

Veterinary PracticeToday

FOR PERSONAL & PROFESSIONAL DEVELOPMENT

'Post-truth' to 'alternative facts'

Once upon a time...



Abortion and perinatal lamb mortality

Taking action to prevent the key causes

Social media policies

Why all practices should have one

Acute kidney injury

A potentially life-threatening condition

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UP FRONT...

We live in turbulent and uncertain times and the veterinary world does not escape from these stormy waters.

Brexit has created a very unsettled Britain and will impact directly on the veterinary and agricultural industries – in what way we are, and will be, for a significant amount of time uncertain. And this is already being reflected in falling applications to UK veterinary schools from EU students. It is difficult to plan the way ahead when the future is so clouded and this makes the role of the veterinary practice owner or manager that much more difficult.

The uncertainty is fuelled, to quite a large extent, by social media and by our readiness to embrace and believe in all that social media tells us. Our 'Comment' article looks at the growing phenomenon of 'post-truth' whereby objective facts are submerged by often uninformed emotional and personal beliefs. It is a fascinating, as well as disturbing, look at the erosion of material fact over fanciful and uninformed or 'alternative facts' – a term recently coined by the White House's spokeswoman, Kellyanne Conway. As I write, UK MPs are launching a Parliamentary Inquiry into the growing phenomenon of 'fake news' – particularly fake news websites, which deliberately publish hoaxes, propaganda and 'dis-information' purporting to be real news.

Social media plays an enormous part in the spread of information and misinformation and we have two excellent articles on the effect and control of it in our Management section. Clara Ashcroft's article looks at online criticism from veterinary clients and helps to reassure those practice owners who worry about bad reviews and how they might affect their business; while Rebecca Leask discusses the need for a robust social media policy within the veterinary practice and why practices should be aware of the risks inherent in both their employees' use of social media, and having a social media presence themselves.

In this highly developed and technology based world, it is easy to disregard the effect humans have on the ecology of the planet. We have a great deal to answer for and this is highlighted in our articles on the role of zoos in conservation and our wildlife Insight. Both look at the sad demise of species and how we can perhaps reinstate at least some 'lost' species into a protected environment.

This in itself is a contentious issue – some would argue that the loss of species, both animal and plant, is in itself simply a natural evolution of the species and that human impact is all just part of this process. Others would like to see all lost and endangered species brought back to the levels at which they once existed.

All progress spawns good and bad offspring. Perhaps one of the good uses of social media should be the broadcasting of the effects we are having on our very fragile planet.

Maggie Shilcock
Editor

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From 'post-truth' to 'alternative facts'



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David grew up in the heart of East Anglia and qualified from the Royal Veterinary College, London, in 1972. He spent eight 'James Herriot' years in practice in Suffolk, most of the time as a partner, building up a small animal clinic, before beginning a career in the animal health industry that spanned 22 years.

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David lives by the sea in Cornwall and in his spare time, enjoys sailing, exploring the history of his family and the house in which he now lives, landscape gardening, driving an ageing diesel Land Rover and learning to play the church organ (badly).

It is a cause for considerable concern that the word 'expert' is now treated with such disdain; and that thousands of hard-working, competent, trustworthy, highly qualified professionals feel obliged to justify their existence and tolerate abuse from people who have been emboldened by the 'post-truth' phenomenon. There appears to be no stopping this frightening trend and veterinary surgeons and nurses cannot escape its malignant effects in everyday practice.

In my 'Up Front' editorial in the January/February edition of *Veterinary Practice Today* [5(1): 3], I wrote about the rising phenomenon of 'post-truth' – defined by the *Oxford English Dictionary* as 'circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief'.

The blanket disparagement of experts is a worrying development and should ring alarm bells for us all as veterinary professionals. It runs the risk of undermining the ethical core of our sworn undertaking to ensure the well-being of animals placed under our care.

It is all very well for people to have opinions – 'twas ever thus. But when those opinions are misinformed and reinforced by the 'post-truth' and 'alternative fact' phenomena – invariably promulgated via social media – they become dangerous and downright destructive.

Erosion of trust

'The man from the BBC was laughing as he reported the White House's false claims about the size of the crowd at Donald Trump's inauguration. He should have been crying,' wrote Gideon Rachman in the *Financial Times* (23 January). 'What we are witnessing is the destruction of the credibility of the American government.'

'This spectacle of obvious lies being peddled by the White House is a tragedy for US democracy,' he continued. 'But the rest of the world – and, in particular, America's allies – should also be frightened. A Trump administration that is wedded to the "big lie" has very dangerous implications for global security.'

'The press will need to be robust and courageous. The legal system, in which the truth still matters, may ultimately determine the fate of this administration. American institutions from the media to Congress and the courts have demonstrated their independence from the White House in the past. They are about to be tested as never before.'

A wise man foretells

Wind back the clock four months, and it is uncanny to read the words of Professor Bob Michell – one of the wisest and most politically aware men who have ever graced our profession and



"Democracy can't function without facts that are widely accepted."

"The main problem with Twitter is that it so readily turns what should be reasoned argument and informed discussion on major political, social, economic or scientific issues into a personal attack on whomsoever holds an opposing view to your own."



whose death last year has left a yawning chasm at a time when there is a need for his fearless honesty and outspoken common sense.

In what was to be his penultimate 'Speculum' piece in *Veterinary Times*, he wrote: 'Yes I voted Remain, but at any time in the past years until February I'd have joyfully voted Out. The miniscule power of elected representatives compared with permanent officials, the inability to produce accounts that satisfied the auditors, the constant quest for uniformity regardless of local circumstances or common sense and so on.

'My reason for voting In was not to do with Europe, but the US. Alongside the dangerous political climate in the Middle East and Eastern Europe, the resurrection of the Cold War, I began to realise the White House could become chez Donald – Trump, not Duck, though the latter would be preferable. I could easily imagine the US reverting to isolationism...'

Bob concludes that isolationism and misinformation negates democracy. Bemoaning the discrediting of expertise and the need for truth and proven supporting facts, he says, 'It is about the 'God Particle' of democracy; truthfulness – without it there cannot be informed choice.'

Democracy can't function without facts that are widely accepted. It doesn't mean that facts shouldn't be disputed or their meaning argued over, but societies need a bedrock of information to inform their decisions. When the senior White House aide, Kellyanne Conway, was asked why the President's press secretary had lied about the crowd size at the inauguration, she defended him by saying he was offering "alternative facts".

Her interviewer, Chuck Todd of NBC, retorted that "Alternative facts aren't facts, they're falsehoods".

If conspiracies and exaggerations are accepted as alternative realities, then it is much more difficult for experts or scientific evidence to be trusted or evaluated objectively.

Because I have tweeted it...

Now introduce social media, notably Twitter, into the equation and examine how that impinges on truthfulness. Where are the checks and balances in that? Without the facility for a carefully argued response, what price the truth? Once the 140 characters have been shed and the allegations made, the damage has been done. A personal reputation wrecked without redress, a company's share price plummeting, a nation at war.

The main problem with Twitter is that it so readily turns what should be reasoned argument and informed discussion on major political, social, economic or scientific issues into a personal attack on whomsoever holds an opposing view to your own. Any one lone, uninformed voice can be matched against a panel of experts – who are vilified simply because they are that ... experts.

Moral dimension

Many of our significant political and healthcare choices now seem to come as binary options. Are you In or Out? Republican or Democrat? Remain or Leave? Discussions around these decisions have become divisive, and those who take opposing views become demonised.

When the choice boils down to X or Y, it can be easy to characterise outcomes as winning or losing. Brexit won. Republicans won. If you voted otherwise, you're a 'loser' – or so the logic goes. Things are black and white. Someone is either a 'goodie' or a 'baddie'. Something is either 'healthy' or 'unhealthy'. You either 'win' or you 'lose'.

In a thought-provoking article, Neil Goddard from the London Institute for Contemporary Christian Culture (20 January 2017) wrote: 'Many Americans, Christians included, agonised for weeks and months over how to vote. And although good intentions do not necessarily mean a good outcome, we must not gloss



"Perhaps we need to learn how to hate the issues that are at the root of our hatred without vilifying the people whom we associate with them and with whom we wish to engage and change their views?"



over the complex ethical, moral, and spiritual decisions that the presidential election posed ... it's easy to throw stones at the other side, to be smug if you've "won", or to be bitter if you've "lost".

'But what if we did something radical, and refused to play the game of 'us' versus 'them'? What if we saw those we differ from politically simply as people like us, fallen and broken, but trying their best?

'Maybe we don't have to see it as a "win" or a "lose" situation. Maybe, instead, it's an opportunity for a more radical – possibly even counter-cultural – commitment to follow the New Testament mandates – to honour the governing authorities, to pray for our leaders, and – no matter what their political views – to love our neighbours as ourselves.'

Not an easy 'ask' by any means, especially when the bitterness in many cases comes close to hatred. Perhaps we need to learn how to hate the issues that are at the root of our hatred without vilifying the people whom we associate with them and with whom we wish to engage and change their views?

As caring professional people, we may hate the act of abortion, but we have compassion for both the aborted and the aborting. We may hate the ravages of alcohol, but we care for those who struggle with alcoholism, and we want to do whatever we can to help them.

We may hate the abuse of pet animals, but simply transferring that hate to the people involved will not save a single individual pet or prevent the abuser from going on to harm other animals – or even humans.

Veterinary alarm bells

So why raise all this here, now?

Well there are many 'hot potato' issues affecting the veterinary professions at the moment – in no particular order, culling of

badgers, the clinical credibility of homoeopathy, stress and mental health, appropriate selection of students for practice life, prevention of imported diseases, welfare problems in dogs perpetuated by inappropriate breeding – the list is a long one.

In some quarters emotions are running pretty high and there are signs, particularly in exchanges in the veterinary social media, that the trend towards personal vilification is gaining momentum. Or that the drumming up of several thousand signatures on a petition that supports your view, somehow makes it the only credible option.

Consults are becoming increasingly fraught too as clients no longer simply respect your opinion as a professional, trained as an expert in so many different aspects of animal health and welfare. Indeed, because you are an 'expert' and are charging them for your advice, they are emboldened – by what they have seen from the veterinary experts online, on the TV or in the press – to challenge every decision you might choose to make.

And, of course, they are only too willing to share their views of you and your practice via Facebook or Twitter, without redress. Their word given more credibility than your unspoken professional status as an expert, because that is the way of our 'post-truth', 'alternative fact' world. Everyone is an expert simply because they have a view. ■

"In some quarters emotions are running pretty high and there are signs, particularly in exchanges in the veterinary social media, that the trend towards personal vilification is gaining momentum"



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*Suggested Personal & Professional Development (PPD)



RENAL DISEASE

Classification and management of acute kidney injury

Acute kidney injury (AKI) is a potentially life-threatening condition, with mortality rates reported between 23.8-78.5 per cent for dogs and 64 per cent in cats (Lee et al, 2011; Lee et al 2012) Prompt recognition, aggressive management and careful monitoring is required for a successful outcome of a patient with acute kidney injury.

Definition and classification

Acute kidney injury (AKI) is defined as an acute and abrupt decrease in kidney function resulting in abnormal glomerular filtration rate, tubular function and/or urine output. It can be graded to encompass a continuum of functional and parenchymal damage.

There are various classification schemes for acute kidney injury in man and animals. All the systems highlight the

potential for acute kidney injury in a non-azotaemic animal. Identification of acute kidney injury should be based on a rising creatinine value, as well as an absolute value, alongside evidence of tubular damage on urine analysis and/or changes in urine output.

Causes of AKI

There are numerous possible causes of acute kidney injury. They can be divided up into how they affect renal function – haemodynamic (pre-renal), parenchymal (intrinsic) renal

injury and post renal causes (Table 1).

Haemodynamic causes result from reduced renal perfusion, and post renal causes are the result of obstruction of renal flow. It is important to recognise the continuum of these three major categories, because both pre-renal and post renal causes can lead to intrinsic renal damage. Prompt recognition and subsequent correction of these factors can minimise – or prevent – intrinsic AKI.

Table 1. Causes of acute kidney injury (AKI)

Pre-renal	Renal (glomerular – tubular – interstitial)	Post renal
Dehydration	<ul style="list-style-type: none"> ■ exogenous toxins ■ food stuff: grapes and raisin ■ plants: lilies, mushrooms ■ organic compounds: ethylene glycol ■ heavy metals ■ organic compounds ■ veterinary medication: NSAIDs, antibiotics, diuretics ■ vitamin D analogues 	Ureteral obstruction
Hypovolaemia	<ul style="list-style-type: none"> ■ endogenous toxins ■ haemoglobin ■ myoglobin 	Urethral obstruction
Cardiac disease	<ul style="list-style-type: none"> ■ infectious causes ■ pyelonephritis ■ leptospirosis ■ <i>Borellia</i> ■ <i>Ehrlichia</i> ■ <i>Babesia</i> 	<ul style="list-style-type: none"> ■ urinary rupture ■ ureteral obstruction ■ bladder rupture ■ urethral obstruction
Thromboembolic disease	<ul style="list-style-type: none"> ■ immune-mediated diseases ■ amyloidosis ■ vasculitis ■ systemic lupus erythematosus 	
Hypertension	<ul style="list-style-type: none"> ■ neoplasia ■ lymphoma ■ adenocarcinoma 	
Systemic inflammation Pancreatitis	<ul style="list-style-type: none"> ■ CRVG (Cutaneous renal and vascular glomerulopathy = 'Alabama rot') 	
Trauma		

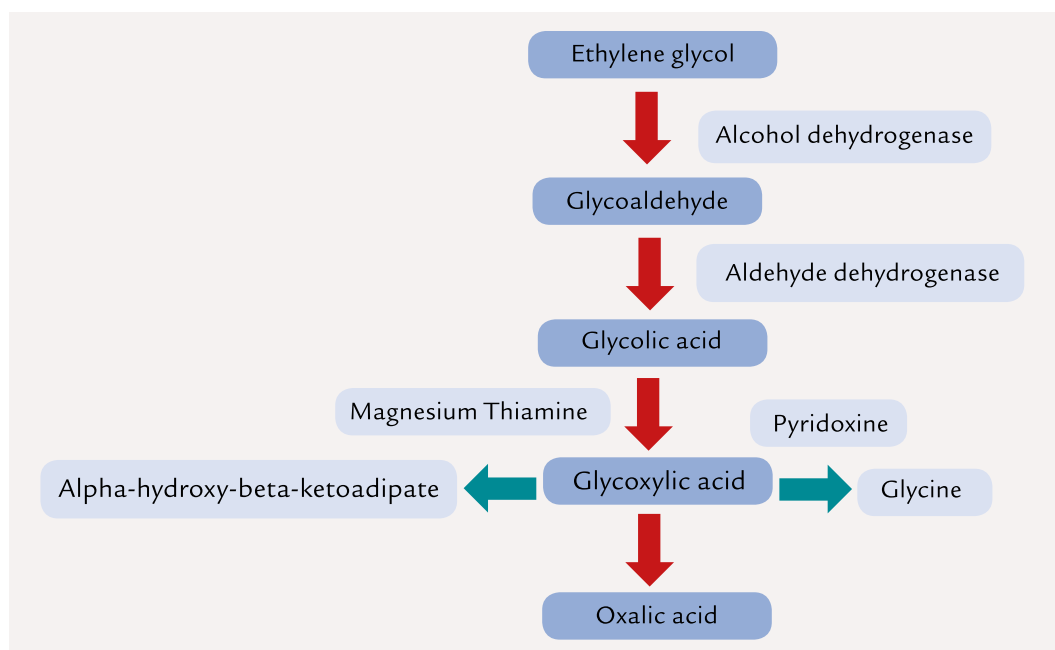


Figure 1. Ethylene glycol metabolism.

Ethylene glycol is a highly nephrotoxic substance found in antifreeze and other solvents. On ingestion, ethylene glycol is rapidly metabolised and these metabolites are more dangerous than the ethylene glycol itself (**Figure 1**). Patients presenting with anuric renal failure, with accompanying hypocalcaemia and acidaemia, should alert the clinician to the possibility of ethylene glycol toxicity.

Pyelonephritis is a common cause of acute kidney injury in patients with an acute deterioration of previously

diagnosed chronic kidney disease. Conversely, leptospirosis is a widely recognised cause of acute kidney injury, in a previously healthy patient. Any dog presenting with acute kidney signs with no known inciting cause should have serum and urine submitted for antibody titres, PCR and culture. MAT testing can also be performed to aid diagnosis of leptospirosis.

However, the vaccination status of the patient needs to be considered when interpreting the results (Shuller et al, 2015); and barrier nursing and antibiotics should

be commenced if there is suspicion of leptospirosis, owing to its zoonotic potential.

Cutaneous vascular renal glomerulopathy (CRVG) or 'Alabama rot' is an emerging cause of acute kidney injury in dogs in the UK. Patients with the disease usually have skin lesions alongside the acute kidney injury (**Figure 2**). The underlying cause is unknown, but there is some suggestion of a winter/spring seasonality to the disease.

Post renal causes of acute kidney injury include ureteral and urethral obstruction. Ureteral obstruction with calcium oxalate stones is likely to be an under-recognised condition in cats. Patients with unilateral obstruction may have minimal biochemical parameters and urine output, whereas patients with bilateral ureteral obstruction can present as being anuric. It is

important to be aware that the presence of both ureteral and urethral obstruction may lead to intrinsic renal disease, resulting in a persistent azotaemia following surgical management of the obstruction.

Diagnosis of AKI History and physical examination

A good history and physical examination are important in distinguishing acute kidney injury and chronic kidney disease. Usually the former has a shorter non-specific history – such as vomiting and anorexia with possible known access to toxins; whereas the latter has a longer course with associated weight loss and polyuria and polydipsia.

However, patients with chronic kidney disease can develop either 'acute' or 'chronic' disease.

Blood biochemistry, electrolytes and haematology

Acute kidney injury results in the retention of uraemic solutes, namely urea and creatinine. The presence of hyperkalaemia alongside azotaemia should alert the clinician to the possibility of anuric acute kidney injury and prompt emergency management.

Urine assessment

The urine sediment can provide evidence of renal disease before significant changes occur to serum creatinine. The presence of glucosuria, renal tubular casts and proteinuria are all potential indicators of an acute kidney injury.

Detection of calcium oxalate crystalluria may help in



Figure 2. Patient with CRVG skin lesions.

"Acute kidney injury is a severe, potentially life-threatening injury with multiple possible aetiologies, each with a different prognosis"

diagnosis of ethylene glycol toxicity. However, the absence of these crystals in the urine does not preclude a diagnosis of ethylene glycol toxicity. Culture of urine should be performed in all cases of acute kidney injury.

Urine biomarkers

The only commercially available renal biomarker is SMDA which, as yet, has not been studied in acute kidney injury.

Imaging

Ultrasound may be a useful adjuvant test to assess renal size and architecture – such as evidence of chronic disease, presence of renal infarcts and evidence of renal pelvis and

ureteral dilation suggestive of ureteral obstruction. Sometimes a pyelogram may be necessary to confirm obstructive disease (**Figure 3**).

The presence of ureteral obstruction is a surgical emergency with improved short-term survival when compared to other causes of anuric renal disease and, therefore, it is important to rule out this disease early in your diagnostic process.

Urine output

It is important to determine the urine output of patients presenting with acute kidney injury as this will affect their management and prognosis. Patients can be classified as

anuric, oliguric – absolute and relative – and polyuric (**Table 2**). Assessment of urine output should only be performed once the patient is adequately hydrated.

Initial assessment can involve bladder palpation and, in cats, assessing the litter tray with appropriate non-absorbent substrate. However, if there is a concern that the patient is failing to produce urine, a urinary catheter should be placed to confirm the presence of anuria and oliguria. Measurement of urine output is also important in polyuric patients in order to quantify losses.

Management of AKI

Specific therapy for the management of patients with AKI is limited.

The administration of ethanol or fomepizole – competitive inhibitors of alcohol dehydrogenase – are antidotes for ethylene glycol toxicity. These antidotes act to prevent the formation of the toxic metabolites of ethylene glycol metabolism and are, therefore, only useful in the immediate phase following ingestion – normally when the patient is non-azotaemic.

Misoprostol, a prostaglandin analogue, is indicated in cases of non-steroidal

toxicity; and antibiotic therapy – based on culture and sensitivity results – should be instituted in cases with a documented urinary tract infection or in cases of suspected leptospirosis. Clavulanate-potentiated amoxicillin should be considered as the first-line therapy in both instances and only changed based on culture, sensitivity and MAT testing results.

Medical management of acute kidney injury is, therefore, fundamentally based on supportive care; management of life-threatening electrolyte and acid-base abnormalities, fluid therapy and supportive treatment.

Management of electrolyte and acid-base abnormalities

In cases of obstruction or anuric intrinsic renal failure, the most common electrolyte abnormality is hyperkalaemia and, less commonly, hypocalcaemia and acidaemia. Management of hyperkalaemic cases consists mainly of calcium gluconate, glucose-insulin bolus and subsequent glucose continuous rate infusion (**Table 3**).

Continuous ECG and regular monitoring of electrolytes and glucose is important when starting patients on this treatment.

Fluid therapy in patients with acute kidney injury is a balance between enough, but not too much. Traditionally, crystalloids were administered at a high rate in an attempt to maximise excretion of metabolic wastes. However,



Figure 3. Pyelogram indicating a ureteral obstruction.

Table 2. Definition of urine production term

Terminology	Definition
Anuria	No urine production
Absolute oliguria	Urine production < 0.5-1ml/kg/hr
Relative oliguria	Urine production 1-2ml/kg/hr during fluid therapy
Polyuria	>2ml/kg/hr without fluid therapy

Table 3. Drug management of hyperkalaemia

Drug	Action	Dose
Calcium gluconate 5%	Stabilisation of myocardial conduction whilst attempting to restore urine flow	0.5-1ml/kg over 5-15 minutes with continuous ECG monitoring
Glucose-insulin bolus; then CRI of 50% dextrose	Movement of potassium intracellularly	0.25-0.5IU/kg insulin & 0.5ml/kg 0.5% dextrose; then supplement with 2.5% -5% glucose

"A good history and physical examination are important in distinguishing acute kidney injury and chronic kidney disease"



Figure 4. Naso-oesophageal feeding in a patient with acute kidney injury.

increasing fluid administration does not equate to elevated urine production and has been associated with increased mortality in man (Legrand & Payen, 2011).

The current recommendation is to correct the dehydration deficit – usually over a six- to eight-hour period; and, if the patient's bladder is not filling and the patient is continuing to gain weight, then they should be considered to be anuric or oliguric. At this point, a urinary catheter should be placed to carefully monitor urine output to tailor the fluid therapy.

Fluid therapy should match the urine output and correct any deficit from other

sensible losses – such as vomiting and diarrhoea – alongside replacement of insensible losses, estimated at 0.6-1ml/kg/hr. A patient that is considered anuric, should only receive fluid to replace insensible losses.

During the recovery phase of acute kidney injury, the patient may be polyuric. Urine output, alongside the patient's weight, needs to be monitored to ensure the fluid management plan is balanced with these losses.

Specific therapy for management of oliguria and anuria

Furosemide is the mainstay of medical management of anuric acute kidney injury.

It has a role in diuresis and naturesis. Continuous rate infusions of furosemide have been shown to more beneficial than bolus injections (Adin et al, 2003). Dopamine, and the more selective dopamine receptor agonist, fenoldopam, have been suggested to have a role in increasing renal blood flow. Currently, however, there is no evidence for their use in the management of acute kidney injury (Wohl et al, 2007; Nielsen et al, 2015; Kelly et al, 2016).

The current recommendation for patients that are persistently anuric is referral to a specialist institution for continuous renal replacement therapy or peritoneal dialysis – both of which are costly and labour intensive.

Management of uraemic gastritis and nutritional care

Patients with marked azotaemia invariably have a degree of uraemic gastritis. Gastroprotectants, anti-nausea and supportive nutrition are, therefore, important when managing these patients. Patients with acute kidney injury may be in hospital for days or even weeks. A naso-oesophageal feeding tube is relatively easy to place and allows trickle feeding of specialised renal diet whilst the patient is in hospital (**Figure 4**).

Monitoring and management of hypertension

Systemic hypertension has been reported in dogs and cats with acute kidney injury, so daily blood pressure monitoring and initiation of anti-hypertensives, such as amlodipine, may be warranted in these cases.

Outcome and prognosis

The prognosis of AKI cases is variable, depending on the underlying cause.

Ethylene glycol toxicity is associated with a 93 per

cent mortality rate and the mortality rate in instances of lily intoxication, once azotaemic, is between 50 to 100 per cent. This is compared to the survival of least two thirds of cats with ureteral obstruction and pyelonephritis (Hadley et al, 2003; Segev et al, 2013).

These figures underline the importance of attempting to determine the underlying cause of acute kidney injury, as well highlighting the importance of prophylactic measures – such as fluids in patients with a history of exposure to nephrotoxins such as lilies or raisins.

Certain biochemical findings have been suggested as prognostic indicators. However, the initial degree of azotaemia has not been consistently shown as a negative prognostic indicator and should not be used as a sole factor in deciding whether to pursue treatment or not (Lee et al, 2011; Segev et al, 2013).

Conclusions

Acute kidney injury is a severe, potentially life-threatening injury with multiple possible aetiologies, each with a different prognosis. Prompt recognition and aggressive medical management, together with close monitoring of fluid balance and supportive care, is required; and prompt referral and management of a patient if it is persistently anuric despite medical management. ■

PPD Questions

1. What electrolyte changes would you associate with ethylene glycol toxicity?
2. In what two common causes of acute kidney injury are antibiotics indicated?
3. What are the characteristics of the emerging cause of AKI, CRVG?
4. What is the definition of polyuria?
5. What therapies should be used alongside each other in the management of hyperkalaemia?

- Answers**
1. hyperkalaemia, hypocalcaemia and acidaemia
 2. leptospirosis and pyelonephritis
 3. skin lesions with accompanying acute kidney injury
 4. urine output >2ml/kg/hr without fluid therapy
 5. calcium gluconate and insulin-glucose bolus.

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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 furrries' and nursing clinics, and has just gained a Grade A with distinction in Canine and Feline Clinical Nutrition (CertNut).

Working towards a certificate in canine and feline clinical nutrition – a personal view

Nutrition has always been an area of interest for me and one that I feel can be under-utilised in practice. I have spoken to many veterinary surgeons and nurses who think that recommending nutrition through practice just increases the perception of staff trying to sell more. However, nutrition plays a key part in keeping animals fit and healthy throughout their lives. If staff aren't aware of the differences between available diets, and don't feel confident enough to recommend them, then there will inevitably be an area of preventive pet care advice in which we are falling short.

I was worried that, while I had studied some nutrition during my original training to become an RVN, and had invited company representatives into the practice to discuss various conditions, their diets and benefits, my knowledge was all from potentially biased sources. So I wanted to be sure that to discuss it confidently with clients, I had a wider knowledge base and could field the more in-depth questions presented to me, particularly in connection with some of the grain-free and raw meat (RAW) options that are increasingly available.

