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The emergency splenectomy

Professor Sue Gregory BVetMed PhD DVR DSAS(soft tissue) FHEA MRCVS

This lecture will discuss the emergency splenectomy and will address indications for surgery, the underlying disease processes, diagnostic investigations, pre, peri-operative and postoperative management and care of these patients.

In veterinary practice, the commonest reason an emergency splenectomy is required is to manage abdominal bleeding secondary to a ruptured splenic mass. Other indications include splenic torsion, trauma, diffuse neoplastic disease and occasionally to help manage immune mediated disease.

Splenic disease requiring emergency surgery is most common in older dogs. It is rare in the cat. The diagnosis is usually made by the veterinarian based on history, clinical signs and further diagnostic tests of which the most important are abdominal ultrasound and paracentesis.

Pre-operative management is dependent on the underlying disease process but in the case of a haemoperitoneum and/or splenic torsion usually involves intravenous fluid resuscitation and the administration of pain relief. As a veterinary nurse you are likely to be involved with patient stabilisation and monitoring, processing blood and abdominal fluid samples for urgent laboratory investigation and assisting with diagnostic imaging.

Frequently animals present with a grossly enlarged spleen and although the veterinary surgeon may be highly suspicious of a ruptured tumour, the definitive diagnosis is not made until surgery. The usual aims of an emergency splenectomy are to prevent further haemorrhage, remove the diseased spleen and allow collection of samples for pathological examination. Surgery also allows the examination of other abdominal organs for related disease.

The spleen is usually removed via midline laparotomy. Nurses are a vital part of the team in both circulating and scrub nurse roles. The lecture will discuss these roles as well as the essential equipment and new instrumentation available that can enhance the procedure.

Post operatively these patients may be critical and require close monitoring. They are prone to developing cardiac arrhythmias and may develop other serious postoperative complications. The role of the nurse in both the postoperative care of the patient and owner will be discussed.

Neutering early – the pros and cons

Professor Sue Gregory BVetMed PhD DVR DSAS(soft tissue) FHEA MRCVS

Early age neutering is the prepubertal removal of the gonads. It is a procedure which has become popular in the USA and is becoming popular in the UK, particularly in animal rescue and rehoming centres. The primary aim of early age neutering is to prevent reproduction in cats and dogs by eliminating the possibility of ‘teenage’ accidents!

This lecture will discuss the pros and cons of neutering early and will consider anaesthesia, surgery, animal care and the postoperative effects in both cats and dogs. The lecture will be evidence based and will aim to assist veterinary nurses with the provision of information to clients and other members of the practice team.

Anaesthesia for caesarean section in the bitch

Ellie West MA VetMB CertVA MRCVS

Bringing new life into the world! Involvement with a caesarean section can be an amazing experience, but why is it often stressful for the anaesthetist? A combination of factors makes this anaesthetic challenging:

The unique maternal physiology. Changes in the cardiorespiratory systems affect the ability of the mother to cope with the additional demands of anaesthesia. A distended abdomen reduces lung capacity, and makes regurgitation during anaesthesia more likely. After a prolonged labour, the mother may also be distressed and exhausted.

The critical transitional phase from foetus to neonate. Neonatal mortality is very common, with reported rates of up to 20% (Moon et al. 2000). Factors that increase the risk of morbidity and mortality include certain anaesthetic agents, being of brachycephalic breed and large litter sizes. The choice of anaesthetic management can be guided by the current literature to reduce the incidence of perioperative problems.

The emergency nature of the surgery. A recent study found a nearly 3-fold increase in the odds of anaesthetic-related death in dogs with an increase in urgency of the procedure (Brodbelt et al. 2008). Preparation and planning for emergency procedures is likely to increase the chances of success, and reduce the stress to staff and patient.

This lecture will identify the main problems for anaesthesia of caesarean section in the bitch and present current literature and techniques for perioperative anaesthetic management.

References:

Moon et al. (2000). Perioperative risk factors for puppies delivered by cesarean section in the United States and Canada. JAAHA 36, p359-368.


Pharmacology in Anaesthesia

Ellie West MA VetMB CertVA MRCVS

Can we understand why a sedative drug might not have the desired effect?

Can we predict when an analgesic drug will have a significant toxicity?

Can we create new drugs with ideal anaesthetic properties?

Pharmacology is the study of drug action, and the main challenge in pharmacology is to apply scientific principles to make medicines more effective and less dangerous. The first pharmacology department was set up in 1847 in recognition of the need to understand the effects of therapeutic drugs and poisons, despite no understanding in this era of chemical structures. Since then, massive developments
in the field have resulted in understanding of receptors and their interactions which allow us to understand the actions of drugs, and even allow us to develop novel drugs and routes of administration.

Anaesthesia is described as a drug-induced, and reversible, lack of awareness. Whilst general anaesthesia in animals was first reported in 1550 with use of extracts from the Deadly Nightshade plant, modern anaesthetic agents such as ketamine, propofol and isoflurane have only been available since the 1980s. In clinical anaesthesia, we now use a combination of drugs to target different parts of the triad of anaesthesia; unconsciousness, muscle immobility and analgesia. We aim for the drugs we give to reach a specific target site and have a specific effect. Rapid progress has been made in the development of new anaesthetic and analgesic drugs, but problems such as limited efficacy (e.g. nitrous oxide alone cannot anaesthetise a dog), unwanted side effects (e.g. that NSAIDs can cause gastrointestinal disturbances) and undesirable physical characteristics (e.g. the strong pungent smell of isoflurane) are still common.

This lecture will introduce some of the main concepts of pharmacology using examples from the world of anaesthesia. We will also discuss how pharmacology can be used to understand clinical problems.

**Professionalism – what does it mean?**

Carol Gray BVMS MRCVS

The development of veterinary nursing as a distinct profession has been very exciting and rewarding for its members, particularly those who were at the forefront of this change. What are the implications of being a member of a profession?

In this session, we will explore what it means to be a professional, by firstly looking at the various meanings of the term “professional” in different arenas. We will focus on its meaning in healthcare, as this is most applicable to veterinary nursing. We will look at how professions are regulated, and whether self-regulation is sustainable. Finally, we will consider the ethical basis for professionalism. We will discuss reflection as an essential component of this, and consider a proposed blueprint for professional behaviour that can be used by every current and future member of the veterinary nursing profession.

**The New Code of Conduct for VN’s**

Andrea Jeffery MSc DipAVN(Surg) RVN CertEd MBVNA

This lecture will cover why a change to the old Guide to Professional Conduct was needed. The format and content of the new Code of Conduct for veterinary Nurses will cover the new principles which RVNs must adhere to. The speaker will discuss why a new Declaration has been included and its significance in this the 50th year of veterinary nursing. There will be a summary of the content of each section of the new code including clinical governance. There will be a reminder of the RCVS complaints procedure and an update on the RCVS Health Protocol and the Performance Protocol, with plenty of time for questions during and after the presentation.

**From novice to expert: Exploring notions of professional competence**

Dr Jacky Eyres

Professional competence is a key element of nursing practice, but what does it mean to be competent and how can we assess competence in ourselves and others? In this session we will explore two notions of competence – the ‘conscious competence’ learning stages model and the Dreyfus model of skill acquisition. Both models chart the journey from naive beginner to expert practitioner, highlighting the stages of skill acquisition and development, and the types of professional knowledge in use at each stage. This session will be relevant to all nurses who want to understand the nature of professional practice, and to those with responsibility for supervision, training and development of qualified and trainee nurses. Gaining a broader insight into competence can help with:

- Planning your own and other nurses’ professional training and development
- Delegation of nursing work
- Motivating team members and colleagues
- Carrying out appraisals
- Succession planning within the practice

The session sounds rather theoretical but will hopefully be illuminating, interesting and relevant to everyday practice!

**It shouldn’t happen to a Veterinary Nurse**

Michael Standford BVSc FRCVS

On 1st April 2011 the Royal College of Veterinary Surgeons commenced formal regulation of Registered Veterinary Nurses (RVNs). As a consequence, RVNs are now expected to participate in Continued Professional Development, follow the Guide to Professional Conduct for Veterinary Nurses and are subject to a rigid complaints procedure regarding their professional conduct, similar to that already in place for veterinary surgeons. In addition, a RCVS Health Protocol is in place to cover RVNs whose fitness to practise may be impaired by adverse health.

The Veterinary Defence Society (VDS) already assists veterinary surgeons with over 300 RCVS complaints per year and is perhaps best placed to understand quite how stressful even the most experienced professional feels when they receive a letter from their regulatory body. Realising RVNs were now under the same scrutiny and faced similar risks to veterinary surgeons, the Society created an insurance policy in 2011 specifically to cover regulatory complaints against nurses.

We aim to provide a sympathetic ear to RVNs and the reassurance of considered advice which we believe helps to ensure the best chance that a complaint is closed sooner, rather than later. If a RVN is unfortunate enough to find themselves in serious trouble we provide a legal team with experience second to none in veterinary regulatory matters, including full representation at Disciplinary Hearings, if necessary.

