the tumour. Surgical excision may prolong the survival time, but the lesions can recur with metastatic disease.

The differential diagnosis for the condition includes secondary bacterial and/or Malassezia dermatitis, iatrogenic or spontaneous hyperadrenocorticism, telogen effluvium, metabolic epidermal necrosis (also known as ANITA PATEL

Anita Patel, BVM, DVD, FRCVS, is a diplomate and a recognised RCVS Specialist in veterinary dermatology. She has worked exclusively as a dermatologist for the last 15 years and lectures on all aspects of small animal dermatology in the UK, Europe, Africa and Asia.
Although the relationship between the tumour and the cutaneous lesions has been established, the pathogenic mechanism for the marked follicular and adnexal atrophy is not known.

Although the relationship between the tumour and the cutaneous lesions has been established, the pathogenic mechanism for the marked follicular and adnexal atrophy is not known. Cytokines, or other agents, secreted by the neoplastic cells may be responsible for the effect on the hair follicle cycle.

**Key points**
- Usually present with recent history of alopecia
- Usually non-pruritic
- Usually present with easily epilating hair
- Usually have shiny, glistening skin
- Usually patients are older cats with signs of weight loss and intermittent vomiting, which owners attribute to old age
- Has a poor prognosis

**Further reading**
As Vets, Nurses and other practice staff return to work and start to see clients and their pets once more, measures to help minimise the spread of coronavirus are essential. Two recent studies show that exposure to chlorhexidine makes coronavirus undetectable after five minutes.

Hand washing remains an important hygiene measure and NewClorexyderm Mano Handwash contains chlorhexidine and will not only minimise the risk of contamination to you, but is also gentle on hands when used frequently.

Pets may also be harbouring virus particles directly on their fur, muzzle and feet as well as on the lead or collar and such harbouring may allow for the transfer of the virus particles from the pet to the owner or from the pet to practice staff.

To minimise the risk of spread, it is a sensible precautionary measure to clean the pet’s coat, collar and lead prior to any contact with practice staff and again before handing the pet back to the owner after treatment has been carried out.

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CLX Wipes and NEW CLX Spray are easy to use and allow for quick and convenient cleansing of the coat, feet, collar and lead.
**Beginner’s guide to gastrointestinal surgery**

There are many indications for gastrointestinal surgery, including neoplasia, mechanical obstruction, abnormal positioning or failure of motility.

Gastrointestinal surgery is commonly performed in both first opinion and referral practices. There are a number of common indications for gastrointestinal surgery including neoplasia, mechanical obstruction (due to neoplasia, intussusception or a foreign body), abnormal positioning (e.g. gastric dilatation and volvulus) or failure of motility (e.g. megacolon). This article will focus on basic surgery, and specifically suturing, of the stomach and intestines.

**Access**

The small and large intestines are accessed via a ventral celiotomy. Access to the rectum may require pelvic symphysiotomy or a perineal approach depending on the location of the lesion. The abdomen should be clipped from mid-thorax to the level of the pelvis and four quarter draping performed to allow room for an adequate length of celiotomy incision.

Ease of surgical exploration is aided by the use of self-retaining abdominal retractors (such as Balfour retractors), suction and a Poole suction tip and good lighting.

The edges of your incision should be covered with moist laparotomy swabs prior to placement of your retractors. The precise order of exploration of the abdomen is up to the individual surgeon but should be consistent and ensure all structures are examined and palpated. When respect to the intestine, it makes sense to run the gut from either the proximal or distal end, paying attention to regional lymph nodes and gut wall thickness. Waves of peristalsis should be apparent during examination.

For all gastrointestinal surgeries consider changing gloves and kit if there has been contamination of these by intestinal contents or if there is a neoplastic aetiology.

If there has been spillage of intestinal contents, the abdomen should be lavaged prior to closure of the celiotomy.

**Gastrootomy**

- Isolate the stomach from the surrounding viscera
- Place stay sutures (using 3/0 or 4/0 USP monofilament suture material) either side of your proposed entry site on the ventral surface of the stomach in an avascular area of the fundus
- Using an assistant to elevate the stay sutures (to limit spillage), use a number 11 blade to make a stab incision into the stomach lumen
- The gastroscopy incision can then be extended using Metzenbaum scissors to create an appropriately sized incision
- Remove the foreign body (Figure 1) or obtain a biopsy

**Closure**

The stomach can be closed in a single- or two-layer closure (the author usually performs a two-layer closure as the layering of the stomach wall is usually clearly visible) (Figure 2).

**Enterotomy**

**Indications: foreign body removal, full thickness biopsy**

Once the location of the lesion has been identified, the affected loop of bowel should be isolated using moist swabs to reduce the risk of contamination. The lumen of the intestine orad and aborad to the lesion should be occluded to...
reduce the risk of leakage of intestinal contents. This can either be achieved using the fingers of an assistant or using atraumatic bowel clamps (Doyens).

Make your incision into a healthy-looking area of bowel ([Figure 3](#)) on the anti-mesenteric border using a number 11 blade ensuring the length of the incision is suitable for your needs (eg if for a foreign body removal, the incision should be long enough to permit removal without tearing the incision further). Have the assistant stretch the bowel out between their fingers as this will make it easier for you to suture.

**Closure**

The intestine is most commonly sutured using a full thickness simple continuous or simple interrupted pattern and swaged on suture material. One cadaveric study suggested avoiding the use of conventional cutting needles (Mitsu et al., 2018). It is not necessary to use inverting suture patterns nor to do a two-layer closure. Sutures should be placed 3 to 5mm from the edge of the tissue and around 3mm apart. Minimise how much you handle the edges of your tissue with forceps ([Figure 4A](#)) and use Debakey forceps rather than rat tooth forceps. The submucosa must be included in the closure.

The author prefers to use simple interrupted sutures of 4/0 USP polydioxanone in the small intestine ([Figure 4B](#)) unless the tissue is very thick (in which case 3/0 USP polydioxanone is used). Surgical sites should be wrapped with omentum after suturing. This can be tacked in place depending on personal preference.

Serosal patching can be utilised in cases where there are concerns regarding the strength of your repair if resection of the affected section of the intestine is not feasible.

**Leak testing**

The author usually performs a leak test of any intestinal incision as it allows for peace of mind.

Side of the incision is occluded by an assistant’s fingers and 10ml of sterile saline introduced into the lumen using a 24 gauge needle (volume depending on the length of the bowel you are testing). The incision is checked visually for any signs of leakage and extra sutures placed as required.

**Enterectomy**

Enterectomies are indicated for the removal of devitalised intestine, resection of neoplastic lesions ([Figure 5A](#)), management of intestinal wound dehiscence and irreducible intussusception ([Figure 5B](#)).

- Isolate the affected segment of the bowel as previously advised.
- Determine the section of bowel to be removed based on either its vascularity, the length which is affected (eg intussusception) or, if neoplastic, an appropriate margin of grossly normal bowel.
- Ligate the individual arcade vessels supplying the affected segment of bowel to be removed using 4/0 USP monofilament suture material and then cut the mesenteric attachments of the segment of bowel to be removed ([Figure 6](#)).
- Place two Doyen clamps either side of your site of resection (alternatively a crushing forceps can be applied to the end of the tissue which is to be removed) and use a number 11 blade to cut the tissue between the clamps.
- Bring the two Doyen clamps to lay close to each other so you can start to suture.
- The mesenteric border is the most common site for leakage from the anastomosis. The suture at the mes-
enteric border is therefore placed as a stay suture (some surgeons place the first three sutures at the mesenteric border as stay sutures) (Figure 7)

- The anastomosis is performed using full thickness simple interrupted sutures of 4/0 USP polydioxanone sutures which should be placed 3 to 5mm from the edge of the tissue and around 3mm apart (Figure 8). You are aiming to appose serosa to serosa without mucosa evertting through the suture line
- A leak test is performed as above (using either Doyens or ideally an assistant’s fingers to occlude the lumen)
- The mesentery is closed using 4/0 USP monofilament suture in a simple continuous pattern (ensuring you do not inadvertently include the vascular supply to the remaining intestine)
- The surgical site is omentalised

Nutrition is a significant consideration in the post-operative period and a plan should be in place for feeding before the surgery (usually oesophagostomy or gastrostomy tube) should be considered at the time of surgery if the patient has been inappetant prior to surgery or you feel the patient may have specific requirements for feeding post-operatively (eg in septic peritonitis).

A full review of post-operative drug therapy is not in the scope of this article, but the most common time for intestinal incisional dehiscence, the most concerning complication seen after intestinal surgery, is reported to be three to five days post-operatively. Rectal temperature is usually monitored three times daily to check for pyrexia, and body weight can be monitored to assess for the accumulation of ascites, seen as an increase in body weight.

Complications of gastrointestinal surgery

- Dehiscence of the surgical site resulting in septic peritonitis
- Pancreatitis
- Oesophagitis
- Diarrhoea – particularly if the ileocolic junction is resected. This is better tolerated in cats than dogs
- Ileus
- Adhesions – uncommon in dogs and cats but can rarely cause issues with entrapment of organs
- Short bowel syndrome has been reported with resection of between 50 and 80 percent of the small intestine

References

Saile, K., Boothe, H. W. and Boothe, D. M. (2010) Saline volume necessary to achieve predetermined intraluminal pressures during leak testing of small intestinal biopsy sites in the dog. Veterinary Surgery, 39, 900-903
Acute diarrhoea is a common complaint seen in first-opinion small animal veterinary practice. Whilst it is often self-limiting and likely to resolve with symptomatic treatment alone, antibiotics are frequently prescribed as part of the therapeutic management plan. In part one of this article (Veterinary Practice, June 2020), we looked at the common causes of acute diarrhoea and considered the use of faecal analysis. In part two, we will explore when and why antibiotics are used in the management of acute diarrhoea, whether they are truly indicated and the potential adverse effects of antibiotic usage.

**When and why are antibiotics prescribed?**

Ideally antibiotics should only be prescribed to treat a known bacterial infection or septicaemia. However, this is not always the case; it was found that 71 percent of canine cases presenting with diarrhoea in first-opinion practice were given antibiotics (German et al., 2010). This statistic has reduced according to a more recent study, in which 49.7 percent of dogs were prescribed antibiotics when initially presented at the vets with diarrhoea (Singleton et al., 2019).

Despite the fact that almost half of the dogs in the latter study were prescribed antibiotics when initially presented at the vets with diarrhoea (Singleton et al., 2019).

**Considerations when prescribing antibiotics**

**Are antibiotics required following detection of bacteria in the faeces?**

Irrespective of the pathogen isolated, the empirical use of antibiotics is not recommended in cases of uncomplicated acute diarrhoea. Antibiotics have been shown to increase adverse effects and prolong *Salmonella* shedding in the
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stools of people with non-severe diarrhoea attributed to Salmonella (Sirinavin and Garner, 2000). In people with Campylobacter enteritis, antibiotics are reserved for those with a high fever or haemorrhagic diarrhoea; who are passing more than eight stools per day; who have had symptoms for more than one week or have worsening symptoms; or who are immunocompromised (Acheson and Allow, 2001; Blaser and Allos, 2005). Antibiotic use for the treatment of diarrhoea thought to be associated with E. coli infections is controversial due to the high levels of intrinsic antimicrobial resistance and the risk that antibiotic use may increase toxin release and worsen the disease process (Panos et al. 2006).

Antibiotic use should be considered only following detection of the bacteria, or its toxin, in patients with acute, severe disease (e.g. haemorrhagic gastroenteritis), or where there is concern regarding the development of sepsis. In these cases, antimicrobial selection should ideally follow in vitro sensitivity testing (Hall, 2009; Weese, 2011).

Are antibiotics actually indicated if there is concern over potential bacterial translocation?

Dysbiosis, immunosuppression or damage to the gastrointestinal epithelium may contribute to the translocation of viable bacteria from the lumen of the gut to extra-intestinal sites (Brenchley and Douek, 2012). These bacteria may originate from the commensal population or may have been introduced into the gut via ingestion. If the bacteria reach the blood, they could cause disseminated infections or even life-threatening septicaemia or sepsis. Therefore, antibiotics may be given to individuals that are at a higher risk of translocation of potentially pathogenic bacteria, such as animals with acute haemorrhagic diarrhoea where the gastrointestinal barrier may be compromised (Armstrong, 2013). Further recommendations to try to limit bacterial translocation include restoring intestinal perfusion, commencing early feeding, maintaining a normal gastrointestinal microbiota and supporting the gut barrier function (Krentz and Allen, 2017).

However, it has also been suggested that antibiotic use may not be the solution in the face of potential bacterial translocation and could even worsen the situation. Research in human medicine has reported that antibiotic use can induce translocation of commensal bacteria, increase inflammatory responses and increase the release of Shiga-like toxin by E. coli 0157 (Panos et al., 2006; Knoop et al., 2016). It has been proposed that anaerobic bacteria may play a role in preventing bacterial translocation and that the use of antibiotics which selectively kill anaerobes may therefore increase risk of bacterial translocation; mice that received metronidazole experienced increased dissemination of intestinal bacteria to their mesenteric lymph nodes compared to control animals (Wells et al., 1987).

A prospective study looking at bacteraemia in canine patients with acute haemorrhagic diarrhoea syndrome (AHDS) found no significant difference in the incidence of bacteraemia between dogs with AHDS and control dogs. Nor were there significant differences in the clinical signs, laboratory parameters, duration of hospitalisation or mortality between blood culture positive and blood culture negative affected dogs (Unterer et al., 2015). The use of antibiotics (amoxicillin/clavulanic acid) in dogs with AHDS and a positive blood culture showed no benefit; however, dogs with potential signs of sepsis were excluded from this study (Unterer et al., 2011). Another study found that dogs with AHDS and a left shift neutrophilia recovered well in the absence of antimicrobial therapy (Mortier et al., 2015). By studying cultures of mesenteric lymph nodes, bacterial translocation was even demonstrated in 52 percent of healthy dogs undergoing routine ovariohysterectomy (Dahlinger et al., 1997). All of these studies demonstrate that bacteraemia is not necessarily associated with clinical disease, questioning the use of antibiotics even if bacteraemia may be present.