The course

I began my Certificate in Canine and Feline Veterinary Health Nutrition at the start of March 2015. It was a distance-learning course comparable with the first year of a degree – comprising four units, with two months set aside to complete each one.

The COAPE course, which started in 2014, appeared to be a new and exciting opportunity, and I relished the idea of being one of the first people to be able to say I had completed it! As well as becoming a 'Cert Nut'

at the end of the course (in several different ways!) it also counted for 180 hours of CPD.

The course fee is currently £594 with a registration fee of £76 (as of 20/09/16) and bursaries are available as detailed on the website, www.coape.org.

I was fortunate to be offered a bursary, which made it much easier for me to be able to afford the course. The key textbooks – the *Encyclopedia of Canine Clinical Nutrition*, the *Encyclopedia of Feline Clinical Nutrition* and



*Suggested Personal & Professional Development (PPD)



NUTRITION





"If staff aren't aware of the differences between available diets, and don't feel confident enough to recommend them, then there will inevitably be an area of preventive pet care advice in which we are falling short"

Everything you need to know about the role played by Nutrients in the Health of Dogs and Cats were provided as part of my bursary when I started the course – although the two main textbooks had limited use until I reached module 4.

The modules

The first unit covered the anatomy and physiology of the canine and feline digestive tracts, including digestibility, palatability and the biochemical processes involved in digestion. This module took a bit of recalling from the anatomy and physiology knowledge gained during my initial qualification as a RVN. It felt as if I was trying to fit a lot of information into what seemed to be impossibly small word counts! While this drove me mad, it really did help me trim down what I was trying to say and retrained my usual rambling style!

The second unit included the essentials of nutrition, diet types and feeding regimens.

Within this was the sourcing and use of nutrients, required energy needs – including the dreaded calculations and how to interpret what they mean – and the importance of ensuring each individual receives a balanced diet. It also discussed the various types of diet available and their differences, feeding behaviours in each species, as well as the pros and cons of different feeding programmes. The labelling and legislation of pet foods was also covered here.

Again, word counts caused me more problems than anything else as I felt I was editing out essential information; yet this unit also gave me more 'food for thought' when it came to references. All information included had to be referenced – meaning that even things I 'just knew' had to be properly proven. This is, of course, the correct way to do it; but it did mean a great deal of searching for new books and a wealth of associated reading. Searching through old published articles was not hugely

useful at this point, it was textbooks all the way!

The third unit focused on the variations in nutrition at differing life stages – including during growth, nutrition for neutered animals, nutritional needs during reproduction and what is needed in ageing pets. I found this module particularly useful because most of the recommendations in practice – that are not for a clinical reason – are aimed at ensuring life stage requirements are met.

This is also an area that can be difficult in practice because there are so many choices that can easily confuse clients. It armed me with many more reasons to support the recommendations we make and for the diets we offer to the clients.

The final unit looked at nutrition regarding major body systems, critical care and the principles of clinical nutrition. This included nutrition for animals with dysfunctions of major body systems, nutritional needs in critical care, nutritional needs in stressed and anxious animals, nutrition in obesity, nutritional management of animals with ongoing clinical disease and new developments in clinical nutrition.

This module was just as huge as it looks! It was where the textbooks with which I was provided became invaluable; but it also took huge amounts of extra research. Online copies of published articles were a 'godsend' for helping reference more specific information.

Clinical conditions all present nutritional challenges with which we are regularly faced in practice and gaining a deeper understanding of what we were trying to do rather than just grabbing the labelled diet was really something I enjoyed – but it took a lot to get there!

My personal take

Time was a major consideration throughout this course. When I first considered doing it, I was concerned as to how I could fit it around my job. At the time, I was head nurse in a practice – working head nurse duties alongside general daily nursing duties – not to mention my home commitments! It did mean that for pretty much nine months, all my evenings and weekends were taken up sitting with books or typing frantically. And some deadlines did seem to rush towards me very quickly!

However, I don't regret doing the course for a second. I feel much more confident discussing both prescription and life stage diets with clients, offering the clients better value from their practice experience, helping them to feel more comfortable and confident with the choices they are making for their pets – and in so doing, increasing revenue for the practice. I was also able to adjust the nursing clinic protocols and educate the other practice staff, as well as improving protocols for our surgical and hospitalised patients.

We could advertise 'my Certificate' to clients, which we did through our practice newsletters and could set up nutrition clinics – covering broader dietary advice for the clients, not just weight clinics! Overall, the benefit to the practice was huge, as well as the personal benefit for me – being able to promote myself as having this further qualification.

I would recommend this course to anyone interested in nutrition – with the proviso that you are very interested in nutrition and can willingly give up *most* of your spare time for several months! ■



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 works in its 24-hour rota team.

Dark, milk and white – when enough is too much

Chocolate – a year-round presence in most households; and whilst humans may struggle with the notion and practice of portion control, animals have no such concerns!

Easter and Christmas seem to induce siege mentality, and vast quantities of chocolate are shipped in to ensure stock levels are maintained to cope with increased demand and to guard against the nightmare scenario of depleted or exhausted supplies. This, of course, represents 'temptation extraordinaire' for animals, and owners should be encouraged always to store chocolate out of reach from their opportunistic pets.

Each year, the Veterinary Poisons Information Service (VPIS) receives over 600 enquiries regarding chocolate ingestion and approximately two per cent of these cases result in fatalities.

The cocoa tree was named in the mid-1700s by Carolus Linnaeus as *Theobroma cacao* – literally, food of the gods. Both apt and fitting. Chocolate is made from the fermented, dried-then-roasted beans of *Theobroma*

cacao, and theobromine, a methylxanthine similar to caffeine, is the major alkaloid that occurs in chocolate and cocoa powder.

After roasting, the shell is removed from the beans to produce cacao 'nibs', which have gained in popularity over recent years owing to their newly crowned status as a 'superfood'. These nibs are ground to form cocoa mass, which is then liquefied to make chocolate liquor, that is then processed into cocoa solids and cocoa butter. There is a small amount of caffeine itself also present in chocolate.

Chocolate and cocoa classification

The classification of chocolate is determined by the quantity (percentage) of cocoa solids the chocolate contains.

Milk chocolate

In the UK and Ireland 'milk chocolate' must contain a minimum of 20 per cent cocoa

solids and 20 per cent milk solids that include at least five per cent milk fat.

Dark chocolate

Dark chocolate is made without milk. European law does not recognise the adjectives 'dark' or 'plain' and it is just known as 'chocolate'. Dark chocolate should contain a minimum of 35 per cent cocoa solids, at least 18 per cent of which should be cocoa butter. However, the cocoa content is often much higher, and can reach up to 90 per cent.

White chocolate

This is not real chocolate because it does not contain any cocoa solids, but rather it is made primarily of cocoa butter, sugar and milk solids. White chocolate must contain at least 14 per cent milk solids, including 3.5 per cent milk fat.

Cocoa powder

Cocoa powder should not be confused with 'drinking



*Suggested Personal & Professional Development (PPD)



POISONS



Table 1. Current chocolate treatment-triggering doses

Source	Chocolate treatment-triggering dose
Plain or dark chocolate	3.5g/kg
Milk chocolate	14g/kg
White chocolate	Not relevant as contains an insignificant quantity of theobromine
Drinking chocolate (dry)	40g/kg
Cocoa powder	0.5g/kg
Cocoa shell mulch	0.7g/kg
<i>These doses are based on VPIS cases and the theobromine concentrations reported for the various products in papers where they have actually been measured. Many veterinary sources give theobromine concentrations for various chocolate products but are not referenced.</i>	

chocolate'. It is the non-fat part of the cacao bean (after the cocoa butter has been removed) that is ground into a powder. It is usually given on ingredient lists as a percentage – the percentage of cocoa powder in the product.

The quantity of theobromine in cocoa powder is very variable – so 'Dutch-processed' cocoa powder is made from beans treated with a potassium solution that neutralises their acidity and gives them a milder flavour.

Cocoa butter

This contains very little theobromine and is not likely to cause theobromine toxicity.

Cocoa mulch

Cocoa mulch is made of cocoa shells and used in gardens. It is a potential significant source of theobromine toxicity if eaten by dogs. Some laxatives also contain theobromine, which represents an additional risk when these products are ingested by dogs.

Pathophysiology of theobromine

Theobromine and its metabolites exert their effect by a variety of mechanisms that result in stimulation of the myocardium and the central nervous system.

They competitively antagonise cellular adenosine receptors resulting in CNS stimulation, vasoconstriction and tachycardia. They also inhibit

cellular phosphodiesterase causing an increase in cyclic adenosine monophosphate (cAMP), increased release of catecholamines, increased entry of calcium and inhibition of calcium sequestration by the sarcoplasmic reticulum causing increased muscular contractility in both skeletal and cardiac muscle. Theobromine also competitively inhibits benzodiazepine receptors in the brain.

As a result of these mechanisms, animals become hyperactive and hyperthermic, and develop hypertension and severe tachycardia; in extreme cases muscle rigidity, tremors and convulsions may be seen.

The amount of theobromine varies depending on which type of chocolate is involved, and this influences the treatment dose. The VPIS regularly reviews its cases and will alter or refine treatment doses as necessary (**Table 1**).

Clinical effects and treatment principles

Clinical effects may be slow to appear because theobromine is more slowly absorbed by dogs than by humans. Signs initially include vomiting and diarrhoea, which may lead to dehydration, made worse as theobromine is also a diuretic.

Treatment is essentially 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, because theobromine undergoes enterohepatic recirculation.

Some dogs may be more susceptible because of reduced metabolism owing to a genetic defect – dogs with CYP1A2 1117C>T polymorphism may be more at risk of toxicity because of this reduced metabolism. These dogs have complete loss of enzyme function and have been shown to have higher plasma AUC values and longer half-lives of theobromine compared to CYP1A2 wild-type dogs.

Lower concentrations of metabolites are also found in the urine of deficient dogs (Collica, 2012). This polymorphism is widespread across different dog breeds (Aretz and Geyer, 2011) and thus does not seem to be breed specific.

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.

The onset of clinical effects is generally within two to four hours (Dolder, 2013),

although sometimes this can be up to six to 12 hours (Gwaltney-Brant, 2001). These initial effects are broadly gastrointestinal – comprising vomiting, abdominal discomfort, diarrhoea, polydipsia and polyuria followed by CNS effects of excitability and hyperactivity, then ataxia and tremors.

The cardiac effects may include tachycardia and hypertension. Hypokalaemia can occur owing to vomiting and polyuria. Convulsions are rare.

Less-commonly seen effects include bradycardia, haematemesis, haematuria, bloat, tachypnoea, cyanosis and arrhythmias – classically premature ventricular contractions (PVC). Renal dysfunction may occur but it is uncommon. Non-cardiogenic pulmonary oedema has been reported (Agudelo et al, 2013).

Pancreatitis may result 24 to 72 hours after ingestion because of the high fat content of some chocolate products (Gwaltney-Brant, 2001). This would be a concern if large amounts of white chocolate were to be ingested, although there would not be a risk of theobromine toxicity.

With appropriate treatment, the prognosis is good, and recovery generally occurs within 24 hours, but may be

An unattended birthday cake may vanish with very few crumbs left, and if a small dog is involved, a serious toxicity could develop.

prolonged to between 48 and 72 hours, depending on the severity of the poisoning.

Practical advice

The VPIS can advise on the exact quantity of chocolate in a full-ranging and (almost) comprehensive list of chocolate bars, cakes, boxes, biscuits and any other chocolate or chocolate-containing product.

Homemade chocolate cakes often represent a potentially high level of theobromine load, with cocoa powder, chocolate icing and chocolate decorations – all or some of which may be dark chocolate. An unattended birthday cake may vanish with very few crumbs left, and if a small dog is involved, a serious toxicity could develop.

Once total chocolate content is established, the amount or estimated amount ingested and the animal's weight will determine whether treatment is required.

Treatment is essentially supportive with the emphasis on rehydration, reducing the stimulant effects with sedatives and monitoring vital signs.

Emesis is best avoided in animals with hyperactivity or excitability, and in many cases has already occurred before the animal presents at the surgery. If ingestion is recent, and the animal is showing no CNS signs, an emetic may be given; although dogs in particular are often keen to make another meal of the chocolate vomitus!

The use of repeated doses (4-hourly) activated charcoal to enhance elimination,

is particularly useful, as theobromine undergoes enterohepatic recirculation and has a long half-life.

Ideally, temperature heart rate and ECG should be monitored, and the animal's hydration status should be assessed and maintained. If severe or persistent vomiting is present, anti-emetics should be given.

As theobromine is excreted renally, intravenous fluids are recommended to support the cardiovascular system and enhance excretion.

If there are tremors, diazepam or methocarbamol (a centrally acting muscle relaxant) can be used; if convulsions develop, barbiturates may be used.

Where tachycardia is severe, propranolol or metoprolol can be given. Atenolol has also been used in past cases. Care should be taken when using all of these drugs because severe hypotension may result owing to unopposed alpha-adrenergic effects. Ventricular arrhythmias unresponsive to a beta-blocker can be treated with lidocaine, and atropine can be given for bradycardia.

Summary

Prevention is always the best approach, although animals will continue to find chocolate treats – small, large or even larger. Treatment is not always required, but each year a number of serious cases are reported to the VPIS.

Knowing the type and amount of chocolate involved will ensure that animals receive prompt and appropriate treatment and, hopefully, secure positive successful outcomes. ■

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Dogs deserve better

Dogs are extraordinary in so many ways. They fascinate me and I adore them in equal measure. And, through my career, the more I have got to know them, the more intrigued I have become and the more I love them. Behaviourally they are brilliant. No other animal matches the ability of dogs to communicate with us, engage with us and understand us. Anatomically, though, dogs are weird.

Show me another species that exists in such a spectacular variety of different shapes and sizes. From Chihuahuas to Great Danes, Pugs to Pulis, there are over 200 recognised 'breeds' in the UK and perhaps twice that number worldwide. They may look poles apart, but they are all one and the same, *Canis lupus familiaris*.

DNA scientists drool over dogs in their quest to unravel the still-mysterious genetic codes of life. To them, dogs are a kind of living laboratory in which subtle, small differences in the lettering appear to result in dramatic changes in appearance. For example, in humans, over 400 gene regions are known to influence a person's height.¹ But scientists reckon that a single gene may be responsible for the difference in size between a tiny terrier and a massive Mastiff. It's called IGF1.²

Disturbing canine freak show

The sheer, shocking diversity of dogdom is never more apparent than at Crufts where all sorts are under one roof and on show, pimped and paraded for the world to see. Described by the Kennel Club as the world's greatest canine beauty pageant, it is quite a carnival. But peer through the showbiz veneer and it's not a pretty sight. What I see is a curious and deeply disturbing canine freak show in which Kennel Club cognoscenti coo over breeds that, biologically, are deformed and disabled. And not by accident, but by design.

The exhibits have been bred deliberately to be that way in accordance with the archaic rules of formal pedigree dog showing and in the pursuit of its prizes. Dogs with flat faces, or bowed legs, or long backs, or skins too big for their bodies. Breeds that, all too often, struggle to see, or groom, or give birth, or exercise or even breathe normally.

The evolution of modern dog breeds is a largely unnatural history that has played out over the last 15,000 years or so. On the upside, their lengthy and ongoing domestication has given us animals that, today, are able – with the right guidance, of course – to acclimatise and adapt



"Dogs today are paying a high price for a relatively recent human obsession with canine body image and physical appearance"

surprisingly well to our noisy, noxious, bustling, bonkers world. In terms of their extraordinary ability to befriend and bond with us, they are second to none. But hanging out with humans has its handicaps. Dogs today are paying a high price for a relatively recent human obsession with canine body image and physical appearance.

During just the last 100 years or so, what a small minority of supposed dog lovers have done to canine anatomy is both weird and woeful. Championed by kennel clubs around the world, a deliberate strategy of selective inbreeding – focussed primarily on arbitrary appearance – is now responsible for a depressing catalogue of serious canine deformities, disabilities and inherited diseases that compromise the health and happiness of countless modern dogs.

It's a complex canine welfare crisis that has troubled science since the 1960s. Yet, surprisingly, over almost 50 years it had

never received much media attention. The vast majority of dog lovers were oblivious to the issues and causes. But that all changed on the 19 August 2008 when the BBC broadcast a documentary called *Pedigree Dogs Exposed*.

Landmark programme

So, there I was, that very morning, bright and early, waiting to be interviewed on the BBC's *Breakfast News*. As the RSPCA's chief veterinary adviser, I had been called in to explain the issues and the RSPCA's concerns. The film would go out on air that evening and my aim was to encourage as many dog folk as possible to watch it.

It was a day that I will never forget – one of the proudest of my career. *Pedigree Dogs Exposed* was a truly landmark film put together by a passionate, dog-loving TV producer, Jemima Harrison. In just 60 minutes, Jemima showcased and summarised what sensible science had been concerned about for five

decades. Her central message was very clear. Pedigree dogs are falling apart – physically and physiologically – because of irresponsible breeding. Huge numbers of dogs are suffering unnecessarily and ordinary owners are having to pick up the pieces, pay the vet bills and cope with the emotional strain. Jemima laid the blame – and shame – squarely at the Kennel Club's front door. We, the RSPCA, agreed with her.

Almost a year before, I had joined the RSPCA because I wanted to help the Society reform, to review its pet animal priorities and to reset its approach to tackling them. For me, two major issues stood out – one was bad dog breeding, the other obesity.

Having settled in, one of the first things I did was to commission an independent science review of the welfare impacts of selective breeding in dogs.³ When Jemima came knocking, I jumped at the chance to contribute to her film on behalf of the RSPCA and, backed up by the findings in our comprehensive independent report, I said what needed to be said.

Millions watched the film and the following day all hell broke loose. The public response was unprecedented. The media had a field day. The documentary, the welfare issues it exposed and even some of my own words, made front-page headlines. Dog lovers were shocked, horrified and very angry. The vast majority, I suspect, also felt embarrassed that it had never occurred to them that there was anything especially wrong with a Pekingese or a Pug, a Bulldog or a Basset Hound. And many, I am sure, felt guilty when it dawned on them that, as buyers of some of the problem breeds, they themselves were (albeit inadvertently) part of the problem.

The Kennel Club came in for a huge amount of stick. Its actions and omissions over very many years were central to the serious welfare issues raised in the film. Not surprisingly, it came out fighting; but it was a battle its foot soldiers simply couldn't win in the face of overwhelming scientific evidence, the considered opinions of so many highly credible dog welfare experts and, of course, common sense.

So, what happened next?

Well, quite a lot I am pleased to say. A number of major welfare organisations and corporate sponsors pulled out of Crufts and the BBC decided to ditch

broadcasting the event after 40 years. Politicians became involved, two very official Public Inquiries were initiated^{4,5} and the film stimulated a great deal of long-overdue debate and discussion within the dog world, veterinary circles and the animal welfare science community. At last, after 50 years!

One of the top priorities identified in an RSPCA report – commissioned before the documentary went out – was creating a tool to measure, long term, whether any future projects to improve dog health actually make a difference. At the time nothing existed. Now it does. The RSPCA agreed to provide significant funding to help scientists at Sydney Veterinary School and the Royal Veterinary College develop what is now called 'Vet Compass' – an innovative IT system that shares and analyses anonymous veterinary clinical information to improve the welfare of companion animals.⁶ So there are benefits, hopefully, for cats as well as dogs.

Working with the BVA Animal Welfare Foundation, my team of welfare scientists in the RSPCA's new (back then) Companion Animals Department created the 'Puppy Contract' – a web-based resource to help would-be dog owners

navigate the tricky business of buying puppies with their heads, not their hearts.⁷

Personally, I am a massive believer in 'people power'. Folk who buy puppies hold the purse strings to the puppy supply chain, much of which is unethical. If buyers are able to make better-informed decisions, and demand better quality puppies, they will put bad breeders out of business – not just the bad apples in the Kennel Club's barrel, but so-called 'puppy farmers' and opportunistic owners as well. That's how market forces work.

Knock-on effects

Pedigree Dogs Exposed catalysed many other initiatives. More science studies investigating the welfare impacts of exaggerated anatomy, for example, and the development of new genetic screening tests for inherited diseases. In collaboration with the Animal Health Trust, The Kennel Club set up an online 'Mate Select' tool to help breeders assess the genetic impact of possible pairings.⁸

The Universities Federation For Animal Welfare – an organisation that can claim credit for helping inspire Jemima to make her film – now has a brilliant online resource offering information on genetic

"It's clear that we remain a very, very long way from the future dogs deserve."



welfare problems in dogs but also many other 'companion animal' species.⁹

Thanks to a feisty, but fair-minded dog super-fan called Carol Fowler – a former English teacher from Bristol who I first met through *Pedigree Dogs Exposed* – the Dog Breeding Reform Group was established in 2013.¹⁰ She also set up the Dog Breed Health website.¹¹

And the recommendation last year from the Environment Food and Rural Affairs Sub-Committee (EFRA) that the Government pass regulations to protect the genetic viability and welfare of offspring as well as adult dogs is another reason to smile.¹²

Where are we now, almost nine years later?

The Kennel Club has simply tinkered. And, of course, Crufts is back on 'the box' thanks to Channel 4. Desperately disappointing. Channel 4 knows about the issues – the RSPCA and I have made sure of that on several occasions. But it 'rates', so it stays! So that, you might think, would be easy to solve. We just have to convince people who care about dogs to tune out, not in. There's a challenge, right there.

It's clear that we remain a very, very long way from the future dogs deserve. And, if the pressure for change isn't maintained, public and media attention is easily drawn to other issues.

Last year, as ever, I was tweeting about Crufts in an attempt to remind folk of

"Dogs deserve better. They need us – veterinary surgeons and veterinary nurses – to give them a voice"



the adverse impact beauty pageant dog showing has on the welfare of the dogs we adore. A dog lover who, from her profile picture looked like she was in her late teens, tweeted me back to ask why I was so concerned. It suddenly dawned on me that in 2008, when *Pedigree Dogs Exposed* was aired, she would have been maybe 11 or 12 and, not surprisingly, she hadn't seen the film. She cared but she didn't know. And that's our fault, not hers. It was a stark reminder of how important it is to keep the conversation in the public domain and the pressure on for change. And, that's where you come in.

Surprisingly, in all the noise surrounding *Pedigree Dogs Exposed*, the veterinary profession was frustratingly quiet. A few passionate players made themselves heard (you know who you are – thank you) but I was expecting to need ear defenders. In the end, I didn't need to get them out of the box. As a profession, we mumbled, sat on the fence. And there were mutterings in media circles about vested interests.

So, why were veterinary surgeons and veterinary nurses so quiet?

I really don't know the reason, I really wish more of us had piped up back then and, if you didn't, I urge you to do so now. The battle has only just begun. Just the recent growth in popularity of Pugs makes me wonder if the front line is actually moving backwards. But then something brilliant happens like the collective call, last year, by veterinary surgeons and animal welfare organisations to boycott flat-faced breeds. At last!

Thanks to our education and experience, and the trust people have in us as veterinary professionals, we are uniquely informed and perfectly positioned to keep the pressure on and to champion real, measurable, beneficial change. And, I'm not just talking about veterinary surgeons. It's high time we heard much more, publicly, from our profession's passionate and highly qualified veterinary nurses.

Dogs deserve better. They need us – veterinary surgeons and veterinary nurses – to give them a voice. Individuals can make a difference, of course. Just look at what Jemima did! But, crowds are louder. Together, as veterinary professionals, we could and should lead from the front. So, if you really care about dogs, let's hear you shout. ■

Mark Evans
BVetMed MRCVS

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Proud to be independent

The term independent practice is relatively new. Until quite recently all practices, small animal, mixed and equine were independent – there was no other type.

The veterinary world now has a multitude of ownership categories and we see the term 'independent' being used to define practices where the majority of owners work within the practice on a regular basis and have significant control over the running of the practice.

An independent veterinary practice is typically owned and run by the veterinary surgeons, nurses and managers who work at the practice. The veterinary professionals involved are committed to making decisions in the best interests

of the animals under their care and their obligations to shareholders (themselves) shouldn't conflict with this. In any business, there is a need to make a profit but, typically, independent practices are best placed to ensure that profit generated is reinvested in the facilities, equipment, staff and the local communities that these practices serve. This professional ethos is a great incentive for the public to favour the independent veterinary practice and for graduate vets to actively seek employment and fulfilment in this category of practice.

The percentage of veterinary practices that are under independent control has shifted over the last few years as other groups expand by acquisitions or the opening of new practices. This changing veterinary world presents challenges and opportunities for independent veterinary practices as they adapt to this new business environment; they have had to become more proactive in their efforts to retain – and in many cases grow – their share of the veterinary market. This proactivity has led to better planning and recruitment and, most of all, providing the very best service to their clients.

Successful practices not only attract clients, they attract good veterinary professionals. The veterinary world is small and successful practices providing good personal development opportunities, as well as embracing values of professional health care, continue to grow.

Social enterprises

Independent practices can be sole practitioners, partnerships, limited companies and not-for-profit organisations – from single-species practices to mixed practice and from narrow specialisms to larger referral practices. Many of these practices can be regarded as true social enterprises as these businesses primarily benefit people and their pets.





Social enterprises come in all sizes, and are usually started by a person or group with a particular passion and sense of purpose. A significant local reinvestment of profit made from sales of goods and services benefit their staff and also customers of the business. This model of ownership sits comfortably with the lifestyle choice made by many of those choosing to earn their living in the veterinary profession.

Collective strength

One disadvantage of independent practices is their lack of collective strength. This can be more noticeable when it comes to purchasing, marketing, access to finance and representation of their views and opinions.

In 2016, the Federation of Independent Veterinary Practices (FIVP) was formed to represent the interests and promote the values of the independent veterinary profession. With membership open to all UK-based practices meeting the essential criteria of independent ownership and core standards of veterinary service, it aims to ensure that independent practices remain at the forefront of excellent veterinary service.

IndependentVets.co.uk

Among the first initiatives of the Federation has been marketing. So to help clients find their nearest independent veterinary practice, the website IndependentVets.co.uk is now up and running.

The Federation is pleased with all the support it receives and is also able to offer practice membership to VetCommunity.com to its members. ■

To join the Federation or for more information, go to www.fivp.org.uk or contact the FIVP team by telephone on **03301 239 351** or by email at enquiries@fivp.org.uk.



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The role of the RVN in equine radiography

Radiography is a widely used diagnostic tool in equine veterinary practice, allowing the visualisation of areas within the horse. It is frequently used in lameness diagnosis and poor performance investigation and is something a registered veterinary nurse (RVN) will encounter daily.

This article will focus mainly on radiographs of the feet as this is an area commonly imaged in equine veterinary practice.

It is important that an RVN knows how to conduct radiography accurately and safely in order to obtain good diagnostic images of the patient, and maintain the correct health and safety measures for themselves, and other staff members involved. Although RVNs can conduct radiography, image assessment and diagnosis is always carried out by a veterinary surgeon (VS).

