## ONLINE EDITION VOLUME FOUR | ISSUE FIVE | SEPTEMBER/OCTOBER 2016

# FOR PERSONAL & PROFESSIONAL DEVELOPMENT

## **Effective altruism**

A new ethic for veterinary practices?



Mastitis therapy Some new approaches

**Isolation techniques** Nursing the infectious horse **Dentistry** Need and delivery

An introduction to CT scanning Life in 3D

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## UP FRONT...

## Recognising the Olympian in you.

Such is the nature of a bimonthly journal, that this editorial is being written on the eve of the 2016 Olympic Games in Rio. Mixed in with the excitement and anticipation in the world's media are recriminations about the cost of the event to a host nation that already has a struggling economy, whilst questions about the extent of doping hang like a cloud over the celebrations.

But despite these reservations, Simon Kuper, writing in the *FT Weekend* (30-31 July) emphasises that we can expect that Olympic heroes will emerge from obscurity – 'when a clerk from Sydney or a housewife from Amsterdam wins, one of us becomes champion of the world ... Each Olympics is a retelling of the same narrative: ordinary people achieving greatness before a watching world.'

There is something in that notion for all of us as veterinary professionals. Except that *our* Olympics run on a constant basis, day after day, year after year and we are expected to achieve greatness in all that we do. Every case is a race to be won and every encounter with a client is a chance to shine.

Most of the time – just as with Olympic athletes – we struggle with long hours of humdrum routine, of doubts about our ability to make a difference, of effort seemingly unrecognised. But to the owner of that dog with periodontitis that they hadn't noticed and which has now stopped rubbing its face on the carpet, whose breath has stopped smelling and who "just seems like a puppy again", we are heroes.

To that despairing dairy farmer who – at a time when milk prices had reached rock bottom and his herd cell count inexplicably increased – witnessed the benefits of strategic application of dry cow therapy according to each individual cow's microbiological needs, you are a hero.

To the owner of that dog with hip dysplasia that began to walk properly again so soon following a combination of surgery, appropriate pain control and physiotherapy, you are a hero.

To paraphrase Kuper. Every day in veterinary practice is a retelling of the same narrative; of ordinary veterinary professionals achieving greatness before a watching world.

**David Watson** Editor

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## Evidence-based corporate social responsibility – a new ethic for veterinary practices?



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There surely isn't a week that goes by without the publication in the veterinary press of group photographs of beaming practice teams at their annual open day or pet show or family fun day. And then there are the reports of crazy, super-fit or brave vets taking on a challenge – all for a good cause, of course. And finally, we see articles from veterinary professionals who have engaged in a spot of 'voluntourism' – taking their skills to far-off places to help people and animals who might otherwise not access veterinary care.





Figure 1. Examples of CSR activity.

Laudable as these activities may be, do we, as vets and practices, have a moral obligation to give any more to society than the help we already provide through day-to-day practice? And if we're going to do something, what should we do?

## Corporate social responsibility - why do it?

The concept of corporate social responsibility (CSR) has been growing for some time and is now formally adopted by major companies in all sectors. It has been defined as 'actions that appear to further some social good, beyond the interests of the firm and that which is required by law' (McWilliams and Siegel, 2001). Disentangling the interests of the company - in other words, profitability - from CSR activities can be difficult. Have you been more easily persuaded to buy that bacon burger because you know it is made with free-range pork? Perhaps. But what about because the firm uses low-energy light bulbs and provides places to stay for families of children undergoing hospital treatment (McDonald's UK, 2013)? When asked whether companies are justified in pursuing charitable endeavours that support their business strategy, the ethicist, Peter Singer, replied: 'They may be justified in pursuing such endeavors; the question is whether they should count as charity' (Parkinson and Singer, 2014).

There is a range of activities that companies and their employees might undertake in the name of CSR. So, in some cases, veterinary practices may include raising money to donate to charity, but also supporting efforts to help strengthen their local community and the provision of professional services (**Figure 1**).

Whilst the jury is still out on whether CSR truly increases profitability, there are good reasons for veterinary practices

to undertake CSR activities – after all, we are already a caring profession and, therefore, CSR easily accords with our core individual and corporate values. In addition, engaging in CSR has been shown to increase customer satisfaction and staff retention (Carroll and Shabana, 2010). Perhaps this latter effect is down to the rewarding nature to an individual person of behaving altruistically.

Neuroscience experiments have shown that reward centres in the brain are activated by altruistic activity (Harbaugh et al, 2007) – in other words, altruism makes us feel good! A number of explanations for this have been proposed and reviewed (Kurzban et al, 2015). From an evolutionary perspective it may be that it is beneficial to us in gaining respect from others or making us more likely to receive reciprocal help. Or it may be that altruism is driven by empathy for others, an important feature of humans that has helped us live successfully in close social groups.

## Do veterinary professionals and practices have additional responsibilities to act charitably?

Nearly all FTSE 100 companies make donations to charity (Charities Aid Foundation, 2014) and in a typical month, 58 per cent of UK adults donate to charity (NCVO, 2012). So do vets have a responsibility to do more than others in society?

Well, first we could consider where this obligation might come from. Perhaps it's because we have the opportunity to do more. In veterinary practice, situations frequently arise where we could act altruistically or fulfil corporate social responsibilities – for example, by providing pro bono treatment to benefit animals. This type of direct and easily-acted-upon opportunity – arising through our training and having occasion to do good – doesn't actually come up that often for many other people in society.

## Or perhaps it stems from being part of a caring profession – giving us a particular requirement to operate in this way in other spheres of life as well?

Neither of these arguments seems particularly strong to me. Should society just expect that caring professionals – with

*Figure 2.* Effective altruism questions to determine the most effective actions (Macaskill, 2010).

- how many people [animals] benefit and by how much?
- is this the most effective thing you can do?
- is this area neglected?
- what would have happened otherwise?
- what are the chances of success, and how good would success be?



their opportunities to act directly - will take up the burden of charitable activity, whilst others ride on by? No.

Yet, the fact that we don't have additional responsibilities to act altruistically towards 'others' in society doesn't mean we should do nothing. And if we consider – as I do – that a fair way to approach this is for us all, whatever our role in life, to do what we can; then perhaps, although our responsibility is no greater than 'the others', in practice we may be able to have a greater effect. Which leads me to my second point – that we should focus on the most effective activities.

### Effective altruism – an emerging movement

The philosophical theory of utilitarianism aims to maximise the good for the greatest number. This seems a 'just' approach to many, especially when layered on top of the protection of some basic rights. However, in practice, deciding what a 'good' is and just how to maximise it for 'the many' may not be so easy. Here is where an emerging field of utilitarianism comes in – where the focus is on individuals and groups, such as companies, to carry out all actions in such a way as to provide the most benefit (**Figure 2**).

Good intentions are simply not enough. Evidence is required to really make sure that our actions – including donations to charity – are achieving the most benefit they can, in a world where neighbours near and far are equally worthy of moral

## Table 1. What would you do? What would your colleagues do?

If you had	To be most effective would you:		
1 hour	Write to your MP about non-stun slaughter?	or	Meet with your local councillor to discuss stray dog treatment?
£1,000	Donate it to a charity supported by Animal Charity Evaluators (www.animalcharityevaluators.org)	or	Run a clinic to treat animals belonging to homeless people?
A yearning to travel	De-sex dogs for aboriginal communities in the Australian outback?	or	Be a veterinary adviser on a mule trek in Morocco?

consideration (Macaskill, 2015; Singer, 2015). The logic is strong and, in our increasingly evidence-based veterinary world, it is seductive. Naturally, however, there are some difficulties.

Firstly, obtaining the evidence of effectiveness is not always easy. The proponents of this form of effective altruism, such as Peter Singer and William Macaskill, accept this, but suggest that trying to evaluate the impact is better than not. They have also supported setting up websites to do exactly that for charitable donations to people – www.givewell.org; www.thelifeyoucansave. org, for instance – and for impact during working life, www.80000hours.org. There is now a charity evaluator aiming to identify the most effective ways of donating money to reduce animal suffering too, www.animalcharityevaluators.org.

Secondly, this leads to some tough decisions, with logical conclusions with which it may be hard to come to terms (**Table 1**). For example, Peter Singer has spoken out against supporting 'make-a-wish' charities for sick children, arguing that the money could do more good being spent on life-saving treatments – and be even more effective in the developing world. He suggests we should not train guide dogs for blind people in the developed world, when the money to support just one dog could prevent 400 to 2,000 cases of trachoma-induced blindness in a poorer country (Singer, 2015).

#### Effective CSR – take a busman's holiday

Veterinary skills are relatively rare in our society; so it might, therefore, be more effective for us to volunteer our veterinary skill sets, rather than to raise money and donate to charities in ways that other people without our skills can. This approach extends beyond just the veterinary surgeon providing treatment – all members of a veterinary team have unique skills, including nursing and organising veterinary activities, that can provide effective CSR. Depending on the need and the skills available, this could be anything from running free clinics for those unable to access veterinary care, to taking on wildlife treatment or providing free advice to councils or rescue charities on animal welfare issues. But, it is important to try to evaluate the impact of each action.

For example, is it better to talk to a class of six-year-olds about pet keeping or to talk to your local pet shop in order to try to improve the quality of advice available to purchasers? I would suggest the latter is likely to be more beneficial in the long run. But it could be possible to increase the impact of some activities – for example, by only giving class talks to older children, encouraging parents to attend, and using communication methods designed to promote behaviour change in people.

#### And finally...

If there are other reasons and benefits to engaging in the types of CSR and charitable activities that plenty of other people in society could do, then go ahead. By all means, hold a cake sale or run a marathon if you want to. If you enjoy baking or running and will do it anyway, then harnessing your hobby for charity is definitely a good thing to do.

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\*Suggested Personal & Professional Development (PPD)



DENTISTRY

## Dentistry – need and delivery

Dental and oral conditions are a very common finding in small animal practice. The term 'dental disease' covers a long list of oral cavity problems. Some conditions are very common, with others less so. Management papers over the years have encouraged practices to embrace dentistry and many do so very successfully. However, there is a long-held perception that there is both a compliance problem with regard to advice to owners and a failure to address fully the clinical need in the pet population. This article will tackle both the 'need' to address the problem and the 'delivery' of the service.

#### The need

A cross-sectional study of over 31,000 dogs and 15,000 cats (Lund, 1999) was carried out to determine age, breed, sex, body condition score and diet of dogs and cats examined at private veterinary practices and estimate the prevalence of the most common disorders for these animals.

The top two most common findings, by far, in both groups in consulting room examinations were dental calculus (20.5% dogs, 24.2% cats) and gingivitis (19.5% dogs, 13.1% cats). No other disorder in either species came near to these figures.

In dogs, the prevalence of otitis externa was the next most common malady at 6.8 per cent. In the cat group, flea infestation was the next most common at 9.2 per cent. Interestingly, healthy animals were also logged and they accounted for 6.8 per cent of presentations in dogs and 9.5 per cent in cats (**Tables 1** & **2**).

Clearly, the oral cavity represents a huge area of opportunity for the small animal practitioner (**Figure 1**). Despite this, many practices still fail to benefit. The high prevalence of dental disease in otherwise 'healthy' animals may lead to complacency. In addition, very few owners actually arrive at the practice seeking help for animals with an oral/dental condition.

The American Animal Hospital Association (AAHA) Financial & Productivity Pulsepoints Study in 2002 estimated this level at four per cent – which means that 96 per cent of all practice dental work appears to be generated from the consulting room

**Table 1.** Top 10 canine diagnoses by age category (Lund, 1999)

0-7 years (n=24,165	5)	7–10 years (n=6,699)		10-25 years (n=8,692)	
healthy	34.2%	healthy	15%	oral disease	13.6%
oral disease	5.8%	oral disease	13.7%	healthy	6.9%
otitis externa	5.8%	otitis externa	5.8%	nuclear sclerosis	3.1%
dermatopathy	3.6%	dermatopathy	3.2%	arthritis	3%
lameness	1.3%	tumour	2%	tumour	2.8%
roundworms	1.2%	lipoma	1.9%	otitis externa	2.7%
conjunctivitis	1.2%	conjunctivitis	1.2%	cardiac murmur	2.4%
fleas	1.1%	arthritis	1.2%	lipoma	2.3%
lacerations	1%	anal sac disease	1.2%	cataract	2.2%
anal sac disease	1%	lameness	1.1%	dermatopathy	1.5%

Table 2. Top 10 feline diagnoses by age category (Lund, 1999)

0-7 years (n= 9,148)		7-10 years (n=1,795)		10–25 years (n=2,981)	
healthy	34.2%	oral disease	20.1%	oral disease	19.5%
oral disease	<b>9.9%</b>	healthy	18.9%	healthy	11.9%
ear mites	4.4%	cat-bite abscess	2.5%	chronic renal failur	e 2.4%
fleas	2.7%	dermatopathy	2.3%	weight loss	2%
cat-bite abscess	2.6%	obesity	1.6%	cardiac murmur	1.8%
upper respiratory tract infection 2.2%		fleas	1.5%	hyperthyroidism	1.8%
tapeworms	2%	animal bites	1.5%	tumour	1.7%
conjunctivitis	1.7%	ear mites	1.4%	diabetes mellitus	1.4%
roundworms	1.4%	upper respiratory tract infec	ction 1.3%	cat-bite abscess	1.4%
dermatopathy	1.3%	vomiting	1.3%	vomiting	1.3%

by diligent examination. If the practitioner fails to look in the oral cavity, much will be missed. The fact that few owners ever look in the mouths of their pets – coupled with their being unaware that a problem exists at all – may mean an uphill battle convincing them that action is required.

Often there is also a 'conspiracy of inaction' taking place in the consulting room. If the clinician does not understand the significance and consequence of what is seen, the opportunity to treat it is missed because it may not appear abnormal or worth treatment. It then becomes a welfare problem for the patient. On many occasions, the consulting veterinary surgeon may ignore dental pathology or advise the client to "wait and see what happens". The client is happy with this advice as he or she believes the opinion of the veterinary surgeon, no action is required and this option costs them less. However, the patient might not be so happy!

A simple example is a fractured tooth. Most humans would seek dental help within hours of a tooth fracture. If the pulp is exposed, pulp inflammation and infection will follow. Pulpitis is toothache. It will be present until the pulp dies after a few weeks or so.

The sequel of pulp death is leakage of bacteria and toxins through the canals in the root apex into the surrounding bone. This is followed by granulation, osteomyelitis abscessation and lots of pain. Yet many times a clinician, faced with a dog or cat with a tooth fracture and no overt pain, will be content to "wait and see what happens".

An often-used phrase in calls to this clinic is, "I saw a dog today with a broken tooth and it's not sore". The first part of the sentence is a true observation and the second part is subjective by the person that does not have the broken tooth (**Figures 2 & 3**).

Marketing manuals tell us to "give Fido a dental for his birthday". Why wait months to treat him for an active clinical infection? Do the dental procedure now and give him a ball for his birthday. Animals are conditioned not to show overt signs of pain or illness - to do so makes them appear weak and vulnerable among their peers. Also the lifestyle of a human and an animal differ markedly. Pets do not need to concentrate to read, work, drive, watch TV or browse the internet. This does not mean they do not feel pain – they just suffer in silence.

## The delivery

Knowledge, confidence, commitment and team work are the keys to delivery of a successful dental service. Without the support and backing of the practice management team, the staff providing the service are ill-served. Future articles will address these points and provide solutions.

There are three tools that help deliver a good dental service. Two of these cost next to nothing – plaque disclosing solution and dental charts. The third is relatively inexpensive – dental radiography. It is no understatement to say that it is impossible to perform competent dentistry without dental radiographic equipment.

## **Disclosing solution**

Disclosing solutions for veterinary use are simply a dual tone dye that is placed onto the surface of the teeth with a soaked cotton bud. The soaked bud is applied to the buccal surfaces (usually) of the teeth and left for 30 seconds. The purpose of the two colours is to differentiate new and aged plaque. New plaque is less than 24 hours old. It is a biofilm of bacteria,



*Figure 1.* Cat suffering from periodontal disease showing heavy calculus cover.



Figure 2. Fractured left mandibular canine with file in open pulp access.



*Figure 3.* Fractured left maxillary carnassial. Buccal slab lost and pulp exposed.



Figure 4. Left side, dog, before application of disclosing solution.



Figure 5. Left side, dog, after application of disclosing solution.

food debris and salivary proteins that humans remove with a toothbrush. Aged plaque is a thicker biofilm that is beginning to mineralise and denotes areas of poor oral hygiene (Figures 4 & 5).

Disclosing solution can be used immediately before a dental procedure and the tooth scored - photographs can be very useful to show owners. It should also be used at the post-dental check-up before brushing is initiated and at every routine six-month dental review. Disclosing solution is very inexpensive, very informative and very visual. The owner can immediately see where problem areas lie and can take measures to

improve their daily brushing routine. The gold standard for toothbrushing of dogs is daily - frequency of brushing less than three times weekly is considered ineffective (Tromp, 1986).

There are kits available in the veterinary market that provide individual pre-loaded cotton buds but the cost is substantially higher than a 30ml bottle (Figure 6).

## Charting

Charting the mouth before, during and after a procedure requires the operator to examine all surfaces and attachments of all teeth. Nothing is missed - including problems arising from missing teeth (see 'Dental

standard operating procedure (SOP) it should be done for every case without exception. **Benefits** charting is essential to

record the presence of

,000,

8 4 6

radiography' on the next

page). Dental charts are an

clinical record for all dental

procedures (Figures 7 & 8).

suits your purpose and clinic

record system. They form an

important part of an animal's

It is interesting to note that

us - fewer than 10 per cent

chart is part of your dental

come with charts. If a dental

- of the cases referred to

Many different charts are

available - use one which

lifetime oral records.

essential part of the animal's



Figure 8. Feline dental chart.

health and/or disease in a form that can be used now and later. It is clinically a very good habit to develop as it requires every tooth to be examined at every dental procedure. Pathology is less likely to be overlooked

- charts are necessary for medico-legal protection. They specify which teeth and what pathology was present before treatment was started. 'Missing teeth', for example, may be highly significant because they might not be missing - just not visible. If a procedure is questioned at any future point, a chart is worth more than gold. Tooth health is scored from 0 to 3 using standard indices for calculus, gingivitis and, if necessary, plaque. Each tooth has a health score out of 6 (or 9 with plaque)
- dental pathology is easily drawn on a chart, thus saving time
- extracted teeth are 'X' out. It is easy to tell a client how many teeth you removed, where from and why with a chart in front of you
- the success (or otherwise) of treatments is impossible to gauge over time without the proper information gathered at the initial treatment
- clients are impressed by charts in a form they can easily understand and can



Figure 6. Disclosing solution.



Figure 7. Canine dental chart.





Figure 9. Satelec X-Mind dental X-ray generator.

Figure 10. Computed radiography (CR) scanner.

use to play their part in the maintenance of the oral cavity of their pet.

## Dental radiography

Over 70 per cent of any tooth is invisible to an oral examination. There is hardly any area of dentistry that does not benefit from a radiograph - in our practice we might take several hundred daily.

Learning intra-oral dental radiography is not difficult – normally about two to three hours in a practical session is enough. The keys to successful dental radiography include:

- use a proper dental X-ray machine (Figure 9).
   Wrestling with a standard machine is pointless, time-consuming and, ultimately, frustrating. New dental X-ray machines are available from around £2,500 and these machines will pay for themselves over a few weeks and improve your dentistry markedly
- position the machine next to the dental table. If it's there, it's used. If it's in the room down the corridor it will gather dust
- if you are contemplating digital imaging, invest in a good quality scanner that will take all sizes of dental films from 0 to 5 with a resolution of at least 20 line pairs/mm (Figure 10). Some

scanners will not take a full size 4 meaning a canine tooth needs two exposures.

Standed operating procedure should specify a minimum protocol with which to trigger dental radiographs. A good starting point is:

- all missing teeth with no previous history of extraction or investigation. They might not be missing

   just not visible. Think wisdom tooth or retained fractured roots
- traumatic damage to a tooth or teeth (Figures 11 & 12). This covers all fractured or discoloured teeth, with or without pulp exposure. If a tooth takes enough force to fracture the crown, there is a high possibility the roots or the supporting bone have also been damaged. This includes teeth with dental caries and tooth resorption
- all cases of feline tooth resorption lesions (feline TR, previously called FORL) require all the teeth to be radiographed. Not to do so will miss early lesions not visible on gross examination
- all teeth with periodontal probing depths of more than 4-5mm (Figures 13 & 14). A pocket of this depth means some loss of bone height. Attachment loss can be identified as significant or not, along with the presence of



Figure 11. Sinus dorsal to left maxillary carnassial tooth. No cusp fracture visible. Gutta percha rubber stick in sinus to show origin.



Figure 12. Radiograph shows stick at origin of sinus. Tooth immature compared with adjacent teeth indicating pulp death around 12 months of age. Substantial changes in bone surrounding root apices.



Figures 13 & 14. Periodontal probe inserted 9mm into pocket interdental space left mandibular premolars 3 and 4.

deep and infected pocketing. Cases with more than 50 per cent attachment loss are rarely worth treating without knowledge of advanced periodontal surgery.

Full-mouth radiographs are now being performed more often as a routine procedure because the diagnostic harvest is so high and digital scanners make it so rapid. Papers (Verstraete, 1998; Tsugawa, 2003; Kim, 2013) over the years show that full-mouth radiographs reveal hidden clinical pathology in 28 per cent or dogs and 42 per cent of cats in an otherwise normal mouth. Furthermore, additional pathology is found in 50 per cent of dogs and 54 per cent of cats with other abnormal findings. These facts are hard to ignore when we refer back to the 'conspiracy of inaction' described earlier.

#### Summary

An effective dental service is an important part of the 'cradle-to-grave' health care package a practice needs to offer its small animal patients.

The level of oral pathology in our small animal patients has been well described in surveys over the years. Failure to recognise and treat these needs mean not only poor animal welfare but also a failure to address an important income stream for the practice.

In a short series of articles, we hope to address the key issues that act as barriers to effective dental delivery. These include improved knowledge leading to enhanced confidence that should lead to improved compliance. Commitment and team work will also be addressed.

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Financial & Productivity Pulsepoints: vital statistics for your veterinary practice. American Animal Hospital Association. AAHA Press, 2002.

Answers 2. to sho 3. 70% 4. 42%.

## PPD Questions

- 1. According to the *Financial & Productivity Pulsepoints Study* by the AAHA in 2002, what proportion of owners arrive at a veterinary practice seeking help for an oral or dental condition affecting their pet?
- 2. What is the purpose of using disclosing solution on teeth and why are there two tones within the solution?
- 3. What percentage of a tooth's structure is invisible to a gross oral examination?
- 4. According to the 1998 Verstraete study, full-mouth radiographs reveal hidden pathology in otherwise healthy looking mouths in what percentage of cats?

1, 4% 2, to show the presence of dental plaque and to differentiate between immature and mature plaque

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Stephanie Williams BSc(Hons) Diagnostic Radiography

Stephanie graduated as a diagnostic radiographer from University Campus Suffolk in 2009. She worked in the NHS for 6.5 years – at the Bradford Royal Infirmary and then at the Hammersmith Hospital – until January 2016, when she swapped humans for animals and began as lead CT radiographer for Ipswich Veterinary Centre.

In addition to running the CT service, Stephanie is deeply involved with delivering top quality CPD to veterinary surgeons and nurses on the subject of imaging. She describes herself as "animal mad" – having three horses, two chinchillas and a re-homed cat called 'Trev' – and is a keen showjumper in her spare time.



\*Suggested Personal & Professional Development (PPD)



IMAGING

## An introduction to veterinary CT scanning – life in 3D

For many years now CT scanning has been a valuable diagnostic tool in hospitals and other healthcare settings. Providing a speedy diagnosis in acute and chronic scenarios, this form of three-dimensional imaging is now finding its way into the veterinary world, enabling us to look at animals in a whole new way.



Figure 1. The CT scan team in action.

## The physics

CT stands for computed tomography – tomography being the method of taking images in slices and computed because the images are viewed and manipulated using computer software. In one scan there can be hundreds of slices which, when put together, produce the image we see on our computer screen

The scanner consists of a circular structure called the gantry, through which the patient passes on the scanning

table. (Figure 1). Within the gantry is a series of fixed detectors and a rotating X-ray tube. This tube rotates around the gantry at the same time as the patient travels through. The X-ray beam passes from the tube through the patient and then hits the fixed detectors on the other side.

You will often hear of CT scanners being talked about in terms of slices. There are many different configurations – from single slice to 320 slice. The greater the number of slices a scanner has, the faster a scan can be performed. So, for example, a 16-slice scanner will acquire 16 slices worth of images per single rotation of the X-ray tube; whereas the 320-slice scanner will acquire 320 images in the same time as the other scanner takes to do 16 images.

From an anatomical perspective, the various structures in the body have different densities. As the X-ray beam passes through the body, it is attenuated by these structures such that different levels of radiation will exit the patient and hit the detectors. This is known as the attenuation coefficient.

