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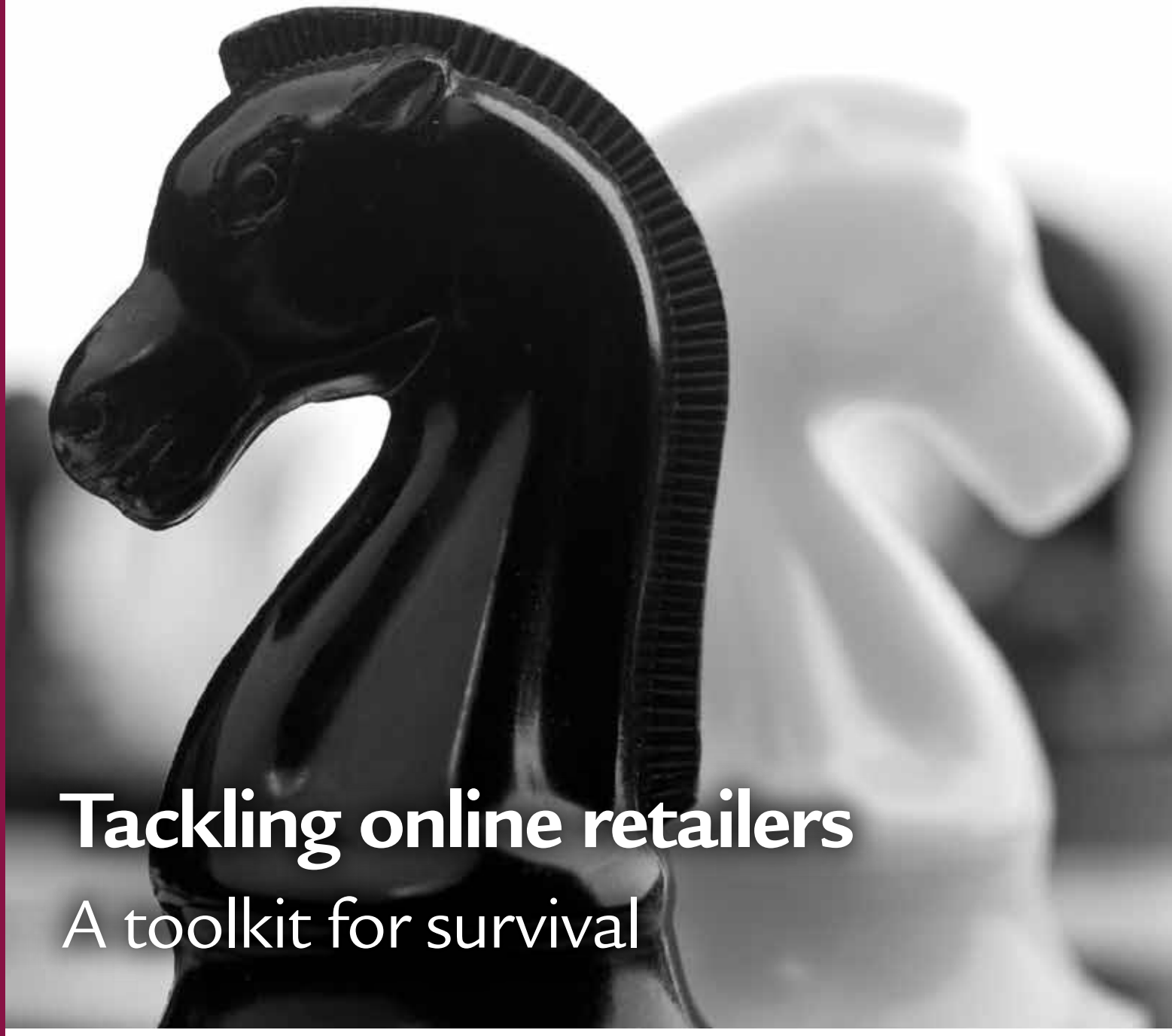
Veterinary PracticeToday



Tackling online retailers

A toolkit for survival

- Fifth vital sign: measuring pain
- SARA: time for a rethink?
- Pregnancy and foaling for VNs
- Humane euthanasia of exotics

VOLUME ONE | ISSUE ONE | WINTER 2013

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welcome

SPECIALISATION versus general practice is a debate that manifests itself within many a veterinary forum, but little has changed when it comes to training the next generation of veterinary surgeons.

There is still a desire by employers for graduates to have day-one skills in all areas of practice and, indeed, the majority of undergraduate students entering college have no idea in which area their interests lie.

Therefore, a well-rounded education where students experience both teaching and EMS in all practice types is the gold standard. This topic has caused much debate of late, especially in the context of increasing numbers of veterinary graduates and the implications this may have for EMS provision, quality of teaching and employment prospects. So much so, the BVA was prompted by its members to hold an "intelligence gathering exercise" to try to establish the true picture. The news that two more veterinary schools – in addition to Surrey – are to open in the UK has added fuel to the fire. See page 44 for a report of the event.

Whatever your specialism – or generalism – time is a precious commodity and being able to select CPD articles and news of direct relevance to you may help ease the pressure.

Veterinary Practice Today is divided into practice areas and articles are tagged clearly to help each member of the practice team navigate quickly to the content most suitable to his or her role and interests.

In essence, this new journal will allow you to cherry pick the bits you want and pass over the bits you don't – and if you have five minutes for a coffee, well, nobody's going to stop you reading the rest of it.

With a practical focus, *Veterinary Practice Today* offers the opportunity to consolidate your knowledge by completing CPD questions, reading what our commentators think about contentious issues, or brushing up on employment law, all in manageable chunks.

Topics were chosen based on feedback from members of the profession, so if there's something you'd like to see covered, or if you'd like to let us know your thoughts on this first issue, email emma.dahm@visionline.co.uk

I hope you enjoy flicking through this issue and you find something that catches your eye. And if you haven't already done so, and you wish to receive a free subscription to *Veterinary Practice Today*, go to www.mrcvs.co.uk or www.vnonline.co.uk to register.

EMMA DAHM, MANAGING EDITOR

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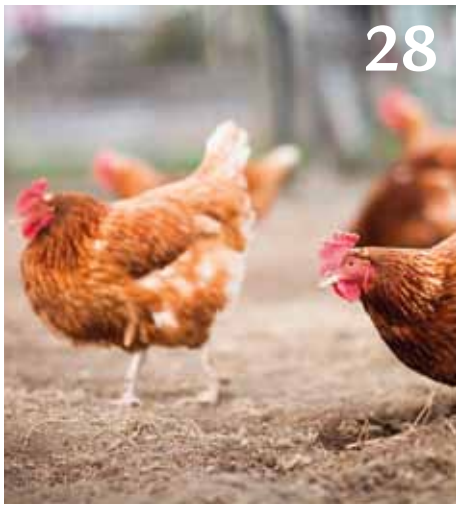
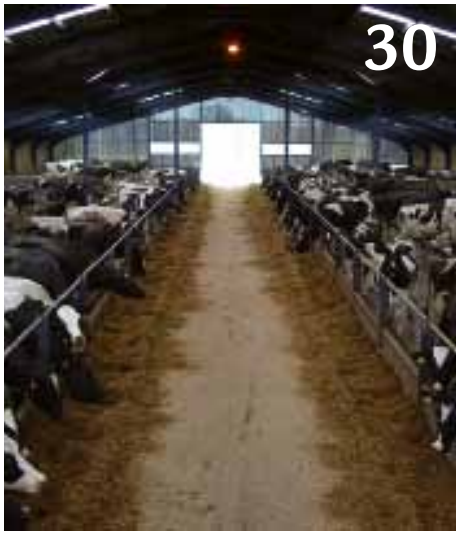
contents

small animal

equine





large animal

wildlife and exotics

management

featured contributors

Jacky Reid

Vet and honorary senior research fellow at the Univeristy of Glasgow, Jacky is also a director of NewMetrica.

Marie Rippingale

Head equine nurse and clinical coach at Scarsdale Veterinary Group, Marie also lectures at Bottle Green Training.

Owen Atkinson

Owen is a large animal vet who founded Dairy Veterinary Consultancy, to pursue his vision for preventive health management.

Tom Dutton

A graduate of the University of Edinburgh, Tom is now completing a ECZM residency at NorthWest Surgeons.

Peter Done

Along with his brother, Peter set up employment law consultancy Peninsula, and writes on a range of issues affecting businesses in newspapers and other publications.

FIRST EUROPEAN CONFERENCE ON DOG AND CAT WELFARE

AN INAUGURAL conference on companion animal welfare, hosted by the European Commission (EC) in Brussels, marked the launch of a study into the puppy trade in the EU.

The conference was established to provide stakeholders with an opportunity to discuss and reflect on practical considerations relating to companion animal welfare with a view to establishing a means of identifying and tackling key issues.

The commission said the lucrative trade in puppies and kittens was causing genetic selection, puppy farming and inhumane disposal of animals, with consequences for welfare and public health. There is no harmonised EU legislation to deal with these problems.

With concerns dogs and cats are being bred in some EU states where welfare standards fell well below even the minimum UK standards, the conference saw the launch of a study into the welfare of dogs and cats involved in commercial practices.

Based on the outcome of the study, and the conference's proceedings, the EC will consider further action to improve animal welfare and transparency and adequacy of information given to consumers.

Joe Moran, the RSPCA's senior parliamentary adviser for Europe, said he hoped the study would be a step towards licensing and registration of breeders and traders across the EU.

Mr Moran concluded: "The work will start in earnest with the new Commission when they come into post in November 2014. However, we hope that this study and any input we can provide will show this is a problem that really does need tackling."

The European conference marked the launch of a study into the puppy trade.

A database of cat DNA has been termed a 'real boon for forensic science'.

FELINE FORENSICS HELP CONVICT KILLER

UNIVERSITY of Leicester researchers used DNA evidence from cats for the first time in UK courts to help convict killer David Hilder.

Experts in the University's genetics department compiled a database of DNA from 152 cats around the country. The database was used to demonstrate the likelihood cat hairs found on dismembered torso of Hampshire man David Guy belonged to "Tinker", a cat owned by main suspect David Hilder.

This evidence was used as part of the prosecution case leading to conviction of Hilder for manslaughter.

Jon Wetton, who led the cat DNA database project, had already created a similar database of UK dogs during his time working with the Forensic Science Service. He began work on the cat database after being approached by Hampshire police regarding eight cat hairs found at the scene of a crime.

Dr Wetton said: "This is the first time cat DNA has been used in a criminal trial in the UK. We hope to publish the database so it can be used in future crime investigations. This could be a real boon for forensic science – 10 million cats in the UK are unwittingly tagging the clothes and furnishings in more than a quarter of households."

VETERINARY NURSING: A PROFESSION TO BE PROUD OF

NEWLY qualified veterinary nurses were recognised at an admissions ceremony for RVNs held at the RCVS in London.

Newly qualified RVNs at the RCVS ceremony.

Three ceremonies were held throughout the day to accommodate the high number of RVNs who achieved the college's Level 3 Diploma in Veterinary Nursing this summer.

Kathy Kissick, RVN and chair of VN council, addressed the nurses and emphasised the importance of their role, saying: "I hear a lot of people say 'I am just a veterinary nurse' but this is a profession to be proud of; a profession that plays an integral part in the veterinary team."

The RVNs were awarded certificates and badges to acknowledge their professional status by Jerry Davies, RCVS past-president, and recited the veterinary nurses' professional declaration.

Kent RVN James Osborn was among those honoured after studying for his Level 3 diploma at Canterbury College. He said: "I am very happy and very relieved to have passed my exams and qualified as a veterinary nurse. I think the veterinary nursing profession is something that is developing and growing and I would eventually like to see it protected in law."

The results for the September 2013 Level 3 diploma examinations have also been announced, and demonstrated an improvement on last year's figures. Of the 219 students who sat their exams, 75 per cent passed, compared with 64 per cent in September 2012.

HARSHER PENALTIES FOR OWNERS OF DANGEROUS DOGS PROPOSED

NEW legislation could mean dog owners may face 14 years in prison if their dog fatally attacks somebody.

In a written statement, Defra secretary of state Owen Paterson announced that, under new legislation, if a person dies as a result of a dog attack the maximum penalty for the owner would be 14 years' imprisonment. The maximum sentence currently stands at two years.

According to the statement, if a person is injured as a result of a dog attack, the owner could receive a maximum of five years in prison, or three years if their dog attacks or kills an assistance dog.

Animal welfare charity Battersea Dogs and Cats' Home welcomed the news "cautiously", as it felt more preventive action is required.

The charity said the increased penalties would not be enough to deter the minority of owners who allowed their dogs to become dangerously out of control, and said it was disappointed the Government was not doing more to prevent these offences at an earlier stage.

Nigel Yeo, Battersea's director of operations, said: "Battersea supports harsher penalties for irresponsible dog owners. Serious dog attacks can devastate our communities and we must have appropriate sentencing that matches the severity of the crime.

"However, there is still a real need for more early prevention to stop attacks happening in the first place. So we're calling on Government to take further steps to tackle the owners of dangerous dogs before they ever reach the courts, and introduce the right measures that will protect those most vulnerable to attacks."

The proposals are to be considered by parliament and, if approved, new legislation is expected to come into force in 2014, following Royal Assent of the Anti-social Behaviour, Crime and Policing Bill.

Owners of dangerous dogs may face harsher penalties under new legislation.

IN THIS SECTION

IN BRIEF

RESEARCH at the University of Nottingham aims to develop a more realistic model of drug uptake, which could offer an alternative to animal testing.

Led by Martin Garnett at the school of pharmacy, the research team is looking to deliver an improved cell-based model for determining how easily drugs and nanoparticles enter the body through the gut.

The three-year project has been granted funding of £152,780 by the Dr Hadwen Trust, a research charity that promotes and funds the development of techniques to replace animal testing in biomedical research.

A UK dog will be cloned as part of a Channel 4 documentary next year.

According to scientists at Sooam Biotech, they can clone a dog in two months by taking a biopsy from the living animal and replicating it to create a man-made embryo.

One dog owner will have their pet cloned for free for the documentary, but the price tag is £63,000 for the cloning of a single dog.

Applications from owners looking to win this unusual prize are invited by Sooam – entrants must contact the company describing what their dog means to them and why they would like it cloned, providing photos and videos.

Jacky Reid
BVMS, PhD, DVA, MRCVS

Jacky graduated from the University of Glasgow Veterinary School and, after being awarded her PhD in 1984, specialised in veterinary anaesthesia, developing an interest in pain assessment and management. Jacky is an honorary senior research fellow at Glasgow and a director of NewMetrica Ltd, which develops instruments to measure pain and health-related quality of life in non-verbal species.

Andrea Nolan
MVB, PhD, DVA, DipECVAA, DipECVPT, MRCVS

Andrea graduated as a vet from Trinity College Dublin and undertook her doctoral studies in animal pain. Her subsequent academic career focused on the pathophysiology, pharmacology and assessment of pain in animals. She is currently principal of Napier University, Edinburgh.

Marian Scott
BSc, PhD

Marian graduated from the University of Glasgow with a PhD in statistics. She is Professor of environmental statistics and, together with Andrea and Jacky, founded the Glasgow University Pain and Welfare Group.

CLINICAL

The fifth vital sign: measuring pain

IT IS generally well recognised that uncontrolled acute pain leads to discomfort and suffering – here, the authors discuss methods of pain assessment that may prevent other unwanted consequences, such as protracted suffering, which is often resistant to treatment, and that may delay postoperative recovery

EFFECTIVE control of postoperative pain is important, not only from an ethical and humanitarian point of view in that it minimises suffering and optimises patient comfort, but to ensure uncontrolled pain does not lead to increased morbidity and the development of a persistent chronic pain state.

These medium and long-term consequences are well recognised in human medicine, but less so in the veterinary field. Similarly, the fact that the assessment of pain is not an isolated element – rather is an ongoing and integral part of total pain management – has received limited attention in the veterinary press.

This article addresses these issues and introduces the reader to a practical pain assessment questionnaire designed to measure acute pain in the dog, using the veterinary surgeon or veterinary nurse as a proxy. Guidelines are given for its use in a general practice or hospital situation, including a proposed intervention level for analgesic administration.

"Uncontrolled acute pain leads to discomfort and suffering and, while that is generally well recognised, other unwanted consequences have generated less attention in veterinary practice"

Figure 1. Anecdotal evidence suggests CPSP occurs in companion animals, especially in cases of limb and feline tail amputation.

Background

Our ability to measure pain in a valid and reliable manner is a crucial component of effective pain management. In human medicine it has been suggested that pain assessment should be the fifth vital sign after pulse and respiratory rate, temperature and blood pressure measurement. In his presidential address to the American Pain Society in 1996, James Campbell, MD, stated that: "If pain were assessed with the same zeal as other vital signs, it would have a much better chance of being treated properly."

Acute pain is an important aspect of injury (traumatic or surgical) and acute medical illness. Uncontrolled acute pain leads to discomfort and suffering and, while that is generally well recognised, other unwanted consequences have generated less attention in veterinary practice. The physiological consequences of postoperative pain are shown in **Table 1**, all of which could delay or impair postoperative recovery. Inadequate postoperative pain control may also lead to the development of chronic pain after surgery, which causes protracted suffering that is very often resistant to treatment.

For more than a decade, chronic postsurgical pain (CPSP) has been recognised as a significant problem in human medicine. Its aetiology is extremely complex and poorly understood, with a variety of risk factors being implicated, of which severe acute postoperative pain is well recognised. Although CPSP in humans occurs commonly following major surgical procedures, such as mastectomy, limb amputation, hip replacement

and thoracotomy, it is not restricted to complex procedures, being a relatively common complication of minor hernia repair. Many chronic pain syndromes are neuropathic, resulting from changes in the nervous system and, because these are extremely difficult to treat, prevention of obvious risk factors, such as uncontrolled postoperative pain, is of major importance.

Mastectomy and amputations are commonly carried out in general veterinary practice and, although definitive evidence is lacking, anecdotal evidence would suggest that CPSP occurs in companion animals, especially in cases of limb and feline tail amputation (**Figure 1**). Accordingly, veterinary surgeons should be aware of the potential for its development and take appropriate steps to prevent it.

The effective management of postoperative pain requires an aggressive multimodal approach to analgesia that starts before surgery, continues throughout the surgical procedure and lasts into the postoperative period and beyond. Equally important is regular pain assessment to ensure such analgesic provision is adequate.

Pain measurement

Pain is a complex multidimensional experience involving sensory and affective (emotional) components. In other words, "pain is not just about how it feels, but how it makes you feel" and it is those unpleasant feelings that cause the suffering we associate with pain. It is a uniquely personal experience, which means it is impossible for us to appreciate how it is perceived by another person or animal, but most scientists believe we should assume animals suffer pain in a similar way to ourselves.

The role of measurement is to assign numerical values to the attribute of interest. William Thomson, Lord Kelvin of Glasgow, famously said: "When you cannot measure it, when you cannot express it in numbers... you have scarcely, in your thoughts, advanced to the stage of science, whatever the matter may be." This hints at the rigorous thinking the development of any measurement instrument demands, made even more difficult in the case of pain measurement by the fact that the goal is to measure pain's affective component (how it makes you feel).

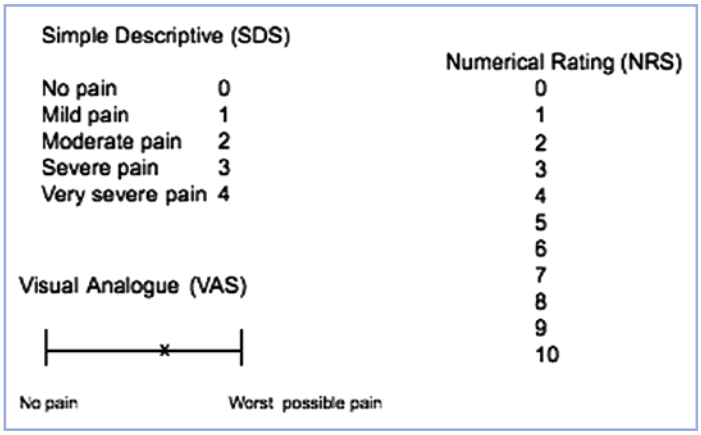


Figure 2. Examples of various simple descriptive pain scales.