The term “bacteraemia” refers to the presence of bacteria within the bloodstream and is confirmed by repeat isolation of a pathogen from culture of the patient’s blood (Nostrandt, 1990). Whilst bacteraemia is not necessarily associated with clinical disease, the potential for development of septicaemia or sepsis is a valid concern. Septicaemia and sepsis are respectively defined as “systemic disease caused by the spread of microorganisms and their toxins via the circulating blood” and “life-threatening organ dysfunction caused by a dysregulated host response to infection” (Odeh, 1996; Singer et al., 2016). If septicaemia or sepsis is even suspected, due to deteriorating systemic clinical signs, haematological changes and/or positive blood culture, then appropriate parenteral antibiotics should be started immediately.

Despite the lack of studies demonstrating that haemorrhagic diarrhoea is associated with an increased risk of bacterial translocation or sepsis, some clinicians will still elect to use antibiotics in patients with acute haemorrhagic diarrhoea (Armstrong, 2013). This is likely due to the potential severity of septicaemia should it occur, and the difficulty involved in confirming bacterial infection as the cause of diarrhoea.

Antibiotic use should be considered only following detection of the bacteria, or its toxin, in patients with acute, severe disease, or where there is concern regarding the development of sepsis.
Are antibiotics indicated if zoonotic pathogens are detected in the stools?
This remains a difficult topic, with many factors to consider. As previously discussed, it is reasonable to use antibiotics, if indicated, to manage the clinical signs in an affected animal. However, once these signs have resolved there is a lack of evidence to support the continued use of antibiotics until multiple consecutive faecal samples are clear (Hall, 2009). There may be a reasonable justification to use antibiotics following detection of zoonotic pathogens if the owner is also affected, or if the animal shares its home with children or immunocompromised people. However, use of antibiotics in healthy individuals can promote the establishment of a carrier state and may favour development of antimicrobial resistance (Weese, 2011; Werner et al., 2020). In these cases, it is always vital to enhance infection control, for example by improving hygiene and barrier nursing protocols.

**Antibiotic use can be detrimental at a patient and/or population level**

**Antibiotic use can disrupt the normal microbiota of an individual**
Antibiotics used to treat a specific infection can simultaneously affect bacterial species within the normal gastrointestinal microbiota, resulting in a microbial imbalance or “dysbiosis”. The normal microbiota balance will usually recover once the antibiotics are stopped; however, a prolonged dysbiosis may occur in some individuals which could result in persistent signs of gastrointestinal upset (Canine Microbiota Dysbiosis Index, 2020). Administration of metronidazole to healthy dogs has been reported to decrease the numbers of specific groups of bacteria that are thought to be important for gut health; four weeks after cessation of a two-week metronidazole course, some of these changes were still present (Olson et al., 2015). Ciprofloxacin has also been shown to reduce taxonomic richness and diversity of gut bacterial populations in people (Dethlefsen et al., 2008). An individual’s microbiota appears to be intimately involved in many normal body functions, therefore its disruption through use of antibiotics should always be considered and requires reasonable justification.

**Antibiotic use can cause adverse effects for the patient**
Antibiotics can cause acute adverse effects in some patients, with gastrointestinal upset commonly reported.
Familial Shar-Pei fever

Familial Shar-Pei fever is one of the biggest contributors to the short lifespan of Shar-Pei dogs

An episode of familial Shar-Pei fever (FSF) may show nothing more than pyrexia, with temperatures from 39.4 to 41.7°C, which last 24 to 36 hours and go back to normal without treatment. However, about half the affected dogs have swollen hocks, recognised as swollen hock syndrome (SHS), and there may be additional signs such as a swollen muzzle, abdominal pain, reluctance to move, an arched back, vomiting, diarrhoea and rapid breathing. Wrinkled skin is normal in Shar-Pei hocks; it must be accompanied by pyrexia and inflammation of the joint or the skin for a diagnosis of SHS. These episodes usually occur before the dog is 18 months old and attacks are likely to become less frequent as the dog becomes older.

Shar-Pei dogs affected by FSF have high resting levels of interleukin-6 (IL-6), the cytokine which plays a central role in COVID-19 pathology. As the inflammatory process develops, IL-6 and other cytokines trigger the production of acute phase reactant proteins, the precursors of amyloid AA.

In normal animals, the acute phase reactant proteins are produced in the acute phase of the inflammatory process and broken down and excreted once their function is over. However, where the IL-6 levels stay high the acute phase reactant proteins accumulate as the tough, insoluble folded proteins recognised as amyloid. Amyloid deposits occur outside cell walls, in blood vessels and in many organs. The worst effects for the Shar-Pei are when deposits form in the kidneys. Amyloidosis may progress slowly or quickly, taking from months to years to show as renal failure. So, as in some cases of COVID-19, the inflammatory process goes wrong and increases the tissue damage instead of eliminating the original pathology.

FSF appears to be an autosomal recessive condition which occurs in about 25 percent of Shar-Pei dogs. It is not known whether a single gene is to blame or several. It seems likely that heterozygous carriers may have episodes of FSF with or without SHS but they do not suffer the chronic renal failure (CRF) which leads to an early death, while homozygous animals do develop amyloidosis and CRF and usually have FSF as well. FSF episodes indicate that a dog is at high risk of developing amyloidosis. Some clinicians recommend starting treatment at this point even though not every FSF case will progress to amyloidosis.

Amyloidosis usually centres on the kidneys but sometimes involves the liver. It is most often found in dogs between three and eight years old but has been seen from eight months to 12 years of age. Diagnosis is confirmed from histological samples taken by renal biopsy or at post-mortem.

The clinical picture is the mainstay of diagnosis for FSF with bloods mostly normal, perhaps showing an elevated white cell count with a left shift and a raised alkaline phosphatase. Proteinuria and low urine specific gravity are warning signs of medullary amyloid deposition; these are likely to occur later in the disease process and must be treated as progressive renal failure. A screening routine of haematology, biochemistry and urinalysis should be carried out annually in any dog which has experienced FSF and any stud dog or potential breeding bitch. If tick-borne diseases such as Lyme disease are a problem locally these should be ruled out and each case should be investigated as indicated by the individual’s problems.

As FSF is self-limiting the mainstay of treatment is close observation and temperature taking. Non-steroidal anti-inflammatory drugs can be used to reduce the pyrexia and relieve pain. In a few cases the condition may require emergency fluid therapy and intensive care. FSF is very rarely fatal but the subsequent amyloidosis shortens the dog’s life. Many clinicians start treatment with colchicine after the first episode of FSF. Colchicine is an antmitotic alkaloid derived from the plant *Colchicum autumnale* which is also known as autumn crocus, more familiar as the source of saffron. Colchicine is toxic if overdosed but it has been around for a long time: it is used to treat gout and familial Mediterranean fever (FMF). Colchicine dampens the inflammatory response by stopping neutrophil chemotaxis, and reducing the expression of adhesion molecules and the production of reactive oxidative species and cytokines. It reduces mast cell degranulation and has the end product of preventing amyloid deposition. This is the key to preserving life.

Glucocorticoids inhibit the production of hyaluronan, the mucopolysaccharide that is found in the intercellular substance of many tissues, including the skin, where it is the foundation of the Shar-Pei wrinkles. Steroid therapy will reduce a dog’s wrinkles while it is reducing the inflammatory response which is mediated by damaged hyaluronan. It can be used topically or at intermittent low doses.

FSF has a parallel condition in humans. Familial Mediterranean fever (FMF) usually starts in childhood, is characterised by recurrent bouts of fever and polyserositis, is self-limiting and is an inherited autosomal recessive condition. As with FSF, colchicine is used prophylactically to prevent early death from amyloidosis.
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A guide to managing cluster seizures in the clinic and at home

Epileptic seizures are a common neurologic disorder in dogs with short- and long-term management challenges

Simon Platt

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In cases of epileptic seizures in dogs, survival is often more dependent on quality of life and financial issues than actual disease manifestations. As such, the burden is on the veterinarian to balance seizure control and owner perception of patient quality of life.

The temporal distribution of seizures is often as clinically relevant as overall seizure frequency. An animal that experiences one day of seizures per year may be considered fairly well controlled, but if the seizures occur in a flurry or cluster, this episode may result in an expensive emergency visit. The terms “acute repetitive seizures”, “cluster seizures” (CS), “serial seizures” and “flurry seizures” describe a condition characterised by multiple generalised tonic, clonic or tonic–clonic seizures, or even multiple focal seizures, occurring over 24 hours (Monteiro et al., 2012; Berendt et al., 2015).

There is no definitive clinical definition for a cluster of seizures. Studies examining clinically defined seizure clustering patterns have used varying empiric definitions, including two to four seizures in less than 48 hours; three seizures per 24 hours; or two generalised tonic–clonic or three complex focal seizures in four hours (Patterson, 2014). Non-specific definitions, such as “those having several convulsions within a day or two” (Patry, 1931) have also been described.

Prevalence

Limited data exists documenting the prevalence of cluster seizures in veterinary medicine. Studies have suggested that anywhere between 38 percent to 77 percent of dogs with epilepsy can experience CS at some point (Monteiro, 2012; Packer et al., 2014). Some canine breeds appear predisposed to CS. Up to 94 percent of Border Collies (Hülsmeyer et al., 2010; Kwiatkowska et al., 2018) and nearly 50 percent of Australian Shepherd dogs, diagnosed with idiopathic epilepsy, have been reported to experience CS. German Shepherd Dogs, Rottweilers and Boxers have also been noted with a higher prevalence of CS compared to other breeds with idiopathic epilepsy (Monteiro et al., 2012; Packer et al., 2016). Limited work has been done evaluating the prevalence of seizure clustering in cats. One study evaluating 125 cats with primary and secondary causes of seizure activity documented CS in 53 percent and 59 percent of cases, respectively (Pakozdy et al., 2010).

Prognosis

Dogs experiencing CS are less likely to achieve long-term seizure remission, and experience a decreased survival time and an increased likelihood of euthanasia compared to dogs with single epileptic seizure episodes (Packer et al., 2014).

Treatment

Three broad options exist for the treatment of CS in dogs and cats, which are not mutually exclusive. These are firstly to improve long-term seizure control; secondly administer short-acting treatment at the time of a cluster with the aim of reducing possible “follow on” seizures in the next few minutes; and lastly administer long-acting medication with the aim of reducing “follow on” seizures over the subsequent few hours. These treatments may all be necessary when the animal is presented to the veterinary clinic with CS, but some of them can be advised with the appropriate cautions in the at-home environment for the client to administer to avoid therapeutic delays (Figure 1).

Short-acting treatment at the time of a cluster event

Benzodiazepines

Benzodiazepines (diazepam, midazolam) are potent, fast-acting anticonvulsants and are therefore often the preferred initial therapy for emergency seizures. When skilled technicians, veterinary nurses or veterinarians are present, IV administration is preferred. However, if IV access is not available, the recommendation for emergency seizures in a dog or cat is to immediately consider IM midazolam. Benzodiazepines can also be administered via rectal, nasal or buccal routes when parenteral therapy is not feasible, such as in the at-home environment. It has been well established that absorption of lipid-soluble
A guide to managing cluster seizures in the clinic and at home

Dogs experiencing [cluster seizures] are less likely to achieve long-term seizure remission

Drugs by the membranes of the colon and rectum is rapid and complete (Podell, 1995). Diazepam can be administered into the rectum using plastic administrators such as teat infusion cannulas or tom-cat catheters with a water-soluble lubricant. The efficacy of rectally delivered diazepam depends on several factors, not least the time that it takes for the drug to reach the therapeutic concentration (Probst et al., 2013). Rectal diazepam (0.5 to 2.0mg/kg) has been evaluated for treatment of cluster seizures in dogs proving a significant decrease in the number of CS in a 24-hour period as well as a significant decrease in the total cost of emergency care (Podell, 1998).

The intranasal route has been investigated extensively and has not only been found to be more convenient and socially acceptable than rectal diazepam, but also yielded equal or better results in regards to anti-epileptic activity and onset of action (Charalambous, 2017). Diazepam and midazolam administered intranasally (IN) to dogs have both been shown to rapidly reach high concentrations (Charalambous et al., 2019).

Continuous benzodiazepine infusion may be a necessary and effective mode of in-hospital therapy for frequent CS. The dose should be calculated hourly (diazepam 0.1 to 0.5mg/kg of body weight, q1hr) and is usually diluted in 0.9% saline or in 5% dextrose in water (D5W), with the volume used being equal to the maintenance fluid requirement over the hour (Patterson, 2014). The dose can be delivered with an infusion pump. The dosage rate should be reduced by 50 percent every six hours for at least two reductions before discontinuing the drug. Midazolam is completely water-soluble and has been shown to be an effective and safe therapy when administered by constant rate infusion.