Health and safety in equine radiography

There are specific health and safety considerations that apply to staff involved in equine radiography. Unlike radiographing small animals, a minimum of three people is required for equine radiography – a horse holder, a plate holder and a radiographer – and all are required to stay in the room while the image is taken.

Also, owing to the danger posed by ionising radiation, certain room specifications are also put in place (Weller, 2008):

- a designated room must be provided for radiography
- the room must be of an adequate size to ensure that personnel involved in radiography can be a minimum of two metres away from the primary beam during exposure
- walls subjected to the primary beam should have a lead equivalent of 2mm (double brick), and walls subjected to scatter radiation, a lead equivalent of 0.5mm (single brick)
- doors and windows must be shielded adequately by lining them with lead sheets and using X-ray-resistant glass

- warning signs and lights must be provided at each entrance to the room
- the warning sign should incorporate the radiation symbol and a legend such as 'X-rays – do not enter when light is on'
- the warning light should be connected to the X-ray circuit to come on automatically when X-rays are taken
- windows should be equipped with blinds and the light switch should incorporate a dimmer to allow the light to be dimmed sufficiently to line up the primary beam with the plate.

Radiography outside a designated room

There are occasions when radiography may be necessary outside a designated room – in theatre or out on a yard in the case of a painful laminitic or suspected fracture, for example. In these cases, a controlled area must be established where access is restricted and the area can be overseen by the radiographer at any time during the procedure (Weller, 2008).

The controlled area should be demarcated using tape or signs. The direction and collimation of the primary beam must be considered very carefully. An RVN may commonly go out and perform or assist with radiography outside the practice and must be aware of how a safe environment is created and maintained.

Equipment

During the past 100 years, the physics behind the production of radiographs has not altered; but technology has advanced greatly, with

the most up-to-date systems providing a 'user friendly' interface in the form of computed radiography (CR) and direct digital radiography (DR) (Smith et al, 2012). These more up-to-date systems have now been widely adopted within the equine veterinary industry.

An RVN working in equine practice must know how to set up, use and maintain these systems to ensure that high quality radiographs of patients are consistently produced. Protective equipment is also essential to ensure the correct health and safety standards are maintained. An RVN should be aware of the equipment required and how to maintain it (Weller, 2008):

- each X-ray room should have its own set of lead gowns, lead gloves and thyroid protectors
- lead gowns should not be folded or crumpled up, as this can crack the lead lining – the gowns should be hung up over large-diameter bars or put on hangers
- all staff should be aware that lead clothing is designed to provide protection against scattered radiation and does not shield from the primary beam
- an RVN should visually inspect the gowns for obvious defects before each use – gowns should be cleaned regularly and radiographed once a year to check for damage to the lining
- suitable plate holders for a range of different sized plates should be available and hand-holding of plates should be avoided



*Suggested Personal & Professional Development (PPD)



RADIOGRAPHY



Figure 1. Latero-medial projection of the foot.

- dosemeters should be available for all staff involved
- a range of positioning aids should also be available depending on the area of anatomy being imaged.

General principles

The examination should be planned well before starting, including all the projections required. The horse should be prepared adequately and this involves cleaning the area of interest, making sure that all mud and dirt is removed.

For the coat, this involves brushing the hair with either a plastic curry comb, dandy brush or a body brush; for the feet, it involves picking the feet out, paring the feet with a hoof knife and then scrubbing the sole with a metal wire brush. The outside of the foot should then be cleaned with the wire brush to remove any dirt which could show up as an artefact on the radiograph.

Adequate restraint must also be provided. Sedation is recommended in most horses, however calm, because it reduces the chances of movement during exposure and minimises the need for 'repeat' radiographs, thereby making the procedure safer for personnel and protecting the equipment (Smith et al, 2012).

For reliable sedation, an alpha-2 agonist, such as detomidine, is often administered mixed with butorphanol; which combination will usually give sedation lasting around 45 minutes. For situations where giving pain relief should be avoided – during a lameness work up or when assessing a horse with a possible infected synovial structure, for instance – an alpha-2 can be given on its own. It should, however, be borne in mind that this sedation will be of shorter duration and will not be as reliable, such that the horse may be more likely to react or kick out during the procedure.

The correct positioning of the tube in relation to the patient is paramount. The beam should be centred on the most likely location of potential lesions, to decrease the effects of the 'obliquity' of the X-rays. In particular, to image joints, the X-rays must be absolutely parallel to the joint space.

In the hock, for example, the small distal joints run obliquely; so, to obtain a latero-medial projection, the beam may be centred on the distal part of the hock and orientated downward by 5-10°. The beam should be collimated so that only the area of interest is included in the beam. All four sides of



Figure 2. Dorso-palmar projection of the foot.

the rectangular beam must be visible on the cassette, for safety reasons and to reduce 'backscatter'. The cassette is placed behind the subject – as close as possible to it and as perpendicular to the beam as practical to avoid excessive distortion of the image.

Finally, the film focal distance (FFD) should be checked using a tape measure or measuring stick, because variations in FFD can dramatically affect the exposure. This could lead to re-takes and the unnecessary exposure of staff to radiation (Smith et al, 2012).

Foot radiography

Latero-medial and dorso-palmar views should be used for laminitic patients. The feet should be cleaned out and pared, and the outside of the feet should be scrubbed with a metal wire brush. A dorsal wall 'marker' should be placed on the dorsal hoof wall where the coronary band meets the hoof horn and the foot should be placed on a block.

If the horse is not wearing shoes, a drawing pin should be inserted into the apex of the frog – the horse cannot feel this. Markers are used to measure and assess the position of the pedal bone within the hoof

capsule. Information from this helps to guide the subsequent treatment given by the veterinary surgeon and recommended to the farrier.

Latero-medial projection of the foot (Figure 1)

The beam should be centred on the middle of the third phalanx – approximately one-third of the distance from the coronet to the ground and one-third of that between the dorsal hoof wall and the heel. The foot must be raised on a block and if this appears to be painful for the patient, then it is sometimes best to raise both feet on two separate blocks to reduce discomfort.

It can be difficult to place the X-ray machine exactly lateral to the foot and the heel bulbs should be used as a guide to obtain the correct position. The cassette should be placed behind the block and ideally touch the medial side of the hoof, extending 2-3cm lower than the sole to take into account the obliquity of the beam (Smith et al, 2012).

Dorso-palmar projection of the foot (Figure 2)

The true dorso-palmar projection is obtained with the foot weight-bearing on a block and using a horizontal beam. It may be helpful to rotate the foot slightly outwards to



Figure 3. Dorso-palmar projection of the pedal bone (flexed view).

facilitate placement of the X-ray machine in front of the patient.

The beam is centred on the most dorsal point of the coronary band, with the X-ray machine head placed exactly in the dorso-palmar plane of the foot – the central rays of the beam should exit between the bulbs of the heel; and the beam is collimated exactly to the hoof (Smith et al, 2012).

The above two views are also used in a ‘full-foot’ series, taken following a lameness work-up where pain has been localised to the foot area. The full foot series also includes three other views that are not required for laminitic patients.

For the other three views, the shoes are removed and

modelling dough is packed in around the frog and in the cleft to reduce the likelihood of artefacts appearing on the radiographs.

As well as being able to take these radiographs, it is important that the RVN understands how to prepare and position the patient for the required views.

Dorso-palmar projection of the pedal bone (Figure 3)

This view is taken to obtain an image of the third phalanx. The foot is positioned as above for the dorso-palmar view, but it is placed on a special block under which the cassette can be placed to avoid any damage. The X-ray machine head is raised and tilted by 60° to the horizontal (30° to the vertical); and



Figure 4. Dorso-palmar projection of the navicular bone (flexed view).

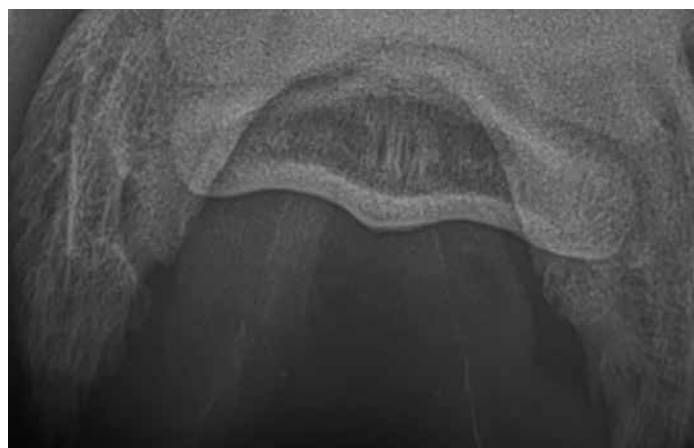


Figure 5. Skyline view of the navicular bone.

the FFD is then checked to ensure that the head is at the appropriate height. The beam is centred and collimated as for the dorso-palmar view.

The major disadvantage of this technique is that the image appears distorted. Movement blur, however, is unlikely and correct positioning is easily achieved. In order to avoid image distortion, some people prefer to use a flexed view, whereby the foot is placed on a block with the cassette set vertically behind. The foot rests on the block by the toe and should be flexed so that the sole rests vertically against

the cassette. A horizontal beam is used and is centred and collimated as above.

Drawbacks for this technique include: difficulty positioning the foot; a large variation in the angle of the foot; movement blur; and the need for an assistant to hold the foot in the positioning block.

Dorso-palmar projection of the navicular bone (Figure 4)

For the weight-bearing technique, the foot is positioned as above and a 65° angle to the horizontal is used; but if the flexed view is

“There are specific health and safety considerations that apply to staff involved in equine radiography”

used, the foot should be tilted at an 85° angle to the ground. The beam is centred 2.5cm proximal to the coronet and collimated down to just within the sides of the leg, so that the lower edge of the beam reaches a few millimetres distal to the coronet (Smith et al, 2012).

Skyline navicular view (Figure 5)

This projection is very useful for assessing not only navicular disease, but also other conditions affecting the palmar parts of the foot. This view must be obtained with the foot weight bearing on a cassette tunnel.

The foot should be placed over the palmar half of the cassette and the X-ray machine head is tilted at an angle slightly less steep than that of the dorsal hoof wall of the patient. The X-ray machine head is placed behind the foot, under the chest of the horse and the beam is centred in the middle fold of the pastern, so that the beam is in the sagittal plane of the foot.

In most cases, it is difficult to place the tube under the horse. A shorter FFD may be used (the dose should be

decreased accordingly), or the foot may be rotated so that the heels point outwards. Most horses tolerate this view with adequate sedation and patience.

The foot should be extended as far back as will be tolerated by the horse, in order to move the palmar aspect of the fetlock forward, otherwise this can mask the image of the navicular bone (Smith et al, 2012).

Conclusion

There are many things for the RVN to consider when it comes to equine radiography. Health and safety of personnel is a paramount concern, as is obtaining a practical usable diagnostic image of the patient.

With knowledge of health and safety, anatomy, radiographic equipment, views and correct patient positioning, an RVN can make the radiographic process quick, safe and efficient for all involved. ■

“The examination should be planned well before starting, including all the projections required”

References

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PPD Questions

1. How many people are required as a minimum to assist with equine radiography?
2. Rooms used for equine radiography must be of an adequate size to ensure that personnel involved in radiography can be how far away from the primary beam during exposure?
3. What does FFD stand for?
4. Why is the foot packed with modelling clay for some radiographic views?
5. When positioning a painful laminitic patient for a foot X-ray, what can you do to make them more comfortable?

Answers
1. three
2. two metres
3. film focal distance
4. it reduces the likelihood of artefacts appearing on the radiograph
5. put both feet on positioning blocks so that the weight is distributed evenly.



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Gemma Tyner
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Gemma qualified from the University of Pretoria, South Africa, and then completed an internship focusing on equine emergency and critical care at the Ohio State University, USA, and Scone Equine Hospital, Australia. Following this, she undertook a residency in large animal internal medicine at the New Bolton Center, Pennsylvania, where she achieved board certification in large animal internal medicine. She has just joined Penbode Equine Vets, having recently returned from lecturing at St George's University, Grenada.

Practical assessment of cardiac function for soundness examinations

Cardiovascular assessment is a vital part of all soundness examinations and it is usually performed on the horse at rest and immediately following exercise (BEVA/RCVS, 2012). In order to provide valuable advice pertaining to the soundness of the individual horse for its projected workload, the veterinary surgeon must be able to interpret his or her findings clearly.

This article focuses on auscultable murmurs and covers some essential cardiovascular physiology, abnormalities detectable on cardiac auscultation, and some basic principles relating these abnormalities to their potential impact on performance.

Cardiac examinations for soundness usually include thoracic auscultation, peripheral vascular assessment – assessment of the facial and transverse facial vascular bundles, digital pulse assessment, pulse quality, vascular tone, jugular fill, mucous membrane colour, capillary refill time, and extremity temperature – and evaluation for dependent oedema.

With this in mind, it is valuable to understand the heart cycle as it relates to the normal heart sounds, electrical events, and the flow of blood throughout a single cycle. **Figure 1** depicts the cardiac cycle as it relates to pressures, sounds, and electrical activity during ventricular systole and diastole (Marr & Bowen, 2010).

The heart cycle

S_1 relates to the 'noise' generated by blood as the atrioventricular valves (mitral and tricuspid) close at the start of ventricular systole. S_1 typically lasts longer and is of lower pitch than the other heart sounds. S_2 is generated when the semi-lunar (aortic and pulmonic) valves close, signifying the end of ventricular systole.

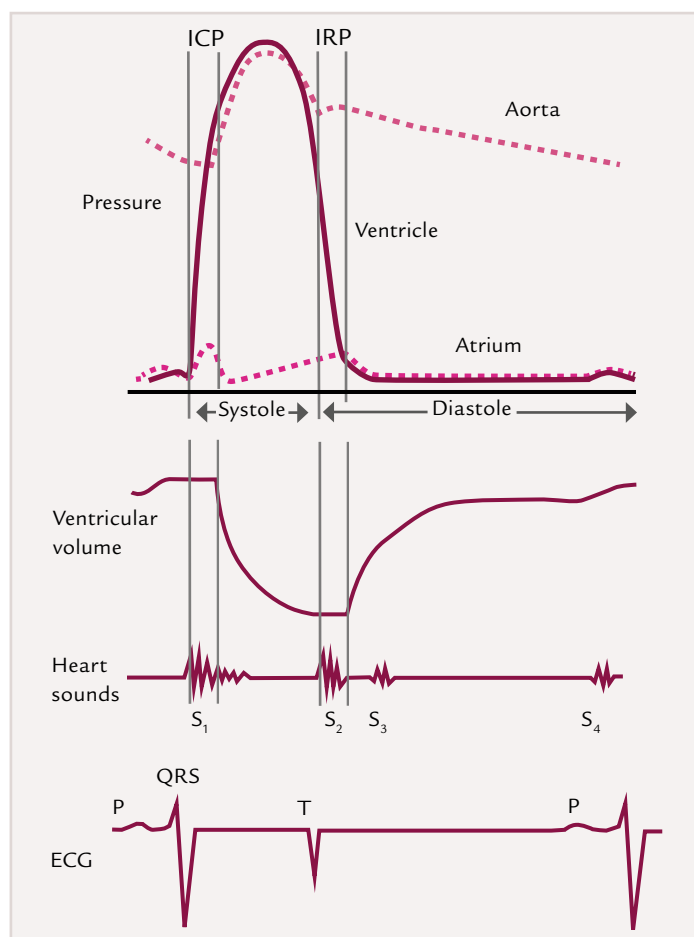
Occasionally, closure of the aortic and pulmonic valves can be split. A split S_2 is best auscultated at slower heart rates and found cranial to the

apex beat. A split S_2 is most common in enlarged hearts, secondary to pulmonary hypertension or those enlarged as a consequence of training.

S_3 occurs at the end of active ventricular relaxation and is caused by blood flow passively filling the ventricles.

S_3 is heard loudest dorso-caudal to the apex beat. Timing and point of maximal intensity (PMI) help to distinguish S_3 from S_2 . S_3 may be intensified by increased atrial preload/filling, during atrial fibrillation or mitral valve regurgitation (Reef et al, 1998).

Figure 1. The cardiac cycle.



*Suggested Personal & Professional Development (PPD)



SOUNDNESS



S_4 follows atrial contraction and is very closely associated with S_1 . It can be difficult to distinguish S_4 – S_1 from a split S_1 , especially with atrial fibrillation, where S_4 is absent and a split S_1 is more commonly noted.

It is important to distinguish systole from diastole, so palpation of synchronous pulses can be helpful. Palpation of the apex beat before placement of the stethoscope will help to isolate the mitral valve in most horses and facilitate estimating the locations of the other valves. For proper auscultation, the examiner should take the time

to evaluate separately heart rate, rhythm, heart sounds, and interrogate each valve individually.

Appreciating the cardiovascular system's response to exercise helps with the interpretation of findings during the recovery period following exercise. During exercise, there is a linear relationship between speed of exercise and heart rate, until a maximum heart rate is reached. **Table 1** shows generally accepted rates at different gaits (Verheyen T et al, 2013). Initially, in the first minute after exercise, the heart rate

will increase rapidly. After this, the rate will drop slowly back to normal. Anxiety, dehydration and disease can dramatically affect the rate of return to resting heart rate. At 30 minutes post-exercise, heart rates should be under 60 beats per minute. Endurance horses with rates above this are more likely to be poor performers and/or dehydrated.

In horses – unlike in humans – training does not tend to decrease the resting heart rate. Training lowers the horse's heart rate at submaximal exercise. These factors all play into the flaws of using post-exercising heart

rates to assess the fitness of the horse. Further responses to training include an increase in plasma volume, ventricular volume, and a relative increase in cardiac mass (Lightfoot et al, 2006).

Auscultable abnormalities

Auscultable abnormalities include murmurs and some arrhythmias. Distinguishing between benign or physiological murmurs and those of a more serious and pathological nature can be challenging.

Physiologic flow murmurs can be heard over the left hemithorax during systole. Their point of maximal impulse (PMI) is most commonly located over the semi-lunar valves, and they tend not to radiate very far; although, occasionally, loud ejection murmurs may radiate toward the cardiac apex. They are usually decrescendo or band-shaped and extend from early to mid-systole.

Physiologic flow or ejection murmurs often vary in

Table 1. Expected heart rates of a horse during exercise [Source: Verheyen T et al (2013)]

Gait	Expected rates (beats per minute)
Walk	60 - 80
Trot	80 - 120
Canter	120 - 150
Gallop	150 - 180
Highest rates recorded during racing Thoroughbred horses	204 - 241

Table 2. Guidelines for assigning clinical severity of auscultation findings, along with associated arrhythmias associated with TR, MR and AR

Murmur	Mild – Good prognosis	Moderate to severe – Fair to poor prognosis (additive affect)	Associated arrhythmias and other notes
Tricuspid valve regurgitation (TR)	Athletic, fit horse (Stb, Tb)	Unfit horse	Atrial fibrillation
	Grade 1 – 3/6	Non-athletic breed (not a Stb or Tb)	
	Small zone of radiation	Grade 4 – 6/6 in Stb or Tb Grade 3 – 6/6 in other breeds	
	No history of poor performance	Radiates over a large area	
	No progression at re-evaluation in 12 months	<ul style="list-style-type: none"> ■ history of poor performance ■ clinical signs of CHF, endocarditis, myocarditis ■ loud S₃ (an indication of atrial enlargement/ increased atrial end systolic pressure) ■ audible vibrations ■ concurrent with other murmurs 	
Mitral valve regurgitation (MR)	Middle-aged horse (8 to 15 yo) especially if in training/fit	First identified in young horse or older horse	Atrial fibrillation
	Athletic breeds (esp Tb and Stb)	Unfit horse	Premature atrial contraction
	Grade 1 – 3/6	Grade 3 – 6/6	Other atrial arrhythmias
	No change/progress at 6- or 12-monthly reassessment	Loud S ₃ (indication of atrial enlargement or increased atrial filling pressures end systole)	Ventricular arrhythmias
		Split S ₁ or S ₂	
	Atrial pulses normal	<ul style="list-style-type: none"> ■ clinical signs of CHF or endocarditis/myocarditis *MR most likely valvular pathology to progress to CHF ■ history of poor performance ■ evidence of pulmonary hypertension (tachypnoea, increased bronchovesicular sounds) ■ wide area of radiation ■ presence of vibrations ■ concurrent with other murmurs ■ arrhythmias (afibrillar or premature atrial contractions) 	Sudden death owing to pulmonary rupture, is possible
Aortic valve regurgitation (AR)	Older age of onset (>10 years old)	Earlier age of onset (<10 years of age)	Fatal ventricular dysrhythmias
	Fit horse	Older horses still used for riding with sudden onset AR	Sudden cardiac death
	Only heard over the left hemithorax	Hyperkinetic or bounding pulses	
	Small area of radiation	Pulse pressures >60mmHg	
	Normal atrial pulses	Loud S ₃	
	Normal pulse pressure	Large area of radiation	
	Grade 1 – 3/6	<ul style="list-style-type: none"> ■ heard bilaterally ■ history of poor performance ■ concurrent arrhythmias (PVC, VT, atrial fibrillation) ■ increase of intensity/grade on successive evaluations ■ concurrent with additional murmurs ■ clinical symptoms of CHF, endocarditis/ myocarditis and pulmonary hypertension (PHT) 	

intensity with exercise, where some will disappear and others will increase in intensity. These murmurs are not associated with cardiac pathology. Occasionally, horses with colic or anaemia may have prominent flow murmurs, but these murmurs usually resolve with correction of the primary issue.

The other most common left-sided systolic murmur is that of a mitral valve regurgitation (MR). The PMI is at the mitral valve and sometimes also over the aortic valve, and typically radiates dorso-caudally. These murmurs can be mid- to late-systolic; but are often holo or pansystolic with a band-shaped intensity. On occasion, when in mid- to late systole, they can be crescendo in nature. Their prevalence is highest in horses competing over jumps and they are reasonably prevalent in successful equine athletes, where they are thought to be physiological (Young et al, 2008).

The mitral valve is the second most common site of degenerative valvular pathology, second to the aortic valve. Mitral insufficiency is the most likely form of valvular insufficiency leading to congestive heart failure (CHF) or sudden death resulting from pulmonary rupture. When MR is mild, it is usually associated with a normal performance and life expectancy (Imhasly, 2010; Reef, 1995; Gehle et al, 2007; Stevens et al, 2009).

Aortic regurgitation (AR) is a diastolic murmur with its PMI over the aortic valve and tends to radiate ventrally and to the left side. With increase in severity, AR can be heard on the right side as well. It is characterised as decrescendo or plateau-shaped and is often musical in nature. AR is common in older horses, often mild, and rarely impacts on athletic performance or life span.

When AR is first identified in younger horses (<10 years old), it is more likely to have a negative impact. Moderate to severe AR has been associated with sudden death, along with fatal ventricular arrhythmias in the absence of premonitory symptoms. The most reliable indication of severity is the accompaniment of bounding or hyperdynamic pulses. A pulse pressure of >60mmHg accompanied by AR is a negative prognostic indicator (Reef et al, 2014).

Tricuspid valve regurgitation (TR) has the PMI on the right side and is loudest over the heart base. It can be blowing, crescendo, or decrescendo, and is occasionally harsh in nature. It is typically holo or pansystolic. TR tends to radiate concentrically from the PMI. This murmur is a common finding in athletic horses – loud murmurs and large regurgitant jets have

been documented in elite athletes (Young et al, 2008).

On its own, it is unlikely to affect athletic performance. The pathogenesis of physiologic TR seen in athletic horses is unclear. It is much less common in non-athletic horses and, when found, is usually associated with more sinister pathologies warranting further investigation.

Having isolated an abnormality on auscultation, the clinician must decide its possible impact on the horse's athletic future. Isolating factors that increase or decrease the risk of these potentials is key. It is easier to predict the impact of mild or severe abnormalities compared to abnormalities graded as moderate. Regular assessments will facilitate re-evaluation of the grade assigned and help ascertain

when further diagnostics are required.

Making the distinction between mild, moderate, and severe murmurs is important. Mild murmurs tend not to progress and require only regular (yearly) check-ups unless poor performance or other clinical signs indicating sudden progression are noted. Moderate or severe murmurs should undergo further testing and evaluation to make appropriate recommendations. **Table 2** provides a basic summary of grading factors.

Summary

Careful auscultation and accurate history taking, alongside assigning detailed characterisation to the abnormality, will go a long way toward making clear recommendations. ■



PPD Questions

1. Which valve is most commonly affected in horses with degenerative valvular disease?
2. Pathology of which valve is most likely to progress to congestive heart failure?
3. What prognostic risk should be assigned to a tricuspid valve regurgitation first identified in a five-year-old Belgian draft horse?
4. Moderate aortic regurgitation (AR) carries less risk if it is found in which age group of horses?
5. Failure of which valve is most likely to lead to pulmonary hypertension?

Answers

1. aortic valve

2. mitral valve

3. this is considered moderate to severe and more likely to progress than the same

found in an athletic breed and is at higher risk of progression and causing negative

4. AR first identified in older horses is considered less of a risk than one identified

in younger horses

5. failure of the mitral valve.

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Post-traumatic stress disorder – how horses are helping heroes

The therapeutic value of animals has long been known, but we normally think of dogs and cats as being the species involved. However, small animals are not the only ones that can help humans to lower their stress levels and help resolve their psychological problems.

Since the early 1950s, horses have been used in physical therapy to help people refine their motor skills. Organisations such as Riding for the Disabled (RDA), have shown that the work they do for the disabled has resulted in the improvement of human physical and mental well-being in humans.

The key therapeutic factor is the physical movement of the horse. Its warmth and three-dimensional movement is transmitted through the body of the rider, helping them to relax and to strengthen core muscles, thereby enabling them to become stronger and more supple.

The RDA has proved a great success; but now horses are increasingly used in a discipline known as equine-assisted psychotherapy (EAP); which is also being used to treat war veterans suffering from post-traumatic stress disorder (PTSD).

Horses for heroes

Equine therapy, or 'hippotherapy' (from the Greek word *hippos*), puts people and horses together with a therapist in an environment designed to promote emotional growth and learning. Such therapy is used to help with a variety of mental health issues – from addiction to low self-esteem – and is becoming increasingly popular in the UK. The EAP team will work with individuals or groups, helping them to discover more about themselves, reflect on their experiences and develop new ways of thinking.

The growing field of EAP is showing great promise in treating soldiers who suffer from the nightmares, anxiety, depression, anger, irritability and other debilitating effects of PTSD. The technique enables individuals to recognise emotions and behaviour that may be preventing them from developing appropriate coping strategies and from making progress towards positive change. It can lead to enhanced self-awareness and confidence, and the ability to trust and to manage emotions and behaviour.

EAP does not normally involve actual horse riding. Exercises are designed to help participants think and act in ways they may not have thought of before. Normally, the exercises require interaction with the horse, such as leading it over a series of obstacles or in a certain direction – often without the aid of a lead rope.