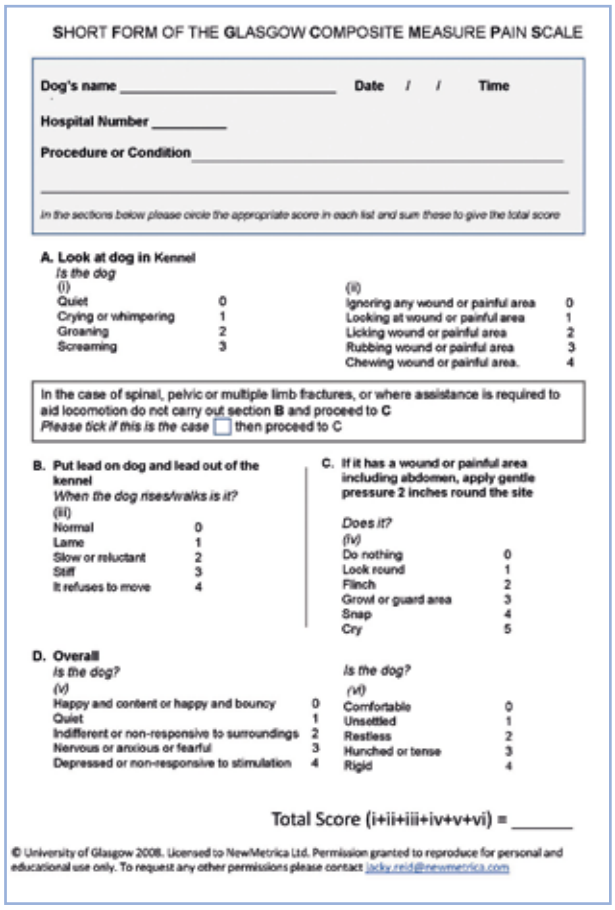
In the past two decades, the medical profession has recognised the importance, however difficult, of the valid and reliable measurement of how people are feeling. Psychometric methods, originally established by psychologists and psychiatrists to measure abstract concepts that cannot be measured in a conventional sense, such as intelligence and personality, have been applied to the measurement of pain.

The psychometric approach to scale design encompasses an established process of item selection, questionnaire construction and testing for validity and reliability. Pain measurement instruments take the form of structured questionnaires with formal scoring methodology, generally completed by the patient. However, for those who, like our animal patients, are incapable of self-report, such as infants or cognitively impaired adults, instruments are designed for completion by a proxy or observer who knows the subject well.

Behavioural disturbances have long been recognised as potential indicators of the presence of pain in animals. However, it is important to bear in mind each ▸

Table 1. Physiological consequences arising from postoperative pain

Condition	Consequences
Stress response to surgery	■ Tissue trauma results in release of mediators of inflammation and stress hormones ■ Activation of this "stress response" leading to retention of water and sodium and an increase in metabolic rate
Respiratory complications	■ Shallow breathing ■ Cough suppression ■ Atelectasis ■ Retention of pulmonary secretions ■ Infections
Cardiovascular complications	■ Hypertension ■ Tachycardia ■ Increased myocardial work
Thromboembolic complications	■ Reduced mobility leading to thromboembolic episodes
Gastrointestinal complications	■ Gastric stasis ■ Paralytic ileus
Musculoskeletal complications	■ Reduced mobility ■ Muscle atrophy



SHORT FORM OF THE GLASGOW COMPOSITE MEASURE PAIN SCALE

Dog's name _____ Date / / Time

Hospital Number _____

Procedure or Condition _____

_____

In the sections below please circle the appropriate score in each list and sum these to give the total score

A. Look at dog in Kennel

Is the dog

(i)

Quiet	0
Crying or whimpering	1
Groaning	2
Screaming	3

(ii)

Ignoring any wound or painful area	0
Looking at wound or painful area	1
Licking wound or painful area	2
Rubbing wound or painful area	3
Chewing wound or painful area.	4

In the case of spinal, pelvic or multiple limb fractures, or where assistance is required to aid locomotion do not carry out section **B** and proceed to **C**
Please tick if this is the case ☐ then proceed to C

B. Put lead on dog and lead out of the kennel

When the dog rises/walks is it?

(iii)

Normal	0
Lame	1
Slow or reluctant	2
Stiff	3
It refuses to move	4

C. If it has a wound or painful area including abdomen, apply gentle pressure 2 inches round the site

Does it?

(iv)

Do nothing	0
Look round	1
Flinch	2
Growl or guard area	3
Snap	4
Cry	5

D. Overall

Is the dog?

(v)

Happy and content or happy and bouncy	0
Quiet	1
Indifferent or non-responsive to surroundings	2
Nervous or anxious or fearful	3
Depressed or non-responsive to stimulation	4

Is the dog?

(vi)

Comfortable	0
Unsettled	1
Restless	2
Hunched or tense	3
Rigid	4

Total Score (i+ii+iii+iv+v+vi) = _____

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Figure 3. Short form of the Glasgow Composite Measure Pain Scale.

species manifests its own unique pain-related behaviours or behavioural disturbances. These are often rooted in the evolutionary process (for example, selection pressures may have ensured prey species do not advertise an increased vulnerability to predators) and so these cannot simply be translated to another species. Consequently, a behaviour-based pain scale for the dog is not directly transferable to the cat, although the methodology used to construct each instrument is generic and can be applied to any species.

Vets and nurses see animals in acute pain every day and so are well placed to interpret acute pain behaviours. Traditionally, acute pain assessment in a veterinary context has relied on the use of simple unidimensional scales such as the simple descriptive scale (SDS), the numerical rating scale (NRS), and the visual analogue scale (VAS; **Figure 2**).

These scales invite the user to record a global score for pain intensity that is purely subjective in nature. Furthermore, when using these subjective scales, the observer's judgement may be affected by factors such as age, gender, personal health and clinical experience. For example, when scoring a dog that has undergone surgery for cruciate ligament repair, a veterinarian who has him or herself undergone similar surgery may be inclined to score the pain more severely than one who has not.

Similarly, several studies have shown that women tend to award higher pain scores than men. Particularly important is the fact that, where more than one observer is involved in assessing acute pain in a single individual (as often happens in a busy clinical setting), the use of a proxy rater inevitably introduces some degree of inter-observer variability that should be considered when interpreting results. The aim of instrument developers is to minimise the potential for inter-observer variability, although this cannot be ruled out completely.

Glasgow Composite Measure Pain Scale

In an attempt to address the shortcomings of these simple unidimensional scales, behavioural disturbances have been used to develop a range of "composite" instruments, such as the short form of the Glasgow Composite Measure Pain Scale (CMPS-SF; **Figure 3**).

Constructed using psychometric methods to ensure its validity and reliability, this instrument was designed to take account of the multidimensional nature of pain and to be more objective and, thus,

> "Vets and nurses see animals in acute pain every day and so are well placed to interpret acute pain behaviours"

more reliable than the SDS, NRS and VAS. Furthermore, when used before and after analgesic administration it has been shown to be responsive to clinical change, whereby the pain scores mirrored whether the dog's pain had improved, remained unchanged or worsened, according to veterinary clinical opinion.

In clinical veterinary practice, the usefulness of a pain assessment instrument is markedly enhanced if the score can be linked to an intervention level that is informative as to whether an animal requires analgesic treatment. Additionally, to

facilitate its use in a busy practice environment, such an instrument should be short, simple to use and quick to complete.

The CMPS-SF can be applied quickly and reliably in a clinical setting and has been designed as a clinical decision-making tool, developed for dogs in acute pain. It includes 30 descriptor options within six behavioural categories, including mobility. Within each category, the descriptors are ranked numerically according to their associated pain severity and the person carrying out the assessment chooses the descriptor within each category that best fits a dog's behaviour/condition.

It is important to carry out the assessment procedure closely, as described on the questionnaire. The pain score is the sum of the rank scores. The maximum score for the six categories is 24 or 20 if mobility is impossible to assess. The total CMPS-SF score is a useful indicator of analgesic requirement and the recommended analgesic intervention level is 6/24 or 5/20. The scale is intended to be used as an adjunct to clinical judgement; no animal should be denied analgesic on the basis of the scores alone.

In common with all behaviour-based pain scales used in the postoperative period, scores obtained with the CMPS-SF can be affected by the hangover effect of sedative and anaesthetic drugs. Accordingly, the scale should be used only once dogs have recovered sufficiently from the effects of these drugs to be fully conscious and ambulatory without assistance (except in cases where mobility is contraindicated).

A general rule of thumb is to wait two hours after endotracheal extubation but, as with all things medical, each case should be considered individually. Because the protocol involves interaction with the patient – including palpation around the surgical wound and a mobility assessment (unless contraindicated) – the assessment should not be carried out more frequently than hourly in the early postoperative period to avoid unnecessary stress to the animal and to limit the deleterious effect frequent disturbance might have on subsequent measurements.

The following is a suggested assessment plan for dogs in postoperative care, using the CMPS-SF.

- Evaluate pain once the dog has recovered sufficiently from anaesthesia.
- If pain scores are greater than 5/20 or 6/24, consider giving analgesia.
- Reassess in one hour to allow the analgesic to take effect.
- If scores have decreased to below the intervention level, reassess in two hours. If not, consider additional analgesia.

Thereafter, assess every three to four hours or earlier as appropriate (this will be influenced by the severity of the surgical procedure and the class/route of administration/expected duration of analgesic administered) and after each analgesic administration. ■

Key points

Uncontrolled postoperative pain may lead to delayed healing, increased morbidity and the risk of developing chronic persistent pain that is very difficult to treat – therefore, "prevention is better than cure".

To be effective, postoperative pain management must include properly conducted pain assessment carried out routinely and regularly throughout the postoperative period, as well as before and after analgesic administration, to assess its effect.

Simple unidimensional scales (SDS, NRS, VAS) are not optimum for measuring acute postoperative pain in the dog.

The Glasgow CMPS-SF is a valid, reliable instrument to measure acute pain in the dog that has been shown to be responsive to clinical change after administration of analgesic. It is a practical, decision-making tool and the provision of analgesia should be considered when the pain score is 6/24 or 5/20 if mobility is impossible to assess.

The following points should be noted when using the CMPS-SF.

- The examination protocol should be followed exactly as described in the questionnaire.
- The first assessment is recommended at two hours postendotracheal extubation or earlier if an animal is deemed to have recovered sufficiently from the effects of sedative and anaesthetic drugs to be fully conscious and ambulatory without assistance (except in cases where mobility is contraindicated).
- In the immediate postoperative period, assessments should not be carried out more frequently than hourly.

Further reading

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Jo Webster
VN

Jo started work at Stowe Veterinary Group, a large mixed practice, straight after school and has been working as a nurse for more than 20 years. She qualified as a VN in 1996 and for the past 10 years has been head of nursing. As well as managing a large team of nurses, Jo's enthusiasm for general nursing continues, and she has been heavily involved in vet nurse training for several years.

Jo has a large menagerie including horses, chickens, sheep, cats and dogs. She lives with her husband, a partner at the practice, and two daughters. Her hobbies include horse riding, walking, cycling and nature watching.

Getting started with VN clinics

THE rewards from running nurse clinics are many and varied so getting the basics right when setting them up will ensure clients, pets, bosses and of course nurses themselves feel the benefits and help drive the practice forward.

WELL-run nurse clinics are an integral part of modern veterinary practice, beneficial both to clients and their pets, as well as being extremely rewarding for the nurses involved. Clients will be familiar with the increased importance of nurses in front line human healthcare and will expect veterinary nurses to have an active role in the healthcare of their pets.

Practice benefits

Nurse clinics offer many potential benefits for the practice. The time clients spend with trained, knowledgeable nurses improves client education and will lead to improved preventive healthcare. Involving nurses in general health checks, where they can work with the vets as a team, will improve the quality of service offered by ensuring each patient gets a thorough clinical exam, weight check, and any advice as necessary.

Veterinary nurses can get involved in the treatment and management of chronic diseases, such as diabetes, obesity and thyroid disease, and assist with wound management. Nurses may be able to spend more time with a client in a less pressured environment allowing the clients to feel more relaxed about asking questions. This will increase the perceived value of the visit and client-practice bonding will be improved.

Nurse clinics provide an opportunity to promote beneficial products and increase retail sales and, hopefully, encourage return visits for further purchases.

Running clinics is an excellent use of nurses' skills, enabling patient and client contact, which many nurses really enjoy. It is a great opportunity to use VNs' knowledge and experience to promote better patient healthcare as well as increase the range of services offered by a practice.

If a practice is able to run clinics throughout the day, or have a nurse station in the waiting room, receptionists can seek assistance when needed or refer cases directly to the nurse clinics, freeing up their time and reducing reception desk congestion.

What to consider

A suitable room must be selected and timing of clinics must be carefully considered. The room can then be suitably equipped and made a little less clinical than the vets' rooms. Ideally, nurse clinics can be run alongside veterinary consults, but this will depend on your practice's room availability. If space is limited, nurse clinic times must be planned for when a consult room is free and staff are available. The time allocation for each clinic must be considered carefully and agreed on so that appointments can be pre-booked. For example, a puppy check may take 20 minutes, but a post-op check may only need 10 minutes. The time allowed is very important and all staff will need to be aware of this when booking appointments. In larger practices, there could be a dedicated clinic nurse working each day and a rota may be required. It is important to give some thought to who will run each clinic – ensure each nurse is motivated, enthusiastic and has appropriate training and experience. CPD can

> "Clients will expect nurses to have an active role in the healthcare of their pets"

The time clients spend with trained, knowledgeable nurses improves client education and will lead to improved preventive healthcare.

NURSING

Nurse clinics offer a great way to use VNs' knowledge and experience to promote better patient healthcare and bond owners to a practice.

be provided by the practice to ensure clinic nurses are knowledgeable, trained and provide consistent advice.

Pricing of clinics must be decided by the individual practice, and senior staff should be consulted and an agreement made. It is important that a price list for the commonly performed tasks is established to facilitate consistent charging to clients.

There is a huge range of clinics that may be set up and run by nurses. Some ideas are listed below.

- Dog/cat/rabbit annual health check
- New pet/new patient health check
- Junior/six-month dog/cat health check
- Senior dog/cat health check
- Puppy/kitten check
- Dental clinics/post-dental checks
- Worming clinics
- Flea treatment clinics
- Tick removal
- Anal gland evacuation
- Nail clipping
- Microchipping
- Dematting cats
- Rabbit bottom clipping/cleaning
- Pre-neutering checks
- Weight check/obesity management
- Blood pressure measurement
- Diabetes clinics
- Bandage/dressing changes
- Post-surgery checks
- Removal of sutures
- Removal of drains
- Repeat prescription checks (with vet)
- Admission/pre-operation checks
- Discharge/post-operation advice
- Nutrition clinics
- Breeding advice
- Ear cleaning/treatment
- Administration of medication
- Sexing of kittens, rabbits, other species
- Physiotherapy
- Behaviour advice
- Blood sampling

Some of these clinics will require specialist training, but most can be done by any suitably trained and qualified nurse. It really depends on your practice and the ability of the nurse(s) who will be involved. Some clinics – such as repeat prescription checks and annual health checks – will need to run alongside the vets' consultations.

Nurses can play a significant role in the health checks, such as through weighing and recording, discussing progress and listening to owners' concerns, blood sampling and so on. Many clinics may run independently of a vet, and the nurse will only need to seek assistance from the vet if further action is required – such as with a non-healing wound, possible infection or if there are signs of deterioration.

When a patient is presented to a nurse in a clinic with possible disease signs, he or she must always be careful not to diagnose a condition; this can only be carried out by a veterinary surgeon.

Marketing and promotion

It is very important your nurse clinics are promoted by the practice and that all vets, nurses and receptionists are supportive of the clinic team. This will make it easier to "sell" your clinics to clients. They can be promoted in-house, such as by booking follow-up appointments for removal of sutures, wound checks and bandage changes.

When a client phones to make an appointment for a new pet/puppy/kitten/annual health or senior check, an appointment may be made with the nurse either just before or just after the appointment with the vet. The nurse can then discuss preventive healthcare matters with the client. It is important the vet knows what the nurse will be checking and discussing to avoid repetition, so good communication is essential.

A good health check form is required to record all matters discussed, and the nurse should write up accurate notes on the patient's record. This will allow the vet to use his or her time for a thorough clinical exam.

The practice may also choose to promote nurse clinics via posters in the waiting room, on the practice website, in the practice newsletter, through mail shots, emails, social media, or fliers put into prescription bags. There are many ways to advertise, but the best way to get people signed up is word of mouth. Happy clients will tell their friends and will hopefully keep coming back.

Well-run clinics can quickly become very popular, with many clients ringing up requesting to book in appointments with the nurses. Clients will soon become familiar with the combined vet and nurse annual health check and expect it as part of the high level of service provided by your practice. ■

Equipment list

- Examination table
- Good lighting
- Computer terminal
- Towels
- Clippers
- Nail clippers
- Microchips and reader
- Scissors
- Tick removers
- Flea comb
- Brushes
- Literature
- Bandage materials
- Flea treatment products
- Worming treatment
- Relevant health check forms
- Puppy/kitten packs
- Anatomical models, such as skeleton, teeth, heart
- Specimen jars – for example, intestinal parasites
- Dental care products
- Cotton wool
- Handwashing/disinfection products
- Dog and cat treats

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Hidden dangers of ethylene glycol

ETHYLENE glycol is found in vehicle antifreeze, some vehicle screen washes and de-icers. It is very toxic to domestic animals, particularly cats. It is said to be sweet-tasting and is perhaps palatable. However, it rarely causes serious effects in children, and many products have bittering agents added to them. What is not clear is whether cats and dogs are attracted to antifreeze or deterred by the bittering agents used.

Jane Ellison
BSc (Hons)

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

MOST antifreeze is more or less pure ethylene glycol; some ready-to-use radiator top-up fluids are approximately 50 per cent pure. Most car engines will have around 50 per cent antifreeze in their cooling system. It follows that both the neat product and run-off or drained antifreeze is a danger to pets.

Whatever the taste, only a few millilitres could cause serious toxicity and death in cats, and not much more will have the same effect in dogs. The often-quoted lethal dose in cats is around 1g (or 1ml)/kg – effectively any amount. For dogs it might be somewhat more and we recommend intervention for more than 2ml/kg of undiluted product.

Ethylene glycol itself is not the major toxicant. The parent compound is metabolised by alcohol dehydrogenase to form glycoaldehyde, which is then metabolised to glycolic acid, responsible for the acidosis seen with these poisonings. Oxalate, a metabolite of glycolic acid, causes renal damage and hypocalcaemia by binding to calcium to form calcium oxalate. Calcium oxalate crystals appear in the urine of poisoned animals – a useful diagnostic aid as the crystals may be visible in urine samples when left to stand. Aldehydes produced may inhibit oxidative phosphorylation and respiration.

Treatment of ethylene glycol ingestion is aimed at blocking the formation of these toxic metabolites and, therefore, the longer the delay between ingestion and treatment initiation the less favourable the prognosis. Cats that present late after exposure and are already unwell (where ingestion is not witnessed) may have a poor prognosis. Once renal damage has occurred the outcome is likely to be very poor and at this stage antidotal treatment is of limited or no benefit.

Ethanol is an antidote to ethylene glycol poisoning as it is the preferred substrate for alcohol dehydrogenase. Metabolism of ethylene glycol is blocked by administration of ethanol and is excreted as the parent compound with very limited toxic metabolites. Ethanol should be considered in any symptomatic case presenting within 24 hours of supposed ingestion; the sooner the better. There is no point giving ethanol to block ethylene glycol metabolism if it has already been metabolised. Ethanol should not be given to an animal in renal failure as it is unlikely to be effective and may be detrimental.

Fomepizole (4-methylpyrazole or 4-MP) is another direct inhibitor of alcohol dehydrogenase; this antidote is often used in human poisonings due to limited adverse effects and a slower elimination. Clinical reports suggest fomepizole is successful in treating ethylene glycol toxicity in dogs and recent evidence suggests in cats also. However, fomepizole is not widely available, even for human poisonings, and is very expensive.

While the severity of poisoning from ethylene glycol cannot be underestimated, and the fatality rate is high – especially in cats – aggressive treatment as early as possible (of which the above is only a summary and partial) can be successful.

Be aware of cats presenting with a history of potential antifreeze exposure (or where there may have been an "outbreak" of such poisonings locally) that have central nervous system signs (due early on to unmetabolised ethylene glycol), including depression, vomiting, ataxia, tachycardia and weakness. They may also have polyuria, polydipsia, dehydration, tachypnoea, acidosis and hypothermia. ■

Ethanol treatment

- Ethanol is available as medicinal, pharmaceutical-grade injectable material and is the preferred treatment. However, it is not widely held by veterinary practices.
- Vodka is widely available, if not actually held by veterinary practices.
- Oral use – it is possible to give ethanol orally; however, the disadvantage is that animals are often already unwell and even diluted vodka may induce vomiting.
- A constant-rate infusion is preferred (to achieve more consistent ethanol levels high enough to block metabolism of ethylene glycol, but not so high as to cause toxicity) and if there is no IV ethanol available then IV vodka may be used.

For advice in handling specific cases of ethylene glycol poisoning, or any other animal poisoning case, readers may contact the VPIS on 020 7188 0200.

POISONS

Wendy Sneddon
VN, MSc, FInstLM

Wendy has worked in the veterinary profession since 1989, from student veterinary nurse to lecturer in veterinary nursing, and into practice management. Wendy completed an MSc in 2008 and is a Fellow of the Institute of Leadership and Management. Wendy manages 12 practices for White Cross Vets and is secretary of the Links Group.