This presentation will take a light-hearted approach to a serious subject. The content will cover the differences between misconduct complaints and allegations of negligent work, before guiding the delegates through the RVN complaint process. Based on our
experience, common situations which lead to grievances against nurses will be highlighted and simple tips provided to help prevent a RN from receiving a RCVS complaint in the first place.

Just get on with it! A beginner's guide to effective delegation
Lisa Cooper RVN CVPM

Registered Veterinary Nurses have ever increasing levels of responsibility in todays practice. Maintaining professional accountability for your actions when working in a team can be problematic, for example if you asked a colleague to carry out a task and it wasn’t carried out competently, should you bear some of the responsibility for this?

Teamwork inevitably leads to tasks being delegated to you, or by you, which you may later be held accountable for. This is where good delegation skills are especially important. Effective delegation helps to maintain trust and coordination with our co-workers. Delegation when managed well, can help to motivate staff, identify leaders, and promotes a professional workplace. Delegation when managed badly can have the opposite effect. This lecture will focus on the levels of delegation and the steps of achieving effective delegation.

Clinical governance.....why me, what for and what now?
Candice Buchanan BVMA MRCVS

This lecture aims to elucidate and illuminate the benefits of good clinical governance, providing useful guidance on its practical application in the clinical setting. A brief introduction to the requirements of the veterinary team with respect to clinical governance answers the ‘Why me?’ question. The benefits for your patients, clients and the personal development of the staff will be described which helps understand ‘what for?’ The demonstration that forms the second half of the lecture will provide practical suggestions and guidance on how to run case discussion meetings which I hope will inspire you into action and answers the ‘what next?’ query.

There will be plenty of opportunity for open discussion and questions. The lecture should provide a forum for sharing ideas and experiences of case reviews from a nursing perspective. If any nurses would like to bring a particular case and be part of the demonstration, then please contact me directly on coventry@vets-now.com

The role of clinical audit in infection control
Pam Mosedale BVetMed MRCVS

The nurse's role is vital in implementing both an effective infection control policy and clinical audit in practice. In this lecture I hope to explain a little bit about what clinical audit is, why it is useful and how it can be carried out in practice. I will explain the RCVS Practice Standards Scheme & Code of Professional Conduct requirements for clinical governance & audit. We will discuss how audit fits into clinical governance, and show that clinical audit is just a way of collecting and recording clinical information with the aim of monitoring the quality of care. I will explain briefly how to carry out a simple audit and explain the difference between outcome audits, which monitor the results of a treatment and process audits which check whether practice guidelines are being followed.

We will also discuss the PSS requirement for a practice biosecurity policy, what factors should be considered in drawing it up and how to implement it. Then how to use audit as a tool to check whether the guidelines are being followed and so monitor the effectiveness of the policy.

We will talk about significant event reviews & audits, where as the result of an unexpected event, such as an MRSA case in the practice, discussions can lead to a review of infection control policies.

Care and treatment of the hedgehog (Erinaceus europaeus)
Kay Bullen VN

Our native hedgehog will be the most common wild mammal brought into the veterinary practice. Whilst it appears somewhat different to most mammals because of its prickles anatomically it is much the same.

When presented many are seriously compromised because hedgehogs have to be sick enough to be found out in the day before people realise that they are in trouble.

On arrival most hedgehogs will be hypothermic and any open wounds are likely to be old, infected and subjected to fly strike. Initial treatment usually involves stabilising the patient with warmth and fluid therapy although any with serious injuries may need to be euthanased.

Even uninjured orphaned are likely to have fly strike especially around any damp areas eg eyes, armpits and anus. As with the injured hedgehogs they will need warmth and fluid therapy. Before given fluids or solids orally the hedgehog must be warm otherwise it will be torpid and may choke.

A further more detailed examination will then be needed to determine the reasons for admission before any course of treatment can be started. If a hedgehog is brought in that is hypothermic this is unlikely to be the cause of the problem, hypothermia is a symptom and just warming it up and releasing it is not the answer. The same applies to being out in the day – there is a reason for this and often, but not always, there is a problem with that hedgehog. Otherwise it would be nocturnal.

When caring for a hedgehog it must be remembered that it is a wild animal, it should not be treated as a pet and handling and stressful situations should be kept to a minimum. Success is measured by those that can be released back into the wild with a similar life expectation of its wild relatives.

The rehabilitation of raptors and owls
Richard Thompson BSc(Hons)

In recent years, bird of prey (raptor) and owl admissions to Vets and Wildlife Centres has increased due to better legal protection and their adaptation to urban environments, for example kestrels, sparrow hawk and Peregrine falcons all nesting in cities.
To further understand the reasons for admission of the species involved, those attempting to rehabilitate raptors and owls should possess additional knowledge of their natural history, as well as avian medicine. Generally, most veterinary nurses are able to identify a generic raptor or Owl, but subtle differences in behaviour and body structure necessitate different treatment regimes, feeding and housing.

Combining diurnal and nocturnal birds into an integrated protocol is difficult, but some fundamental similarities may be found to assist in the rehabilitation process.

All birds entering rehabilitation have in some way a similar food requirement. The range of prey items may vary, but in essence dead vertebrate material will dominate their dietary needs.

Also, as predators that use sight, speed and agility to capture prey items, any triage should include a full ophthalmic examination and radiographs to assess whether a swift return back to the wild is indeed possible. Permanent or temporary loss of vision or mechanical damage to wings and limbs will require extended periods of rehabilitation and specialist care.

As in any species of wildlife casually it is inevitable that orphan birds will be collected and taken into Vets and Centres. Unfortunately, these birds are easily imprinted due to the intensive feeding regime required in the initial stages, but with experience and a variety of techniques this can be avoided.

Finally, the ultimate goal, releasing raptors and owls back to the wild. This procedure is just as important as managing the treatment and feeding, with nothing being left to chance. It should be a carefully managed process taking into consideration population dynamics and of course the high levels of stamina and fitness required to survive back in the wild.

Wildlife in practice: when to rescue and when to euthanise
Lucy Kells DipAVN(Surg) VN, Liz Allen RVN & Simon Cowell MBE, The Wildlife Aid Foundation

A wide variety of British wildlife is brought into veterinary surgeries for emergency treatment; for illness, injury or simply for becoming orphaned. This talk will go some way into helping nurses with basic first aid for wildlife, simple easy techniques for treating wild and advice on whether you should try with some conditions, or when to ask the vet to peacefully put to the animal to sleep.

Many factors should be taken into consideration when treating wildlife; both to stay within the confines of the law, such as when dealing with schedule 9 species, or when considering the animals survivability in the wild. For example, is it right to amputate a very badly injured front leg of a hedgehog? Is it right to amputate the wing of a wild bird?

Liz and Lucy will talk about commonly seen species, how to handle them and some information about the care they are given at The Wildlife Aid Foundation to see them through to release back into the wild.

Additionally, with the current economic climate making times hard for many veterinary surgeries, they will demonstrate how injured wildlife can be given emergency first aid with minimal fuss and cost, to stabilise the patients prior to transfer to specialist wildlife rehabilitation centres. They will also discuss some commonly seen illnesses and how, with some simple treatments, these too can be treated quickly and cost effectively.

They will finally discuss several recent cases referred, by veterinary surgeries, to The Wildlife Aid Foundation, a British wildlife hospital and rehabilitation centre in Surrey that has over 30 years’ experience in treating all species of British Wildlife.

Badgers & TB; understanding the argument
Robert Broadbent BVetMed MRCVS

The details of the occurrence of disease caused by Mycobacterium bovis in badgers are nearly always obscured by the hotly disputed relationship to cattle with the same disease. Hard scientific evidence is often presented thinly in comparison with an overwhelming plethora of circumstantial evidence and hearsay from both sides. This is balanced by great support for the badger by the general public and welfare organisations, and for cattle by the farming community. This is not to say that the farming community does not care about the badger or its welfare, nor the general public about cattle and their welfare.

This short lecture is intended to present some of the facts as agreed by the scientific community, and promote thought and discussion without the heat usually generated at such meetings. Hopefully at the end, it should be possible to have a balanced view of the argument, thereby understanding both sides of it, even if one’s view of the moral high ground is still firmly placed.

Is it non-accidental injury?
Paula Boyden BVetMed MRCVS

In order to consider a diagnosis of non-accidental injury (NAI) in veterinary practice, we must be able not only to recognise the abuse, but to use the correct and appropriate terminology.

NAI is a synonym of physical abuse, other synonyms being battered child syndrome and battered pet syndrome. Abuse is well defined in humans; however there is a lack of accepted terminology regarding the abuse of animals which causes problems; for those in veterinary practice, for research and for courts of law. This can be further complicated by our different attitudes to different groups of animals.

Therefore, in the case of companion animals, tried and tested child abuse terminology has been accepted. The categories of abuse are:

- Neglect
- Emotional
- Sexual
- Physical

It must be stressed that diagnosis of NAI is a difficult challenge; both emotionally (we do not expect our patients to be intentionally hurt) and intellectually (it is a combination of factors that raises suspicion). Furthermore, it may only be after a period of time that suspicions...
are aroused. The veterinary nurse can be critical in such cases as clients will often speak much more openly to a nurse than they will a vet.