**Levetiracetam**

Levetiracetam (LEV) (20 to 60mg/kg IV, IM or rectal) is a rapidly acting and safe anticonvulsant which can be used parenterally when benzodiazepines are considered ineffective (Packer et al., 2015). It can be effective for eight hours, at which time it can be repeated. It causes minimal sedation and is not metabolised in the liver, representing a very suitable option for older dogs and cats. In addition to its seizure-suppressing activity, previous experiments in chronic epilepsy models in rodents suggested that LEV might also possess anti-epileptogenic or disease-modifying activity (Packer et al., 2015). A randomised, placebo-controlled, double-masked study including 19 dogs with status epilepticus or CS has shown that administration of IV levetiracetam in addition to diazepam resulted in a significantly higher responder rate compared to just diazepam (Hardy et al., 2012).
Phenobarbital (PB)

The distribution of PB to the central nervous system may take up to 30 minutes, because of weaker lipophilicity in comparison with diazepam. If the patient is refractory to benzodiazepines and levetiracetam, it may require a loading dose of PB if it is currently not already being maintained on this drug. The recommended loading dose is 12 to 24mg/kg IV if immediate therapeutic concentrations are desired but this can induce a profound stupor with concurrent suppression of the cardiovascular and respiratory system (Patterson, 2014). Alternatively, the dose can initially be 2 to 6mg/kg IV, repeating the dose every 20 to 30 minutes to effect and to a maximum total 24-hour dose of 24mg/kg (Patterson, 2014). The parenteral form can also be given IM, which is recommended if diazepam has already been administered. This will avoid the potentiation of profound respiratory and cardiovascular depression.

Cluster seizures that do not respond to a benzodiazepine, levetiracetam or PB may be considered refractory and require more aggressive treatment (Platt, 2014). Short-acting anaesthetic drugs are the most commonly used agents for treating resistant SE, as they have a rapid onset of action, short half-lives and cause reductions in cerebral metabolic rates. These drugs should be used only in an intensive care setting because of the need for continuous blood pressure monitoring and, ideally, central venous pressure monitoring. Propofol, ketamine and dexmedetomidine have all been suggested as being effective for animals with refractory emergency seizures when used IV at standard doses (Platt, 2014).

Long-acting treatment at the time of a cluster event

The following options should be viewed as at-home therapies for those animals that are known to exhibit cluster seizures. The treatments are not intended as a method to avoid veterinary care and counselling but offer an “on the spot” therapy that may prevent cluster seizures from occurring or at least reduce the amount of seizures exhibited within a 24-hour period. As such, the owners can be advised to attempt one of the below options at the time of the first seizure.

Oral clorazepate

Clorazepate (clorazepate dipotassium) is a benzodiazepine pro-drug that acts by enhancing GABA activity in the brain. Oral doses between 0.5 and 2mg/kg every eight hours can result in sedation and ataxia but such signs may resolve three to four days after treatment (Platt, 2014). In essence this drug is a short-term anticonvulsant that can be effective when administered orally. Anecdotally, this drug can be given as a pulsed therapy adjunctively to the maintenance medication which the animal is on, beginning at the lower end of the recommended dose. The success of this approach may depend on the tolerance of the owner to the ensuing sedation and the ability to predict a cluster based on the first seizure event (Platt, 2014). The duration of treatment can be short (one to three days). The author does not recommend the use of this drug in dogs receiving phenobarbital or in cats unless absolutely necessary.

Oral or rectal levetiracetam

The pharmacokinetics of levetiracetam appear favourable for oral administration during CS. The bioavailability of oral administration is nearly 100 percent. The use of an interval or pulsed oral dosing regimen of levetiracetam can be used as in the treatment of at-home cluster seizures. If the animal is already on phenobarbital, a higher dose of levetiracetam is advised (more than 20mg/kg) (Packer et al., 2015). Similar to the use of clorazepate, in this situation, the success of this approach may depend on the prediction of cluster activity but in this drug’s case, there will be limited sedation and liver metabolism is not a concern. A documented protocol is the administration of an initial dose of approximately 60mg/kg after a seizure has occurred or pre-ictal signs are recognised by the owner, followed by approximately 20mg/kg every eight hours until seizures do not occur for 48 hours (Packer et al., 2015). If the dog is already being prescribed this drug for maintenance seizure control, then a lower dose can be used which should be tailored to the drug’s sedative effects; approximately 40 percent of dogs receiving 60mg/kg orally will be ataxic and/or sedated. The use of a levetiracetam pulse treatment protocol has actually been suggested as an alternative to levetiracetam maintenance therapy in an attempt to reduce the tolerance that can be seen with this drug when used long term (Packer et al., 2015). The oral route can be easily employed by owners at home. However, the postictal phase in epileptic patients can impair swallowing ability, preventing use of this route because of aspiration risk, thus delaying the initiation of treatment. For this reason, rectal delivery of this drug has been investigated and proven successful for CS in dogs when used at 40mg/kg (Cagnotti et al., 2018; Cagnotti et al., 2019). In the majority of cases, target plasma concentrations are reached after rapid absorption within 30 minutes after administration of the drug (Peters et al., 2014).
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Neurological causes of micturition disorders in small animals

D iorders of micturition can be caused by diseases affecting the innervation of the bladder (neurogenic bladder) or by other systemic conditions (metabolic, hormonal, inflammatory) or localised conditions (urinary tract infections, stones, malformations) that affect the function of the bladder. In the case of neurogenic bladder, the clinician should try to distinguish between disorders of micturition due to an upper motor neuron (UMN) lesion or lower motor neuron (LMN) lesion of the nervous system, and then decide the pharmaceutical management accordingly.

**Bladder dysfunctions**

**UMN bladder dysfunction**
UMN bladder dysfunction is due to a lesion cranial to the L7 spinal cord segment (usually between the pons and L7). The most common cause is compression of the spinal cord (intervertebral disc herniation) that disrupts the pathways responsible for the detrusor reflex and the UMN pathways to the skeletal muscle of the urethral sphincter. In these cases, animals often develop incoordination of detrusor and sphincter function (“dyssynergia”).

Clinically the animals commonly show signs of severe UMN thoracolumbar spinal cord lesion, as non-ambulatory paraparesis (or paraplegia in some cases). The perineal reflex is often intact. Poor prognostic factors are the loss of nociception in the hind limbs and perineal area and the loss of perineal reflex.

D ogs diagnosed with thoracic arachnoid cyst/diverticulum or thoracic syringomyelia could develop UMN bladder dysfunction, despite being ambulatory. This is explained by the loss of supraspinal regulation of the bladder function, due to an intramedullary spinal lesion (different from an extramedullary intervertebral disc compression) that affects the urinary pathways, located deeper in the spinal cord, before affecting the motor spinal pathways.

Clinical signs are caused by the inability to empty the bladder due to a reduced or absent detrusor reflex. The tone is generally increased, due to a lack of inhibition of the spinal cord. The urethral sphincter is spastic and on palpation the bladder is firm and very difficult to manually express. Bladder manipulation should be performed very carefully, as the risk of bladder rupture is increased. It is recommended to use a urinary catheter to empty the bladder (in addition to pharmacologic intervention, when needed).

In case of a reversible lesion, bladder function can be recovered within days or weeks. In general, as voluntary motor function of the limbs returns, so does voluntary control of micturition.

**LMN bladder dysfunction**
LMN bladder dysfunction is due to a lesion to the sacral segments of the spinal cord or to the sacral nerves of the cauda equina, which runs within the spinal canal. These signs might also be encountered with a lesion of the pelvic canal that involves the pelvic or lumbosacral plexus.

Clinical signs are due to an inability to empty the bladder due to an absent detrusor reflex, and the tone is generally decreased. On palpation, the bladder feels flaccid and difficult to palpate. The patient leaks urine (overflow incontinence) and increased abdominal pressure leads to urine outflow, therefore the bladder can easily be manually expressed. Urine scalding is a common complication, if patient cleanliness is not carefully maintained, together with urinary retention and urinary tract infections (UTIs).

Manual expression of the bladder or the use of an indwelling catheter is recommended in these patients.

Clinical signs often involve reduced or absent perineal sensation and reflex, reduced or absent anal tone and possible involvement of the tail (paresis/paralysis/loss of nociception). If the lesion also affects the innervation to the pelvic limbs, the animal can show LMN signs, as paraparesis and reduced to absent spinal reflexes in the pelvic limbs.

**Detrusor-urethral (sphincter) dyssynergia (DSD)**
DSD is a micturition abnormality due to an abnormal coordination between the detrusor and the urethral sphincter muscles. The urethral muscles (external urethral sphincter) contract abnormally during detrusor contraction, resulting in abnormal interruption of urination. The causes are not clearly understood, but a lesion of the spinal pathways that inhibit the hypogastric (sympathetic) nerve function (and pudendal somatic nerve) during the voiding phase could cause DSD. Idiopathic DSD is described in middle-aged large-breed male dogs.
Detrusor atony
Atony of the detrusor muscle could be a complication of over-distension of the bladder; due to structural or functional causes that interfere with urine outflow. Frequent causes are obstruction of the urethra (calculi, neoplasia) or pain on urination, due to pelvic fractures and prolonged recumbency.

This over-distension causes the separation of the tight junction of the detrusor muscle fibres and the muscle becomes weak and ineffective.

The bladder is distended and has no tone, but there is no overflow of urine. Detrusor atony is caused by a lesion of the muscle, not by a neurological lesion.

Treatment aims at restoring the tight junctions of the detrusor muscle by keeping the bladder small. The use of an indwelling catheter is recommended for at least seven days and the use of parasympathetic drugs can help to increase detrusor contraction.

Treatment of disorders of micturition
Disorders of micturition can be treated surgically or medically. Surgical treatments are normally performed if medical treatments fail.

Medical treatment includes control of secondary complicating UTIs and management of the bladder and urethral dysfunctions. The detrusor muscle should never be stimulated to contract pharmacologically or expressed manually unless the bladder is easily manually expressed (the urethral sphincters are not contracted).

In cases of urinary retention, the bladder needs to be emptied regularly to avoid detrusor muscle over-distension. Residual urine volumes following intermittent catheterisation have been suggested to increase risk of UTIs.

If the urethral tone is increased, manual expression can be dangerous; therefore, aseptic urethral/bladder catheterisation is required by intermittent urinary catheterisation or by placement of an indwelling catheter.

The drugs most commonly used are:

- Bethanecol chloride (2.5 to 25mg orally TID in dogs; 1.5 to 5mg orally TID in cats): used to stimulate detrusor muscle contraction. It should not be used alone in case of UMN bladder, as the urethral sphincter tone is normally increased
- Diazepam (0.2mg/kg orally TID in dogs and cats): used to relax the external urethral sphincter (striated muscle) in patients with UMN bladder
- Phenoxylbenzamine hydrochloride (0.25 to 0.5mg/kg orally BID in dogs and cats): used to decrease the tone of the internal urethral sphincter (smooth muscle). Used mostly in UMN bladder
- Prazosin (1mg/15kg BID, SID in dogs; 0.25mg/cat orally BID, SID) can decrease urethral sphincter tone. It can cause marked hypotension; therefore, it is recommended to start with half the calculated dose for the first few days. It can also be administered 30 minutes before bladder expression to release urethral sphincter tone. It can be used with dyssynergia

A new neuroprosthetic device (sacral nerves stimulator) has been tested for use in paraplegic dogs with urinary incontinence (UMN bladder). These devices are not effective in patients with LMN bladder injuries.

Disorders of micturition can be treated surgically or medically

Prognosis
Prognosis is generally good if the underlying condition is treated and the patient receives the correct care. Ongoing chronic disorders of micturition have the potential of a less favourable or more guarded prognosis. In some cases, the animal might require lifelong medical treatment. It is very important that the animals do not develop complications, such as UTIs or bladder over-distension, often due to incomplete bladder emptying.

In cats, in cases of lesions of the cauda equina due to spinal trauma, intact sensation at the level of the perineum or the base of the tail is a favourable prognostic factor. Animals that do not recover nociception at the level of the perineum or the base of the tail within 30 days of the trauma have reduced chances of regaining bladder control.

Further reading


A look through the latest literature

Clinical reasoning in the assessment of feline spinal conditions
Stephanie Mella and others, Royal Veterinary College, Hertfordshire

Cats presenting with suspected spinal disease can be a daunting prospect for an inexperienced clinician, as there is a widespread perception that neurological cases are complex and difficult to deal with in general practice. The authors analysed the clinical findings in 221 cats with spinal disease with the aim of developing statistical models that could be used to identify associations between specific combinations of clinical variables and the most common feline spinal disorders. Their findings show how data from the clinical history, signalment and general physical and neurological examinations can be systematically evaluated to construct a focused and prioritised list of differential diagnoses and allow the clinician to develop appropriate diagnostic and treatment strategies. They predict that this approach can increase the confidence of inexperienced clinicians and help them in managing client expectations.

Journal of Feline Medicine and Surgery, 22, 521-530

Response to same-day surgery in dogs with thoracolumbar disc extrusion
Sophie Martin and others, University of Bristol

Neurological dysfunction of varying severity is common secondary to acute spinal cord injury in dogs and various factors have been identified as potential prognostic indicators. The authors compared the proportion of canine patients with thoracolumbar disc extrusion that lose pelvic limb pain perception when the surgery is performed on the same day or delayed overnight. Their findings from a review of 273 cases suggest that an overnight delay before spinal decompression increases the risk of clinically meaningful deterioration.

Journal of Small Animal Practice, doi.org/10.1111/jsap.13147

Safety and efficacy of neuromodulation in treating headshaking in horses
Veronica Roberts and others, University of Bristol

Trigeminal-mediated headshaking is an idiopathic facial pain condition in horses that can have important welfare implications. The authors investigated the potential value of EquiPENS, a percutaneous electrical neuromodulatory technique, in managing 168 horses with this condition. Their findings suggest that the method is safe and effective in producing remission of clinical signs in more than 50 percent of those equine patients. They note that further advances may be limited until a better understanding can be gained of the aetiopathogenesis of this condition.

Equine Veterinary Journal, 52, 238-243

Novel technique for the excision of forebrain masses in small animal patients
Rebecca Packer and Stephanie McGrath, Colorado State University, Fort Collins

Resection techniques for brain tumours will normally require direct visualisation, which may limit surgical access and/or risk damage to overlying structures. The authors describe a novel technique in which a neuronavigation system is used to guide a tissue resection device during the excision of forebrain masses in locations that are difficult to visualise optically. They suggest that the technique provides a key incremental step towards minimally invasive, guided neurosurgery to excise otherwise inaccessible deep intra-axial tumours.