These exercises require creative thinking and consideration of how to act and display different ways of interacting with the horse; which, in turn, may encourage participants to reconsider the way they behave. Discussing the exercise helps the individual to learn more about themselves and their behaviour and, over time, strong bonds can develop between them and the horse.

A suitable species

There are a number of reasons why use of horses is so successful in this kind of therapy. Their size can be intimidating – which for some people presents them with a challenge to overcome as soon as they start therapy. If they succeed in overcoming this fear, it helps to boost their feelings of confidence and self-esteem.

Horses are also herd animals, which means they naturally desire company and often want to be led. This makes them very social animals that want to create bonds with the humans around them. They are, therefore, ideal for this type of therapy, because they are predisposed to developing a relationship with their handler.

Horses also have an innate ability to mirror the thoughts and behaviours of others. Because they are prey animals, they can read and respond to body language very quickly.

So entering the horse's space with a negative attitude and defensive body language will probably cause it to not want to interact; while entering its space with a sense of calm, confidence and openness will cause the horse to respond more positively. In addition, horses can be



incredibly 'human' in their personalities; which makes them natural companions during the therapeutic process.

Promising trail ahead

Research into the effectiveness of EAP is still in its early stages, but it is thought to be beneficial in the management of a range of different conditions, including addiction, anger management, anxiety, autism, behavioural problems, low self-esteem and trauma.

Experiencing any kind of trauma can be difficult to overcome. EAP uses the gentle nature of the horse to help trauma victims rebuild trust and confidence. And the remarkable qualities that horses exhibit have proved invaluable for many who have been through traumatic experiences. ■

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Sharing expertise and facilities – the way forward

There are times in every practice when, in the best interest of patient care, there is a need for greater expertise or more sophisticated equipment than a practice can provide 'in house'. In these situations, the care of the animal may be completely transferred to a referral practice, where it is treated as an inpatient. In other cases, the use of an outpatient service may be more appropriate.

An outpatient service can facilitate case consistency. It enables the first-opinion practice to provide ongoing care to both clients and pets while, at the same time, being able to access more advanced procedures and expertise on a case-by-case basis. Often patients may be sent for a one-off procedure, such as CT scan, rather than a full referral, to help complement work-ups already carried out by the referring practice.

Outpatient facilities are often much more convenient for owners – allowing them to book specific appointments with the service provider, but return home with their pet on the same day. Normally all reports and suggested treatment plans are forwarded directly to the referring practice, so that the client's own veterinary surgeon can report results and agree a plan for the ongoing care of the pet. This continuity of care is something that some clients value highly.



Launched in East Anglia in the autumn of 2016, NVRS is a veterinary referral and outpatient service created to help practices with the provision of these services for their clients. NVRS is a multi-site network providing services across a number of veterinary centres. Sites are interconnected by the latest computer technology and managed from its central hub in Suffolk.

NVRS works with experienced veterinary professionals across a number of disciplines – providing a broad range of healthcare options for pets. Its facilities offer veterinary practices and their clients access to the latest developments in clinical services and technologies.

The multi-site nature of this service means that referring practices have access to a greater variety of procedures and, in many cases, can choose the site most convenient for their clients. Veterinary practices can choose how they wish to work with NVRS on a case-by-case basis. And by sharing expertise and facilities with first-opinion practices, NVRS complements the services provided by these practices and adds to the mix of skills already present in their veterinary and nursing teams.

There are times when very serious or complicated cases require referral, or where more detailed investigations and procedures than the practice can provide are needed. In all these instances, NVRS may be able to provide additional support to the practice and enhance patient care, quality of life and outcomes.

NVRS opens up a new dimension in veterinary care by working in partnership with veterinary practices to provide the most appropriate treatment for the sick or compromised pet. This benefits the practice, its clients and their pets. ■

Services offered by NVRS are always expanding. They currently include:

Advanced Diagnostic Imaging

- CT scanning
- Endoscopy
- Ultrasound
- X-ray

Dentistry and Oral Surgery

- Dental X-ray
- Root canal surgery
- Dental discolouration
- Dental decay
- Malocclusions

Orthopaedics

- Total hip replacements
- TA
- TPLO

Rehabilitation

- Hydrotherapy
- Physiotherapy

Oncology Services

- Diagnosis
- Staging
- Chemotherapy
- Palliative therapy

Dermatology

- Intradermal skin testing
- Immunotherapy
- Serum allergy testing

Behaviour and Training

- Obedience group sessions
- One-to-one bespoke obedience training
- One-to-one behaviour modification
- At-home consultations

Ophthalmology

- Extra-ocular surgery
- All eyelid surgery

Soft Tissue Surgery

- Intrathoracic surgery
- Gastrointestinal and abdominal surgery
- Laparoscopic surgery
- Anorectal surgery
- Ear, nose and throat surgery
- Trauma management and wound reconstruction

Internal Medicine

- Endocrine disorders
- Hepatic disease
- Immune-mediated disorders
- Vascular abnormalities





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Andy Grist

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**Suggested Personal & Professional Development (PPD)*



PUBLIC HEALTH

Veterinary public health and veterinary practice

"Everything we do as vets is veterinary public health" – Frans van Knapen, Emeritus Professor of Veterinary Public Health, Utrecht University.

Veterinary public health was coined as a term by James Harlan Steele, an American veterinary surgeon who started his career in the 1930s with research on the transmission of brucellosis from animals to humans. It had been known that diseases could be transmitted from animals to humans well before that, but a more systematic approach, often involving government, started properly around the mid-20th century.

In 1945, Jim Steele started the veterinary public health programme within the Public Health Service in Washington, later moving to Atlanta, where the unit was incorporated in what we now know as the Centres for Disease Control (*New York Times*, 2013). In 1945, Steele wrote a report called 'Veterinary Public Health', outlining the risks of zoonotic diseases and the benefits of employing veterinarians in response and research (Schultz, 2014).

Veterinary public health, therefore, touches on zoonotic diseases, where humans are at risk of acquiring illness as a result of exposure to animals carrying these diseases. The World Health Organisation of the United Nations defines veterinary public health as: 'The sum of all contributions to the physical, mental, and social well-being of humans through an understanding and application of veterinary science' (WHO, 1999).

What is veterinary public health about?

A broad scope of subjects is currently considered to be part of veterinary public health. Most notably, of



Figure 1. Inspected carcasses hanging on a rail in an abattoir.

course, zoonotic disease; but a range of subjects – more or less associated with zoonotic disease or more broadly the interaction between humans and animals – form part of the scope. Wherever people's lives are influenced as a result of interaction with animals – be it physically, mentally or socially, as the definition shows – approaches to mitigate these influences can be considered to be veterinary public health.

Food safety

Provision for food safety of foods of animal origin is already very old. In antiquity, it was considered necessary to assess the health of animals that were destined to be sacrificed to deities. In Roman and Greek society, governments appointed specific officers to ensure that only healthy meat was sold on markets. Meat that was decaying could be seized and destroyed.

In mediaeval Europe, butchers were based together in one

street or were obliged to sell their meat through municipal meat halls, enabling the authorities to keep an eye on the quality of the products sold. The motivation for inspections was usually economically driven rather than the protection of the health of the consumer – seized meat was often sold or distributed outside the city gates.

During the course of history, the safety of food has gained growing attention. In the 19th century, centralisation of the slaughter of animals in municipal abattoirs, connected with locally employed meat inspectors, developed in many areas in Europe (**Figure 1**). The second half of the 19th century and the first half of the 20th century saw the development of meat inspection legislation as we know it today, with a decisive handbook being written as early as 1904 (Ostertag et al, 1904). Many of the basic principles described in this handbook are still applied to this day.

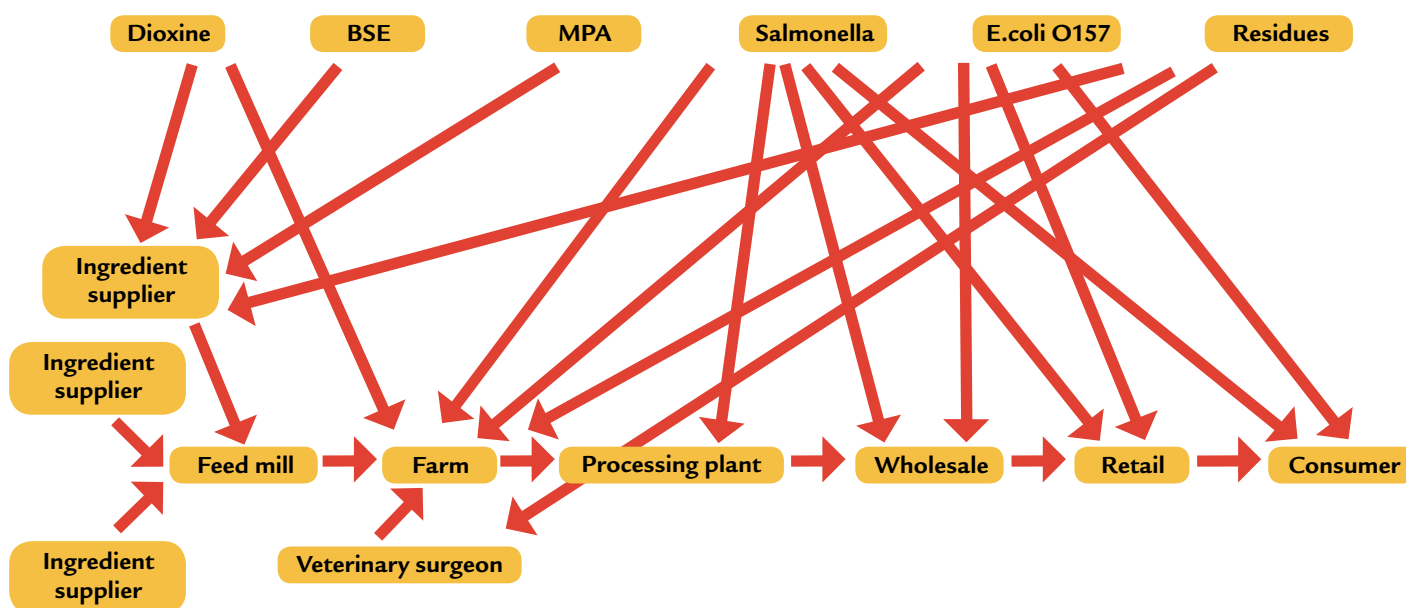


Figure 2. Impression of a food chain with some examples of potential sources of contamination or infection.

Veterinary responsibility

Safe food can only be produced from healthy animals. Practising veterinary surgeons, therefore, have always had – and will always have – a role to play in food safety. Since 2000, this role has been emphasised through the White Paper on Food Safety, published by the European Commission (European Commission, 2000). The background to this White Paper was a series of serious food scares that happened during the 1980s and 1990s – among them being the BSE crisis.

During the same period, contamination of food products of animal origin with dioxine and the steroid hormone, methyl-progesterone-acetate (MPA), was seen.

The central theme of the White Paper – and of the subsequent legislative documents that have originated from it – was that food safety could no longer solely be the responsibility of the authorities tasked with carrying out ‘end-of-line’ inspections. Instead, everyone in the food chain

– from the feed producer down to the consumer – is now considered to have their own responsibility and their own role to play in keeping the product under their care healthy and safe.

Figure 2 is a representation of the food chain showing some threats to health safety that cannot be identified through ‘end-of-line’ inspections and which, therefore, have to be managed at every level.

In 2002, the General Food Law was introduced (European Parliament and Council, 2002). In this document, Regulation 178/2002, the action points discussed in the White Paper have been put into legislation. A central note in the General Food Law is the Food Business Operator defined as ‘the natural or legal person responsible for ensuring that the requirements of food law are met within the food business under their control’. The law, therefore, states clearly that everyone, in each link of the food chain, must take up responsibility and do whatever is in their power to ensure the safety of the product.

The regulation also defines a Food Business as ‘any undertaking – whether for profit or not and whether public or private – carrying out any of the activities related to any stage of production, processing and distribution of food’. This includes farms; and if one wants to be very strict on the definition, even veterinary surgeons working on – or in relation with – animals that are destined for the food chain.

Implicit legal obligations

So farmers and veterinary professionals are obliged by law to do what they can to ensure the safety of the product at each stage of production that it is under their responsibility and control – the live animal, for instance. And farmers and veterinary professionals are liable in cases where this responsibility is not taken up.

All European member states – as well as all the countries in the European Economic Area – have implemented this law, and the subsequent regulations that form part of the whole food law package, in their national legislation. It is an essential component of

being able to operate in the European market.

Preserving food safety, therefore, comes very close to what practising veterinary surgeons do on farms. Keeping livestock healthy, making sure that veterinary medicines are used responsibly and with accurate observation of withdrawal periods, and providing cures for health problems are essential elements in fulfilling that role. As they carry out their daily work, they are indeed working within the disciplines of veterinary public health.

Within food safety, the focus is mostly on food-borne zoonoses. The well-known disease agents such as *Salmonella* spp., *Campylobacter* spp. and *Escherichia coli* cause the majority of food-borne infections in people, generally resulting in gastro-intestinal symptoms – sometimes resulting in very serious complications that are mostly in people with depressed immune systems (Thorns, 2000). For some of these diseases, control programmes have been set up – for example, for



Figure 3. Through commitment to control programmes and attention to general health of animals in the pre-slaughter phase, the practising veterinary surgeon can contribute to attaining the goal of producing safe food.

Salmonella in the (laying) poultry industry, requiring input and commitment from the practising veterinary surgeons associated with the relevant farms.

An important source of these micro-organisms is the skin and the intestinal content of animals, so an essential part of the slaughtering process is to prevent contamination from these sources on the freshly slaughtered carcass. Through commitment to control programmes and attention to general health of the animals in the pre-slaughter phase, the practising veterinary surgeon can – and absolutely has to – contribute to attaining the goal of producing safe food (**Figure 3**).

Non-food-borne zoonoses

There are around 1,500 known infectious diseases in humans. Around 60 per cent of these are multi-host agents – they are zoonotic (Taylor et al, 2001). On top of that, of all newly discovered diseases, it is estimated that 75 per cent are zoonotic.

The definition of zoonotic disease, given by the Pan American Health Organisation (PAHO, 2001) is: ‘Any disease or infection that is naturally transmissible from vertebrate animals to humans, and vice-versa’. Taylor et al (2001) identified 868 species of pathogenic agents from 313 different genera, and they distinguished viruses (and prions), bacteria, fungi, protozoa and helminths as the major taxonomic divisions.

The proportion of infectious diseases with a zoonotic background seems to be increasing. A rather large number of these diseases are mostly associated with wildlife as a source, which for example seems to be the case with the newly discovered virus causing MERS-CoV (Middle East Respiratory Syndrome-Corona-virus) which is suspected of originating in certain bat species (De Groot et al, 2013); or Ebola, which most likely followed the illegal

bush meat trade in Africa and may originate from a bat source as well (Gatherer, 2014).

However, there are also quite a few zoonotic diseases associated with domestic animals. Some are extremely rare, many are associated with certain regions in the world, but there are several that are widespread and may cause significant problems when present. One of the most common is brucellosis, caused by several *Brucella* species, with *Brucella melitensis* the most frequent (Franco et al, 2007).

In several areas in the world, brucellosis is still endemic in livestock populations. Many other regions – such as countries in north-western Europe – have managed to eradicate it, or are putting considerable efforts into eradicating it. Even if the disease has been eradicated from a country or an area, vigilance is required because the risk is always present that it may be re-introduced.

As for the many other zoonotic diseases, it is paramount that practising veterinary surgeons are aware of potential signs in order to be able to start implementation of measures as soon as possible. Many other examples of zoonotic diseases in livestock can be mentioned, such as Q fever (Hogerwerf et al, 2011) and bovine tuberculosis (Reynolds, 2006). Knowledge of the signs, the appropriate legislation and the measures to take to prevent infection are core requirements for veterinary surgeons.

In companion animals, zoonotic diseases range from well-known causes of gastroenteritis, such as *Salmonella* spp. or *Campylobacter* spp., to several parasitic infections, such as *Echinococcus granulosus* or *Toxocara canis* (Day et al, 2012). Preventive measures may include observing high hygiene standards and making sure that companion animals are regularly dewormed. Veterinary professionals can play an important role in educating their clients on these aspects (**Figure 4**).

Animal health, welfare and international trade

Health of animals is not only an essential measure to prevent zoonotic disease in people, it is also essential in the international trade of animals and animal products that plays an important part in market development and regulation. However, transporting animals and animal products across borders carries the risk with it that diseases are transported across borders too. The same applies to international trade in food stuffs and plant material. Therefore, international trade in these products is highly regulated at the international level.

Central to the legislation for international trade of these high-risk goods

is the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS-Agreement) of the World Trade Organisation (WTO, 2016). In the SPS-Agreement, the basis is provided for the harmonisation of legislation in terms of product safety and health. All members of the WTO are committed to adapt their legislation in such a way that guarantees can be given about the safety of animals and products that cross borders, thereby preventing these products from transferring disease to the region of destination.

It means that all participants in the agreement follow the same set of standards, on the basis of which they can declare that animals to be sent off are generally healthy and free from certain diseases. These standards have been formulated by the World Organisation for Animal Health (OIE, 2016a, 2016b, 2016c and 2016d). They give guidance on how to certify animals as being free from disease, how to control outbreaks of disease, how to declare countries or regions free from disease and how to control endemic disease.

As all parties to the SPS-Agreement follow the same rules, there should not be any mistrust between parties that trade with each other. Not only does worldwide international trade follow these standards; but also trade within the European Union and the European Economic Area. Several pieces of European legislation – most notably the legislation related to the trade of animals or animal products, and for the control of disease – are based on them (Council of the European Union, 1992, 2015).

One important aspect of the international legislation is that it enables countries to aim for the disease-free status for animal diseases without which there can be obstructions

to international trade. Once programmes have been set up to eradicate these diseases – and certainly once the diseases have been eradicated – animals and products can be traded with other countries that have a comparable or lower disease status.

As many countries are aiming at becoming free from certain specific diseases, it becomes more and more difficult for countries that do not have that intention, to trade internationally. For countries that depend on export for a large part of their income from livestock production, it is, therefore, almost impossible not to engage in eradication for certain diseases.

Many countries in Europe have already managed to attain disease-free status for diseases such as bovine tuberculosis, enzootic bovine leucosis, Aujeszky's disease and brucellosis. Once a country is declared free of these diseases, surveillance systems have to be in place. The diseases are made notifiable, as soon as the control programme starts, and practising veterinary surgeons, having the legal obligation to report suspicions of notifiable disease, have to be involved in their control.

It is imperative that these diseases are eradicated as quickly as possible if they appear. In that respect, they are not fundamentally different from diseases such as foot-and-mouth disease and classical swine fever.

Within the European Union particularly, legislation for animal welfare has also been harmonised. This means that all livestock husbandry in the European Union has to perform along the same minimal standards of animal welfare. Individual countries can go further if they wish, but the minimal standards are there to make sure that differences in minimum standards do not become trade barriers.



Figure 4. Veterinary professionals can play an important role in educating their clients on these aspects.

Concluding remarks

In a broader sense, there are several more subjects that are considered to fall under the heading veterinary public health.

Notifiable diseases and how to manage them also form part of it. As do the influence of animal health on the economy, the role of healthy animals in poverty alleviation, food security and food defence. We have restricted ourselves somewhat to those areas with which practising veterinary surgeons may be confronted on a daily basis. That does not mean that issues such as food security are necessarily outside the scope of the practising vet.

Food security is a challenge that is faced the world over; and factors such as climate change may have a growing influence in coming decades. Newly emerging diseases – encouraged by climate change – may pose a threat, and in many cases the practising veterinary

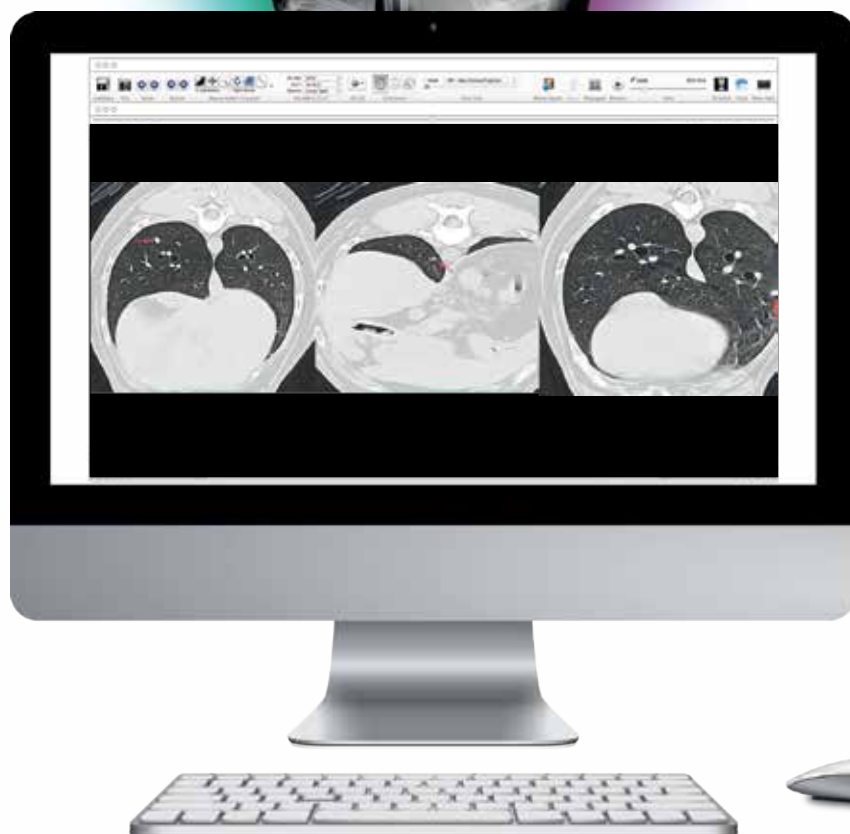
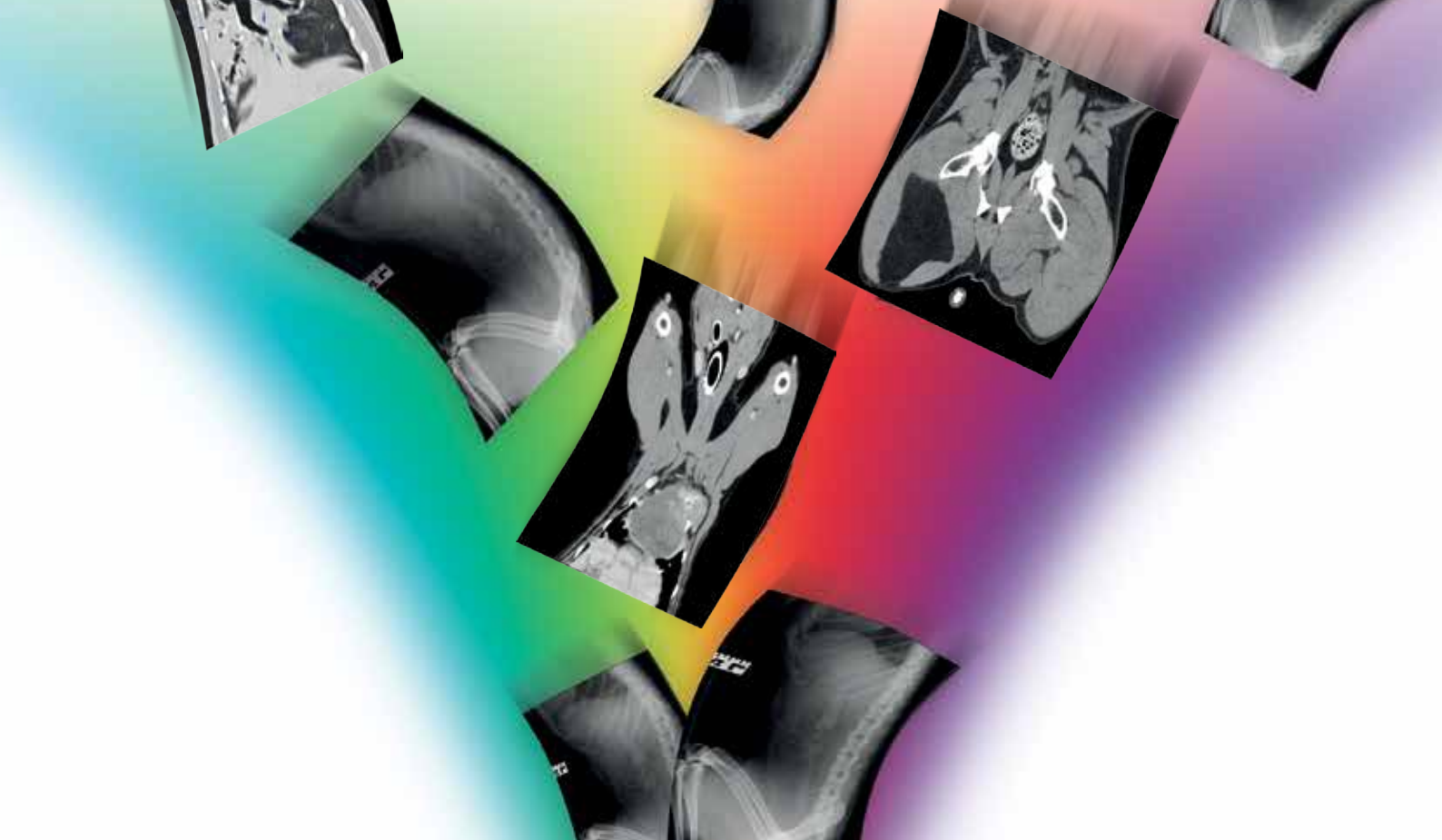
surgeon is at the forefront of these developments. New diseases – or newly emerging or re-emerging diseases – may very well pose a serious threat to food security, even in our regions of the world.

There seems to be a great deal of legislation involved in veterinary public health. Nevertheless, this legislation is there to assure the proper management of the risks to society stemming from all the fields described. With or without legislation, veterinary surgeons in practice have a responsibility to fulfil the same societal goals as have their veterinary colleagues working specifically in meat hygiene.

Keeping animals healthy, curing their diseases, is what we do. And we do it ultimately to enable owners to have and enjoy the company of their pets, or to help provide a livelihood for farming communities, and to provide safe food of animal origin for society. ■

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Abortion and perinatal lamb mortality

The profitability of a commercial sheep flock is dependent on lamb production. The key areas of lamb loss are during pregnancy and the perinatal period – with roughly 80 per cent of lamb losses occurring during this time (HCC 2010). One third of lamb losses are abortions between scanning and lambing and a further 49 per cent happen within 48 hours of birth. Being aware of – and taking action to prevent – the key causes of abortion and perinatal mortality, is crucial to maximising farm profits.

Abortion

In a healthy flock, the number of ewes that visibly abort each year should be under two per cent. Abortions become a problem for a flock if either this number is exceeded or if there are several abortions occurring in a short time frame (for example, two weeks). It is also important to note that flocks with an abortion rate of between two to five per cent or a barren ewe rate of >5% are likely to have endemic disease present and, therefore, require further investigation.

There are several causes of abortion in sheep with the most common infectious causes discussed below.