Bone will attenuate more of the X-ray beam than air in the lungs, for example. The

"There is even the potential for 3D printing so that, in theory, surgeons can try implants and plates on true-to-size bones prior to surgery" amount of radiation received by the detector is measured in Hounsfield units – named after British engineer, Godfrey Hounsfield, who began creating the first ever CT scanner in 1967. These values are then transmitted to the computer and an image is reconstructed using a pixel matrix.

The usual matrix size is 512 x 512, with each pixel representing a 'voxel' because CT data are volumetric. These pixels will each have a value that corresponds to how black, white or grey they are. So on our scan we can expect to see bone as a white structure, soft tissue as grey and air as black.

It only takes a short period of time to perform the scan and to gather data. Most patients are anaesthetised for their scan, so the speediness of the scanner means anaesthetic time is reduced. Once the scan is complete we can use the computer software to view and manipulate our images.

## **3D** reconstruction

As already mentioned, one of the main components of CT is the computer. As our scan is essentially numeric data, we can manipulate it using different windows and histograms to enhance pathologies and build 3D images. 'Windowing' allows us to alter the contrast of our image to enhance certain structures or pathologies without the need to scan multiple times.

For example, if you were to scan an abdomen it is set up with a different window width and window level to that of a spine scan, because the one is looking









*Figure 2.* Windowing – by using a histogram, the computer software enables us to create 3D models of our scan. Whether it is to look more closely at bone or soft tissue, you can take things back layer by layer.

at soft tissue and the other at bone. Should you wish to see bone in more detail on your abdomen scan, you can change these values and your scan will look very different in each window (**Figure 2**).

Using a histogram, the computer software enables us to create 3D models of our scan. Whether it is to look more closely at bone or soft tissue, you can take things back layer by layer (**Figure 3**).

"Now, with the introduction of CT scanning, we are obtaining the answers we want without the need for major surgery"



Figure 3. Soft tissue of a boxer dog's head in 3D.



Figure 4. A 3D model of a supracondylar fracture.



Figure 5. Contrast enhancement within the heart, kidneys and arteries.

This has proved particularly helpful with planning orthopaedic surgery. By looking at fracture sites in 3D, it brings a whole new level of assessment compared with simple radiographs. There is even the potential for 3D printing so that, in theory, surgeons can try implants and plates on true-to-size bones prior to surgery (Figure 4). This will also be excellent for teaching the next generation of veterinary surgeons too.

## **Contrast studies**

As well as looking at the body in three dimensions, we can perform contrast-enhanced studies by injecting iodinated contrast media, such as iohexol or iopromide. Current contrast agents are made up of tri-iodinated benzene rings and can be further characterised as ionic or non-ionic, depending on their osmolality. They are usually injected intravenously so that blood vessels and organs are highlighted. Contrast media can be administered in other ways for more specialist studies - intrathecally for myelography, for example, and orally for gastric studies.

Although they are clear liquids in appearance, when scanned they show up white because the medium attenuates more of the X-ray beam owing to its high atomic number and increased density. So arteries, which would otherwise appear grey, when injected with contrast media are highlighted bright white and it makes it a lot easier to visualise them and any pathology (**Figure 5**).

Contrast is essential in tumour detection and evaluation. Tumours are

often hugely vascular, so on a plain scan may appear as nothing significant, yet after the introduction of contrast medium they will often appear greatly enhanced. CT can also assess how invasive a tumour is, if it has metastasised and if it has responded to treatment.

Historically, if after X-rays and/or ultrasound scans a neoplastic mass was suspected, the next step would invariably be an exploratory laparotomy. Now, with the introduction of CT scanning, we are obtaining the answers we want without the need for major surgery.

## **Injector pump**

Contrast media are very viscous and, therefore, quite difficult to inject. Warming contrast media prior to injection can change the viscosity and make them slightly easier to inject, but ensuring that the injection is at a constant rate is almost impossible.

Injector pumps are widely used in hospital imaging departments and a few are making their way into veterinary CT suites. Hand injecting is fine if it is a small amount of contrast and there is a long delay before the start of the scan. However, if a large volume of contrast medium is needed to be delivered very quickly, then manual injection is simply not sufficient.

By using a pressure injector, it makes injecting a lot easier and you can set a specific flow rate such that you know there will be a constant flow of contrast medium into the vein. Some scans need to start at 25 seconds after the start of the injection; so, for example, if it were a large dog that needed

"With its speed of operation and the generation of images showing such superior detail, CT scanning is revolutionising veterinary diagnostics"

Clinical indications	Pathologies investigated
Neurological	Tumours, meningitis, hydrocephalus, haemorrhage, ischemic and haemorrhagic stroke, pituitary tumours
Oncology	Tumours, metastases, monitor response to treatment, CT biopsy
Dental	Abscesses, periodontitis, tooth-root infection, neoplasia
Respiratory	Pneumonia, pulmonary nodules, inhaled foreign bodies, lung torsion, bronchiectasis, pulmonary oedema, neoplasia, chylothorax, pleural effusion, pyothorax
Urino-genital	Pyometra, ectopic ureters, nephroliths, ureteroliths, renal abnormalities, retained testis, neoplasia, benign prostatic hyperplasia
Spinal	Discospondylitis, degenerative disc disease, neoplasia, atlantoaxial subluxation, fractures, herniated disc
Orthopaedic	Fractures, medial coronoid disease, arthritis, bicipital tenosynovitis, hip and elbow dysplasia
Heart & vasculature	CT angiograms, portosystemic shunts, thrombosis, stenosis, strictures, aneurysm, dissection, neoplasia, pericardial effusions
Trauma	Fractures, haemorrhage, pneumothorax, haemothorax, bowel perforation, traumatic foreign bodies
Gastrointestinal	Neoplasia, bowel perforation
Hepatobiliary	Cholecystitis, biliary calculi, pancreatitis, pancreatic pseudocyst, neoplasia
Ear	Polyps, otolithiasis, otitis media, otitis interna, neoplasia
Lymphatic system	Lymphography, thoracic duct leakage, neoplasia
Nasal	Polyps, aspergillosis, rhinitis, neoplasia, foreign bodies
Post-mortem	Unexplained death

Table 1. Example of the application of CT scanning in human and veterinary practice

80ml of contrast medium, you would be unable to inject the 80ml manually before the time is up. The use of an injector pump guarantees this.

## How can we use CT scanning?

CT scanning is used successfully to demonstrate a wide number of pathologies, both in human and veterinary medicine (**Table 1**).

It is non-invasive and not painful for the animal; and when scanning there is less manipulation of the patient compared with standard X-ray procedures, so it is a good option for arthritic animals. A whole team is present during the scan too – a veterinary surgeon and a veterinary nurse to monitor the patient, plus a radiographer to perform the scan.

CT scanning is, however, not without risk. The radiation dose is much greater than that of the humble X-ray; but, on the 'plus side', it is a lot quicker than taking a series of X-rays, it reduces total anaesthetic time and provides us with a great deal more information. In most cases, the scan will only take approximately five minutes so it is the perfect option in patients where anaesthesia is an issue.

## Conclusion

With its speed of operation and the generation of images showing such superior detail, CT scanning is revolutionising veterinary diagnostics. It is certainly a much-valued tool within our practice and is proving its worth every single day.

## **PPD** Questions

- 1. Who began development of the first CT scanner in 1967?
- 2. What type of rings make up contrast media?
- 3. How is contrast media administered for myelography?
- 4. CT can demonstrate meningitis, nasal polyps and pancreatitis. True or false?

ranswers 1. Godfrey Hounsfield 2. tri-iodinated benzene rings 3. intrathecally 4. true.

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#### Leslie Cox BVM&S MRCVS Cert(IVAS)Acup

Leslie graduated from the Royal (Dick) School of Veterinary Medicine in 1973 and spent three years in practice in northeast Cheshire, before moving to the Bishopton Veterinary Group in Ripon, North Yorkshire. He became interested in acupuncture and attended his first course in 1986, followed in 1997 by a more advanced course from the International Veterinary Acupuncture Society (IVAS).

Leslie is president of the Association of British Veterinary Acupuncturists (ABVA) and sits on the international education committee of the IVAS. Although he retired from general practice in 2014, he still practises acupuncture as a consultant at Bishopton; and he retains an interest in pain mechanisms and the treatment of pain in all species.



\*Suggested Personal & Professional Development (PPD)



ACUPUNCTURE

# Is acupuncture relevant to modern veterinary medicine?

In the modern veterinary clinic, the relevance of acupuncture may not be high on the agenda. In this article, I hope to convince you otherwise.

In veterinary practice today, 'evidence-based' medicine (EBM) is being hailed as the way forward, as it is in human medicine; and there will always be some of us who are sceptical of so-called alternative therapies – with good reason, because, often, there is little to back their claims of success.

## Acupuncture in historical perspective

However, just consider this. Acupuncture has been practised in the Far East for thousands of years. If it has no effect, then why has it lasted so long? It is true that Traditional Chinese Medicine (TCM) nearly died out in China in the early to mid-20th century, but this was largely a consequence of the influence of western medicine in China at this time.

With the advent of Mao Tsetung, China was closed to westerners and their ideas, along with access to modern medicines. So the Chinese had to revert to old principles to treat the population with TCM, which included acupuncture and herbal medicine.

The Chinese, as a nation, are great thinkers and observers, and they handle concepts largely in pictures and write in the same way. Their explanation of how disease and health occur is, therefore, difficult for us to understand and interpret. Their ideas are, however, based on thousands of years of observation and post-mortem examinations.

A standard autopsy procedure for dissection was described in 2697 BC; and the really amazing thing is how they came to their conclusions without all the modern equipment that science has at its disposal. For instance, they discovered the circulation of blood hundreds of years before William Harvey in the west and their determination of the circulation time of blood was quite accurate.

So, in the context of evidencebased medicine, I suggest that it had been practised in China for centuries and had enabled them to come to the conclusions that they did.

## **Ancient texts**

The classical text as to the origins of TCM is the Yellow Emperor's Classic of Internal Medicine, which is a book in the form of a dialogue between the emperor and his clinicians - the main one being his chief physician and teacher, Qibo. There are others, but unfortunately many were lost or destroyed during the reign of Chairman Mao.

These ancient texts were written in 'ancient Chinese', which is different to 'modern Chinese'. It is hardly surprising then that trying to decipher them led to misunderstanding and mistranslation – although Europeans who went to China and tried to make sense of

"There are several advantages of acupuncture that fit well with modern ideas about medicine" what they saw can be excused for this.

Just one example of this confusion was an assumption made by Willem ten Rhinje, a physician to the Dutch East India Company in Java in 1683 before being sent to Japan. He wrongly assumed that the Chinese and Japanese practitioners were sticking needles into people to release entrapped air to cure ailments - much as one pricks a sausage during frying to stop it exploding!

As late as 1921, it was considered that Chinese medicine was saturated with the doctrine of circulating humors and, as such, it was dismissed until the opening up of China during the Nixon presidency in the US and latter part of 20th century.

Further confusion arose from the translation of Channels as Meridians by Georges Soulie de Morant who went to China in 1901 and became interested in TCM. He translated the character 'Qi' as energy, supposedly "for want of a better word". He also translated the character 'jing' in 'jingluo' as meridian, even though both 'jing' and 'luo' refer to blood vessels. His interpretation suggested that there were, as yet, undetected vessels to explain the principles of TCM. Those socalled meridians or channels that the Chinese described were in fact blood vessels, nerves and lymphatics.

It is, therefore, easy to see how the Chinese concepts were hard to understand and caused TCM to become almost a belief system in the west.



A golden retriever receiving electroacupuncture using a Cefar Acus4 stimulating machine. Photo: Association of British Veterinary Acupuncturists.

## From meridians to neurophysiology

There are still many people who hold to the beliefs of an energetic explanation of how acupuncture works; but, with more research being done, it is possible to discover that neurophysiology can explain many of the effects seen after 'needling' patients. There are measurable, physiological changes that occur in the body as a result of treatment.

Stimulation of nerve fibres causes the release of endorphins within the central nervous system along with a number of factors related to pain perception. There is a measurable increase in the numbers of white blood cells and increased phagocytic activity of macrophages, which indicates stimulation of the immune system; and there are changes in the skin temperature and blood vessels around the needling point that persist for a time after needle withdrawal.

## **Historical refinement**

So how did the ancient Chinese come to know where and how to place the needles? To answer this question, we need to go further back into medieval times when available medical treatments revolved around bleeding and burning as the main procedures. Blood-letting was carried out at different places on the body or heat applied to cauterise. Initially this involved knives or an arrowhead or the application of a hot iron; and it is probable that these techniques were refined over time by using smaller and smaller instruments, until just needles were used.

It is still thought in some circles today to be a good sign if an acupuncture point bleeds after needle removal as this is releasing any pathogenic factors from within the body. Heat is also still applied – but not severe enough to burn – using moxa, a hemp-like substance.

In the final analysis, simple observation and trial and error are likely to have resulted in the determination of where the finer acupuncture points are and which are effective for different conditions.

## What conditions can we treat with acupuncture?

There will almost certainly be an acupuncture treatment for any condition; but the effectiveness varies.

The Chinese take any improvement, no matter how small, as a sign of success. In the west, we need to be more critical. The Chinese will also go on treating a patient until there is some response, no matter how many treatments that takes and they are much more robust in their application.

On average you will see approximately 80 per cent of patients who will respond. Frustratingly, there are those which, on initial presentation, appear to be good candidates, but that ultimately turn out to be unaffected by the treatment. The level of improvement will vary from 'immediate and major' to 'progressive' as a course of treatments is carried out.

"Each case is individual and has to be taken on its merits"

Each case is individual and has to be taken on its merits.

Generally, I would advise carrying out four treatments at weekly intervals before critically assessing the response. If none occurs over this time, then I stop. My conventional training comes in here as I think I should see something by then; although others would say I don't carry on treating long enough and that I would eventually obtain a response. My thoughts are that these 'non-responders' are less sensitive to the effects of acupuncture anyway. And, as such, any response would be likely to be minimal.

In human trials, there is always a placebo effect to consider and also the difficulty of developing a 'sham' version of acupuncture – difficult to do as you either stick a needle in or not! Animals, in my view, provide objective proof of the effectiveness of acupuncture because they cannot appreciate this placebo effect – although some critics would argue that the owner would perceive improvements that aren't always there.

There are several advantages of acupuncture that fit well with modern ideas about medicine. It is completely natural and has few side effects or contra-indications. In skilled hands, it can be very effective clinically and it is cost effective too. Once control of a condition - such as inflammatory bowel syndrome - has been achieved, then 'betweentreatment' intervals can be extended to as long as months.

## **Essential**

complementary role Acupuncture has been used to treat arthritis in animals for a long time and it can be particularly useful as part of a holistic approach to pain management when combined with physiotherapy and conventional drugs to help improve the quality of life of severely affected patients. Those patients who cannot tolerate NSAIDs may benefit from acupuncture and those already on treatment can often manage on lower doses.

Recent research has shown the benefit of using acupuncture for postoperative pain and for reducing the incidence of relapse in chronic canine otitis cases (Sanchez-Araujo M and Puchi A, 1997). It has also been shown to increase the effectiveness of antibiotics in similar cases (Sanchez-Araujo M and Puchi, 2011).

Training in acupuncture can be taken through the Association of British Veterinary Acupuncturists (ABVA) who offer a foundation course covering all species, and a separate one specific to equine practice. The association also provides additional courses on treating geriatric and sporting dogs, for those already trained in acupuncture. Details can be found on its website, www.abva.co.uk

#### Conclusion

Having read this article, I hope that at least your interest has been aroused in the possibility of using acupuncture to help improve the quality of life of your patients, especially those where conventional treatment is either not appropriate or is only achieving limited success. Better still, why not become trained in the use of acupuncture yourself and join the many veterinary surgeons who are already applying it in everyday practice.

\* The opinions expressed in this article are the sole view of the author and do not necessarily represent those of the ABVA.



A cat receiving acupuncture for a back problem using a laser probe. Photo: Association of British Veterinary Acupuncturists.

## **PPD** Questions

- 1. How did acupuncture most likely develop?
  - A. by trial and error
  - B. by observing the effects of arrow injuries after battle
  - C. by progression from earlier techniques of burning
  - and bleeding
  - D. none of these
- 2. What conditions can be treated with acupuncture? A. musculoskeletal
  - B. digestive
  - C. skin problems
  - D. all of these
- 3. What is the most common initial treatment interval for acupuncture?
  - A. daily
  - B. monthly
  - C. weekly
  - D. single treatment
- **4.** What proportion of patients are likely to respond to acupuncture?
  - A. 100%
  - B. 80%
  - C. 50%
  - D. 90%

Answers Answers

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# How do you manage your insurance claims?

Pet insurance claims have risen by eight per cent during the last six years - and the figures claimed continue to rise. Last year Aviva announced that more households take out pet insurance than critical illness cover and income protection combined. Inevitably, with an increase in claims comes an increase in associated paperwork. Thankfully, electronic processing of claims can make this process much more streamlined.

## **Time and cost efficiency**

Countless hours can be spent – often by nursing staff – completing insurance forms manually. Not only is this tedious for staff members, but it also detracts from valuable nursing time and patient care. Creating claims electronically and using your computer system to carry out the process should cut this time drastically, particularly if your system is intuitive, easy-to-use and reliable.

**Insurance Claims Manager** can reduce the time it takes to process claims by over 50 per cent.

## **Keeping in the loop**

Communicating with insurance companies about owner policies and assessing the status and progress of a claim can prove very difficult. This leads to frustration and discontent – with owners often incorrectly attributing the problem to the practice. If your claims system is computerised, monitoring the progress of a claim can be done via your practice management system, providing instant access to information and evidence to the client as to the status and progress of their claim.

## **Continuity and consistency**

For patients with chronic or ongoing conditions, the process of having to bring in claims forms for completion on a regular basis can become an arduous task for clients – clients who regularly have to pay out for expensive treatment and who require a swift turnaround to have their money reimbursed. The efficient and semi-automated process of using a computerised insurance claims system can mean that repeat claims can be processed remotely, in a fraction of the time, without the client even visiting the surgery.

Co-ordinating reminders within your system's invoicing will also prompt staff to process a claim when certain medications are prescribed or purchased.

## The way forward

The recent changes made to some pet insurance company policies have been hitting the headlines – and insuring a pet and making a claim is becoming increasingly complicated. So there isn't a better time to reinforce your relationship with your clients when it comes to working with insurance companies. And investing in a computerised system will help you do this.

Built by the veterinary industry, for the veterinary industry, **Insurance Claims Manager** works with all insurance policies and connects electronically with those using **VetXML** communication standards. The majority of your clients will reap the benefits of instant claim submission, with the additional feature of your staff tracking claims from your system.

In the event that a company is not registered to process e-claims, **Insurance Claims Manager** generates printouts accepted universally in the place of handwritten forms. Inputting the invoicing data and client details onto the form not only saves your client money, but it also eliminates the potential for human error. So by reducing the administrative process by over 50 per cent in an intuitive and easy-to-use manner, **Insurance Claims Manager** is a worthwhile investment for any practice.

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Mark is an RCVS and European Specialist in Veterinary Neurology. He qualified from the University of Cambridge and has a Master's Degree on steroid-responsive meningitisarteritis in dogs. He has a particular interest in involuntary muscle contractions, reflex epilepsy, inflammatory central nervous system disease and feline neurology. Mark currently works at the Dovecote Veterinary Hospital, Castle Donington, and is actively researching canine epileptoid cramping syndrome in the border terrier - so he would love to hear from anyone with a suspected case, contact mark.lowrie@ dovecoteveterinaryhospital.co.uk



\*Suggested Personal & Professional Development (PPD)



NEUROLOGY

# An update on paroxysmal movement disorders

Paroxysmal movement disorders – or dyskinesias as they are also known – have been increasingly recognised in companion animals. Their infrequent occurrence within an individual and their abrupt nature has meant they appear to have 'gone under the radar' for a number of decades. The catalyst for the increased awareness of these conditions has been the popularity of the smartphone. Observing these episodes in real time has allowed greater recognition of these disorders and, in turn, we are gaining more of an insight into what they actually represent.

The term 'dyskinesia' is a Greek word literally meaning 'bad movement', with paroxysmal depicting the intermittent nature of the problem. Paroxysmal movement disorders, therefore, are a group of conditions characterised by episodes of abnormal movement in dogs and cats that are self-limiting, with long periods of normality in between episodes.

## What causes it?

Most paroxysmal movement disorders in animals are classified as primary in that they are believed to be hereditary. Secondary or symptomatic dyskinesia occurs in dogs resulting from drug administration propofol and phenobarbital, for example - and structural intracranial lesions. Secondary paroxysmal dyskinesias are identifiable in that they tend to be accompanied by additional neurological signs that are persistent between attacks. Recently, gluten has been implicated as the basis of one particular paroxysmal dyskinesia in border terriers.

### How do they occur?

The pathogenesis of paroxysmal dyskinesia is uncertain. The two main theories regarding their occurrence are that they represent either an epileptic disorder or a transient dysfunction of the basal nuclei.

How can I spot one?

The main differential diagnosis for a paroxysmal dyskinesia

is an epileptic seizure. The two share similarities in that they involve a period of abnormal motor activity that is self-limiting. Features that differentiate a paroxysmal dyskinesia from an epileptic seizure include the following:

## Maintaining a normal consciousness

A normal consciousness does not immediately rule out an epileptic seizure, as partial seizures can allow preservation of consciousness. However, if a dog is evaluated with motor activity in all four legs, then the consciousness would be expected to be abnormal if this was a generalised, tonic-clonic seizure and, hence, an unimpaired mentation would support a paroxysmal dyskinesia.

## No progression to a typical generalised tonicclonic seizure

Many partial seizures will progress or evolve to become generalised tonic-clonic seizures – either during the initial event or during subsequent episodes. A lack of transformation to a generalised tonic-clonic seizure does not rule out seizure activity, but should increase the suspicion of a paroxysmal movement disorder.

### Lack of a post-ictal phase even after episodes lasting hours

Paroxysmal movement disorders can last minutes to hours. Epileptic seizure activity tends to be much shorter, lasting only minutes. On the rare occasion that seizure activity becomes prolonged, an obvious period of post-ictal behaviour is observed consisting of mild forebrain signs, including central blindness, pacing and decreased awareness.

Following a paroxysmal dyskinesia, regardless of duration, normal behaviour and activity is immediately resumed. Therefore, a lack of post-ictal behaviour following a prolonged episode should support a paroxysmal dyskinesia.

## No autonomic signs

Most epileptic seizures are accompanied by autonomic signs, specifically urination and salivation. In contrast, these are not features of paroxysmal dyskinesias; so, observing autonomic signs during an episodic event is strongly supportive of an epileptic seizure.

## What diagnostic procedures should I perform?

A clinical diagnosis of paroxysmal dyskinesia relies upon exclusion of other causes for the paroxysmal episodes by recognition of the typical features of the episodes on a video. Once an episode has been observed that is typical of this condition, haematology and biochemistry should be performed to rule out concurrent conditions that



Episodic falling in the Cavalier King Charles spaniel was the first paroxysmal dyskinesia in veterinary medicine for which a mutation was identified.

may exacerbate the episodes - for instance, concurrent disease can potentiate paroxysmal dyskinesia simply by imparting stress on the patient.

Advanced imaging – such as magnetic resonance imaging of the brain – and spinal fluid analysis are appropriate procedures to perform to ensure there is no secondary cause for the condition. In certain cases, genetic testing (Cavalier King Charles spaniels and soft-coated wheaten terriers, for example) or serology (border terriers) may be performed.

## What is the natural course of the disease?

Paroxysmal movement disorders, when untreated, will tend to wane later in life and, in many cases, the episodes can resolve completely. A recent study of dogs with movement disorders found that up to one third will go into complete remission within two years of diagnosis with threequarters demonstrating an improvement. Only around 10 per cent of cases will progress to have more frequent or severe episodes over this time. While some mild episodes may be fairly short, the severe episodes can last well over an hour - and months, or even years, can go by without observation of an episode.

## How do I treat it?

It is important to emphasise that, regardless of the form of paroxysmal dyskinesia, it is not a life-threatening or life-limiting condition. Although episodes may be very disturbing and concerning to observe, no dog has ever died from having an episode of dyskinesia. However, these episodes clearly impinge on a dog's quality of life and so any treatment that can be offered is worth pursuing if episodes are frequent.

### **Medication**

In dogs, medications that have found individual success in treating dogs with paroxysmal dyskinesia include clonazepam (0.5 mg/kg PO q8-12h) and acetazolamide (4-8mg/kg PO q8-12h), and fluoxetine (1mg/kg PO q24h) although these latter patients are in the minority. Phenobarbital is rarely useful in paroxysmal dyskinesias, but a single case report found success in managing an exercise-induced movement disorder in a German short-haired pointer.

#### Diet

A gluten-free diet can help in canine epileptoid cramping syndrome in border terriers. Gluten is found in other grains besides wheat, including barley and rye. Going truly gluten-free means excluding the vast number of foods containing these grains, and often things like oats, which are processed with the same machinery as wheat.