COMMENT

Linking together to help victims of domestic abuse

DOMESTIC abuse affects one in four women in the UK during their lifetime; it also affects men although it is thought to a lesser extent. Animals, large and small, are often the silent victims of domestic abuse. Harm, or the threat of it, is often used to coerce or threaten human victims or to prevent them from leaving an abusive relationship. Such is the bond between humans and their animals that many victims will not leave because they fear their pet will be harmed or killed if they do. And this has been the fate of many such animals over the years.

THE Links Group has long recognised the connection between human and animal abuse. Medics against Violence, in partnership with the Scottish Violence Reduction Unit, have also been working for several years to raise awareness among health professionals about domestic abuse. These groups, along with Dogs Trust, OneKind and Crimestoppers, came together to create the Domestic Abuse Veterinary Initiative (DAVI). The second course run by DAVI took place in Stirling in September. The audience included practising vets and veterinary nurses as well as representatives from the Scottish Government, the University of Glasgow, Police Scotland and the Animal Welfare Fund.

Speaking at the meeting, Christine Goodall, director of Medics against Violence, said: "All health professionals need an awareness of the impact of domestic abuse on individuals and society. Many don't realise domestic abuse is primarily about exerting control over every aspect of a victim's life. Sadly, all too often, animals get caught up in this and are seriously injured or killed. Health professionals, like vets, should not underestimate the trust placed in them and the potential they have to help both human and animal victims of abuse."

DAVI raises awareness of the impact of domestic abuse on family members and teaches the veterinary team to recognise the signs of abuse in both animals and humans. It outlines a straightforward way to approach the issue with an owner using the ask, validate, document, refer (AVDR) system. AVDR was developed in the US by Barbara Gerbert for use by dentists, but is applicable across many areas of the health sector as well as the veterinary profession. It provides the words to allow health professionals to raise this difficult subject and offer simple and, most importantly, safe help to victims in the form of signposting them to one of the organisations dealing with domestic abuse.

> "Health professionals, like vets, should not underestimate the trust placed in them and the potential they have to help both human and animal victims of abuse"

Commenting on the role of the veterinary team, Paula Boyden, veterinary director of Dogs Trust, said: "Vets and members of the practice team are not expected to diagnose abuse, merely to report their concerns accordingly. Identification of non-accidental injury (NAI) in animals has been taught at six of the seven UK vet schools over the past few years. The collaboration with Medics against Violence is pivotal in taking this important issue to a wider audience."

For the veterinary team – who may be dealing with two victims – DAVI also offers advice on how to best access help for the animal. The course also offers advice both on the legal aspects of dealing with animal abuse – from note taking to appearing in court – as well as advice on the professional responsibilities of the veterinary team.

Seeking help

DI Linda Borland of the Scottish Violence Reduction Unit, explained why it often takes victims so long to speak out or seek help. She said: "We know that it takes up to 35 incidents of violence before a victim will seek help, and up to six attempts by a victim to leave the abusive situation before they finally do. One of the things that often prevents a victim leaving is worry about their animals who they can't take with them to a shelter. It is vital that we raise awareness of this issue with the veterinary profession so that victims have more places to turn to for help."

After the course, Freda Scot-Park, chair of the Links Group, said: "Following the course, many delegates expressed their appreciation of the range of topics covered. Although the topic is not a happy one, most people felt that they were better prepared to deal with cases of abuse – animal and human – at the end of the day. I am certainly very pleased that the liaison between Medics against Violence and the Links Group is providing practical help to the veterinary team." ■

For more information about DAVI, visit www.medicsagainstviolence.co.uk/content/domestic-abuse-veterinary-initiative where you may download materials on this topic.

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CONFUSION REVEALED OVER HORSE PASSPORT SITUATION

AN ANONYMOUS survey of BEVA members revealed 84 per cent of respondents found the horse passport regulations difficult to understand and adhere to.

Following the horse meat scandal, the survey aimed to shed light on the value of the current horse passport system.

Findings highlighted problems such as a lack of clarity over the veterinary surgeon's responsibility in relation to the regulations, with only 16 per cent saying they felt they fully understood it.

The main reasons cited as causing issues with compliance of regulations were passports not being presented or carrying incorrect owner details

A third of vets questioned said that in more than 50 per cent of cases, when they asked a client for a patient's passport, they were not presented with a valid document.

The survey also showed 90 per cent of participants felt that, due to non-compliance, the passport system did not prevent unsuitable carcasses entering the food chain – a problem made worse by lack of enforcement, multiple passport issuers and lack of a central database.The results have been used to make Defra aware of the practical challenges faced by vets.

BEVA and Equine Sector Council for Health and Welfare is pushing for changes in the law to address this problem at a national level, in areas such as universal microchipping and a simple central database with cross-border communication.

BEVA past-president Keith Chandler said: "Fundamentally it appears understanding and compliance are poor across the entire equine sector."

BEVA members were polled over their understanding of the horse passport system.

NEW LAMINITIS STUDIES PUBLISHED

FINDINGS of four laminitis research projects have been published by the Laminitis Consortium, a research body established by the WALTHAM Equine Studies Group.

According to the consortium, this work is a step forward in advancing the understanding, prevention and management of laminitis.

One of the four studies, published in *Grass and Forage Science*, looked at the role of grass fructan in the development of the condition.

Researchers found this may be incompletely digested in the foregut, before passing into the hindgut. This may then rapidly ferment, leading to metabolic disorders such as laminitis.

In other research led by Nicola Menzies-Gow at the RVC, regular, low-intensity exercise was found to have a greater anti-inflammatory effect in ponies who had been laminitic previously, compared to non-laminitic ponies.

A third study, which is to be published in the *Veterinary Record*, looked at the role of water temperature when soaking hay in reducing the water-soluble carbohydrate (WSC) content.

Researchers concluded that soaking hay in water at temperatures below 8°C may be less effective in reducing WSC than soaking hay in warmer water.

Finally, research into possible links between recurrent laminitis and reduced anti-inflammatory capacity has been published in the September issue of the *Equine Veterinary Journal*.

Research is continuing into laminitis.

MOST COMMON EQUINE SYNDROMES REVEALED

LAMENESS has been revealed as the most common equine syndrome in the UK, after the findings of The Blue Cross' National Equine Health Survey (NEHS) were released.

After launching in 2010, the survey has become an annual fixture. The number of responses from across the sector rose by 21 per cent this year, compared with responses to the 2012 survey.

Run by The Blue Cross and BEVA, the NEHS gathers information on common health issues in the UK's horses, ponies, donkeys and mules.

The findings from this year showed 18.6 per cent of the horses included in the survey were suffering from lameness – most commonly degenerative joint disease.

This is a five per cent increase compared to the 2012 survey, which found lameness to be the second most common condition after skin disease.

Following lameness and skin disease, the most common issues in 2012 were obesity, back problems and respiratory disease. The results showed a similar prevalence of these conditions in the current survey.

A new question on vaccinations was added into the questionnaire, due to concerns that lapsed vaccinations for influenza and tetanus were on the rise.

The Blue Cross judged that 65 per cent of the horses it took in were either not vaccinated or their vaccination status had lapsed, while pharmaceutical data suggests as few as 45 per cent are vaccinated.

Despite these figures, the NEHS revealed that 95 per cent of the horses involved were up-to-date with both vaccinations.

The data gathered this year will help to establish benchmarks for equine health and disease and will be made available to equine and veterinary colleges and universities, to help determine priorities for future research.

Visit The Blue Cross website to view the NEHS results, www.bluecross.org.uk

NEW ADDITION TO PRZEWALSKI'S HORSE CONSERVATION

SCOTLAND has welcomed the birth of a Przewalski's horse – the latest addition to an endangered species previously extinct in the wild.

It is the first Przewalski's foal to be born in five years at the park, run by the Royal Zoological Society of Scotland.

First-time father, six-year-old Hero, arrived at the park in summer 2012, where he was introduced to mum Jada.

Przewalski's horses were last seen in the wild in 1968, prior to being reintroduced to Mongolia's Hustai National Park in the 1990s. Listed as endangered, there are around 1,500 in captive breeding programmes worldwide.

"Przewalski's horses are one of the best examples of the positive conservation role that good zoos can play," said Douglas Richardson, head of living collections at the park.

"Had it not been for the cooperatively-managed captive population, when the species became extinct in the wild in the late 1960s, there would have been no reintroduction option that has allowed us to snatch a victory from the jaws of defeat."

IN THIS SECTION

BILL TO TACKLE FLY GRAZING IN WALES

THE Welsh Government has announced new legislation to target those who intentionally fly graze their horses, leading equine welfare charities to call for similar steps to be taken in England.

Introduced by Alun Davies, Welsh minister for natural food and resources, the Control of Horses (Wales) Bill will give local authorities equal powers to tackle those who deliberately or negligently permit their horses to graze on land without the permission of the landowner, or "fly graze".

These powers include the ability to seize, impound, return to the owner or, as a last resort, euthanise horses by humane means when they are on land without lawful consent.

The news has been welcomed by UK charities; however, many welfare organisations have highlighted the importance of similar measures being introduced in England to prevent the problem moving across the border.

Roly Owers, chief executive of the World Horse Welfare charity, said: "Of course this isn't the end to the horse crisis problems – its only the beginning – a promising start for Wales, but a more ominous one for England.

"The problems, as we are seeing already, will simply continue to move over the border unless English Government follows suit by putting in place tighter legislation and better enforcement for this country's horses."

RSPCA head of external affairs, David Bowles, said the charity fully supported the decision to introduce legislation. He added: "The RSPCA emphasises the need for better legislation, traceability, education, enforcement, resources for local authorities and sharing best practice.

"We remain committed to these aims and to the resurrection of the national equine database and mandatory microchipping for all horses across England and Wales."

Mr Owers also noted that the Assembly will need to ensure that local authorities have the resources to enforce the new legislation, such as the yards to keep the horses in for seven days after they have been seized, funds to feed them and sufficient people on the ground to carry out enforcement.

Chris Pearce
BVSc, CertEM(IntMed), CertES(SoftTissue), BAEDT, MRCVS

Chris has extensive experience in equine dentistry and was the first vet to pass the BAEDT entry examinations in 2001. He has performed referral work for more than 10 years and lectures widely across Europe. At the start of this year he set up The Equine Dental Clinic Ltd, the UK's first equine dental-only referral practice. Here, he specialises in novel restorative and minimally invasive procedures. Chris runs regular referral clinics at B&W Equine, Donnington Grove and Liphook as well as The Barn in Dorset.

CPD

Routine equine dentistry and the essentials of detecting problems early

A COMBINATION of research from the University of Edinburgh and others, together with development of advanced imaging and equipment, and a willingness to put theory into practice, is leading us into a new era of veterinary dentistry for horses, writes Chris Pearce.

MOST horse owners are aware they need some form of regular maintenance work for their horses' teeth. Historically, this has been based around the "annual rasping", based on the fact that equine teeth develop sharp enamel points that may cause soft-tissue trauma and require periodic reduction, which they often do. However, development of sharp enamel points and their reduction (or, more correctly, odontoplasty) is just one of the wide range of dental problems that can be diagnosed and, increasingly, treated.

Equine veterinary medicine and surgery have developed rapidly in the past 100 years, with some disciplines being close to their human counterparts – regenerative medicine, laparoscopic and arthroscopic surgery to name but a few. Early diagnosis of conditions such as joint disease, tendon injury, and medical conditions such as gastric ulceration and metabolic syndromes has become the norm now through advances in knowledge, diagnostics and client education.

For equine dentistry, however, the first thing an owner may know about their horse's deteriorating dentition is a fractured tooth (**Figure 1**) following years of undiagnosed pathological deterioration. And no, the tooth didn't fracture because the horse chewed on a stone.

A new paradigm

Equine dental pathology is slow to develop. Many cases will take years to progress to a point where clinical signs develop, and even then owners may attribute these to something other than teeth – head-shaking, for example.

Figure 1. This tooth fractured despite the owner being unaware of the advanced state of decay.

Figure 2. A careful clinical oral examination is important to diagnose problems early.

It is likely we are still a long way from fully understanding how horses react to dental pain, especially considering their evolutionary history and pressure to continue to eat to survive. Add to this the anatomical fact that horses' dental arcades are anisognathic, necessitating mastication on one side of the mouth only at a time, and it becomes clearer how horses may disguise pain by altering their eating patterns through development of "shear mouth," for example.

The only way we can change our approach and advance our knowledge is to look, observe and continue to gather an evidence base. The equine oral examination, as with dentistry in other species, is of paramount importance and is the foundation of this modern approach to equine dentistry (**Figure 2**).

If we look carefully, understand the anatomy and pathology, appreciate there may not be any signs yet, but that the horse may be compensating, we can make informed choices about offering potential preventive care. Then the "routine dental" becomes more about a clinical check-up, with the examination and diagnostics being more important than the rasping, but which may as well be done at the same time.

Equine "dentists"

The tradition of unregulated, lay "equine dentists" providing dental services has led to much public misinformation about what constitutes dentistry, and a stalling of the transition from just rasping to veterinary clinical dentistry. The beliefs of such unregulated, unqualified groups are, I believe, based on invalidated and pseudo-scientific theories, and have had a deleterious effect on the development of scientifically validated veterinary dentistry.

Some of these theories may, ultimately, prove to be right, but evidence-based research is lacking. However, the public are led to believe these theories are fact. The result of this is not only misinformation, but also failure to disseminate important veterinary scientific

information on true dental disease. More research is being produced from a variety of European universities on, for example, ultrastructural anatomy and pathology, and the veterinary science is, I believe, overtaking the unfounded theories.

Dental technicians

Services offered by equine dental technicians (EDTs) are likely to be served by a combination of professionals and paraprofessionals. The logical way forward is for each group to understand their roles, and for cases to be passed to the appropriate persons according to the treatment required. Regulated EDT groups, such as the British Association of Equine Dental Technicians (BAEDT), are committed to modern clinical dental science and should not be feared by the profession (or the public) in my view. All qualified BAEDT members should perform thorough oral examinations and refer advanced cases for further diagnostics or treatment and operate in a manner similar to a good farrier-vet relationship.

Equine dental anatomy and pathology

Research has shown the gross and ultrastructural anatomy of horses has several significant differences from other species, but the basic dental tissues (cementum, dentine, pulp) are virtually identical. The response of these tissues to disease is also very similar, and applying basic dental pathological principles to the equine anatomy gives us an understanding of dental disease progression in the horse (**Figure 3**).

Normal occlusal anatomy

The constant eruption of a finite crown and attrition on the occlusal surface means a cross-section of the tooth is seen when viewing the occlusal surface. The pulp recedes slowly to prevent vital occlusal exposure, being replaced by secondary dentine, which is present as glassy, smooth, brown-staining regions. Maxillary cheek teeth also have two cement-filled infundibula (the equivalent of incisor "cups"). These are seen as roughly crescent-shaped, enamel-bordered structures, filled with off-white cementum. Each maxillary tooth has two of these – a rostral and a caudal infundibulum – and each will have a small central defect, which is the remnant of the occlusal vascular supply. This should not be confused with a dentinal/pulp defect. Mandibular teeth do not have infundibula, but have deeply in-folded enamel to increase the abrasive surface area instead.

Image: P Dixon

Figure 3. Long section of maxillary cheek tooth showing pulp horns descending to the occlusal surface. This tooth has an apical abscess but these two pulps appear to be unaffected.

Pulps are numbered according to the system initiated by Dacre (2004) and adapted by DuToit (2009) giving us a common standard system of pulp numbering.

Dental pathology

Some dental disease will result in outward clinical signs, such as facial swelling, dysphagia, nasal discharge, salivation or even poor performance. However, many dental diseases – especially those in the early stages – will show no clinical signs. For example, in cases of pathological dental fracture, the client often describes the problem as sudden onset, due to the displaced fracture fragments traumatising soft tissue resulting in dysphagia. The pulp disease preceding the fracture, which may have taken many years to develop, has gone unnoticed. In some cases, a variety of dental conditions may be present at any one time in a horse's mouth with no apparent outward signs. If a horse has pain on one side of the mouth, he will simply eat on the other side, often for many years. Close inspection, however, will reveal the subtle changes that indicate the developing problems (**Figures 4** and **5**).

Figure 4 (above). This horse has been chewing on the left side (2,3 arcade) for many years, resulting in a shear mouth on the right side (1,4). Figure 5 (below). This severely decayed tooth (410) was removed from the case above. At 16 years old, the dead necrotic apex shows no sign of root formation, likely to have been from around four years of age. A probe is inserted in the open necrotic apex (left), going through to the occlusal opening (right). The occlusal surface is near vertical.

Pulp problems

When pulp death or other insult occurs, for whatever reason, a number of scenarios may arise.

1. Often seen in young patients, the pulp may become severely inflamed and an apical granuloma may develop – commonly referred to as an apical abscess. The inflamed apical pulp may or may not survive this acute insult.
2. If the pulp survives the initial insult, some pulp "horns" within the teeth may become isolated by reactionary reparative dentine, sealing off the apical regions from the insult. These pulp horns will effectively be dead, and will no longer lay down secondary dentine. The result is eventual fissure formation occlusally, influx of food material, and progression of caries.
3. The pulp may die slowly, failing to seal off the insult. Apical disease develops slowly, often in combination with occlusal defects (as above). ▸

Figure 6. Rostral and caudal infundibula are lacking cementum and have food impacted in the cavities with secondary caries.

Figure 7. Early diastema formation from an abnormal interproximal space. Treatment at this stage will prevent problems.

Figure 8. Restorations of infundibula may prevent deterioration of caries and guard against fracture.

Figure 9. Cheek tooth endodontics is still under study but early results are encouraging.

Eventually infection may burst into the sinus, or the teeth may become mechanically unstable due to deep caries and fracture. Thus, most fractures are actually pathological, rather than idiopathic, as they are often described.

Dentinal fissures

Those of us who regularly use dental endoscopes are increasingly identifying minute lesions, such as fissures, cracks or infractions of equine teeth. Complete fractures follow the same planes as many of these lesions; however, very little clinical research has been performed to link these conditions.

Infundibular decay

Some cheek teeth, notably the (maxillary) 09, 06 and 11 have been well documented to have areas – usually apically – devoid of the normal cement "filling" that should be present throughout their length right up to the apical enamel reflection. In teeth that have apical infundibular cemental defects (hypoplasia), these areas will eventually appear as cavities, due to attrition at the occlusal surface. The age at which they appear depends on the size of the defect within the infundibulum. Food material packs into the cavity and the process of caries and tooth destruction starts (**Figure 6**). After years of ingress of food material (substrate for fermenting bacteria), acid destruction of the inside of the tooth may result in lateral spread to dentine, pulp and the apex, or pathological fracture from a saggital midline plane of weakness. Such fractures are not idiopathic, but pathological following years of dental decay – and, again, are not the result of a horse chewing a stone.

Periodontal disease

Periodontal disease may have a number of causes and will progress in variable ways, depending on the anatomical arrangement of the teeth with each other. Displaced teeth, abnormal spacing between teeth and uneven interproximal anatomical spaces are all causes of diastema formation resulting in periodontal disease (**Figure 7**). Even small amounts of food trapped sub-gingivally in periodontal pockets is very painful for horses, and will cause them to adapt their eating patterns to compensate.

Focal overgrowths will develop with the altered mastication, which sets up a vicious cycle of pain, inflammation, overgrowth formation, further food stasis, then more pain, inflammation, and so on. Trapped food causes gingival recession, peripheral cement caries and formation of a "valve" diastema. Other cases with less perfect interproximal junctions may progress more quickly, developing deep, severe periodontal pockets. Once again, horses will adapt their eating patterns to cope with the pain and disguise the problem, so it is up to us to detect the developing disease before the overt clinical signs appear – often when things are really severe.

A good examination

The horse's mouth is not well suited for oral examination. The rostral position of the lip commissures and limited opening of the mouth means a direct view generally will tell us very little about any developing pathology. A thorough routine examination will require sedation, a headstand, good dental speculum, mouthwash with a large dental syringe, a bright head light and dental mirror or, even better, an oral endoscope.

The routine oral and dental examination should be considered a clinical examination and every surface of every tooth, the interproximal spaces, gingival margins and all the soft tissues of the mouth should be systematically examined as routine. Once small lesions are identified, then clients can be given an informed choice about whether they would like to pursue preventative treatment.

Consideration should be given to the mastication and the possibility that there are altered eating patterns to cope with dental pain – this may be obvious in cases such as shear mouth, but another clue is individual focal overgrowths that develop when horses skilfully avoid using specific areas of their mouth.

Preventive treatments

Once lesions are identified, preventive treatments may be as simple as reduction of focal overgrowths using controlled power instrumentation. Taking time to clean out periodontal pockets and flushing with simple disinfectant mouthwashes can be as useful as debriding a wound to aid healing. The periodontium is highly vascular and even contains mesenchymal progenitor cells to aid repair. Other techniques, such as packing, bridging and widening are also useful for longer-term treatment.

Increasingly, more advanced preventive treatments are available, including infundibular restorations with dental composites to provide mechanical stability and prevent caries progression (**Figure 8**). Incisor restorations and root canal procedures are well accepted now, and cheek tooth endodontic procedures are under clinical evaluation, with early reports of success rates up to 85 per cent (**Figure 9**).