Chlamydophila abortus or enzootic abortion of ewes (EAE)

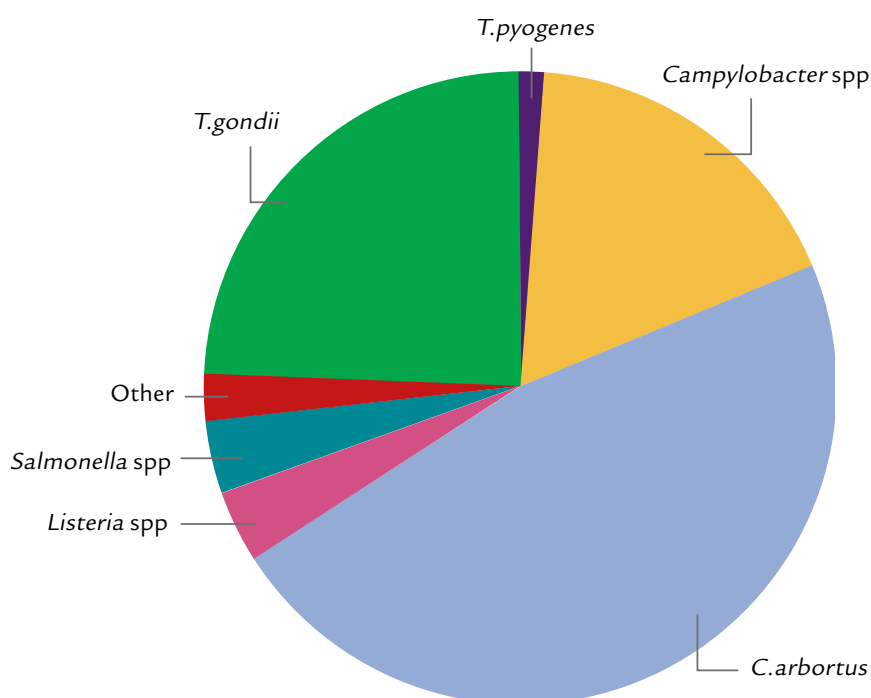
This accounts for around half of all diagnosed abortions in sheep in the UK (VIDA, 2014) (Figure 1). A flock normally becomes infected when a carrier animal is introduced, although scavenger spread of infected aborted material is another possible cause.

Typically, infected sheep abort stillborn or weak lambs in the last three weeks of gestation and any lambs that are born live rarely survive. The aborted material and the ewe remain a source of infection for the rest of the flock. The ewe can continue to shed bacteria in vaginal discharge for a further two

weeks and will continue to shed intermittently throughout her life.

Ewes that become infected with EAE less than six weeks pre-lambing may not abort straight away. They will, however, become latently infected and are likely to abort the following year. As a result, a newly infected flock may only have a small number of abortions in the first year; but will go on to have a much larger rate of abortion the following year – up to 25 per cent. Once a flock is endemically infected, such large losses will not be seen every year and, typically, the rate will remain at around five per cent.

Figure 1. Causes of ovine abortions diagnosed in 2014 (%). [Source: VIDA 2014]



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Owing to the infectious nature of this disease, it is important that ewes that have aborted are isolated from the flock quickly and that aborted material is disposed of appropriately to try and minimise spread.

C. abortus is a zoonotic disease resulting in abortions in humans, so pregnant women should not be exposed to pregnant ewes or aborted material.

Toxoplasma gondii

This protozoan is the second most common cause of abortion diagnosed in sheep in the UK. Unlike EAE, it is not spread from ewe to ewe but is the consequence of environmental contamination. Toxoplasma are parasitic protozoa that are normally spread in cat faeces. Cats contaminate the feed storage, barns and even fields that sheep graze and infection spreads by ingestion. Infection with *T. gondii* can result in many different clinical signs including:

- ewes regularly returning to the tup
- increased number of barren ewes at scanning
- abortions
- mummified foetuses
- stillborn lambs
- small and weak live-born lambs.

Although heavy infection can result in widespread infertility, toxoplasmosis more commonly presents as a smaller, chronic number of losses.

Typically *T. gondii* causes small white foci on the cotyledons that are often said to look like 'strawberry pips'. It is important to note that these foci are not always present, although they are very distinctive when seen. As with many causes of ovine abortion, toxoplasmosis is zoonotic and, as such, infected animals and aborted material should not be handled by pregnant women or the immunocompromised.

Campylobacter spp

Campylobacter, including *C. fetus* subspecies *fetus* and *C. jejuni* make up approximately 20 per cent of ovine abortions diagnosed. It is normally a disease associated with intensive production in unhygienic conditions, with infection of a flock starting with the presence of an infected or carrier animal.

This disease is normally manifested as late-gestational abortions or stillbirths. An initial outbreak of *C. jejuni* may result in up to a quarter of the flock aborting, although the flock's immunity will limit this number in subsequent years.

Foetuses that have aborted as the result of *Campylobacter* infection can have red/orange rings (sometimes referred to as target shaped) on the surface of the liver, and the intercotyledonary areas can be thickened and leathery. Strict hygiene is needed to get on top of an outbreak, especially as there is a risk of zoonotic spread.

Other causes

Other infectious causes of abortion in sheep include: Border disease virus, Schmallenberg virus, Bluetongue virus, *Salmonella* spp and *Listeria* spp.

It is also important to recognise that there are non-infectious causes of abortion in sheep. Stress from handling and tipping – vaccination, foot trimming, for example – can lead to abortions afterwards, as can worrying by dogs or other animals. Nutritional causes and mineral deficiencies, such as swayback, can also result in an increase in barren rate or the birth of weak lambs and may require further investigation.

Investigating an outbreak

If a flock is experiencing visible abortions, the ewe(s) concerned should be isolated and any aborted material disposed of appropriately. Blood antibody tests are commercially available for EAE and toxoplasmosis, but care needs to be taken when interpreting results from vaccinated flocks because antibodies may already be present.

In order to increase the likelihood of finding the specific cause of an abortion, either the whole aborted foetus(es) – or appropriate samples from the foetus – and placenta, should be submitted to your chosen laboratory.

If toxoplasmosis or EAE have been diagnosed, then vaccines are available. However, it

is important to note that neither of these vaccines can be given to pregnant animals. Therefore, they cannot be used in the face of an outbreak; but they can – and should – be used for protection from disease the following year.

Perinatal lamb mortality

The target mortality rate in neonatal lambs for a lowland flock should be no more than five per cent – some well-managed flocks achieve as little as three per cent. However, the current figure for UK sheep farms is estimated to be around 10 per cent (Binns, 2002).

A lamb's birthweight will vary slightly depending on breed and parity. It is important to recognise whether lambs are being born significantly under their weight aim as it can be an indicator of an infection during pregnancy or of undernutrition of ewes in late gestation (**Table 1**). Undernutrition can be seen in any flock but is more common in flocks that don't scan for pregnancy rate, as they may be underfeeding ewes carrying twins or triplets. If the metabolic requirements of the ewes are not being met, this can also be seen in a low body condition score (EBLEX, 2008) (**Table 2**) and an increase in the number of ewes suffering from 'twin lamb' disease.

A poor plane of nutrition can also be reflected in colostrum quality. Ewes that have struggled with twin lamb disease will produce less colostrum and the colostrum that is produced will be of a poorer quality. This will mean that even lambs that do stand to feed quickly will be taking in reduced levels of colostral immunoglobulins.

The recommendation is that lambs should receive 50ml/kg of colostrum in their first two hours. If there is any reason to suspect that this hasn't happened, then they

Table 1. Birthweight aims for an 80kg ewe tupped with a terminal sire. Hill breeds should be expected to be approximately 1kg lighter (EBLEX 2015)

Number of lambs	Birthweight aim (kg)
Single	4.5 - 6.0
Twin	3.5 - 4.5
Triplet	>3.5

Table 2. Recommended ewe body condition score throughout gestation (EBLEX 2008)

	Hill	Upland	Lowland
Tupping	2.5	3.0	3.5
Mid-gestation	2.0	2.5	3.0
Lambing	2.0	2.5	3.0

can be supplemented with good quality colostrum via a stomach tube. Lambs in which there has been insufficient transfer of immunoglobulins will be at a higher risk of diseases such as joint ill, navel ill and 'watery mouth'. If failure of passive transfer is suspected, then zinc sulphate turbidity testing can be carried out on a representative number of lambs under one week of age.

Good hygiene practices around lambing time can also help to prevent infections. Equipment should be kept clean and be well maintained and every lamb's navel should be dipped in a 10% iodine solution as soon as possible after birth (EBLEX, 2015).

The most common non-infectious causes of death in neonatal lambs are hypothermia and starvation. Although lower temperatures will cause higher rates of hypothermia, it can occur in any weather conditions. Affected lambs should be placed under a heat lamp until they are standing and feeding unaided. Lambs that haven't fed need to be detected quickly to ensure that they can be treated in time – hungry lambs have a very typical 'tucked up' appearance and may be very vocal (**Figure 2**).

Time and patience can be required as some lambs may need encouragement to feed; however, lambs from ewes that are not producing adequate milk or are suffering from mastitis may need to be hand reared.

Physical deformities, such as atresia ani, can also result in lamb death but these normally only account for a small number of cases.

Many causes of lamb mortality may be linked. So, for example, weak lambs are likely to have problems



Figure 2. Hungry lambs have a typical 'tucked up' appearance and may be very vocal.

Lambing board		Week commencing _____
Abortions		
Live births		
Singles		
Twin		
Triplet		
Born dead		
Died in first 24 hours		
Died in first week		

Figure 3. It is vital that lambing statistics are recorded meticulously on a 'lambing board'.

with colostrum intake. It is, therefore, important not to consider these problems in isolation.

Conclusion

An important first step in any disease monitoring process is the keeping of good records – this helps to ensure that any problems in the flock are recognised quickly and can be acted upon. Targets for each stage of the lamb production cycle should be agreed upon and thresholds for intervention should also be highlighted – because this helps the farmer to be able to measure

his production and to know when to call for help.

Routine pregnancy scanning should be encouraged because it aids not only with management and feeding of the pregnant ewes, but also helps to identify any increase in barren ewes so that investigations can start early. A difference in scanned pregnancy rate and lambing rate will draw attention to losses that are occurring during pregnancy.

Although many flocks do not have a 'vet-advised' flock health plan, Penbode

Farm Vets recommend this as a way of setting targets and encouraging good record keeping. Recording procedures during lambing time can be boosted by the use of a simple 'lambing board' (**Figure 3**), allowing the farmer to tally the day's events quickly. This helps to highlight any immediate problem areas during lambing time.

An annual check of any records will help to identify areas where the flock is under-performing and will help to detect and monitor any changes. ■

PPD Questions

1. What percentage of lamb losses are abortions between scanning and lambing?
2. How much colostrum should a lamb take in the first two hours of its life?
3. What body condition score should a lowland ewe reach at lambing?
4. What is the most common infectious cause of abortion in ewes?
5. What is the characteristic sign in the foetus of a *Campylobacter*spp abortion?

Answers
 1. 33%
 2. 50ml/kg
 3. three
 4. enzootic abortion of ewes (EAE)
 5. target-shaped orange/red lesions on the liver.

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*Suggested Personal & Professional Development (PPD)



FLUID THERAPY

Practical fluid therapy in cattle

Farm practitioners are often faced with balancing the theory of fluid therapy with the practicalities of carrying it out under field conditions. This article aims to give some practical tips for successful fluid therapy in calves and adult cattle.

In addition to dehydration and electrolyte disturbance, there are a few different considerations for cattle when compared with fluid therapy in companion animal practice:

- a lack of pen-side tests means that fluid therapy in the field often depends on clinical acumen
- bovine PCV (packed cell volume) has a variable normal range and is not a useful indicator of hypovolaemia or dehydration
- there are often considerable practical and economic constraints
- acid-base disturbance is often a greater factor – particularly with diarrhoeic calves.

Shock

Shock stems from inadequate perfusion of tissues resulting from failure of homeostatic mechanisms. These homeostatic mechanisms themselves may reduce perfusion further by eliciting excessive production of various vasoactive hormones, amides, peptides and kinins. Pathological changes are the result of hypoxia and accumulated metabolites, and almost every organ can display lesions – petechial haemorrhages, for example.

Shock may eventually become refractory to treatment, so early diagnosis and supportive therapy – including fluids – are essential.

Shock in cattle may be the consequence of various factors, for example:

- hypovolaemic shock as a result of massive haemorrhage: reduction of circulating blood volume to less than 80 per cent; <65% is critical
- dehydration: 10-12% is severe; >15% is critical
- infection: septic shock, especially caused by Gram-negative bacteria releasing endotoxins (e.g. toxic mastitis)
- peripheral vascular disease with gangrene (e.g. ergot poisoning)
- acute haemolytic conditions (e.g. babesiosis).

Treatment of shock is clearly a recurring reason why fluid therapy might be indicated, and many practitioners will most commonly use it in adult cattle during the treatment of toxic mastitis cases.

The clinical parameters used to diagnose shock include pulse rate, pulse quality, peripheral temperature (cold ears; low rectal temperature) but also include assessment of hydration status. **Table 1** shows a guide to assessing hydration status – it is more useful for calves than adult cattle.

Oral or intravenous fluids?

In cows, although oral (intra-ruminal) rehydration

has become easier and more practical with the availability of guarded stomach tube kits, the general rule is that $\geq 8\%$ dehydration warrants intravenous (IV) fluid. This is because the absorptive ability is reduced from the rumen mucosa owing to reduced perfusion. Combination therapy (IV and oral) is often successful.

Oral fluids should be avoided in cattle with an impaired ability to swallow – in cases of milk fever, for example.

Oral fluid therapy is very commonly used for diarrhoeic calves, and will be the first port of call for farmers administering their own treatment. However, calves that are more than eight to 10 per cent dehydrated certainly have an indication for intravenous fluid therapy. In addition, IV fluids are indicated for calves when fluid pools in their fore-stomachs – ‘sloshing’ on ballottement or a calf is unable to stand or has no suck reflex – because the risk of aspiration pneumonia is too high when using oral fluids in such cases.

Administering oral fluids

Oral fluids in calves are preferably administered by a teat or bucket. Where the calf is unable or unwilling to suck, a calf feeder bag (oesophageal feeder) can be used and the fluid fed by gravity.

Table 1. A guide to hydration status in calves and adult cattle

% Dehydration	0	2	4	6	8	10	12	14
eyeball recession (mm)	0	1	2	3	4	6	7	8
cervical skin tent duration (seconds)	2	3	4	5	6	7	8	9
capillary refill time (seconds)	1	2	2	3	4	>4	>4	>4
other signs	increased thirst			cold, dry nose			weak; depressed; cold; collapsed	

In adults, a stomach tube can be passed via the ventral nasal meatus and fluids fed by gravity using a bucket and funnel. However, more usually a tube is passed orally via a modified Frick speculum which guards the tube from the teeth, and a stirrup pump is used to administer the fluids – ‘Aggers’ (Forum Animal Health) or ‘Selekt’ (Nimrod Veterinary Products) pumps are the most commonly used ones in the UK (**Figure 1**).

Adults will require restraint in a crush or using a halter, whereas manual restraint alone is sufficient for calves. The head is maintained in a natural position (avoiding neck extension) and after secure placement of the gag or speculum (adults) the tube is slowly introduced to allow the patient to swallow. The correct placement of the tube can be checked by feeling the left side of the neck to ensure it is in the oesophagus and not the trachea.

The Veterinary Defence Society handles several claims every year made against veterinary professionals using rumen fluid pumps that have resulted in the aspiration of fluids. Particular care is required in moribund or

weak cattle, and even if initial placement is correct, the tube can slowly slide out. Never rely on absence of a cough reflex as a guide to correct tube placement. A safer method is to smell for rumen gas and/or blow down the free end of the tube. Then it should be locked in place prior to administering the fluids.

When removing the tube, it should be blown empty or kinked off to, again, reduce the risk of aspiration of either fluid or rumen contents as it is withdrawn. The tube should always be fully retracted before the gag or mouth speculum is removed.

The degree of dehydration should be used to calculate the volume of fluid to administer. Typically, an adult Holstein is given 30 to 40 litres. Isotonic electrolyte solutions will have more benefit than water alone – there are many different oral solutions which can be given to cattle in different clinical circumstances but reviewing these is beyond the scope of this article.

For dehydrated calves, the main principle of oral rehydration therapy (ORT) is the transport of sodium-

coupled glucose across the small intestinal epithelial membrane to stimulate absorption of water and electrolytes.

A so-called first generation ORT product contains an equimolar (isotonic) solution of glucose and sodium in order to fulfil the basic function of fluid replacement.

Second generation ORT contains additional bicarbonate to correct acidosis.

Third generation ORT contains increased energy – in the form of glucose, for example – and has a higher osmolarity.

Fourth generation ORT products contain glutamine, an amino acid that is the predominant intestinal epithelial fuel. This is included to aid repair of damaged epithelia as well as an energy supply for the calf.

It is difficult – if not impossible – to supply sufficient nutrition to a calf via ORT products alone, so milk should always continue to be fed alongside the fluid therapy.

Administering intravenous fluids

There are very few circumstances when IV fluids are not valuable; and if in doubt, they should be used instead – or in addition to – oral fluids. However, using the correct fluid type and infusion rate are important.

Calves

The calf should be placed in lateral recumbency in a clear, unrestricted, flat area. Placing the calf's head slightly downhill may aid in finding the jugular vein. A cephalic vein may also be used but generally the jugular is easier. The skin of a calf is particularly difficult to penetrate with a catheter, and this appears even more so in dehydrated calves – so always incise through the full thickness of the skin beforehand with a scalpel.

A thin rope (e.g. calving rope) used as a tourniquet on the neck will raise the pressure in the jugular vein and make venipuncture easier. Likewise, thoroughly clipping a wide area (10cm x 10cm) and using surgical spirit is very useful.

A 12G or 14G, three-inch long catheter can be sutured in place – suturing is preferable to the use of tape or ‘superglue’. Long (240cm) small animal giving sets are easy to obtain and relatively cheap, so are recommended.

Isotonic saline or Hartmann's solution are both suitable fluids – one to two litres can be run in rapidly initially, but the drip speed must be slowed down for the remaining volume in order to avoid pulmonary oedema from hyper-perfusion. An 8% dehydration would mean a four-litre fluid deficit for a 50kg calf. If the first litre is administered quickly, the remaining fluid should be administered over the following eight hours.

To calculate the drip rate:

- three litres over 8 hours = 375ml/hour
- maintenance = 250ml/hour (120ml/kg/day: higher for neonates than adults)
- total fluid administration rate = 625ml/hour: five litres over 8 hours
- standard drip chamber is 20 drops per ml
- equivalent drip rate, therefore, should be three to four drips per second (200 drips per minute).

Calves can be hospitalised for ‘dripping’ at the veterinary practice, but this in itself may create problems of cross-infection between calves from different farms, so suitable facilities are required. Often, calves are ‘dripped’ on farm – this may be easier for ongoing milk feeding and providing a warm, well-bedded pen. However, leaving a drip set up for several hours will inevitably mean the supervision and

Figure 1. A Selekt rumen pump. This one is connected up for collection of rumen fluid (stirrup pump is reversed). The wire reinforced tube is passed into the rumen via the mouth guard held in place with the nose clip.



removal of the drip by the farmer. Furthermore, the drip speed may alter if the calf changes position; and previously recumbent calves are likely to stand up and may become tangled in the giving set.

Many of these problems can be reduced by carefully explaining to the farmer what is required of him or her and suturing the catheter in place securely. In addition, a loop of the giving set tube should be sutured to the skin of the neck in at least one place so a tug does not affect the security of the catheter. Haltering the calf to the pen side or using a very small pen will restrict movement until the fluids have been administered.

Adult cattle

The volume of isotonic fluid required to have any therapeutic effect usually makes its use impractical in adult cattle. However, a home-made isotonic (0.9%) saline solution can be made up in a clean 25-litre chemical drum (225g NaCl) and suspended above a cow to be administered over several hours. With some forward planning it is possible to create a suitable drip arrangement using various tubes and connectors.

However, more practical in the field is the use of smaller volumes of hypertonic (7.2%) saline (**Figure 2**). Again, home-made solutions can be used (180g NaCl in 2.5 litres water), but five-litre bags of sterile 7.2% saline are readily available commercially, are inexpensive, and simple to carry in the car.

Hypertonic saline is arguably not as physiologically effective as isotonic saline, but excellent for rapid reversal of hypovolaemic shock. A transient increase in cardiac output and tissue perfusion occurs for about 30 minutes as water is drawn from interstitial spaces into the intravascular space.

In the short term, it can behave in a similar way to a colloid in that it boosts circulatory volume. However, in dehydrated patients such as diarrhoeic calves, interstitial fluid is already depleted and hypertonic saline is definitely contraindicated – although a 200ml bolus prior to isotonic fluids has been used successfully by some practitioners.

The usual volume for an adult Holstein is three to five litres administered as quickly as possible. Afterwards, a cow will normally drink 20-40 litres eagerly from a bucket. If not, oral fluids should be administered via a rumen pump. Administering the IV hypertonic saline quickly may be achieved using a 12G jugular catheter and a modified garden weed killer spray pump. However, this again requires making equipment up using various bits of tubing and connectors, all of which can be difficult to clean and maintain.

A better way to administer the hypertonic saline is by gravity feed using a 10G catheter and a large bore infusion set. It will only take five to 10 minutes to administer five litres using this method. A 10G, three-inch catheter is available from BD Supplies (BD Angiocath) and a wide-bore (8mm) 200cm long infusion set with a single spike, no chamber and a rotating Luer lock connector is available from Smiths Medical (SurgiVet).

As is the case with IV administration in calves, the jugular vein is the preferred site in adults. Mammary veins are very accessible but tend to have a higher risk of thrombophlebitis – possibly because of their proximity to a dirtier environment or possibly owing to a higher apparent risk of perivascular injection (thinner walled vein).

Incising through the full thickness of the skin with

“There are very few circumstances when IV fluids are not valuable; and, if in doubt, they should be used instead – or in addition to – oral fluids”



Figure 2. Administering IV hypertonic fluid to a cow with toxic mastitis. A ladder can be used to tie up the bag of fluid exactly where it is required.

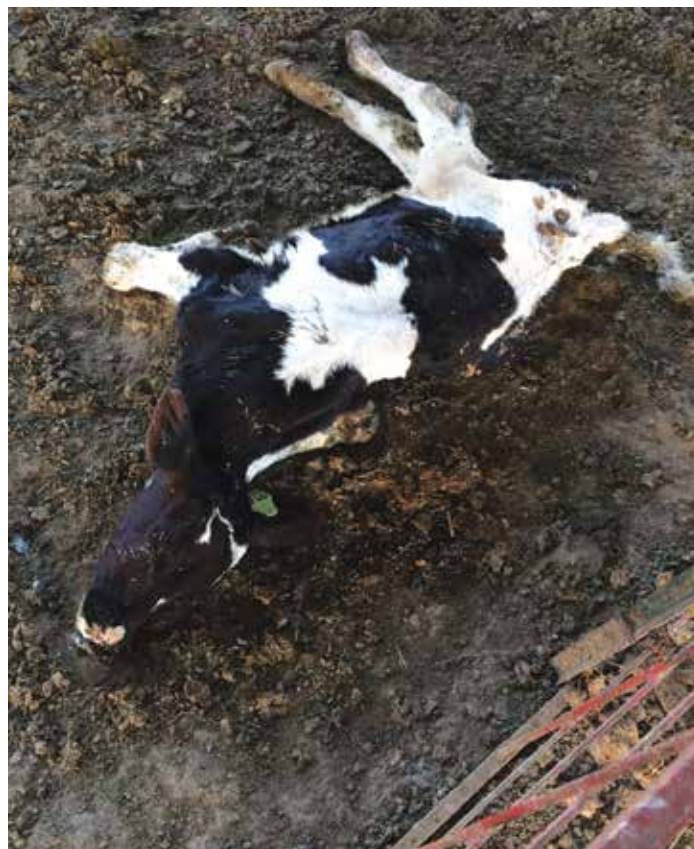


Figure 3. Diarrhoeic collapsed calves require IV fluids. Many also benefit from IV bicarbonate to correct D-lactate acidosis too.

a scalpel will greatly aid placement of the catheter, which can then be sutured securely in place using short lengths of nylon and a 16G hypodermic needle.

Acid-base disturbances

Metabolic alkalosis is most likely to occur in dehydrated adult cattle – with the exception of cattle with a small intestinal obstruction, sometimes including left displaced abomasum (LDA), or cows with barley poisoning (cereal overeating). Interestingly, cows with LDA can be alkalotic or acidotic. In any event, correcting the underlying problem and providing normal saline fluid therapy would normally allow the cow to correct her acid-base disturbance herself, much like in other species.

Supplementary potassium will aid her ability to self-correct – grass or grass silage are good sources, but potassium may also be included in oral electrolytes.

Calves with hypo-perfusion are more likely to be suffering from metabolic acidosis – in common with other species. This is the consequence of hypoxia and accumulation of lactic acid. In other species, correction of the hypovolaemia allows self-correction of the acidosis – but acidosis in diarrhoeic calves is also, at least in part, the result of absorption of lactic acid from the large intestine following fermentation of undigested solids. This D isomer of lactate cannot be metabolised and so, whereas IV bicarbonate

is rarely warranted in other species, there is a stronger argument for its use in diarrhoeic calves (**Figure 3**).

A hand-held electronic blood analyser – i-STAT (Abbott), for example – may be available to practitioners and this can be used in the field to aid diagnosing the extent of acidosis quickly. However, clinical examination and clinical acumen are the usual methods – physical weakness, depressed mental demeanour, ataxia and impaired palpebral reflex all indicate acidosis, but with limited accuracy (**Table 2**).

Clinical experience can be just as valuable:

- suckler calves that are seven to 42 days old are more likely to be severely acidotic than dairy calves or young (<7 days old) calves
- diarrhoeic calves, sick enough to warrant IV fluids, may arguably benefit from bicarbonate
- if the calf is more depressed than the level of dehydration would suggest, or there is pooling of fluid in the abomasum, it is probably acidotic
- faecal consistency is an unreliable sign – more ‘watery’ doesn’t mean more severe acidosis or dehydration.

Acidosis can be corrected in calves using IV bicarbonate (1-molar solution, 8.4% sodium bicarbonate). For the purposes of economy, home-made solutions can be used by dissolving 35g NaHCO₃

in 400ml water. Sodium bicarbonate can be difficult to dissolve in cold water, so warming it slightly will help – but not too warm or else carbon dioxide is released.

‘Hard’ tap water that has a high mineral content should be avoided; whereas purified or demineralised water – as intended for autoclaves, for example – is suitable. Once made up, bottles of solution can be stored for later use.

If the base deficit is known (mEq/litre), a calculation can be made to determine exactly how much bicarbonate to administer. In any case, aim for correction of 50 per cent of the deficit, allowing self-correction of the remainder.