When dealing with cases of suspected animal NAI, consideration should also be given to the ‘Link’, the interrelationship between violence to people and violence to animals. Evidence of its existence has been growing for some years and furthermore, it has been suggested that evidence of abuse to the family pet might be a useful indicator for early signs of abuse to other members of the family. This lecture will discuss the different types of abuse and explore the role of the veterinary nurse in dealing with such cases.

Acknowledgements:
Helen M C Munro BVMS MRCVS, Honorary Fellow, University of Edinburgh Veterinary School
Ranald Munro BVMS MSc DVM Dip Forensic Medicine, DipECVIM MRCVS, Professor of Forensic Pathology, Royal Veterinary College
Phil Wilson, Prosecutions Case Officer, RSPCA
Scottish SPCA

Further Reading:
Munro R; Munro H M C. Animal Abuse and Unlawful Killing – Forensic Veterinary Pathology. Saunders
Ascione F R. The International Handbook of Animal Abuse and Cruelty: Theory, Research and Application. Purdue University Press

Findings from the PDSA Animal Wellbeing (PAW) Report – how you can make a difference
Nicola Martin BVSc MRCVS

In 2011 PDSA launched the PDSA Animal Wellbeing (PAW) Report, the most comprehensive insight into the way dogs, cats and rabbits are looked after in the UK today. Based around the five welfare needs detailed in the Animal Welfare Acts 2006, it revealed both fascinating and shocking information on each species as well as some interesting owner and professional opinions on a variety of companion animal health and welfare issues.

Whilst it clearly showed that the UK is a nation of animal lovers, it also showed that the affection owners have for their pets is often misguided, which is having a detrimental effect on pet wellbeing. Certain areas of pet care are completely misunderstood, especially for rabbits, which has a negative impact on their welfare. Everyone working in veterinary practice has a vital role to play in educating current and potential pet owners. Owners rarely set out to deliberately make their animals suffer, but until they understand what their pets need, it is impossible to ensure they will provide for their pets’ total health and wellbeing.

This session will cover the key findings from the 2011 PAW Report, of which many of which will come as no surprise as they are issues which you deal with on a daily basis. Alongside this will be new insights from the 2012 PAW Report which also features opinions from children and veterinary professionals on topical issues such as obesity, aggression and preventive care.

The challenge facing all of us is to translate the five-point duty of care into something that owners can understand and follow on a daily basis. The session will look at practical ways in which veterinary practice teams, animal welfare organisations and others can work together to help achieve this, followed by an opportunity to discuss how we can make a difference in our daily roles and take even more steps towards improving pet wellbeing.

Travelling pets and vector borne disease
Joy Howell DipAVN(Surg) RVN MBVNA

The recent relaxation of the pet travel scheme rules has made the United Kingdom more vulnerable to the risk of exotic diseases some of which are transmitted to our pets by ticks. Ticks can transmit the fatal diseases such as babesia, ehrlichia and Borrelia burgdorferi (lyme’s disease). The ticks which transmit these diseases inhabit both the UK and abroad.

The Veterinary profession need to educate their clients about the dangers of ticks not only when travelling abroad but also at the ‘at risk’ locations in the UK. Education should include what the risks of ticks are and how we can prevent possible infection of vector borne diseases. At the same time it is important for the veterinary profession to be vigilant in recognising the signs and symptoms of these diseases.

Even though there is a low prevalence of tick borne disease in the UK it is important to recommend control strategies as these diseases could spread through the pet population. This could occur by infected pets travelling from abroad to the UK to infect non-infectious tick populations. Travel is more commonplace with relaxation of PETS scheme regulations and migration of workers within the EU.

It is equally important to be vigilant about further Vector Borne diseases not Endemic in the UK, but a risk to our travelling pets, such as Dirofilariasis (Heartworm) and Leishmaniasis.

There is also a need to educate clients about the risk of re-introducing echinococcus multilocularis (fox tapeworm) which can cause alveolar echinococcosis a potentially fatal zoonotic disease.

This lecture aims to cover the main vector borne disease and give guidelines on how to gather more information and make use of websites etc. to educate your clients

Update on obesity – where are we now?
Dr Marge L Chandler DVM MS MACVS DipACVN DipACVIM DipECVIM-ca MRCVS

Overweight body condition or obesity is currently the most common nutritional disorder that occurs in companion animals in many countries. One estimate is that there has been a 400% increase in the last 25 years in the United Kingdom. Surveys have reported incidence rates of between 24% and 59% in adult dogs. Until recently, it was generally believed that obesity in cats was less prevalent, but recent studies of house cats reported that between 19% and 52% of the cats seen by veterinarians were considered to be overweight or obese. The figures vary with country and with the method of enrolling the pets in the study.

Being overweight is the presence of excess body fat, while obesity in considered to be a body weight of 15 to 20% more above the ideal. Recognition of the condition by owners contributes to the problem. In one study only about 30% of owners with overweight dogs...
recognized that their dogs were too fat. About a third of cat owners underestimated their cat’s body condition score, especially if their cat was overweight. Owners of long haired cats were more likely to underestimate their cat’s body shape and condition score.

The Pet Food Manufacturers’ Association (PFMA) showed eight out of 10 dog, cat and rabbit owners believe their pet is the right weight; although when asked which body condition picture resembled their pet, only 33% of dog owners and 23% of cat owners chose the ‘normal weight’ picture. Further, only a third of the cat and dog owners who thought their pet was overweight believed they could do ‘a lot’ about their pet’s weight, 62% of dog and 72% of cat owners believed they could do little to nothing about their pet’s weight.

The development of nutritional assessment as the 5th vital assessment may help veterinary surgeons educate owners about proper body condition and weight.

**Behavioural aspects of obesity**

Sarah Mitchell RVN M8VNA

Obesity and behaviour are closely related, and pet owners will need guidance on behavioural issues whilst the weight reduction programme is being undertaken. Some owners will need re-educating that rewarding their pet doesn’t need to be in format of food; social interaction, toys, exercise and grooming are all examples of a form of reward that can be utilised.

Training issues may need to be addressed, so that exercising to full potential can be met. This may be due to dogs not being able to exercise to their full extent as recalls may be poor, and therefore the owner may not want to exercise the dog off the lead.

The behavioural aspect of multi-cat households can be difficult to address. Owners need guidance on feeding more than one cat, cats should be fed separately. This means that they should not be able to see any other cat whilst eating. Cats when stressed can eat, and although the owner may only note that their cat eats a very small number of meals, large amounts of calories may be being consumed in this period.

Play behaviour in cats is also greatly misunderstood. Play behaviour needs to mimic that of hunting, which tends to made up of a period of stalking followed by a fast explosive pounce. This will occur several times a day and will only normally last for up to 30 seconds. Play behaviour therefore needs to stimulate the cat to react, (movement, noise etc), and allow the cat to catch the object.

**Nutritional aspects of obesity**

Dr Marge L Chandler DVM MS MACVSc DipACVN DipACVIM DipECVIM-ca MRCVS

Recommending an appropriate diet is a key component of designing a weight loss program. Clients will often ask if they can simply feed a smaller amount of the animal’s current diet. In some cases, particularly if the amount of recommended weight loss is small, this is a reasonable option. In cases where more calorie restriction is necessary, this may curtail the amounts of other nutrients too much.

Diets specially designed for weight loss usually contain nutrient levels adjusted for the anticipated calorie restriction. Thus, by using these diets, patients can receive normal levels of most other nutrients, while decreasing fat and calories. An increased protein: calorie ratio allows animals to maintain their protein intake, which helps facilitate loss of fat while minimizing loss of lean body mass. Calorie restriction with a low fat diet is more effective for loss of body fat than a high fat diet, despite similar calorie restriction. The fibre in commercial weight loss products may provide a satiety effect and decrease begging or other food related behaviours.

As with any diet change, the diet transition should be done over several days. The owner should be weighing or measuring the amount of food provided. If dogs refuse to eat the diet, the owner should be encouraged to persevere for several days even if the food intake is extremely small.

Treats and snacks are an important part of the human-animal bond and many clients will not stick with a weight loss programme if they are eliminated entirely. Treats should be limited to 10% or less of the animal’s daily caloric intake. There are low fat commercial treats on the market, or alternatively, treats such as unsalted, unbuttered popcorn, raw carrots or plain rice cakes may be fed. If possible feed the animal several times a day. Multiple meals may help increase the animal’s metabolic rate, and may help reduce begging by the pet.

**Difficult cases in obesity clinics**

Nicola Ackerman BSc(Hons) RVN CertSAN CertECC A1 V1 C-SQP MBVNA

Obesity is the most prevalent form of malnutrition in pets presented to veterinary practices. Obesity is deemed as, when body fat exceeds 15-20% of body weight. Excessive weight is an associative cause or exacerbating factor for specific orthopaedic, endocrine, cardiovascular and neoplastic disease. Obesity will also make the animal less tolerant or resilient to metabolic stress. The weight and volume of fat in the abdomen of an obese animal can exert enough pressure on the bladder to induce leakage of urine. The animal needs to change from a positive energy balance to a negative energy balance. Nutritional management only comprises part of a weight loss management programme; the animal’s exercise levels and lifestyle also need to be considered.