The future of equine dentistry is well poised to follow the small animal and human models, where the focus is on examination and preventive care, but this can only be achieved through veterinary education and an understanding that equine teeth are not really all that different. And that horses don't break their teeth by chewing stones. ■

CPD questions

1. These central incisor teeth have occlusal fissures. What is the diagnosis?

A. Vital pulp exposures from recent fracture
B. Normal infundibular opening of the occlusal surface ("cups")
C. Non-vital pulp exposures in the dentine "star" – the teeth are dead
D. Embryological dentine hypoplasia

2. What is a potential cause in this case?

3. What are the occlusal defects present on these teeth?

A Dentine fissures of the number 3 and 4 pulps (non-vital pulp exposures)
B Infundibular vascular remnants – normal openings in the infundibular cementum
C Infundibular cemental hypoplasia
D Primary bacterial cemental caries

4. What structures has this pathological fracture passed through?

A Rostral and caudal infundibula – saggital fracture
B Rostral infundibulum and number 5 pulp
C Caudal infundibulum only
D Rostral infundibulum and number 2 pulp

Answers
1. C **2.** Excessive reduction by power instrumentation or "diamond cut-off wheel" to level the incisor table. It may take years for pulpar exposure to manifest as occlusal defects and apical pulp sepsis. Note the grey discolouration of the crowns of the 301 and 401 teeth **3.** B **4.** D.

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Pregnancy and foaling in the mare: what's normal and what's not

BEFORE a nurse is able to detect when things may be going wrong during an equine pregnancy, a good knowledge of normal parameters and behaviours is required. Marie shares her expert knowledge so nurses may be armed with the facts about foaling.

THIS article is designed to provide information for registered veterinary nurses who are required to monitor a foaling at the practice – for example, if a mare with a history of dystocia is admitted to give birth under supervision. Alternatively, it will also offer information to nurses who own horses and have an interest in equine breeding. Normal foaling processes will be summarised and recognition of complications will be explained.

Preparation for foaling

Mares should be well cared for during pregnancy to ensure the birth of a normal foal (Pycock, 2012). Vaccination and worming history for the mare should be checked. Vaccinating the mare one month before foaling will ensure that colostrum produced will contain the necessary antibodies to provide the foal with a strong immune system (Pycock, 2012).

Strongyloides westeri is a parasite associated with diarrhoea in nursing foals of approximately 10 to 14 days old (Slater, 2001). The major source of infection for the foal is transmammary, by ingestion of larvae in the milk. This may be prevented by administering an ivermectin-based anthelmintic to the dam prior to foaling (Mallicote et al, 2012). Ideally the mare should be moved into the environment in which she will foal six weeks prior to her due date. A foaling box should be provided. The ideal requirements for this are as follows.

- Mares will usually choose to give birth between 11pm and 4am in a quiet environment. A quiet and calm area is essential as oxytocin is released by the dam to initiate labour; however, this release can be blocked by the effects of external stimuli, such as noise (Pycock, 2012). This means the mare can temporarily resist foetal signals for birth if she is not settled in her environment.
- The foaling box should be at least 5mX5m for an average 500kg mare (Pycock, 2012).
- Bedding should be dust-free, preferably comprising high quality straw, which is less likely to stick to the mare or newborn foal during and after parturition.

Figure 1. The mare will usually lie in lateral recumbency for the delivery of the foal. The author's preferred bedding is straw, due to the fact it is less likely to become stuck to the mare or foal.

Monitoring the mare

Mares approaching parturition should have their vital signs monitored regularly and recorded to identify problems quickly. For example, a high temperature could indicate the onset of an infection, which would need prompt treatment to prevent detrimental effects to the mare and the foetus. Normal gestation in the mare is 320 to 365 days, with the average being 341 days (Cable, 2001). As there is such a large window in which the mare could give birth, close monitoring for other physical changes should be implemented to identify indications of impending delivery (Pycock, 2012). These changes include the following.

- Development of the udder (or "bagging up") occurs around two weeks before delivery of the foal. At this point the mare should be moved to the foaling box.
- Swelling and lengthening of the vulva will occur a few

NURSING CPD

days before foaling (Cable, 2001; Pycock, 2012).
- Relaxation of the pelvic ligaments, which will create a sunken appearance on either side of the tail head, will occur a couple of days before foaling (Cable, 2001).
- Appearance of waxy secretions on the teat ends of the udder. This is known as "waxing up" and occurs one to four days prior to foaling (Pycock, 2012).

These indicators are not always reliable in all mares and constant checking of the mare can waste time and cause the mare to delay. Therefore, other more reliable options may include the following.

- Measuring electrolyte concentrations in pre-foaling milk with commercial test kits. When the amount of calcium measured is above 10mmol/l, more than 95 per cent of mares will foal within 24 hours (Ousey, 2002; Pycock, 2012). However, care must be taken not to measure levels too often and waste colostrum.
- Deploying foaling alarms, which are activated by the presence of foetal membranes at the vulva or the mare sweating during the first stage of labour. Disadvantages include the alarms activating too late or not activating at all if the mare does not sweat up (Pycock, 2012).
- Closed-circuit TV can also be used and may be available in veterinary practices.

Horses are fairly unusual when it comes to parturition as, unlike small animals, they are designed to produce only one offspring at a time. However, dystocia is a serious problem in the mare, with a reported incidence of 10.1 per cent (McCue and Ferris, 2011). Dystocia may be caused by malpresentation of the foetus, where the foal is not delivered in the right direction, or gets one leg bent backwards during birth.

Figure 2. Example foaling kit.

Figure 3. Washing kit.

Figure 4. Colostrum kit.

This is more likely to occur in foals compared with other domestic species because of their long limbs and neck (Pycock, 2012). Norton et al (2007) found that every 10-minute increase in second stage labour beyond 30 minutes was associated with a 10 per cent increase in the risk of death of the foal. This is why it is so important to monitor mares closely and try to predict the time of parturition. Assistance can then be given quickly in the event of dystocia, which increases the chances of delivering a live foal.

Parturition

Parturition is the term used to describe the expulsion of the foetus (and membranes) from the uterus through the maternal passages by natural forces (Pycock, 2012). Production of cortisol from the foetal adrenal gland is thought to trigger the process; however, production of oxytocin by the dam must occur for labour to begin. Parturition is divided into three stages in horses, as detailed below.

First stage labour

This stage lasts from one to four hours with the onset of uterine contractions. The foal will manoeuvre itself from lying on its back with its head toward the rear of the mare to lying on its stomach with its head between its forelegs (Cable, 2001). Symptoms of first stage labour in the mare include:

- Becoming restless and exhibiting colic-like signs – flank watching, tail swishing, rolling (Pycock, 2012).
- Exhibiting patchy sweating on flanks and neck.
- Yawning.
- When the cervix is fully dilated the allantoic membrane ruptures and several litres of allantoic fluid will escape from the genital tract. The "waters breaking" indicates the end of first stage labour. Where possible, the mare's tail should be wrapped up and her vulval area cleaned and dried at this stage (Pycock, 2012).

Complications

If the mare goes into first stage labour without showing any other signs of impending parturition or remains uncomfortable for several hours a veterinary surgeon should be informed as the mare may have developed a uterine torsion (Cable, 2001). Uterine rotation of 360° will usually affect the circulation to the uterus, possibly resulting in death of the foetus or damage to the uterus or placenta and therefore must be addressed quickly (Knottenbelt, 2003). Persistent vulval discharge for several days before foaling, and cloudy, foul-smelling fluid when the waters break could indicate an infection of the reproductive tract or the placenta and the vet should be notified immediately (Cable, 2001).

Second stage labour

This stage commences with the onset of forcible abdominal straining or appearance of the amnion, which should be blue/white in colour (Pycock, 2012). Actual delivery of the foal takes place at this stage and the mare will usually lie in lateral recumbency (**Figure 1**). After the appearance of the amnion, the first foetal foot should be visible, followed by the second forefoot and then the nose. The shoulders, chest and hindlegs should then follow (Cable, 2001).

The foal has a relatively long umbilical cord that is still intact after delivery and should be left as such for at least 10 minutes to help the circulation of the newborn foal (Pycock, 2012). At this stage it is important not to disturb the mare and foal even though it is very tempting to go in to greet the new arrival. The cord will usually rupture when the mare rises to stand about 15 minutes after delivery of the foal. It is important to check the umbilical stump on the foal and disinfect it with dilute chlorhexidine or povidone-iodine to prevent any ascending infection reaching the abdomen (Pycock, 2012).

Complications

It is possible that during labour the waters do not break and, instead of the blue/white coloured amnion ▸

Figure 5. A knowledge of what's normal is essential to be able to detect problems early.

presenting first, a red, velvety membrane protrudes. This is known as a "red bag" delivery and is a serious emergency. The foal will be deprived of oxygen, due to premature separation of the placenta, since the chorioallantois has failed to rupture (Cable, 2001). The red bag needs to be ruptured carefully and the foal delivered as soon as possible. Always have a pair of curved scissors handy to do this and inform the vet immediately.

If the delivery is proceeding as normal, but any of the following are noted, it could indicate complications.

- The foal's soles are in an upward position.
- More than two feet are presenting.
- The front feet are presented without a nose.
- A lot of time has passed without the feet being seen.

Any of the above could be a sign that dystocia has occurred. The mare will need assistance with delivery of the foal and the vet should be informed immediately (Cable, 2001).

Third stage labour

Passage of the foetal membranes should occur within one hour of birth on average, but should not take more than two hours (Pycock, 2012). The placenta should initially be tied up so it hangs just above the hocks. This should prevent it being stepped on and pulled out before it is passed naturally (Cable, 2001).

Complications

If the placenta is not passed within three hours a vet should be contacted. A retained placenta left untreated may lead to metritis and subsequent laminitis (Cable, 2001). This could lead to loss of the mare and an orphan foal, which should be avoided at all costs. If the placenta is passed normally it should still be examined by a vet to check it is intact and that no fragments remain inside the mare.

The newborn foal

If you are attending a foaling you should have prior knowledge of normal newborn foal behaviour to enable you to identify any abnormalities. Unlike small animals, foals are born precocious, with their ears and eyes open and functioning from birth. The newborn foal should stand within one to two hours of birth and suckle within three hours. If the foal is not making attempts to stand or nurse, a vet should be contacted to carry out a full clinical examination.

Foals are born agammaglobulinaemic (without circulating antibodies) and therefore are totally dependent on ingestion and absorption of colostral immunoglobulins (Stoneham, 2012). It is therefore essential that the foal is observed suckling from the mare, ideally within the first 12 hours of life, as after this period the foal's ability to absorb immunoglobulins starts to decline (Stoneham, 2012).

Equally as important is observation of the mare before birth to make sure she is not prematurely lactating ("running milk") as the colostrum will be lost. If the mare is found to do this the colostrum can be milked off and frozen until the foal is born. The colostrum can then be thawed out and either bucket fed to the foal or administered via naso-gastric tube.

Tips for foal watch

If you are monitoring a mare for foaling at the practice it is always useful to have a foaling kit made up (**Figure 2**) so when the time comes you will have everything you need close at hand. The kit should contain the following items.

- Stethoscope and thermometer for obtaining regular clinical parameters.
- Tail bandage, sponge, bucket and towel for tying the tail up and washing the vulval area of the mare at the end of the first stage of labour (**Figure 3**).
- Gauze bandage to tie up the placenta.
- Obstetric lubricant for use by the vet in the event of a dystocia.
- Rectal gloves and sterile gloves.
- Three calving ropes for use in the event of a dystocia. Each should be a different colour – one for the head and one for each leg.
- Curved scissors in case of a "red bag" delivery. Obviously these must be used with extreme care when rupturing the allantochorion to avoid injury to the foetus inside.
- A bottle of hand disinfectant gel and paper towel – for hand hygiene, which is especially important when handling the newborn, agammaglobulinaemic foal.
- Dilute chlorhexidine or povidone-iodine in a clean container or made up into a spray to coat the foal's umbilical stump after birth.
- Sterile bowl, nasogastric tube, funnel and jug for administering colostrum if necessary (**Figure 4**). These items may be sterilised with ethylene oxide if available.

Key points

- RVNs play a pivotal role in the foaling process.
- Knowledge of the normal foaling process is necessary for abnormalities to be identified and dealt with correctly.
- Close monitoring is essential to try to identify when the mare is likely to foal. Monitoring techniques include observing for specific physical signs, monitoring the calcium concentration of colostrum, and the use of foaling alarms and CCTV.
- There are three stages of labour in the mare and identification of each stage is important to ensure it proceeds as expected.
- Dystocia due to malpresentation of the foetus is common in horses due to their long limbs and neck. It is essential to act quickly to assist the mare in these situations to increase the chance of delivering a live foal.
- The mare should be observed to ensure that she passes the placenta in its entirety and, if this does not occur within three hours, veterinary assistance should be sought.
- The foal should be observed for normal behaviour and to ensure an adequate amount of colostrum is ingested within the first 12 hours of life.

Conclusions

RVNs play a vital role in monitoring and assisting with the normal foaling process. Knowledge of normal foaling processes is essential if abnormalities are to be identified and dealt with correctly (**Figure 5**). Prompt action is essential if dystocia occurs to increase the chance of delivering a live foal and to reduce the risk of complications for the mare. Monitoring should continue after the foal has been delivered, ensuring the foal is behaving normally and has ingested colostrum successfully. Monitoring this whole process is fascinating and rewarding, especially when the end result is a healthy foal as these are incredibly endearing equine patients to nurse. ■

Part 2 of this article, covering the newborn foal, will be published in the next issue of Veterinary Practice Today (2.1; Spring 2014).

CPD questions

1. What is the normal gestation length in the mare?

2. Which parasite is of particular concern to the neonatal foal if the mare has no worming history?

3. How is this parasite transferred to the foal and how may it be prevented?

4. What size should a foaling box be for an average 500kg mare?

5. What bedding should be used in a foaling box and why?

6. How many offspring should a mare produce per gestation?

7. Name three physical symptoms that a mare is preparing to give birth.

8. Name three methods of monitoring for signs of impending parturition other than observing physical changes.

9. How many stages of labour are there in the horse?

10. During which stage of labour does the actual birth of the foal occur?

11. During a normal birth, what colour should the membranes (amnion) be when seen protruding from the mare?

12. What action should you take if you observe a "red bag" delivery?

13. How long should you leave it before alerting a vet in the case of a mare with a retained placenta?

14. Why is general hygiene such a serious consideration when dealing with newborn foals?

15. Name five things you should include in a foaling kit.

Answers

1. 320-365 days; the average is 341 days **2.** Strongyloides westeri **3.** The major source of infection with Strongyloides westeri for the foal is transmammary, by ingestion of larvae. This can be prevented by administering an ivermectin-based anthelmintic to the dam prior to foaling **4.** 5mX5m **5.** Straw, because it does not tend to stick to the newborn foal and mare after foaling **6.** One. Twinning is a common cause of abortion in mares **7.** Development of the udder or "bagging up", relaxation of the pelvic ligaments, swelling of the vulva and waxy secretions on the teat ends of the udder **8.** Testing calcium levels in colostrum, foaling alarms, and CCTV **9.** Three **10.** The foal is actually expelled from the mare during the second stage of labour **11.** Blue/white **12.** Rupture the allantochorion as soon as possible taking great care not to injure the foal and inform the vet immediately **13.** Three hours maximum **14.** Foals are born agammaglobulinaemic and are therefore very susceptible to infection in the first few days of life **15.** Stethoscope and thermometer, tail bandage, sponge, bucket and towel, gauze bandage, obstetric lubricant, rectal gloves and sterile gloves, three calving ropes, scissors, a bottle of hand disinfectant gel and paper towel, chlorhexidine in a sample pot or made up in a spray, sterile bowl, nasogastric tube, funnel and jug.

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LIVESTOCK HEALTH RESEARCH RECEIVES £4M FUNDING BOOST

SEVEN research projects have received a total of £4 million funding to help improve the health of farmed animals in the UK.

Projects include work to tackle costly livestock diseases, create new vaccines, examine immune system reactions and breed healthier animals

Funding has been awarded by the Biotechnology and Biological Sciences Research Council's Animal Health Research Club (ARC).

These grants represent the first of two rounds of funding from the ARC, which is to offer £9.5 million in total to UK research projects.

The first projects will take place over the next three years at a range of key institutions, including the Roslin Institute, the RVC, Scotland's Rural College and the Pirbright Institute

One study will look at identifying proteins scientists believe may protect against avian influenza, while another aims to develop genomic predictors of bovine TB infection, which could be used to breed resistant cattle.

Celia Caulcott, director at BBSRC, said: "Livestock diseases cost UK farmers and the wider economy millions of pounds a year, pose welfare problems for farmed animals and negatively affect food security.

"By funding studies that take a broad look at some of the most prevalent and costly livestock diseases, ARC will be able to deliver results to benefit farmers, animals and consumers."

One study will look at proteins scientists believe may protect against avian influenza.

CONSULTATION LAUNCHED INTO ASSURANCE SCHEME FOR HALAL SHEEP MEAT PRODUCTION

AN INDUSTRY consultation into standards and product labelling for Halal slaughtered sheep meat has been launched.

EBLEX proposes to introduce assurance standards for Halal slaughtered sheep meat (both stun and non-stun) and, to ensure these standards are fit for purpose, it has developed a draft proposal, which is the basis for the consultation.

The proposal was presented to halal operators at EBLEX's first Halal Forum, held in Warwickshire in October, which marked the launch of the consultation process. EBLEX will review all responses before formally launching its Halal Standard Marks.

The draft document states: "Products approved and accredited to use EBLEX's Halal Standard Mark would be processed through a fully assured supply chain. However, it is proposed the farm assurance element would not be mandatory at the initial launch, but added at a later date. Where sheep are farm assured and stunned, the products can be secondarily labelled as Red Tractor in addition to Halal Assured."

Two Halal standard marks are proposed: one for "pre-stunned animals using stipulated and approved stun-recoverable methods objectively tested and transparent to the market place; and one for "non-stunned animals using the best practice of slaughter without stunning".

The wording "stun/non stun" will not be used in the primary branding of either mark but detailed in sub-branding enabling consumers to get the additional information they require on the actual process, the consultation proposes.

During the Halal Forum a poll of suppliers was carried out to gauge opinions on the use of such a scheme. Responses indicated up to 95 per cent of the sector's suppliers would use it.

"While the polling will not form part of the consultation, it gave a very clear message that the Halal sector wants an assurance scheme, is keen to get behind one that is workable and wants to help consumers make informed choices," said Nick Allen, EBLEX sector director, who chaired the event in Warwickshire.

"Not only will it help demonstrate high standards in processing for Halal sheep meat, but is also about giving consumers choice about what they are buying and a level of transparency that it has been suggested is currently missing," he added.

EBLEX chairman John Cross emphasised the importance of getting the message right and involving the industry.

"This cannot happen without input from the sector, where we know there is a diverse range of views. England has a diverse population and as an organisation we need to respect and support that where we can.

"I would urge everyone with a vested interest to get involved in the consultation on the proposed Halal assurance scheme," he said.

The consultation runs until January 14, 2013 and can be found at www.eblextrade.co.uk/halal

DAIRY INSPECTIONS: FROM FIVE DAYS TO FIVE MINUTES

THE Food Standards Agency (FSA) has begun using digital writing technology rather than laptops for dairy farm inspections, as part of a drive to streamline processes and reduce costs.

FSA inspectors carry out dairy hygiene visits to 3,000 farms in the UK per year.

The FSA said it wanted to address particular challenges within the system, such as the length of time taken to complete the process (around five days per farm inspected), data duplication and the fact that the inspection team had to carry laptops and forms.

David Brown, reporting and interface manager at the FSA, said: "Our process of gathering information from farmers was time consuming and often the farmer had to wait a number of days before receiving a copy of his forms.

"We wanted to implement a system that would allow us to transmit information from the field without duplicating data, and leave farmers with their copy of the form as opposed to posting it."

After reviewing the use of laptops and tablet devices for inspections, Mr Brown said: "We were up against the same problem that we could not leave a copy for the farm without providing printers for the inspectors, which would have increased our CAPEX and OPEX costs."

As a result, Anoto digital writing technology has been implemented. Anoto Group AB offers digital writing solutions to transmit handwriting into a digital format.

Mr Brown said the new technology has replaced the use of laptops in FSA dairy farm inspections, streamlining the process, which now reportedly takes five minutes per farm as opposed to five days.

Dairy farm inspections have been streamlined.

IN THIS SECTION

IN BRIEF

LONDON Vet Show introduced farm animal streams for the first time this year, included in the BVA programme.

Amusingly titled topics included The sheep consult: what to do when it's just ewe and me, Recharging the battery hen, and Ration-al farm nutrition: it's easy if you "concentrate".

LVS took place from November 21-22 at London Olympia.

HARROGATE will play host to the next International Sheep Veterinary Conference.

The ISVC takes place every four years, with the last one taking place in New Zealand. Organisers estimate it to be worth £500,000 to the local economy as delegates book hotel rooms and spend money with local businesses.

The ISVC will take place at the Harrogate International Centre in May 2017.