Moderate acidosis (15mEq/litre) in a 50kg calf will require 15 x 50 x 0.6 (proportion of fluid which is extracellular) = 450mEq HCO₃⁻. This can be provided by 37.5g of NaHCO₃, or approximately 400ml of 8.4% sodium bicarbonate solution. As only half the base deficit needs to be corrected, 200ml of 8.4% sodium bicarbonate should be administered.

‘Spiking’ a five-litre bag of isotonic saline with 200ml of 8.4% sodium bicarbonate and administering IV over eight hours is a very practical way of correcting both dehydration and acidosis in a diarrhoeic calf. If Hartmann’s solution is being used, some correction of acidosis is likely (29mmol/litre lactate) assuming the lactate is metabolised in a well-perfused liver. Care should be taken when adding

bicarbonate to Hartmann’s solution because a calcium bicarbonate precipitate may result.

In addition to bicarbonate therapy of diarrhoeic calves, a 50ml IV bolus of 8.4% sodium bicarbonate can be a dramatic ‘reviver’ of hypoxic calves following protracted calvings or dystocia. The solution should be administered to the newborn calf – which can be done most easily using a 50ml syringe and 18G, two-inch needle in to the jugular vein.

‘Over-shoot alkalosis’ is possible if administration of sodium bicarbonate is over-zealous and, paradoxically, a respiratory acidosis can also occur owing to a quickened respiratory rate.

Consideration of other electrolytes

Potassium

Both cows and calves can become hypokalaemic after correcting acidosis, or correcting hypovolaemia with saline, or with metabolic alkalosis, so following up IV fluids with an oral solution containing potassium (as KCl or K₂CO₃) is always a good idea. Usually 60g KCl is sufficient for a cow with moderate hypokalaemia and excess potassium will be excreted by the kidneys.

Calcium

Acidotic animals may develop hypocalcaemia once corrected, but care is needed with potential cardiotoxicity when administering IV calcium to dehydrated animals. It is safer to give

Table 2. Table of clinical signs associated with degrees of acidosis in calves

Severity of acidosis	Signs	Base deficit (mEq/litre)
Clinically normal	scouring, clinically normal, strong suckle	5
Mild	weak suckle, standing but depressed	10
Moderate	recumbent, depressed, only stands with help, impaired palpebral reflex	15
Severe	unable to stand, no suck reflex, absent palpebral reflex	20

calcium subcutaneously or orally in such circumstances.

Glucose

This may be indicated for ketosis or in calves to aid nutrition – be aware, however, of the limitations to supply a calf's actual energy requirements this way. A 50kg calf would require approximately 800g/day of glucose to provide its maintenance energy requirements. This is impractical and would, in any case, probably cause severe electrolyte imbalances. A 500ml bottle of 50% dextrose provides 250g of glucose – this is hypertonic, so should be administered concurrently with 0.9% saline or Hartmann's solution.

Summary

There is no doubt about the therapeutic importance of fluid therapy, particularly IV fluids. However, some clinicians are (understandably) put off using them as often as they might be because of the practicalities of administering fluids in the field. Others may (wrongly) believe that IV fluids are rarely worth it in cattle because those animals for which it would be indicated are 'too far gone'.

I have found the methods described above reliable, quick and economical in practice. Having to hand a particular sized catheter, for example, can be at least as valuable as understanding the physiological details of fluid balance. Ultimately, it is the practicalities that are likely to make the difference between successful and failed fluid therapy – and the inclination to keep trying! ■

PPD Questions

- How much fluid should be administered over eight hours to a 50kg calf that is 10% dehydrated?
 - 2.5 litres
 - 5 litres
 - 7 litres
 - 8 litres
- Which of the following is true about acidosis in diarrhoeic calves?
 - once the hypovolaemia is corrected, the calf will be able to metabolise the lactate and correct the acidosis itself
 - a reduced palpebral reflex is a reliable indicator to gauge the base deficit
 - IV infusion of 400ml of 8.4% sodium bicarbonate can generally be safely administered to correct most cases
 - the acidosis is partly the result of D-lactate isomer that cannot be metabolised, so bicarbonate therapy is warranted.
- How much potassium chloride should be administered in an oral electrolyte solution to an adult cow in order to correct a moderate metabolic alkalosis (e.g. after correction of dehydration)?
 - 20g
 - 30g
 - 60g
 - 120g
- Approximately how long does it take to run five litres of hypertonic saline into the jugular vein of a cow using a 10G catheter?
 - 5 minutes
 - 15 minutes
 - 20 minutes
 - 30 minutes

Answers
1. C – 7 litres (5 litres deficit plus 250ml per hour maintenance)
2. D
3. C
4. A.

Innocence or ignorance?

There is a serious disconnect in the minds of 'townies' between the animals they foster in their backyards and the wider disease risks they pose.

Urban foxes are now accepted as part of the normal nocturnal scene in our inner cities. This was evident to many of the delegates at last year's London Vet Show who, as they returned to their hotels from the ExCel Exhibition Centre or from local restaurants, encountered foxes scavenging and playing in the landscaped precincts – even in the glitzy entrances to offices and other prestigious buildings in the vicinity.

And with the density of the urban fox population now far greater than that of their country cousins, it is far more likely that any rabies outbreak is going to start within a town or city and probably become established fairly rapidly. If this point is raised with the inhabitants of houses and flats in the wider suburbs of London, most will, with a hint of disbelief – disdain even – attest to the “their lovely foxes in their back garden”.

Occasionally there are the scare stories of foxes being found in children's bedrooms, or domestic rabbits or backyard poultry being ‘savaged’ by rogue ‘Reynards’, but in the main the majority of city dwellers are quite sanguine about the situation and the fact that their pet dogs and cats are in such close proximity to a potential source not only of rabies, but also of many other infectious, sometimes zoonotic, diseases.

Backyard farmers pose real threat

The past few years have seen a trend amongst town dwellers towards the keeping of backyard hens as pets to provide eggs and a return to the ‘good life’ for the whole family. On the face of it, this is an innocent pastime and a welcome attempt at self-sufficiency. There are, however, some negative consequences.

Few of these backyard farmers realise that, from a legal point of view, they are considered to be ‘proper’ farmers, subject to the same legal and welfare restrictions as professional poultry farmers looking after thousands of birds on commercial enterprises across the land. This has been highlighted recently during the epidemic of avian influenza H5N8, in which outbreaks in small backyard poultry flocks played a significant part in the spread of the disease and the financial



losses incurred by the commercial producers whose flocks became infected.

It is a legal requirement for anyone responsible for a poultry premises with a total of 50 or more birds to register their flock. The birds do not all have to be of the same species, and this requirement applies even if you stock birds for only part of the year. Keepers with fewer than 50 birds are encouraged to register voluntarily, www.gov.uk/poultry-farms-general-regulations

By similar token, the feeding of kitchen scraps or leftovers and/or catering waste to poultry is illegal and may spread notifiable or other diseases, www.defra.gov.uk/ahvla-en/disease-control/abp/collect-feed/ban-kitchen-scraps-pet. And, of course, also attracts wild birds as scavengers.

Wild birds were heavily implicated in the spread of the H5N8 strain from wild, captive and domestic birds in many European countries, the Middle East and North Africa. Early on in the UK outbreaks, this highly pathogenic variant of avian flu was isolated from backyard chickens and ducks in Carmarthenshire and backyard chickens in Yorkshire – underlining the fact that, from a highly infectious, notifiable disease point of view, amateur farmers keeping backyard hens are just as vulnerable as large scale producers.

But with this equal vulnerability to avian flu H5N8, also comes an equal – if not greater – responsibility for preventing its spread. This was something that seemed to baffle some of the amateurs as they whinged their way across the media when asked by Defra to follow the same

preventive measures as the professional poultry farmers – who, after all, are not keeping their birds as a hobby and whose livelihoods depended on effective biosecurity and the taking of significant steps to keep the wild bird population away from their flocks.

Wake up call

It is fair to say that organisations, such as the British Hen Welfare Trust – to whom responsible backyard chicken farmers usually turn for advice – did issue practical solutions to following Defra's instruction to keep poultry housed and any external runs protected from wild bird access, www.bhwt.org.uk/avian-flu. But in reality, this advice was largely ignored by a high percentage of backyard poultry owners who seemed to think that simply because they “only had a few hens” they were immune from both the disease and the regulations.

There is evidence from past epidemics – not only of avian flu, but also swine influenza and foot-and-mouth disease, for instance – that they have begun in ‘backyards’ or on smallholdings where regulations have either been ignored deliberately or through innocence. Unfortunately, human nature being what it is, the former will continue to occur; but the latter can be avoided.

It behoves us as veterinary professionals to shatter the naïveté of our backyard farming clients and encourage them to ‘wake up and smell the coffee’. They must recognise the potential disease risks posed by their amateur activities and take their wider responsibilities more seriously. ■



Steve Unwin

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Steve graduated from Massey University in New Zealand in 1993 with a science degree majoring in physiology and ecology; and then, in 1998, with a veterinary science degree. Between 1997 and 2003, he worked in several zoos, wildlife rehabilitation centres and conservation projects in Australia, Thailand and Cameroon. Since 2003, he has been a veterinary officer in the Chester Zoo animal health team.

Steve is a recognised specialist in Zoo Health Management as a Diplomat of the European College of Zoological Medicine. He was the veterinary co-ordinator for the Pan African Sanctuary Alliance veterinary programme and is currently co-facilitator for the Orangutan Veterinary Advisory Group. Both these organisations focus on and promote capacity building of local primate and wildlife veterinarians.



**Suggested Personal & Professional Development (PPD)*



ZOOS

The role of zoos in conservation

Conservation is not about wildlife. Conservation is primarily about people. It focuses on maintaining the natural world in order to protect the sources of resources. This wouldn't need to be done without the impact of humans on the planet, and it can't be done without our investment.

What is the modern zoo's role in conservation?

Can zoos successfully fight the sometimes negative attitude within conservation circles and the general public? Have zoos changed, even if our perception of them has not?

As the international umbrella organisation for zoos, the World Association for Zoos and Aquariums (WAZA) motivates zoos and aquariums to collaborate – rather than compete – with other like-minded organisations and agencies. With more than 700 million visitors annually passing through the gates of zoos and aquariums of the world, affiliated through regional associations of WAZA, zoological facilities have an unrivalled platform to engage with the general public, which contributes over \$US 350 million annually towards conservation (WAZA, 2015).

It is unlikely that this level of funding would otherwise be available to conservation efforts because not all visitors to zoos are concerned with conservation and so would not be likely to contribute through other means.

Zoos also represent the largest pooling of wildlife expertise on the planet. Parts of WAZA's conservation strategy takes a holistic, 'one plan' approach to conservation *ex situ* and *in situ*. Traditionally, species conservation planning has followed two parallel – but separate – tracks. Field biologists, wildlife managers and conservationists monitor wild populations and develop conservation strategies and actions to conserve threatened species; meanwhile, the zoo



Figure 1. Dr John Kiyang.

"With more than 700 million visitors annually passing through the gates of zoos and aquariums of the world ... zoological facilities have an unrivalled platform to engage with the general public..."

and aquarium community develops long-term goals for sustaining *ex situ* populations.

'One Plan' is an integrated approach to species conservation planning through the joint development of management strategies and conservation actions by all responsible parties. One comprehensive conservation plan for the

species helps bridge the gap between wild and captive population management.

The expanding role played by zoos and aquariums is not only about cultivating appreciation, empathy and knowledge of living creatures, but also forms a central part of conservation by – among other things – helping to protect against



Figure 2. John Kiyang with the author.

species becoming extinct, and providing platforms for critical research. With the ongoing global threats to the environment, this will be more important than ever, and zoos and aquariums are positioning themselves to support global conservation initiatives and to serve as portals through which society can become involved in the active protection of wild populations.

Biodiversity Is Us!

This is the WAZA campaign which highlights that humans are part of the ecosystem too, www.waza.org/en/site/conservation/biodiversity-is-us. Through the campaign, WAZA supports the objectives of the United Nations Decade on Biodiversity 2011–2020 and the achievement of the Aichi Biodiversity Targets by educating the public about the importance of safeguarding biodiversity, and what we as individuals can do to protect and use it sustainably.

Moss et al (2015) provided compelling evidence that zoo and aquarium visits contribute to increasing the number of people who understand biodiversity and know the actions they can take to help protect biodiversity, in line with the Aichi Biodiversity Targets.

A UK zoo example

The 'Act for Wildlife' campaign, led by Chester Zoo, is working within the WAZA strategy to promote wildlife conservation by accessing people – via the Act for Wildlife website, www.actforwildlife.org.uk – who may never have heard of Chester Zoo or visited the UK. Act for Wildlife is a community of experts and enthusiasts, taking action to protect the natural world.

How do vets working within zoos play a role in conservation?

Veterinary professionals working in zoos have a wealth of expertise as part of the zoo conservation community increasing our impact in conservation. The deleterious effects of disease on conservation efforts, and the reduction in biodiversity on disease spread are widely acknowledged, www.iucn.org and Keesing et al (2010).

There is an increasing issue of emerging infectious disease transmission in general (Hoberg and Brooks, 2015).

Humans are coming into contact more frequently – and for longer periods – with wild populations of



Figure 3. John carrying out a post-mortem.

animals. This fact should be considered in conjunction with a predicted human population explosion (United Nations, 2011) that will lead to increasing instances of disease transmission to and from wild animals. The human population rise will increase habitat loss and disturbance, poaching, and disease spread; which is all predicted to continue to exacerbate the decline in wildlife – by reducing chimpanzee numbers in West and Central Africa, for instance (Oates et al, 2008).

Pedersen and Davies (2009) show that geographic overlap provides the opportunity for cross-species transmission. Host shifts to humans will be most likely in central and west Africa – areas that are also likely to sustain a novel epidemic in people, owing to their rapidly growing human populations, (Pedersen and Davies, 2009).

Use of disease risk analysis tools (Jakob-Hoff et al, 2014) is helping us map and

understand growing disease issues globally, including its effect on wildlife, domestic stock and humans. Good examples of this can be found in a review of the Hendra virus situation in Australia (Plowright et al, 2014) and www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsm9_033021.pdf for a USDA risk analysis on big horn sheep reintroduction.

Wildlife veterinary professionals working in zoos are active participants in creation of these protocols and are often involved in the investigations themselves – examples include: PBFDV in parrots in Mauritius (Tollington et al, 2015); HRSV in chimpanzees (Unwin et al, 2013); and vulture mortality in India (Swan et al, 2006).

Great apes deserve special attention for general health issues because of their close-relatedness to humans and potential pathogen exchange between apes and humans (Calvignac-Spencer et al,

“Humans are coming into contact more frequently – and for longer periods – with wild populations of animals”

2012). A developing issue with human-origin *Staphylococcus aureus* in wild apes has been highlighted by Schaumburg et al (2012), and reviewed by Unwin et al (2012) because the bacterium requires close contact for transmission.

Suggested reading for those interested in this topic is www.cbsg.org/content/iucn-manual-procedures-wildlife-disease-risk-analysis.

Veterinary examples in conservation

John Kiyang is a Cameroonian veterinary surgeon who gained his veterinary degree in Nigeria (**Figures 1 & 2**). He volunteered for free for 18 months at the Limbe Wildlife Centre before becoming a paid veterinary surgeon and manager for the project for the last 10 years (**Figure 3**).

John has shown true dedication to the people and wildlife of his country – proving that local veterinary solutions can work in Cameroon just as well as they do anywhere else in the world.

Limbe Wildlife Centre is part of the Pan African Sanctuary Alliance, www.pasaprimates.org, which is supported by a number of zoos in their animal health efforts.

The Orangutan Veterinary Advisory Group (OVAG) is a capacity building and expertise network formed to improve the conservation impact of its participating organisations (**Figure 4**). This consolidation of experts from a wide variety of organisations improves their individual impact (**Figures 5 & 6**).

“Great apes deserve special attention for general health issues because of their close-relatedness to humans and potential pathogen exchange between apes and humans”

As a One Health programme, OVAG utilises the orangutan species example to provide participants’ skills in ecosystem health. Participants have now – or will have in the future – direct input into conservation management at NGO level individually, and at government level collectively.

OVAG is the only consistent wildlife medicine and One Health programme for postgraduates that is endorsed by the Indonesian Veterinary Medical Association. ■



Figure 4. OVAG international collaboration builds trust between participants, assisted by multidiscipline involvement – medical, veterinary and ecological.



Figure 5. A group discussion.



Figure 6. An ultrasound session involving members of the International Primate Heart Project.

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Simon Cowell
MBE

Simon Cowell is the Founder and CEO of The Wildlife Aid Foundation, one of the UK's largest wildlife hospitals. He has also recently published his autobiography – 'My Wild Life'.



Emma Lloret
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Emma qualified from the University Cardenal Herrera CEU (Spain) in 2014. She has spent the last two years working as the veterinary surgeon for the Wildlife Foundation.



Naomi Turner

Naomi Turner began volunteering at the Wildlife Aid Foundation in 2010 and became a full-time member of staff in 2015. She works alongside the Vet Team to help care for and rehabilitate the Centre's patients.



**Suggested Personal & Professional Development (PPD)*



ORPHANS

Immediate care for orphaned wildlife

The title of this article in itself presents a significant question. In the case of domestic pets or farm animals, it is easy to determine their orphan status – in the case of wildlife, however, this is by no means a definite scenario.

Over the years at the Wildlife Aid Foundation (WAF), we have taken in thousands of creatures that we later determine are not orphans – it's just that the parents are not seen or the juvenile has either fallen from its nest, strayed from its cover or some such similar occurrence. We appreciate that while some members of the public do care, they can be just a little overzealous and, therefore, too hasty to intercede.

At WAF, our receptionists are trained to ask quite a few pertinent questions so that we can act in the animal's best interests. It is obviously better to try to reunite young back with their parents wherever possible and, in fact, over the years, from the thousands of calls we receive during the 'orphan' season, we estimate we can prevent at least 30 to 40 per cent from coming in at all.

Watch and wait

'Watch and wait' is our first suggestion – unless of course the youngster is in mortal danger or there are very obvious signs of injury or distress. If a veterinary surgery receives a call from a member of the public, it is best that they contact a wildlife centre, where they will receive advice as to whether there is a need for action. Where wildlife is concerned, it is vital always to take down the caller's name, number and the exact location of the animal in question.

In so many instances people think the young have been deserted, whereas in fact the parents are very skilled at not being detected even if watched very closely. Also, sometimes the parents move their young and can leave them mid-journey for a short time before



the move is complete. Hence our suggestion is always to observe before taking action.

Human scent on a mammal may well be a death sentence, so never handle it with bare hands; always use gloves that have been rubbed in garden soil or grass, first. On numerous occasions wildlife centres are able to reunite the family group.

As we all know, most of Britain's wildlife populations are in decline – some species numbers being reduced by 50 per cent and, in the case of our British hedgehog, a 96 per cent decline in the last 60 years. These numbers are staggering and, as this topic has become more frequently covered by the media, members of the public are bringing more injured, sick and orphaned wildlife to veterinary clinics for help.

As veterinary clinics are not set up specifically for wildlife, this can pose a

dilemma for any practice in receipt of wild patients. For this reason it is becoming even more important for veterinary practices and wildlife hospitals to work in a far closer and more co-operative way. In the past, many veterinary practices have euthanised wild patients; but, with such drastically declining numbers, every patient saved is important.

Working more closely together

For many reasons, we believe that it is invariably not in wild patients' best interests to remain in a busy commercial practice; and that, provided the veterinary practice is willing to carry out a quick triage and then call a local wildlife hospital, by working together, we can make a huge difference.

There are over 20,000 practising veterinary surgeons in the UK and, if each individual could save just one wildlife patient a week, this

"Human scent on a mammal may well be a death sentence, so never handle it with bare hands"

alone would mean that one million wildlife victims would gain a second chance back in the wild. This *will* make a *huge* difference.

The main difference between domestic and wild patients is the handling – because wildlife, at a young age, is easily humanised/imprinted and this must be avoided at all costs. Handling must be kept to an absolute minimum and, above all, there should be *no* talking whilst these animals are being fed – which procedure should be carried out in the shortest time possible, before the patient is then put in an area where there is no human noise or contact.

When treating wildlife it is very important to ask ourselves whether the animal has a realistic chance to fully function back in the wild. The prime objective must always be to return individuals to the wild. To do this, the animal must be released with a chance of survival equivalent to that of other wild animals of the same species. If you are in any doubt, then please do call a wildlife centre for advice.

Please note that some species, such as grey squirrels, Canada geese and muntjac deer require you to hold a licence in order for you to release them, so these animals must be transferred to a wildlife hospital that holds the requisite licences.

It is vital to obtain as many details as possible about the animal from the member of the public who brought it in, especially where it was found. Also, ensure that you note the 'finder's' telephone number and e-mail address, so they can be contacted for further details, if necessary.

Admitting a wild orphan

Most of the time, orphaned wildlife will be in a poor state upon arrival, because members of the public often neglect to provide warmth



Orphaned baby squirrel.

and frequently try to feed the wrong thing to them. Feeding the wrong things to wildlife can cause diarrhoea and death, so it is imperative to ask the member of the public if they have fed or given anything at all to the orphan. This will enable you to be prepared for any gastric problems that may occur after admission.

Some other things to check are:

- body temperature – they may need supplementary heat via heat pads or incubators
- dehydration – they may need an oral rehydrating fluid, or IV, IP or SC fluids
- presence of fly eggs and maggots
- the animal's bodyweight.

Keep full records of all medication and feeds given; and attempt to assess the age – if it is a mammal with its eyes closed it will need stimulating to urinate and defecate before and after feeding; if the eyes are open, this is not necessary.

Check for parasites, both external and internal (the latter via faeces samples). If there is more than one baby, decide upon a means of identifying each one – microchipping or marking with nail polish or correction fluid onto the fur or feathers of a bird are good methods. Also carry out a physical examination

to check for injuries so that appropriate treatment can be administered by the consulting veterinary surgeon.

Finally, contact a wildlife hospital as soon as possible – always keep your local wildlife rescue telephone number handy!

Mammals

Once the orphaned mammal is warm, give a first feed of rehydration formula. This will not only rehydrate the animal, but will also allow the stomach to empty and prepare for the correct feeds to be given. If you intend to transfer the patient to a wildlife hospital the same day, it is best to give only rehydration solution (once the animal is warm enough) and not feed it.

The correct milk formula to use changes – some puppy and kitten milks are not always suitable for wild orphan mammals owing to their fat and protein ratios being incorrect for different species. It is important to check with your local wildlife centre, before starting a milk formula for any mammal, to find out what they are using.

This saves the animal being given too many different foods in a short period of time and developing diarrhoea.

If the orphaned mammal has its eyes closed, it must be stimulated to urinate and defecate before and after feeding. Use cotton wool moistened with warm water, baby oil or Vaseline and gently tickle around the genital area. Do remember, though, newly admitted orphans may not pass urine immediately as they may still be dehydrated.

The genital area should be dried thoroughly and Vaseline or baby oil applied to help prevent soreness and provide protection against moisture. Once toileting is complete – the orphan should be weighed.

For unweaned youngsters, 1ml syringes are ideal for feeding smaller orphaned mammals and a small puppy feeding bottle for larger orphaned individuals. For rodents, use either a thin artist's paintbrush, a clean, unused, sponge makeup applicator or a very small pipette.

During feeding, the position of the orphan should be such

"... our suggestion is always to observe before taking action"

Table 1. Guide to the emergency feeding of garden birds and corvids




Age	Description	Feeding frequency (sunrise to sunset)	Emergency feeding
Hatching 	<ul style="list-style-type: none"> no feathers eyes closed 	15-20 minutes	<ul style="list-style-type: none"> well mashed dog/cat food to create a paste feed using a fine-tipped paint brush or tweezers.
Nestling 	<ul style="list-style-type: none"> feathers starting to show eyes open 	hourly	
Fledgling 	<ul style="list-style-type: none"> feathers covering body, but flight feathers not fully grown hopping out of nest 	2-hourly	

Table 2. Guide to the emergency feeding of pigeons and doves




Age	Description	Feeding frequency	Feeding amount	Food	Emergency feeding
Hatchlings 	<ul style="list-style-type: none"> completely covered in yellow down 	2-hourly	1-2ml	Tropicana® or Kaytee® tube-fed directly into the crop.	defrosted frozen peas – few at a time pushed into the crop.
Squeakers 	<ul style="list-style-type: none"> downy with some feathers coming through 	3-hourly	5-10ml		
Squabs 	<ul style="list-style-type: none"> feathered with some yellow down still visible 	4-hourly	15-20ml		

Table 3. Guide to the feeding of waterbirds

Species	Ideal diet	Emergency diets	
Ducks, geese and cygnets	very wet duckling mix	finely chopped grass and tiny pieces of brown bread in water	feed using a fine-tipped paint brush or tweezers.
Moorhens and coots	Sluis® and live mealworms	finely chopped grass in water, mashed dog/cat food	
Gulls	mashed fish-flavoured cat food	mashed, fish-flavoured cat food	
Pheasants and quails	Sluis® and live mealworms	seed, chopped grass	

Table 4. Specialist feeders

Species	Emergency diet	
Birds of prey	small pieces of dog/cat food	feed using a fine-tipped paint brush or tweezers.
Hirundinids (Swifts, swallows, house martins)	drowned mealworms soaked in critical care solution	
Woodpeckers	small pieces of dog/cat food	
Kingfishers	small pieces of dog/cat food	

that it can 'paddle' with its forelimbs, just as it would at the mother's teat. Hold the orphan in a blanket to keep it warm, then feed it slowly, keeping an eye on the speed the fluid is being taken, whether the orphan is swallowing and that there is no build-up in the mouth. Just as you would with orphan puppies and kittens in your practice, take care to avoid going too quickly, or you can risk aspiration pneumonia, which may be fatal for tiny orphans.

When feeding is completed, clean and dry the orphan's face, toilet it and weigh it again before it is put back to bed. The volume taken by each individual and the new bodyweights should be recorded.

Successful hand-feeding depends on the age of the orphan and the level of patience of the carer. It is not a job to be rushed. This is another reason why it is best to only stabilise the animal and transfer it to a wildlife hospital, as busy veterinary practices do not often allow the time needed to hand-rear these animals successfully.

Weaning

The weaning process can begin once the animal starts to open its eyes. We tend to wean them far earlier than mothers would in the wild – owing both to the quality of food we offer being better than 'wild diets' and the fact that we need to be aware of the risks of imprinting.

Every hand-feed increases this risk, so if the orphaned mammal has its eyes open, you can offer a suitable solid diet, as per the advice from your local centre. If the animal shows no interest in eating, then please contact a wildlife hospital as soon as possible, so that it can consider other options.

Birds

One of the most common causes for admission of

orphaned birds is following cat and dog attacks, which may cause septicaemia, wounds, puncture of the air sacs or feather damage. Up to 275 million animals are caught by domestic cats every year, 55 million of which are birds. All birds caught by a cat *must* be given antibiotics before release, even if they appear unharmed. The bacteria on a cat's teeth, *Pasteurella multocida*, kill the bird within hours, even with a tiny puncture wound that may not have been noticed. Broad spectrum penicillins have been cited as the antibiotic of choice, because of their efficacy against *P. multocida*.