When conducting weight loss clinics there are often some cases that have difficulty in weight loss. This can be due to a number of different factors, consuming too many calories (often owners not being 100% true full in foods being fed), insufficient calories being burnt off (too little exercise, or quality of exercise), and metabolic changes. Very few are due to metabolic issue such as hypothyroidism, and most are due to too many calories in comparison to calories expended.

In cases where weight loss isn’t being achieved we need to question the client carefully on why this is occurring. Reiteration on why weight management may be required in order to help maintain motivation with the client, and it is important to explore different routes, such as different types of exercise, different weight loss diets, pharmaceuticals and in some cases with dogs; training issues.

Issues can arise where clients are not willing to take weight loss advice and there are concerns for the quality of life for the animal. It is important to refer back to the veterinary surgeon within your practice, and to make clear notes on the animal’s clinical history that you have given advice, handouts, leaflets etc and that you have referred back to the veterinary surgeon. As RVNs it is important to note this advice, and when you have sought guidance from other parties, e.g. nutritional help lines etc.
Blood gas and acid-base analysis in small animals: a practical case based approach
Matthew McMillan BVM&S MRCVS

Maintaining an appropriate acid-base balance, and keeping oxygen and carbon dioxide tensions in blood optimised are fundamental physiological processes for all animals. These processes can be affected by a number of disease states and injuries and have wide ranging physiological effects that are often not assessed. Blood gas and acid-base analysis enables us to assess these effects but has traditionally been a test only available at referral level hospitals. In recent years blood gas analysers have become more affordable and available for use in general practice. Analysing blood gas and acid-base can be complicated and confusing but this lecture will try to simplify and hopefully de-mystify the approach to blood gas analysis allowing the beginner to assess common acid-base abnormalities in small animal patients. Discussion will be based around case scenarios and will try to show how blood gas and acid-base analysis can help the diagnosis, management and monitoring of emergency and critical care patients.

General principles will be covered followed by examples of both respiratory and metabolic disorders commonly encountered in general practice situations. Unavoidably, the lecture will include some very “basic” maths so a calculator might be useful but it is by no means essential!

Cardiac biomarkers in dogs and cats: uses, limitations and sample handling
Graham Bilbrough MA VetMB CertVA MRCVS

Diagnosing cardiac disease is challenging as clinical signs may be absent or indistinguishable from those of other conditions, particularly respiratory disease. A relatively new option, to help with the puzzle, is to use cardiac biomarkers (substances found in the plasma in increased concentrations when the heart is diseased). They are relatively inexpensive and are frequently used to justify further investigations.

What is the Cardiopet proBNP test?
A measure of plasma Nt-proBNP concentration. Typically, Nt-proBNP levels increase as cardiac disease worsens.

BNP is a hormone released by the myocardium in response to increased stretch. Generally, heart disease will lead to increased stretch/stress on the muscle cells of the ventricles. The primary effect of BNP is to promote salt and water loss by the kidneys, lowering the circulating blood volume and reducing stretch.

BNP only exists in the blood for a matter of seconds, making it extremely difficult to measure. BNP is stored as an inactive prohormone and is activated by “chopping off” the tail segment. This redundant portion is Nt-proBNP; it is less labile and easier to measure.

Cardiopet proBNP is a refinement of the older assays systems still available from some laboratories. In particular, Cardiopet proBNP uses a special transport tube removing the need to keep the sample frozen.

When should Nt-proBNP be measured?
• To identify cats, with or without clinical signs, that are likely to have cardiomyopathy.
• In dogs and cats, to differentiate heart disease from respiratory disease as the cause for clinical symptoms e.g. dyspnoea.
• Of dogs with a cardiac murmur, but no other symptoms to date, only a small proportion will develop heart failure in the following year making it difficult to justify expensive investigations (e.g. repeated thoracic radiographs). Nt-proBNP can be used in certain dogs as a yearly blood test to identify when to start other investigations.

As with all blood tests, influences on the concentration should be considered when interpreting the result.

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What is IDEXX’s high-sensitivity cardiac Troponin I test (hs cTnI)?
The concentration of cTnI in the plasma is proportional to myocardial cellular damage. Older assays were not able to “look” at the relatively low concentrations relevant to dogs and cats, unlike the newer high sensitivity assays.

Analgesia in cancer management
Linda Roberts DipAVN(Medical) VTS(Oncology) RVN

Advances in veterinary medicine mean that pets are living longer, with many “diseases of old age”, e.g. cancer, being managed long-term. Management of pain in these patients is essential to maintain optimum quality of life. To achieve this, pain must be recognised and treated appropriately, through constant re-evaluation, tailoring analgesia to address patients’ changing needs. As in many areas of cancer treatment, veterinary nurses have an essential role to play in comfort management.

This lecture aims to overview the options available - from pharmacological strategies, to nursing care, both in the hospital environment and at home, in conjunction with owners.
Microscopy for VNS
Frances Gaudiano RVN MBVNA DiplDerm
Participants will learn how to prepare slides from skin scrapings, tape strips, urine and blood samples. Samples will be stained as needed and examined under low, high and oil immersion magnifications. Methods of identifying structures will be discussed and practiced during the workshop. Participants are required to bring at least one skin, one urine, and one blood sample to prepare.

Emergency and critical care
Lindsey Dodd BSc(Hons) VNPA VPAC RVN MBVNAs
This workshop will provide a hands on opportunity to learn about several procedures including placement of nasal oxygen catheters, iv catheter placement; including central lines, thoracocentesis and feeding tubes, and equipment used in emergency and critical care, including multi-parameter monitoring machines; pulse oximetry, capnography, CVP, oscillometric blood pressure, and ECG. We will also look the consumables and the preparation required for each procedure.

Basic rabbit husbandry
Matt Brash BVetMed CertZooMed MRCVS
This workshop will consist of a lecture combined with practical rabbit handling sessions, which lasts approximately 1 hour and 30 minutes. This session covers core nursing skills in areas such as talking to rabbit owners, making rabbit appointments, the rabbit clinic, handling rabbits, and examining rabbits especially their teeth. It also covers in more detail rabbit nutrition.

Advanced rabbit husbandry
Matt Brash BVetMed CertZooMed MRCVS
This workshop will be a more advanced session that still involves rabbit handling, but looks at rabbit nursing, covering areas such as pre and post-operative rabbit care, anaesthesia, intubation, and looking after rabbit in patients.

Practical and communication skills for supporting clients through pet bereavement
Julia Dando, Training Manager, Society for Companion Animal Studies (SCAS)
The loss of a pet can be a highly emotional, stressful and sometimes traumatic experience for any pet owner. Veterinary professionals whether a surgeon, nurse or receptionist, are at the forefront of dealing with people on a regular basis as they go through some very difficult times.
Often we hear questions from professionals in practice such as “what do I say?” or “what should I do?” when faced with those grieving the loss of their beloved pet.
This workshop looks at:
• How the “Human-Companion Animal Bond” affects the relationship that people have with their pets and how its importance relates to you working in practice.
• Loss and the grieving process; what you can do - and what not to do to help support people during those difficult times.
• The “Bond-centred practice and what your practice can do better to support everyone through pet bereavement including some useful communication skills and protocols.

Recent advances in wound dressings
Louise O'Dwyer MBA DipAVN(Surg) RVN MBVNA
This workshop will look at the treatment of wounds from beginning to end. Reviewing the assessment of patients with wounds, through to lavage and debridement techniques, dressing selection to closure options. The workshop will allow delegates to gain ‘hands on’ experience in a variety of techniques and the opportunity to review the newer dressing types available.

The beginning of a beautiful partnership: Effective admission techniques and why they are so important
Sally Bowden BSc(Hons) CertEd RVN HonMBVNA
Picture the scene: it is 8am on Monday morning and you are about to start work. You are in charge of patient admissions and there is already a client, dressed in a smart suit, carrying a cat basket jumping up and down impatiently at the reception desk. How long will this take? He needs to get to work and he is just dropping off the cat for his girlfriend. Seated in the waiting room, you also spot another client quietly waiting with her dog, who is also on your list. She looks stressed, has tears in her eyes and keeps looking anxiously at her pet.
Traditionally, student nurses learning about patient hospital admission are trained to remember lists of questions, ensure forms are correctly completed and don’t forget that oh, so important signature on the consent form, all rather boring, really. But patient admissions are actually vitally important interactions- this lecture will take a less than traditional look at the challenges facing nurses during the admissions process. What can be achieved by the veterinary nurse? Our supreme ability to communicate is so important here- we can harness that ability, along with good judgement and decision-making to turn a hum-drum Monday morning admit into the beginning of a beautiful partnership with the client- and one that ultimately benefits the patient.
Goodbye and good luck! Avoiding treatment failure by using effective patient discharge techniques
Sally Bowden BSc(Hons) CertEd RVN HonMBVNA

Studies have shown that non-compliance by the client is frighteningly common and it isn’t a major leap of faith to assume that it is probably a major cause of treatment failure in veterinary patients. So, how should we view the discharge process? Is it a case of handing over the reins to the client and hoping for the best? Veterinary nurses tasked with discharging a patient may consider it a rather routine part of their day in many cases and perhaps even a ‘necessary evil’ during busy periods.