Veterinary Surgery, 49, 676-684

Clinical findings and outcomes in 122 cases of facial nerve paralysis in dogs
Mankit Chan and others, University of Sydney

Facial nerve paralysis in dogs may result from a diverse range of underlying conditions and can predispose those animals to exposure keratitis and corneal ulcer formation. The authors examined the clinical records of all dogs with the condition seen at a university clinic over a 15-year period. Their findings show that idiopathic disease was the most common diagnosis, recorded in nearly 30 percent of cases. They found that male, middle-aged dogs and Cavalier King Charles Spaniels were all over-represented in the affected group.

Australian Veterinary Journal, 98, 140-147
When I was seven, which truth be told was 50 years ago, I won the annual photography competition of the 12th Cambridge cub scout brigade with a series of photographs, all black and white of course and taken with my little box Brownie camera. The only thing digital about cameras in those days was the fact that you used your finger to press the button to take the photograph! My winning series of photographs charted the story of two swans laying their eggs in a nest at the back of St John’s College in Cambridge. They showed the hatching of seven lovely cygnets and their growth into young independent swans.

So, when I joined the college as a student a little more than 10 years later, it was great to see the same swans still raising their young there. And now, half a century on they are still there – or presumably now their grand-cygnets if one can use that term. While a virus may cause havoc for us humans, some things in nature never change, as these swans show. Well, I say that, but a quick trawl through Google Scholar shows papers demonstrating an annual mortality rate of about 40 percent for young swans, so while all may look the same, clearly individuals come and go.

Last week I was almost dive-bombed by three over-enthusiastic swallows just back from their winter jaunt to Africa while I was walking down the lane next to our house. “Summer has arrived!” we say without really thinking what an arduous journey these birds have had. The RSPB website tells me that most British swallows spend their winter in South Africa, travelling through western France, across the Pyrenees, down the eastern side of the Iberian Peninsula and then on to Morocco. Then, unbelievable to me at least, they fly right across the Sahara. These birds migrate at low altitudes finding food on the way. They cover 200 miles a day, flying at 15 to 20 miles per hour. “How do they know where to go?” one might ask.

For me as an ophthalmologist it seems remarkable that birds use their eyes in ways we could never imagine. Birds and insects manage to see the polarisation of light quite as much as its luminance and colour. And more incredible than that they manage to detect magnetic fields using similar photoreceptors to those that see light. It seems that they use polarisation vectors of sunlight and magnetic fields to work out which way is south. But how does a bird return to exactly the same nest year after year? These are, as far as I can see, unanswered, maybe even unanswerable, questions just in the same way one marvels at how a salmon returns from its sea travels to spawn in the same place it was produced.

And how do birds manage to travel quite so far? Migration is hazardous with many birds dying of starvation and exhaustion along the way. And we think that we are having a hard time these days! Worse still, climate change is having a profound effect on bird migration.

A quick sweep online shows a 300-page volume on Effects of Climate Change on Birds which I must admit I haven’t read from cover to cover but does indicate that global warming is changing the timing of birds’ migration. If a species arrives at a time which does not correspond to the availability of its food source, this causes a problem. Indeed, these population declines in migrating species were some of the first effects of climate change reported in the literature over 10 years ago. Perhaps if we understood more of the knife edge that so much of nature lives on, we would be more concerned about the effects we are having on it.

Maybe the crisis we as a human population have found ourselves in currently will make us realise a bit more what we are doing to our fellow inhabitants of this fragile planet.
The influence of progesterone pre- and post-service

P4 plays a key role in reproductive events associated with establishment and maintenance of pregnancy.

**Fertility** is one of the main drivers of herd profitability in cattle production systems through its impact on achieving greater production and maintaining short calving intervals. This is particularly true of seasonal systems with short well-defined breeding periods where calving pattern is a key driver of profitability.

Successful pregnancy establishment involves ovulation of a competent oocyte, fertilisation by a capacitated sperm and growth of the embryo in an environment conducive to normal development. While fertilisation success is typically high (greater than 85 percent) following artificial insemination (AI) in cattle, many of the resulting embryos fail to develop to term. A significant proportion of this loss occurs between fertilisation and maternal recognition of pregnancy, which in cattle occurs around day 16 post oestrus. Indeed, in high-producing dairy cows as many as 50 percent of embryos may be no longer viable by day seven (Figure 1).

**Progesterone and the oocyte**

High P4 concentrations during the growth of the ovulatory follicle are associated with improved oocyte quality and pregnancy outcomes. During the final period of follicle growth, between the preovulatory luteinising hormone (LH) surge and ovulation, the follicular fluid changes from an environment dominated by oestradiol to one that is dominated by P4 as the granulosa cells luteinise in preparation for the formation of the CL after ovulation. Given that this is coincident with resumption of meiosis and maturation of the oocyte prior to ovulation, a role in determining oocyte quality is likely. Reduced P4 concentrations during growth of the first follicular wave affects embryo quality after super-stimulation and reduces pregnancy rate in lactating dairy cows; in both cases, outcomes can be improved with supplemental P4. Based on such studies, sophisticated hormonal synchronisation protocols based on Ovsynch modifications such as G6G or Double-Ovsynch have been incorporated widely into reproductive management programmes by dairy farmers, particularly in the US.

**Progesterone and the endometrium**

Looking at gene expression patterns in the endometrium is a useful tool to understand function. Temporal changes in endometrial gene expression occur irrespective of whether the cow is pregnant or not and it is really only at the time of maternal recognition of pregnancy at around day 16 that major changes in gene expression are detectable between pregnant and cyclic animals. In other words, the uterus is always “optimistic” and prepares for pregnancy for the first two-thirds of the cycle, even in the absence of mating. An adequate rise in P4 after ovulation is necessary to drive these normal temporal changes that occur in the endometrial transcriptome. Studies have shown that P4 supplementation advances the normal temporal changes in endometrial gene expression, in association with advanced conceptus development around day 16.

**PAT LONERGAN**

Pat Lonergan, PhD, DSc, MRIA, is a Professor of animal reproduction in the School of Agriculture and Food Science at University College Dublin. His main areas of interest are early embryo development in vivo and in vitro, embryo-maternal communication and understanding embryo mortality in cattle.

**JOSÉ SÁNCHEZ**

José Sánchez, DVM, MSc, PhD, a Spanish veterinarian, is currently a European College of Animal Reproduction (ECAR) resident. He is currently taking up a position at the National Institute for Agriculture and Food Research (INIA) in Madrid with a focus on embryo maternal communication.
The influence of progesterone pre- and post-service

**Progesterone and conceptus elongation**

Elongation of the ruminant conceptus is essential for normal pregnancy recognition and implantation. The effects of elevated P4 shortly after conception on the advancement of conceptus elongation have been convincingly demonstrated in cattle and sheep. Using a combination of in vitro embryo production and in vivo embryo transfer techniques, it has been shown that the effect of P4 on conceptus development is mediated exclusively via the endometrium. Interestingly, the embryo does not need to be present in the uterus during the period of P4 elevation in order to benefit from its priming effect, strongly suggesting that the effect of P4 is via advancement of the normal temporal changes that occur in endometrial gene expression, resulting in advanced conceptus elongation.

Conceptus length on a given day in the period around pregnancy recognition is thought to be indicative of its quality and the likelihood of establishing and maintaining a pregnancy (Figure 2). There is a linear correlation between conceptus length and interferon tau production and while the threshold concentration of interferon tau to establish pregnancy is not known, it is highly likely that short (ie compromised) conceptuses do not secrete sufficient amounts for pregnancy recognition. Long and short age-matched conceptuses display different gene expression patterns related to metabolic and biosynthetic processes and immune response. Furthermore, such conceptuses elicit different responses from the endometrium which may be important for optimal maternal recognition of pregnancy.

**Strategies to increase progesterone post AI**

Many studies have attempted to improve fertility by elevating P4 after AI. Approaches taken to increase peripheral concentrations of P4 after AI include those that (i) increase function of the existing CL (eg strategies which promote growth of the dominant follicle before ovulation resulting in a larger CL, or luteotrophic treatments which stimulate CL development such as hCG administration; (ii) induce ovulation of a dominant follicle and formation of accessory CL (eg hCG or GnRH administration); or (iii) those which supplement progesterone directly (eg via injection or intravaginal devices). However, data on outcome in terms of pregnancy rate are often conflicting or inconclusive. One issue relates to the induction of short cycles if supplemental P4 is given too early after AI (before day three or four). A recent meta-analysis concluded that P4 supplementation was beneficial only in cows of lower fertility and only after natural oestrus and that the benefits required exogenous P4 supplementation to begin between days three and seven. Thus, while a significant volume of research has provided insight into the mechanisms regulating circulating P4 concentrations and actions on the uterus and conceptus, more research is required to better understand how P4 manipulation can be repeatedly used to improve reproductive success.

**Conclusion**

The causes of low fertility in dairy cattle are complex and multifactorial and may be due to compromised follicle development impacting on oocyte quality, a suboptimal reproductive tract environment incapable of supporting normal embryo development or a combination of both. Progesterone plays a key role in reproductive events associated with establishment and maintenance of pregnancy through its effects on oocyte quality and its action on the uterine endometrium. Low P4 concentrations have been implicated as a causative factor in low pregnancy rates observed in high-yielding dairy cows. Elevated concentrations of P4 in the immediate post-conception period have been associated with an advancement of conceptus elongation, an increase in interferon tau production and higher pregnancy rates in cattle. Innovative strategies aimed at optimising circulating concentrations of P4 at precise times of the cycle have the potential to significantly improve embryo survival in cattle.

A full reference list is available online

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**FIGURE (1)** Pivotal periods of pregnancy loss during the first trimester of pregnancy in lactating dairy cows (adapted from Wiltbank et al., 2016)

**FIGURE (2)** Elongating bovine conceptuses on day 14 of pregnancy. Note the large variation in conceptus length which is associated with likelihood of pregnancy establishment.

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VP
Disbudding in calves – looking ahead to the future

Are we thinking proactively in regard to farm animal mutilations and doing what is best for the welfare of calves?

The start of 2020 saw a review by the British Veterinary Association on the current management procedures for tailing and castrating lambs (BVA, 2020). Synergy Farm Health had introduced the “Three Rs” (reduce, refine, replace) concept in flock health plans back in 2019, in regard to tailing and castration of lambs, ahead of the BVA announcement. The Sheep Team at Synergy have also held three client evenings on the topic which were well received. Animal activists targeting dairy clients, such as Project Calf, are sadly becoming more common. It is time for us to be questioning our routine management procedures for all species and have robust reasoning behind the need for them, for example disbudding. So, how can we be proactive for our dairy and beef clients on the issue, in this case when disbudding calves?

At the time of writing, all EU member states permit disbudding but some countries have very strict and particular rules. Hungary, for example, has the strictest ruling by only permitting disbudding on the first day of life using a bloodless method (Spoolder et al., 2016). Certain other countries (eg the Netherlands) only permit disbudding if the veterinary surgeon administers the local anaesthetic and only if carrying out disbudding of calves below a certain age.

The three Rs concept is a method developed by Russell and Burch (1959) to establish if we can reduce, refine or replace the need for animals in experiments, to ensure animal suffering is kept to a minimum or avoided where possible. If this concept were to be applied to current farm animal mutilations, we must consider how calf disbudding looks when the three Rs principle is used.

Reduce
Can we reduce the need to disbud calves? The first question is whether all the calves on the farm need disbudding? It is important to note that disbudding is routinely performed on safety grounds for both animal and human safety. So, with that in mind, replacement heifers will require disbudding to continue to provide a safe environment, and it is essential that these animals are disbudded rather than dehorned, which is a much more stressful and painful procedure.

However, could bull calves entering the veal industry be left horned? In the Netherlands, it is common practice to finish veal calves at eight months which does remove the need for disbudding. Currently in the UK veal and beef industries, farmers can finish calves as early as 12 months of age. The systems achieving this are finding that the horns are not causing injuries to the animals. Nevertheless, not disbudding poses a significant safety concern for the animal if desired growth rates are not achieved, and animals are subsequently finished a few months later than planned due to poor growth or ill health.

Refine
In 1954, the use of an anaesthetic when disbudding calves became law under The Protection of Animals (Anaesthetics) Act, with the exception of during chemical cauterisation. Ensuring the disbudding procedure is as refined as possible is very important which may be done by undertaking on-farm training or refresher sessions.

The RSPCA welfare guidelines recommend that calves are disbudded under the age of two months, but ideally as soon as the horn bud can be felt.

In 2019, the Red Tractor Farm Assurance scheme added the requirement to administer NSAIDs to any animal likely to experience pain during or after a procedure. This continual refinement of the disbudding procedure is essential to continue to maintain our high welfare standards in the UK.

The continual refinement of the disbudding procedure is essential to continue to maintain our high welfare standards in the UK.
Disbudding in calves – looking ahead to the future

Disbudding in calves can be done in a short period of time and is much less stressful for the calves. Animals are heavily sedated using an intramuscular injection of xylazine. Once sufficiently sedated, local anaesthetic and an NSAID are administered before disbudding takes place. The main caveat for this method is that a vet is required to sedate the animals. Several EU countries require the presence of a vet for local administration or for the whole disbudding procedure, so this would not be a concern in those countries.

With regards to refining our disbudding procedures, should we as veterinary surgeons be pressuring for a ban on disbudding by chemical cauterisation? RSPCA welfare guidelines strongly recommend against its use, and generally veterinary surgeons do not feel comfortable disbudding a calf by chemical cauterisation, instead preferring to use a hot iron (Figure 1).