## Examples of paroxysmal dyskinesias in dogs Episodic falling in the Cavalier King Charles spaniel

This was the first paroxysmal dyskinesia in veterinary medicine for which a mutation was identified (Gill et al, 2012; Forman et al, 2012). Episodes are triggered by exercise, stress or excitement and characterised by progressive hypertonicity throughout thoracic and pelvic limbs, resulting in a characteristic 'deer-stalking' or 'praying' position. It has an onset of signs between 14 weeks and four years. The mutation is in the brevican gene and has an autosomalrecessive mode of inheritance.

Brevican is thought to be involved in homeostasis; and mutations of this protein result in a disruption of axonal conduction and synaptic stability. This condition, in line with other dyskinesias, is self-limiting and it is suggested that this is because compensatory pathways are up-regulated to compensate for the lack of brevican.

Acetazolamide is the medication with most success in treating this condition, if episodes are considered severe enough to warrant it.

## Canine epileptoid cramping syndrome in border terriers

Canine epileptoid cramping syndrome (CECS) is unique to border terriers, in that it has features in addition to the paroxysmal dyskinesias including signs suggestive of gastrointestinal disease and/ or skin disease (Lowrie et al, 2015). Border terriers mostly begin by having episodes of CECS while young, often experiencing their first episode by the age of two. In some border terriers, the episodes can be triggered by excitement, a sudden burst of energy or startle whereas others appear to have episodes without any apparent trigger.

Some border terriers can have just a few episodes and then appear to go into complete remission – having no further episodes or just very occasional ones – but others experience these episodes for the remainder of their lives, with a frequency of anything from one episode every year to several per week.

Borborygmi, vomiting, diarrhoea and atopy are common signs associated with this condition that appear reversible following



Canine epileptoid cramping syndrome (CECS) is unique to border terriers, in that it has features in addition to the paroxysmal dyskinesias.



A causative mutation has been identified in the PIGN gene, but it is not fully understood how this contributes to the clinical signs in soft-coated wheaten terriers.



A syndrome of intermittent exercise, stress or excitement-induced paroxysmal dyskinesia is described in Scottish terriers.

the introduction of a glutenfree diet.

It has recently been identified as a gluten sensitivity and serology can be performed to antibodies against gluten and its associated enzymes – anti-gliadin and transglutaminase-2 antibodies. This test is not yet commercially available but is being prospectively developed by the author in collaboration with a veterinary laboratory (contact mark.lowrie@ dovecoteveterinaryhospital. co.uk for more details).

It is recommended that once a positive test for gluten antibodies has been obtained and a gluten-free diet is started, serology should be performed every three months to ensure there is a serological response to gluten. It is also important to ask the owners to keep a diary of episodes to ensure that these are reducing in frequency once the diet has been commenced. If the antibody concentrations are not decreasing and the border terrier continues to have episodes, then it is very important to ensure the dog is compliant to the diet and

has not been scavenging or inadvertently being fed other foods.

### Paroxysmal dyskinesias in soft-coated wheaten terriers

This condition shares many of the features of other paroxysmal dyskinesias in dogs and is pertinent only in that it has become the second dyskinesia in dogs in which a causative mutation has been identified (O'Brien et al, 2015). The mutation is in the PIGN gene and it is inherited in an autosomal-recessive manner. The PIGN gene encodes glycosylphosphatidylinositol anchors that attach many different proteins to cell surfaces. It is not fully understood how this contributes to the clinical signs seen in this breed.

## 'Scottie' cramp

A syndrome of intermittent exercise, stress or excitementinduced paroxysmal dyskinesia is described in Scottish terriers. Episode onset is between six weeks and 18 months, with the duration of signs being up to 20 minutes, although severe episodes can last hours

"It is important to emphasise that, regardless of the form of paroxysmal dyskinesia, it is not a life-threatening or life-limiting condition" (Urkasemsin and Olby, 2015). Pathophysiology may be different to other paroxysmal dyskinesias in that the administration of serotonin antagonists – methylsergide, for example – can evoke episodes; whereas serotonin agonists, such as fluoxetine, can abolish episodes.

Affected dogs show changes in pelvic limb gait when running, progressing to severe generalised cramp. Recently, however, a milder phenotype is described that is confined to the pelvic limbs and manifests as skipping, 'bunny hopping' and kicking whilst running, but without collapse, and lasting no more than 20 minutes. An autosomal recessive mode of inheritance is considered, although this does not explain the high proportion of affected female dogs. Improvement is seen with this condition over time and in those with severe signs, fluoxetine appears to be effective in the majority.

## Exercise-induced paroxysmal dyskinesia in the German short-haired pointer

An exercise-induced paroxysmal dyskinesia has been reported in a German short-haired pointer (GSHP) that was completely responsive to phenobarbital (Harcourt-Brown, 2009). This is the only report so far of an exercise-induced dyskinesia in veterinary medicine.



The Jack Russell terrier is among the breeds most commonly presented to referral neurology clinics for paroxysmal dyskinesia.

## Paroxysmal dyskinesias in Labrador retrievers and Jack Russell terriers

These two breeds are amongst the breeds most commonly presented to referral neurology clinics for paroxysmal dyskinesia in the UK (Lowrie et al, 2016). They tend to have a young onset, are triggered by startling or sudden movements, and have a male bias (75%). One third of dogs have cluster episodes - more than one episode in a week - but episode duration and frequency varies dramatically, even within an individual. The natural history was self-limiting with 32 per cent entering remission and an improvement in 75 per cent



An exercise-induced paroxysmal dyskinesia has been reported in a German short-haired pointer.

of cases. Episodes reduced in terms of frequency and duration, but remission was lower in dogs with cluster episodes than those without.

## "It works for me..."

When presented with a patient that has shown a "funny episode", always ask the owners to film a future episode so you can ascertain what the episode represents.

If a paroxysmal dyskinesia is identified, medication is rarely effective and episodes are infrequent. Therefore, a diagnosis and client education is usually sufficient to prevent further client concern as these conditions are benign.

If an owner struggles to film a representative video in view of the infrequent nature of the episodes, then use this to reassure the owner that it is non-progressive; but to remain patient because if it becomes a concern, then a video will be easier to capture!

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The Labrador retriever is another of the most common breeds presented to referral neurology clinics for paroxysmal dyskinesia.

## **PPD** Questions

- 1. Which sign does not help distinguish an epileptic seizure from a paroxysmal dyskinesia?
  - A. salivation
  - B. altered mentation
  - C. urination
  - D. tremors
- 2. Which medication would be a good first choice in a dog with paroxysmal dyskinesia?
  - A. potassium bromide
  - B. Pexion
  - C. acetazolamide
  - D. diazepam
- 3. Which statement is false? Paroxysmal dyskinesia... A. can resolve over time
  - B. should be medicated
  - C. is commonly hereditary
  - is having heree
  - D. is benign
- 4. Which statement is true? Paroxysmal dyskinesia...
  - A. can have episodes that last for hours
  - B. is best diagnosed based on an owner's description
  - C. is similar to epileptic seizures
  - D. results in abnormal forebrain sign in between episodes
- 5. Which of the following paroxysmal dyskinesias does not have a diagnostic test?
  - A. Scottie cramp
  - B. paroxysmal dyskinesia of the soft-coated wheaten terrier
  - C. episodic falling in Cavalier King Charles spaniels
  - D. canine epileptoid cramping syndrome in the border terrier

Answers 1.D 2.C 3.B 4.A 5.A.





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Jane Ellison BSc(Hons)

Jane is an information scientist who has worked for the Veterinary Poisons Information Service (VPIS) and the human poisons service at Guy's Hospital, on and off since 1984, and has also worked in the pharmaceutical industry. Jane was a founder of the veterinary service in the 1980s and has recently returned to work for the service in the 24-hour rota team.



\*Suggested Personal & Professional Development (PPD)



POISONS

# Household hazards – the ground floor

In the last issue, we looked at hazards found in the garage and garden shed. This article will focus on common risks associated with the ground floor of our homes.

## The kitchen

This is the heart of the home, where many hours are spent, feasts both big and small are prepared and myriad cleaning products are stored.

## Foods

It is generally well known that grapes and raisins, chocolate and onions should never be fed to animals; but the kitchen is often the official storage location for these comestibles, and the ingenuity, perseverance and opportunistic nature of pets – especially where food is concerned – is not to be underestimated.

## Chocolate

Chocolate poisoning in dogs is one of the enquiries most commonly received by the Veterinary Poisons Information Service (VPIS), with the severity of the poisoning being influenced by the type (milk or dark) and the amount of chocolate eaten. Milk and dark chocolate differ greatly in the amount of theobromine - a methylxanthine similar to caffeine - they contain, which in turn is reflected in the toxic dose (14g/kg for milk chocolate, 3.5g/kg for dark chocolate).

Clinical effects may be slow to appear because theobromine is more slowly absorbed by dogs compared to humans. Initially these signs include vomiting and diarrhoea, which may lead to dehydration – made worse as theobromine is also a diuretic. Theobromine and its metabolites stimulate the myocardium and the CNS, leading to animals becoming hyperactive and hyperthermic, and developing hypertension and severe tachycardia. In extreme cases, muscle rigidity, tremors and convulsions may be seen.

Chocolate is also toxic to cats, rodents and rabbits; but there are insufficient data to determine a toxic dose – cats seem less inclined to eat chocolate, although each year there are a few cases where significant clinical effects are seen.

Treatment is supportive with the emphasis on rehydration, reducing the stimulant effects with sedatives and monitoring vital signs. The use of repeated doses (4-hourly) of activated charcoal to enhance elimination, is particularly useful, as theobromine undergoes enterohepatic recirculation.

## Onions (garlic, leeks, shallots and chives)

All these vegetables belong to the Allium species of plants and they can cause toxicity, even when cooked. Initially there may be gastrointestinal signs, with vomiting and diarrhoea; but the main effect is damage to red blood cells, resulting in anaemia. This may not be apparent for several days after ingestion.

Toxicity is expected in animals that ingest >0.5 per cent of their body weight (>5g/ kg) in Allium species (Cope, 2005). Management is supportive, with monitoring of haematological parameters for evidence and severity of anaemia. If required, hydration with intravenous fluids and antiemetics should be given.

#### Grapes and dried fruits (currants, sultanas, raisins)

Grapes and their dried products are toxic to animals. Ingestion of even a small quantity can cause acute kidney injury and possibly renal failure. The fatal dose has not been established and there does not appear to be a dose-response relationship (Eubig et al, 2005). However, a VPIS study does show a loose connection between outcome and the mean quantity of fruit ingested. Individual variation in response may also occur.





This means that, potentially, any dose is a problem, and numerous fatal canine cases have been reported in the literature (Gwaltney-Brant et al, 2001; Penny et al, 2003; Mazzaferro et al, 2004; Eubig et al, 2005).

The onset of clinical signs usually occurs within six hours and always within 24 hours.

Initially, these signs will be vomiting (in virtually all cases), diarrhoea, hypersalivation, haematemesis, bloody stools, anorexia, tender abdomen, ataxia, weakness and lethargy – and grapes or dried fruit may be present in the vomitus or faeces. From 24 to 72 hours, renal failure may develop, with oliguria or anuria.

Gastric decontamination should be carried out in all cases, followed by aggressive intravenous fluid therapy - twice the normal maintenance rate, for example, for at least 48 hours - for rehydration and to support renal function. Renal function and electrolytes should be monitored for at least 72 hours after ingestion of the products.

### Mouldy food

The organic recycling caddy is becoming more prominent on our kitchen counter tops and care must be taken that this is securely closed and inaccessible to pets. Mouldy food – be it uncovered, poorly stored leftovers or organic recycling – is a potential source of tremorgenic mycotoxins. When ingested by the ever-hungry pet, the mycotoxins can cause severe tremors, or even convulsions, that can be prolonged and difficult to treat.

## **Cleaning products**

The understandable desire to keep our kitchens and utility rooms clean and germ free, has resulted in the availability of an increasingly large number of products designed to achieve this goal. Antibacterial and disinfectant sprays, gels and liquids contain benzalkonium chloride, a highly irritant chemical to which cats are particularly sensitive. After walking through, or over, recently cleaned surfaces, cats will groom excessively, disliking the residue left on their fur or paws.

A more recent addition to kitchen hygiene is the automatic hands-free soap dispenser, which may also contain antibacterial soap. Cats are at risk of walking past, or underneath, these dispensers, and thus being squirted on the head or back. This will, again, result in relentless grooming, leading to very painful mouth and tongue ulceration, lethargy, hyperpyrexia and respiratory issues.



So, keep animals away from recently cleaned surfaces, as well as the products themselves.

## Laundry products

The ingestion of any detergent can cause gastrointestinal upset, and this is further compounded if the animal then coughs, retches or vomits, because foaming can occur and precipitate problems with respiration or an aspiration pneumonia. Laundry capsules or 'pods' are of particular concern owing to their high concentration of detergent in a small volume cats and dogs are attracted to them, often playing with them until they burst in their mouths or over their fur.

Use water to remove thoroughly any laundry detergent from an animal's fur and fit an Elizabethan collar to prevent further grooming. Check the animal's lung sounds or perform a chest X-ray if aspiration is suspected.

#### The living room

Generally, the living room has fewer products or chemicals than the kitchen, although even here, care must be taken.

#### Lilies

Most cat owners know never to have lilies in the house, but it is worth repeating. All parts of the plant are highly toxic to cats – even a small amount of pollen on the their fur can lead to renal damage and failure. Always check bouquets for the presence of lilies and remove the entire plant, not just the pollen stamens; and treatment is required for any amount of lily exposure in cats

The fur should be washed thoroughly to remove any traces of pollen and further grooming prevented by application of a collar. Gastric decontamination with emesis and activated charcoal is required, followed by administration of twice maintenance levels of intravenous fluids for 48 hours - the prognosis is excellent if decontamination is prompt and treatment is started before the onset of renal impairment.

## **Pot-pourri/'reed' diffusers**

There are so many different products to keep homes fresh and fragrant, but possibly the ones that are most likely to attract pets are bowls of pot-pourri and reed diffusers and their liquids, because they are easy to knock over and relatively easy to ingest or contaminate fur.

Pot-pourri causes significant gastrointestinal irritation and most animals will vomit following ingestion. The duration of vomiting can be as long as 10 days, even after the material has passed through the gut. The reason for the long duration of effects is unclear. It may be



a consequence of physical damage to the gut rather than toxicity from the plant material or refresher oils (see below) and effects have been reported to continue after the pot-pourri has been passed in the faeces.

Treatment is essentially symptomatic, together with supportive care. Activated charcoal is *not* useful with these agents, although an antiemetic may be required for persistent vomiting, in conjunction with rehydration, if required.

Analgesia should be given for abdominal discomfort and gastro-protectants – ranitidine, cimetidine, sucralfate, for instance – have been used in a number of VPIS cases.

Pot-pourri 'revitaliser' liquids also present a possible hazard. Small bottles of perfume oils intended to refresh the smell of the pot-pourri can be ingested and, in theory, could cause harm. The bottles are generally small (10ml) with narrow necks, and if they are ingested they may also cause irritation - with the additional risk of the oils entering the lungs, resulting in an aspiration pneumonia if the animal subsequently vomits, coughs or retches.

The content of 'reed' diffuser liquid will vary; but, again, the effects are mainly gastrointestinal, although skin irritation and central nervous system signs, such as drowsiness, lethargy or an unsteady gait, may also be present following ingestion or skin contact.

#### **Batteries**

Toys, remote controls and hearing aids are all high on a dog's (mainly) 'List of favourite things to chew', and often the battery in these devices is worked loose and chewed or swallowed in its entirety. Most individuals that do this remain well or develop only mild signs of local irritation. Chewing batteries may cause hypersalivation and vomiting; and oral or tongue inflammation, ulceration and burns occur in a small number of cases (7.4% of VPIS battery cases). Batteries that open or leak may cause abdominal discomfort and melaena.

Emesis and gastric lavage are not recommended because batteries are heavy and they may lodge in the oesophagus – their contents are irritant and emesis can exacerbate damage to the oesophagus. Use of activated charcoal is *not* recommended – it is of limited benefit and will obscure detection of the batteries and discolour the stools.

In cases where the battery has been chewed, remove any remaining pieces and flush the mouth with water. If the animal is well and signs have settled after the mouth has been rinsed, it can probably be observed at home. However, any individual with signs suggestive of irritation – redness, swelling or ulceration of the mouth, frequent swallowing or hypersalivation, abdominal discomfort – should be seen and assessed.

Treatment is supportive, using gastro-protectants and analgesia, as required. If there is concern that the battery may have lodged or there are significant gastrointestinal signs, then X-rays should be taken to determine the location and condition of the battery (the contents are radiopaque).

If the battery is:

- in the stomach and clinical signs are significant, then it could be removed via endoscopy or surgery
- beyond the stomach, a laxative may be given to promote transit through the gut
- still in the oesophagus, urgent removal is essential.

After removal of the battery, it is essential to ensure that the affected area is thoroughly irrigated, to reduce or prevent further tissue damage developing.

#### Modelling clay and homemade (salt) dough

Craft and painting sets do not usually represent a toxic hazard; although modelling clay can pose a risk of gastrointestinal obstruction depending on the amount ingested and the size of the animal. However, homemade or salt dough should always be kept out of reach of animals because the high levels of salt required to make the dough are extremely dangerous to animals and can cause death. Homemade salt dough is a common cause of salt toxicosis in dogs.

Initial signs of hypernatraemia are non-specific; with vomiting, diarrhoea, depression, lethargy, tremor, polydipsia and dehydration – the degree of dehydration may be underestimated because the vascular volume is maintained. There may also be ataxia, weakness, hypertension, tachycardia and tachypnoea. Oral ulceration may occur.

Emesis is only recommended if ingestion was less than 30 minutes before presentation and if the animal has not yet vomited. Activated charcoal is of no value in this situation.

The blood sodium levels should be checked on admission and every two to three hours thereafter. If they are within the normal range for six hours 'post-ingestion', then there is no longer a risk of hypernatraemia. Monitor the other electrolytes, blood glucose, blood pH, renal function, urine output, temperature and pulse, along with the essential monitoring of fluid status.

The aim of the treatment of hypernatraemia is to replace water and electrolytes and to aid renal excretion of sodium. In mild cases, the animal should be allowed to drink small amounts of fresh water at frequent intervals. The management of more severe cases will be dealt with in a later article which will look at the risks of salt toxicity from various sources.



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\*Suggested Personal & Professional Development (PPD)



PHYSIOTHERAPY

# Role of physiotherapy in feline fracture management

Feline physiotherapy is a complex field owing to the range of conditions with which cats may present. Fractures are one of the most common orthopaedic conditions encountered – usually as a result of road traffic accidents. This article explores the skills used by a physiotherapist to assist in fracture healing, pain reduction, restoration of range of motion in all joints, muscle development and return of functional independence to the animal. Electrotherapy modalities and current evidence for their role in fracture healing will be discussed.

Fractures in cats are, unfortunately, a common occurrence; with hind limb, pelvic and sacral fractures accounting for 73 per cent of all limb fractures (Hill, 1977). Physiotherapy can assist in both the conservative and postoperative management of feline fractures – by reducing pain and swelling, improving limb use and strength, reducing compensation strategies and regaining independence.

## Fracture healing

A fracture is a disruption in bone continuity caused by excessive stresses placed on it, either externally or internally. Bone is a dynamic tissue composed of 35 per cent organic material and 65 per cent mineral (Mast, 1997). It is one of the few tissues that can undergo direct cellular regeneration to restore 100 per cent of the original biomechanical properties.

The stresses placed on the broken bone are beneficial to stimulating healing as long as the micromotion created does not exceed the acceptable interfragmentary strain for osteoid deposition (Brown and Kramers, 1993). If the mechanical load exceeds the strength of the reparative tissues, inhibition of bone healing occurs.

Thus, it is important that no – or minimal – motion between fracture fragments occurs early in the healing phase to allow adequate establishment of the extraosseous blood supply. Once the vascular supply is established and callus formation has occurred, then controlled axial micromotion can stimulate appropriate bone remodelling (Williams, 2004). With detailed knowledge of anatomy, biomechanics and tissue healing properties, physiotherapists are experts in this area and can offer strategic help in exercises to assist loading at certain joints to promote healing.

Many other factors will also affect bone healing and examples are given in **Table 1**. For further information, the reader is directed to the BSAVA Manual of Small Animal Fracture Repair and Management.

## Physiotherapy in

fracture management Physiotherapy can play an important role in the management of fractures in cats and there is evidence that various electrotherapy modalities aid bone and soft tissue healing and help reduce pain. Massage, manual techniques and exercise therapy can maintain and regain soft tissue length.

Therapeutic handling, proprioceptive re-education and postural changes can facilitate weight bearing to the affected limb(s) and reduce the occurrence of compensatory movement patterns (**Figures 1** & **2**). The following modalities are discussed with reference to improving bone healing following fracture.

## Ultrasound

Recent papers have reported the benefits of using therapeutic, low intensity, pulsed ultrasound (LIPUS) for both fractures healing normally and those that demonstrate either a delayed union or non-union (Mayr et al, 2000; Busse et al, 2002; Warden et al, 1999).

The dose delivered is specific to this treatment and it is much lower than that delivered from standard therapy machines - 0.03W/cm<sup>2</sup> (Watson, 2014).

Warden et al (1999) concluded from animal and human studies that the use of ultrasound could accelerate the rate of fracture repair by a factor of 1.6. A systematic review and meta-analysis considered the evidence for the effect that low intensity, pulsed ultrasound had on

**Table 1.** Factors affectingbone healing

- patient age
- fracture configuration
- fracture location
- use of graft
- endocrine balance
- corticosteroids
- diabetes mellitus (Mann, 1989).



**Figures 1 & 2.** Therapeutic handling, proprioceptive re-education and postural changes can facilitate weight bearing to the affected limb(s) and reduce the occurrence of compensatory movement patterns.

time taken for fracture healing (Busse et al, 2002).

Evidence from randomised trials where the data could be pooled (three studies, 158 fractures) showed that time to fracture healing was significantly reduced in the ultrasound-treated groups compared with the control groups (114 days vs 182 days; 61 days vs 98 days and 43 days vs 62 days) and the mean difference in healing time was 64 days.

#### Laser

The use of laser to assist fracture healing is limited but some studies have indicated that low power laser irradiation can enhance biomechanical properties of bone during fracture healing in animal models (Tajali et al, 2010). Low level laser light has an energy range of between one and 500mW (milliwatts).

Luger et al (1998) reported an increase in bone 'stiffness' in rats, following the formation of a smaller, stronger callus, which was more osseous in nature compared to controls. Their study used a 632.8nm, 35mW laser for 30 minutes daily, delivering 892J/cm<sup>2</sup> superficially for 14 consecutive days. There is strong evidence for the beneficial effect of laser on wounds and soft tissues and it would benefit a fracture patient who had sustained an open or infected wound.

#### Magnetic therapy

Magnetic therapy covers a wide spectrum of modalities, but those used most commonly are static magnets and pulsed electromagnetic fields (PEMF). Research involving the delivery of PEMF energy using dynamic fields considers that it is the electric component rather than the magnetic component that has the primary effect (Bassett, 1987).

Little research exists that investigates the application of magnetic energy on bone healing or in cases with delayed or non-unions. Evidence that is available favours PEMF applications using a dynamic



electric current to generate a varying electromagnetic field. This is sent to the tissues in which local bioelectric currents are induced, and it is these that are most strongly adduced to positively influence bone repair.

A study of dogs treated daily for eight weeks found that PEMF significantly increased stiffness and promoted greater new bone formation (Inoue, 2002). One looking at the combined use of PEMF, ice and exercise following fractures found that the combination group had better pain reduction and joint range of movement (ROM) than an ice and exercise, or a PEMF and exercise group (Cheing et al, 2005).

#### **Exercise**

As previously discussed, appropriate loading is crucial to stimulate bone healing and fracture repair. Physiotherapists use their knowledge of tissue healing stages to ensure that these stresses are graded in accordance with the fracture sustained and its management.

Correct anatomical alignment of the limb is important during therapy and throughout home exercises to safely stimulate the bone, soft tissues and local muscular system.

### Conclusion

Every patient - whether having sustained a fracture or different injury - will have different responses to recovery and rehabilitation. Clinical reasoning is at the forefront of a physiotherapist's training, allowing the therapist to determine problem lists and appropriate treatment goals. These skills are vital so that the therapist, in conjunction with the veterinary surgeon, can tailor individual programmes to each patient, ensuring that they reach their treatment goals and regain their independence.

To find an Association of Chartered Physiotherapists in Animal Therapy (ACPAT) physiotherapist near to you, visit www.acpat.org

## CASE STUDY

Maisie is a four-year-old domestic short-haired female cat. She was presented at her veterinary practice with a non-weight bearing, left forelimb lameness of sudden onset. Her history of injury was unknown. Radiography revealed a closed fracture of her left humerus which was treated with an intramedullary pin and external fixation.

Physiotherapy commenced at four weeks post injury at the veterinary surgeon's request. Maisie was beginning to use her left forelimb for 'toe touch' weight bearing. She had marked muscle wastage of her left triceps, pectorals and deltoid muscles. Initial physiotherapy consisted of a gentle range of movement exercises to her scapula, shoulder, elbow and carpus, alongside maintenance of her cervical range of movement.