But, during this lecture your views might change! The ‘going home’ is actually an absolutely key moment- you have the client’s total attention and it is in your power to influence the outcome of a treatment plan. This lecture explores this interaction and considers not only the ‘nuts and bolts’ of good discharge technique, but also the skills that come into play and how these should be honed by the veterinary nurse to ensure each and every patient that leaves the hospital has a better chance of recovery because of something you did or said during that process.

Courses for horses: An update on equine veterinary nurse training
Julie Brega and Erica Dorling

Since training for veterinary nurses was established in 1961 as the Animal Nursing Assistant training scheme, the qualifications and training have undergone many changes. Equine specific veterinary nurse training is still relatively new with the first Equine Veterinary Nurses (EVNs) qualifying in 2000.

The most recent change to have affected the Royal College of Veterinary Surgeons (RCVS) Veterinary Nursing award happened in 2010 with the change from the four qualification award at levels two and three (two National Vocational Qualifications (NVQs) and two Vocationally Related Qualifications (VRQs)), to one diploma set predominantly at level three.

The change over from the old to the new was, at times, challenging for the students affected by the change over and for the centres delivering the programme. Two years on the diploma programme is fully up and running and many centres are gaining excellent student results.

At the time of writing (May 2012) further changes are imminent as the RCVS plans to cease to be an awarding body at some time late in 2012. The intention is that new awarding bodies (which have to be approved by the RCVS) will award veterinary nursing qualifications and the RCVS will maintain its position as the professional body for veterinary nursing.

The purpose of this presentation is to clarify the effects and implications of the change over and what it means in terms of syllabus content, training programmes, eligibility and administration, with a specific slant on equine nursing provision.

The options available for those wishing to undertake the veterinary nursing equine route, either as a full programme or as an addition to their small animal qualification will be explained.

The presentation will include information regarding how the award works in reality for students, practices and centres. We will discuss the requirements for Training Practices (TPs) and Auxiliary Training Practices (aTPs), summative essays, internal examinations, the Nursing Progress Log (NPL), external RCVS theory exams and Objective Structured Clinical Examinations (OSCEs).

MRSA and Infection Control
Louise O’Dwyer MBA DipAVN(Surg) RVN MBVNA

MRSA and infection control are high on both the public and the profession’s agenda. This lecture will look at the current situation with resistant infections, such as MRSA, and also infection control considerations, some obvious, but some which are not so obvious. This lecture will give nurses a good knowledge base to take away and apply in their own practice environment.

Worming: increasing owner awareness
Joy Howell DipAVN(Surg) RVN MBVNA

Preventative Veterinary Healthcare is now quite rightly a major role of the Veterinary Nurse and it is now equally important to not only understand the science behind worming but also to have a good understanding of how to educate the general public about responsible pet ownership.

This lecture aims to not only cover the major endoparasites of dogs and cats and the implications to public health but also how to promote responsible worming protocols to our clients. This will include how to use resources provided by manufacturers and organizations such as ESCCAP www.esccap.org.

Bayer the sponsor of this lecture is in turn:

ESCAP

The dyspnoeic cat
Suzanne Rudd DipAVN(Medical) RVN

Stress and fear often make cats very challenging patients in practice. Cats who are dyspnoeic are therefore even more challenging as the distress of being unable to breathe will cause further stress, anxiety and in turn make handling and nursing very difficult. Appropriate handling is vital as any struggle or resistance will increase the cat’s oxygen consumption making dyspnoea worse. The veterinary nurse plays a vital role in all aspects of the dyspnoeic cat from the first phone call to the diagnosis and treatment of the cat.

When receiving a phone call from the owner of a dyspnoeic cat it is important for the veterinary nurse to gain concise information about the cat’s history, e.g. signalment, signs of trauma, medications, exposure to toxins etc, as this will allow vital preparation while the cat is being transported to the surgery. Advice can also be given on how to transport the cat with minimal stress.

Preparation is vital when presented with a dyspnoeic cat. The nurse should prepare for every eventuality including methods to provide...
oxygen, monitoring aids, drugs and emergency items such as equipment in the case of respiratory arrest and equipment needed for emergency procedures such as thoracocentesis.

On initial presentation it is often necessary to take a “hands off” approach. Placing a cat in an oxygen cage to allow the cat to oxygenate as much as possible before handling, restraint and any procedures is often vital as the cat will be very stressed. While the cat is in an oxygen cage the nurse can assess respiration including pattern as well as rate. The cat may also tolerate a pulse oximeter placed onto the ear to allow non-invasive monitoring of the cat's SPO². Slowly as the cat becomes more settled, further assessment can be made and other vital parameters can be measured in order of least stressful first.

Once an assessment has been made and the cat has been stabilised the nurse will be involved in preparing for further diagnostic investigations such as ultrasound, radiography, electro and echocardiography. There are many things the nurse can do to reduce stress to the cat while further investigations are being performed. The nurse should be responsible for monitoring the patient and informing the Veterinary Surgeon of any changes in the cat's condition.

Nursing the dyspnoeic cat can be very challenging but very rewarding. The nurse plays a vital role and with the right “catitude” can influence the successful treatment of the cat.

The role of the SQP VN within small animal practice
Nicola Ackerman BSc(Hons) RVN CertSAN CertECC A1 V1 C-SQP MBVNA

It is useful for nurses in small animal practice to have the SQP qualification in order to dispense and prescribe appropriate medicines for animals. The SQP qualification is regulated by AMTRA and requires annual retention fees alongside continued professional development that has been approved by AMTRA. Many anthelmintics are POM-VPS or NFA-VPS category which can therefore be prescribed by a veterinary nurse with the appropriate SQP qualification.

Many pet owners purchase their pet’s anthelmintics cover from supermarkets, chemists and pet shops due to convenience and in some cases the miss conception that vets are expensive and that the vet will have to see the pet in order to dispense. It is important to convey to clients that over the counter medications from veterinary practices can compete on price and convenience with the added bonus of professional veterinary advice regarding preventative pet health care.

Nurses that conduct clinics will find it is exceptionally helpful to hold the qualification so that appropriate anthelmintics can be given without the need to consult the veterinary surgeon. For example puppies and kittens presented to the practice before their primary vaccination course, they haven’t yet seen a veterinarian surgeon to authorise a POM-V prescription for anthelmintics. Puppy and kitten clinics should be highly promoted in the practice as these potential new clients are not just good for business but also the best opportunity to start educating new pet owners on preventative healthcare.

As the person prescribing the medications one of the specifications is that it should be confirmed with the owner that they are able to administer the medications that have been prescribed prior to dispensing. In some cases a different format of medication, spot-on instead of tablets, can be of utilised. Compliance and return of business is an important role of the SQP nurse, and adding in increasing footfall to the practice is vital. Accurate weighing of the animal should occur at each presentation to the practice, and the SQP nurse should also give the pet a physical examination, and give appropriate advice.

Why worm?
Joy Howell DipAVN(Surg) RVN MBVNA

This lecture is an AMTRA accredited SQP CPD presentation, providing 8 points.

The Learning objectives are:

• To identify the common Gastro-intestinal worms in dogs and cats and to consider worms found in other organs of the body
• To understand the impact of parasites on our pets’ health and the implications to humans

Later in today’s programme there is a further lecture entitled ‘Worming: increasing Owner awareness’, 14.25 - 15.10, which aims to not only cover the major endoparasites of dogs and cats and the implications to public health but also how to promote responsible worming protocols to our clients. This lecture will be a useful follow on, for nurses hoping to put their knowledge into education programmes for their clients.

Rabbit and rodent dental problems – what needs to be done
John G A Robinson, Dentist to the veterinary Profession (john@vetdentist.com)

Rabbits (and other lagomorphs), Chinchillas and Guinea Pigs have constantly erupting cheek teeth. These animals, all too often, suffer dental problems caused by inappropriate diet. Adequate cheek teeth wear is required to keep the teeth in healthy balance. Food which is too soft or concentrated results in insufficient wear of the cheek teeth. Over time the cheek teeth then deteriorate until the animal cannot eat.

Good examination
Picking up minor abnormalities (subtle signs of developing problems) enables early intervention which can stop greater problems occurring.

Dietary change
Changing to a grass type diet while the teeth are still normal will prevent problems. It is also beneficial to maintain after treatment but only for minor abnormalities. It is too late to change the diet once there are significant abnormalities and can actually be unhelpful.

Incisor malocclusion
In rabbits incisor malocclusion can be due to a jaw length discrepancy (genetic defect) or secondary to cheek teeth abnormality. Incisor overgrowth due to jaw length discrepancy begins well before 1 year of age. Treatment is either a lifelong programme of incisor
trimming (every 4 weeks) or incisor extraction (a better option). If the incisors are not extracted they can lead to other problems such as cheek teeth abnormalities.