Reframing Disbudding

Replacing the need for disbudding could be started through considered and informed breeding decisions with the use of polled bulls. This may, however, hinder the genetic advancement being made on a farm; therefore, bull selection should be done with care. It is important not to introduce inbreeding or narrowing of the genetic pool within a herd. One colleague has hypothesised that in 50 years we may be carrying out genetic engineering, enabling the “horned” gene to be deleted, thus retaining the merits of the bull’s genetics and replacing the need for disbudding – only time will tell on that!

However, if we focus on the present day, a prominent UK bull stud is marketing one particular polled bull which carries 2 polled (dominant) genes which will result in all its progeny being polled. It also has very good figures: EPLI 617, +728kg milk, fertility index +5.7 and great Type Merit. Thus proving at this current moment in time, you can get the best of both worlds. Perhaps this will be the start of the polled bulls of the future without the need for genetic engineering.

Conclusion

This article aims to provide reflection on our current procedures, potentially resulting in the 3Rs principle being introduced to dairy and beef herd health plans in regard to farm animal mutilations. This will help to put the farming industry one step ahead of the regulations to ensure we are thinking proactively rather than reactively.

References


The Goat Veterinary Society (GVS) held its inaugural meeting at the National Institute for Research in Dairying on 6 October 1979. The declared aim was to “promote an interest and knowledge in goats among the veterinary profession”. One of the noticeable features of the meetings is that an owner of a thousand milking goats will sit next to a pedigree show goat breeder and have a worthwhile discussion about aspects of goat keeping. The first paper presented over 40 years ago by Alan Mowlem referred to a character description of the goat by Professor Law in *Domesticated Animals of Britain* (1845).

“[The goat] is lively, ardent, robust, capable of enduring the most intense cold, and seemingly little incommoded by the extremes of heat. It is wild, irregular, and erratic in its movements. It is bold in its own defence, putting itself in an attitude of defiance when provoked by animals, however larger than itself. Its horns turning outward at the points, it rises when it fights upon its hinder legs and throwing the weight of its body sideways, endeavours to maim its enemy by oblique strokes of the horns. […] A dog that will despise a ram, and assail a bull, is frequently cowed by this peculiar mode of attack and demeanour of the goat. […] Goats will eat of many bitter and narcotic plants which other animals reject, nay, of some which are deemed poisonous, as the hemlock and foxglove. […] When the goat is kept apart from the flock, he becomes attached to his protectors, familiar and inquisitive, finding his way into every place, and examining whatever is new to him. He is eminently social, attaching himself to other animals, however different from himself.”

Goats need specific consideration when faced with diagnosis and therapy as they differ greatly from other animals.

**RICHARD GARD**
**LARGE ANIMAL CORRESPONDENT**

Following a 16-year apprenticeship with Beecham, Richard established a project management and development consultancy and writes regular contributions for the veterinary press.
**Goat medicine**

Little wonder that a repeated cry from veterinary surgeons and goat keepers is that goats are not like sheep or calves and need to be given specific consideration when faced with diagnosis and therapy. One of the very difficult areas is anaesthesia and analgesia. At that first meeting in 1979, a published list of available products for anaesthesia would cause amusement to current graduates as though it were the dark ages. However, dehorning of a goat is considered an act of veterinary medicine and so not able to be carried out by keepers. For the veterinary surgeon, a video showing the recommended procedure was published by the Society a few short years ago, but because of changes in legislation, the act remains a difficult area and the video is no longer distributed. The use of general anaesthesia in a week-old kid is considered less fraught than the use of local anaesthetic, with pain relief support thereafter. The Goat Veterinary Society is a source of updated information, including applying the cascade, and can arrange for a supply of dehorning irons that differ from those used with calves.

**The evolution of the goat industry**

At the 40th anniversary meeting last October, Kathleen Wielkopolska presented an overview of the goat industry and changes that have taken place over the years. Her paper (Wielkopolska, 2020) makes interesting reading and is available on the Society website. She observes that the demand for goat dairy products increased year on year from the 1980s until the recession in 2008. The introduction of plant based “milks” has had a negative impact, and the European Food Safety Authority banned the sale of infant goat milk formulas in Europe from 2006 to 2014. The demand for goat milk formula from China and Asia remained and persists today.

In the past, most goats in the UK would have been purebred or pedigree animals in small herds and with the advent of commercial dairy goats, breeders provided the original source for breeding bucks. Most commercial milking goats are now crossbred and there has been little use of artificial insemination but progeny testing has shown its worth in milk output and overall performance. The use of genomics to select bucks for breeding replacements has shortened the time for generational progress. It is expected that does will have longer lactations with no need to kid a doe every year. This will assist animal welfare and does may only have one or two extended lactations in a lifetime. The use of female sexed semen is developing and this would offer an expected reduction in unwanted males.

**TB in goats**

David Harwood has highlighted the situation with outbreaks of TB in goats. Much has been learned from a few outbreaks, with diagnosis following slaughterhouse suspicion or post-mortem examination at veterinary investigation laboratories. Full information for goat keepers and veterinary surgeons is available on the Society website. David indicates that in cattle, the organism initially localises in the lymph glands at the back of the throat and after a short incubation period they become infectious to others. The bovine body reacts to the infection by localising the bacterium, producing a tubercle. Infection can break out of the tubercle, usually in the lungs, and the animal becomes infectious again.

However, in affected goats, the walled-off lesions do not develop and large abscesses are produced with liquid pus which often erode quickly into the airways, with TB organisms being coughed up and breathed out into the environment. Infected goats are a very serious disease spreader to other goats in the same airspace. Spread from dam to kid in the milk from heavily infected goats, with TB of the udder, is also possible. The greatest risk of infection to clean herds is from the introduction of animals from an undetected TB-infected goat herd.

**Recent events and moving forward**

During COVID-19 lockdown, the GVS committee has not met. The meeting planned for June 2020 has been postponed, provisionally to 8 October 2020 at Taunton. However, the whole future for dispensing knowledge for veterinary surgeons and goat keepers is being reviewed and greater use of webinars and website alerts are being discussed. It is possible that the meetings may be condensed into a single conference each year incorporating a farm visit. Detailed developments will be available in due course.

A major initiative is to develop the Goat Health and Welfare Group that would interact with the Animal Health and Welfare Board for England. This sector group for goats would allow legislators and advisors to gain knowledge from veterinary surgeons, goat keepers, nutritionists, buildings specialists and others to bring the needs of the goat industry to the fore. It is anticipated that changes to environmental legislation and aspects of climate change will allow further development of high-quality commercial goat keeping in the UK.

The Society started with observations on goat behaviour and recent behavioural science research has shown that goats show several features and abilities associated with advanced cognition. They are very skilled at manipulating objects, have long-term memory, seek cognitive challenges and can infer the location of a reward through exclusion. Goats are also sensitive to the human attentive state, can learn from people and can perceive human facial expressions of emotion. Veterinary surgeons attending to a goat may wish to consider their facial expression and smile at the goat as well as the owner. The research has led to considerable discussion with traditional goat breeders, providing emphasis that enriching the housing environment and handling goats with care and empathy leads to happier and more productive animals.

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Pitfalls of physiotherapy referrals

You must be entirely comfortable with the content of any statement you sign

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A common query received at the VDS is whether as a veterinary surgeon we should sign a form authorising a physiotherapist to work with a patient. These days, such forms are typically sent via email into the practice. On the face of it, the question is a simple binary one: to sign or not to sign; however, the question is often not as simple.

An informed decision as to whether one should sign or not is ideally made with an understanding of the relevant legal framework, the RCVS Guidance and the potential adverse consequences from signing the form. The adverse consequences of not signing the form would be to irritate the client and physiotherapist. Whilst undesirable, not signing the form would, at least on the face of it, appear to pose less serious potential consequences for the veterinary surgeon.

UK law permits the practice of physiotherapy on animals by non-veterinary surgeons where such treatment is directed by a vet who has examined the animal and prescribed physiotherapy. So, there is a convincing argument you should only sign the form if you believe these conditions are met. When endorsing the referral of a patient to a therapist, difficulties can follow if the conditions are not met.

Except for specific exemptions in the law, the Veterinary Surgeons Act 1966 (VSA) makes it illegal for non-veterinary surgeons to practise veterinary surgery. The Veterinary Surgeons (Exemptions) Order 2015 provides an exemption to the VSA to allow the treatment of an animal by physiotherapy if the following conditions are satisfied: (i) the person providing the physiotherapy is aged 18 or over; (ii) the person is acting under the direction of a qualified person (a registered veterinary surgeon) who (a) has examined the animal, and (b) has prescribed the treatment of the animal by physiotherapy.

The Order points out that the physiotherapist does not define physiotherapy and neither does it provide a definitive list of permitted activities. The RCVS provides relevant guidance on the treatment of animals by physiotherapy in Section 19 of the Code of Professional Conduct for Veterinary Surgeons. Physiotherapy is interpreted by the RCVS as including all kinds of manipulative therapy. It includes osteopathy and chiropractic but would not, for example, include acupuncture or aromatherapy. There is further helpful clarification from the RCVS in Section 19.22: It is illegal, in terms of the Veterinary Surgeons Act 1966, for non-veterinary surgeons, however qualified in the human field, to treat animals.

So the legal requirement would appear straightforward enough: animal physiotherapy must be directed by a vet who has examined the animal and prescribed physiotherapy. The RCVS provides guidance on referring responsibly, albeit that guidance relates to referrals made between veterinary surgeons. However, it would seem reasonable to assume that this should also apply to referrals made by veterinary surgeons to physiotherapists. Where the involvement of a physiotherapist in an animal’s treatment is driven by the veterinary surgeon, these requirements are readily satisfied by the referral process.

Difficulties are more likely to arise when the involvement of a physiotherapist is driven not by the vet but by the client who may wish to take their animal to a physiotherapist of whom the veterinary surgeon has no knowledge.

Considerations incumbent on the vet are: (i) is it possible that physiotherapy might benefit this case?; (ii) if I cannot be certain that physiotherapy will benefit the patient, can I be certain that it will cause no harm?; and (iii) is the proposed physiotherapist competent to provide appropriate care?

The answers to the first two questions are matters for professional judgement. Answering the third can be challenging where the veterinary surgeon has no personal knowledge of the physiotherapist. There is no over-arching regulatory body for veterinary physiotherapists. This makes it difficult to objectively assess the individual’s particular qualifications and make an informed decision.

It is usually said to be a demonstration of their compliance with the legislation that the physiotherapist requires some form of evidence that their client has sought their veterinary surgeon’s approval of the proposed treatment. Typically a pro-form questionnaire is sent through requesting the vet signs the document. It would seem that such approval cannot be given unless the patient and its condition in question are known to the veterinary surgeon, meaning there must have been some relevant veterinary attendance.

As with any statement to which you put your signature, you must be entirely comfortable with the content (see the 10 Principles of Certification) and you should feel free to amend or strike through as necessary.

Some practices find it helpful to produce a client information sheet explaining their considerations when approached by a client to endorse a referral for physiotherapy. Hopefully this article, which is based on a VDS Advice Note on the topic, will prove useful in drawing up such an information sheet.
Pregnancy loss in the mare: what are the risks and your diagnostic options?

Knowing the underlying cause of pregnancy loss allows you to take steps to reduce the chance of repeat losses

Pregnancy loss in the mare is a relatively common condition faced in veterinary practice. Nevertheless, it can also be very frustrating to manage on both an individual mare and a herd level. In this article, we will review the frequency of pregnancy loss in the mare in the UK, which mares pose a higher risk profile for the condition and diagnostic options available to you to identify the cause.

How common is pregnancy loss?
Improvement in clinical approaches have led to high conception rates in the mare of around 60 to 70 percent per oestrous cycle. Given we also know from studies on research mares that rates of pregnancy loss between conception and first scan can be as high as 20 to 30 percent, we are now at a point where true "conception" rates in well-managed naturally bred mares are estimated to reach around 90 percent. Not bad! With the pregnancy now confirmed, how likely is the mare to go on and lose that pregnancy?

Pregnancy loss encompasses three main periods: early pregnancy loss (EPL) (15 to 65 days), abortion (65 to 300/315 days) and stillbirth (300/315 to parturition). EPL includes the embryonic period to 35 days (often referred to as early embryonic death) and the implantation period (40 to 65 days). In the horse, early pregnancy is the most common period pregnancies fail, which is not surprising given it also coincides with major foetal and placental developmental events. In most of the common breeds in the UK, you should expect 8 to 12 percent of confirmed pregnancies to be lost prior to 65 days. The majority (approximately 90 percent) of these are single event EPLs.

In our study across two seasons, only 0.9 percent of mares experienced two EPLs and 0.1 percent three or more EPLs, representing less than 10 percent of all EPLs (Rose et al., 2018). The incidence of abortion (approximately 5 percent) in the UK is approximately half of that of EPL, a figure that has been relatively stable over recent decades (Allen et al., 2007; Roach et al., 2018). Stillbirths are less frequent again, representing around 1.5 percent of pregnancies that fail to produce a live foal.

These UK figures, subject to year-to-year, regional, breed and cohort variation, form a baseline to enable veterinary surgeons to assess the performance of mares under their management. A higher incidence may not necessarily be a cause for concern but does warrant further investigation. An increase may merely represent an older mare population under management, or alternatively could be an early indicator of a problem. If you don’t monitor, you will never know!

Risk factors for pregnancy loss
Risk factors for pregnancy loss can be divided into those which are intrinsic to the mare (Box 1), the stallion or the developing pregnancy and external factors such as therapeutics, nutrition and other environmental exposures. Whilst wherever possible, management should aim to minimise the exposure to these risks, many of the risks intrinsic to the mare can’t be reduced. Therefore, they need to be considered in the clinical management of mares, in advising owners of the likelihood of a mare suffering pregnancy loss and by stud farms when considering herd composition required to maintain profitability.