Please refer to **Tables 1-4** for an emergency guide to feeding wild birds. A similar table for mammals, however, would be impossible to produce, given the number of species and, indeed, the case-specific nature of each patient. Where young, orphaned mammals are concerned, we would highly recommend getting the patient to a wildlife rescue centre straight away.

Summary

It would be incredibly beneficial for veterinary practices and wildlife hospitals to work more closely together, so that our diminishing wildlife stands a better chance in the future.

The Wildlife Aid Foundation is always looking for more volunteer veterinary surgeons and nurses, who want to learn more about how to care for British wildlife. If you are interested, please contact us via our website, www.wildlifeaid.org.uk.

In addition, we are always happy to offer telephone or e-mail advice to veterinary practices regarding the treatment and care of wildlife. You can call us on 09061 800132. ■

"It would be incredibly beneficial for veterinary practices and wildlife hospitals to work more closely together..."



Orphaned cygnet.



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Lost species – romantic visions or practical solutions?

Beavers are now back in Scotland to stay. In November last year, the Scottish government announced that the Eurasian beaver is to be formally recognised as a native species, 400 years after being hunted to extinction in the UK for its meat, pelts and scent glands. This is the first formal mammal reintroduction in UK history and is a major success story in terms of re-colonisation of a lost species.

The benefits of reintroducing beaver populations include the creation of new wetlands that will support a wide range of other species – such as otters, water voles, fish and dragonflies; the establishment of more diverse woodlands through beavers coppicing trees; better flood regulation and water quality improvement.

An increase in the number of beavers is also likely to boost wildlife tourism in Scotland, helping to grow a sector that is already worth £127 million per year to its economy. But, as with most things, there is always a downside and it has been acknowledged that the activity of the beaver colonies will need to be monitored carefully and managed, particularly where they impact on other land uses.

The Royal Zoological Society of Scotland (RZSS) and the Scottish Wildlife Trust are committed to working closely with government, farmers, landowners and other key stakeholders to establish an effective management framework for the species. However, critics argue that the beavers' potential to build dams along waterways and fell trees will change the dynamics of the wider landscape in ways that cannot be predicted and may well impact on the rural economy.

Other species in the frame

Possibly next on the list for reintroduction is the Eurasian lynx which once roamed the whole of Britain but disappeared around the year 500. The Lynx UK Trust is proposing to undertake a trial reintroduction programme – with Kielder Forest on the Scottish/Northumberland border being the trial site of choice. This proposed reintroduction has caused much debate and prompted the National

Sheep Association (NSA) to produce a consultation document arguing solidly against reintroduction, and emphasising the threat the lynx would be to sheep and lambs.

Advocates claim that lynx would keep down an exploding population of red deer which inflict costly damage on forestry and agriculture. Detractors say that lynx live in forests, not on open moorland where the majority of deer roam.

Problems with bustards

Reintroducing lost species is not easy, as demonstrated by the Great Bustard Project. This iconic species of the Wiltshire landscape returned to the UK in 2004 when the Great Bustard Group initiated a 10-year trial reintroduction.

Although breeding has taken place in every year since 2007, only one juvenile reached 100 days of age after hatching, and even this bird was not recruited to the adult population.

Opposing views

'Rewilding' Britain by reintroducing and translocating species is a hot topic – inviting much debate 'for' and 'against'. Both are important tools for population and species management, translocation moves wild-caught animals from one natural location to another, while reintroduction moves captive-born animals into their natural historical range.

'For' argues that we have lost so much of our native vegetation and species and we should aim to reverse the decline in our wildlife – returning the land to its natural state of wilderness and choosing this rewilding option means installing and supporting wildlife from Britain's past on a very long-term basis with the possibility of limited success.

'Against' argues that we are tampering with nature and that many of the proposed introductions will be harmful to farming and the current state of nature.

Some of the other species that are 'on the list' to be brought back to rewild Britain are wild boar, wolves, common

cranes, eagle owls, pine martins and white-tailed eagles.

It could be argued that time does not stand still, that the loss of species is natural evolution regardless of how they become extinct. Everything changes – including the nature of wildlife and ecosystems – and it is reasonable to question the amount of time, effort and money being spent on reintroduction projects that may never be totally successful.

Some argue that these activities are a very serious waste of resources, citing the fact that the British Isles is nothing like it was when such species were roaming freely, several hundred years ago. They also point out that, more importantly, wildlife reintroductions are very expensive if they are to be carried out properly and that the limited financial resources available for conserving the country's remaining wildlife would be better concentrated on saving what is left.

It is also true that a high proportion of captive animals released into the wild do not survive, with deaths being caused by humans in incidents, such as shootings and car accidents; as well as the reintroduced animals struggling to thrive in their new environment. These animals are also more susceptible to starvation and disease than their wild counterparts and less able to form successful social groups.

The opposing viewpoint is that man has manipulated the environment and caused havoc and destruction to its wildlife; and that it is time to redress the balance, bringing back, wherever possible, those lost plants and animals and ecosystems. The cost and time spent will, indeed, be high, but we owe this to those inheriting the countryside in the years to come.

So is the reintroduction of species a truly visionary policy that will help to improve the status of our current ecosystems or a romantic view to reinstate a lost natural habitat? It perhaps boils down to whether we want nature, in its broadest terms, to take its course; or to reinstate elements of a lost world. ■





Making lost owners a thing of the past

The rules requiring all dogs in the UK to be microchipped will soon be one year old; but it is a sad fact that there are still a high number of lost dogs that cannot be reunited with their owners.

Last autumn, the Dog's Trust revealed that an average of 12 dogs per day face destruction owing to their owners failing to update their microchip contact information. There is a solution to this problem that is beneficial, not only to those dogs that are lost, but also to their owners and to the veterinary practices with which the owners are registered.

The National Veterinary Data service (NVD®), which runs through veterinary practices, enables clients' contact

information to be renewed automatically via their practice management system or a practice terminal. It offers seamless registration on its national database for newly microchipped pets and, once registered, clients need only keep their veterinary practice informed of any changes to their address or telephone numbers.

The service addresses the problem of incorrect data held about a large percentage of owners of microchipped pets. Where, from the pet's perspective, their owner is lost.

We all know how easy it is to forget to update contact details, and when owners move address or change mobile numbers they have so many other things to think about that updating microchip details can easily be overlooked. Unfortunately, keeping these details up to date is essential, because there is often only a brief period where reunification is possible before lost pets are put to sleep or rehomed.

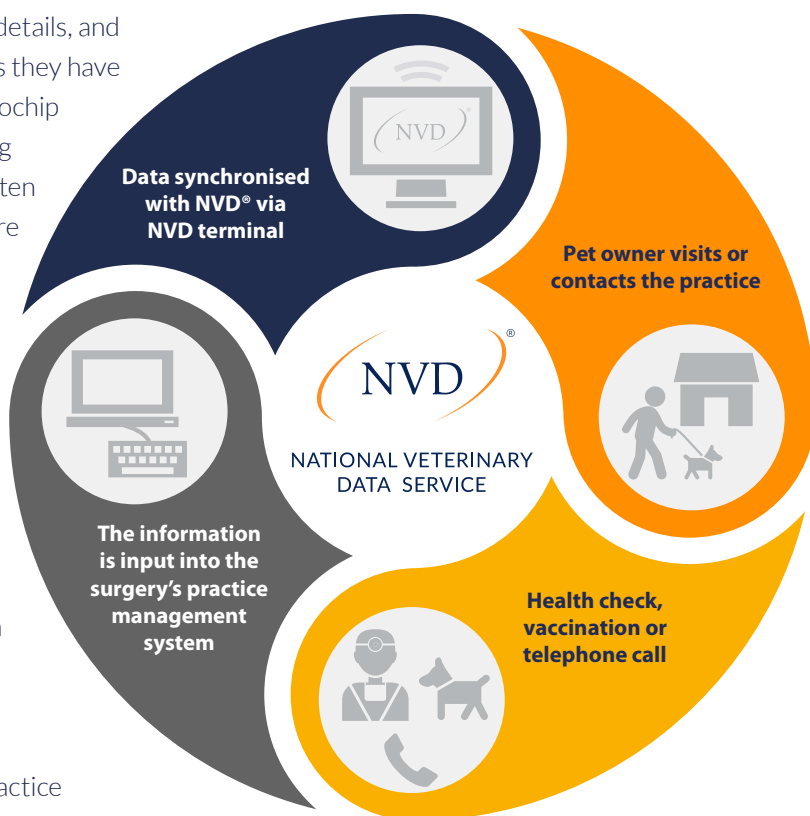
The great advantage of NVD® is that once an owner has registered their microchipped pet with their practice, their contact details can be continually updated, in real time, on the database.

As a result, microchip data currently held on the NVD® are actively kept up to date and correct, making out-of-date microchip details – for those registered – a thing of the past.

NVD® is compatible with all microchips – so there is no need to change microchip supplier – and all modern practice management systems can be incorporated.

NVD® puts veterinary practices at the centre of animal welfare and pet reunification. It provides an efficient and practical service for pet owners and helps to reinforce the relationship clients have with their vets.

NVD® helps to ensure that, as well as being microchipped, pets are also registered with a veterinary practice, giving access to the professional knowledge, advice, and health care that practices provide. Providing a valuable and chargeable service to pet owners strengthens client relationships, increases the percentage of microchipped pets, and, ultimately, leads to more successful reunifications. ■



To find out more about the service and how your practice can benefit from joining NVD®, contact the team by telephone on **03301 239924**, by email at **enquiries@nvds.co.uk** or visit **www.nvds.co.uk**



NATIONAL VETERINARY
DATA SERVICE



Kristie Faulkner
CertVBM RVN

Kristie has 20 years' experience working within the veterinary industry – with experience ranging from head nursing to practice management at Banfield Pet Hospital UK (US), a short stint in pharmaceuticals, five years with Onswitch as a business consultant/business development director, and now operations manager (Midlands) for White Cross Vets.

Having seen the industry from all angles, her experiences have left Kristie with a passion for both quality veterinary and customer care provided by efficient and motivated team members within a well-run business.



**Suggested Personal & Professional Development (PPD)*



PERCEPTIONS

From the other side of the table

I often wonder how non-veterinary people view our world. Is it a romantic notion of helping pets, days filled with cuddles and happy endings and a nice fat pay cheque to boot; or a world filled with uncaring individuals who are just after the money to fund said big fat pay cheque?

Those who know us no doubt gain a 'no holds barred' insight into the reality; but if Joe Public doesn't have someone in 'the know' to educate them about the reality of our workload, its associated unglamorous tasks and fairly 'skinny' pay cheque, what they really think about us is based only on the actual experience they have with us.

I must say that for years I never really gave this much thought – being in the thick of it and, unsurprisingly, only thinking of the day in terms of best pet care plus getting things done. I didn't necessarily consider how we treat people and how the experience they have with us could be so perilous for the practice itself.

I did, however, give it lots of thought when I found myself on the 'other side of the table' a couple of years ago. Bramble wasn't even 'my' dog, but my mother's. I had, however, had him as a regular fixture in my life for 12 years, so though on paper he wasn't mine, he certainly was a part of my immediate family.

I happened to be at home and Bramble needed an appointment regarding his arthritis – a word count prevents any more detail but an appointment was booked! Having never been 'the client' before, I was amazed at what impact the non-clinical elements of a visit to the vets could have, some of which are detailed below.

The greeting is crucial to a positive first impression

We arrived a couple of minutes early for our 9.20am appointment and were greeted with no more than "What is

your surname?" and "Please take a seat." Fairly standard you would think, but being the only clients – and Bramble the only pet – in the waiting room, it would have been so well received to have had the receptionists greet a nervous Bramble with his name and even better to get up and make a fuss of him.

As entertaining as the conversation about the receptionist's weekend antics was, it really wasn't the kind of thing I expected to be listening to in a professional environment, as a paying client. Making sure that your front-of-house teams keep private conversations (and conversations about other pet owners!) to themselves and not shared amongst the occupants of the waiting room is important in the

interests of maintaining a professional image. That 'free' time would be much better spent interacting with clients and pets.

Waiting can sometimes be unavoidable, but communication is key

At 9.40am, I was starting to get a little irritated at having not been seen, nor having received an update. At 9.45am, I approached the desk and asked how much longer we were likely to wait, with the predictable answer being that "There had been an emergency" and they had "No idea".

Now, if there truly is an emergency, then have your front-of-house teams keep clients well informed with options – such as re-scheduling; or, where space

"But... like it or not, the non-clinical aspects matter so much to the success of a clinic"



"Clients love their pets. They love a veterinary professional who loves their pets too – so take that 20 to 30 seconds to greet them and make a fuss of them"

allows, even offering to keep the pet in whilst the client can get on with their shopping or other appointments and collect their pet later in the day. Offering clients a cup of coffee (make sure you have decent coffee in!) or the pet a bowl of water (where applicable) can make all the difference in diffusing any irritation that can easily build when clients are uninformed about their wait.

The vet's greeting can make or break the consultation

Shortly after 9.45am, we were called through, by surname, from the consulting room door by a veterinary surgeon who appeared to be in a huge rush. By the time we had stood up and moved into the consulting room, the veterinary surgeon was busy cleaning the table down – with no eye contact or smiles to greet us.

It struck me just how unprepared for the consultation this individual was. To see the table hastily being cleaned from the last pet and accompanying hair being flicked off the table onto Bramble wasn't the greatest start.

The veterinary surgeon then stared at the computer to read Bramble's history, turning to us only to state that he was there "for a fast heart rate". Wrong. When we called to book the appointment, the reason was clearly given – so whether it be that the receptionist hadn't written the reason into the appointment booking, or that the veterinary surgeon hadn't looked at the appointment itself, the result was confirmation that this consulting professional had no idea why we were there.

Preparation is key. Have a '9am-ready' room to greet all appointments, and ascertain the reason for the visit before the client is stood in front of you.

Make a fuss...

Clients love their pets. They love a veterinary professional who loves their pets too – so take that 20 to 30 seconds to greet them and make a fuss of them. It really will help you later on if the client thinks that you care about their family member. Bramble's name wasn't used, nor was he petted or touched until it was time for the physical examination – making us feel as if he was just 'another dog' to be seen.

Value is key...

We had a 15-minute consulting slot – and we were in and out in under 10. The consult included questioning, a physical examination (only hips/stifles and heart) plus Bramble was taken 'through to the back' for a blood sample. Nothing was explained in terms of what was being done or found on the examination, nor when/how the medication should be administered/started, or when to expect a call for the blood test results.

Clients are paying for a consultation – they should leave with answers to these questions and feeling that there has been value for money.

Knock-on effects...

So all in all we left the practice feeling fairly disappointed. The wait, the greeting and the interaction from all team members, the attention paid to Bramble and value for money were all way below expectations for private healthcare.

Fast forward six months. Bramble is looking old, the medication doesn't appear to be doing the job as well and he generally just isn't the same dog anymore. I received a telephone call from my distraught mother who, upon seeing Bramble generally looking like he was having his worst day to date, decided that enough was enough, and today was the day she felt strong enough to deal with it.

My reaction, having had my own pets put to sleep in the past and being party to hundreds of others, really took me by surprise. That reaction – shared by my mother – was one of absolute certainty that the veterinary practice with which he was registered would *absolutely not* be ending his life. The strength of this emotional reaction was purely because, based on the lack of interest and affection showed to him on our last visit, I didn't feel that the practice cared a jot about Bramble.

I am in the very fortunate position that I have friends in the industry and was able to arrange Bramble's euthanasia at home. We felt so much better knowing that his passing would be with people who knew him and cared – and that it happened in a way that made the whole process more bearable for my mum.

I've been there...

Over many years in practice I have been there. I've been a part of – and witnessed – the potential for this kind of scenario on a day-to-day basis, and it has just been the norm to defuse it. It is a hard job working in practice. It's a busy day. An emergency has just come in, the previous client was late, you are having a bad day, each consultation merges

into the next, and there are a million and one cases to think about and deal with.

But... like it or not, the non-clinical aspects matter so much to the success of a clinic. The result of our unsatisfactory non-clinical experience was that we wouldn't recommend the practice, wouldn't allow the practice to end Bramble's life, and my mum's new dog now goes somewhere else.

You might think that this is harsh and unjust, with nothing major having gone wrong – but the point of sharing my experience is that this is how the visit made us *feel*; and to prompt you to take a look at each individual client's experience with you.

Could clients be going away feeling disappointed, short-changed, unwilling to recommend you to anyone else and, quite possibly, with no intention of ever coming back?

The consumer is becoming more demanding in an increasingly competitive environment; and I can truly say that just by making a fuss of Bramble and generally presenting everything in a way in which the clinic was ready and prepared to see him, would have changed our experience and subsequent choices regarding his euthanasia.

The small things make the biggest impact. So don't let your clinic be the one that gave the impression that you didn't care. Every now and then, make sure you take a look from the other side of the table. ■

"The small things make the biggest impact. So don't let your clinic be the one that gave the impression that you didn't care"



Clara Ashcroft
BA(Hons)

Clara writes for Vision Media – a media agency specialising in marketing, communications and design services for the veterinary industry, and a publisher of veterinary websites, news websites and consumer magazines.

Coping with online criticism

Many practice owners worry about bad reviews and how they might affect their business. But in the age of smartphones, there's more opportunity than ever for clients to leave feedback. For this reason, it's important to understand how to handle negative comments and how your response affects how other pet owners view your practice.

According to the Office for National Statistics (2016), the number of people using the internet to find information about goods and services is on the rise. In 2016, it was the second most common online activity behind e-mail, with 76 per cent of all adults using reviews to help them make decisions. In 2007, this figure was estimated to be just 58 per cent.

Whether you like them or not, online reviews are an essential part of veterinary practice – people will seek them out, and they will trust them. In fact, a recent survey carried out by online marketing specialist, BrightLocal, found that 88 per cent of consumers trust online reviews as much as a personal recommendation. So, how can you encourage clients to leave feedback and how do you respond to negative reviews?

The benefits

Online reviews give practice owners the opportunity to develop a relationship with their clients. Many people will review your practice online who might not otherwise tell you what they think. Some reviews may suggest improvements or raise concerns related to your practice, so they provide a good opportunity to resolve issues and strengthen your business.

It's also highly likely that clients who raise concerns online would still complain about your practice to other people, even if they didn't leave a review. At the very least, seeing their complaint online gives you a chance to address the concern and respond in public.

Last, but by no means least, reviews can influence



where your practice appears in search engine results. Some search engines take into account how many times your practice gets mentioned. If mentioned frequently, your practice is likely to appear higher in search results than one that isn't reviewed that much.

Keep your cool

No matter how good you think your practice is, it will receive the occasional negative review and, while it can make you feel upset or angry, it's important to take a step back before writing your response. Read the review several times to make sure you understand what the client is saying – first as the owner of the practice and second as though you are the client.

Try to understand your client's feelings, even if you don't agree with what they are saying. It's also wise to remember that bad reviews can be beneficial – some people are suspicious of businesses that have nothing but positive feedback.

Research the incident

When faced with a negative review, start by researching the incident. Speak to your

team to obtain their side of the story and chat with the author in private to glean more information. If the negative review is on social media, you should respond in public and ask the writer to contact you via private message or e-mail. Introduce yourself to the client, thank them for using your business and apologise for the fact their experience didn't meet their expectations.

If necessary, ask the client for more details, or make an offer to rectify their concern. Sometimes you simply need to improve a procedure. For example: "We've created a cat-friendly area now so that our feline patients have somewhere to relax away from our canine patients." In other circumstances, you might want to offer some sort of compensation – for example, "We would like to offer you 25 per cent off your next purchase from our pet shop to make up for the delay in seeing Fido."

Respond in public

Once you have communicated with the client in private, respond to their original message in public by acknowledging the problem



*Suggested Personal & Professional Development (PPD)



COMMUNICATION

and outlining what you have done to resolve it. This will show to other clients that you are responsive with feedback. Try and reply to the review as soon as possible, because this shows how attentive and receptive you are. It also demonstrates that you are efficient in handling specific issues and client concerns.

When putting together your response, mention how sorry you are to hear of the client's concern, clear up any misunderstandings and show that you're committed to resolving any problems they may encounter with your practice. Remember to stay polite and professional at all times – a negative response is likely to do even more damage to your practice.

For example, to respond to a client who is unhappy about the cost of treatment you might want to say: "Thank you for providing this feedback. As I explained over the telephone, we strive to give clients and their pets the best veterinary care and high-quality medicines. We hope that Buster is now on the road to recovery and if you have any concerns please don't hesitate to call our team at [telephone number]."

Alternatively, to respond to a client who was unable to make an appointment, you could say: "Many thanks for your comments. As I explained in my e-mail, our telephone lines were down on the morning you tried to book an appointment, which is why you were unable to speak to our receptionist. I'm pleased to say that our systems are now back up and running and we are looking forward to seeing Poppy for her check-up next week."

Reply to positive reviews

Replying to positive – as well as negative – reviews shows clients that you are interested in what they have to say. Your client has

enjoyed your service, so take this opportunity to bolster your reputation. Start by thanking the client for taking the time to share his or her positive experience. As with bad reviews, remain polite and professional at all times, but don't be afraid to show some personality.

For example: "Thank you for sharing your great experience. We're delighted to hear that you enjoyed your visit to Elmtree Veterinary Centre. Our ultimate goal is to provide pets with the best possible veterinary care. On behalf of all vets and staff, thank you for trusting us with the care of Dexter and we look forward to seeing you again soon."

Share feedback

Good reviews boost morale and increase employee satisfaction. No matter how you choose to share them – either via an all-users e-mail or displayed in the staff room – sharing positive feedback is a great way to let staff know they are doing a good job. Sharing good reviews also drowns out any negativity that comes from bad reviews and helps to establish a standard – they show staff what you, as a practice manager, believe they should be aiming for.

If you decide to publicise your reviews – be that on your website or through practice literature – try to include the client's name and location, as this gives them more credibility.

Encourage online reviews

One of the best ways to counter a negative review is to encourage a host of positive ones. People generally only leave reviews for something they love or hate, so tap into the 'silent majority' by requesting feedback. Include links to review sites on appointment reminders or ask clients to review the practice as they pay for their pet's treatment. You could even ask

your web hosts to set up an e-mail that goes out to clients after each appointment.

Make it easy for your clients to review your practice by linking to a survey on your website or register your practice on popular review sites, such as Yelp and Google My Business. You might also want to give your customers an incentive for leaving a review – 10 per cent off the cost of their pet's next visit maybe? This reward must apply to all reviewers, however, and not just those who leave positive feedback.

Social media is also a great way to engage with your clients. Why not start a conversation among your Twitter or Facebook followers by asking them a simple question such as: "How do you think we could improve our waiting room?" If going down this route, make sure that you assign somebody to take care of the responses.

What should you do with the information?

Once you have dealt with a negative review, it's time to decide whether the issue is ongoing or whether it is a 'one-off'. For example, if you receive feedback that your receptionists are rude, then you should take action to rectify the problem. However, if the majority of reviews comment on how friendly they are – and just one person complains – then it might be an isolated issue. By looking out for trends and addressing client concerns, you will keep existing clients happy and bring new ones through your door. ■

What shouldn't you do?

- post reviews yourself or ask friends and family
- pay a third party to write a review
- publicise only good reviews on your website
- offer owners discounts or incentives to leave a positive review.

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Deborah Croyle

Following successful careers in customer service and people management, Deborah joined the veterinary business sector in 2002, and has held roles in it as diverse as receptionist, administrator, practice manager and business director. She has a miniature dachshund that was born blind, another older dachshund, a tailless cat, a very old rabbit and a tortoise.

Respect reception – take a spell behind the desk!

Whoops! So your carefully planned day is unravelling before your eyes – the delivery's going to be late, an emergency is on its way in, and the receptionist hasn't turned up... After lots of "But I don't know what I'm doing" or "I hate doing reception", the desk is covered. But why do you get this reaction? Is it that they don't want to do the job, or that they feel they can't?

Reception perception

The receptionist is the first person a client meets and the quality of this initial contact sets the tone for the remainder of that visit and all subsequent visits. You know how easy it is to lose a client if the initial contact is not handled with expertise.

If you are fortunate enough to work in a practice that enjoys the advantages of having a reception team, then you are already aware of the enormous benefit they bring and what a vital part they contribute to your client experience. Not only are they pivotal in the client-vet and client-nurse relationships, they are your practice ambassadors.

A client will view a receptionist as the person who can resolve their every need – whether it's a repeat order, an account query or reaffirmation of the consult, a well-trained receptionist will understand what is being asked and know how to resolve the query.

Clarify the role

Let's look at exactly what you expect these paragons to do.

It probably includes welcoming the client, managing the flow into consults, taking payments for treatment, booking follow-up appointments, answering the telephone within three rings as freshly as if it was the first call of the day, providing information and answers to clients.

In between, they may be receiving deliveries, restocking displays in front of – and

behind – the counter, filing, faxing, scanning documents and lab results, collating histories, dispensing medications, fixing office equipment, cleaning, and keeping track of which staff are in and out. And from time to time running errands to the bank, post office, shops, and making tea and coffee several times a day.

But how much of this is in their job description? (They do have one don't they?!) Is it any wonder other staff aren't sure what's expected of them?

Personal skills

Receptionists need to be able to perform competently even when they don't feel like being particularly jovial. They need to treat each owner individually and respectfully, even if the person they just spoke to on the telephone berated them for charging inordinate prices or not providing them with urgent medical advice.

Dealing with client finances can sometimes lead to heated conversations, especially in emergency cases, yet they must handle these calmly and professionally. Similarly they must soothe anxious clients, work alongside impatient veterinary surgeons and multi-tasking nurses and maintain perfect emotional

and personal balance at all times.

Receptionists are not always perceived as highly as their colleagues because they don't have the clinical skills that veterinary surgeons and nurses do. However, a good receptionist will possess other skills such as kindness, compassion, patience, and a 'thick skin' developed by dealing with people who many veterinary surgeons and nurses don't see – or avoid – plus, of course, their ability to multi-task effectively.

These skills are no better or worse ... just different. And what better way to acquire or develop them yourself than to do a regular stint on reception?

Training and investment

As is the case with many of the positions within your practice, understanding the practice policies and remembering regular clients comes over time, but what you must have immediately is professionalism and ability to relate to people in a calm and friendly manner. Receptionists have more frequent contact with clients than the remainder of your team; yet the time and training invested in these ambassadors is often lacking.

"The receptionist is the first person a client meets and the quality of this initial contact sets the tone for the remainder of that visit and all subsequent visits"



*Suggested Personal & Professional Development (PPD)





Whilst your clinical team are busily occupied with their day, your sometimes poorly trained receptionists are holding the fort and expected to deal with whatever may be thrown at them.

CPD is often seen within the practice as mainly for the veterinary surgeons and nurses. You wouldn't dream of booking a difficult operation for a new graduate who hasn't the experience to carry it out; yet, after what can be a very minimal induction, you are happy to set a new receptionist loose at the front of house with the expectation that "They will soon get the hang of it".