Incisor malocclusion secondary to cheek teeth abnormality, presents at about 3 years of age. This acquired problem takes several years of deterioration in the cheek teeth to result in incisor malocclusion and overgrowth.

Cheek teeth problems
The two main cheek teeth problems in Rabbits & Chinchillas are increased tooth length and spurs (from tipping and curvature). Spurs cause soft tissue trauma and usually rapid onset anorexia. Different abnormalities develop simultaneously and it varies as to which becomes the presenting problem – spurs or incisor malocclusion.

Guinea Pigs mainly get over tall cheek teeth which bridge the tongue and prevent swallowing.
The cheek teeth need to be rebalanced by grinding them down at least to normal arrangement. Further reduction can increase the time interval between treatments. Teeth need to be reduced with dental drills as hand instruments are either too dangerous or too laborious.

When, why and how of dental radiography
Lisa Milella BVSc MRCVS
Dental radiography is one of the most important tools available to the veterinary dentist. The bulk of the tooth can only be visualized by means of radiography and much pathology can be missed without its use. In some cases a lesion can be recognized clinically but the full extent of the pathology can only be evaluated with the use of radiography.

Intra-oral dental radiography enables one to obtain images of individual teeth and the associated bone avoiding superimposition of the opposing side. Dental film is also non-screen film which produces images of very high detail and quality enabling you to fully assess the structures in the tooth, around the tooth and give excellent quality of the surrounding bone.

In order for a full examination of the mouth to be complete, radiographs should be taken. Using a standard veterinary x-ray machine is possible, provided the correct dental x-ray films are used. Using a specific dental x-ray machine though is easier and more efficient, and not cost prohibitive to practices either. Dental examination and charting, scaling and polishing as well as taking radiographs are all important roles for the veterinary nurse. An understanding of the indications for dental radiography and how to position to obtain the correct images is required.

Two techniques are used – a parallel technique and bisecting angle technique.

The parallel technique has limitations in that the technique is used when the film is placed parallel with the tooth (crown and roots) to be radiographed, and this is only possible in the caudal part of the mandibles. For all other teeth, the bisecting angle technique is used. Here, an imaginary line is drawn bisecting the angle of the tooth and the angle of the film. The x-rays beam is then positioned at ninety degrees to this bisecting angle. This ensures that the image created is the correct length, not elongated or shortened. (For more details, please refer to the BSAVA Advanced Veterinary Nursing manual)

Some indications for dental radiography include:
1. Fractured teeth
2. Moderate to severe periodontitis
3. Resorptive Lesions
4. Discoloured teeth
5. Missing teeth
6. Swellings in the mouth
7. Persistent deciduous teeth (check whether root resorbing)
8. Pre and post extractions
9. Complications
10. Jaw fractures

Proper professional tooth cleaning
John G A Robinson, Dentist to the Veterinary Profession (John@vetdentist.com)
When a veterinary professional is performing tooth cleaning they need to understand the purpose of the entire procedure and also each part. Each component of tooth cleaning should be done in an effective and efficient way to get maximum results. It is pointless spending time doing something which provides no benefit. It must be ensured that no harm is caused.

Scaling and polishing teeth is not a stand-alone activity. It needs to be combined with on-going plaque control (homecare) to have lasting results.

Power Scaling
Set up of ultrasonic scaler machine:

- Correct tip pattern
- Check tip (insert)
- 2mm wear approximates to 50% efficiency loss
- power & water
- Test on finger

- sickle / perio / universal
- not bent, damaged or worn
- tip should be replaced
- half power, enough water to make a large plume
- increase water or reduce power until cool


**Effective Dental Clinics and VN Consultations**

Claire Bloor BSc(Hons) RVN PGCE CertVN(Dent) C-SQP MBVNA MIfL

Dental clinics are an essential part of your dentistry service provision in veterinary practice, to both provide routine check-ups for all patients and to monitor patients after treatment. Through dental clinics we can ensure the best possible oral homecare and advice is being taught and provided to our clients, and thus improves the health and welfare of our patients.

But what makes an effective dental clinic? There are many things to think about when you are contemplating the provision of a dental clinic to your clients and you want your efforts to be of maximal benefit to your patients. The way you conduct your consultation, the location and resources available will all impact on the effectiveness of your efforts.

This lecture aims to:

- Explore the concept of a ‘dental clinic’
- Consider what types of patients we are going to be examining
- Briefly outline the types of conditions we might identify with a link to the resources we will therefore need available during a clinic
- Discuss what the resources do, how they should be used and what they are indicated for
- Consider how we can demonstrate or emphasise the importance of various aspects of oral hygiene to clients, both practically and theoretically
- Outline and discuss a ‘to do’ list during a dental consultation to ensure you are conducting a thorough and ultimately effective consultation every time

Having attended this lecture it is hoped that all VNs will feel confident in their approach to the construction and conduction of an effective dental clinic and be able to return to practice with ideas for changes and improvements in their current provision.

**How animals learn**

Dr Anne McBride BSc Cert.Cons. PhD FRSA

This talk will introduce basic principles of how animals learn. The concepts involved in learning are relevant to the learning of all vertebrates, be they fish, reptile, bird or mammal, and even invertebrates! Terms such as habituation learning, Classical, Operant and ‘clicker’ training often appear in the literature. However, exactly what they mean is not always understood. Likewise, it is not always clear how the theoretical knowledge can be applied to real life scenarios, and thus assist in all aspects of veterinary care, be that running puppy parties or dealing with a frightened pony. Understanding the basics of how animals learn is essential if we are to meet our obligations for animal welfare, with particular reference to the need to minimise the risk of causing mental distress; namely anxiety or fear, to animals in our care.

This talk will provide an introduction to habituation, classical and operant learning, and how clicker training fits in. It will describe the process of how animals learn to be fearful or calm and relaxed in the presence of certain stimuli such as at the vets, fireworks, traffic, and horseboxes etcetera. The talk will then consider how they learn new behaviours, and how these can be taught and put on cue in a manner that will be clearly understood by the student, namely the animal! Throughout the theoretical knowledge will be explained with respect to examples applicable to all those working with animals.
But, unless this causes physical disease or a change in the cat's behaviour that the owner perceives as indicative of distress or considers

when social and environmental conditions conspire to cause unrelieved arousal and stress, feline wellbeing is inevitably undermined.

attitudes, expectations and actions can easily create a mismatch between what a cat is expected to cope with and what it is able to

However, it is not only lack of such knowledge that can undermine the wellbeing and quality of life of the cats we deal with. Owner

behaviour of the domestic cat it is difficult for even well intentioned owners to provide an environment and management that safeguard

As the veterinary team we deal with cat owners. Generally these clients love their pets but that does not necessarily mean that they

Before any animal is assumed to be suffering from a 'purely' behavioural problem a veterinary surgeon should carry out a full clinical

In addition an increasing number of conditions, such as feline interstitial cystitis (FIC), feline hyperaesthesia syndrome, feline psychogenic

alopecia and obesity, are being identified in which environmental and social stress are significant contributing factors. These require

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alopecia and obesity, are being identified in which environmental and social stress are significant contributing factors. These require

Therefore, in order to properly advise clients who present their cats with problematic behaviour and direct them appropriately, we must

such knowledge is also essential when offering preventive advice directed towards any feline medical condition where stress, frustration and emotional conflict are implicated in compromising immune function and general health.

The cat owner – feline friend or foe?
Francesca Riccomini BSc(Hons) BVetMed CCAB MRCVS DipAS (CABC)
As the veterinary team we deal with cat owners. Generally these clients love their pets but that does not necessarily mean that they

always do what is best for them, or actually know what that means. Without understanding the importance of the origins and natural

behaviour of the domestic cat it is difficult for even well intentioned owners to provide an environment and management that safeguard

their feline companion's welfare.

Therefore there are good reasons for ruling out, treating and/or adequately managing any contributing medical condition before a cat is referred for a behavioural consultation, in-house or to a

behaviour counsellor.

House soiling for example is a potential problem with any condition that causes polydypsia and polyuria, although the chances that it

will occur are increased where owner expectations are unrealistic and the cat's management is inappropriate. It may also persist when

the condition has been identified, treated and resolved because the cat now associates its litter tray with pain and has established

an alternative, albeit from the owners’ perspective unacceptable, latrine site. Therefore, not only is veterinary attention necessary to

adequately resolve the case but behavioural intervention is an essential component of the process. Neither process alone will achieve a

satisfactory result.

In addition an increasing number of conditions, such as feline interstitial cystitis (FIC), feline hyperaesthesia syndrome, feline psychogenic

alopecia and obesity, are being identified in which environmental and social stress are significant contributing factors. These require

comprehensive treatment programmes that combine medical and behavioural components to obtain the best results for affected

patients.

Therefore, in order to properly advise clients who present their cats with problematic behaviour and direct them appropriately, we must

first arm ourselves with the relevant knowledge and a full understanding of all the issues involved in these often complicated scenarios.

Such knowledge is also essential when offering preventive advice directed towards any feline medical condition where stress, frustration and emotional conflict are implicated in compromising immune function and general health.