Proprioceptive exercises - sensory massage to her distal limb and exercises to encourage weight bearing on her left forelimb – were given as home exercises. Her owners were lent a PEMF unit to use for 20 minutes once daily. Hands-on physiotherapy proved quite difficult until the external fixator was removed six weeks after the original injury.

By this time, Maisie had lost a great deal of muscle bulk from over her left scapula, shoulder and elbow joints. She held her foreleg in an abducted and cranially placed position, and was reluctant to bear weight on it when it was placed in a more neutral position.

Maisie held herself with lateral flexion of her rib cage away from her left fore and again was reluctant to allow correction of this posture. She was anxious about having her shoulder and elbow joints moved passively, and her neck protractors were tight and protective of her fracture site.

Physiotherapy goals were to:

- encourage use of her left forelimb
- reduce soft tissue tightness
- regain full ROM of her shoulder and elbow joint

- strengthen the musculature around her left humerus
- regain full mobility and functional independence.

Treatment sessions at six weeks post fracture consisted of soft tissue massage and gentle stretches to her neck and left forelimb (**Figure 3**), static strengthening exercises to activate her postural muscles, proprioception exercises using a 'wobble' cushion (**Figure 4**) and play type activities to encourage use of her left forelimb.

Physiotherapy treatment continued on a weekly basis and exercises were progressed if necessary improvements had been made.

Maisie progressed well with her mobility and was using her left forelimb approximately 70 per cent of the time by week nine. At this point, soft tissue massage and stretches were continued to maintain soft tissue length whilst the functional use of her limb increased, alongside new exercises such as stepping over poles and trampoline work to encourage further strength and proprioception.

Manual therapy techniques were used to help mobilise her caudal cervical vertebrae and to ensure scapula movement returned to normal. For her home exercises, Maisie was encouraged to play with her toys to improve her exercise tolerance and to further strengthen her left forelimb. Exercises that were especially helpful were playing with a toy mouse, where she would hold it between her front feet, aiding rotation and co-ordination, and reaching up for a toy on a string, using her left foreleg with shoulder extension.

Maisie was discharged from physiotherapy 12 weeks after surgery when she had regained functional use of her left forelimb and was able to walk and trot showing only a mild shortening of the protraction phase of her left leg. Joint ROM was slightly restricted at shoulder extension, but her elbow movement was normal.

Muscle bulk was still reduced in comparison with her right forelimb, but the tone of specific muscles felt healthy and the therapist believed that her muscle bulk would continue to increase over the coming months.

Her owners were given a detailed exercise plan to help return Maisie to her previous level of activity and at just over 20 weeks post-fracture, she returned to her outdoor exercise and was happy to climb, jump and run with no ill effects seen.

Figure 3. Soft tissue massage and gentle stretches to Maisie's neck and left forelimb.



Figure 4. Proprioception exercises using a 'wobble' cushion.


### **PPD** Questions

- 1. What is the composition of bone?
- 2. List four factors that can affect fracture healing.
- 3. What dose is typically used in low intensity pulsed ultrasound?
- 4. What does PEMF stand for?
- 5. What rate of acceleration did US have on fracture repair in the study by Warden et al (1999)?

Answers 1. 35 per cent organic material, 65 per cent mineral 2. choose from patient age, fracture configuration, fracture location, use of graft, and crine balance, corticosteroids, diabetes mellitus 3. 0.03 W/cm<sup>2</sup> 4. pulsed electromagnetic fields 5. 1.6. 5. 1.6.

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# The reflective practitioner – CPD with an outcomes-based approach

Logging up CPD hours is something that all vets and nurses must do to comply with Royal College of Veterinary Surgeons (RCVS) regulations. There is no great rocket science in recording the hours of lectures, webinars, reading or other CPD-attracting activities, nor in adding short comments on the course content and how good the CPD actually was.

So far so good; but this is a system that has the potential for abuse – or at least lack of commitment and enthusiasm – and CPD logged on a record sheet does not necessarily mean that it has been of any benefit or has maintained the individual's ability to practise good veterinary care.

The RCVS's new proposals for CPD and lifelong learning – where the individual plans their own schedule of activities and reflects on their outcome – would seem to be a very positive step forward in terms of 'real' training and development for veterinary professionals.

There is a great difference between attending courses that you *want* to go on and those you *need* to go on and the new proposals very much address this issue. To quote Professor Stephen May who chaired the CPD Policy Working Group, the present system is a "purely input-based approach to CPD". The RCVS is looking to change this emphasis with a new model based on the concept of 'Plan, Do, Record, Reflect'.

Members of the profession will be encouraged to: identify their own CPD needs by using a personal development plan, carry out the planned CPD activities, keep records of the CPD undertaken and finally reflect upon the impact the CPD has had on their personal and professional development.

Such an approach must help to improve the relevance of the CPD an individual undertakes and, by implication, their technical, clinical or management abilities. It does, however, involve a considerable amount of extra work in terms of planning and recording and it may be that this is where a good practice manager – who organises training and development within the practice – can help.

If a practice already has staff training and development plans in place, then it is only a small step to adapt this process to the recording of an individual member's CPD records. The practice will, hopefully,



have consulted with – and assessed – their staff on their training and development needs and designed an appropriate development programme with specific outcomes included in the plan.

A more difficult area is the final part of the proposed model – reflection, impact and benefits. Clearly, in the first instance this is a purely subjective assessment of the benefits of the CPD undertaken; although practices with staff development plans will have this built into their training schedules and it will be available for individual staff members to tap into. Otherwise it would be all too easy just to say, "Yes the course was of benefit, yes I now do my job better".

Currently, the RCVS can ask to see an individual's CPD records. With the proposed new system, monitoring these records will inevitably be more timeconsuming and systems will have to be devised to enable assessments of the records. It will no longer just be a case of counting up the hours of CPD.

In the short term, the RCVS will retain the current time requirement of 105/45 hours over a rolling three-year period for veterinary surgeons and veterinary nurses respectively, but it is inevitable that this will eventually have to change. Different individuals will have different training and development needs that will not necessarily relate to the current required hours of study.

Ultimately, there will no longer be a set number of CPD hours to achieve – it will be CPD on a needs basis. This could, potentially, be rather overwhelming for some and 'underwhelming' for others; although it would give the latter the opportunity to venture into new fields.

The model proposed uses three domains – clinical, professional, and leadership and management – in order to encourage a variety of CPD activities. This is an excellent way for all those in practice to think more broadly about their role and their skills and perhaps broaden their abilities within the practice.

Developing reflective practitioners - with the benefits of CPD being looked at from both an individual and a practice point of view - is an excellent way to cement the development of the practice as a whole; making both practice members and owners think about the future needs and development of individuals and the practice. It may also be the case that as CPD becomes so much more an integral part of every practice, a greater sharing of CPD can take place - such that reporting back on talks, courses and conferences, discussions of work carried out and cases seen, provides an important and easily accessible source of CPD relevant to the whole practice.

Today, there is more readily accessible and affordable CPD available to veterinary professionals than ever before. It is just a question of what is most useful and relevant. So, rather than looking at a course with a view to what might be the most interesting or what can be attended to 'make up the hours', the new system should encourage more selectivity – more 'quality CPD' over 'quantity CPD'.

It will no longer be a case of looking at the value of the hours but at the value of the CPD itself.

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\*Suggested Personal & Professional Development (PPD)



ISOLATION NURSING

# Isolation techniques and nursing the infectious horse

There are times when equine patients need to be nursed in isolation. This may be because they have – or are suspected of having – a contagious disease. A Registered Veterinary Nurse (RVN) should know how to prepare the area and how to put measures in place to prevent the spread of disease. Knowledge of how to nurse these patients is essential to enable the RVN to provide gold standard nursing care, despite the environment restrictions.

### Equine diseases requiring isolation

The following are examples of equine infectious diseases that are encountered in the UK:

- equine influenza causes upper respiratory tract disease
- equine herpes virus 1 and 4 (EHV-1, EHV-4) - both forms cause respiratory disease, and EHV-1 also causes abortion, neurological disease and ocular disease (Slater and Knowles, 2012)
- equine viral arteritis (EVA)

   this is a notifiable disease and is thus required by law to be reported to government authorities.
   The collation of information allows the authorities to monitor the disease and provides early warning of possible outbreaks. Cases of EVA must be notified to your local Animal Health Veterinary Laboratories Agency (now Animal and Plant Health Agency) office
- Rhodococcus equi causes respiratory infection in foals aged one to six months old
- Lawsonia intracellularis causes rapid weight loss, lethargy, inappetence, 'throat latch' and limb oedema, mild colic and diarrhoea in weanlings (Stoneham, 2012)
- Streptococcus equi (strangles) - causes respiratory infection and the potential for severe abscessation and obstruction in the region of the throat.

#### Isolation

The term isolation describes the physical separation of an animal suspected of having – or proved to have – a transmissible infectious disease. There are different types of isolation:

- barrier nursing creates a barrier between the infectious animal and the owner, nursing staff and other animals (by wearing protective clothing, using separate equipment)
- protective isolation is the isolation of very susceptible animals (very young or very old, after surgery, or with compromised immunity) in an attempt to protect them from potential sources of infection
- 'reverse' barrier nursing

   is often employed with neonatal foals suffering from failure of passive transfer of antibodies.
   In this case the foal is protected from outside sources of contamination (owners, nurses and other patients) rather than the other way round.

The main focus of this article will be on barrier nursing techniques and general nursing care for patients with infectious diseases. The veterinary treatment of infectious diseases will not be discussed.

#### **Isolation facilities**

Veterinary isolation facilities should be built at least 50 metres away from the main hospital and stables. Maintaining this safe distance is very important because it has been reported that influenza virus can be propelled in excess of 31 metres in droplets from a coughing animal (Brazil, 1995). Other basic requirements are as follows:

- the stable should have no direct or indirect contact with others
- the stable should ideally be downwind of other stables so that airborne infection is less likely
- the drain away from isolation accommodation should be set apart from other animal accommodation or natural watercourses
- walls should be impervious with central floor drains, so wooden stables are not ideal
- there should be minimal fittings in the box and these should be easy to disinfect.

A completely separate set of feeding, watering, tools, grooming and veterinary equipment should be used. This helps to prevent the transmission of pathogens on inanimate objects or 'fomites' (Linnenkohl and Knottenbelt, 2012). These fomites should be thoroughly disinfected between patients and never taken into the main stable block, always designated to isolation and clearly labelled/ colour coded.

Barrier apparel is also very important – disposable protective overalls, boots covers, hats and latex gloves should be used every time someone comes into contact



*Figure 1.* Barrier apparel plays an important role in reducing the spread of infection.



*Figure 2.* The isolation area should be clearly defined with tape and signs.

Disease	Incubation period	Mode of transmission	Disinfection	Comments
Equine influenza	1-3 days	Respiratory route: aerosol and direct contact	Easily killed with 1% bleach, iodine-based, quaternary ammonium or peroxide disinfectants	Strict isolation until all symptoms have resolved and body temperature has been normal for five days
Equine herpes virus	2-10 days	Direct contact, aerosol and fomites	As above	Strict isolation and monitor temperature
'Strangles' ( <i>Streptoccocus equi</i> )	3-15 days	Direct contact and fomites	Quaternary ammonium and iodine-based disinfectants, 1% bleach	Strict isolation. Ensure effective cleaning of fomites
Salmonellosis (Salmonella enterica)	12-72 hours	Contact with faeces, fomites	2% bleach, 2% gluteraldehyde, iodine-based and peroxygen disinfectants	Isolate confirmed cases. Prompt cleaning of faeces. Use face mask with 'stream' diarrhoea
Rotavirus	12-24 hours	Faecal-oral, fomites	Phenolics	Isolate with full barrier precautions
Ringworm (dermatophytosis)	4-14 days	Direct and indirect contact	1:10 bleach solution	Gloves and disinfection of fomites

Table 1. Equine infectious conditions, mode of transmission and correct disinfectants to use

with the isolated patient (Figure 1). Hands should be washed thoroughly after contact with the horse, even though gloves are worn. Foot dips and mats filled with disinfectant should be situated outside the stable to help prevent the spread of pathogens. It is also important to check that the disinfectant used will destroy the pathogens in question (**Table 1**). The area surrounding the stable should be roped or taped off to keep other people a safe distance away (**Figure 2**) and signs should be put up detailing that the area is subject to restricted access. This is especially important in practice if your isolation facilities are accessible to clients. Accidental client contact with a contagious horse could be disastrous for staff and in-patients at the practice. One nurse should be designated to deal with the contagious patient. This nurse should have reduced contact with the other inpatients to try and reduce the chance of the infection spreading. All rubbish should be disposed of as infectious clinical waste and labelled appropriately.

#### Additional tips for setting up and maintaining a patient in isolation

In addition to the standard procedures discussed previously , there are some other considerations that should be taken into account:

- hospital equipment, such as fluid pumps, thermometers and stethoscopes, should remain in isolation for the duration of the patient's stay - such items must be thoroughly decontaminated after use
- visits by the owner should be discouraged; although this needs to be balanced with the well-being of the patient. If visits are permitted, the owner must comply with the infection control policies in place
- ensure the isolation area is well stocked with consumables and cleaning products - but overstocking should be avoided as spare items must be disposed of once the patient is discharged
- hand washing is of the utmost importance in order to reduce the risk of spreading infection. Disposable clothes and gloves will provide a barrier to bacterial contamination. However, not removing gloves and touching inanimate objects, such as door handles and telephones, can contribute to bacterial spread. Nothing substitutes for good hand washing - even wearing gloves (Bevan, 2010).

### Nursing the equine isolation case

The most common condition that requires barrier nursing is *Streptococcus equi* or 'strangles' (**Figure 3**) and it will be used here as a template for the nursing management and care of other infectious diseases.

Every effort is made to treat the patient at home; however, if the individual cannot be



Figure 3. Mare with strangles. (Photo: Dominic Alexander, XLVets Belmont Farm & Equine Vets)

successfully isolated at the yard, it may be admitted into the practice for treatment. The bacterium, *Streptococcus equi*, is spread from horse to horse via aerosol droplets, direct contact, tools, equipment, tack, owners and their clothing.

The clinical signs of strangles include:

- increased temperature
- depression
- inappetence
- bilateral nasal discharge
- coughing
- abscesses in various lymph nodes of the head - if retropharyngeal abscesses become large they can obstruct the airway and pharynx, making it difficult for the patient to breathe and swallow. This is how the name 'strangles' arose (Slater, 2001).

Nursing care is predominantly aimed at supporting the patient and treating it holistically, rather than just concentrating on the body system affected by the disease.

As the patient is suffering from respiratory disease, a dust-

free environment should be provided. Bedding should be 'dust-extracted' and the stable should be well ventilated. The patient may have an increased temperature but will often feel cold; so rugs, bandages and a deep bed should be used to keep it warm and comfortable.

Depressed patients will invariably benefit from a great deal of TLC, so grooming them at least twice daily is very important. Boredom can be addressed by providing licks and stable toys to keep them entertained.

The one foodstuff horses will always take an interest in – even if they are unwell – is grass. So sometimes it may be helpful to pick grass and feed it to the patient from the floor. Soaked hay or haylage should be fed to reduce exposure to dust, moulds or fungus; and any hard feed should be soaked to make it easier for the patient to swallow and reduce the chance of 'choke' developing.

All food should be fed from the floor to encourage drainage of mucus and discharge from the infected glands. Hot compresses (surgical gloves filled with warm water) can be applied to abscess sites in order to encourage maturation and rupture (Slater, 2001); and any discharge should be cleaned away from the nose or abscess site as regularly as possible. Vaseline can be applied to prevent the discharge scalding the adjacent skin.

In certain cases, patients may also require intravenous fluids and assisted feeding. It is important to be aware that Streptococcus equi can survive in the environment for long periods – up to nine weeks on wood - if conditions of temperature and humidity are optimal. This is why barrier precautions and stringent disinfection techniques are essential if the bacteria are to be contained and eradicated once the patient has recovered. It is very important that the disinfectant used is active against the pathogen in question.

### Disinfecting an isolation stable

To carry out correct disinfection, full barrier apparel should be worn. Before emptying the stable, an aerosol disinfection product can be used - for example, a 50ml product (Airgene, Medichem International) will disinfect areas up to 40m<sup>3</sup> and this can be used as an extra biosecurity measure.

All bedding must be removed from the stable and be disposed of as clinical waste. The stable, wall, ceiling and any fixtures should be rinsed and then disinfected with a product that will destroy the pathogen in question - using a garden sprayer is an efficient way of ensuring that all surfaces come into contact with the appropriate disinfectant. Stables can also be steam cleaned.

The disinfectant must be made up to the correct concentration, according to the manufacturer's instructions, and it is important that it is left in place for the correct contact time for the disinfection process to be successful. Fomites such as the grooming kit, tools, feed buckets and hay nets should also be soaked in disinfectant for the appropriate contact time. After disinfection, all the equipment and surfaces must be rinsed thoroughly.

The equipment and stable should then be left to dry naturally. Swabs can be taken to confirm that the disinfection process has been successful and the stable can then be re-set for the next patient.

#### Staff compliance

Having knowledge of the measures to be taken to ensure good infection control and prevention of crosscontamination is the easy part. Ensuring staff and visitor compliance, is not so easy. The National Audit Office estimated in 2000 that if staff followed infection prevention guidelines in human hospitals, hospital-acquired infections (HAIs) could be reduced by 15 to 30 per cent (Bevan, 2010). Research shows, however, that conformity rarely exceeds 40 per cent. Whilst it is unrealistic to believe that HAIs and infectious diseases can be eradicated, implementing strict protocols can help to reduce their incidence and spread (Bevan, 2010).

The first step in establishing effective infection control is setting out standard operating procedures (SOPs) and training programmes that ensure all staff are aware of what is required. SOPs and training should be directly relevant to best clinical practice and be evidencebased. These measures should be reinforced with an infection control group that meets regularly (Bevan, 2010).

The measures should also be assessed and updated regularly. Compliance can be assessed by implementing clinical audits - these being carried out by clinical staff in their own area of responsibility to promote ownership (Bevan, 2010). A large number of staff should be involved in the auditing process, as this is an effective way of raising awareness of the importance of compliance to infection control policies.

#### Conclusion

When nursing the equine isolation patient, knowledge of setting up and maintaining an isolation area, as well as how to nurse the patient, are important to ensure gold standard nursing care and to reduce the spread of infectious diseases. Staff training, clinical audits and SOPs are also vital factors to uphold infection prevention protocols and increase staff compliance.

The RVN should have a comprehensive knowledge of the clinical requirements of nursing isolation patients, but must also be a proactive member of the team when it comes to implementing and adhering to infection control policies.

## **PPD** Questions

- 1. What is the correct definition for reverse barrier nursing?
- 2. How far away from the main hospital and stables should an isolation facility be built?

3. What is a fomite?

- 4. What causes 'strangles' in equine patients?
- 5. Name 3 steps you could take to ensure your infection control policies are effective?

 2. an object or substance capable of carrying infectious organisms and transferring them from one individual to another
 4. a bacterium called Streptococcus equi
 5. clinical audit, SOPs and detailed staff training.

way round 2. 50 metres away

Answers I. in the case of reverse barrier nursing, neonatal foals suffering from failure of passive transfer of antibodies are being protected from outside sources of contamination e.g. owners, nurses and other patients rather than the other contamination e.g. owners, nurses and other patients rather than the other

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# Time to face the facts on equine welfare

First it was cats, then rabbits. And now it is horses. For decades we have been misinterpreting their behaviour, imposing misguided husbandry criteria upon them and failing to meet their welfare needs properly.

A study by Bristol's School of Veterinary Sciences, entitled *Horses in our hands*\* and funded by World Horse Welfare, has sought to understand the welfare status of horses in England and Wales. In particular it aimed to identify the priority welfare issues currently faced by horses and to explore horse owner and industry experts' perceptions around these.

In-depth interviews were carried out with 31 people who, through either work and/or pleasure, had day-to-day contact with horses. Stakeholders interviewed included not only obvious candidates such as horse owners, veterinary surgeons, farriers and trainers – but also a dressage trainer, a traveller, a knacker man and a driving coach.

Many of these people had their own understanding of 'welfare' which was independent of the definitions created by welfare scientists. For many 'welfare' was a largely negative term and poor welfare was often seen as someone else's problem. Forty specific issues and 12 broader contexts were identified; and eight 'root causes' consistently emerged. These were:

- lack of knowledge
- poor advice-seeking behaviour (e.g. not seeking advice or asking the wrong person)
- lack of finances
- indiscriminate breeding
- the fact that horses are viewed as commodities
- welfare legislation failures
- passport legislation failures
- the high cost of euthanasia.

The three items that topped the list were horses kept in unsuitable environments (19), 'inappropriate use' (15) and 'where behaviour is misunderstood' (15).

These welfare issues were then considered in depth by 20 experts who had industry level knowledge of the significance of the welfare problems facing horses. They included veterinary surgeons, equine behaviourists and representatives from industry governing bodies and equine welfare charities.

Their consultation was carried out over three rounds and was based initially on the 52 welfare issues that emerged during the initial research with the stakeholders. An iterative approach was used whereby each round informed the next, working through the welfare issues identified in order to focus on the highest priority.

Throughout the process, experts were given the opportunity to add welfare issues that had not been raised in the first set of interviews. This led to a total of 62 issues being identified and considered by the experts; who then 'sieved' them into four key priorities which, rather than being welfare issues per se, represent risk factors that were perceived to challenge equine welfare in England and Wales. They were:

- unresolved stress/pain behaviour
- inappropriate nutrition
- inappropriate stabling/turnout
- delayed death.

The experts also had some suggestions as to how a start could be made on resolving some of these issues.

#### Unresolved stress/pain behaviour

They felt that more academic research was needed to fully understand the links between behaviour, stress and pain and to develop objective measures of stress and pain in horses. Veterinary professionals, riding instructors, the Pony Club, riding clubs and the equine press were all identified as having a role in educating horse owners about indicators of stress and pain and appropriate responses to these indicators.

Academics and experts were also seen to have a role in tackling this issue by evaluating the effectiveness of intervention programmes.

#### Inappropriate nutrition

The group believed that a harmonised approach by all veterinary professionals was needed here, otherwise horse owners would preferentially choose individuals who didn't challenge them about their horses' nutrition. Feed companies were also seen to play an important role, although many experts felt that feed companies already offer appropriate nutrition for a range of horses and exercise situations.

Better owner education, based on existing good research, was seen as a requirement

to ensure the right nutritional choices were made for individual horses, especially in the face of a rise in the number of cases of obesity.

ONLINE EDITION

#### Inappropriate stabling/turnout

The experts recognised that although all horse owners make choices relating to the amount and type of stabling and turnout experienced by their horses, livery yard owners could play a particular role in addressing this issue. For example, livery owners have a role in the promotion of alternative approaches to management, including group housing and the use of all-weather turnout facilities.

Strengthening legislation was seen as another possible route to improvement but it was emphasised that a 'one-sizefits-all' approach would be inappropriate. For example, it was proposed by some experts that, for some horses, turnout to pasture may not always be appropriate.

#### **Delayed death**

Some experts felt that one route to improvement would be via pressure on the EU to make changes to the passport regulations. In particular, some of the experts promoted legislation changes that would enable horses that had received medications, including phenylbutazone, to be slaughtered to enter the human food chain after a six-month withdrawal period.

In addition, challenging negative, emotionally charged attitudes of horse owners towards timely euthanasia was seen to be important.

#### Way forward

Speaking about the report at its launch in the House of Commons, Dr Siobhan Mullan, research fellow and contributing author from the University of Bristol, said: "The research has identified how equine welfare can be improved, by addressing both the priority challenges, and a wider set of industry and horse-based needs."

\* Horses in our hands is essential reading for any veterinary practice dealing with horses and it can be downloaded from the World Horse Welfare website, www.worldhorsewelfare.org

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#### Location, location, location

Removal of the uncertainty over the location of an appointment and reduced travelling time are key benefits of using **Daybook**. With direct linking to *Google Maps*, team members can view maps and directions directly from the system whenever they have an internet connection; and these can be attached to bookings for those troublesome remote or obscure locations beyond the realms of the trusted 'satnay'.

**Daybook** caters for the added complications of multiple locations and stabling addresses faced by farm and equine veterinary professionals. Stabling addresses added at the time of booking will automatically be stored for potential future visits and associated 'flags' will inform staff when accessing the patient record that such an address exists.

Grouping bookings according to area helps to ensure that clients are invoiced correctly according to their distance from the surgery. Travelling times and costs can be greatly reduced by grouping bookings geographically, allowing for better time management and a more cost-effective service. Clients requiring a non-urgent visit for a routine case or a follow-up appointment can be added to the appointments list as a 'passing visit'. This feature enables pending appointments to remain on the **Daybook** bookings page until allocated to an appropriate round when there is a team member in the area.

Management staff can set availability and block time periods when they are unavailable, which is particularly useful for those veterinary professionals who work both in practice premises and on the road. Setting their availability will then filter out any unavailable veterinary surgeons at the time of booking, thereby eliminating double bookings.

Time can be blocked out in slots ranging from hours to weeks, and then used during periods of extended absence or holiday. It is also possible to set regular 'available' and 'unavailable' periods on a rolling weekly basis.