Owen Atkinson
BVSc, DCHP, MRCVS

Owen has worked in farm animal practice since 1994, mainly with dairy cows. He began his professional life in north Yorkshire, before moving to the University of Liverpool to teach farm animal veterinary practice, and then to Wrexham. He settled in Cheshire with his family, where he became a partner in farm-only vet practice, Lambert, Leonard and May, part of XLVets. Owen's interests in rumen health, cattle foot care and lameness reduction led him to do an increasing amount of training and advisory work.

In 2009, Owen was awarded a Trehane Trust/Nuffield travel scholarship to look into the role of the dairy vet in knowledge transfer. In 2013, Owen left the practice to found Dairy Veterinary Consultancy Ltd, to better pursue his vision for preventive health management and strategy. He works with dairy farmers, other vet practitioners and the wider dairy industry and supply chain. Owen's goal is to help farmers make changes on their farms that benefit the cows, their quality of life and the bank balance!

CPD

Subacute ruminal acidosis in dairy cows: a rethink

WE'VE all heard of SARA (subacute ruminal acidosis) in dairy cows – the term crops up regularly, whether discussing weight loss after calving, poor fertility, lameness, loose faeces, or simply swishing tails. But what is it, how prevalent is it, and is it time for a rethink? SARA is often the default diagnosis, favoured by everyone from vets to nutritionists, to any passing salesman looking over a feed barrier at a herd of dirty-looking, thin, lame cows.

A GOOGLE search will turn up 25,000 results for subacute ruminal acidosis; there is no shortage of written material on the subject. And yet what do we really know? A few years ago, I became interested in investigating rumen health. Within the practice, we developed a rumen health/nutritional monitoring service. We soon built up a substantial amount of data from cows – including rumen pH, faecal characteristics, condition scores and rumen fill scores. This led me to collect data in a more standardised way to investigate the prevalence and clinical indicators of SARA in dairy cows, and write up the findings (Atkinson, 2013).

Conducting an initial literature search, it became apparent that SARA is a can of worms. There are some excellent reviews of SARA (Kleen, 2003; Enemark, 2008), but the underlying evidence base from which material is derived is startlingly thin. Studies are generally of two types:

1. Small numbers of cows, usually with rumen fistulas, used to experimentally induce acidosis. These studies have been used to model both the effects of SARA and its causes; and
2. Field studies, usually involving collection of rumen fluid, and measurement of rumen pH and perhaps some other parameters.

Some widespread dogmas – such as SARA causes lameness, or loose dung – simply have no evidence base. Even the presumption that SARA causes milk fat depression should not be taken for granted, as explained later.

Which 25 per cent of these cows may have SARA?

Definition of SARA

SARA is generally described as a drop in ruminal pH to non-physiological levels. It is differentiated from acute acidosis by its transient character and the limited pH drop. So how low is too low?

The most commonly used threshold is a pH of 5.5 – that is, rumen fluid with pH 5.5 or below is said to be indicative of SARA. There are two reasons why this value is used, as follows:

1. It is a physiological threshold, below which an important lactate producer, *Streptococcus bovis*, will thrive in the rumen. Lactic acid is a stronger acid than the usually predominant volatile fatty acids (propionic, butyric and acetic), and lactate production drives pH lower still, and indicates an unhealthy fermentation.
2. It is the statistical threshold derived by Garrett et al (1999) in a cohort study to distinguish a subset of cows fed a low-forage (SARA-inducing) ration from the negative controls fed a normal forage ration. Cut-off points of 5.4, 5.5, 5.6 and 5.7 were tested. The cut-off of pH 5.5 gave the highest predictive probability of detecting the low-forage group when sampling smaller numbers of cows in the group. Derived from this study, a commonly used method for herd diagnosis of SARA is to sample 12 cows by rumenocentesis and, if five or more have a pH ≤ 5.5, a diagnosis of SARA is made (Oetzel, 2003).

Despite the above conventions, a precise definition of SARA still remains difficult. Firstly, the correct physiological pH of a rumen is debatable, and various thresholds are proposed. Certainly, cows fed forage-only diets operate with a pH of around 6 to 6.5. This is not to say that grazed grass cannot induce low pH

values, but it is less common. The modern dairy cow's free-roaming ancestors all probably had rumens functioning well above pH 5.5. Conversely, it has been shown that many evidently healthy, high-producing dairy cows can have a rumen pH below 5.5, without apparent ill-effect. My study corroborated this finding: low pH did not necessarily equate to poor rumen health.

Secondly, how should the rumen fluid sample be obtained in order to measure the pH? There is a distinct difference between direct cannulation or rumenocentesis and samples collected by oesophageal tube. One reason for this might be the buffering effect of saliva, which can contaminate samples collected by stomach tube.

More recently, modified "rumen fluid scoops" have been used, which shield the fenestrations until the probe is in the rumen, reducing the effect of saliva (Geishauser, 2012), yet the rumen fluid collected in such a manner still has a higher pH than when collected from the same cow by rumenocentesis. The reason is probably due to the marked pH gradient that exists in the rumen and reticulum: it is important to sample a consistent site in a consistent way. Duffield et al (2004) gives a good review of comparison of techniques for sampling rumen fluid.

Thirdly, how long does the pH need to drop to be considered SARA? When a cow eats a meal, the volatile fatty acid concentration in the rumen rises due to normal fermentation, and the pH falls. When the low-pH nadir is reached depends on what the meal contained (was it rapidly fermenting? How much starch did it contain?), how large the meal was, and probably many other factors relating to the cow's innate buffering mechanisms. Cows on a grazed diet, trickling fresh, low dry-matter feed into the rumen throughout the day, will have less violent fluctuations in rumen pH than cows with limited bouts of large dry matter intake (DMI) meals, such as in many housed systems.

Cows fed large slugs of concentrate twice a day in the parlour are said to be at particular risk of marked pH fluctuations. Therefore, the time when the rumen fluid is sampled is critical, and there is a significant limitation to a single timed pH measurement. It is better to measure pH over a period of time: this is possible in experimental situations with an in-dwelling probe, and recently there has been much interest in telemetric boluses. In circumstances where pH can be measured longitudinally, a preferred definition of SARA is perhaps a rumen pH depression to 5.2 to 5.6 for at least three hours per day (Plaizier et al, 2012).

Rumen telemetric boluses are battery-operated devices that remain in the rumen or reticulum (retrievable at slaughter or surgery) and measure rumen pH and sometimes rumen temperature, relaying the information to a receiver. The devices are, however, still prohibitively expensive for use outside research, and the sticky problem remains of where the probe resides: unless placed surgically (in some studies), one would assume they remain in the reticulum. The pH of the reticulum is generally higher than the rumen, and the relationship between the two still has to be determined. These devices don't appear to be the panacea for SARA diagnosis just yet.

Herd or individual diagnosis

Diagnosing SARA by direct measurement of pH has an added complication: a cow that eats well has a lower rumen pH. A low pH (below 5.5), which is transient, might be perfectly normal (physiologically) for a high-producing cow with a good appetite. A cow with pathological SARA stops eating (fluctuating DMI) and the pH quickly returns to above 5.5, as volatile fatty acid acid production falls, and previously produced acid is effectively absorbed or buffered. Therefore, to find a cow below 5.5 could just be good chance: sampling at the correct time to coincide with the pH nadir. Finding a pH above 5.5 certainly does not rule out poor rumen health and a preceding bout of acidosis.

For this reason, SARA should perhaps be considered a herd diagnosis on the basis of probability that many cows with low pH at any one time might indicate a predisposition for low rumen pH within the herd. This is the rationale for the pH threshold and sample sizes proposed by Garrett et al (1999) and Oetzel (2003). Of course, a difficultly of herd diagnosis is that the whole herd might reach the nadir at a similar time. Therefore, finding many cows with a pH below 5.5 could still be physiologically normal; it might simply signify successful timing of sampling with relation to feeding and the pH nadir. Rumen pH monitoring might be more useful within the same herd at different occasions, as long as timing of feeding and sampling is absolutely consistent.

Above: A SARA cow? Or just one that's thin and empty? Right: Accurate and inexpensive pH probes make measuring rumen fluid pH very easy.

Unravelling the evidence

Very few people have successfully attempted to ascribe an economic impact to SARA. This is not only due to the difficulties of definition or diagnosis, or knowing the prevalence, but the massive uncertainty of what, in reality, SARA is responsible for.

Lameness and so-called "laminitis" are often cited as due to SARA. Yet most current thinking sheds doubt over the old view of subacute acidosis exerting a significant effect on either the laminae or corium of bovine feet. The possibility remains that acidosis could affect the suspension of the pedal bone within the hoof, and subsequently claw horn lesions, but recent research has focused on the fat pad supporting the pedal bone, and the effects of nutrition on this. Presumably, SARA, if leading to weight loss and less fat pad cushioning, could be indirectly implicated in horn lesions, which are a significant cause of economic loss. ▸

More significant, however, are the potential production losses and milk constituent changes attributed to SARA. Cows with SARA presumably have a lower DMI, and this reduces yield. Furthermore, losses occur if milk fats are depressed. One study regularly quoted ascribes a loss of between US$400-475 per cow per year in herds with SARA (Stone, 1999). This was simply a case history, poorly described, and with a very unsophisticated attempt at economic modelling. Yet it is the basis of cost estimates found in subsequent literature.

SARA is also linked to metabolic problems: ketosis, displaced abomasa, diarrhoea, excess weight loss, and subfertility due to negative energy balance. I am unaware of any study that can directly show a cause and effect of SARA with any of these conditions. Morgante et al (2007), in a similar study to my own, investigating SARA prevalence in Italian dairy herds, found that although general metabolic disturbances were more prevalent in herds diagnosed with SARA, we can't be sure whether SARA causes the problems, or whether SARA is a sign of sub-optimal management.

Put simply, we can only guess the significance of SARA.

Prevalence of SARA

My study found that of 244 dairy cows, sampled predominantly in early lactation by rumenocentesis timed to coincide with expected low pH, 64 (26.2 per cent) had a pH ≤ 5.5. Values were approximately normally distributed around a mean of pH 5.9 (SD 0.56). Could a quarter of UK cows have SARA? These results are broadly consistent with similar studies in other countries (**Table 1**). However, all the studies described had some sort of selection of cows. As the samples were not random, we cannot be sure this prevalence figure is representative of the population at large. This study, like others, found there was no relationship between rumen pH and stage of lactation, so perhaps the selection process is less important than we might imagine.

One finding was that those cows one might suspect of suffering from SARA (early lactation, thin, empty, loose faeces) had no greater chance of low pH than any other cow. If you asked me now to select a cow in a herd that is most likely to have a pH below 5.5, I would choose the cow with the most full rumen, and probably giving a lot of milk.

There was significant variation between both farm and visit occasion. Twenty-one of 29 sampling visits had at least one cow with pH ≤ 5.5, but only eight of the visits fulfilled the criteria for herd-level diagnosis, whereby a minimum of 12 cows were sampled. Of these, three had > 33 per cent of sampled cows with pH ≤ 5.5, allowing a diagnosis of herd-level SARA. Although a small sample size, 37.5 per cent (three out of eight) of herds with SARA is in line with two previous small-scale studies. Garrett et al (1997) found 33 per cent of herds had SARA, and Morgante et al (2007) found three of 10 Italian dairy herds fulfilled the criteria. None of these studies included randomly selected herds.

SARA: an outdated concept?

As a final thought, could we be measuring the wrong parameter, in pH? I believe so, and consider the term SARA, although catchy, is severely misleading.

There is strong evidence that rumen pH can be manipulated by diet. There are two main methods: reducing fibre or fibre length; and increasing starch.

Plaizier et al (2012) propose the physiological effects of either type of SARA on the cow are vastly different, with the high-starch form being the more pathological. While high-starch diets lower the rumen pH, this does not mean the low pH is harmful: there are many other mechanisms whereby a high-starch diet can exert a harmful influence, not least a higher starch content in the rumen outflow, leading to greater large intestinal starch fermentation (and possibly increased lipopolysaccharide production). Other research has pointed to manipulation of rumen fatty acid profiles by feeding different starches and in varying amounts. This, or altered microbial fermentative pathways, may be a more significant factor in determining milk fat levels than rumen pH per se.

Rumen health, and the efficiency of the microbiome, is what we would really like to measure. I suggest pH is a very blunt instrument with which to measure rumen health: neither specific nor particularly sensitive. While very low pH is undoubtedly not a good thing, I believe we are wrong to have a rigid threshold above or below which we diagnose a pathology.

Because of these difficulties, and the near impossibility of making a confident diagnosis, researchers are moving away from the term SARA. Calsamiglia

Table 1. SARA prevalence in cross-sectional surveys using rumenocentesis and a rumen fluid pH ≤5.5 as the diagnostic threshold

Country	Number of cows	Prevalence	Reference
Netherlands	197	14%	Kleen et al, 2009
Iran	196	28%	Tajik et al, 2009
Italy	108	18%	Cannizzo, 2008
Ireland (grazing herds)	144	11%	O'Grady et al, 2008
USA, Wisconcin	150	26%	Garrett et al, 1997
UK	244	26.2%	Atkinson, 2013

Answers: 1. C 2. B 3. D 4. B and C

Discussion: Atkinson (2013) did not include a random allocation of farms, so it is difficult to extrapolate that rumen pH ≤ 5.5 occurs daily on most farms, although, in this study, at least one cow was found to have a pH ≤ 5.5 in over 75% of farms tested, and only a small number of cows in each herd were tested. If serial sampling was undertaken throughout the day of all cows, it is reasonable to assume samples with pH ≤ 5.5 would increase. Sampling in a single time point is likely to reduce the sensitivity of detecting low pH, even if the study is biased towards sampling those herds and cows at greater risk of low pH. Therefore, B) can be justified .D) is incorrect because sampling was timed to coincide with predicted low-pH nadir: at other times during the day the prevalence of pH ≤ 5.5 would arguably not be as high as 25%. The range of prevalence of pH ≤ 5.5 was between 0 and 83% of selected cows, depending on the farm and the visit. Therefore, C) is justified. The study found no correlation between occurrence of pH ≤ 5.5 and days of lactation, but higher yielding cows had a slight tendency to lower pH. This was not significant and there was no yield threshold over which cows had a greater risk of a rumen pH ≤ 5.5. Therefore, answers E) and F) can't be justified.

et al (2012) recommend the use of the term "high concentrate syndrome" instead.

Rumen health still interests me, but I believe there are better ways than measuring pH.

The second article in this series will explore how this may be done by vets in practice, and the final article will look at common feeding errors on dairy farms and practical solutions to achieve healthy rumens. ■

CPD questions

1. Probably the most appropriate definition of SARA is when:

   A. The rumen pH drops to 5.5 or below
   B. The rumen pH drops to between 5.8 and 5.5
   C. The rumen pH drops to between 5.2 and 5.6 for at least three hours per day
   D. Cows are showing signs of diarrhoea and poor fibre digestion (in the faeces)
   E. Milk butterfats are below 2.5% for more than 25% of the herd in the first 60 days of lactation

2. Which of the following is/are true (tick all that apply):

   A. Thin, lame cows are more likely to have SARA than fat cows
   B. SARA can be caused by selective feeding (sorting)
   C. The fibre content of the ration is the most important aspect with regards rumen pH
   D. Rumen by-pass starch is safer than rumen degradable starch because it does not lower the rumen pH
   E. Collection of rumen fluid (for analysis) should always be done by stomach tube as it is safer than rumenocentesis
   F. Telemetric pH boluses take much of the guess work out of SARA diagnosis

3. There is reasonable direct evidence that SARA causes (tick all that apply):

   A. Sole haemorrhages and lameness
   B. Loose or inconsistent faeces
   C. Cud balling (expelled cuds)
   D. Milk fat depression
   E. Ketosis
   F. None of the above

4. The occurrence of rumen pH ≤ 5.5 in UK lactating dairy cows is likely to be (tick all that apply):

   A. Rare, occurring in less than 10% of herds in just a few cows
   B. Common, probably occurring daily in most herds to some extent and in a third of all herds in at least 25% of the herd
   C. Very variable, depending on the farm and feeding practices
   D. Around 25% of all cows at any one point in time
   E. Only occurring in cows in the first 90 days of lactation
   F. More prevalent in the highest producing cows

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Compliance: some do, some don't

BREAKING the ice on compliance with farm clients can be tough. British farmers experienced a difficult year in 2012 as incomes fell by 14 per cent in real terms. So whether it is mastitis control, lameness, flock or herd health planning, you need a plan of attack and a strong economic message.

IF YOU do not have regular contact with clients then clear your diary. Half the battle is being there and listening to concerns. That is not always easy, as Joe Henry, director at Alnorthumbria Veterinary Group, confirms. He works the hills and lowlands around Rothbury in Northumberland and his clients are mainly beef and sheep farmers.

"Vets don't interact with their sheep farmers much and so they just have to try to get them on side first before they start believing in the methods," he says. "Healthcare planning is most of my work and it is where we experience most resistance. Farmers have to know when to use treatments, because if they use them inappropriately they are a total waste of money and effort."

Preparing farms for culture change is the trick. Joe's clients understand his veterinary advice on the whole, but do need support to alter years of ingrained habit. "They have been trained to dose everything with antibiotics for the past 40 years and now we are giving them a different message. Similarly, for lame sheep, current thinking is not to trim their feet and yet they have been told for generations to do it if they are lame." Generally, he says, hearing the right message a couple of times, backed up by what they read in the farming press and hear from other farmers, does the trick. So prepare your case in advance. "Don't be too dictatorial. Explain what the latest research has shown. Try to put a cost or time benefit to it so they actually see an advantage to doing it: money or time, which is the same thing for them really."

How much is your advice worth?

Lies Beekhuis teaches students about preventive herd health at the RVC Welsh Regional Centre in Carmarthenshire and provides advice to farms. Getting clients to see the problem is important, but motivation is what puts plans into action. "It relies on how much they think your advice is worth and whether it can make an impact," she says.

Vets may think about offering training courses to improve compliance.

"In the case of mastitis control it was important to show data on the problem and economic analysis. Sub-clinical mastitis shows up as high cell counts. Working in Ireland the cell counts were quite high, so we would do analysis to show how lower counts would mean healthier cows, fewer costs and more milk."

The old maxim that the best advice a farmer will get is from another farmer appears to hold firm. Benno Veenstra is director of Stapeley Vets in Minsterley, covering 250 farms around Shropshire and the Welsh borders. "If we get success on a neighbouring farm then we will try to use that as an example for other farms," he says. "That is usually the best way of getting someone to comply, by following what their peers are doing. Farming is a small community so if something goes well then they find out about it."

Farmer Gwyn Jones agrees with this assessment. He owns a 350-strong dairy unit in West Sussex and is active in the farming community on issues such as medicines and animal welfare. "Farmers certainly listen to other farmers a lot," he says. "Some farmers listen to their vets, but it all depends on their relationship."

Vets are perceived as expensive and the changing dynamic between farmers and local practices has not always translated into partnerships. "Vets have had a difficult time of late because they have had to move from making money selling medicines to selling their services," says Gwyn. "Of course it is good value if you use it properly and act on it. That money can be ▸

extremely well spent, but it is not always easy to put that across to farmers."

Cost cutting

Farmers in low cost systems do not necessarily generate much income, says Gwyn, so they look to cut costs everywhere on farm, including veterinary fees. Helping them implement longer term strategies to cut medicine costs could be viewed as a real advantage. "Very often using antibiotics and veterinary drugs more prudently is not only a good thing to do, it also saves money. It is all about efficiency."

Structural investment on UK farms is lacking, agrees Gwyn, and certain industry sectors, such as pig and poultry, are well ahead of others like beef or sheep, but one way vets could improve compliance is by investing in services. "Quality is one decider," he says. "Not all vets are created equal. How many farmers go to them for nutritional advice or foot trimming? Not everybody, because there are other people who are better at it.

"One retailer started up a dairy supply group and put a veterinary inspection mechanism in place. It meant all of the vets on farms delivering to the retailer were inspected to make sure they were up to speed. They quickly realised that there was variance in veterinary quality and advice."

Taking into account investment on both sides, Lies Beekhuis says a careful audit of in-practice and on-farm skills does no harm. Training may be an issue and many practices offer farm technician courses alongside their traditional veterinary CPD. "There is a lot of variation on how farms are set up," she says. "There are differences in levels of training, skill-sets and whether staff can work by themselves and pick up on problems."

Unit size may be a predictor, with small family farms picked out as perhaps less progressive than larger farms that employ more staff. "People who haven't got as much training can be given more repetitive jobs like milking, but how well they do depends on how well the farmer trains them or the vets communicate with them," she says.

Be clear when it comes to treatment administered by farm workers and understand the chain of communication. "Specifically, problems may occur because advice is not written down very well or there are issues with staff not following instructions because there is a breakdown in communication."