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However, it is not only lack of such knowledge that can undermine the wellbeing and quality of life of the cats we deal with. Owner

attitudes, expectations and actions can easily create a mismatch between what a cat is expected to cope with and what it is able to

deliver in terms of being a satisfactory pet.

When social and environmental conditions conspire to cause unrelied arousal and stress, feline wellbeing is inevitably undermined.

But, unless this causes physical disease or a change in the cat's behaviour that the owner perceives as indicative of distress or considers

unacceptable or irritating, it is unlikely the animal's suffering will be identified. Additionally, an owner's response to problematic

behaviour is often inappropriate, causes further stress and compounds the difficulties.

Of particular concern are those cats that simply retreat and hide, causing no one any problems but existing with a compromised quality

of life, and those suffering from conditions where stress is a contributory factor, feline idiopathic cystitis (FIC), psychogenic alopecia and feline hyperaesthesia for example.

It is however a mistake to speak of 'the cat owner'. Like their cats, owners are individuals with a range of personality variables that will

influence not only any client's willingness to seek advice but also when they do so.
It is our task therefore when dealing with owners in a first opinion setting or during specific behaviour consultations to ensure that in addition to good clinical and behavioural knowledge we are equipped with the personal understanding and social and communication skills necessary to help transform owners who have been unintentional feline foes to sympathetic supportive feline friends.

**Canine cognitive dysfunction: the important role of the VN in recognising and treating this disease**

**Caroline Warnes BVSc MSc MRCVS CCAB**

Canine Cognitive Dysfunction is a progressive neuro-degenerative disorder, and clinical signs may be seen from 6-7 years of age. The number of dogs affected and the number and severity of clinical signs shown increases with age.

Clinical signs include changes in:
- learning ability and memory
- social interactions with people and other animals
- spatial awareness
- sleep-wake cycle
- personality and emotional changes including anxiety.

These signs are very variable and often subtle, especially in the early stages. Many occur in other medical and behavioural disorders common in older dogs. These must be ruled out before Canine Cognitive Dysfunction can be diagnosed.

Although CCD is a progressive, incurable condition, treatment strategies can slow disease progression, and help dogs cope better. Treatment efficacy is increased with early diagnosis and implementation.

Veterinary Nurses can play an important role in early diagnosis by asking relevant questions to owners of older dogs coming in for routine appointments, geriatric clinics etc. Owners could be asked to complete, at least annually, the Canine Cognitive Dysfunction Rating Scale (http://www.maturedogs.com) and/or a check list of relevant questions. Dogs suspected of showing signs should be seen by a vet for diagnosis.

Once diagnosis is confirmed, Veterinary Nurses can help advise and implement treatment strategies including:
- Dietary modification: research indicates improved clinical signs with diets or supplements enriched with antioxidants, mitochondrial co-factors, omega-3 fatty acids and medium chain triglycerides.
- Environmental modification/enrichment: environmental changes can help the dog access important areas and resources more easily, thereby reducing anxiety. Early implementation of mental stimulation opportunities including foraging/activity feeding, gentle exercise, interactive play, can slow deterioration. Reducing stress is very important at all stages.
- Behaviour therapy: in early disease stages, re-training of lost behaviours using clear, reward-based training, and simple desensitisation and counter-conditioning procedures can be helpful.
- Drug therapy: severely affected dogs, particularly those showing a lot of anxiety, are likely to benefit from adjunctive drug therapy.

As the underlying neuro-degenerative changes begin well before obvious behaviour changes, there is a strong argument for making some of these changes prophylactically in older dogs.

**The human-animal bond**

**Dr Anne McBride BSc Cert.Cons. PhD FRSA**

This talk will consider the human-animal relationship from the point of view of both the human, and of the animal. It will introduce concepts that are applicable to our relationships with vertebrate species in general, and particularly the mammals and birds. The importance of understanding concepts such as ‘dominance’ and ‘aggression’ and other aspects of social living is essential if we are to reduce the likelihood of problem behaviours emerging. In addition, we need to understand why owners keep animals and how we can help them understand how changes in interactions with their pets can enhance the relationship on both sides. This talk will introduce both some theoretical aspects of human animal relationships and some simple means by which stable relationships can be set up and maintained between animals and their humans in a non-confrontational, non-fear inducing manner.

Whilst this talk is self-contained, it is linked to the earlier presentation on How Animals Learn and will also be relevant to the talk following, namely, A Behaviour Case Study: Exploring the Art of History Taking.

**A behaviour case study: Exploring the art of history taking**

**Dr Anne McBride BSc Cert.Cons. PhD FRSA and Caroline Warnes BVSc MSc MRCVS CCAB**

Behaviour cases can sometimes be straightforward to assess and treat, but more often they are not. Two animals that appear to be showing the same problem behaviour, for example aggression to their owners, may well be doing this behaviour for very different reasons. In order to successfully treat a behaviour problem it is important to understand exactly what behaviour the animal is doing and why. While observation of the problem behaviour can be instructive, this may not be practical or safe, especially in cases involving aggression. Therefore most information will be gained through history-taking. Such information is imperative to understand the aetiology of the behavioural symptoms and come to a clear and correct differential diagnosis.

Using an aggression case as an example, we will explore the information that may be needed to determine exactly what problem behaviour a dog is doing and why, and how to gain this information during a consultation. Whilst the example can be canine, the talk will be relevant to those working with other species.

We hope that this will be an interactive and enjoyable session that will be useful for Veterinary Nurses seeing behaviour cases in practice, through improving their history-taking skills and also helping them distinguish between problems that are relatively straightforward and those that are more complex, and that might benefit from referral to a specialist behaviour counselor.
Long term rehabilitation of paralysed patients
Kym Barratt

When I was volunteering at Tree of Life for Animals, Animal Hospital (TOLFA) in India it was common to have a number of paralysed dogs dragging themselves around the compound. To a Westerner this appeared to be one step too far down the anti-euthanasia path. But I had my mind changed by, amongst many others, a big handsome fellow called Drag. In the UK, had Drag been a pet, he would almost certainly have been put to sleep following his accident, at best given a month or six weeks. However with lots of care, physiotherapy and most importantly TIME – 5 months in total, the trauma to Drag’s spine healed and he was able to return to a full and active life. But also of importance, while Drag was recuperating he was a happy, energetic member of the TOLFA pack untroubled by his disability.

The knowledge of TOLFA’s policy of giving paralysis victims time to heal was put to the test when the beloved dog of a veterinary nurse, based in England, who knew the founder of TOLFA (also a RVN), was involved in an RTA. With the case study of this dog and of others in India we will show you how good nursing and time can save many euthanasias. www.tolfa.org.uk.

The addisonian crisis
Dr Harriet M. Syme BSc BVetMed PhD FHEA DipACVIM DipECVIM MRCVS

Hypoadrenocorticism (Addison’s disease) occurs when the adrenal glands fail to produce steroid hormones appropriately. There are two types of steroid hormone produced by the adrenal gland; cortisol (glucocorticoid) and aldosterone (mineralocorticoid). Cortisol co-ordinates the body’s response to stress and is one of the regulators of metabolism responsible for maintaining blood glucose levels; when it is deficient signs of hypoglycaemia (weakness, seizures) can occur. Cortisol is also necessary for the normal functioning of the intestinal tract and without it signs of vomiting, diarrhoea, anorexia and ulceration may develop. Aldosterone has its main effects on the kidneys causing them to retain sodium (and water) and excrete potassium; thus acting to maintain blood volume and without this hormone patients can become severely hypovolaemic and may be collapsed and hypotensive as a result. Failure to excrete potassium can cause hyperkalaemia and if this is severe it can lead to bradycardia (a slow heart rate).

Addison’s disease is uncommon in dogs and rare in cats. The presentation of Addisonian patients is very variable. Addison’s disease is most often suspected when a patient presents in a collapsed state and classical electrolyte changes are present (low sodium and high potassium). Other abnormalities that may be present are hypoglycaemia and azotaemia (increased urea and creatinine) due to poor perfusion of the kidneys. A diagnosis of Addison’s disease is confirmed by doing an ACTH stimulation test; cortisol is very low (usually undetectable) both before and after stimulation.

Patients with an Addisonian crisis can be very gratifying to treat because their recovery is usually very rapid. The most important component of their treatment is fluid therapy; 0.9% sodium chloride is usually the fluid of choice (because it does not contain any potassium) and an initial bolus is appropriate in collapsed patients. Dexamethazone is a steroid hormone that can be used even if diagnostic testing is ongoing because this drug does not cross-react in the assay for cortisol. It is not necessary to give a mineralocorticoid in the short-term because when administering lots of fluids the need for this hormone is overcome. However both mineralocorticoid (fludrocortisone; Florinef) and a glucocorticoid (usually prednisolone) treatment will be needed when the patient is discharged.