There are many members of the veterinary clinical team who openly admit that they could never do the job of a receptionist. But should this stop you wanting them to understand and support reception?

Many practices welcome work experience students and volunteers who are encouraged to watch

operations and consultations, and some forward-thinking practices encourage their receptionist team to do the same, and to ask questions of the veterinary team to develop their knowledge.

So why is it not seen as just as important to reverse this scenario? Shouldn't other people inside and outside the practice gain an understanding of what happens at reception? By doing this they will develop a healthy respect for what their colleagues do.

Give others a chance

The first step is to embed the culture that answering the telephone is everybody's job. At busy times, anyone not clinically involved or client-facing should accept this as their priority – and the more they do this, the easier and less daunting it becomes.

It will help client communication within the practice as they can answer medical queries more promptly, they will quickly understand that some tasks are more time-consuming than

"Receptionists are not always perceived as highly as their colleagues because they don't have the clinical skills that veterinary surgeons and nurses do"

others, and why mistakes can occur. They will become familiar with the pet health plan that is offered to all clients, and understand what administration tasks lay behind every request.

The next step might be to cover lunch time for the receptionist – not just to answer the telephone and receive clients, but to do the restocking, filing, cleaning and so on that we identified earlier. In this way, the remainder of your team will come to appreciate the uncertainty of what that call or visit may bring – from making a routine appointment, through to a medical enquiry or possibly a complaint. All of which they are probably capable of handling – but not in that situation, where they don't have the privacy of an enclosed consulting room, and their entire transaction is now on public view.

Maybe this is why a veterinary surgeon would not see this as so appealing as having a one-to-one uninterrupted consultation, or a nurse whose task at that moment is to monitor a patient under anaesthetic. Of course, they should not be expected to juggle other tasks while doing that consult or monitoring that patient – but the equivalent is expected from a receptionist.

Payback

Receptionists who have time invested in their needs will deliver a smooth, seamless running of your 'front of house'. They will develop skills and knowledge around communicating with clients, asking the right questions, how to handle difficult and sensitive situations and, most importantly, listening. You will hear less "Can you come and

“speak with this client?” or “Can you explain to this client about their account?”. You will have fewer complaints referred to you, and your veterinary professional team will feel supported by the background administration required rather than seeing it as an unnecessary distraction.

Front-line staff are often asked medical questions beyond their knowledge. But when they hunt down the answers, they are given the opportunity to advance and strengthen their skills so they are better able to answer them next time. This also helps them communicate better with the team and offer suggestions on how to educate clients and point out commonly asked questions.

This, of course, applies just as much to anyone covering the desk as to the receptionists themselves. It enhances a client's perception of your practice if they can speak with veterinary surgeons and nurses at the front desk and not just behind a closed door; it encourages them to feel at ease to ask questions about their pet's health, with all the sales opportunities that brings.

When a receptionist reacts to clients with genuine care and concern, they usually receive the same in return – angry clients are rare when a well-trained team communicates thoroughly, which in turn means that clients aren't surprised by treatments or undiscussed veterinary fees.

An attentive reception team will keep the reception area and waiting room clean and tidy because they take pride in their practice. It would be a worthwhile goal to make an excellent first impression on every client – namely that they know immediately that they have walked into a professional and well-run veterinary clinic.

So, on those days when it seems that all hell has broken loose, your reception team will pull out all the stops to appear unruffled such that clients feel safe and secure leaving their pets in your care. Mistakes will be few, if any, because the reception team will be focused totally on caring for your clients and their pets, and you will have the satisfaction of seeing a well-trained and versatile team rising to the challenge thrown at them.

So what next?

Next time you have a near-mutiny when you ask a colleague to cover the reception desk, take the opportunity to sell the advantages of a team approach to the front-of-house role. Better still, start working to upskill yourself and your wider team; and instil that culture of appreciating and respecting each other's roles. ■

PPD Questions*

*If you don't have one or more dedicated receptionist(s), please answer these questions in the context of the people who normally fulfil this role.

1. Apart from greeting clients and booking appointments, what exactly do you expect your receptionist/s to do on a daily and weekly basis?
2. What training have you given your receptionist(s) in the tasks you've listed?
3. What personal qualities do you expect a receptionist to bring to your practice, and why?
4. Where do your receptionists sit in the hierarchy of your practice? Do you think that's the right place?
5. How do you assess, recognise and reward your receptionists?

There are, of course, no definitive answers to these questions. The intention is to start you thinking about your own practice and how you and your wider team can better understand the role of your receptionist(s) and the contribution they make to the smooth running of your practice.

Answers

“You wouldn't dream of booking a difficult operation for a new graduate who hasn't the experience to carry it out; yet, after what can be a very minimal induction, you are happy to set a new receptionist loose at the front of house with the expectation that 'They will soon get the hang of it'”

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Rebecca Leask

Rebecca Leask is a partner in the Health and Social Care team at Harrison Clark Rickerbys, a firm of 420 staff and partners operating out of six offices throughout the UK. Rebecca and the team have extensive experience in advising veterinary practitioners on the legal issues they face in practice, and are frequent speakers at industry events.

Social media policies for modern practices

Social media can be a double-edged sword for employers. This is particularly so for veterinary practices – one of the most competitive and emotive industries. Whilst previously being thought of as something of a luxury, a strong social media presence is now a fundamental marketing tool for all businesses, including veterinary practices. However, practices should be aware of the risks inherent in both their employees' use of social media, and having a social media presence themselves.



Implementing a social media policy matters because social media itself matters. Few marketing strategies do not involve some kind of social media presence, and the vast majority of news and public discussion now appears online. All modern businesses should understand the benefits of generating positive goodwill through enhancing their online presence and engaging with their clients.

One example of social media usage gone awry involves notorious Italian veterinary surgeon and big game hunter, Luciano Ponzetto. Ponzetto's photograph of himself proudly exhibiting a Tanzanian lion moments after having killed it appeared on

social media sites in 2015. This instigated protests by animal rights' activists outside his Turin-based clinic, and even led to his resigning from his post as director of a local kennel business.

Importance of a social media policy

Many businesses, approach social media without a clear understanding of the risks or how it can be used – and without a coherent idea of how it can fit into their marketing strategy. Whilst

the example cited above is admittedly extreme, it demonstrates how damaging social media can be.

Reputation protection

The behaviour of a practice's employees – both on and offline – reflects on the practice. A practice's hard-earned goodwill can be seriously damaged by association with negative behaviour, opinionated, or defamatory comments online – even those that do not relate to the practice itself.

"Many businesses approach social media without a clear understanding of the risks or how it can be used..."



**Suggested Personal & Professional Development (PPD)*



SOCIAL MEDIA

- restrict your employees' reference to your practice and practice name on their personal profiles
- include a clear provision that comments on social media platforms should be treated as public, not private
- instruct employees not to attribute comments falsely to your practice
- unequivocally instruct your employees to protect client confidentiality – both on business and personal profiles
- expressly prohibit discrimination or bullying/harassment against clients or other employees – both on business and personal profiles
- include a reference to your practice's disciplinary procedure, data protection and equal opportunity policies, and possibly even your brand management strategy.

Figure 1. Quick top tips for your social media policy.

Confidentiality obligations

The RCVS *Code of Professional Conduct* provides that veterinary surgeons must not disclose information about their clients, or their clients' animals, to third parties without the clients' permission. The Data Protection Act also requires practices to ensure the protection of personal data in their possession or control.

These duties should be mirrored in the practice's social media policy, so that all employees who use social media platforms – either professionally or personally – do not bring the practice into breach of its professional duties to its clients.

Control how the practice is marketed

A practice should ensure that it has a certain degree of control over its online presence – not only to protect its reputation, but also to ensure that appropriate content of sufficient quality is being generated, and targeting the correct demographic. It is pointless for a business exposing itself to the risks inherent with a social media

presence if it does not even enjoy the benefits of an increased online profile.

Vicarious liability

Perhaps the most important risk of which practices should be aware is that employers can be held vicariously liable for their employees' actions, when those actions are carried out 'in the course of employment'. The most common risks to a business in this context include acts of defamation (the publication of damaging statements about other individuals or businesses, for instance), intellectual property infringement (for example, using branding, wording, or other protected content owned by third parties, without their consent), and a breach of data protection as mentioned above.

Furthermore, employers can be held to be vicariously liable for one employee's discrimination against another – even via their personal social media accounts – if they do not take adequate steps to protect the employee being discriminated against.

Disciplinary proceedings

Having a social media policy cross-referred to in

a practice's employment contracts can help practices bring disciplinary proceedings against employees where necessary – if, for instance, they have posted defamatory comments about the practice or clients. Without having implemented a clear policy, a practice will have a harder time showing that offending employees have breached their employment terms.

Preparing a social media policy

Before a practice embarks upon drafting and implementing a social media policy, its intentions should be well defined (**Figure 1**).

How much discretion and control over its employees' social media use will it require? Whilst a practice will want to ensure it protects itself as far as possible, being too restrictive can have its disadvantages too.

Ensure your policy is as unambiguous as possible. A social media policy should leave employees in little doubt as to the requirements placed upon them and their online conduct. Ensuring a level of certainty will benefit both the practice and its employees.

Employees should be made aware of the consequences of their actions should they contravene the policy. If disciplinary proceedings become necessary, a practice will benefit from an unambiguous social media policy, meaning the contravention is more clear-cut.

Clearly define 'social media'

The policy should define what constitutes 'social media' broadly, so as to cover as many different platforms as possible. This may include blogs and forums, possibly even comments on news websites and YouTube.

Restricting access to social media at work

An employer will not be prevented from imposing a

blanket ban on employees accessing their social media accounts at work. However, individual practices will have to take a view as to whether this is appropriate for their workforce.

A blanket ban could foster ill-feeling from employees increasingly accustomed to working in an informal environment and more familiar with social media adopting a more central role in their lives. A more balanced approach could be to limit social media use to lunch breaks, or simply requiring that employees limit their use of social media at work – although this does introduce a level of ambiguity that might be best avoided.

Criticism of the employer

This is one of the most important issues a social media policy should address. There are many instances of employees being dismissed for criticising their employer online. Such a severe repercussion would only be possible where the comments in question are likely to damage the practice's reputation, so a reasonable balance should be sought.

The risk of a practice suffering reputational damage from comments made by employees on their personal social media accounts can be reduced by providing clear instructions to ensure that their comments cannot be linked to their employer. However, a practice will struggle to enforce any rules that attempt to dictate non-work-related online posts and comments made by employees.

In any event, the policy should provide that employees' online activity should not bring the practice into disrepute, and provide for a clear disciplinary procedure in the event that the practice feels an employee has contravened this criterion.

"Before a practice embarks upon drafting and implementing a social media policy, its intentions should be well-defined"

"Clear and strictly enforced disciplinary measures should be in place for non-compliant employees"

Use of practice social media accounts

A practice should consider whether its policy will deal with employees' use of the practice's social media accounts, as well as deal with their personal use. A social media policy should always stipulate that employees are not allowed to set up social media accounts in the name of the practice, or undertake any activity on existing practice accounts, without management consent.

In respect of any employee for whom such consent has been provided, a practice will be justified in being more prescriptive than in relation to employees' personal accounts. Practices should ensure that their policy prevents them from changing any account login passwords, and does not allow them to provide account login details to anyone else without your permission.

A policy may provide that any post or comment they prepare should be reviewed and signed off by an appropriate authority, although this may hinder the social media profile gaining any traction on the chosen platform. It is imperative that the policy provides that any account or profile set up in the practice's name – and any content on the profile – belongs to the practice.

Practices should ensure that they are clear on how they want any practice accounts to be used. Will the account be used simply for promoting the practice itself, or will engagement with clients and industry discussion be encouraged? It may be wise initially to restrict employees' freedom in operating such accounts to self-promotional purposes only.

Online activities such as 'retweeting' or sharing relevant posts on Twitter or Facebook can increase profile and engagement with other users if done appropriately; but practices should be wary of how an overly opinionated post can alienate the practice from its customer base if it does not strike the right tone.

Enforcing your social media policy

A practice's social media policy is only effective insofar as it is enforced. It is essential that a practice's policy forms part of its employment contract, to ensure that employees are bound by its provisions.

Clear and strictly enforced disciplinary measures should be in place for non-compliant employees. These should be made clear to employees and followed through where necessary. This could include disciplinary meetings or written warnings and, in the most serious circumstances, dismissal may be justified. ■

PPD Questions

1. An employee will automatically be bound by your practice's social media policy. True or false?
2. Your practice cannot be held liable for the actions of its employees on social media. True or false?
3. Can your practice be sued for posts made by an employee on the practice's Facebook page criticising a rival practice?
4. A practice is allowed by law to impose a blanket ban on its employees accessing personal social media accounts at work. True or false?
5. Your employee posts a photograph, that they have taken during the course of their employment, of a client's pet after a surgical procedure, on to the practice's Facebook page. The client was not consulted before the photograph was posted online. Which of the following could be an issue?
 - A. the posting of the photograph could constitute an intellectual property infringement
 - B. the posting of the photograph could constitute a defamation
 - C. the posting of the photograph could constitute a data protection breach
 - D. the posting of the photograph could constitute a breach of client confidentiality.

Answers

1. false; your practice's social media policy should be incorporated into the terms of employment you have in place with your employees for them to be bound by its provisions

2. false; your practice can be held vicariously responsible for its employees' actions on social media that take place 'in the course of employment'

3. yes; this could amount to a defamation against the rival practice if it suffers serious harm as a result of the defamatory statement, if the statement cannot be shown to be true, or an honest opinion. As above, your practice could be held vicariously liable for its employees' actions

4. true; but you should be wary of upsetting a workforce by imposing such a ban. Less restrictive measures could be imposed, such as allowing employees to access social media accounts on breaks

5. C and D could be potential issues. As the employee took the photograph in the course of their employment, any intellectual property arising would be owned by the practice unless the employee's terms of employment dictate otherwise. The photograph is unlikely to be defamatory unless it causes serious harm to someone's reputation. C is likely to be an issue as the photograph could constitute personal data if it could be used to identify the client. D could be a potential issue by way of breaching the Code of Professional Conduct, and also breaching the terms of business on which the client has engaged the practice.

Don't forget the hygiene factors

Motivation is very much a 'buzz' word in veterinary management circles at the moment and there is a wealth of excellent advice being given on ways to motivate your team.

It is all great advice; but sometimes it smothers some of the more basic motivational factors that are essential for happy working relationships and teamwork. Perhaps, sometimes, managers are concentrating so hard on the various ways of motivating staff that they overlook the simpler needs that must be satisfied before any kind of motivation can succeed?

Some theory

Back in the 1940s, Abraham Maslow proposed his 'Hierarchy of Needs' as a motivational theory comprising a five-tier model of human needs (**Figure 1**).

He believed that people possess a set of motivation systems unrelated to rewards or unconscious desires. His theory was that we are motivated to achieve certain needs, and that some of these needs take precedence over others. The most basic need is for physical survival, and this is the first thing that motivates our behaviour.

Once this need has been fulfilled, the next level up the hierarchy is the next thing that motivates us – and so on. The significance of this is that each of the lower-level needs must be met before people can progress to the highest level of all which is 'self-actualisation'.

In the late 1950s, Frederick Herzberg expanded Maslow's idea by describing factors such as company policy, supervision, interpersonal relations, working conditions and salary as 'hygiene factors' rather than motivators; whilst esteem and self-actualisation in the form of job satisfaction – achievement, recognition, the work itself, responsibility and advancement – were the motivational factors.

The important point he made was that the absence of hygiene factors can create job dissatisfaction, and their presence alone does not motivate or create satisfaction.

Hygiene matters

When we look at ways to motivate employees, we so often look at only the motivational factors and disregard the hygiene factors, assuming that these are not causing problems. But do we really know that this is the case?

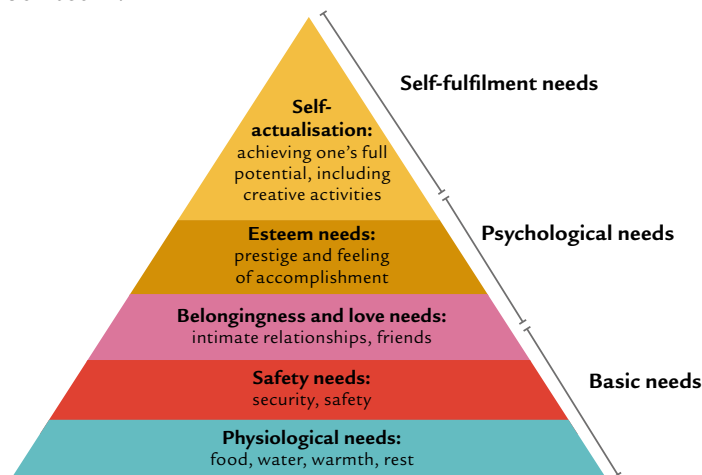


Figure 1. Maslow's Hierarchy of Needs.

Any manager who is looking for ways to motivate his or her team members should first of all take a long look at the hygiene factors within the organisation. They need to look at company policies, types of supervision, relationships with managers and bosses, working conditions, salary and relationship with peers. They need to consider the following key factors.

Basic physiological needs

Do employees have a tea break? Do they have their lunch break reasonably on time? Are the rooms where they work warm or cool enough – is there air conditioning for hot summer weather? This may seem very basic, but missing lunch every day, or not being able to stop for a much-needed drink can seriously de-motivate an employee.

Safety and security

This is essential for all employees. A practice needs to have a health and safety policy in place, which is known and understood by all employees. Lone working is always an issue and this too needs to be fully explained to all those who may find themselves alone in the practice at night, on call or driving alone. Safety and security is a big issue for many employees – they are often working long hours in a stressful environment and could do without the extra worry about their safety.

Belonging

A sense of feeling part of an organisation or team is important. Any feeling of

isolation or not really belonging can be very depressing as well as de-motivating and can, if ignored, also lead to a feeling of resentment. Managers need to be aware of the social interactions within their teams and how the general practice culture affects all those working there.

They need to look at communication methods and ensure that all individuals – be they full- or part-time – feel included in the team. Employees need to know that, if they have a problem, there is a formal procedure for discussing it with a designated person. A sense of belonging is a basic need for employee satisfaction.

Practice culture

The culture within the organisation is key. Culture includes the business values and vision, ways of working, systems, attitudes, beliefs and habits. It is at the heart of a practice and, knowingly or not, is reflected in the day-to-day working of the business and the attitudes and behaviour of its employees. So managers should be asking: "What kind of practice culture do we have? Is it good or is it not so good? Does it need to be re-considered?"

Wash up

Organisational culture affects everyone in the practice. It is only when there is a good practice culture and the basic hygiene factors are known to have been satisfied, that managers can begin to motivate their teams successfully by giving responsibility and advancement to enable team members to achieve their potential. ■

Industry Profile



Your name: Jan Litten
BA(Hons) Environmental
Planning Cert Ed A1 RVN
Position: SW regional manager
Company: Central College of Animal
Studies (CCOAS)

Tell us a little bit about your veterinary nursing career

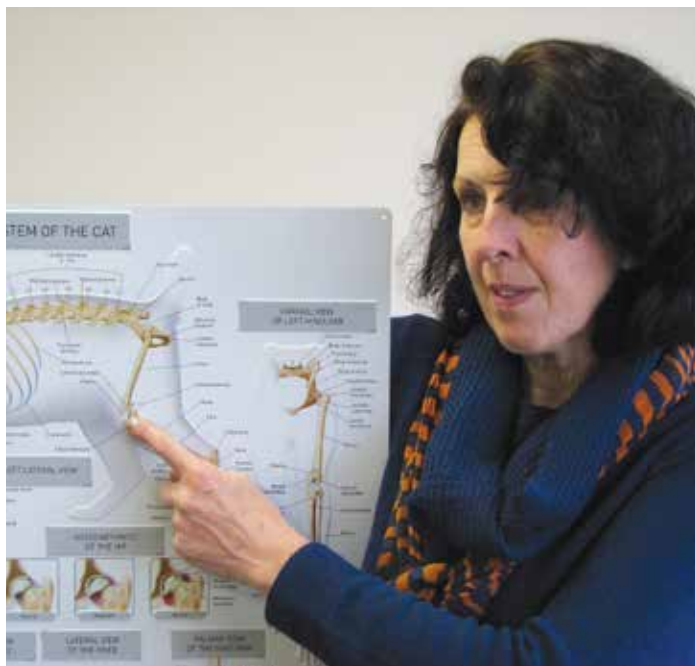
I was brought up surrounded by waifs and strays of various species on my parents' smallholding. It was a basic – yet fabulous – formative childhood. I had initially looked at veterinary nursing at the age of 16 when I asked a nearby practice about training; but the practice was abrupt and put me off at that point.

However, during a period of 'between jobs' as a countryside ranger some years later, I contacted two local practices, one of which just happened to be looking to start training VNs in their brand new practice in North Devon. I fell on my feet because it was a great place to train – very supportive to nurses and it gave me an excellent grounding. So I started my veterinary nursing career in 1996.

What motivated you to become involved in teaching?

There were two things. One, was my tutors at college who suggested I should teach once I had qualified – these same tutors eventually became my colleagues. The second motivation was working with trainees once I had qualified. I enjoyed the satisfaction gained from helping other students, who started after me, to progress.

"College isn't separate from practice"



Once qualified, I moved to a practice in Cornwall and again began to enjoy supporting our SVN's. I trained and qualified as a NVQ assessor and studied for a basic teaching qualification in order that I could, hopefully, be of best help to them. Watching students arrive on 'day one' – a bit bewildered but enthusiastic to learn – developing into competent and confident nurses, is a great reward. So when a job came up at my old college, I applied and was successful. Fell on my feet again!

The satisfaction of nurturing student development is still my motivation. I am contacted now by head nurses and clinical coaches – who I remember arriving in my class as nervous 'newbies' – to discuss training one of their new staff members. A real thrill!

What do you see as being the key drivers of the veterinary nursing profession today?

Using an evidence-based approach is essential for driving forward the profession. A VN's capability to do this is for the benefit of animal welfare, practice growth and development, plus the public recognition and understanding of the skill bank that is a competent veterinary nurse is an absolutely essential target if we wish to drive forward our profession.

How can teaching be aligned with these?

By teaching on the same basis! It is also teaching in a wider context – not just as an 'exam factory', but also facilitating broader skills. This has to include the ability to reflect and question, to build the capabilities of empathy and effective communication. Alongside this, it is an understanding and respect of our professional responsibilities.

Initially, students don't see this as being important – medical knowledge and skills seem so much more relevant. However, those students who develop an appreciation that without these other professional skills you cannot be delivering the best to your animal patients, not only become the most competent nurses but also those individuals who enjoy the greatest job satisfaction.

What makes for an effective RVN training course?

I think the answer is considering students as individuals who are starting on a career, rather than another bunch of students to meet target and funding numbers, is rule number one.

Beyond this, a good selection process to start with, a team that works together, good quality assurance procedures, clear expectations from both sides and sharing organisation of the programme, all go towards effectiveness of delivery.

Everyone involved needs to support each other. College isn't separate from practice – we need to talk and work together so we maintain good relationships to allow the students to succeed.

What are the major constraints to achieving this and how can they be overcome?

Working within a framework where you are unwilling to change and a perception that course providers are there as 'training police'.

Overcoming the first point is helped by working as an independent veterinary nursing school – we are not tied to the restrictions of a big FE college. Exciting! The second point is overcome by sticking to our own principles, keeping talking to practices, acting on feedback and recognising we won't always get it right!

“Increasing the opportunities for nurses to train means making training less burdensome for practices – which goes back to support and a joint approach”

Is the veterinary nursing profession attracting the right candidates?

I have met some brilliant candidates during the past few years, particularly ‘mature learners’ who come with a bank of life skills, who would make fabulous nurses if given the opportunity. So our new approach to training will certainly help these people.

What I do see is a naïveté of the demands of the qualification and an understanding that it is an entry to a professional register.

Often, students who have completed a Level 3 qualification in another subject consider this is going to be comparable, and then find it a real challenge. For this reason, I am pleased to see the new CQ qualification including Level 4 modules. We need to become more involved in career guidance to give a clear and honest outline of the requirements.

What can be done to overcome the difficulties of getting potentially good nurses on courses?

Increasing the opportunities for nurses to train means making training less burdensome for practices – which goes back to support and a joint approach. Plus, by approaching nurse training from a different direction whereby practices can trial potential trainees through our ‘Full Time’ programme.

This will be similar to a Degree course, where students attend two days a week for their first year, developing basic skills to make them employable; then moving out to placement practices in their second year while still attending college as a day-release student. This means more students gain the opportunity to train, practices can ‘sample’ potential employee student nurses, and the students don’t collect the burden of a university fee.

How can nurses in training be helped to combine work and study?

The new CQ syllabus coming into play early next year will help reduce repetition; although the qualification will remain rigorous and demanding of high standards. It is about support for all involved, allocating time within the college day to develop academic skills and assignment and CSL guidance – as well as time to complete these because they are all part of the learning process.

It also goes back to making sure all involved are aware of the demands such that time and support are available in practice – work-based tutorials should be carried out by staff who understand the study process and demands. Other than that, it is offering that ‘ear’ just to listen when the student needs to off-load!

What can be done to retain RVNs for longer in veterinary practice roles?

By being recognised by the veterinary industry and the general public for our skills, knowledge, the value we add to practice and animal welfare. This goes back to increasing awareness of what we do and can do. Alongside this, there need to be greater opportunities – by our very nature, if we’ve made it through to RVN status, we tend to be



individuals who want to develop, improve, be challenged and continue to learn.

Do extra postgraduate qualifications help or hinder this?

These certainly help in a big way – and in a greater range of areas than are currently available. Opportunities to achieve ‘post grad’ qualifications in your own area of interest and not have to go down the ‘human’ route or go abroad would help no end.

Is there scope for more integrated training with veterinary students?

Mmm ... a difficult one as I have no experience here; but I do believe we can learn from each other and there are definitely skills we can share alongside gaining an appreciation of each other’s roles. Remember, we are looking at very different roles – RVNs aren’t ‘mini vets’ (nor are vets ‘mini nurses’!).

How do you unwind from the pressures of teaching?

Most of my spare time is spent on my mountain bike. I am fortunate where I live to have some good local hills to ride on, plus it’s a quick drive to Dartmoor, Exmoor and the Quantocks. But it is not unusual for me to spend weekends further afield and certainly my van is often packed up with my Bird Aeris bike, sleeping bag and loads of snacks – South Wales is a favourite. The Peaks, Lake District and Pennines – as well as Scotland – have been on the agenda this last year too.

Any other spare time I have tends to be devoted to cleaning and fixing the ‘Bird’; and, keeping an eye on Rodney, my 21-year-old cat who is still capable of causing mayhem! ■

For more information on the new CQ qualification and CCOAS courses, including at the new College in Exeter, email Jan on janet.litten@ccoas.org.uk or call 01359 243405

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