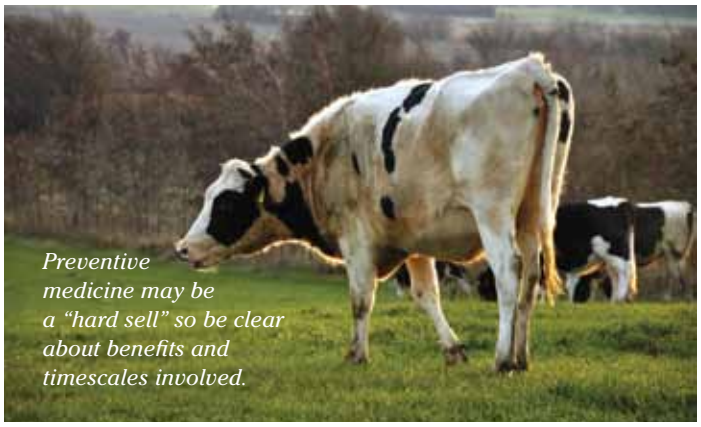
Quick wins

Finally, says Lies, preventive medicine almost always takes longer to implement and to show results, so try to create quick wins. "Show them how it could be if they tried alternatives. If they see results then that is the way to get them to do something. If you treat individual animals and it works then you see that immediately."

Benno Veenstra says it is easy to predict who will accept advice and follow up on reminders – mainly younger farmers and those reinvesting in the business – so Stapeley targets farms to create a strong base. Reinvigorating staff and clients through new methods creates momentum.

"We have been trying to do more work with sheep farms and flock health plans," he says. "It is early days and we are selective on who we approach with it. We pick them because we know it is going to work well. There is definitely scope there because it is new to everybody. People find something new exciting."

In the final analysis, says Benno, compliance should never be dictated by the practice, because it requires farm buy-in. Do it in stages and you are more likely to achieve it. "Farmers are limited in the amount of time they have because they are so busy," he says. "It is like a jigsaw – if one or two pieces are missing it is not complete. It isn't easy, but they have to be willing to do it themselves rather than us telling them." ■



Preventive medicine may be a "hard sell" so be clear about benefits and timescales involved.

Improving on-farm compliance

1. Ensure regular contact – being on farm is half the battle.
2. See it from each client's perspective. If you want to change the culture of healthcare on farm, you have to understand why it is as it is, how opinions have been formed and what influences farmers' decisions.
3. Show clear time and/or cost benefits. For farmers, time and money are integrally linked.
4. Farmers listen to farmers so arm yourself with evidence from other clients and ask those clients to speak on your behalf. Do not sell yourself, let others do it.
5. Know your subject. Read around current research and successful case studies, and be armed with alternative strategies where possible. Highlight novelty: new is exciting.
6. Make your case with healthcare data and any back-up information from the veterinary or agricultural press. Present visual or graphical data and economic data that is easy to interpret.
7. Look critically at your practice skills. Upgrade if necessary and offer extra services, such as foot trimming or nutritional advice.
8. Assess the farm's skill capabilities and look at training programmes for herdsmen and other technicians if necessary. Make sure roles on farm are clearly understood.
9. Draw up detailed protocols and clearly written advice on treatments. Make it easy for farmers to follow your guidance.
10. Identify the drivers behind resistance to compliance (economic, habit, trust, opinion) and adjust your approach to address these concerns.
11. Preventive medicine may be a "hard sell" so be clear about benefits and timescales involved. Farmers need to run the farm so motivate them and get their buy-in.
12. Create yearly plans to convert percentage of "hard to sell" clients to improved compliance. Identify progressive farms early and use them as shining examples.

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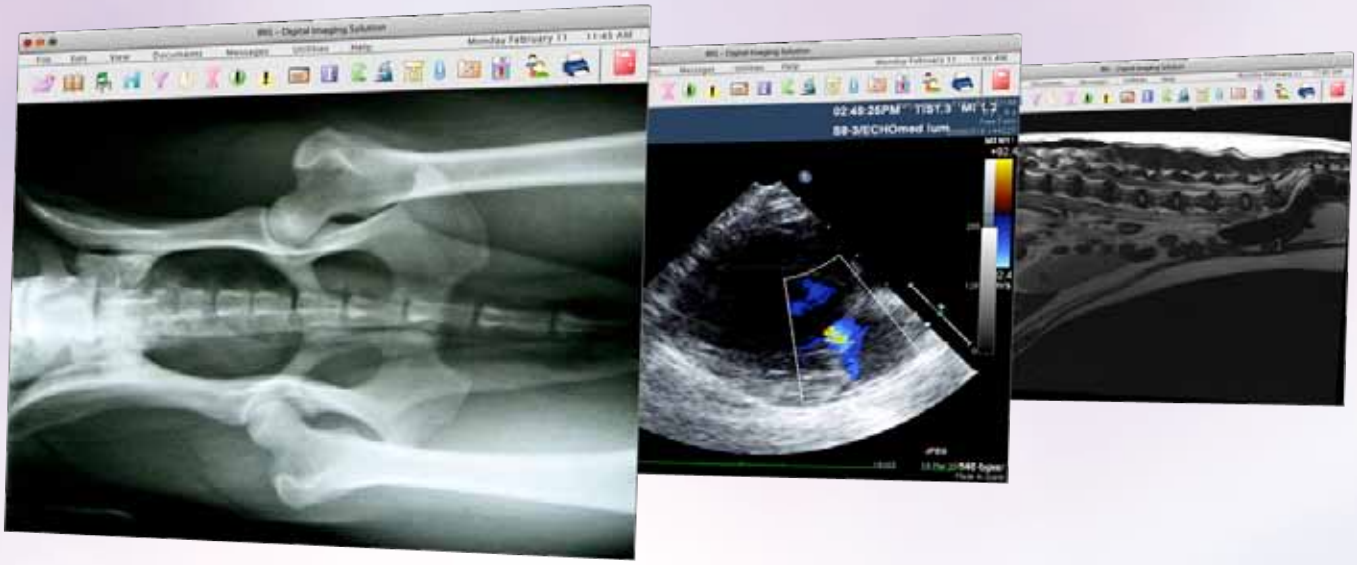

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GUIDANCE ON ZOONOTIC DISEASES IN HOSPITALS

A REPORT published in the *Journal of the Royal Society of Medicine* has warned hospitals should pay greater attention to zoonotic diseases.

Authors of the report, entitled "Managing patients for zoonotic disease in the hospital environment", state animal-related pandemics have been highlighted as a major threat to human health on a global scale.

Keeping exotic pets was identified as a risk to human health, alongside travelling abroad and visiting petting zoos, among other causes. The guidance warns of the dangers of keeping exotic pets due to difficulties guarding against infection in the home, although it states hand washing with the correct chemicals could "significantly reduce" the amount of germs.

Co-author Susan Corning, director of Collaborating for Global Health, said: "Given many human diseases are of animal origin, our article highlights the importance of early recognition of zoonoses by medical personnel to minimise their spread, including within the hospital environment.

"This is a true One Health issue, and there is urgent need for the medical and veterinary professions to collaboratively plan to ensure hospital staff can implement simple and effective measures to prevent and control zoonoses."

The report can be found in JRSM Short Rep 2013 August; 4(8): 2042533313490287.

Zoonoses are reportedly on the rise, which may be due in part to keeping exotic pets, say the report's authors.

Clifford Warwick, who has been made a Fellow of the Oxford Centre for Animal Ethics for his work in reptile welfare and conservation.

FOR HE'S A JOLLY GOOD FELLOW...

REPTILE biologist and medical scientist Clifford Warwick has been made a Fellow at the Oxford Centre for Animal Ethics, in honour of his scientific contributions to the welfare and conservation of reptiles.

Clifford has produced more than 100 publications relating to reptile protection and human medicine. Clifford said: "Being invited to join the centre in its aims is a true privilege, and one I know the centre will not mind me using to promote greater respect and protection for reptiles in their natural habitats – as well as those confined to captivity."

Commenting on his work, he said: "All too often, reptiles are caught between a rock and a hard place. Many people either shun them and care little for their welfare, or keep them as curiosities in the home or in private collections, where these animals commonly languish in an unnatural, overly restrictive, and unsuitable environment.

"Between the 'pet' store and the home, at least 81 per cent of reptiles die prematurely in their first year. If four out of five dogs died within one year there would be outrage."

As well as being a biological consultant to 15 scientific and animal welfare organisations worldwide, Clifford also provides regular specialist advice to veterinary surgeons and the medical profession.

EXOTIC PET 'MARKET' CANCELLED DUE TO TRADING CONCERNS

AN EXOTIC pet market due to take place in West Sussex in October was cancelled, after an animal welfare group offered evidence that unlawful trading of animals would take place.

Concerns were raised over trade of exotics.

The reptile and amphibian event was billed as a "private breeders meeting" and the Animal Protection Agency (APA) said it provided evidence to Arun District Council that the meeting constituted an animal market, and trading of animals would occur.

Acting on the APA's evidence and the council's advice on legislation relating to the event, Fontwell Park Racecourse reportedly advised the council the decision was made to cancel the event.

The news was welcomed by the APA, but the charity was concerned event organisers would attempt to find a last-minute venue for the event. The charity claimed that, in the past, organisers of similar events had found alternative venues and posted the details online after 5pm on a Friday to avoid council inspection and enforcement.

The charity's director, Elaine Toland, said: "A recent scientific study showed the conditions and treatment of the vast majority of amphibians and reptiles at markets was, in the view of the authors, 'tantamount to animal abuse'.

"Action taken by Arun District Council and Fontwell Park Racecourse meant that thousands of animals have been potentially spared this ordeal, which is great news! We just hope now that organisers don't attempt to stage their event elsewhere."

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Tom Dutton
BVM&S, MRCVS, Resident ECZM(avian)

Tom is a 2011 graduate of the University of Edinburgh. After finishing his veterinary degree he completed a one-year rotating internship at NorthWest Surgeons in preparation for his residency training. He started his ECZM residency training in avian medicine and surgery in May 2012.

Neil Forbes
BVetMed, DipECZM(avian), FRCVS

Neil qualified from the RVC in 1983. He gained his RCVS Specialist Status (Zoo and Wildlife [avian]) in 1992. Neil received his FRCVS by examination in exotic bird medicine in 1996 and became a Diplomate of the ECAMS in 1997. He has lectured internationally and contributed to more than 25 books. Neil has received a wide range of awards for his work and is senior vice-president of the ECZM and senior vice-president of the European Board of Veterinary Specialisation. Neil heads the avian and exotic department at Great Western Exotic Vets (part of the Vets Now group) in Swindon, where he runs the only ECZM-approved avian residency in the UK.

CPD

Humane euthanasia of exotic species

IT HAS become apparent from a large number of advice calls to the authors that many first opinion and emergency practitioners are unfamiliar with the techniques for humane euthanasia in exotic species.

THIS article aims to provide a "how to" guide for exotic animal euthanasia to be used when novel or unfamiliar species are presented to the veterinary practitioner. This should be of particular use in an out-of-hours situation when resources are harder to come by. While the list of procedures is not exhaustive, it contains the most appropriate techniques to be performed by vets in first opinion practice where specialist equipment is not necessarily available.

Euthanasia in practice

When euthanasia is performed, the primary goals are to:

1. Relieve pain and suffering in the animal(s) to be euthanased;
2. minimise the pain, anxiety, distress and fear an animal experiences before consciousness is lost; and
3. induce a painless and distress-free death (Merck, 2011).

Anaesthesia

In potentially dangerous exotic animals (for example, venomous reptiles or arachnids) or to facilitate examination in other exotic animals (such as hedgehogs), anaesthesia is virtually always required to meet our goals of humane euthanasia. In a large number of other exotic species anaesthesia prior to euthanasia is also recommended. The requirement of anaesthesia depends in part on the experience of the clinician, but also on the temperament and presenting condition of the patient requiring euthanasia. This is of particular importance in a situation when the practising clinician is unfamiliar with the species in question and the process of euthanasia may take longer or more than one attempt is anticipated.

Figure 1. A facemask being used as an induction chamber.

There is of course little point anaesthetising an animal if the induction of anaesthesia causes more pain, stress or anxiety than the euthanasia itself. Anaesthesia should be appropriate for each patient, but most birds and small mammals can be induced with a gaseous anaesthetic agent (mask or chamber induction). Sevoflurane is the authors' preferred choice in mammalian exotic species. It is better tolerated than isoflurane due to its low pungency and limited airway irritability; however, the authors appreciate many practices do not have sevoflurane. Premedication (for example, midazolam) reduces the side effects seen when mask or chamber-inducting with isoflurane, which may also delay onset of anaesthesia, resulting in a compromise in the patient's welfare. The decision whether to premedicate before using isoflurane should be made on a case-by-case basis.

Reptiles and diving birds usually require an anaesthetic technique involving injectable agents. Where IM or SC injections are administered, a product that does not cause undue pain on injection should be used (such as alfaxan cf to ketamine/pentobarbitone). Fish, amphibians and aquatic invertebrates can usually be anaesthetised in water by mixing with a volatile agent (isoflurane in its liquid form) or MS222 (tricaine methanesulfonate – see part two for fish euthanasia). While MS222 is a useful product it has special requirements for its disposal and is not commonly found in first opinion practices. Terrestrial invertebrates can usually be safely anaesthetised with a volatile anaesthetic gas, such as isoflurane or sevoflurane, via the use of an anaesthetic chamber (Pizzi, 2011). Aquatic invertebrates may be anaesthetised in a similar way to fish, either with isoflurane/

sevoflurane in water or MS222 (Cooper, 2011).

Equipment

Most equipment required for humane euthanasia in exotic animals will be found in veterinary practices. DIY equipment can often be made if an item is required at short notice (for example, an induction chamber).

- An anaesthetic chamber is very useful for inducing anaesthesia in exotic small mammal species. The goals of a stress-free euthanasia are more easily met this way than when attempting to restrain small mammals for mask induction. Commercial chambers, while convenient and easy to use, can be costly. DIY chambers can be easily manufactured from Tupperware-type containers with sealed ports for attaching an anaesthetic circuit.
- Alternatively a large downturned facemask can be used in rodents, small birds and so on (**Figure 1**).

Stocking a large range of needles and syringes certainly facilitates easier vascular access into small, fragile vessels. Insulin syringes with attached hypodermic needles and 25-gauge needles are most useful in small exotics. Using the needle bevel turned down can often prevent over-penetration through the far wall of the vessel. Using small-volume syringes prevents excess negative pressure when drawing back to confirm vascular access. In very small species, the authors prefer not to draw back on vessels as the risk of moving the needle within the vessel or collapsing the vessel is too great. Often these species are thin-skinned and one can visualise the needle correctly positioned. When vascular access is assured, the drug of choice for most species is pentobarbitone. It has to be remembered extravascular injection is intensely painful (clearly not a problem in anaesthetised patients).

Prior to euthanasia of exotic species it should be ascertained whether a postmortem with or without histopathology will be required. The technique may then require modification so that damage to diagnostically important organs is avoided. Euthanasia via an overdose of barbiturate may have adverse effects on a large number of tissues – especially the brain, heart and kidneys. Delivery of euthanasia solution into the occipital space in birds should not be performed when nervous tissue is to be examined at postmortem. Euthanasia solutions are not sterile.

"In very small species, the authors prefer not to draw back on vessels as the risk of moving the needle within the vessel or collapsing the vessel is too great"

Mammals

The anatomical similarities between many exotic mammals and the cats and dogs most vets encounter on a daily basis makes them the easiest of the exotic patients to manage. Intravascular administration of a suitable agent (usually pentobarbitone) is often the most appropriate and easiest method of euthanasing exotic mammals. It is becoming more popular for clinicians to place an IV cannula prior to euthanasia in dogs and cats. The authors also recommend this in exotic species (so long as placing the catheter does not compromise the goals of humane euthanasia). Placing an IV cannula is of particular benefit when general anaesthesia is not being used or the owner wishes to be present at the time of euthanasia. Cardiac puncture can be used in the very small or collapsed patients when vascular access is compromised. This technique should only be attempted without anaesthesia if the patient is unconscious. Surgical depth of anaesthesia should be obtained otherwise.

Figure 2. An IV canula secured in the marginal ear vein of a rabbit, supported with foam and conforming bandage.

Figure 3 (above). Cannula in the superficial ulna vein of a bird. Figure 4. Intraosseus catheter in a budgie.

Foxes, badgers and other potentially aggressive wild mammals are, on occasion, presented for euthanasia. Even when severe and debilitating illness is present, stress and adrenalin will make these patients difficult and potentially dangerous to handle. Due to their size, anaesthesia cannot be induced with a volatile agent. Most practices will have a crush cage designed for fractious cats that can be used with these animals. A triple-combination injection (usually medetomidine, Torbugesic and ketamine) can be given prior to obtaining IV access. In most mammalian species vascular access can be obtained via the jugular, cephalic or medial/lateral saphenous veins, as in dogs or cats. The medial saphenous vein often tends to have less of a kink in comparison with the lateral saphenous vein and is therefore easier to achieve IV access via this route. Some species have other sites that may be easier to access, as follows.

- Rabbits – marginal ear veins (**Figure 2**).
- Ferrets – direct vascular access may be difficult in peripheral veins so drug delivery into the cranial vena cava (following appropriate anaesthesia or at the very least restraint) is recommended. The ferret must be held in dorsal recumbency and the cranial vena cava accessed by inserting a needle (0.5-inch is long enough) into the thoracic notch between the manubrium and the sternum just cranial to the first rib (Joslin, 2009). Always draw back to ensure access to a vessel otherwise drug delivery could be into the thoracic cavity, which would be deemed inhumane.

The lateral or dorsal tail veins can be used for vascular access in some small mammal species, which is particularly useful in anaesthetised hedgehogs, rodents and marsupials (wallabies and possums). Although rarely indicated, terminal overdose of a volatile agent may be considered. However, this has potential health and safety risks to personnel in the vicinity.

Birds

Although sadly still common practice, "intrabird" ▸

Figure 4. Delivery of euthanasia solution into the occipital space.

Figure 5. Injection into the chelonian subcarapacial sinus.

injections of euthanasia solution is neither humane nor ethical. Extravascular injections of pentobarbitone are irritant and painful. This method leads to a protracted and potentially painful death and certainly does not meet the goals of humane euthanasia. Even small birds can have good peripheral vasculature. General anaesthesia then intracardiac injection would be a preferred option to an "intrabird" injection.

The main sites for vascular access in all birds are superficial ulna (also known as brachial; **Figure 3**) – located on proximal ulna, on the medial aspect of the elbow, the tarsal (particularly useful for large waterfowl) or jugular veins. Although the right is stated to be larger, this varies between individual birds, so should be attempted wherever possible. Failing this, intraosseus administration into either the proximal tibio-tarsus or distal ulna via the articular surface is preferred. This is an easily carried out alternative, using standard hypodermic needles or intraosseus catheters.

The medial metatarsal vein is readily accessible in waterfowl, galliforms and other larger birds. It is easily cannulated in a conscious bird and allows for speedy delivery of the euthanasia solution. Lethal injection into the occipital junction is a useful technique in very collapsed or small birds where intravenous access isn't possible (contraindicated in waterfowl). The bird is restrained (a towel is useful) and the neck flexed so the lower mandible is pushed towards the ventral aspect of the body. This opens up the occipital junction, which can easily be palpated, and a euthanasia solution injected directly into the site (**Figure 4**). This technique leads to almost instant death with cessation of cardiac rhythm – except in waterfowl where there is a period of excitation and associated stress prior to death and, therefore, should not be used for these species.

"Although sadly still common practice, 'intrabird' injections of euthanasia solution are neither humane nor ethical"

Reptiles

Reptile euthanasia appears to pose the greatest difficulty for first opinion vets and is a subject to which the authors receive a large number of enquiries. Many reptile species can survive very long periods of apnoea – but respiratory arrest (sometimes with associated cardiac arrest) is not enough to induce coma and unconsciousness. In chelonia, intravenous access sites include the jugular,

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subcarapacial sinus (**Figure 5**), or dorsal tail veins.

In lizards, recommended intravascular access sites are a ventral or lateral approach to the tail vein (**Figure 6**) or ventral abdominal vein (large subcutaneous vessel in the midline of the abdominal wall). If an intracardiac injection is to be used (following anaesthesia) a Doppler probe will facilitate locating the heart.

Cardiocentesis has long been recommended as a blood sampling technique in snakes. The heart is easily palpated as the first mass in the cranial quarter of the body and is often visible. It can be stabilised between two fingers prior to injection of a euthanasia solution. The operator should draw back to confirm position of the needle prior to injection. Obesity is a common problem in captive reptiles and a Doppler probe is required to locate the heart in obese snakes or where large volumes of subcutaneous oedema is present (renal disease/cardiac disease).

The final step of all reptile euthanasia is to destroy the CNS. This can only be performed after a loss of consciousness facilitated by administration of a suitable euthanasia solution (usually pentobarbitone). If an IV injection of pentobarbitone isn't guaranteed, the authors will induce anaesthesia with a single IM injection of alfaxan (8-15mg/kg). An alternative is to give an IM injection of ketamine and medetomidine; however, ketamine injection is associated with pain.