## Maximising potential, managing costs

Whilst **Daybook** is a vital tool for mixed practices and those offering a home visit service, staff on the

road can maximise their practice management system as a whole when using it in combination with **Mobile VetStation**.

Visits, records and schedules are downloaded onto the device enabling them to view crucial clinical information, prescribe, print and invoice on location – the latter ensuring that stock levels are controlled and updated.

#### Simple, intuitive, essential

By digitalising the traditional handwritten daybook, **Spectrum Daybook** works well for the varied, fast-paced and changing requirements of the modern veterinary practice. With colour coding, intuitive commands and direct linking to patient records and *Google Maps*, it is an extensive and reliable solution for mixed and large animal practices.

Daybook places time management at the heart of both business success and client satisfaction, managing your travelling veterinary surgeons efficiently to provide the optimum experience for everyone – your staff team well informed of their schedules, and your clients' expectations consistently being met and constantly exceeded.

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Designed & produced by





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Carolyn graduated from Cambridge veterinary school in 2005, and then lived in London for two years, working in small animal practice. In 2007, she was bitten by the 'travel bug' and moved to New Zealand to pursue her real interest – farm vetting. She spent the next three years learning to do things the 'Kiwi way' in a mainly dairy-focused practice.

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\*Suggested Personal & Professional Development (PPD)



FARM SAFETY

# How to prevent on-farm injuries

Picture the scene. The rain lashes down as the veterinary surgeon attempts, yet again, to clip a patch of hair on the neck of the woolly Limousin in the crush. The clippers were trampled on hours ago, and now the scissors catch on a bar and twist painfully around the vet's thumb. Fingers wet, cold and numb, she picks up the slippery tuberculin syringes and attempts to inject the raging steer. The farmer's increasingly desperate cries of "Just jab 'im!" are drowned out in a flurry of snorting beast, metal bars, sharp needles and flying muck. The head lock suddenly flies open, the handle knocking the vet's head, and the animal hurls itself out of the crush, kicking up its heels as it disappears into the distance.

Farms can be dangerous places, and being a farm veterinary surgeon can be a dangerous occupation. More than half the production animal vets who responded to the BVA's recent 'Voice of the Veterinary Profession' survey (2015) reported being injured at work, with 18.8 per cent rating their injuries as 'very or quite severe'.

**Table 1** lists some of thecommon hazards to which farmveterinary surgeons are exposed.

This article doesn't attempt to give a comprehensive overview of health and safety on farm, or how to risk assess all the different situations that might be encountered, but rather discusses, from the author's experience, the top 10 most common scenarios in which injuries occur, and how they might be avoided.

#### 1. Crushes Entering the crush

An optimistic farmer – often with encouraging shouts of "Show 'im t'light, vitnery!" – may ask you to hold the front gate of the crush open to 'tempt' a nervous animal through (**Figure 1**).

However, slamming the gate shut at exactly the right moment to trap the animal (now running at full pelt) without sending it into an equally fast reverse is fraught with risk for both the person in charge of the front gate and the person pushing up the animal from behind. Depending on the animal's temperament, keeping the front gate shut may be slower but much safer.

#### In the crush

Crushes are wonderful inventions, but they are also the source of many injuries, especially trapped hands (**Figures 2** & **3**). When touching an animal in a crush, always run through the different ways the animal could move – side-to-side, forwards, backwards, up, down, kicking – and ask

#### Hazards

- crushing
- goring/butting
- impact
- kicking
- slipping
- entrapment
- lacerations
- strains & sprains
- exertion
- fatigue

**Table 1**. Common hazardsexperienced by farm vets(Adapted from BVA, 2014a)

*Figure 1.* Holding the front gate open to tempt him in: brave, stupid or necessary?



"Never take unnecessary risks, even for a moment – cattle can move very quickly and with surprising force"

yourself where your hand would end up in relation to the metalwork. Never take unnecessary risks, even for a moment - cattle can move very quickly and with surprising force. If the crush isn't up to the job - perhaps the head lock is broken, or you're asked to examine a foot and there's no way to tie it up properly - don't continue.

#### Exiting the crush

Many a farmer's nose has been broken and many a tooth knocked out by the front gate of a crush. Once the latch is open, the occupant may exit the crush with considerable speed and force. Always stand clear of the arc of the gate. Be aware, too, that some animals will

kick their heels up to almost head height when exiting.

#### 2. Down cows

Treating 'downer' cows can become very risky if the patient suddenly decides it no longer wants to be down. Hypomagnesaemic cows, in particular, can get up very quickly, and become uncharacteristically aggressive, after treatment. Always be on your guard - and have an escape route planned.

#### 3. Heads

Bovine heads are heavy and can deliver a powerful blow. The swinging head of a 'downer' cow can easily knock people off their feet. To prevent this, the author places a halter round the head and

Figure 2. When auscultating the heart in a crush like this, it's tempting to slide the hand down inside the crush to reach the chest just behind the elbow. If the animal moves sideways, though, a trapped arm will result. On this particular crush, the lower front side panel can be removed to give better access, but some crushes have solid sides.

then ties the loose end tightly to a back leg, just above the hock, to restrain the head and give good, safe access to a jugular vein.

For animals in a crush, a flick of the head upwards perhaps during the injection of anaesthetic behind the horn in preparation for dehorning, or to the side, perhaps during TB testing - can lead to hands being crushed between the animal's head and the metal bars (Figure 4).

If working directly between the head and the crush is unavoidable, make sure the head is tied securely to one side – and test the ropes before beginning the job.

Human heads can be very vulnerable, particularly when wearing ultrasound goggles that restrict vision (Figure 5), or when running round dimly lit barns that have low beams or

metalwork sticking out of the walls. Farm veterinary surgeons don't wear helmets very often - but it is something worth considering when performing certain procedures, such as teat surgery on standing cows.

#### 4. Feet

Bruising from kicks was the most common injury reported in the BVA survey, and opportunities for farm animals to kick people present themselves with great frequency (Figure 6). A clear voice and a firm but gentle hand can stop cattle kicking out in surprise, and standing close to the patient can limit the momentum of the foot, resulting in a push rather than a kick.

Specific procedures require specific safety measures. For example, teat surgery on a cow may require the use of sedation and local anaesthesia, with a leg tied

Figure 3. Examination of the prepuce during a bull breeding soundness examination. When it comes to touching the prepuce, the make the arm extremely vulnerable, and it could easily be shattered



veterinary surgeon here should put his arm in front of the upright metal bar. Putting it behind - a common mistake to make - would against the bar if the bull kicks forwards.



back very securely. Recumbent patients, that are supposedly under general anaesthetic or heavy sedation, can deliver very swift kicks to anyone within range of their feet, and veterinary surgeons performing abdominal surgery are especially vulnerable.

#### 5. Scalpel blades, knives and needles

These are sharp! During an 'exciting' surgery, it's easy to forget never to cut towards your hand, or wrist, or leg (**Figure 7**). Many a veterinary surgeon has held the distal end, rather than the neck, of the scrotum during the vertical incision of a calf castration, and slashed their wrist as a result.

The author struggles to perform post-mortem examinations without making deep cuts in her fingers, and now wears Kevlar gloves, which have solved the problem.

### 6. Hasty decisions, instant regrets

The author still bears scars from feeling a cow's molar surfaces with her finger using a slippery tongue instead of a proper gag; and from trying to dismember a malpositioned foetus with the scalpel blade that was immediately at hand, rather than taking an extra 10 minutes to go to the car for a guarded blade. In hindsight, such decisions seem foolish, but in the heat of the moment poor decisions are easy to make.

Keep a cool head, and don't take unwise risks for the sake of saving a few minutes. A visit to A&E will take much longer!

#### 7. Going beyond your limits, and being afraid to say "No"

Veterinary surgeons often help out with animal handling on

# "Always be aware of what's going on around you"

farm; but don't let yourself be persuaded into doing things with which you're not comfortable or confident. Being given a flimsy length of pipe to stop a herd going through a favourite gap in the fence may lead to trampling. Helping move cattle without quite knowing where they are going may end up with them on the road, or mixed with a group with which they shouldn't be in contact.

Being asked to TB test a pen of loose animals by wandering freely through them is never acceptable, even though the farmer may protest that "This is the way the vets always do it." (NB. Chances are, it isn't!).

#### 8. Too many cooks

Too many people trying to be in charge - or alternatively noone taking charge - can lead to people being in the wrong place at the wrong time. Take control if you need to; but even if you don't, still make sure that everyone involved in a job - especially students and inexperienced farm workers - has been clearly communicated with so that they know their role. Letting animals go at the wrong time, or opening a gate before someone has moved out of the way, can be very dangerous when cattle are involved.

#### 9. Losing concentration

Always be aware of what's going on around you. If the cow you're calving breaks her halter and suddenly reverses, will you be trapped between her and the brick wall behind you? If you're among loose cattle, is there an escape route? Are there particularly slippery floors that would benefit from a scattering of sand or sawdust? Are the sides of the handling system low enough that cattle might try to jump over? Cattle can be over-optimistic when trying



Figure 4. The correct site on this bull's neck for TB testing is in front of the crush, but a head swing or butt while clipping, palpating, measuring or injecting could lead to a trapped arm.

Figure 5. Ultrasound goggles restrict vision, making it easier to walk into objects at head height.



to scale walls or railings, and trying to extricate an animal stuck halfway, hooves flailing, can be treacherous.

A quick assessment of each situation to look for things that might go wrong - formally known as a dynamic on-site risk assessment – is invaluable. For example, a close look at the latch on the front gate of the crush in Figure 2 shows that there is no stop-catch. Some animals are very proficient at opening this type of gate by themselves if their neck is free. A request to the farmer to put a wedge of wood or metal above the latch to stop this happening can eliminate the time, stress and potential injury that go hand in hand with escaped animals.

#### **10. Chronic injuries**

Years of rectal examinations, untwisting uteruses and replacing prolapses can lead to aches and pains – or worse – in the shoulders, neck and back (**Figure 8**). Think carefully about your position and whether it's likely to cause chronic strain – for example, standing side-on for rectal examinations and pushing with the upper body puts less strain on the shoulders than standing front-on and pushing with just the arm. Better still, get some advice from a professional physiotherapist on how to position yourself, and on the best way to strengthen the muscles involved. "A quick assessment of each situation to look for things that might go wrong – formally known as a dynamic on-site risk assessment – is invaluable"



**Figure 6.** Examination of the scrotum of the bull in Figure 3. The bar behind the bull will help limit the impact of kicks, but the veterinary surgeon is still vulnerable. Holding the base of the tail vertically can help, too, although it can be difficult in a large bull!



Figure 7. A scar on the arm, 18 months after the initial injury, caused by a cow kicking the scalpel during abdominal surgery.

*Figures 8a & 8b. Twisting a shoulder while replacing a prolapsed uterus, which can injure the rotator cuff. This procedure also involves heavy lifting!* 





#### Health and safety matters

Health and safety in a shared workplace, such as a farm, is the responsibility of both parties. The farmer and veterinary surgeon have a legal duty to work together to ensure the safety of all workers on the site (Management of Health and Safety at Work Regulations (MHSWR, 1999); although practice employers and farmers each have specific responsibilities.

#### **Employers**

Employers are required, under the Health and Safety at Work etc. Act (1974), to keep themselves and those affected by their work activities as safe as is reasonably practicable. Under the MHSWR (1999), employers must ensure that risks present in the workplace have been assessed and that all employees are adequately trained and informed of risks before commencing work. Where five or more people are employed, the arrangements and procedures for health and safety - in the practice and on-farm – must be included in an up-to-date written policy (BVA, 2014a).

#### **Farmers**

Farmers have a duty to ensure - so far as is reasonably practicable - the safety of people working on their farm. Under the Provision and Use of Work Equipment Regulations (1998), it is the farmer's duty to ensure that the work equipment he or she provides, such as pens, fences, gates, races, cattle crushes and safe escape routes, is maintained in efficient working order, and is fit for purpose.

#### Support literature

The BVA's Farm health and safety guide (2014a) provides summaries of the relevant legislation, of the duties of the different parties, and of how to perform risk assessments. The Health and Safety Executive's Handling and housing cattle guide (2012) is helpful in guiding farmers as

#### "Too many people trying to be in charge – or alternatively no-one taking charge – can lead to people being in the wrong place at the wrong time"

to the standards of equipment and procedures they should provide. The BVA's client leaflet *Is your farm a safe place to work?* (2014b) describes what should be in place on the farm for veterinary professionals to work safely, and is useful to hand out to new and existing clients. Animals are unpredictable, and 'farm vetting' fraught with opportunities for injury; but the vast majority of the risks can be greatly reduced - or even eliminated - by careful forethought, correct use of well-maintained handling equipment, and attention to detail. One small unnecessary risk can have huge consequences and lead to serious and permanent injury, or even death. Taking a few more minutes to make a situation safe can save lives from ruin.

#### Acknowledgements

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## **PPD Questions**

- What percentage of production animal vets who reported being injured at work in response to the BVA's 2015 'Voice of the Veterinary Profession' survey rated their injuries as 'very or quite severe'?
  - A. 18.8%
  - B. 8.8%
  - C. 88.8%
  - D. 0.8%
- 2. What was the most common injury reported by the survey?
- List four general hazards commonly encountered by farm vets.
- 4. Name two specific hazards that an animal exiting a crush presents to the person in charge of the front gate.
- 5. During a veterinary visit to a farm, who's responsibility is health and safety, and by what legislation is this covered?

2. brunsing from kicks 3. any four of: crushing, goring/butting, impact, kicking, slipping, entrapment, lacerations, strains & sprains, exertion, fatigue 4. being hit by the front gate swinging open, and being kicked by hind legs flicking up 5. the farmer and veterinary surgeon have joint responsibility under the Manage-5. the farmer and Safety at Work Regulations (1999). ment of Health and Safety at Work Regulations (1999).

> 1. A Answers

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\*Suggested Personal & Professional Development (PPD)



MASTITIS

# Mastitis therapy – some new approaches

Mastitis remains one of the most important endemic diseases of dairy herds. Treatment of mastitis typically accounts for the largest use of antibiotics on dairy farms. In addition, prophylactic use of dry cow therapy is commonly practised and accounts for additional widespread antibiotic use.

This article looks at some of the recent advances in mastitis control using alternative therapeutic approaches, particularly in the light of goals to reduce antibiotic use.

### Antibiotic protocols and treatment decisions

Mastitis is usually caused by a bacterial infection of the udder. However, the exact reasons why a cow develops subclinical or clinical mastitis after intramammary challenge are not well understood; although they are likely to be influenced by the pathogen involved - both species and strain - as well as the immune status of the cow. The most commonly diagnosed pathogens in the UK are Staphylococcus aureus, Streptococcus uberis and Escherichia coli.

Clinical mastitis is defined as when there are visible changes to the milk – as opposed to subclinical mastitis, where there are no visible changes, but the somatic cell count may be raised. The usual treatment of a clinical case is the use of intramammary antibiotic preparations that contain either a single active ingredient, or a combination of antibiotics, or a combination of antibiotics and corticosteroid.

It is unusual in the UK for farmers or veterinary surgeons to undertake any pre-treatment bacteriology of mastitis milk, which means that treatment decisions are usually based on previous experience and a degree of pragmatism. Whilst this allows for rapid treatment (no delay for diagnostics), which is arguably very important for treatment success (Hillerton and Semmens, 1999), it does not constitute best practice for antibiotic selection.

In essence, most farmers have one or more standard treatment protocols that they use. These should have been drawn up by the prescribing veterinary surgeon – though experience suggests that this is not always the case. Typically, different protocols are used for first cases, repeat cases and systemically ill cows.

'First case' treatment often consists of administering a course of a lactating cow antibiotic intramammary 'tube'. There is a wide choice of products available and, in the absence of microbiological data, there is a rationale for choosing a broad-spectrum product. Broad-spectrum activity may be achieved by combining antibiotics that target different organisms - a first generation cephalosporin for Gram positives, such as staphylococci and streptococci, combined with an aminoglycoside for Gram negatives, such as E.coli).

This is probably a more responsible approach than prescribing a broadspectrum 3rd or 4th generation cephalosporin as a first line of treatment,

"Production animal veterinary surgeons understand that prevention, not cure, is what brings value to their clients"

because these antibiotics have been classed by the World Health Organisation as 'Critically Important'. As such, we are encouraged to reserve their use for occasions when bacteriology and sensitivity results indicate they are required.

Unfortunately, there is little published research into factors affecting prescribing behaviour and treatment choice. A pan-European survey of veterinary surgeons by De Briyne et al, 2013, described five main categories of factors that might influence antibiotic prescribing behaviour:

- economicresponsible use
- convenience
- professional judgement; and
- cultural/societal factors.

Each factor receives similar levels of weighting when a decision is made, but farm practitioners slightly favoured 'professional judgement' over other categories. For farmers too, there is little published evidence on factors affecting their treatment choices; but it is likely that decisions are influenced by several factors that are not necessarily conducive to the most prudent use of medicines. In contrast to treatment of subclinical mastitis infections, there is also very little published research on factors affecting treatment outcomes for clinical mastitis. Therefore, despite the plethora of information available on mastitis pathogenesis, veterinary professionals and farmers in practice actually have very little opportunity to follow an evidence-based approach to treatment.

My experience is that treatment choices leave much room for improvement, and this area of farm vet practice is likely to come under closer scrutiny owing to concerns over antibiotic resistance, over-use of antibiotics, and, particularly, the use of critically important antibiotics (O'Neill, 2016).

#### Pre-treatment microbiology

Severity of clinical signs and the appearance of mastitic milk are far from reliable evidence of the likely aetiology of the condition. Coliform mastitis, for example, may be mild and chronic or peracute and severe. Not all cases of toxic mastitis – where the cow is severely systemically ill – are the consequence of coliform mastitis.

This fact is often lost on farmers. Therefore, pretreatment microbiology to determine the cause – and whether antibiotics are indicated – is recommended. Whilst this is common practice on larger US dairies in particular, in the UK, routine pre-treatment microbiology is very rarely attempted.

The equipment required for on-farm microbiology is readily available and not expensive (**Figure 1**). However, some degree of expertise is required to interpret results and this is an obvious area where training and guidance by veterinary surgeons could provide clear value to farm clients. Several protocols exist for diagnosis of common pathogens using different



*Figure 1.* An example of an on-farm incubator for pre-treatment bacteriology.

growth media, and results can be available by the next milking (12 hours) or certainly after 24 hours (**Figure 2**).

Whilst this delay in treatment might be detrimental in some cases, it is, in fact, the higher treatment success rates and the quicker return of saleable milk - avoiding lengthy antibiotic withdrawal periods, for example - that provides a strong economic argument for pre-treatment microbiology. It is the economic advantage - rather than the responsible use of antibiotics - that largely persuades farms that pre-treatment microbiology is worthwhile.

Pre-treatment microbiology does not mean that all treatment is delayed; for example, oxytocin therapy, topical udder ointments and non-steroidal antiinflammatories (NSAIDs) may be used immediately. Once the aetiology has been established, antibiotic therapy may or may not be deemed necessary. There is evidence that antibiotic therapy does not make a significant difference to treatment success of known E. coli mastitis cases, for example (Suojala, 2010). In such cases, supportive therapy alone may be sufficient.

Whilst bacterial culture is presently the most readily



Figure 2. Bacterial growth on a tri-plate after 12 hours of incubation.

available and reliable method of on-farm establishment of aetiology, 'pen-side' diagnostics is a rapidly evolving area and we can expect to see some exciting developments in coming years. This could result in a sea change in the way we use mastitis treatment protocols and, again, the opportunities for veterinary involvement could be huge.

#### Oxytocin therapy

My experience is that oxytocin is more widely used to treat mastitis routinely in other parts of the world compared with the UK. Published evidence suggests that a greater use as a routine first-line treatment might be justified. For example, Guterbock et al (1993) found intramuscular injections of oxytocin every 12 hours for two to three milkings (without antibiotics) resulted in a clinical cure rate of approximately 67 per cent and a bacteriological cure rate of approximately 50 per cent

when treating clinical mastitis caused by environmental pathogens. These cure rates were similar to two different intramammary antibiotic regimens used as a comparison.

Oxytocin should not be considered as a panacea though, and there is evidence that it is far less effective in the treatment of Strep. uberis infections, for example (Hillerton and Kleim, 2002). In their small study of 54 cows experimentally infected with Strep. uberis, aggressive (prolonged) intramammary antibiotic therapys achieved the best treatment success, resulting in the least antibiotic use overall owing to faster bacteriological cure and fewer relapses.

#### **NSAID therapy**

Clinical mastitis is a painful condition, and there is often considerable obvious inflammation of the udder. The use of NSAIDs as part of treatment regimens, therefore, seems entirely sensible and could be justified purely on welfare grounds.

What is very interesting, particularly to cost-conscious farmers, is that a large New Zealand study (McDougall, et al, 2009) also found that the combination of a NSAID drug (meloxicam) with a parental antibiotic (penethemate hydriodide) improved treatment outcomes in even mild clinical mastitis cases. The reason for this might have been a consequence of helping cows 'feel better' and maintaining feed intakes; or a more direct pharmacological reason, for example, resulting in increased antibiotic concentration in the udder; or simply by limiting harmful cell damage caused by the inflammatory response.

These results have certainly seemed to promote a wider use of NSAIDs in routine mastitis treatment protocols. Whilst surely beneficial from a welfare perspective, routine use of NSAIDs in treatment protocols might also contribute to lower antibiotic use if treatment success is higher. Further studies are required to investigate if this is the case when NSAIDs are used as an adjunct to intramammary antibiotic therapy.

#### Cascade use and withdrawal times

Cascade use – often colloquially termed 'off label' – is when a medicine is used under veterinary prescription to treat a condition other than specifically indicated on the product data sheet, or at a dose regimen other than on the product data sheet.

Prescribing under the Cascade is only legal when there is no

suitable medicine specifically authorised to treat a particular condition in a given species.

It is not uncommon for medicines to be used 'off label' for mastitis treatment - sometimes inadvertently. It must be remembered that Cascade use without specific veterinary direction is simply illegal use of medicines and veterinary professionals have a crucial role to play in ensuring that medicines are used as intended. Examples of Cascade use for mastitis therapy, which sometimes result in antibiotic milk failures, are:

- a prolonged treatment course (e.g. five days of an intramammary tube when the data sheet states 48 hour treatment duration)
- more frequent application of an intramammary tube (e.g. every milking instead of every 24 hours)
- exceeding the dose rate (e.g. infusing contents of two tubes at first treatment)
- combining two products with the same antibiotic active ingredient, but which have not specifically been approved for use together (e.g. injection of parenteral amoxycillin alongside use of penicillin-containing intramammary tubes)
- use of dry cow tubes to treat clinical mastitis during lactation
- 'home-made' preparations/ intramammary infusion of injectable antibiotic product (always illegal).

Poor treatment success can be a frustration for both vets and farmers, and so 'hitting it hard' with 'offlabel' use is, perhaps, an understandable reaction. There is some evidence that prolonged courses of antibiotics at high doses can

"... 'pen-side' diagnostics is a rapidly evolving area and we can expect to see some exciting developments in coming years" improve treatment success in some circumstances, and so Cascade use could be justified. Prescribing vets would, however, be well advised to build a case for Cascade use – for example, by using regular bacteriology of clinical cases and keeping good records of treatment success.

A long milk withdrawal time - whilst not an immediately attractive proposition - might, in fact, be less important economically than a higher treatment success rate and less risk of recurrence. There also needs to be a balance in decision-making to avoid the unnecessary use of large amounts of antibiotic in those cases that don't need it - another reason, therefore, to use pre-treatment bacteriology more widely. Recent guidelines, issued by the Veterinary Medicines Directorate (2016), advise that where two antibiotic products from different classes are used concurrently - but as directed by their individual product licences - it is appropriate to use the longer withdrawal period of the two, and not necessarily seven days minimum. This is also the case where an antibiotic is used concurrently with another medicine, for example a NSAID. Where antibiotics of the same class - or with known interactions - are used concurrently, a minimum of seven days is required, and possibly longer.

#### Selective dry cow therapy

'Blanket' dry cow therapy (DCT) with antibiotics is one of the points recommended in the '5 Point Mastitis Control Plan' that has been used since the 1970s to control the risk of intramammary infection after drying off (Dodd et al, 1969). Blanket DCT for mastitis control has become the norm in the UK, as it has in other countries. Antibiotics used in DCT have two important – but distinctly different – functions:

- to eliminate infection present at drying off
- to prevent new infection during the non-lactating period.

For the past 15 years in the UK, internal non-antibiotic teat sealants have been available. Importantly, they have been demonstrated, under normal UK conditions, to be at least as effective as antibiotic DCT in preventing new dry period infections caused by major mastitis pathogens, particularly the environmental organisms. This means that blanket antibiotic DCT is no longer justified if it is possible to select those cows that do not have evidence of infection at drying off. In other words, selective antibiotic DCT can be adopted where every cow receives an internal teat sealant at drying off, but only those individuals that also have evidence of infection receive additional antibiotic treatment.