Mare-level risks
Nutrition is vitally important to supporting the pregnant mare, with mares with a BCS of less than 5 at significantly increased risk of both EPL and abortion (Miyakoshi et al., 2012). Similar to other species, increasing mare age increases the risk of pregnancy loss (Allen et al., 2007; de Mestre et al., 2019). Independent of age, maiden mares are at a reduced risk of EPL. The risks associated with foal heat breeding and pregnancy loss are unclear with overseas studies showing an increased risk for EPL when mares were bred before day 13 postpartum, but UK studies not

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repeating this observation. Foal heat breeding is relatively uncommon in the UK which might explain this difference. Uterine conditions are also linked with EPL risk. Two studies indicate uterine cysts increase the risk of EPL (Miyakoshi et al., 2012; de Mestre et al., 2019). Surprisingly presence of uterine inflammation/infection at the time of cover is not associated with a modified risk for either EPL or pregnancy loss to term demonstrating that endometritis present around the time of cover doesn’t necessarily negatively impact on pregnancy outcome if managed appropriately.

Pregnancy-level risks
Conceptus position within the uterus and vesicle size at the first scan but not the number of conceptuses (twin pregnancies) at initial examination increase risk for EPL. In a small study, Jobert et al. (2005) showed that caudal uterine body pregnancies experienced very high rates of early pregnancy loss with 13/21 (62 percent) pregnancies confirmed in the caudal uterine body subsequently lost prior to day 42. These observations stress the importance of vigilant monitoring of the position and size of the developing conceptus and termination of caudal body pregnancies carefully considered.

Diagnostic options for investigating underlying cause of pregnancy losses
Knowing the underlying cause of pregnancy loss allows you to take steps to reduce the chance of repeat losses within a mare and put in place mechanisms to reduce the possible impact on other mares in the same herd, and also helps guide breeding choices that minimise the chance of it occurring again.

Our review of clinical records suggests approximately 60 percent of mares suffering EPL present with no conceptus. In these cases, it is often difficult to do anything beyond a thorough reproductive examination and take an endometrial swab which is recommended at the next oestrus to exclude bacterial infection, responsible for approximately 10 to 15 percent of EPLs. If the embryo is visualised by ultrasonography prior to the loss, the clinician can obtain additional information, such as location of the embryo within the uterus (see risks of caudal body pregnancies above), presence of fluid indicative of inflammation and endometritis, and assess the anatomical development of the embryo/foetus. Whilst not a standard diagnostic technique

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yet, clinicians across the UK and Ireland have additionally been flushing out EPL conceptuses and submitting them to our laboratory (Figure 1A). Assessment of the first 100 submissions have so far resulted in the identification of a number of conditions such as gross morphological abnormalities of the foetus, in particular the cardiovascular system (Figure 1B) and the central nervous system (Figure 1C), known to explain EPL in other species. Gross genetic abnormalities such as aneuploidy, a loss or gain of a whole chromosome, commonly described as a cause of human pregnancy loss, have also been identified.

Investigation of the underlying cause of abortion and stillbirth requires a combination of a thorough veterinary examination and examination of the abortus material, and if pathological findings support it, genetic tests can also be performed. In our review of over 3,000 pregnancies, we found that abortus material was available for assessment in approximately 70 percent of cases of abortion (Roach et al., 2018). Further, if this material was submitted to a diagnostic laboratory, a diagnosis of an underlying cause of abortion was reached in 75 percent of cases. Overall, this supports the value in seeking a diagnosis for abortion, so do persist with your submissions as over time it will be rewarding for both you and your clients. There are a vast number of possible causes of abortion that might be identified but by far the most common in the UK is umbilical cord pathologies representing approximately 50 percent of laboratory investigated cases, followed by infectious placentitis and EHV1, each representing around 10 percent of cases. At the time of writing this article, it is also worth noting that many of the emerging causes of abortion found overseas – including equine amnionitis and foetal loss, mare reproductive loss syndrome (both caused by ingestion of caterpillars) and Chlamydia psittaci infection – have not been identified in the UK.

Whilst we are often tempted to reach to progesterone assays in the case of investigating a pregnancy loss, particularly in the first two months, these assays are frequently not helpful. Progesterone insufficiency is not a common cause of pregnancy loss and further, if a low progesterone is detected at the time of the loss, in most cases it is nearly impossible to determine whether the progesterone dropped due to the failure or was the cause of the failure.

References and further reading
The role of the veterinary nurse in the management of senior pets

It’s important to be proactive, not reactive, in the management of our senior patients

Objectives for a successful senior patient clinic include: encouraging a thorough diagnosis; creating a treatment plan based on defined objectives incorporating the immediate and long-term care of the patient by a dedicated team and ensuring continuity of care; prioritising defined objectives and agreeing assessment strategies for patient reviews and the identification of measurable changes for owners to observe. A multimodal treatment approach including palliative care should be encouraged and you should aim for early detection of developing disease processes. Owner compliance should be developed, enabling objective observations and identifying the need for external therapists and specialists in a timely manner through the provision of regular assessments and health reviews.

The parameters regularly assessed in a senior patient nurse clinic should include blood pressure, urinalysis, blood profiles, weight management (body condition scoring is often more relevant than weight alone), muscle condition scoring, nutrition, mobility, pain and mentation.

The management of senior pets, especially dogs, starts when they are young. We should be educating owners about the risks of repetitive activities and advising about joint protection from an early age. We can be showing owners how to train their puppies to use a ramp and communicating the importance of weight management throughout all life stages. We need to be engaging with owners at the start of their animal’s life, before clinical symptoms become apparent or damage has occurred.

RVNs are highly qualified, skilled professionals and nurse-centric care is an essential part of any senior patient treatment plan. However, we know that animals in their senior years will often present with complex needs, have comorbidities (eg osteoarthritis, kidney disease, hypertension, endocrine disorders, heart disease, diabetes, cognitive dysfunction syndrome, dental disease, cancer) and their condition can change rapidly. Therefore, we must endeavour to provide the highest level of nursing care, through a programme of evidence-based nursing.

The RVN is instrumental in the provision of nurse-led clinics, inpatient monitoring and community-based care. We are often responsible for the development of care provision plans based on individual needs. Be prepared! Know what questions to ask and allow sufficient time.

KIRSTY CAVILL

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It’s important to remain mindful that old age is not a disease, it is merely a number. Nor is age a reason not to treat a patient for a disease process in their senior years. Perhaps rather than concentrating on age, what is more relevant is the general health status of the animal. Do we have an accurate definition of what constitutes “geriatric” in our pets or patients? Probably not, due to diverse differences between species and breeds. But, with the advancement in nutrition and medical interventions, we do know that domestic animals are living longer.

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We are often the vital conduit between pet, owner, vet and the wider support network, including therapists and specialists. Building trust and aiding the development of owner compliance is essential in achieving effective patient care. Continuity of care for senior patients is essential. Through the identification of clear objectives for individual patients we can more easily manage the correct interventions for each patient. We should strive for early detection of disease processes, recognising emerging health issues and checking on the correct usage of medications. We need to facilitate the implementation of appropriate lifestyle, nutritional and medical management plans. Practices may prefer different approaches for treatment management plans but it is important to know what’s available in your practice toolbox.

So, what is a multimodal treatment approach? I often explain it to owners as a treatment jigsaw. We need all the pieces, in the right place, at the right time, to get the best result! We should be thinking of the bigger picture, incorporating all aspects of the animal’s life, including lifestyle and exercise management alongside referrals to relevant specialists and veterinary therapists in a timely manner.

I encourage all owners to keep mobility and well-being diaries for their pets. This might include brief entries about mobility and exercise tolerance or activity, pain, appetite and general demeanour. These can be discussed during clinics and help to build a picture over time, identifying trends and measurable changes.
Try to assign your senior patients to a dedicated nurse and vet team – a coordinated approach ensures the best patient outcomes for both immediate and long-term treatment plans. Senior animals regularly require an extended veterinary support network, including specialists and therapists; therefore, effective communication between people responsible for the care of an individual patient is essential. This ensures subjective assessment and interpretation of measurable changes, especially when determining levels of pain. Each team member should be utilising the same pain assessment tool but inevitably there will be some level of subjectivity in individual interpretation.

The mechanism of pain is complex and the pain experience for each pet and their owner will be different. We must be mindful of the individuality of the pain experience for our patients and remain aware that most animals will not vocalise their pain. Be aware of subtle signs indicating a changing pain state and be able to effectively question and educate owners how to recognise these signs in their pet.

Unlike acute pain, chronic pain is often expressed visually rather than vocally and so careful owner questioning is imperative when assessing a patient. We need to give client-specific outcome measures (Lascelles et al., 2007) and remember that pain management should be implemented in a timely manner and assessed regularly. Interestingly, Dohoo and Dohoo (1996) found that veterinary nurses consistently scored pain experienced by an animal more highly than vets and significantly influenced the use of analgesia.

There are many visual indicators of pain, such as lameness, a change in body posture, tail carriage or gait, reluctance or hesitation going up/down steps, the inability to roll, stretch or shake fully, changes in exercise tolerance or even changes in coat pattern. Behavioural changes can also be indicators of pain, such as reduced interactions or changes in behaviour towards owners or other animals, licking or chewing joints, changes in sleep patterns or positions, pacing, changes in eating habits or increased sensitivity to noise or external stimuli. Hyperactive behaviours can be a sign of pain and these are often breed-specific in dogs. Disproportionate pain response to touch could indicate the presence of neuropathic pain.

Although well tolerated at home, orthopaedic issues are easily exacerbated in the clinic environment on slippery floors, therefore we must ensure that patients are able to safely navigate their way around the clinic and don’t leave more painful than when they arrived. Many senior animals also have degrees of sensory and mentation impairment and we must always account for this for clinic or inpatient care. Canine cognitive dysfunction syndrome is often under-diagnosed but can lead to a decline in quality of life for both the dog and the owner (Landsberg et al., 2012). The clinic or hospital environment can easily become overwhelming for these patients. Therefore, home visits should be considered where appropriate for these vulnerable patients.

Hospitalised senior patients require specialised care plans, based on preparation and adaptation, taking into consideration physical, visual and auditory capabilities alongside overall levels of cognition. They will require physical and mental stimulation and physical therapy – passive range of movement exercises, regular mobilisation, non-slip mats and supportive orthopaedic bedding. Carefully consider positioning during diagnostic procedures to reduce overextension of joints, fascia and muscles, particularly in arthritic patients where this could subsequently induce painful flare-ups.

Provide advice sheets and follow-up calls or emails between appointments. It has been suggested that 40 to 80 percent of medical information provided by healthcare practitioners is forgotten immediately (Kessels, 2003). Therefore, timely follow-up communications between appointments are beneficial to improve client bonding, resulting in better owner engagement and the subsequent improved welfare of our patients.

Inevitably, within the remit of senior patient care, we have a vital role to play in guiding and supporting owners through their journey of anticipatory grief and in the provision of palliative care. This emotional toll on owners and staff should not be underestimated during this process. By supporting the owner through this journey, we are inadvertently supporting our patient also. We should be mindful of owner vulnerability during this time but try to remain objective about quality of life versus quantity of life.

Key points
- Old age is not a disease
- Be proactive not reactive
- Multimodal treatment approach
- Named nurse/vet team
- Build trust and develop owner engagement
- Remove barriers to clinic attendance

We should regularly ask ourselves “How can we improve our patient’s life within the remit of a structured treatment plan and resist allowing treatment plans to be defined by age alone?”

References
Approaching the acute encephalopathic patient

Patients with neuro-intoxication can often be the most challenging and require intensive nursing care, but can also be the most rewarding

Intoxication is a common clinical presentation in first-opinion practice with numerous toxins that can lead to neurological signs, either by primary effect on the nervous system or secondary effect involving other organs. Neurotoxicity can manifest in many ways such as abnormal behaviour, tremors, ataxia, seizures and altered mental status. The exact toxin ingested is not always known, and therefore the diagnosis is often based on clinical history (known toxin exposure), and/or clinical signs consistent with exposure and appropriate diagnostic testing. Treatment in the emergency setting is often based on a presumptive diagnosis of toxin exposure, empirical treatment and assessment of clinical response.

There are several mechanisms where an intoxication leads to neurological signs in our veterinary patients. This may be termed “exogenous” where toxins from outside the body (eg plants, pesticides, medications) have a primary direct action on structures of the neurological system or “endogenous” as a result of organ dysfunction such as hepatic or uraemic encephalopathy (Platt and Garosi, 2012).

Neurotoxins can also be classified as neuroexcitatory or neuroinhibitory. Excitatory toxins typically cause hyper-excitability, seizures, muscle tremors, fasciculations and ataxia. Secondary complications include hyperthermia, disseminated intravascular coagulation (DIC), rhabdomyolysis and aspiration pneumonia. Neuroinhibitory toxins typically cause obtundation, stupor and coma, and/or weakness or flaccid paralysis leading to respiratory failure (Platt and Garosi, 2012). Prompt recognition and appropriate emergency treatment is required to ensure a good outcome.

Clinical approach to a suspected intoxication

Taking a history
It is important to take a thorough clinical history to assess the likelihood of intoxication. Owners may suspect toxin exposure when this is not the case. It is important to consider the history and clinical presentation to determine the likelihood of toxin exposure. Typically, the signs are acute in onset in a previously clinically normal animal. It may be possible to discount a toxin as a cause of the neurological signs if, for example, the patient presents with a progressive neurological presentation (over days to weeks), or following multiple seizure events, which occur over a period of time. If the toxin is known, exact ingredients, possible dosage exposure to and timing of exposure should be ascertained on admission. Some owners may be reluctant to provide this information in the case of illegal substance exposure, in which case it is worth explaining the possible detrimental risk to the patient if treatment is delayed to encourage an honest discussion.