Destruction of the CNS is usually achieved by pithing the brain with a sharp implement (such as a needle or dental probe) via the foramen magnum, the roof of the mouth or the parietal eye (seen in many lizard species). The parietal eye is on the dorsal midline of the skull, roughly between the eyes. In some species, such as venomous snakes, decapitation is required to destroy the CNS for operator health and safety reasons. The use of a Doppler probe is also recommended to ensure cardiac function has ceased following administration of the lethal injection and destruction of the CNS. Although commonly recommended by some herpatologists and lay people, freezing is NOT a humane method of euthanasia in reptiles. The formation of ice crystals in ocular and nervous tissue prior to the loss of consciousness is potentially painful. ■

Figure 6. Intravenous access in the tail of a bearded dragon.

Part 2 of this article, which covers euthanasia of fish and amphibia, will be published in the next issue (Veterinary Practice Today 2.1; Spring 2014).

CPD questions

1. Name two sites of intravenous access in a rabbit.

2. What is the most appropriate intravenous access site in a swan?

3. Is an intracardiac injection of pentobarbitone an acceptable method for euthanasing a budgie?

A. Yes, but only after inducing anaesthesia with a volatile anaesthetic agent.
B. Yes, but only in an anaesthetised or unconcious patient.
C. Yes, this is suitable in any scenario.
D. No, this technique is inhumane.

4. Freezing is an acceptable primary method of reptile euthanasia:

A. True **B.** False

5. An injured Eider duck is presented for euthanasia. An injection into the occipital space is an appropriate method of euthanasia:

A. True **B.** False

Answers
1. Any two from: marginal ear vein, cephalic vein, medial/lateral saphenous veins, jugular **2.** Medial metatarsal vein **3.** B **4.** False **5.** False

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ARE YOU UP TO SPEED ON COMPANY PENSIONS?

A NEW law being rolled out over six years means employers are required to automatically enrol staff members into a workplace pension, unless they choose to opt out.

The law was introduced in October 2012, starting with the largest employers. Many veterinary practices employ fewer than 250 people and, therefore, auto enrolment will not start until after February 2014.

As part of the pensions legislation, employees aged 22 years or above and who earn more than £9,440 per year will be automatically enrolled into a pension scheme by their employer, according to guidance issued by the Government.

Each veterinary practice or other business has been allocated a "staging date" – the date from which automatic enrolment duties come into force for that particular business. This date is based on the total number of people who were in the company's PAYE scheme on April 1, 2012.

Employers with 50 to 249 people in their largest PAYE scheme will have a staging date between April 1, 2014 and April 1, 2015, whereas those employers with fewer than 50 people in the scheme will be required to begin auto enrolling from June 1, 2015 and April 1, 2017.

Visit the Pensions Regulator website for further information, including preparation guidance, at: www.thepensionsregulator.gov.uk

Pensions... are you prepared?

Stuart Reid.

Robin Hargreaves.

FUTURE OF THE VETERINARY PROFESSION DEBATED

THE BVA has hosted a discussion forum on what may be in store for veterinary graduates in the years to come, in response to concerns raised by its members.

Entitled "What lies ahead for recent and future veterinary graduates?", the event was held in London on October 23, to enable members and guests to hear presentations and take part in question and answer sessions.

Described as an "intelligence gathering exercise" by chair and BVA president Robin Hargreaves, speakers presented their studies and observations on topics as diverse as EMS provision, quality of teaching in vet schools and trends in numbers of veterinary graduates, along with anecdotal accounts of how this increase may negatively impact the profession.

Speakers presented facts and figures from various surveys, along with anecdotal reports of graduates' experiences when looking for jobs.

The BVA's Rachael Kilroy presented views received from its Members' Services Group, of which she is chair. "There is concern in the profession and from members on employment prospects, EMS and teaching staff. More new graduates will present challenges to the profession, that is undeniable," she said.

On a note of caution, she addressed delegates on the notion the profession was being protectionist, saying not all members held a negative view that increasing numbers of vet graduates was a bad thing.

Anecdotal reports and comments were one thing, said RVC principal Stuart Reid, but the profession must be careful to back up comments with evidence. Prof Reid presented an international perspective on trends in the veterinary field. When discussing the situation in Europe, Prof Reid revealed 40 of the veterinary colleges from the European Economic Area were not approved, and that graduates from these institutions were being (inadvertently) employed in UK practices.

Under EU regulations, the RCVS has to automatically accept EU nationals or community-rights-entitled people from an EU member state who hold a recognised EU veterinary qualification on to the register. Graduates from those other countries would have to take the RCVS' statutory membership exam.

Prof Reid said: "We may not be able to control the numbers of graduates coming out of Europe, so we have to think in other ways about what direction the profession goes in and the jobs that veterinary graduates can take."

Summing up, Mr Hargreaves addressed the issues of increasing numbers of graduates and the situation in Europe with unapproved vet schools, saying "the BVA was on to it".

For the full report, visit www.mrcvs.co.uk/en/news-story.php?id=10889

TWO NEW VETERINARY SCHOOLS ANNOUNCED

VETERINARY schools at both the University of Aberystwyth and Ulster are on the cards, spokesmen from both institutions have told *Veterinary Practice Today*. These follow the planned opening of a vet school at the University of Surrey in autumn 2014.

TIME TO NOMINATE YOUR PRACTICE STARS

NOMINATIONS are open for the Petplan Veterinary Awards 2014.

Now in its 15th year, the awards acknowledge members of the veterinary profession who have gone above and beyond the call of duty in their daily role.

Last year, a record-smashing 11,000 nominations were put forward by clients and veterinary staff across the six categories.

Taking place at Birmingham Town Hall on April 3, 2014, the awards will acknowledge professionals in a range of categories: Vet of the Year, Vet Nurse of the Year, Vet Practice of the Year, Vet Support Staff of the Year, Practice Manager of the Year and Petplan Insurance Advisor of the Year.

Bridge Veterinary Surgery in Somerset won Practice of the Year 2013. With a staff of only four, the achievement was particulary well deserved.

The practice's vet, Ann Parry, and RVN Scott Parry, said:

"We're thrilled to have won Petplan's Vet Practice of the Year award. We never imagined we'd get to the final, let alone win!"

To nominate a friend or colleague, visit www.petplanvet.co.uk. Nominations close on January 31, 2014.

Compere Gyles Brandreth with 2013 Practice of the Year, Bridge Veterinary Surgery, Somerset.

NEW ANIMAL NURSING COURSES AVAILABLE FROM CQ

TWO Level 2 qualifications have been launched by Central Qualifications, designed specifically to prepare learners for working within veterinary practice.

The Diploma for Veterinary Nursing Assistants (DipVNA) prepares students for a career as a veterinary nursing assistant by gaining the knowledge and practical skills necessary to work safely and competently in a veterinary environment.

CQ's other new qualification, the Diploma in Animal Nursing (DipAN), is designed to support those who wish to pursue a career as an animal nurse, while providing a clear pathway to the DipVN.

Both qualifications may be completed on a full or part-time basis at CQ-approved centres and both use the CSL to support the practical learning elements of the courses. The qualifications are available for delivery and enrolment now.

For more information visit www.cqual.org

IN THIS SECTION

IN BRIEF

THE second joint SPVS-VPMA Congress is to take place in Newport, from Jan 31-Feb 1, 2014.

Speakers include Katherine Eitel, who discusses leadership and how to deliver training that sticks, and Marc Abraham who will deliver tips on marketing for free. Plenary speaker is Tracey Killen (pictured), HR and main board director at John Lewis, who shares her experiences and looks at bonuses and their application in driving performance.

Visit vpma-spvs-events.co.uk

EIGHT of the 12 BVA regions are inviting members to put themselves forward for nomination on to council.

Candidates must be willing to gather and represent the views of their peers as part of BVA's policy-making process.

Nominations opened on November 4 for Northern Ireland, Wales, the north-east, north-west, Yorkshire and Humber, East Midlands, West Midlands and London, and will remain open until December 13.

Application packs are available to download from the BVA website www.bva.co.uk/council

Internet retailers: *another mouth to feed*

CHANGE is inevitable in life, and it's inevitable that humans naturally shy away from it. A fear of the unknown, bad things could happen, what if...?

But like it or not, change will happen and it's those companies that embrace the new and unknown that will thrive, innovate and lead the field in their area.

The internet has woven itself inextricably into veterinary life and most practices have embraced the positive effects in terms of greater efficiency in running the practice, fast access to information and the benefits reaped from social media and promotion of a practice's services through websites.
This business opportunity has not passed many companies by, and traditional business models have evolved beyond recognition. This is especially true in the retail sector.

Go to a shop to buy shoes? Why, when you can sit at home and browse hundreds of pairs in the comfort of your own home. Go to the supermarket with the great unwashed on a Friday evening? Why, when MassiveSupermarket.com will pick, pack and deliver your shop timed precisely so you don't get interrupted during *Eastenders*.

Perhaps it is no wonder then that pet owners are choosing to buy their pet's meds and accessories in exactly the same way. The perception is it's cheaper that way than going to their vet for the equivalent products, it is convenient as they can be ordered at midnight when suddenly the owner realises he's out of medication and Fido needs his next dose in a hurry.

The rise in internet retailers that sell preventive pet meds and fulfil prescriptions is the elephant in the room for the veterinary profession. All are aware of it, but many are ignoring the threat these outfits pose to the very existence and viability of veterinary practices.

> "It is not the internet retailer you are fighting, it is the owner's belief that he or she is getting better value for money outside your practice"

A feeling of hopelessness often pervades – how can we fight an online business? They're cheaper than we are, we can't compete can we? They have more buying power than we do, don't they? We don't have an SQP in the practice, so they have to go elsewhere.

But now is not the time for sitting on your laurels and hoping the internet retailers will fizzle out. They won't. Many are in it to make money and that's exactly what many are doing. And is it any wonder when you analyse their sales techniques.

Cost perceptions

A cursory internet search on "pet meds" reveals some interesting results: "Pet meds – huge savings", "Affordable pet medication", "Pet meds, cheap veterinary medications" and "Prescriptions and pet food cheaper than your vet" top the list. The implication being that buying veterinary medicines by means other than via an internet retailer is expensive and inconvenient.

Practices have to find ways of countering consumers' perceptions and persuading clients of the benefits of buying medication from the practice. After all, it is not the internet retailer you are fighting, it is the owner's belief that he or she is getting better value for money outside your practice.

The big fear with taking away the prescribing and supply elements of practice income is that professional consultation fees will inevitably have to increase to make up the shortfall. Vets have traditionally never charged adequately for their time and expertise – a topic veterinary commentators like to bang the drum about constantly, but one that has largely fallen on deaf ears.

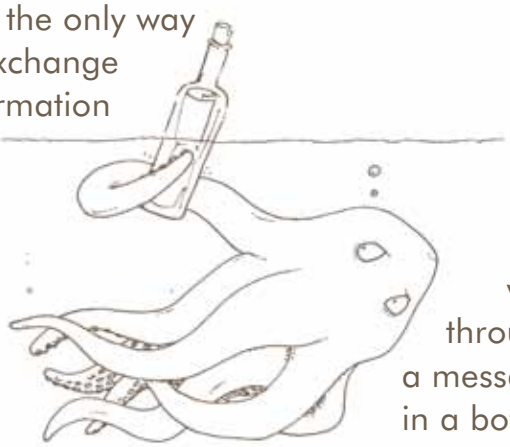
And it's no surprise, considering vets as a general group are not motivated by money. It is a huge challenge to suddenly expect small practice owners around the country to bite the bullet and hike up their consultation charges. To a certain extent there has always been a reliance on being able to put a good markup on drug product costs and not to be embarrassed by having to ask clients for what seems to you like a lot of money for five to 10 minutes of your time.

In the days of predominantly large animal practice, most vets did not even charge for a small animal consultation and it would purely be the cost of any meds prescribed that would go down as income, which possibly has led to a permanent hangover to ▸

COMMENT

Once upon a time, information was stored in your practice as if on a desert island.

And the only way to exchange information



was through a message in a bottle.

Even when the message was received, it was often in a language that couldn't be read.

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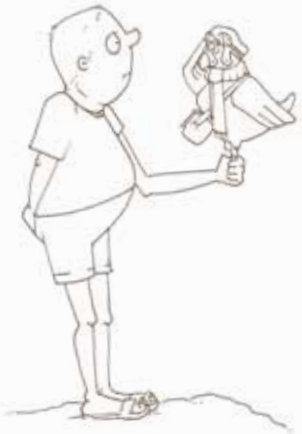

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small animal practice today. More than 80 per cent of revenue for a large animal practice used to be made from products, leaving a paltry 20 per cent gained from services.

The shift in price modelling towards increased fees has been seen in the US, resulting from a huge growth in internet sales of pet medicines. As ever there are consequences and practices have seen a decrease in footfall through their doors. The US veterinary profession has been described as undergoing "renaissance" and initiatives, such as Partners for Healthy Pets, have been formed to promote annual checkups and increase preventive healthcare interventions in practices. Perhaps the UK profession could look at a similar direct-to-consumer campaign to engage pet owners with their vets? (**Figure 1**).

Practices are, of course, obliged to offer certain services to clients that internet retailers are not. Irrespective of where a pet owner may purchase his or her pet meds from, they will still expect to have a practice in their locality, which offers 24-hour care, affordable, effective veterinary treatments, affordable surgery and affordable preventive healthcare.

But how can this be achieved by practices without the intervention of a markup on fulfilling prescriptions written at the practice? The simple answer is that vets' fees have to increase or the loss has to be absorbed by reducing vets and VNs' wages or through not investing in practice facilities.

The situation is not all doom and gloom, however, and practices may consider taking a strategic approach to countering the potential threat posed by internet retailers.

1. Keep clients onside

Be open and transparent with clients. Tell them how their £50 bill is broken down: £25 consultation fee, £12.50 product fee, and £12.50 medicines fee. This should be quite palatable to owners when split down like this.

2. Explain the benefits of buying from a vet

If Fido has a reaction to a drug, at night, the client will be straight on the telephone to the vet – not the online retailer. Responsibility remains with the prescribing vet – it is up to him or her to make the choice of medicine, to keep the patient records, to complete the insurance claim form. The reason online pet meds retailers exist is often just to make money, so the continued professional care received from a practice needs to be explained to clients. A better understanding of what goes into vet fees and why may help clients to acknowledge the value and extent of the services offered exclusively from a veterinary practice.

3. Put pressure on suppliers

Perhaps consider naming and shaming companies that don't support vets? A point that appears to have been missed is that without that first veterinary consultation, there often wouldn't be any subsequent sales of special diets or preventive products. Avoid companies that don't support the profession; there are many that do value working with vets and show their support.

4. Identify the "Trojans"

These are companies that take business away from veterinary practices. Be aware of hidden messages behind company literature, posters, and so on, that may point clients towards an internet retailer purchase. Ensure these are taken down from your notice boards and consulting rooms. This also applies if you advertise on the web – Google, for example, may serve ads

Figure 1. The Partners for Healthy Pets scheme, a US non-profit alliance, brings together veterinary associations and animal health companies to ensure pets receive preventive healthcare through regular visits to a veterinary practice.

around your practice's website for internet pet meds retailers, which is totally out of your control.

4. Build relationships with companies that support veterinary practices

Look for messages that say "for further information, contact your vet" or similar communications. This is in preference to "for further information speak to your company rep," which diverts the query away from the practice.

5. Join them...

Veterinary practices have opened their own online retail outlets when faced with loss of revenue, but that would appear to fuel owners' belief that vets are charging too much for pet medicines.

6. Increase the scope of services offered

Convenience factors are undoubtedly part of the attraction of buying meds online, so practices may take this on board and consider offering convenient methods for reordering and having drugs delivered to clients' homes. Ensure your staff are trained and aware of the issues of (inadvertently or otherwise) directing clients away from the practice when the correct person is out at lunch, for example, and preventive products cannot be handed over. Devise an SOP for dealing with such situations and make everyone aware of it.

7. Change operating procedures

At every annual pet check-up, authorise the use of preventive products that the pet can have. Name the particular products you stock and authorise them to be provided "on request" from the client, and list it on the animal's record. These will be authorised for x months, as deemed appropriate by you, and the VN present can then dispense because it has been authorised by the vet.

Perhaps it is time to think long and hard about what your clients want and adjust procedures accordingly. Adapting to the changing demands of clients – who are, after all, general consumers – may just give you the edge over the more faceless service received from online meds retailers. The benefits to Fido and to the client of having a good relationship with a veterinary practice far outweigh a small price drop; it's just up to the profession to convince them. ■

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Rob Tillyard

Rob has more than 24 years of programming experience and is head of software development at AT Veterinary Systems. He has worked with all major operating systems and has spent more than 20 years designing, writing and supporting veterinary software.

Harnessing the power of SMS

USEFUL, cost effective and reliable, text messaging is an excellent way of communicating with clients. However, it appears that practices are still not exploiting the convenience of this technology to the full. Here, Rob Tillyard explores text messaging as a valuable practice communication tool.

ON THE 20th anniversary of the text message (December 3, 2012), independent regulator and competition authority for the UK communications industries, Ofcom, reported the average British consumer sends 50 text messages every week. Similarly, in 2011, more than 150 billion text messages were sent in the UK – almost triple the amount sent a mere five years prior in 2006. So, despite the rise of social media, it appears the humble text message continues to grow in popularity among UK consumers.

Sending SMS from PMS

Veterinary practices are able to use short message service (SMS) technology by sending text messages to clients straight from their practice management systems. No longer limited to the tech-savvy teenage generation, nor marred by baffling 'txt spk' lol! ;), text messaging is recognised as a worthy business tool and has taken its rightful place next to email in the communication lineup. Practice staff can easily send text messages from a computer terminal to a client's mobile phone to remind them about appointments, preventive treatments or promotions – the benefits of this technology to practice profitability are endless.

Lines of communication

A centralised messaging system allows for communication en masse, thereby significantly increasing client reach. Personalised and automated SMS for appointment reminders – whether for a consultation, quarterly parasite control treatments or yearly vaccination reminders – can be sent to unlimited clients by a member of practice staff.

An integrated text messaging service will allow system information to be merged with data held in client and patient records into a message for multiple recipients, in a similar way to a mail merge. This SMS reminder system, therefore, enables a practice to maximise appointment attendance (in particular for regular preventive treatments) and footfall – providing further opportunities for client education and purchasing.

Similarly, SMS is a valuable tool for providing excellent client care. Following an operation or treatment, clients may be notified via text message as to the condition of their pet and/or regularly updated as to its progress. Further, neither the practice nor the client is inconvenienced by engaged tones, voicemails and poor reception associated with telephone calls. Rather, a text message is a direct, quick and effective means of ensuring information is relayed and received.

Saving time and money

Replacing reminder letters and telephone calls with text messages can result in great practice savings. Not only will a practice reduce paper consumption and negate postage costs, fewer calls to mobile phones

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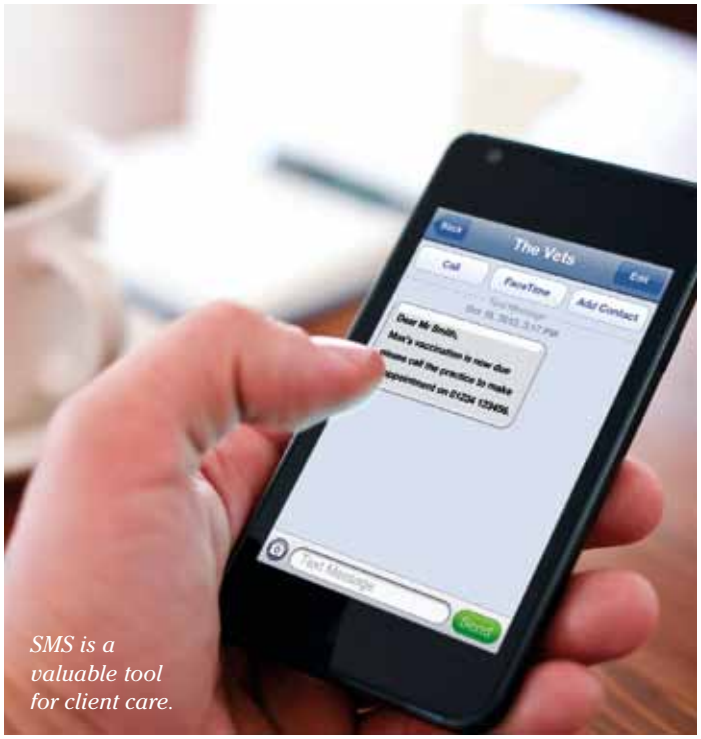
may significantly lower the practice telephone bill. The money saved by a text messaging service could, in turn, be invested into increased frequency of client communications; rather than an annual vaccination reminder letter, a client could be contacted well in advance and/or several times in the lead up to the vaccination date, to ensure attendance. Alternatively, the communications budget could be redeployed for marketing messages via SMS – for example, to generate awareness of a loyalty scheme, encourage the spending of vouchers before their expiry, publicise practice promotions or announce new products and services.