This is hardly a new development, perhaps, but selective dry cow therapy has been slow to gain traction. In part, this might be a consequence of an "if it ain't broken, why change it" attitude. In part, it might also be the result of some negative experiences - initially reported by farmers who used teat sealant alone - but that were most probably caused by poor infusion technique. Certainly, the use of sealant alone requires a careful, aseptic infusion technique to avoid infection of the udder at drying off.

Here lies another opportunity for veterinary professional intervention because selective DCT requires new herd protocols to be set, training of staff, and monitoring of results that needs to be ongoing. It can certainly be done very successfully, without any compromise to herd health (mastitis rates). Success depends entirely on having the right selection criteria, good records and competent staff, and an increasing number of dairy farms are leading the way on this, supported by their vets.

Arla, one of UK's main milk buyers, recently directed all of its farm members to move towards selective dry cow therapy. This is part of their strategy to reduce the unnecessary use of antibiotics in the dairy industry, which is important for the public perception of milk and dairy production and the sustainability of their business.

Farmers - and vets too, dare I suggest - can be very slow to grasp this plain truth. The dairy industry is under scrutiny; and in order to continue to win consumers' trust and respect, we must take every opportunity to review our procedures and adopt best practice. Blanket DCT is the one example where prophylactic antibiotic use is widespread in the dairy industry. A move to selective DCT is a clear opportunity to reduce overall antibiotic administration and demonstrate that the industry is responsive to its customers' concerns.

#### 'Abrupt' dry off

'Abrupt' dry off is important to reduce the risk of new infection establishing immediately before the dry period. Whilst most farmers accept this - some traditionalists still retain the old habits of once-a-day or every-other-day milking - it can become very challenging for cows that are producing in excess of around 15 to 20 litres of milk per day. In wellmanaged, high-yielding herds with short calving intervals, it is not uncommon to have

cows yielding up to 30 litres per day at drying off. The risks are of severe udder distention and discomfort and leaking of milk – all of which can increase the risk of new infection. When wishing to practise selective dry cow therapy, the quandary is obvious.

#### Immune modulation

A new veterinary medicine that may reduce mastitis risk and antibiotic use is pegbovigastim (Imrestor, Elanco). It is a synthetic cytokine, mimicking the action of granulocyte colony stimulating factor, which stimulates the growth and differentiation of neutrophil precursor cells. The net effect is an increased number of neutrophils and an increase in their biological activity. The recombinant molecule is attached to a water-soluble polymer ('PEGylated') in order to increase its half life, and hence, period of activity in the cow.

This novel pharmacological approach of enhancing an integral part of an individual's natural immune response is quite different to vaccination, which stimulates an acquired immunity. Whilst vaccination for mastitis is possible - in particular, coliform mastitis using J5 vaccines – mastitis immunity is very dependent on the innate cell-mediated immune response that has hitherto limited the effectiveness of vaccination against many of the common pathogens. Pegbovigastim is claimed to enhance a non-specific innate immune response, particularly in periparturient cows which have an inherent immune suppression associated with normal hormonal changes that occur around parturition.

#### "A move to selective DCT is a clear opportunity to reduce overall antibiotic use and demonstrate that the industry is responsive to its customers' concerns"



By default, the minimum milk withdrawal time after Cascade use is seven days – it may be longer; so testing milk from treated cows, before returning it to the tank, is recommended.

The medicine is licensed for use in dairy cows around two weeks before – and on the day of – calving. Whilst it is licensed to restore the function and increase the number of neutrophils that fight a broad range of pathogens, it has a specific indication for reducing the risk of mastitis during the early lactation period. Whilst very new to the UK market, it has potential to further reduce our need for antibiotics.

Again, here lies a great opportunity for veterinary surgeons in practice to ensure that their farm clients have the right information on which to base their decisions. In order to understand the potential cost benefits of using the medicine, and to monitor results, robust data collection and analysis are necessary and veterinary surgeons are best placed to help their clients in this area.

#### **Summary**

Production animal veterinary surgeons understand that prevention, not cure, is what brings value to their clients. The additional recent increase in scrutiny of the use of antibiotics further promotes a preventive approach to herd health management.

It can sometimes be frustrating being a farm animal veterinary surgeon, understanding what should be being done, but meanwhile faced with farm clients looking for the 'quick fix' and asking for "a new tube, because my old one has stopped working". Having a few new measures at our disposal – whether they be new pharmacological developments or whole new diagnostic approaches - can be useful in our endeavours to reduce mastitis, to keep cows more healthy and to promote more responsible use of medicines.

## **PPD** Questions

- 1. The 'Critically Important' antibiotics are best described by which of the following? A. they are the 3rd and 4th generation cephalosporins
  - B. they are quinolones and the 3rd and 4th generation cephalosporins
  - C. they are those antibiotics ranked by an expert clinical group of the World Health Organisation which are deemed most critically important for human bacterial diseases
     D. they are those antibiotics which have the least known bacterial resistance to them
  - b. they are those antibioties which have the least known bacterial resistance to them
- 2. A cow with mastitis is treated for three days with tylosin injection (withdrawal period 108 hours) and three days of intramammary antibiotic tubes containing cefquinome (withdrawal period 120 hours). What is the appropriate milk withdrawal period to advise your farmer in this circumstance?
  - A. 108 hours after the last injection
  - B. 120 hours (five days) after the last tube
  - C. Seven days after the last tube
  - D. once the milk has passed an antibiotic screening test
- 3. Which of the following are true about selective dry cow therapy?
  - A. it always increases the risk of mastitis during the dry period
  - B. all cows are suitable for selective dry cow therapy
  - C. all farms are suitable for selective dry cow therapy
  - D. there is no additional benefit other than reducing unnecessary antibiotic use
- 4. Which of the following is true of pegbovigastim?
  - A. it stimulates an acquired immune response
  - B. it increases the number of lymphocytes
  - C. it is an anti-inflammatory mediator
  - D. it causes a neutrophilia
- 5. Pre-treatment microbiology is likely to be useful for which of the following reasons:
  - A. it reduces the unnecessary use of antibiotics
  - B. it can help improve treatment success rates
  - C. it can be more cost effective for the farmer when treating mastitis
  - D. it can help determine changes in mastitis patterns on a farm

#### <mark>2</mark>. ∀' B' C & D. **⁺.** D

because the normal udder microbiome is not disturbed

was a specific licensed indication for their concurrent use with an alternative withdrawal period 3. A. Good practice of drying off is required to reduce the risk of introducing infection. Not all cows are suitable (e.g. high cell count cows; cows with evidence of infection). Not all herds are suitable (e.g. high cell count herds; herds which do not have individual cow cell count data). There are additional benefits of not treating uninfected cows with antibiotic, other than herding unnecessary antibiotic use – there is some evidence that mastifis rates are lower in subsequent lactations, possibly reducing unnecessary antibiotic use – there is some evidence that mastifis rates are lower in subsequent lactations, possibly reducing unnecessary antibiotic use – there is some evidence that mastifis rates are lower in subsequent lactations.

C (though all the other answers are also true)
 B. As the antibiotics are in different classes, VMD guidelines are that the longest of the two withdrawal periods is usually appropriate. If the antibiotics were of the same class, a minimum seven-day withdrawal period must be applied unless there

Answers

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Mel McPherson BVM&S MRCVS

Mel is a farm vet at Drove Veterinary Hospital in Wiltshire – a member of the XLVets group. As well as her day-to-day work, she also runs a number of Farm Skills workshops for clients, local farmers and students at a number of universities, including the Royal Agricultural University and Bristol Veterinary School, teaching practical animal health and welfare skills.



\*Suggested Personal & Professional Development (PPD)



LAMBING SKILLS

# Completing the virtuous CPD circle

When we first started running our workshops in 2010, we held three on separate dates from November to February in order to cater for our clients' differing tupping times and demand. This has grown over recent times to include a wider spectrum of local farmers; as well as courses for first-year students at the Bristol School of Veterinary Sciences prior to their first 'lambing season', and students at the Royal Agricultural University.

This article demonstrates the value of training and CPD for clients, students and new graduates, and how this can improve the bonding of large animal clients to the practice.

The emphasis is on teaching the delegates from a practical standpoint, with half of the four-hour course spent with 'Dolly' our lambing simulator and a selection of deceased lambs from local farms. It was originally designed for new farmers and smallholders who might not have had access to the advice, influence and opportunity to learn from an experienced family member.

Over recent years, however, we have actually had a number of more experienced farmers attend our workshops, looking to brush up on their skills and check that what they are doing accords with the most up-to-date and current advice. Many of the farmers admit that they had learnt from older generations who in turn learnt from generations before them - and ideas may have changed! These farmers are great to have on the course, especially for those who are newer to farming, as they share their experiences 'from the field'.

This year we were fortunate to have sponsorship from Ritchey to subsidise the workshop. The firm provided a complete 'lambing box starter kit' containing the main essentials required for lambing – gloves, 10% iodine, lubrication, a feeding bottle, a lambing rope and antibiotic spray and injection. This is great for both new and experienced attendees and gives a flavour of what essentials are needed for a smooth lambing period.

As a practice, we also like to ensure that farmers have laminated 'lambing crib sheets' outlining the main diseases encountered in ewes and lambs around lambing time (and the phone number for our practice!) for them to keep in the shed for easy reference.

#### Start at the very beginning

The course starts by discussing the traditional year for the ewes and lambs, sheep as seasonal breeders and gestation length – I like to emphasise that even though many commercial sheep farmers will put the rams in at the end of October/beginning of November, this does mean lambing will start at the end of March when the weather can still be very unpredictable.

As most of those attending the course are lambing outdoors, if they were just to hold back for two to three weeks, lambing would be delayed until well into April when, even if it is still wet and miserable, it will be warmer with a much smaller chance of snow.

We then discuss the benefits of scanning – mainly to allow feeding to be tailored closer to lambing time, but also to identify barren ewes to avoid overwintering animals that are not productive – and also the 'barren rate' which may suggest a toxoplasmosis problem. The importance of combining scanning with condition scoring is discussed, with the emphasis being on *regular* condition scoring to get a sense for this subjective measure.

Vaccination is discussed - primarily for *clostridial* diseases and *pasteurellosis* - but also for preventing abortion. The Schmallenberg virus always promotes a great deal of debate - unfortunately with many questions left unanswered; and this year we had to break the news that the vaccine is no longer available owing to a lack of demand in previous years. There is certainly the concern that any natural immunity that may have developed after exposure in previous seasons - preventing disease in the subsequent one or two years may have waned, so we must remain vigilant and aware of the possibility of deformed lambs when confronted with a difficult lambing.

#### The lambing process

We then move onto the real nitty-gritty – the three stages of lambing and what to expect. Many less experienced farmers are worried about how long to leave a ewe before intervening, and although it is not possible to alleviate their fears entirely,

"An essential part of the course is to allow the time and opportunity for discussion and sharing of the participants' own experiences" we are able to give them an indication of what to expect ... and when. Then, just to make them all worry again we discuss the array of potential problems that may be encountered during parturition – such as lambs being born with the foetal membrane intact, mummified foetuses, deformed lambs, uterine prolapses and abnormal presentations.

At this stage, the reasons for carrying out a Caesarean section are discussed; it is important that the farmers are aware of the cost of a veterinary visit – and any subsequent work – so they can make an informed decision about whether it is economically viable to call for veterinary intervention. Although lamb adoptions will be less likely to occur in the smaller set ups, we do discuss the different options for this. Most gulp at the thought of skinning a dead lamb or restraining a ewe in a yolk for a week, but I like to include it all!

### The XLVets graduate development programme for farm vets was launched in September 2013, and brings together 10 new graduates from across the XL Group to broaden their skills and gain confidence as newly qualified vets.

This programme delivers training across eight core modules covering the main species groups, together with essential communication and client relationship skills, giving graduates the chance to broaden their knowledge as well as network with fellow vets and industry experts. Graduates can also choose to be supported by a mentor from within the Group to help strengthen their shared learning experience.

#### Lottie Baiki, a new graduate working at Westmorland Veterinary Group in Cumbria, writes...

'The sheep part of the XL Vets farm vet graduate development programme was held at Alnorthumbria Veterinary Group in Northumberland and the day kicked off with an introduction to traditional sheep farming in the UK. It covered the 'stratified system' and the different production targets for hill, upland and lowland farms, and as a newly qualified vet it was interesting and very insightful to discuss the different systems experienced in various parts of the country.

'One of the main focuses for the day was lameness, a continuing problem in all areas of sheep production. After discussing the different causes and their appropriate treatments we spent time on farm treating lame lambs, which was an extremely useful exercise given that some of the group had limited experience of doing this correctly. On the whole, everyone felt a lot more confident by the end of the session.

'Whilst on farm we also practised body condition scoring and went through tup fertility testing, something which is a very useful service to be able to offer to clients, but that can initially feel like a daunting prospect for the recently qualified vet!

'Back in the classroom, we learnt about nutrition and metabolic profiling, as well as how to deal with common related problems such as pregnancy toxaemia and hypocalcaemia. Abortion and calculating the costs of vaccination in different situations were also on the day's agenda and we had the chance to cover lamb losses, poor growth rates in lambs, and failure to thrive in ewes, all of which are very common problems that have a massive impact on margins and are clearly a major focus for clients.

'Throughout the course, we were given many tips on how to become involved on sheep farms, especially as recently qualified vets. The knowledge and experience of vets for whom sheep and beef cattle comprise the majority of their caseload was very inspiring, especially for those on the course based in predominantly dairy areas. I feel it really highlighted how, by showing an interest in sheep farms, very valuable changes can be made to make a massive difference to both welfare and profitability alike.'

*Figures 1 & 2.* The emphasis is on teaching the delegates from a practical standpoint, with half of the four-hour course spent with 'Dolly' our lambing simulator.







**Figure 3.** Practising tail docking, castrating, stomach tubing and intramuscular, subcutaneous and intraperitoneal injections are all part of the course.

#### Hands-on experience

The highlight of the course is the time spent outside. When our senior partner, Rupert Hibberd, retired four years ago, I asked whether he would be willing to make us a lambing simulator in "all the spare time he was now going to have"! Credit to him, he appeared a couple of weeks later with Dolly – she's certainly the best lambing simulator I've ever seen and really is a great addition to the course (**Figures 1** & **2**).

I did consider using non-lamb substitutes, such a soft toys, with Dolly; but nothing else compares to a real lamb when it comes to manipulating the joints and putting a rope over the head – and equally when practising castrating and checking that you have both 'plums' in the scrotum.

During a 'whole-group' session, I discuss how to work out the difference between a front leg and back leg, whether the appendages belong to the same lamb, and how to put ropes on the legs and head. The group is then split into two - half of them to work with Dolly and practise putting ropes on 'blindly' and in a small space before then setting each other up with different lamb presentations. The other half practise tail docking, castrating, stomach

tubing and intramuscular, subcutaneous and intraperitoneal injections (**Figure 3**).

#### **Positive feedback**

This section of the course is definitely where the delegates benefit the most – when members of the last group were asked to write down what they would take away from the whole course, the responses were as follows:

- "I am now happy with how to stomach tube and inject lambs"
- "Tubing lambs"
- "Different angles/joints in the legs to help differentiate between front and back"
- "Very helpful with injecting and tubing"
- "Feeding tube to stomach and recognising wrong lamb presentation – the difference between front and back legs. Also using needles"
- "Learning how to stomach tube lambs and give intraperitoneal glucose injections"
- "Intraperitoneal injections".

#### Clinical stuff

After cleaning up and returning to the classroom, we discuss the different diseases encountered in newborn lambs and ewes around lambing time. The importance of colostrum and navel dipping with a strong iodine solution are emphasised and this is "Many of the farmers admit that they had learnt from older generations who in turn learnt from generations before them – and ideas may have changed!"

reiterated when discussing the cause of diseases, such as navel ill, joint ill, watery mouth and septicaemia, as well as the importance of a clean environment. I talk about treatment for hypothermia – in particular the correct use of the previously practised intraperitoneal glucose injections before warming a lamb over five hours old.

Twin lamb disease is covered in a fair amount of detail – emphasising the importance of prevention with pregnancy scanning, regular condition scoring and supplementary feeding, rather than treatment. I then hand round photos of ewe prolapses – both vaginal and uterine so they know what to expect to see – and discuss the treatment options.

Although many experienced farmers will still replace both types of prolapse themselves, I really would prefer that prolapses - particularly uterine prolapses - are replaced by a vet under epidural; also, as most people who attend the course are less experienced, I would expect them to heed this advice. I generally advocate harnesses for retention of vaginal prolapses; but all the options with their pros and cons - are discussed, allowing the farmers to decide for themselves.

Finally, using photographs, I talk about mastitis and the importance of early diagnosis and treatment in ewes – one of the delegates on our last course had managed to nurse a mastitic ewe back to health just a couple of weeks' previously, despite the udder starting to go purple.

#### Problems shared

An essential part of the course is to allow the

time and opportunity for discussion and sharing of the participants' own experiences. I find that a group of eight or less works well for this; and certainly when it comes to the practical side of the course, being able to split the group into two (which requires me to have an assistant – in the past it has been a vet student or colleague) means that there is less chance of delegates finding they have periods of not doing anything.

I have run this course 12 or 13 times during the past five years and I still do not find it boring or repetitive to teach - having a group of keen and interested people, all with different backgrounds and experiences means that every course is different. I believe that running courses such as this does help bond clients to a practice - particularly sheep clients with whom it is notoriously difficult to engage - and it is very satisfying to hear from the delegates that they felt it was worthwhile.

More information on what XLVets can offer in both farm and equine training – as well as veterinary, graduate and business CPD – can be found on farmskills. co.uk, equineskills.co.uk and vetskills.co.uk or by contacting the team on 01765 608489.

# Not just a pretty picture

On 1 August, the Lake District and Yorkshire Dales national parks were extended by 188 square miles, with campaigners hailing it an "historic day".

Not everyone was thrilled, however. When the boundary changes were announced, the Country Land and Business Association (CLA) said the views of many farmers and landowners in the region were being ignored. "Draconian planning rules and other regulations in national parks can stifle rural enterprise, ultimately at the expense of people who derive their living from the land, and this is very worrying," said CLA North regional director, Dorothy Fairburn.

The appointment of Andrea Leadsom MP to head up Defra has done little – if anything – to boost confidence amongst upland farmers that their case is being considered by a competent, appropriately experienced politician. In the *New Statesman* (22 July), India Bourke writes, 'A little over a week into Andrea Leadsom's new role as Secretary of State for Environment, Food and Rural Affairs (Defra), and senior industry figures are already questioning her credentials...

"...while Leadsom may have been able to twist the truth on her CV in the City, no amount of tampering will improve the agriculture-related side to her record: one barely exists. In fact, recent statements made on the subject have only added to her reputation for vacuous opinion: "It would make so much more sense if those with the big fields do the sheep, and those with the hill farms do the butterflies," she told an audience assembled for a referendum debate.

'No matter the livelihoods of thousands of the UK's hilltop sheep farmers, then? No need for butterflies outside of national parks?'

Andrea Leadsom would do well – as a matter of urgency and with due humility – to read a comprehensive report released by the National Sheep Association (NSA). According to the report, *The Complementary Role of Sheep in Upland and Hill Areas*, sheep farming in UK upland and hill areas provides a wide range of public goods and services – from food production and environmental stewardship to landscape management and cultural heritage. To promote understanding of this complex jigsaw, and respond to criticisms from some conservationists, Phil Stocker, NSA chief executive, explains: "The NSA has produced the report because this sector, that is so traditional yet still acts as a cornerstone of much of the modern UK sheep industry, continues to come under threat from many quarters. Much of this is due to misguided policy direction and a lack of understanding of the many 'by products' of upland sheep farming.

"These public goods go beyond its core agricultural outputs of food and wool; they include its foundation of fragile rural economies and communities, its creation and maintenance of landscapes and environments, and its contribution to tradition and heritage.

"All of this adds to our ecosystems and our sense of enjoyment and well-being, yet is rarely recognised or valued. Our aim is to convince decision makers of the unique contribution upland sheep farming provides and also to set some challenges to the industry itself by offering a strategic direction that should safeguard its future."

The NSA believes the timing of this report is crucial, given the difficult decisions needing to be made over the future of agricultural support once the UK leaves Europe, and Mr Stocker continues: "This report will form the basis of many of the conversations we have over the coming months, as it is important the hills and uplands, home to some of the most iconic landscapes in the UK, are not forgotten in the Brexit discussions. There has never been a more important time to understand the tri-fold contribution of economic, environmental and societal benefits."

By way of enlightening coincidence, Kim Wilkie (*FTWeekend*, 30-31 July) writes, 'Landscape is a human concept and wilderness is an idea born of urban life. What we call nature can be polarised by whether you see mankind as an integral part of the natural world or as a separate, awestruck observer and guardian of the planet. But we also have to remember to eat.



'Britain is a small island with a large population, where growing food securely and reliably has been a priority and is intrinsic to the culture and the community.

'In his moving book. *The Shepherd's Life* (2015), James Rebanks makes the case for protecting upland sheep farming in Cumbria from outsiders' demands for 'rewilding'. Explaining the way that Herdwick sheep have been selectively bred for 1,000 years to suit the land, he describes how the community and landscape have evolved to create a particular part of the UK.

'Rebanks concludes: "The choice for our wider society is not whether we farm, but how we farm. Do we want a countryside that is entirely shaped by industrial-scale, cheap food production with some little islands of wilderness dotted in amongst it, or do we, at least in some places, also value the traditional landscape as shaped by traditional family farms?"

The veterinary profession is entrusted with enhancing the welfare and productivity of upland livestock – and the farming families nurturing them. During these 'Brexit years', we must not sit on the proverbial dry stone wall, but speak out and do everything we can to support the holistic approach to rural communities advocated by Phil Stocker and James Rebanks. **Business Feature** 

#### ONLINE EDITION



# Have you joined The Community?

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Connect – Contribute – Converse



Emma Purnell BSc MSc RVN CertNut

Emma qualified as a veterinary nurse in 2008 and works full-time as an area sales manager for Nutravet (UK). Until recently, she was a head nurse based in Worcestershire and loves keeping in touch with practices. She also has a BSc in Zoology with Animal Ecology and a MSc in Ecology, helping to fuel her interest in more exotic species. She has a particular love of 'small furries' and nursing clinics, and has just gained a Grade A with distinction in Canine and Feline Clinical Nutrition (CertNut).

## Rats – care and housing considerations

Rats are highly intelligent animals that, despite their reputation for being dirty and unattractive, are clean and sociable and can make wonderful pets (Figure 1). They do have some specific needs, which must be taken into account when they are being cared for in practice or when we are advising clients.

The housing provided for rats should be spacious because they are inquisitive creatures and love to investigate new areas (**Figure 2**). Cages should have wire mesh with as small gaps as possible – rats can squeeze through much smaller spaces than you might expect! The shelves and floors of the cage should be solid and not constructed from wire mesh as this can injure their feet and lead to sores.

Absorbent bedding and nesting materials should be provided for rats because much of their time is spent building nesting areas, but these materials should be safe - ideally paper-based, avoiding materials with long strands that can wrap around legs or cause problems if swallowed (**Figure 3**).

Rats will use specific areas of the cage in which to urinate and defecate, so 'toilet training' is possible and can

Figure 2. The housing provided

for rats should be spacious.



*Figure 1.* Rats are highly intelligent animals that can make wonderful pets.

help to keep bedding clean. Keeping cages away from direct sunlight, draughts, areas of the house likely to be noisy, predators, and away from strong smells, such as air fresheners or smoke, are all important (RSPCA, 2016).

The rat digestive tract is made up of a simple stomach, caecum and long colon. They are unable to vomit and will demonstrate coprophagia – although faecal pellets are picked up from the floor of the environment rather than directly from the anus (Kerrigan, 2015). Rats are prone to obesity, so their diet must be monitored and care taken to avoid overfeeding or feeding too many fatty foods. Obesity can lead to hepatic

**Figure 3.** Absorbent bedding and nesting materials – preferably paper-based – should be provided for rats as much of their time is spent building nesting areas.





\*Suggested Personal & Professional Development (PPD)



RATS



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#### "Rats are prone to obesity, so their diet must be monitored and care taken to avoid overfeeding or feeding too many fatty foods"

lipidosis, renal dysfunction and cardiac disease (Kerrigan, 2015).

Wild rats, living alongside humans, will eat pretty much anything they come across, but to maximise the health and life span of a pet rat, more care must be taken. Rats are omnivores, eating both meat and vegetable matter, but the easiest way to feed a complete diet is to use a good quality, prepared food – avoiding those with added sugars (including molasses) which can increase the obesity risk.

Variety can be provided by supplementing with small amounts of fruit and vegetables, cooked egg, cheese or seeds/grains, but these should be factored into the daily food allowance and not given as extras (RSPCA, 2016). Ideally, small amounts of proteins should only be added on a weekly basis; remembering that no supplementation at all can lead to deficiencies (Kerrigan, 2015).

Feeding can be a good opportunity for providing

mental stimulation to pet rats - hiding food within bedding or toys and providing occasional whole nuts or seeds for them to break into. A cooled, unpeeled, boiled egg will take time to tackle and will provide mental stimulation (RSPCA, 2011). If there are a number of individual rats housed together, offering them multiple food items can help to avoid 'squabbles'. Clean water should be constantly accessible and replaced as soon as soiled.