Clinical examination
It is important to fully assess the patient; the cardiovascular system should be assessed by chest auscultation, mucus membrane assessment and palpation of peripheral pulses to assess rate, rhythm and pulse quality. Hypovolaemia should be corrected with fluid resuscitation and specific rhythm abnormalities confirmed by ECG before initiating appropriate treatment. Mean arterial blood pressure should be maintained above 70mmHg. Respiratory rate and effort should be assessed and, in cases of respiratory compromise, a patent airway secured and ventilation provided.
parameters (including bile acid and ammonia) in hepatic azotaemia in uraemic encephalopathy, elevated liver crystalluria in cases of ethylene glycol toxicity, severe as metabolic acidosis and calcium oxalate monohydrate dysfunction. Examples include acid-base disturbance such impacted by the toxin indirectly leads to neurological would be expected if a toxin affects other organs abnormalities that indicate a specific toxin. Alterations biochemistry performed. This may assist in identifying database, if not a comprehensive haematology and serum sampling should be performed, with a minimum emergency and treatment is presumptive and supportive. Bloods in the majority of cases, a rapid diagnosis is not possible and treatment is presumptive and supportive. Blood sampling should be performed, with a minimum emergency database, if not a comprehensive haematology and serum biochemistry performed. This may assist in identifying abnormalities that indicate a specific toxin. Alterations would be expected if a toxin affects other organs concurrently with the nervous system or if the organ impacted by the toxin indirectly leads to neurological dysfunction. Examples include acid-base disturbance such as metabolic acidosis and calcium oxalate monohydrate crystalluria in cases of ethylene glycol toxicity, severe azotaemia in uraemic encephalopathy, elevated liver parameters (including bile acid and ammonia) in hepatic encephalopathy, prolonged PT/APTT and activated clotting times in xylitol toxicity. It is recommended to take plasma, serum and urine samples for freezing which may then be sent to an external laboratory for comprehensive toxicology. This can take between 1 and 10 days, so treatment should not be delayed until results are received. If vomiting is a clinical feature or is induced as part of the treatment (see treatment below), the vomitus may also be visually inspected and a diagnosis made, or material frozen for analysis.

### Treatment of a suspected intoxication

Although treatment should be individualised, a standardised approach should be employed (Figure 1).

#### Stabilisation of vital parameters and neurological signs

The patient must be assessed and any immediate treatment administered if required. Possible neurological scenarios where emergency treatment is required include seizure management, severe neuromuscular signs with subsequent respiratory failure or raised intracranial pressure. The latter, although unlikely following neurointoxication, may be suspected if there is reduced mental status with Cushing’s response, which includes bradycardia, hypertension and an abnormal breathing pattern. Assessment may also be made using the Modified Glasgow Coma Scale, including pupillary light and oculocephalic reflexes. If elevation in intracranial pressure is suspected, treatment should be initiated with either mannitol (0.25 to 1g/kg of 10 percent solution over 20 to 30 minutes) or 7 percent hypertonic saline (4ml/kg in dogs, 2ml/kg in cats IV over 15 minutes) and the head elevated to encourage venous drainage. Care should be taken in cases of hypovolaemia, concurrent kidney injury or electrolyte imbalance. You should always follow these with isotonic fluids to prevent hypovolaemia.

Seizures are a common clinical sign of neurotoxicity and managing these correctly and swiftly is vital to avoid complications, such as long-term cerebral injury or heat stroke. Box 1 shows our simple way to remember the fundamentals of seizure management and drugs that may be used. If the patient is actively tremoring or showing evidence of muscle fasciculations, methocarbamol may be used, either by an IV or oral preparation (44 to 220mg/kg IV, given in boluses of 30 to 40mg/kg to a maximum of 330mg/kg/day (Platt and Garosi, 2012) or 20 to 45mg/kg PO every 8 hours (BSAVA, 2015)). If the patient is comatose or lacking a gag reflex, the oral preparation may be diluted in water and given rectally. This is particularly useful in cases of tremorgenic encephalopathy, prolonged PT/APTT and activated clotting times in xylitol toxicity. It is recommended to take plasma, serum and urine samples for freezing which may then be sent to an external laboratory for comprehensive toxicology. This can take between 1 and 10 days, so treatment should not be delayed until results are received. If vomiting is a clinical feature or is induced as part of the treatment (see treatment below), the vomitus may also be visually inspected and a diagnosis made, or material frozen for analysis.

### Diagnostic testing

In the majority of cases, a rapid diagnosis is not possible and treatment is presumptive and supportive. Blood sampling should be performed, with a minimum emergency database, if not a comprehensive haematology and serum biochemistry performed. This may assist in identifying abnormalities that indicate a specific toxin. Alterations would be expected if a toxin affects other organs concurrently with the nervous system or if the organ impacted by the toxin indirectly leads to neurological dysfunction. Examples include acid-base disturbance such as metabolic acidosis and calcium oxalate monohydrate crystalluria in cases of ethylene glycol toxicity, severe azotaemia in uraemic encephalopathy, elevated liver parameters (including bile acid and ammonia) in hepatic encephalopathy, prolonged PT/APTT and activated clotting times in xylitol toxicity. It is recommended to take plasma, serum and urine samples for freezing which may then be sent to an external laboratory for comprehensive toxicology. This can take between 1 and 10 days, so treatment should not be delayed until results are received. If vomiting is a clinical feature or is induced as part of the treatment (see treatment below), the vomitus may also be visually inspected and a diagnosis made, or material frozen for analysis.

#### Approach to an acute encephalopathic patient

| A. | Airway | must be secured via mask or intubation and administer 100 percent oxygen |
| B. | Bloods | should be taken for minimum emergency database including glucose and electrolytes. Jugular sampling should be avoided |
| C. | Cool | the patient slowly if hyperthermic (more than 40°C) and continually monitor temperature |
| D. | Drugs | to control seizures should be given intravenously. If no venous access is available: midazolam 0.2mg/kg intramuscular or intranasal OR diazepam 0.5mg/kg intrarectal |
| E. | Elevate | the head at approximately 30° angle |

Further control of seizure management includes:

1. **Midazolam** (0.2mg/kg IV/IN/IM, 0.3mg/kg/hr CRI) or **diazepam** (0.5mg/kg IV/PR, 0.5 to 2mg/kg/hr CRI). Boluses may be repeated up to three times q10 minutes, followed by CRI.
2. **Levetiracetam**: 40 to 60mg/kg bolus IV or PR, followed by 20mg/kg IV every 8 hours.
3. **Phenobarbitone**: Loading dose 24mg/kg IV over 24 hours divided into 3 to 6mg/kg doses.
4. **Ketamine**: 250 to 500mcg/kg IV bolus followed by 3 to 10mg/kg/min CRI.
5. **Propofol**: 0.1 to 0.2mg/kg/min CRI.

Also consider:
- **Mannitol** (if there are signs of increased intra-cranial pressure): 0.25 to 1g/kg IV of 10% solution over 20 minutes.
- **Dextrose** (for hypoglycaemia): 1 to 5ml of 50% dextrose solution IV slowly over 10 minutes.

**Box 1** Emergency management of seizures
Prevent continued absorption of the poison
We must consider continued absorption of the toxin. The benefit of this is often dictated by the time between toxin exposure and presentation and is typically performed by inducing emesis or by gastric lavage usually within three hours of ingestion. Contraindications to emesis include altered mentation, loss of gag reflex, coma, caustic substance ingested. Alternatively, if toxin ingestion is recent and emesis is deemed contraindicated, gastric lavage may be considered under general anesthesia with intubation to ensure a secure and patent airway. It is important to stabilise the patient prior to anaesthesia and a risk-benefit assessment made on the risks of an anaesthetic versus continued absorption of the toxin. If there is a delay between ingestion and presentation to your clinic, a colonic enema may be considered; however, this is rarely of use. In mild intoxications, treatment with activated charcoal alone may be sufficient.

Enhance elimination of the absorbed poison
Attempts must be made to enhance the clearance of the ingested toxin. Intravenous fluid therapy is indicated to ensure diuresis (based on the individual patient, but at a minimum maintenance therapy at 2mL/kg/hr). Care must be taken in patients with concurrent cardiac disease, hypertension or acute renal failure. Placement of a urinary catheter should be considered, and can often be performed without sedation in males, to accurately measure urinary output. This is particularly of use following chocolate ingestion due to the continued absorption of metabolites across the bladder wall. A metoclopramide continuous rate infusion (CRI) at 1 to 2mg/kg/day may also be used to increase gut motility and reduce transit time.

Administer a specific antidote
In addition to the general management of intoxication, administration of specific antidotes may be possible if the toxicity is known or suspected and an antidote is available (see emergency texts for details of specific antidotes). A particular consideration in the treatment of a neurological patient is the use of intravenous intralipid emulsion therapy (IVLE). There remains debate on the exact mechanism of the treatment; however, we may assume in many cases of
neurotoxicity, clinical signs result from lipid-soluble toxins crossing the blood-brain barrier, and therefore using a therapy which reduces the tissue concentration of any lipid-soluble toxicant, as is the case with intralipids, should be of benefit. The risks of its use are very low but include corneal lipidosis, fat overload syndrome and pancreatitis (Robben and Dijkman, 2017) and it should always be administered using a filter to reduce the risk of fat emboli. Notable neurotoxins where it is of benefit include ivermectins, permethrin, tremorgenic mycotoxins and recreational drugs. Dosage is usually an initial IV bolus of 2ml/kg, followed by a CRI of 4ml/kg/hour for four hours. This can be repeated if appropriate (Platt and Garosi, 2012).

Providing supportive care

Patients presenting with severe neurological signs may have altered mentation (obtundation, stuporous or comatose), or require sedation and/or mechanical ventilation. Intensive nursing of the recumbent patient may be required and it plays a vital role in the recovery of the patient and prevention of further complications.

Specific considerations

- Obtunded patients or those at risk of aspiration (systemic neuromuscular disease) should be intubated with a cuffed endotracheal tube. For prolonged periods of intubation, the cuff should be deflated, repositioned and then reinflated. The endotracheal tube and the oropharynx should be suctioned regularly. The tongue should be moistened regularly to prevent drying and ulceration.

- Normovolaemia should be maintained and hydration corrected. Consider any fluid losses, including vomiting/diarrhoea, the effect of administered drugs (diuresis by mannitol or hypertonic saline) and prolonged anaesthesia with subsequent free water loss from respiratory mucosa (particularly when the ventilator circuit is not humidified).

- Normothermia should be maintained. Aggressive active cooling should be initiated if the patient is hyperthermic (rectal temperature greater than 40°C/104°F) until the rectal temperature is 39.7°C (103.5°F). Cooling via convection is the most effective way (wetting animal or use of cool fan). Use of ice packs can cause cutaneous vasoconstriction and slow cooling. Wet towels will impair evaporative losses. Patients with hypothermia should be slowly corrected with frequent reassessment of temperature. It is important to continually monitor circulation parameters (heart rate/rhythm, blood pressure) as well as metabolic state (particularly blood glucose concentration). Warming is most effective via circulating warm air blankets.

- Patients that have ingested a caustic substance or are at risk of gastrointestinal mucosal damage or oesophagitis will likely benefit from gastro-protectant treatment. Commonly used medications include omeprazole (1mg/kg IV/P0) or sucralfate (500mg/dog q6 to 8 hours P0 (up to 20kg), 1 to 2g/dog q6 to 8 hours (more than 20 kg), 250mg/cat q8 to 12 hours P0) (BSAVA, 2015). Anti-emetics may also be considered such as maropitant (1mg/kg IV/SCO or metoclopramide (0.5mg/kg IV/IM/SC).

General considerations

- The patients should be turned every four hours to prevent pressure sores, and padded bedding provided.

- Patients should be supported in sternal recumbency with regular oxygenation monitoring. There is a high risk for atelectasis leading to hypoxaemia if in lateral recumbency for prolonged periods of time.

- Daily physiotherapy should be performed, such as passive range of motion of the limbs.

- The bladder must be effectively managed either by regular expression or catheterisation. If the latter, aseptic technique should be used with a closed system. Urinary output can be accurately calculated, and should aim for between 1 and 2ml/kg/hr.

- Patients with impaired ability to blink will require ocular lubricants applied at least every four hours to prevent complications such as corneal ulceration from prolonged exposure.

Conclusion

A logical approach should be taken to manage any intoxicated patient, with particular consideration to those patients presenting with specific neurological signs such as tremors, mentation changes, ataxia, blindness and seizures. Prompt management of life-threatening complications such as status epilepticus and elevated intracranial pressure must be initiated, and steps taken to prevent secondary morbidities. Often those patients with neuro-intoxication can be the most challenging and require intensive nursing care, but can also be the most rewarding.

A full reference list is available online.
Modern man, modern fatherhood

Shared parental leave in the UK is relatively new and it’s been an enormous change in the law

A rose-tinted look back at early post-war history through the medium of film and TV shows that the demarcation of familial roles and responsibilities was generally quite distinct. Mother looked after the house and the children, father went out to work and brought home the bacon.

But in recent years the evolution of parental rights has changed the equation somewhat; it’s now not uncommon to see mother go out to work while father stays at home caring for the children.

This societal change has not gone unnoticed by Han-Son Lee, founder of Daddilife.com, an online community that seeks to support fathers. In May 2019, Daddilife published research that it undertook to see what life was like for 1,200 fathers at work: “We found that 87 percent of millennial dads were active in a day-to-day role as parents... but there is still too much of a stereotype that ‘dads should just be at work’. It’s a position that does nothing for true gender balance and gender equality.”

It’s interesting that, as a 2017 story in the Telegraph noted (Wedderburn, 2017), male students dominated UK vet schools for many years: “Fifty years ago, 90 percent of veterinary graduates were male. When I qualified in 1985, the ratio of male to female was 50:50, and [in] 1988, for the first time, the number of women graduating outstripped the number of men. Now three quarters of graduates are female, and across the profession as a whole, the ratio of women to men now stands at 54:46.”