> "Time is a scarce resource in veterinary practice; not only is a telephone call more expensive, it takes longer than sending a quick text"

Time is a scarce resource in veterinary practice; not only is a telephone call more expensive, it takes longer than sending a quick text. Similarly, with a text messaging system, frequently used messages and/or reminders can be stored as templates for re-use, thereby further reducing demands on staff time. Text messages can also be a useful tool for debt collection – an often laborious activity for practice staff, and a great strain on resources. A client who refuses to take a call from the practice telephone number can still be reminded of an outstanding bill via a text message. Further, SMS software will allow staff to view what messages were sent, to whom and when, and also whether they were delivered successfully, thus ensuring the message gets through.

Text messaging has earned its place in practice as an effective, convenient and low-cost means of communication. As the popularity of SMS continues to grow, now is the time for the veterinary industry to embrace this technology as an essential practice tool. ■



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Peter and his brother decided to set up Peninsula in 1983 after paying more than £8,000 in legal fees in an unsuccessful employment tribunal. They saw an opportunity to help other businesses reduce the stress, expense and time spent trying to stay on top of employment and health and safety law. Peninsula is the leading employment law consultancy in the UK, with more than 900 staff who protect and support more than 27,000 clients nationwide.

My head receptionist is pregnant: what should or shouldn't I do or say?

THERE is a raft of "family friendly" legislation embedded into employment law giving several different entitlements to women, including during pregnancy and maternity leave. This area is heavily prescribed, not only in terms of rights to time off at various stages of the process, but in of preventing less favourable treatment of a women who is expecting a child or who is on leave.

IT IS vital employers are aware of the law in respect of pregnant women in the workplace to avoid potentially costly legal disputes. You therefore need to consider your obligations in the following areas: risk assessment, time off before the birth, time off after the birth, contact during leave, discrimination, annual leave and redundancy.

Risk assessment

There is substantial protection for pregnant women and new mothers in respect of their health and safety in the workplace. Employers are required to carry out an assessment on the risks posed to pregnant employees by, among other things, certain physical agents and working conditions, and to adjust working conditions or hours for a temporary period to avoid exposing the employee to the risks. If these adjustments cannot be made, the employee has a right to be temporarily moved to another job or be placed on paid time off.

A risk assessment is best done with the employee herself and will, therefore, mean you should set aside a time to speak to her, where she will be able to raise specific issues. Particular attention should be paid to the following:

- standing for long periods of time and whether it is possible for the employee to alternate between sitting and standing;
- tiredness and stress, particularly where the work involves shift work or working in the evening;
- lifting and carrying and whether any other measure could be put in place to reduce/avoid the necessity to lift/carry;
- exposure to disease;
- violence or risk of physical attack and whether certain duties can be reallocated; and
- lone working.

There is no need for a risk assessment to be in writing, but it is advisable to make a record of the assessment and any control measures required.

If, after an assessment has taken place, it is deemed unsuitable for the employee to continue in her role while she is pregnant, and there are no other duties suitable for her to undertake, she is entitled to be placed on suspension. The employee will be entitled to full pay while on suspension for a total of 26 weeks.

Time off before birth

A pregnant employee is entitled to take time off with full pay to attend ante-natal classes. Other than for the first appointment, the employee has to, if you so request, produce both a certificate confirming she is pregnant and an appointment card.

This entitlement also extends to relaxation or parentcraft classes and the employee must be paid for the whole of the time off – that is, travelling time and not just time spent at the actual class.

Time off after birth

A woman is entitled to take a maximum of 52 weeks' maternity leave in relation to

Employers are required to carry out an assessment on the risks posed to pregnant employees.

If the employee meets certain eligibility criteria she will be entitled to receive statutory maternity pay from you.

the birth. The entitlement is per birth, not per child born – that is, entitlement remains at 52 weeks regardless of whether the employee has twins, etc. The entitlement is made up of 26 weeks' ordinary maternity leave (OML) and 26 weeks' additional maternity leave (AML).

A woman may choose to start her maternity leave before the birth of the child, but no earlier than the 11th week before the expected week of childbirth (EWC). Regardless of when OML starts, the two-week period immediately after the birth of the child is classed as compulsory leave and the employee is not permitted to return to work during this time. The two-week compulsory maternity leave runs concurrently with OML; it does not increase overall leave to 54 weeks.

Maternity leave can be triggered automatically if the employee is absent due to pregnancy-related illness in the four-week period before her leave is due to start.

You should assume the employee will take the full 52 weeks' leave unless she informs you otherwise. It is important to confirm the expected return date with the employee; if you fail to do this, the employee is protected from detriment or dismissal if she does not return on that date. The employee may decide to return earlier than the date she had originally told you, and she must give you eight weeks' notice to do this.

Provided the employee meets certain eligibility criteria, she will be entitled to receive statutory maternity pay (SMP) from you.

When an employee returns to work after OML, she is entitled to return to the same job. If she returns after a period of AML, she is entitled to return to the same job or, if that is not reasonably practicable, to another job that is suitable and appropriate in the circumstances.

Contact during maternity leave

Even if the employee does not take the full amount of maternity leave, she could still be away from work for a significant amount of time, during which there may be developments at work, or regular communications that she may still like to receive. You should confirm with the employee what kind of contact she is happy with, how this contact should be made (by post, email and so on), and how often.

Up to 10 keeping in touch (KIT) days may be taken by the employee throughout her maternity leave without losing entitlement to SMP. This means she may come into work for training, for example, or simply to do her normal duties. These days can be taken in a block or as single days, but the days must be agreed between you; she cannot be forced to come in for a KIT day and neither can she simply turn up.

Discrimination

An employee must not be treated any less favourably during her "protected period" (from the start of pregnancy until the end of maternity leave), because of her pregnancy or a pregnancy-related illness or because she is exercising her rights to maternity leave. You shouldn't discipline a woman for refusing to carry out duties because of pregnancy-related risks, or exclude her from business trips because this would constitute unlawful discrimination.

You shouldn't take any absences due to a pregnancy-related illness into account when calculating eligibility for a bonus, for example, which relies on a certain level of attendance. You should continue to provide an employee on maternity leave with all normal terms and conditions throughout maternity leave, apart from pay (see above).

You shouldn't assume work will be less important to the employee or that she will be less reliable when she returns from leave and attempt to take responsibility from her.

Annual leave

Annual leave continues to accrue throughout the entire length of maternity leave. It is advisable to agree with the employee, if her maternity leave period straddles two leave years, that she will take any remaining annual leave before maternity leave starts to avoid the issue of carrying leave over.

Redundancy

You shouldn't select an employee for redundancy just because she is pregnant or on maternity leave. Women on maternity leave must be treated more favourably than other employees in a redundancy situation, and must be offered a suitable alternative role in the organisation (if there is one) in preference to all other employees. If she is not offered it, she is entitled to automatically claim unfair dismissal.

Failure to consult a woman who is on maternity leave over a redundancy situation would constitute unlawful discrimination. ■

Key points

- Consider in advance how annual leave will fit around maternity leave.
- Remember, in some cases, the pregnant employee must receive more favourable treatment than other staff.
- Agree in advance arrangements for contact during leave.
- Unintentional less favourable treatment can constitute discrimination.
- Do not forget about your employee when she is on maternity leave.

Alison Lambert
BVSc, MMRS, MRCVS

After qualifying as a veterinary surgeon from the University of Liverpool, Alison worked in small animal practice for several years before pursuing a business career. She worked with Hill's Pet Nutrition and MARS before founding Onswitch. Alison is a visiting lecturer at the University of Nottingham Veterinary School, covering customer understanding.

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I treat animals; why do I need a marketing plan?

COMPETITION between veterinary practices is hotting up so putting into place a strategy for promoting your services is essential to help your business succeed. Doing what clients want, not what is easiest for your practice, should always be at the heart of your marketing plan, writes Alison Lambert.

IT'S a strange old world, veterinary practice. Most other small business owners and managers have learned their craft through training or hands-on experience in financial wizardry, marketing strategies and human resources. They know how to plan for success and how to react to market forces when success goes AWOL. Not us. We're clinicians, we are passionate about caring for animals, not the bottom line. The figures speak for themselves – the average spend on marketing by UK vets is 0.5 per cent of turnover. The target spend for other businesses is between five and seven per cent.

While in the past our businesses might have done well almost by default as we got on with doing our thing, that is not the case any more. With the number of UK practices having doubled since 2000, and with vastly raised client expectations, our practices really have to work hard to work well. But it would seem so few are doing this – industry data suggests that only a fifth of practices have an active marketing plan for their business.

The thing all profitable practices have in common is that they put their customers' needs first. They do what their clients want, not what is easiest for the practice. When it comes down to it, other practices in your town do the same basic stuff as you; your point of difference is the way in which you do it. Therefore, the most important aspect of your marketing is demonstrating how you make owners feel at each touch point during their experience – sure, you'll vaccinate their new puppy, but you'll also offer free nurse clinics to check on little Bert's progress. Successful practices have also grasped that the customer experience is created not just from the consult, but also from countless points along the whole customer journey, both before and after.

Think of marketing as the signposts along this customer journey and your marketing plan as the road map. With this analogy in mind, there are four key stages to mapping out a marketing plan.

1. Getting noticed

To raise awareness among potential clients you'll need to address some specifics, including the following.

- Exactly who is your target audience?
- Where do these potential clients live? Eighty-five per cent of owners live within three miles of their chosen practice. So concentrate on local door drops, take a stand at the community show in the park nearby, advertise on the roundabout on the main road, but do it all in your neighbourhood, not on the other side of the city.
- How will they get to you? Are there physical barriers (rivers, mountains, ring roads)? Are you on a bus route? Do you have plentiful parking?
- Why should they choose you? Think about the benefits the client feels from the services you offer. The emphasis is on peace of mind – for example, knowing you can get an appointment without having to take time off work – rather than the fact you offer evening

consults. It's a subtle but important difference.
- What makes your practice different from others in your area/what's special about it?
- Where are the gaps in the market locally?
- How can you add value to a basic service?
- Do you have clear, consistent and modern branding? First impressions really do count, and a tired old logo on a faded sign says to potential clients that your service will be equally jaded.

2. Filling the funnel

Stating the obvious, perhaps, but without clients you don't have a viable business, even if you do have all the latest kit and qualifications. If a practice is to continue to be successful it must constantly recruit new clients. Each year up to a fifth of clients at an "average" practice will move away, switch to another practice or cease to need veterinary care through bereavement of a pet.

- Make the phone ring. This is crucial; veterinary practice is essentially a telephone business. Owners will ring around in a bid to compare practices and, increasingly, are making their choices based on how they feel about the practice, not just the price of services.

"Other practices in your town do the same basic stuff as you; your point of difference is the way in which you do it"

- Local mail drops are a proven source of new clients for many practices and, in the face of increased competition, posting leaflets can be very cost effective.
- Local press and radio campaigns are another cost-effective way to reach a large local audience and highlight your practice's point of difference. Remember not to just tell potential clients what you do, but demonstrate how you do it: respectfully, warmly and thoughtfully, and in partnership with Fluffy's owner.

3. Customer experience

- Measure everything – what gets measured gets better. You'll have a benchmark to work from, a level to exceed, and realistic goals to aim for. When you get a new client, ask where they found you. Keep a record of how many clients come to you from local press advertising, door drops or Facebook, and then you'll know which route is most effective. Ask your clients for feedback (anonymously if you like) so you can improve the little things that make a big difference to their perception of your practice. Find out how many incoming calls are lost, how many are converted into appointments. Then set a practice target to improve the levels of each.
- Personal communication – use email, text and Facebook to send relevant reminders and offers directly to clients and potential clients.
- Use social media. If your practice is not on Facebook, then get a practice page sorted out, and allocate a team member to be responsible for uploading content regularly. When you consider the average Facebook user has 141 friends, it's an extremely cost effective way of reaching a large audience with your caring, passionate expertise.
- Make the consult magical. Without a full diary of paid-for consults, your business is not maximising profit potential. And that full diary means clients are delighted both with the clinical care their pets receive, as well as with the personal service they receive. Seek client feedback, observe your colleagues in action, and get yourself on to a training course to hone your skills.

Keep a record of how many clients come to you from local press advertising, door drops or through Facebook or Twitter, and then you'll know which route is most effective.

4. Word-of-mouth recommendations

- "Friend-get-friend" schemes really do work, and up to 80 per cent of new business is attracted to practices through word of mouth. They are an excellent (and self-funding) way to grow client numbers by rewarding existing ones who recommend you.
- Allocate a team member to be responsible for setting up and managing an ongoing "key opinion leader" programme as a leading practice in your area. Fostering long-term relationships with animal care businesses in your catchment area is a great way to ensure that when their clients ask them to recommend a good veterinary practice, yours is the one they enthuse about. Evening meetings, learning seminars, open days, newsletters and social events could all be part of such a programme.
- Use social media to raise awareness, help bond clients and build loyalty.

And the beauty is it goes round again – your current clients love you so much they tell their friends. Their friends become clients, who quickly come to love you so much that they tell their friends...

And all because you made a marketing plan and stuck to it. ■

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Industry Insights

Your name Martin Mitchell
Position Group Communications Director
Company Ceva Santé Animale
Number of UK employees 40
Number of employees worldwide 3,000+

Your role Together with my team, we direct Ceva's communications internally and externally. The biggest challenge is to ensure our employees in the 43 countries where we are directly present understand and share our vision for the business, and our mission, summed up in our slogan: "Together, beyond animal health".
Other roles Member of IFAH Europe's communications committee, and advisory board member of Stamp Out Sleeping Sickness, Uganda.
Biography After spending my early career in the UK animal health industry, I have spent more than 20 years working in international roles, with extensive experience in Africa. Now based at Ceva's headquarters in south-west France, I have developed some interesting insights into the workings of the global veterinary industry.

How has the year been for you so far?
Challenging is probably the key word. Having a track record of double-digit growth through our first 12 years is tough to continue. The global veterinary market has been tough, with some companies posting negative growth; fortunately, we are still moving forward against this challenging background.

What were the highs and lows?
Hosting the Ceva Animal Welfare Awards during BSAVA Congress was one of the highs. I'm constantly amazed by the efforts so many people make to improve the lives of animals. I was fortunate enough to be on the table with the winner of the Chris Laurence Vet of the Year award, Timothy Phillips – he and his wife have done such amazing work in Greece, they both have an energy and dedication that is infectious – wonderful.

Lows – it's not really in my vocabulary.

What are the biggest challenges facing your industry sector?
We are in many different sectors throughout the world: biology and pharmaceuticals, with products for poultry, swine, ruminants and companion animals. Generally, continuing to provide innovation is the key to success and the biggest challenge.

The health of the industry generally reflects the global economic position. The "old economies", particularly in Europe, are slowing and people are very cost-conscious, even with their animals. The "new economies", particularly Asia, but also Latin America, are the real motors for growth. North America is probably somewhere between the two. Each sector therefore requires a different approach, there is no "one fits all" solution.

What steps are being taken to address these?
We encourage our managers to view the performance of their businesses in the light of the sector they work in.

What do you consider the biggest successes in terms of animal health and welfare this year?
Our mission: "Together, beyond animal health" is our long term commitment to society and cannot be viewed in the context of one particular year. We launched the first avian influenza vector vaccine in Egypt at the end of 2012 and have continued to roll it out in Asia this year. The vaccine has the potential to substantially improve the control of this disease, which not only impacts animal welfare but poses perhaps the most significant threat to human health.

> "Far too many pets are given up needlessly and, as society becomes more and more urban, we have a role to play in educating the public as to how best to live with their animals"

I'm also very proud of the work we are doing with the veterinary community to draw attention to the fact there are solutions to the behaviour problems we see induced by stress in companion animals. So many people still do not understand they need to prepare animals to meet major life changes – the arrival of a baby, and so on. That's why in the UK we are reaching out to new groups, such as gynaecologists, to get this message across. Far too many pets are given up needlessly and, as society becomes more and more urban, we have a role to play in educating the public as to how best to live with their animals.

What do you see as the biggest challenges facing UK vets?
I'm probably not the best person to answer this question as I don't work with UK vets directly. But from my time in the UK this year and participation at the AVMA meeting in Chicago, I would say for companion animal practices it is getting customers through the door.

How could vets tackle these challenges?
Vets are not facing this trend in isolation – look at the challenges for high street retailers. All businesses have to adapt to changing market conditions. The biggest challenge in my opinion is to better understand the role of digital communication, not only in driving foot traffic, but in profiling and keeping hold of existing customers.

Do you believe the current model of vets splitting fees between services and products is successful and/or sustainable?
The UK is lucky in that it has a highly developed private pet insurance sector. Funding better health in humans and animals will continue to challenge all economies. I think it is unlikely that most vets will be able to make a living simply from selling services.

Is it right vets rely so heavily on product sales to keep them in business?
Vets are highly trained professional people and ideally should not have to rely on selling veterinary products to have viable businesses. That said, since 2006, we have been working with a number of young vets in Uganda who have now established businesses in the most inhospitable northern parts of the ▸

country, where previously there were no services or products. They now sell products that contribute to controlling sleeping sickness (trypanosomiasis) both in animals and humans, and in that way provide a major public good. Without the sale of drugs their businesses would not exist and so it's all about the context.

Ceva has made massive inroads into developing pheromone therapy for cats and dogs – is the company focusing on any other species or working on any other behaviour products?
Absolutely and we have more innovation coming soon – watch this space.

Is it your opinion that companion animal behaviour issues are on the increase? What might be the reason?
In short, we don't know. It's something we should try to understand better, but it stands to reason that as 70 per cent of the world's population will soon be living in cities, together with their animals, animal behaviour issues will rise with overall stress levels.

If/when you are developing new products, how do you decide what will come to market?
We have two teams, one for biology and one for pharmaceutical products, who continually try to predict future trends/needs and then direct the R&D teams to bring about the innovation to match this "blue sky" thinking.

How does your company support the veterinary profession?
We are lucky in that the majority of our executive committee is made up of vets, including our chairman and CEO, Marc Prikazsky. Marc sets the tone; we are not simply in business to make money, but to support the profession, which in turn has a vital role to play in protecting the health of our society.

What do you see as the biggest growth area – food-producing animal products or companion animal?
We are invested equally across a number of species. Producing more quality, safe food is a priority and feeding nine billion-plus people in the future will obviously drive growth. However, a more important figure is that three billion people will enter the middle class between now and 2030, 85 per cent of these in Asia. History shows that in most cultures as people get richer they also like to share their wealth with companion animals.

What do you think is the public's perception of the products and services offered by vets?
It's too difficult a question to respond to on a general basis, it varies from country to country, sector by sector, person to person. We are all members of the public – what do you want? The best possible service at the lowest possible cost! Finally, the products and services must deliver value for money.

How do you tackle the "divide" between industry and practice?
What divide?

What is your position on online pharmacies undercutting veterinary practices for the sale of preventive and general veterinary medicines?
A good question. When I came back to Europe five years ago, I was asked to do a study in the UK, US and France trying to understand why our internet business was exploding, despite the fact that we didn't sell directly to online pharmacies. In the UK, Feliway was one of the top three demanded veterinary products over the internet – many internet retailers were using it as a "loss leader" to drive traffic to their sites. The reality is that many people prefer to buy online these days.

Feliway is a product that needs professional advice for it to work most effectively; therefore, we are committed to working with practices to ensure they are the primary providers of behaviour products. We need to work with the profession to ensure they are online, competitive and are attractive suppliers to consumers. We will continue to support practices to ensure they are attracive to online purchasers, but the profession also needs to move with the times and ensure their margin expectations and overall digital image are in line with what today's pet owners expect.

Medics are blaming the veterinary profession for overuse of antibiotics and the subsequent development of resistance. What's your response to this?
This is a total nonsense and I'm not convinced that most medics would believe this in any case. Even pressure groups lobbying for more limited use of antibiotics in intensive livestock farming recognise that human antibiotic overuse may well be the chief culprit.

The debate about how we best protect the future of antibiotics, which have generally increased average life expectancy by more than 10 years, is vital to society. Our position is simple: antibiotics should be used in animals "as little as possible and only as much as necessary". Laws are adequate to achieve this, but we have to work together with the profession, the animal health industry and livestock owners to ensure the vet is put back at the centre of the prescription process.

How is food-animal production changing in the face of increasing population and meat consumption? Does this present an opportunity or a threat? What are the welfare impacts?
As suggested previously, the majority of population and economic growth will be driven from Asia and China in particular. Food production will have to increase 60 to 70 per cent by 2050 to meet this growth. When I sit with many colleagues in IFAH Europe they say, "yes, but in Europe we will eat less meat as the population becomes more health conscious". This may be the case, but people forget that in 2011 China consumed 70 million tons of soybeans with 56 million of that going into livestock feed, a significant proportion of which was imported. So, necessarily, growth in Asia and China will have an impact on food prices throughout the world.

What is in some way surprising is, after WWII, western countries concentrated on producing lots of cheap plentiful food, but Asian countries are, in a sense, missing a step, as wealthier consumers are very aware of food safety. The good news is that people around the world are more and more aware of animal welfare. And, as a Yorkshire farmer's son, that gives me lots of hope for the future. ■

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