Rats are highly social animals and should never be kept on their own (Figure 4). Ideally, same-sex groups of siblings work well, and introductions later in life can be carried out, carefully. Two lone individuals will probably see a period of fights that need to be monitored to ensure no significant physical or emotional damage is done. Providing multiple food and water resources - as well as ensuring there are no places where individuals can be cornered - will help to reduce tension. Adding a new



Figure 4. Rats are highly social animals and should never be kept on their own.

individual to a bonded group should be avoided, because this can disrupt the social dynamics and lead to fights.

As a general rule, rats are more active at dawn and dusk and love to play. Providing climbing frames and hammocks (**Figure 5**) may help to make the most of cage space, as well as giving them spaces to dig and tunnel, where possible.

Generally, rats tolerate handling very well (**Figures 6** & **7**). If treated gently and handling introduced slowly and carefully, they are rarely known to bite and are usually calm (Mancinelli et al, 2014). Handling rats by using the base of their tails is never recommended – it can lead to injuries and is very stressful.

Rats can be trained to do a range of tasks if given time, patience, as well as some tasty



Figure 5. Providing climbing frames and hammocks may help to make the most of cage space.

Figures 6 & 7. Generally, rats tolerate handling very well.

never be kept on their own"



"Rats are highly social animals and should



rewards! As pets, they are a long-term responsibility and will become bored if left to their own devices.

Regular health problems seen in rats include skin and coat problems, bald patches caused by mites or fungal disease, overgrown teeth, masses and abscesses, pododermatitis, urinary tract issues and respiratory disease. Their teeth should be checked on a regular basis, as should claws which should be trimmed as necessary.

Rats are generally very clean animals and any deterioration in coat – including piloerection where the follicles of the hair contract – can be indicative of pain or illness (Bament, 2014). Chromodacryorrhea is a red/ brown stain around the nose or eyes, caused by production of porphyrin from the Harderian gland. It can usually be 'groomed' away; although its presence is an indicator of individuals being stressed or unwell (Bament, 2014).

Respiratory disease is one of the most common problems seen and can be linked to ammonia and carbon dioxide build-up in soiled housing, poor ventilation and the bedding used; so discussion of husbandry should be an important part of any consultation.

Mammary tumours are very common and can grow rapidly to vast sizes anywhere from the shoulder to perianal areas (Mancinelli, 2014).

Standard hygiene rules must be put into place and this should be designed to prevent any risks of zoonotic disease transmission (Mancinelli, 2014) – often a concern for members of the public where rats are concerned.

#### Conclusion

Overall, rats can make wonderful pets and are intelligent and fascinating creatures, even suitable for children to handle under strict supervision. They do, however, need large spaces and some consideration of their dietary needs – as well as constant mental stimulation – to prevent their becoming bored. \* The author wishes to thank Andrea Jackson for all the photographs used in this article.

"Respiratory disease is one of the most common problems seen and can be linked to ammonia and carbon dioxide build-up in soiled housing, poor ventilation and the bedding used"

### **PPD** Questions

- 1. Which of the following problems can be caused by obesity in rats?
  - A. hepatic lipidosis
  - B. diarrhoea
  - C. vomiting
  - D. hypervitaminosis A
- 2. Which of these facts not commonly known by owners is incorrect?
  - A. rats cannot vomit
  - B. rats will eat their own faeces to support their
  - digestion
  - C. rats are herbivores
  - D. rats should not be picked up using the base of their tail
- 3. How often should supplementary protein be provided?
  - A. daily
  - B. weekly
  - C. monthly
  - D. not at all
- 4. Where is porphyrin produced?
  - A. tear ducts
  - B. Harderian gland
  - C. nasal cavity
  - D. Hanglian gland
- 5. Respiratory disease in rats can be linked to:
  - A. incorrect diet
  - B. use of material hammocks
  - C. poor ventilation
  - D. too much time being handled

Answers 1.A 2.C 3.B 4.B 5.C.

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# A place for wild animals

Recently, there have been disturbing reports in the media about the numbers of wild animals being kept in UK homes.

To keep an animal that is considered to be wild, dangerous or exotic – examples include wild cats, primates, wolves, wild boar and marsupials – potential owners must apply for a licence from their local council. According to a recent freedom of information (FOI) request by the Press Association, more than 100 councils have issued such licences.

Data have revealed that lions, tigers, leopards, cheetahs and pumas – as well as wolves and venomous snakes, such as cobras, vipers and rattlesnakes – are among the thousands of dangerous animals being kept on private properties across the UK; not to mention, crocodiles, alligators and caimans.

The Dangerous Wild Animals Act (DWA) 1976 requires that any person who wishes to keep a listed dangerous wild animal must first obtain a DWA licence from the appropriate local authority. The licences last for one year and allow people to keep undomesticated animals as pets, provided they have the appropriate safety measures in their home.

The cost of licences seems to vary between the different district/borough councils – with South Staffordshire charging £200 per year, Greenwich charging £443 and Derby Council £287, for instance.

Inspection of the premises by a veterinary surgeon and consideration of his or her report is obligatory before the local authority may grant a DWA licence. And it should be remembered that the DWA is really designed to protect the public, rather than specifically protecting animal welfare – a significant point.

Although there are, of course, many responsible owners, there are also the individuals who buy exotic – and potentially dangerous – pets with little idea of how difficult they can be to keep. As a consequence, the animals are sometimes neglected when the novelty wears off and the level of commitment hits home.

Whilst not denying that the protection of the public from dangerous wild and exotic animals is paramount, the welfare of the animal concerned must never be forgotten either and the Animal Welfare Act 2006 imposes a legal responsibility on a pet owner to provide for their animal's basic needs. The rules specifically state an animal needs a suitable place to live, a proper diet and the opportunity to behave naturally; and the owner has a duty to keep it safe from pain, suffering and disease.

For the average pet owner reading about the keeping of dangerous wild and exotic animals as pets, the question 'Why?' immediately comes to mind. Why would you want to keep a poisonous snake or an alligator? Is it because of a real love of the species, or are there other, less altruistic, reasons involved?

Exotic pets often require very special and specific environments, and the RSPCA urges anyone considering keeping an exotic pet to find out as much as possible about the animal's needs and whether they are, in fact, a realistic pet. They ask potential pet owners to think about the carefully controlled environment many exotics need – they may require specialised heating and lighting to maintain normal body metabolism and their environment must allow for natural behaviour, such as burrowing, climbing or basking.

Potential owners also need to consider how long their pets will live and how large they will grow, what they need to eat and how much, the size of enclosure required and if this will need to be increased as the animal grows. They also need to understand whether the exotic pet needs to be kept alone or with others, whether the animal's behaviour fits in with their own domestic routine and lifestyle, and whether there is a specialist veterinary practice nearby that can treat this particular species if it becomes sick.

There would be a significant number of people who would question the need for - or even the rights of - someone wanting to keep some of these exotic wild animals. There is a place for everything - and for wild animals generally that is in the wild. They may be exposed to danger and have to find their own food, but they are living a more 'natural' life than they ever will in captivity.

The BVA has expressed its concern about the welfare of the increasing number of



exotic animals being kept as pets and the trade in amphibians and reptiles taken from the wild – citing issues for concern as decline in the wild population, negative impacts on the ecosystem, stress caused by capture, poor acclimatisation and high numbers of deaths during transportation.

There is further concern that once these animals have been sold as pets, they may pose a threat to native species, habitats and the public if they escape or are deliberately released by their owners. The BVA also believes that the health and welfare needs of wild animals will not be met in captivity and that owners may not have the necessary expertise or equipment to care for exotic pets. In addition, there is the potential for zoonotic diseases to be spread.

The demand for exotic pets inevitably fuels both the legal and illegal wildlife trade. The capture of animals from the wild is regularly cited as a major cause of species decline and is a significant factor in creating biodiversity loss. Although there are responsible owners, there can be no doubt that – through negligence or simple ignorance – there are many wild animals living very unhappy and stressful lives in captivity in the UK.

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\*Suggested Personal & Professional Development (PPD)



LIABILITY

# Common claims against veterinary surgeons – some guidance (2)

During a session at the BSAVA Congress in April, Stuart Ellis, a veterinary claims consultant for the Veterinary Defence Society (VDS), shared top tips for avoiding a claim. In the first part of this article, we looked at the subjects of haemorrhaging after routine neutering, errors on pet passports, pharmacy problems, timing of Caesareans and orthopaedic procedures. In this second part, we turn our attention to another five of the most common claims defended by the VDS.

#### **Misdiagnosis**

A number of problems with misdiagnosis or delayed diagnosis are handled by the VDS. A typical example of this is a coughing dog being diagnosed with cardiac disease after the heart appears a little large on a thoracic radiograph. When the dog is put on ACE inhibitors – or other appropriate cardiac medication – it recovers. But in fact, there never was a problem in the first place.

Dermatology cases are seen where no skin scrape was taken, or just one negative skin scrape was taken at the beginning. In these situations, patients may be on medication unnecessarily for a long time.

It is important to note that veterinary surgeons are not expected to be perfect. "Misdiagnosis is not necessarily indicative of being negligent," Mr Ellis told delegates. "We all make mistakes and you're not expected to get it right every time.

"Fortunately when claims come in, the Law, the Civil Courts, do recognise the difficulties in our job ... you don't always have to be right, your operations don't always have to succeed. But you do have to act in keeping with a reasonable body of the profession ... you're expected to be judged against your peers – similarly qualified vets ... Be careful about professing to be more than you are." To avoid a misdiagnosis, attend to the basics – obtain a good history, communicate with the client and call them back into the practice for check-ups. Keep an open mind throughout and, if all is not going as expected, be prepared to have a rethink, review the records and discuss the case with colleagues.

Mr Ellis also cautioned against "diagnosing the contents of the client's wallet". Offer them the option of further testing, monitoring and a referral ... and if they can't afford it, make a record of that in the notes.

#### Lost or injured pets

Problems of this nature may include rabbits jumping off the consulting table and breaking their backs, or West Highland white terriers dislocating their hips while being restrained – a published paper suggests the breed is highly prone to this and the VDS deals with a few claims a year.

Key to dealing with these situations effectively is planning in advance. The VDS website – www.thevds.co.uk – provides guidance and advice notes to help members with this.

#### Missed foreign bodies

Gastrointestinal foreign bodies are not always easy to visualise and may include objects such as kebab sticks or corn on the cob. On top of this, dogs, in particular, often show intermittent or confounding clinical signs that may point towards other conditions, such as pancreatitis. Veterinary surgeons may feel reluctant to take radiographs in these cases if it seems unnecessary.

In one case that the VDS successfully defended, a dog was taken to its local veterinary practice with vomiting, inappetence and dullness. The animal was a known scavenger - frequently seen at the practice having ingested inappropriate items - and the owners suspected this to be the cause of its illness again. Testing indicated possible pancreatitis and, after being placed under observation at the practice for 24 hours, the patient's condition improved.

After being sent home, however, the dog began to deteriorate and later 'crashed'. A thoracic and abdominal X-ray taken by a specialist radiographer revealed a circular gas bubble, which turned out to be the 'squeaker' from one of the dog's toys.

#### **Retained surgical items**

The most common items to be left behind after surgery are surgical swabs - these cases often require extensive remedial work and can even result in fatalities. Carrying out swab counts and using check-lists or special containers for swabs can significantly reduce the risk of this occurring.

Puppies missed at Caesarean section are another regular cause for claims against veterinary surgeons. Often, these cases involve deepchested dogs with large abdomens, but Mr Ellis relayed one example of a French bulldog that was undergoing a second Caesarean, 10 months after its last procedure.

Adhesions from the previous operation made it difficult for the surgeon to exteriorise the uterus and two days later, the bitch started delivering another puppy, which became stuck. When the animal was operated on again, two retained puppies were found. The case was settled by the VDS.

Such occurrences can affect the best of surgeons, but a way to avoid it is for veterinary nurses to do a 'touch check' inside the abdomen and uterus.

#### Human injury

Claims of this nature can be very expensive if the fault is proved to be on the veterinary professional's side. Cases may include 'needle-stick' injuries or pets that become stressed and bite their owners at the practice. In one case handled by the VDS, a client had insisted on going into the operating theatre with her dog while it was sedated and, just before she left, she unexpectedly ran over to kiss the dog's face, resulting in a serious bite to her face, requiring months of plastic surgery.

#### Remember, to err is human...

There is a wealth of data on patient safety in human medicine, which has led to the development of simple tools – including check-lists – that have been able to reduce the risk of human error significantly. While there is a comparative lack of research in the veterinary field, this is a topic of increasing focus and discussion.

Simple interventions, such as those implemented in human medicine, have applications in veterinary practice and check-lists are already gaining recognition for their ability to improve the safety of patients.

#### Patient safety check-lists

Patient safety is defined as 'the reduction of risk or unnecessary harm associated with healthcare to an acceptable minimum' (Runciman W et al, 2009).

Safety check-lists were created following the deaths of two experienced test pilots when a Boeing prototype bomber crashed during a demonstration flight. Test pilots subsequently developed check-lists to standardise the procedures needed to safely operate what later became the B-17 bomber.

Led by the renowned surgeon, Atul Gawande, the World Health Organisation (WHO) applied this concept to human surgery. A year-long pilot study of WHO's surgical safety check-list in eight developed and developing countries found the rate of major complications following surgery fell by a third after the introduction of check-lists. In-patient deaths after major surgery reduced by more than 40 per cent (Gawande A et al, 2009). Since then, patient safety check-lists have received global recognition from operating theatre staff, including surgeons and anaesthetists.

A recent study suggests medical errors are the third leading cause of death in the US – resulting in over 250,000 deaths a year (Makary MA and Daniel M, 2016). Equivalent figures for veterinary medicine are not known, but a recent study published in the *Veterinary Record* found human error to be the most common cause of mistakes in practice (Oxtoby C et al, 2015). Researchers said the profession needs to adopt interventions similar to those used to protect patients in human medicine – including the WHO surgical safety check-list.

Patient safety check-lists appear to be gaining increasing recognition in veterinary medicine. Matt McMillan, an anaesthetist at



Queen's Veterinary School Hospital, shared some top tips for their successful use during a session at the BSAVA Congress this year:

- check-lists are a list of critical tasks not a shopping list or recipe
- the list should be simple and concise
- it should not be an unnecessary boxticking task
- use simple language that can be read aloud
- sensible formatting is important
- include only eight to 10 points keeping the list to a single page only
- only include achievable tasks'buy in' from everyone in the practice
- is essential
- be patient check-lists require time and practice to implement
- you can seek inspiration from the WHO's safe surgery check-list or the Association of Veterinary Anaesthetists, www.ava.eu.com - but it is likely that you will need to adapt the check-list to suit your individual practice
- study the success of check-lists in your practice. It is essential to audit their impact in order to ensure they are working effectively and to maintain the commitment of all staff.

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\*Suggested Personal & Professional Development (PPD)



SOCIAL MEDIA

# Writing a successful practice blog

If you're looking for a way to gain new clients and engage with existing customers, then why not give blogging a try? Blogging is a simple, inexpensive way to both grow your business and keep current clients coming through your door. But what are the benefits of blogging, and how do you write interesting pieces that keep your clients coming back for more?

#### Why blog?

Blogging is enjoyable and provides an opportunity for practices to connect with pet owners. In fact, according to a recent survey, around 60 per cent of businesses that blog acquire more customers (Hubspot, 2011).

One of the biggest reasons to run a practice blog is to build trust and credibility (Sink, 2015). Pet owners want the best for their animals and a blog will let you build a relationship with your clients before they even step through the door. Share pictures (with the owner's consent) of pets who have been treated at your practice, or touching pet stories. Content like this will give you a caring reputation and will build loyalty among your customers.

Blogging is also an opportunity for a practice to 'humanise' its reputation (Sink, 2015). A practice leaflet or website has to conform to certain styles and standards. A blog, however, gives the writer more freedom to show off their practice's personality. Photographs, names, and informal language all help clients to see your practice in a newer, friendlier light.

Another reason why blogs are so beneficial is that they help to drive traffic towards your website (Tassava, 2010). With a few carefully chosen keywords, a blog can improve the chances of your website appearing in local searches and, consequently, increase visitor numbers. Use words, phrases, or terms most commonly used when searching online, such as 'vet in [your town]' or '[your town] animal clinic'.

#### Setting up a blog

If you have a practice website but no blog, ask your web host to set up your blog on a page of your main website. Avoid setting up your practice blog on a separate domain name because your website will not benefit from the extra traffic. WordPress is the most used blogging platform and can be installed by an expert in around five minutes or less.

#### What to write about

With blogging there are no rules and you can write about almost anything. However, it is important to keep content professional and to write with a 'voice' that reflects the core values of your practice (**Table 1**). If you're not sure where to begin, start by expanding on your clinic's educational flyers – top tips for taking care of your dog's teeth, for example.

Clients also enjoy hearing about practice staff. A great way to do this is to blog about practice events, a case study, or to add posts about new CPD accomplished by members of the practice team. Just keep in mind that if you are going to write about a case study, clients must provide written permission for the use of any patient photos – a simple 'release' form signed by the client will do the job.

Here are some other ideas for blogs:

- comment on the latest pet news – use veterinary news websites for inspiration
- FAQs listen to what your clients are asking and answer them so that everyone can benefit
- employee interview highlight individual staff members' skills and accomplishments
- successful health story

   blog about an unusual case and include a photo of the now healthy, happy patient (with permission of the owner)

Table 1. Top tips on blogging

- don't advertise avoid using your blog to selfpromote; and gain the reader's trust by keeping it personable
- use images readers tend to appreciate the use of visuals in addition to text
- make it easy to read use short paragraphs and subheadings
- lose the 'fluff' keep posts around four to five paragraphs long and avoid medical jargon

- keep an editorial calendar
   plan what you are going to write in advance
- converse ask questions to encourage reader feedback
- recognise others congratulate and write about customers, employees, partners, and even competitors; they might return the compliment.

- seasonal issues discuss Christmas hazards and highlight the dangers of chocolate at Easter, for instance
- coverage of a special event, such as an open day or fund-raiser
- talk about new technologies or services your practice provides.

Six hundred to 800 words is typically a good length for a veterinary blog post (Baltzell, 2016). Depending on what the subject is and how long it takes to gather all your content, each one will take between one and five hours to compile and publish.

#### Finding a writer

Just as important as what you are going to say in your blog, is who is going to write it. Owing to their time commitment, veterinary surgeons might not be the best choice. Instead, appoint somebody who is able to blog on a consistent basis, or split the job between two or three people. Whoever writes the blog for the practice should have 'great writing skills, enjoy what they are doing, and have the confidence of the owner to be the voice of the practice' (Baltzell, 2016).

Most importantly, once the team member/s start blogging, they must keep it up. Ideally, blogs should be written weekly or monthly (Baltzell, 2016), but if this proves difficult multiple blogs can be written at once and scheduled to be published over a period of time later. Most blogging programs allow for scheduling in the future.

#### Making use of social media

Blogging and social media go hand in hand. The trick is to use your blog posts to enrich your social media feeds, and to use your social media feeds to promote your blog (Kawasaki, 2015). When you have published a blog post, plug it with a Tweet and ask



your followers to retweet it to their friends. Include links to your social media accounts on your blog page so that people can follow you. If they find your blog interesting, they will follow your Twitter feed and vice versa.

#### Measuring your blog's performance

If you want to use your blog to attract clients to your practice, then it is important to measure its success. One of the best tools is Google Analytics - a free service that provides statistics such as visitor numbers and page views. Although it may sound complicated, a Google Analytics account is easy to set up and there are plenty of websites that offer support and training. In fact, Google itself runs free online courses - just search for 'Analytics Academy'.

One of the features that Google Analytics offers is that it can tell if your blog visitors are 'repeats' or 'unique'. This will give you a good idea about whether your 500 'page views' yesterday were from the same people, or from them plus 400 new visitors. It's not a good sign if all your visitors are unique because this means that (a) no one thought your blog was worth visiting again, or (b) they forgot the link to your blog (Namase, 2015).

You can also use Google Analytics to set yourself goals (Namase, 2015). One goal could be to have 200 visitors click a link that takes them to your practice registration page. Another goal could be to achieve 1,000 visits to your blog in a month. Use the Goals Report to track your blog's success and, if you are unhappy with the results, take action to improve your content or the layout of your pages.

#### Conclusion

Blogging is not essential to running a veterinary practice; but if you are looking for a simple, cheap and effective way to market your business then it might be worth considering. Once you have established who is going to write the blog and what they are going to write about, you are then only a few steps away from connecting with existing clients and potentially gaining new ones too.

"One of the biggest reasons to run a practice blog is to build trust and credibility"

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#### Maggie Shilcock

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\*Suggested Personal & Professional Development (PPD)



PERSONNEL

# Don't lose your new recruit

We invest a considerable amount of time, effort and money in recruiting a new member of staff. Sadly, we do not always spend the same amount of time, effort and yes, money, to ensure that they stay with us. Once the often lengthy recruitment process is over, it is easy to just breathe a sigh of relief and then move on to the next job on the list.

Good staff are not easy to find, the recruitment process is expensive and the chances are that you have had to put a certain amount of effort into 'selling' the practice to the potential employee. Hopefully, they have been impressed with the facilities, friendliness, client care, staff training and CPD programme and the quality of clinical care. What is important now is that the practice lives up to the new member of staff's expectations.

There is a certain irony that it is often just when a new employee has reached - or is moving towards - the end of their training period, and the employer is looking forward to having a fully competent member of staff on board, that they decide to leave. The investment the practice has made in this employee is huge and if they leave, the recruitment and training process has to begin all over again - it's expensive and means that the practice is once again understaffed. Having employed a potentially good new member of staff, it is important that they stay so that the practice can reap at least some of the rewards from the investment it has made.

There are many reasons that a recent recruit may give for leaving prematurely. The following are the main ones, together with some ideas on how to avoid them.

#### "The job is not what I thought"

This is probably by far the most significant reason why new employees leave – and

"Never make a job out to be more interesting than it really is, or attach more responsibility to it than it actually has, just to attract the candidate you want"

the practice can have no real excuse for this situation. Good recruitment procedure should avoid loss of staff from misunderstandings about their role in the practice.

Before the post is advertised, the decision as to exactly what the job entails should be made and a clear job description produced. This job description should be sent to all candidates before the day of the interview and, at the interview, both sides must fully understand what the job entails. This includes not just the practical side of the role, but training and CPD requirements as well as overtime, any out-of-hours meetings, or other required duties.

Never make a job out to be more interesting than it really is, or attach more responsibility to it than it actually has, just to attract the interviewee you want. It will not take long for them to discover what the job really entails and disappointment quickly leads to de-motivation and resentment. Likewise, having explained what the job is at the interview and provided a clear job description, do not, when the employee starts work, bring in 'add on' tasks such as the weight clinic every alternate Tuesday evening or helping out at the puppy classes once a month!

#### "I get no feedback"

This is a common complaint from many new employees, particularly veterinary surgeons. It is vital that every new member of staff knows how well they are performing. This can be done informally; but having a structured performance appraisal system is likely to be more effective because it ensures that the feedback is given.

Induction appraisals carried out at one, three and six months after the new employee has started work, help both them and their employer, to iron out any initial difficulties or problems. They will highlight areas where the employee is doing well and also those areas where extra support or training may be required.

They answer the questions: "How am I doing? How much should I have learnt by now? What do expect from me? Can you help me with...?" These formal meetings give the employer an opportunity to discuss the employee's role and, above all, to show them that the practice cares about their welfare and how they are settling in.

## "I never know what's going on"

Lack of good internal communication systems within a practice probably causes more frustration and de-motivation among staff than any other issue. The bottom line for employees is that if the owners/manager can't be bothered to tell them what is going on, then they simply don't care about them. We spend a great deal of time telling our staff how important client care is and how it bonds clients to the practice – caring for our staff has the same effect.

Of course, staff have to play their part in the communication process too, but there needs to be an effective communication system to allow them to do this. So, for example, how do staff know when a new member of staff has been appointed, how do they know when a new drug or product is being used, how do they find out about new practice services and practice procedures?

There are many different ways to communicate with staff – the important thing is that it happens, so that staff do not feel 'left out in the cold' when it comes to information.

#### "They really don't care about me"

An employee needs to respect and feel comfortable with the organisation for which they are working. The culture of the practice can make a great deal of difference to how well they settle into their new job.

To a certain extent the culture is an intangible concept, but some of the issues to consider are:

- is there good and open communication with employees?
- are employees told about plans for the future?
- are employees consulted about changes which may affect them?
- are employees supported emotionally and practically?
- is the practice sympathetic to an employee's personal problems?

Employees need to feel part of the practice. If they do from day one, there is a much greater chance of their staying with the practice, even if the going gets tough.

#### "I can't get on with the other staff"

However good a team may be, there are still times when it can be difficult working with other people. Difficulties and disagreements are natural, but when a member of staff begins to worry about relationships at work, the alarm bells should be ringing.

Teamwork is an important part of establishing good relationships between staff and a culture of teamwork and mutual support is important. Working and getting on together needs to be part of the practice ethos and if there are serious difficulties between staff members, these need to be addressed immediately – partly to prevent the break-up of the team, but also to show your employees that this sort of conduct is not acceptable.