The writer – Pete Wedderburn, a vet based in Edinburgh – believes that nearly all veterinary nurses now are female and that most vets leaving the profession at the age of retirement are male.

Even so, for those men in the profession, they will no doubt be wondering about the latest state of play in the world of parental rights. Are there hurdles to their taking a greater role in the upbringing of their children?

Han-Son thinks men are lagging behind in taking time out. He says, "It's difficult to give a precise number as not all firms track it accurately, but our research shows that up to one third of new fathers are not even taking their two weeks.”

The law
Looking at the law, Arwen Makin, senior solicitor at ESP Law, notes that an employer’s obligations to men begins before a child’s birth. She says that "employees who have a qualifying relationship with a pregnant woman have a right to unpaid time off to attend antenatal or adoption appointments". However, she points out that these are limited to no more than two occasions and lasting no more than six and a half hours each.

It’s interesting that Han-Son finds it bizarre that this “one element of the policy, that dads-to-be are legally only entitled to go to two of the three antenatal appointments, is just madness”.

But once the baby is born, new fathers (or the non-primary care giver in same-sex couples) are entitled to two weeks of paternity leave – to enable them to care for the child and the child’s mother. This should be taken within 56 days of the birth or adoption placement and must only be taken in blocks of one or two consecutive weeks.

But there is a personal cost to taking such leave. As Arwen points out, the current weekly rate for statutory paternity pay is £151.20 from 6 April 2020, or 90 percent of the employee’s average weekly earnings, whichever is lower.

This isn’t a king’s ransom and is all employees get, unless the employer is generous and pays more contractually. As a result, Lee’s firm in his belief that the area of entitlements needs more reform – “in part that means more time, but really means improving the rate of statutory pay, as the current flat rate means that an increasing number of new dads are struggling to even take two weeks”. To back his view he quotes a June 2017 study from the TUC; it found that one in four men who became new fathers in 2016 were not entitled to any paternity leave at all, and were forced to head back to work within days – or even hours – of the birth of their child.

Statutory paternity leave itself is a relatively recent policy which Han-Son finds hard to imagine was only launched in 2003. He says "I’ve heard from hundreds, if not thousands, of new dads who all say the same thing: ‘the two weeks of statutory paternity leave simply weren’t enough’ and it meant that when they returned to work they were physically present, but mentally in a totally different place.”

But apart from statutory leave, it’s worth remembering that employees also have a right, after a qualifying period of 26 weeks of employment, to request flexible working, such as working from home. However, as Arwen highlights, “although such requests must be considered,
they can be refused in certain circumstances and might not be suitable for certain hands-on roles”. Even so, where a request is made and refused, employers need to demonstrate good and fair reasons for the denial.

A relatively recent development is shared parental leave that was introduced in 2015. This leave enables a mother or adopter to bring their maternity leave to an end early and transfer any remaining leave and/or pay to the father.

However, it’s not been a roaring success, says Arwen – “take-up has been slow, but this may be due to a lack of awareness of the possibility”.

In fact, a February 2018 report on the BBC reckoned that take-up could indeed be very low. It quoted the Department for Business which said that some 285,000 couples qualified (at that time) for shared parental leave but that only 2 percent did so – well below the 8 percent that was predicted for the new right. It’s for this reason that Arwen says that employers should explain to employees that shared leave is a right for those who have been in a post for least 26 weeks by the end of the “qualifying week” – the 15th week before the expected week of childbirth.

Help new fathers to support their family

While time out of a business, for whatever reason, isn’t necessarily going to cause harm, it’s not going to help. This makes it even more important for employers to proactively think about the process of helping new parents. Arwen thinks that above all else, one of the most important things – both operationally and from an employee relations stance – “is regularly checking in with new parents to ask how they are, from a pastoral care perspective. Having a new addition to the family is often a massive change.”

Employers could also consider offering a temporary reduction in hours – salary pro rata – alongside flexible start and finishing times to help with school drop-off and pick-up of older children, for example. Employers must be consistent in the application of this to avoid discrimination claims.

Something else not to be forgotten should be that while some employers offer an enhanced maternity policy to new mothers or primary caregivers, “recent case law,” says Arwen, “has decided those same enhancements do not need to apply to shared parental leave” – although that could potentially be appealed further through the courts.

Her advice to those employers in this situation – who have an enhanced maternity package in place and who want to encourage staff to take shared parental leave further – should be to enhance the former to make it more attractive to new parents.

A happier workforce?

It’s encouraging for Han-Son that corporate attitudes are changing: “Parental leave is an area that has been a big focus area for many more enlightened companies over the last 12 months. And [many firms] have now offered far more enhanced forms of parental leave, which is hugely encouraging.”

Arwen agrees, adding that “new fathers who feel they are ‘understood’ by their employers, particularly when it comes to such a significant period of upheaval in their lives, will often return as more engaged, positive employees”. Even so, we’re back to the thorny problem that the take-up remains low and traditional thinking is still prevalent.

While a business can benefit from proactively encouraging staff to take parental leave, should it be billed as an employment incentive? Han-Son thinks not. In his view “it’s like saying maternity leave should be part of the employment incentive”. He reckons that businesses that don’t help fathers will very soon be left looking like the odd ones out – and that will affect their recruitment and retention.

The future

Shared parental leave in the UK is relatively new and it’s been an enormous change in the law. What worries Lee is that “paternity leave is only for a set amount of time – it’s what happens after that that engrains a parent’s experience at work”. [312x729]news | jobs | forums | free CPD | events

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The RCVS has invited me for interview: what should I expect?

You could have conditions imposed on your practising licence if you are found to be in breach of your professional obligations

Should you be invited to an interview or be subject to an investigation we suggest the following:

- **Lean into the situation** – you will be surprised how supportive and reassuring your colleagues and practice managers can be. A referral to the RCVS is often a stressful experience and especially so for those surgeons and nurses with otherwise unblemished records.

- **Put your best foot forward** – in any response that you are invited to submit, ensure that you fully understand the allegations made against you and systematically work through them with an experienced and trusted advisor. Take appropriate advice and do not capitulate when you do not need to.

- **The burden of proof rests with the regulator** – do not be tempted to make admissions of liability when you do not need to or where the evidence against you is simply not there. Allegations against you need to be proved on the balance of probability. Similarly demonstrate proactive mitigation and insight if you believe you are at fault.

Recent case

It comes as no surprise that regulated individuals hold a position of trust and responsibility, and clients expect you to conduct yourself in a way that justifies this trust. With this status, veterinary surgeons and nurses carry a burden of accountability which at times can appear to be fragile and be eroded easily.

We have recently represented a professional who was referred by their regulator to its "Fitness to Practise" panel to respond to four serious allegations. Possible sanctions faced by our client included strike-off and suspension. These are punitive, effectively career ending, punishments.

Managing your expectations and obtaining a successful outcome

After a two-day hearing involving expert cross-examination of the witnesses and submitting well-versed submissions and advocating persuasive representations on our client's behalf, the conduct panel found that the individual's fitness to practise was not impaired. The client remains able to practise with no restrictions and they were exceptionally grateful for our assistance.

It may be reassuring to know that only a very small number of concerns that are raised with the RCVS are progressed beyond the initial stage (assessment and investigation of the concern) and similarly only a small number progress beyond the second stage (consideration of the information by a committee) to the third and final stage (a disciplinary hearing).
Crafting a successful newsletter

There are a number of things you can do to help you create something that your customers will want to open and read.

When you are sending out regular email newsletters, you don’t want to be using your own email account, so the first step you will need to take is to sign up to an email marketing platform. These programmes make it easy to create a professional looking reusable email template, and will allow you to monitor and record the success of each month’s newsletters.

Branding and design
A newsletter should look great and be easy to read. Use your company’s branding colours in buttons or headings. It’s recommended to keep the main background of the email white with large black text so it can be read by everyone.

When you are making your template, don’t forget to clearly link to your social media and website in your footer, so that these links are easy to see and use.

Craft engaging content
The ideal newsletter contains around one to three topics. This could include a top story with topical info for the time of year, such as Easter chocolate dangers or flea and tick facts. You can then have a second story about a current special offer or the benefits of signing up to your health plan.

You should also always include one call to action in each newsletter you send out. Every newsletter should have a simple call to action included, whether that’s to book an appointment for the latest special offer, or get more sign ups to your health plan. You can help nudge people into taking action by putting a large clickable button in each email that asks readers to “click here for more information” or “book now”.

Human nature is such that large amounts of text on a page will dissuade people from reading further, so keep your emails short and simple: one paragraph per topic is fine. Put things into short sections with easily scannable headlines, and use bullet points where you can – anything to reduce the amount of words on the page. A great way to do this is by first publishing a full story on your practice website and then put the opening paragraph in your email with a link back to your website to read the complete article. Another important thing to do is to write each email as if you’re talking to a friend; don’t be too dry and business-like. Imagine your target customer and speak to them in an open and engaging way about the things they might be interested in.

Images
The amount of people that read your newsletter will depend to some degree on the quality of the images you use. Ideally you have a portfolio of lovely shots of your practice team that you can use to complement your text, but if not, consider signing up to an image platform to purchase friendly stock images to use.

Sending out your newsletter
Before you send out your newsletter it’s vital to run your client email lists from your practice management software less than 24 hours in advance, so that you can be sure that you’ve removed any recently euthanised pets from your list. Remembering to do this will potentially save you and upset owners a lot of heartbreak, so don’t forget!

Use mail merge functions to personalise each email with the client’s name or pet’s name as this feels more personal and friendly, and makes your subscribers more likely to open it.

Spend some time creating enticing email subject lines that stand out in the inbox. Don’t be vague or spammy – make it exciting. You can search online for examples of good email subject lines and adapt them for your own newsletter.

Test, test, test!
You need to test your email before you send it out. Once you’ve pressed “send” you can’t fix any mistakes. Test, test and test again. Your email platform should allow you to see exactly how your newsletter will look before sending it out, and you should send a test email to yourself and someone else to have one final look as to how it will appear to your subscribers.

It’s also worth remembering that more than half of all emails are opened on mobile devices so make sure you also check how your email loads in mobile before sending.

Measuring success
Always make sure you’re keeping an eye out for your email newsletter performance. Track your monthly open rates and see what works and what doesn’t, what links people are clicking on and then tailor your content accordingly.

The things worth measuring to gauge your success are: clickthroughs on your call to action buttons, monthly open rates and your address list growth.

Overall, you will need to be consistent, and make sure that you commit to doing one email per month and keep doing them. The benefits will compound over time and your consistency will pay off as your entertaining and informative newsletters help you grow your revenues and build trust with your customers.

MARKETING
Today I write from a classroom I am sharing with an 11 and a 13-year-old. This classroom closely resembles a domestic kitchen, the main difference being the abundance of old and dysfunctional laptops and computers that have been resurrected to equip it. The other difference from a normal classroom is the lack of any other children and teachers. The PE class has been completed courtesy of Joe Wicks in the school gym/living room. I am off work today as our practice has gradually stumbled back into a new, weird, inefficient normal. My four-day week has been reinstated after months of an all-or-nothing working rota many of us have had to put up with after furlough was introduced.

It has been interesting following the commentary delivered on veterinary social media on the furlough scheme and how practices have been managing. When we can look back on this with some historical perspective, I think that the vet profession can be fairly proud of itself. Not everything has been done right, but we have continued to provide a service to people and their pets, maintained animal welfare provision, kept the food chain moving, kept horses sound, etc, all through the most restrictive of the lockdown times and times when outright fear of the virus has been great.

I remember driving past the opposition practice the first week lockdown was eased (week seven of the three-week lockdown, end of May as I remember) and seeing the vets in the car park. They were speaking to the clients in the wind and drizzle, plastic gowns flapping in the wind, masks in place. It was a sign of the times and looked both heroic and also slightly ridiculous – ridiculous in that if someone had told me six months ago this was how we would all be working, I would have given it no credence.

I posted a poll on a well-used vet forum that week and out of 336 respondents, approximately 70 percent were not allowing clients in the building at all, 19 percent were very occasionally but in full PPE, 6 percent were allowing clients in the waiting room but not the consult room and 5 percent were allowing clients in for PTS consults only. Medications were being dispensed out of windows and across tables blocking doorways. Farm and equine vets who normally work outside anyway were having to find ways of restraining and working with their larger patients and keeping the regulation 2m from clients. The country has never seen anything like this before and the vet profession has kept their services running remarkably well for the public, at great hardship for the workers and financial strain for practice owners.

The furlough scheme has been the one and only help from the government for vets in all this. We did not qualify for business rate relief or any other grants. Loans are available. At the start, the banks were demanding that practice owners give a personal guarantee for these. This means that although the government was guaranteeing the loans up to 80 percent, the bank would come after the individual first. So, the government was backing the loans, but only after the bank had come after your house and personal life savings first. The banks had their wrists slapped on this and the government now is the primary backer. But at the time it all started practice owners had to put their home on the line to take these loans. I remember thinking that if things get worse it will just be the banks and cockroaches left to rule the planet. We managed to arrange a two-month loan repayment holiday from our own bank for a property loan we had. It took them two months to provide us with the paperwork to do so!

So, in the worst cash flow period they were no help. Most practices, furlough was the only way that outgoings could be reduced as turnover dropped. Wages are usually the biggest outgoing for a practice but still only around half of the outgoings – rents, rates, insurance, utility bills, drug bills, VDS subscriptions, loan costs, lab finance payments, etc, still need to be paid. None of those went down when the income dropped.

The next stage is still unclear – what will happen or when. So, for now, put on your plastic apron and join in the national game of ‘which car is my client hiding in?”
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