Serious personality clashes can cause innumerable problems and it's not always possible to foresee such difficulties at an interview. However, the potential for this can be greatly reduced if the candidates meet as many staff as possible during the interview. Have a member of staff, with whom the interviewee will be working, show them around the practice and introduce them to other members of staff.

Take feedback from the staff they meet and take their comments into serious consideration when making your final choice. Ideally ask the potential employee to work with you for a few days before you make the final decision.

#### "They promised me more training and development" Never promise what you

cannot – or will not – deliver. It's so easy at the interview to "Ideally ask the potential employee to work with you for a few days before you make the final decision"

get carried away and promise all kinds of training and support for the new employee. Disillusionment can quickly engulf them when they realise you are not going to deliver what you promised. Be clear about CPD, how much the budget is and/or how many days of CPD they are entitled to – and then make sure they are given the opportunity to take them!

#### "I don't seem to be going anywhere"

Most people need to have some sort of basic career plan. We need to be constantly assessing how staff are performing and delegating new tasks and responsibilities such that they retain their enthusiasm and motivation. Annual appraisals help here, but a year can be a long time if you are feeling downhearted about your role in the practice.

It is important for the person responsible for staff training in the practice to revisit the action points agreed at appraisal time to check whether goals have been reached and action promised by the practice carried out.

#### "I don't feel appreciated"

This is the easiest problem for the practice owner/manager to solve and yet it is one of the commonest complaints heard from veterinary staff. Everyone expects to have to work hard in a veterinary practice, to work long hours and to go that extra mile when required. No-one expects to be thanked every day for doing their job, but when they have done that little bit extra, a small pat on the back or a word of thanks can really put sparkle into the eyes of an employee.

We all feel better if we are praised or thanked. It makes us feel appreciated and noticed. If the practice culture is one of expecting all and giving nothing in return, a new member of staff will soon begin to look around for alternative employment where their skills and enthusiasm are recognised.

#### And finally...

Always remember that there will be some employees who won't necessarily be dissatisfied with their job, but who will probably leave within one or two years, even though they may have indicated that they intended to stay longer at the interview. Moving on is quite natural for a percentage of staff who will be climbing their own particular career ladder and never intended to stay with you for long.

Although it is disappointing when they leave you, the chances are that by their very nature, they have contributed greatly to the practice while they have worked there and possibly been good examples of motivated staff to your other employees.

"It is vital that every new member of staff knows how well they are performing"



# CPD for the whole practice

Making the process of learning as engaging and convenient as possible will increase the value that veterinary practice staff derive from their CPD. When investing in courses and workshops, it is worth considering just how accessible, relevant and interesting the training course will be, and how it will best translate into practice life and personal career development. Value – not volume – is key. hen considering how you would like to allocate your annual CPD allowance – both in terms of time and budget – think about variety, actual needs and how you tend to learn best. Many of us probably haven't really given much consideration to the type of 'learner' that we are. Some of us are 'hands on', learning by doing; some of us learn by solving problems; others have a flair for lecture-based learning; and, in some instances, reading and note-taking is sufficient.

The Central College of Animal Studies (CCOAS) delivers a variety of courses designed to fulfil the needs of a whole range of different 'learning types'.

High-quality teaching facilities and purpose-built spaces in training centres should provide a professional, clean and efficient approach to CPD course delivery; and comfortable, modern, well-furnished rooms and ample parking make for a smooth and well-run CPD event. Having knowledgeable and helpful staff behind the scenes means that any correspondence – before or after your training – maximises the amount of information you can gain, preparation you can do and takes care of any subsequent follow-up or further questions.

#### **Exceeding expectations**

With courses led by experienced practitioners and run with interactivity at its heart, the Central College meets all these criteria. It provides highcalibre CPD for all members of the practice by offering a diverse and varied range of courses specifically written and designed for veterinary surgeons, veterinary nurses, practice managers, administrators and receptionists.

It is not always practical to devote an entire day out of practice for CPD and

training, which is why the Central College runs full-day, half-day, evening and weekend courses.

CPD needn't be a solitary study affair either. So much can be learnt from interaction and discussion, and small, group-based learning and activities create an engaging and vibrant atmosphere, enabling the sharing of knowledge and experience. The Central College provides just such a friendly and engaging environment in its training centres, which facilitates a productive and satisfying learning experience.

#### Widening horizons

Inviting members of staff across your practice to CPD events that encompass the needs of veterinary surgeons, nurses and reception staff alike is a great way to reinforce and encourage good working relationships between groups of staff. The Central College provides CPD sessions that transcend the team structures in practice, offering management and customer relations topics that can benefit everyone. Strict rules from the veterinary professional bodies mean that providing evidence of your CPD is mandatory and unavoidable. So why not make it enjoyable? Seek the best from the Central College and enjoy the finer side of learning. All our courses provide participants with a formal certificate; and, in addition, the Central College offers membership to its CPD club, rewarding delegates for their continued attendance with discounted rates and priority booking.

Places are available to book online at www.ccoas.org.uk; or for further information about the upcoming events programme, you can contact the College by e-mail at enquiries@ccoas.org.uk or by phone on 01359 243 405.





#### Jonathan Booton

Jonathan joined Lockharts (www.lockharts.co.uk) in October 2013 as a paralegal working across the partnership and dispute resolution departments. He was offered a traineeship in October 2014, and has developed an excellent attention to detail, together with the ability to manage multiple responsibilities across both departments.

Jonathan leads on veterinary enquiries and is currently in the commercial sales and acquisitions seat. He will be joining the firm in October 2016 as a staff solicitor.



\*Suggested Personal & Professional Development (PPD)



LEGAL

## Legal aspects of employment tribunals

Employment Tribunals were set up in the 1970s to provide a mechanism for resolving employment disputes – with the intention that they would be quick, cheap and accessible. They are independent panels whose decisions are legally binding.

Employment Tribunals only have jurisdiction to hear claims set out in the Employment Tribunals Act 1996.

They differ from the civil courts and are governed by a separate set of rules and regulations; and the rules that apply to Tribunals in England and Wales are different to those in Scotland.

The Tribunal will consist of an Employment Judge and two lay members who would normally be an employer/ employee with relevant experience in that field. However, for certain claims, the Employment Judge may sit alone.

## How it works from an employer's perspective

An employer might find themselves in an Employment Tribunal where an employee considers that they have been treated unlawfully. This may include - but is not limited to - unfair dismissal, discrimination or unfair deductions from staff pay.

In order to avoid claims, every practice should have clear discipline, grievance and dispute procedures for dealing with conflict. They should ensure that the practice has effective training in place for managers on how to handle discipline, grievances and dispute procedure and ensure that these procedures are followed each time a matter arises. Should a dispute arise, in order to avoid acting unlawfully the employer should follow:

- the correct procedure for dismissal
- the internal grievance procedure and conduct a detailed investigation
- the Advisory, Conciliation and Arbitration Service (ACAS) discipline, grievances and dispute procedure, www.acas.org.uk.

If the employee still persists with claiming that he or she has been treated unlawfully, then the employer may wish to consider one of the following two options.

#### Entering into ACAS conciliation

This will involve entering into an informal process with a view to reaching a settlement. It is quicker, cheaper and less stressful for all concerned than a Tribunal hearing. The benefits for the employer are that the procedure is simple, quick, neutral, confidential and there is no charge for use of the service.

## Entering into a settlement agreement

This is an agreement between an employer and employee to compromise an employee's contractual and/or statutory claims. By entering into the agreement, the employee agrees not to pursue employment claims against the employer and, in return, they receive a payment or some other form of consideration. For this to be

"In order to avoid claims, every practice should have clear discipline, grievance and dispute procedures for dealing with conflict" valid, certain criteria must be met and it is advisable to seek legal advice on this.

#### If the employer

('Respondent') receives a claim, they will be provided with details of the claim, together with the relevant forms with which to respond. The Respondent will have 28 days from the date set out on the form to respond to the claim, and if they are unable to respond in this time, they may apply for an extension.

There will be a sifting stage during which an Employment Judge will consider the claim and response as to whether the Tribunal has jurisdiction or whether there is there is a reasonable prospect of success. The Judge will then identify the issue(s) and make the necessary order and impose a timetable on the parties to follow up to the final hearing.

#### The hearing

In preparation for the hearing, the Respondent should consider obtaining witness evidence from employees that can support his or her position. It is generally directed that witness evidence must be in the form of a witness statement, which is then exchanged between the parties on a predetermined date. Witnesses will normally be required to attend the final hearing to give evidence; so this will mean time off work which can be very costly.

It is a standard direction for all documents relevant to an issue in the claim – and that are in a party's possession – to be disclosed to the other party. This will include documents that the party wishes to rely on as well as

	Туре А	Туре В
Issue Fee	£160	£250
Hearing Fee	£230	£950

Table 1. Categories of Tribunal fees

documents that adversely affect their case. The Respondent will be expected to conduct a detailed search for documents in relation to the issue in the claim and provide the same. This can be a costly and time-consuming exercise, and will mean time sacrificed by management and support staff to locate relevant documents.

Tribunals are open to the public. This is a very important consideration for employers who do not wish to have adverse publicity. This is one reason why some employers may wish to settle before the final hearing, whereby the terms of the settlement agreement can remain confidential.

The Tribunal has wide discretion as to how to conduct the hearing. The standard format is that the parties will make opening arguments, the parties will then call witnesses who will give evidence. Once evidence has been given, the parties' representatives will give closing submissions.

At the end of the hearing, the Tribunal will come to a decision on the issues presented and deliver judgement. The judgement generally deals with liability, remedy and costs and can either be given orally or in writing. The decision can be made at the hearing or may be reserved and sent to the parties as soon as possible afterwards.

### How it works from an employee's perspective

Where an employee/claimant ('Claimant') believes that he or she has been treated unlawfully, they may present a claim to an Employment Tribunal. Before a claim can be submitted to the Tribunal it is a legal requirement – unless an exemption applies – for the Claimant to have made a mandatory conciliation notification to ACAS.

The Claimant, however, should be mindful of the relevant time limits. If conciliation is unsuccessful, then he or she can submit their claim to the Tribunal. This must be on the prescribed ET1 form providing details of the claim and of the Respondent; and the Claimant must submit the 'Issue Fee' along with the claim (**Table 1**).

There are two types of fee groups for various claims - Type A for claims such as statutory redundancy payments, unlawful deductions from wages, breach of contract; and Type B for claims such as unfair dismissal (ordinary and automatic), discrimination, whistle blowing and equal pay, for example.

Please note that these lists are by no means definitive and that if a claim is brought by multiple Claimants, then the fees will increase.

If the Tribunal does not receive the Claimant's application within the relevant time limit, this will mean that the Tribunal will not have jurisdiction over the matter. In most claims, this is three months from the date of occurrence of the act or complaint involved.

When the claim is received by the Tribunal, it will be checked to ensure it meets the minimum requirements of a valid claim. There are six grounds on which a claim can be rejected:

- the prescribed form has not been used
- the form does not contain the required information
- it is not accompanied by the Issue Fee or a fee remission application
- it is outside the Tribunal's jurisdiction
- it is in a form which cannot sensibly be responded to
- it is otherwise an abuse of process.

It will then be the responsibility of the employer ('the Respondent') to respond to the claim in time.

Once a response has been filed and accepted, the matter will be passed to an Employment Judge who will consider, based on the papers, whether:

- the claim or response can be struck out because it has no reasonable prospect of success
- the claim or response can be struck out because it is outside the jurisdiction of the Tribunal
- the case should proceed.

The Judge will identify the issues between the parties and consider the case management steps that are required in preparation for a hearing. He or she will then make the necessary order and impose a timetable on the parties to follow up to the final hearing.

If a matter is simple, the Tribunal will generally list the case for a final hearing within 16 weeks of the claim being filed and will send out standard directions with which the parties should comply. If a matter is more complicated, it may require a preliminary hearing to define the issues to be determined, the steps the parties will be required to take and to discuss whether settlement is possible.

Evidence provided to the Tribunal will normally be in the form of witness evidence and disclosure of documents; and, generally, the Tribunal will direct witness evidence to be provided in the form of a written statement. This should outline all the evidence that is intended to be relied upon at the hearing. The Tribunal will normally direct for statements to be exchanged between the parties, and it is normal for witnesses to have to attend the final hearing. This can be a daunting experience for someone who is not used to the process.

As is the case with 'Respondents', it is a standard direction for all documents relevant to an issue in the claim that are in a party's possession to be disclosed to the other party. This will include documents that the party wishes to rely on as well as documents that adversely affect their case. This is a good opportunity for the Claimant to disclose documents in support of their case and see if the Respondent has any documents that would support their claim.

Once the parties have complied with the directions, there will be a final hearing which will determine the claim. Generally this will determine the issues, such as liability, remedy and costs.

#### And finally...

Unlike in civil proceedings, costs will not necessarily be awarded to the successful party. Costs awards are traditionally viewed as the exception rather than the rule. However, in recent years there has been a significant increase in the award of costs to a successful party - in the year April 2013-2014 there were 536 awards in comparison to 242 in the preceding year. Any Claimant should, therefore, be wary of the fact that they may not recover legal fees incurred as a result of bringing a claim.

# Players in the best teams know their place

Teams have featured prominently in the news, of late.

In international sport, we have heard much about European soccer teams, Tour de France cycling teams, Olympic teams and, at Wimbledon, even the mens' singles champion, Andy Murray, appeared to have a substantial team supporting him.

The media make a great deal of capital out of speculation about these teams, their structure and performance; and endless column inches are devoted to intimate critiques of the team coaches who select and train these high-profile, special groups of people, upon whom so much depends.

And then on the UK political scene, we have seen major upheavals and restructuring of government teams, particularly following the arrival of our new Prime Minister, Theresa May, in 10 Downing Street. The selection of her new Cabinet has precipitated a major upheaval in terms of Ministerial roles, with several surprise choices which, although counter-intuitive at first glance, we assume must have been made for sound reasons. To build a cohesive and effective team.

So what actually constitutes a 'good team'? How do you select an effective team? On what criteria do you make the choice?

Several times during the Euro 2016 soccer tournament, it appeared that some of the so-called teams comprised a collection of highly paid egos all running around wearing the same coloured shirts but with seemingly little else to connect them. Whereas, some of the 'minnows' – teams selected from much smaller pools of players from much humbler origins – in fact played more cohesively and with greater consequent success.

There was evidence too, that the demise of some of the 'glossier' teams was the result of having too many players who were all used to playing in the same position for their own clubs, but who were disorientated when stationed out of their customary comfort zone just to get them into the team. Maybe, with the benefit of hindsight, not such a good idea.

With the advent of Prime Minister May's Cabinet reshuffle, it is fair to ask whether her role should be extended to managing



the England Football team too! She appears to have looked at the individual attributes of the parliamentary talent available to her and – rather than is usually the case, simply allocating jobs according to seniority, longevity or 'chumminess' – she has chosen to look at the profiles of the people and put them into roles to which they are suited and can play to their strengths to the nation's mutual advantage.

There is an old adage that 'If the only tool you have is a hammer, then the only problem you look for is a nail'. Yet, as we know, the challenges presented to us in life in general and veterinary practice in particular are many and varied. Nails, screws, barbed wire fences, glass ceilings, offside traps, Brexits, seemingly awkward clients, poor communication and sheer bloody-mindedness from some of our colleagues. So the ability to identify and have at our disposal team members who have specific skills to suit the tasks in hand is a wonderful asset.

But how do you identify the strengths of individuals – including yourself – in the first place? The answer is by using profiling.

Lynn Smith, practice manager at Stowe Veterinary Centre, recently attended the second Cx Congress and heard veterinary coach and mentor, Carolyne Crowe, speak about the importance of using DISC profiling in order to understand different 'types' of people and what drives their behaviour. "Once you know this," said Carolyne, "you will understand where they are coming from – which buttons to press and which buttons to avoid, so that you can proactively manage their behaviour." Carolyne explained that once we understand how somebody 'ticks', why they are the way they are, do what they do and why they do it, then we can take the emotion out of team management and play to peoples' strengths.

DISC stands for Dominance, Influence, Steadiness and Conscientiousness and, in generalised terms, individuals tend to have personal characteristics that tend to fall predominantly under one of these categories. So, according to Carolyne, a person who is driven by Dominance is confident and places emphasis on accomplishing results; someone of Influence places emphasis on openness, building relationships and persuading others; people of Steadiness place emphasis on co-operation, sincerity and dependability; whereas the predominant characteristics of members of the Conscientiousness category are motivated by quality, accuracy, expertise and competency.

It is a waste of time trying to shift people from one category to another, especially at times of crisis or critical problem solving. They are who they are. But profiling will help you – and them – become aware of their aptitudes, weaknesses, motivational drivers and likely responses under pressure.

By understanding these dispositions and discussing them in an open and non-judgemental way, a team can build its cohesion and effectiveness by deploying the right players, in the right place, doing the right things, at the right time.

# Industry Profile



 Your name: Tim Greet BVMS, MVM, CertEO, DESTS, DipECVS, FRCVS Consultant. European and RCVS Specialist in Large Animal Surgery (Equine)
Company: Retired equine practice partne at Rossdales and past preside of the BVA, BEVA and WEVA

#### You retired from Rossdales earlier this year. What were the major challenges of being the managing partner in such a large equine practice?

Being the managing partner of a large equine practice, such as Rossdales, is a privileged job. My colleagues are all highly trained, skilled and motivated individuals, providing a first-class service to our clients and working with the best horses in a variety of professional disciplines, as well as horses and ponies used solely for pleasure purposes.

So the challenges are varied – including the inevitable costs of providing this level of service within a budget that our clients can afford; ensuring that the incoming veterinary surgeons are able to achieve the difficult balance between a good quality of life, whilst delivering the consistency of service that our clients demand; and maintaining the high standards set over the period of nearly 60 years, since the practice was founded by Dr Peter Rossdale.

# Equine practices very often deal with highly prized and extremely valuable horses. How does the equine vet cope with this extra pressure?

The value of a patient is something that one adjusts to relatively quickly, and provided we always try to do our best in every case, coping with the veterinary work is, in my view, not that difficult. However, equine clients can be very demanding and not all of them fully appreciate the difficulties that a veterinary surgeon often has to face. Our challenge is, therefore, to educate those clients who don't fully grasp this, to appreciate that our aims are usually shared and directed at resolving the problems of the patient as effectively as possible.

#### You are still going to be doing consultancy work for Rossdales, so how do you intend to spend the rest of your spare time in retirement?

I have been very fortunate to travel much of the world as a veterinary surgeon; but, sadly, I am too familiar with airports, lecture rooms and operating theatres. I hope to revisit many of the countries with my wife and to spend longer periods of time enjoying the amazing diversity of the world and, equally, the UK in which there is so much to see and enjoy.

I am an enthusiastic golfer; and my wife, Gilly, and I have just purchased a camper van in which we hope to travel around the UK and Europe.

On a professional front, in addition to maintaining a relationship with the practice and hospital, I am a RCVS Council member, on the Board of Regents of the European College of Veterinary



Surgeons and chairman of Trustees of the Society for the Protection of Animals Abroad. I am also still involved with the World Equine Veterinary Association and travel abroad to lecture on equine surgical matters.

## What changes for the good – and not so good – have you seen over your veterinary career?

The technical and veterinary developments in equine veterinary medicine and surgery have been astonishing during the 40 years since I graduated. I have been privileged to be in a practice that has embraced and frequently been involved in pioneering such developments.

On the negative side, I have been disappointed that some young veterinary surgeons – most of whom graduate with great enthusiasm for the profession – soon become demoralised about their future. I was told as a child that you get out of life what you put into it and I have always found that to be the case.

Some young veterinary surgeons seem to expect that it is possible to have your cake and eat it. Undoubtedly, there is a massive learning curve in becoming clinically competent. It is the duty of more senior colleagues to assist in that process and to facilitate that challenging pathway. I believe that mentoring of recent graduates is one of the key roles of more experienced members of the profession.

## How do you see the future of the equine veterinary profession?

I am very optimistic about the future of equine practice. New graduates are better trained these days and most practices are highly equipped to deal with modern clinical practice. There are many more jobs available in equine practice than when I graduated. Many equine patients retain a significant value and equine clients can often afford to underwrite a full and proper diagnostic and therapeutic cycle. Thus equine veterinary surgeons can use their skills fully and earn a reasonable living in so doing.

You have been president of the BEVA, BVA and WEVA. What did you most enjoy during your presidential years and how do you think a president can make a difference? Presidents are individuals and bring varied skills to these jobs. The requirements of the role are often slightly different, but one common factor is that the president must bring together his or her team in shared ambitions and then lead by example.

The most enjoyable thing, without any doubt, is the people you meet, with whom you work and who usually become lifelong friends.

#### "We are a small profession, yet I believe we have an important – and often underestimated – role in modern society"

#### You supervised the building of Rossdales Equine Hospital. What advice would you give to anyone contemplating such a task today?

Have a clear vision about what you are trying to achieve within the budget available. Consider carefully the flow and interaction of horses, staff, clients and their vehicles – flooring and drainage are absolutely critical. Employ professional help in design and try to stick to the original plan – keeping a close eye on the building process, so that if changes do become necessary, they can be implemented early and without too much additional expense.

#### You received the BVA Chiron award in 2008 for outstanding contributions to the veterinary profession. What do you see as your legacy to the veterinary equine world?

I'm not sure I have any particular legacy. However, I have been very proud of the teams with which I was involved – both at Rossdales and in my veterinary political life.

#### You were elected to the RCVS Council in 2015. What do you hope will be your major contribution as a Council member, and how can we encourage the profession generally to take more of an interest in it bearing in mind that voting statistics show that only about a fifth of veterinary surgeons bother to vote at elections?

Engaging with an apparently disinterested electorate is a major challenge, whether you are a politician in Westminster or Belgravia House. We are a small profession, yet I believe we have an important - and often underestimated - role in modern society.

It is our duty as members of the RCVS Council to ensure the profession is fit for purpose in 2016 and I believe that the recent reduction in its size, together with other modernising steps, indicate a strong desire to make certain that the profession retains its highly respected role in the community.

My particular interests are in education and specialisation. As you are aware, this is a time when these components of veterinary life are under increasing scrutiny. I hope to be able to help in a small way with these vital matters and in reassuring the public that the veterinary profession has adapted effectively to meet the challenges facing all branches of the medical professions nowadays.

Persuading busy veterinary colleagues of the importance of RCVS – or even voting in our elections – will not be achieved overnight; but it is an ambition that all council members must share.

#### What would you say was the highlight of your career?

To have worked during an era of so many dramatic scientific and technical developments, within a team of like-minded enthusiasts.

## What does being a trustee of the Society for the Protection of Animals Abroad (SPANA) involve?

We are involved in supporting the welfare of working animals in various parts of the developing world. My interest is in helping to deliver education to animal owners, veterinary surgeons and technicians to promote improvements in treatment and thus to ensure advances in the quality of life of working equids, in particular.

#### As an honorary member of the BVNA, how important is the role of the equine veterinary nurse and how do you see it developing?

I have always worked with qualified veterinary nurses and have been involved regularly in their training. Our practice has taken a leading role in the development of registered equine nurses, because they are vital members of the veterinary team. One of my proudest achievements was the acceptance by the RCVS of equine veterinary nurses and some of the first EVNs qualified within Rossdales.

I am delighted that veterinary nursing can now truly be considered as a profession in its own right.

# What do you think are the key issues affecting the veterinary profession as a whole today and how might they be resolved?

There are many challenges. These include: the well-publicised 'responsible use of medicines'; educating the public to value veterinary specialisation and expertise; assuring the quality of new veterinary graduates whilst ensuring that they remain content within the profession; promoting and celebrating the diversity of careers in which new veterinary graduates may become involved.

There are no 'quick-fixes' for any of these, but by working together as a profession we can keep things moving in the right direction. The recent collaboration between the BVA and RCVS in the 'Veterinary Futures' programme is a good example of how we can begin to tackle such challenges as a whole profession. Recognition of the mental trauma suffered by some graduates has achieved a high profile in recent years and the 'Mind Matters' project is a very important one too.

# How do you think the profession can select the appropriate school students to be trained for the realities of veterinary practice?

This is a hot potato!

Universities inevitably aim to recruit students with the highest academic grades, which is understandable. The oft-called-for reduction in entrance requirements and a 'dumbing down' process to correct a perceived mismatch between student expectations and the reality of veterinary practice, is unlikely to occur in a world in which scientific knowledge is expanding exponentially. However, despite the efforts of many of the veterinary schools, the muchheralded 'widening access' programme has not yet delivered its hoped-for student diversification.

With a continually increasing number of students, the provision of extra-mural studies (EMS) will become ever more difficult to sustain. However, in Rossdales, the enrolment of enthusiastic students to our 'externship' programme, provides the core of good interns after graduation and, in turn, first-class assistants, residents and future partners. It is my view that EMS must remain an essential role for practices, to ensure continuity and sustainability of a first class veterinary service for the future. I can imagine a time when practices will sponsor veterinary students through university, to ensure that they have access to the sort of person that will suit their practice needs, in the same way that much has been done in the past by business and the armed services.

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