The diaphragmatic hernia
Lindsey Dodd BSc(Hons) VNPA VPAC RVN MBVNA

A disruption of the muscular structure of the diaphragm can allow abdominal contents to leak into the thoracic space; disrupting respiration and compromising the patient’s organs. Successful stabilisation before surgical correction will improve patient prognosis as well as paying close attention to the patient’s requirements for adequate ventilation whilst under anaesthesia and during recovery; followed by close sequential monitoring after surgical correction. During the session Lindsey will discuss the care of the diaphragmatic hernia patient from admit to discharge. Nursing considerations at each stage of the patient’s treatment will be at the centre of the discussion. The session will also recap anatomy and physiology relating to the condition.

Case management of a canine lymphoma patient
Linda Roberts DipAVN(Medical) VTS(Oncology) RVN

In this lecture, case management of a canine lymphoma will be discussed. Lymphoma (or lymphosarcoma) is a malignant tumour arising from lymphocytes. It is most commonly found in lymph nodes, spleen and bone marrow, but can arise in any tissue in the body including the skin, the brain or spinal cord, bones, heart or intestines. Lymphoma can occur in any breed, at any age; but is more commonly found in middle-aged to older patients. The session will follow the patient’s care from initial presentation through to its definitive treatment plan. The aetiology of the disease will be discussed, along with common presenting signs, routine diagnostics, treatment and palliative care options, as well as nursing involvement on owner considerations.

The hyperthyroid cat
Suzanne Rudd DipAVN(Medical) RVN

Hyperthyroidism is a very common disorder in middle aged to older cats. Signs can be subtle at first but become more severe with progression. Clinical signs include: -

- Polyphagia
- Weight loss
- Polydipsia
- Irritability/restlessness/hyperactivity
- Tachycardia
- Unkempt coat
- Mild-moderate vomiting and/or diarrhoea
While most cats will become polyphagic and show signs of restlessness, in some advanced cases cats may present with generalised weakness, lethargy and loss of appetite.

Increased thyroxine will vastly increase the body’s metabolism and effect most major organs in the body. As a consequence of this, hyperthyroidism can cause secondary complications such as hypertrophic cardiomyopathy and hypertension. Chronic kidney disease is another common disease in older cats and is often found in cats with hyperthyroidism but may only be apparent once the hyperthyroidism has been stabilised since hyperthyroidism can mask clinical signs.

There are four main treatment options for hyperthyroidism. These are: -

- Medical management
- Dietary therapy
- Surgery
- Radioactive iodine

The treatment of choice will depend on multiple factors such as the cat’s general health and concurrent disease, owner and cat compliance to medicate or feed an exclusive diet, suitability for anaesthesia and location of the thyroid tissue. Further investigations maybe indicated such as ultrasound, echocardiography, radiography, blood analysis and scintigraphy to establish the most suitable treatment option.

**Help my dog can’t pee!**

Dr Kit Sturgess MA VetMB PhD CertVR DSAM CertVC MRCVS

This presentation aims to use cases examples to develop the central role that veterinary nurses have in caring for dogs that present unable to urinate from the time they arrive in the practice when emergency management of a critically ill patient may be necessary through hospitalisation to discharge. Various aspects of these patients will be presented beyond the direct nursing role to include team organisation and communication within the practice and to the client.

Dogs can present with urinary obstruction for a variety of reasons, most commonly they are male dogs as their long narrow urethra is more easily blocked than the urethra of female dogs. Urinary obstruction is very painful for the patient and quickly leads to significant adverse metabolic consequences so the receiving nurse may well be faced with a distressed owner and a very sick patient. It is therefore essential that the patient’s problems are rapidly assessed and addressed in an appropriate order. Knowledge and understanding of the consequences of urinary obstruction will allow the attending to nurse to prepare for the patient’s arrival by ensuring equipment that is likely to be required is available and in working order. Nursing obstructed patients during their hospitalisation can also be a challenge particularly their fluid and electrolyte balance as well as managing indwelling urinary catheters.

Uroliths are the most common cause of obstruction and carry a good prognosis but are likely to require long term dietary and drug support from the practice team often with nurses playing crucial roles in giving advice, assessing progress and encouraging client compliance with the agreed plan. Other cases have less easily managed diseases such as neoplasia or granulomatous urethritis making it important that in the early stages of treating an obstructed dog, when the diagnosis is unclear, communication with the owners is honest and clear.

**Nursing the tetanus patient**

Louise O’Dwyer MBA DipAVN(Surg) RVN MBVNA

Tetanus patients demand high levels of nursing care in order to achieve a full and successful recovery. The lecture will look at the various aspects of nursing the tetanus patient from initial presentation through to monitoring, recumbency care, nutrition and physiotherapy and will give nurses a good understanding of the important role we play in the recovery of these patients.

**Immediate post-operative recovery of the surgical patient**

Julian Hoad BVetMed Bsc MRCVS

Improving patient care in the first hour or so following surgery can make a tremendous difference to the quality of overall recovery, the rate of recovery, and the chance of recovery. A large proportion of anaesthetic deaths occur in the immediate post-operative phase, wounds are very vulnerable and are subject to haemorrhage because of increased systemic blood pressure and also increased activity of the patient. Analgesia, which was (hopefully), carefully tapered and planned in the anaesthetic period, can often lapse, or become ineffective, leading to an increase in pain wind up by the patient, resulting in increased morbidity and mortality. At what stage should antibiotics be given or repeated? When should operated limbs be moved, or immobilised? Which patients would benefit from prolonged oxygen therapy, and should the rate of fluid administration be increased or reduced?

Although precise details will depend on the type of patient and surgical procedure, this lecture promises to give some very useful guidelines and suggestions for this often neglected stage of patient treatment.

**Approaches and techniques in small animal thoracic surgery**

Julian Hoad BVetMed Bsc MRCVS

Indications for thoracic surgery may include removal of body wall tumours, surgical treatment of pyothorax, pericardectomy, lung lobectomy, removal or biopsy of mediastinal masses, and surgery of the heart or blood vessels. The approach will depend on the area of the thorax in which the problem lies. The most common approaches are intercostal, or sternal. However, there are other ways in...

This lecture will discuss the indications and precautions for various thoracic surgical conditions, and the ways in which good nursing techniques are critical for a successful outcome. Tips for successful IPPV, care of drains and improving analgesia will be included; also how a second pair of scrubbed hands can be invaluable, especially when there's a 'whoops' moment!
When things go wrong in anaesthesia
Georgina Herbert BVSc(Hons) MACVSc(VA+CC) MRCVS

All general anaesthesia carries some risk, however minor, to the patient. Anaesthetic risk is different in every individual and is related to the patient physical status, the procedure type and urgency, and the availability of suitably trained personnel. Anaesthetic emergencies may be cardiovascular, respiratory, neurological or thermoregulatory; may involve electrolyte imbalances or anaphylactic / anaphylactoid reactions; or may be due to an equipment fault or human error.

Effective treatment of anaesthetic emergencies is dependent upon the nature and cause of the emergency. As such, monitoring and record keeping are indispensable tools for troubleshooting. When faced with an anaesthetic emergency it is important not to panic and to logically go through the emergency procedure. Calling for help not only gets you more hands on deck to perform tasks but also provides you with fresh eyes which may see things that have otherwise been missed and may provide a different interpretation of events.

Anaesthesia for thoracic surgery
Georgina Herbert BVSc(Hons) MACVSc(VA+CC) MRCVS

Thoracic surgery presents many challenges to the anaesthetist. Significant blood-gas and haemodynamic changes may occur as a result of the surgical manipulations within the thorax and the adequate provision of pain relief may be difficult. Once the chest is opened to the atmosphere normal ventilation is no longer possible and positive pressure ventilation must be applied; an understanding of intermittent positive pressure ventilation is crucial to the management of these cases. Thoracotomy is a painful surgical procedure and analgesics and neuromuscular blocking agents are important for the provision of balanced anaesthesia and in reducing the risk of developing severe and / or chronic post-operative pain. The provision of adequate analgesia through the recovery period is often challenging and requires frequent reassessment of the pain state of the patient. These complex cases require careful consideration and monitoring before, during and after anaesthesia.

Musculoskeletal anatomy of the canine and basic massage skills
Kate Lockwood MSc B.Ost Med and Sharon Winkler DO

Are you interested in developing additional “hands on” skills to help your patients? This practical workshop will review canine musculoskeletal anatomy and demonstrate massage techniques which may be used to assist recovery and rehabilitation of your small animal patients. There will be opportunity to practice on live dogs some of the techniques demonstrated.

Massage is a term for manipulation of the soft tissues of the body. The word massage is derived from the Arabic word massa, which means “to press”. Physiological effects are said to include increasing circulation, enhancing removal of fluid by the venous system and improving lymphatic drainage. Massage also influences muscle tone, and helps the remodelling of connective tissue during healing. Therapeutic effects include pain reduction, reduction in stress, improved healing and increased range of joint movement and mobility.

Simple massage techniques can be easily learnt by the veterinary nurse. In the clinical setting, massage can be of benefit to the canine patient to reduce stress and anxiety and helping with pain management. Studies have demonstrated post-surgery that massage has beneficial effects on sensation and analgesia. For an animal that is awaiting surgery, massage can help prepare the body parts by improving circulation and tissue flexibility ready for healing. Post-surgery, techniques can be applied to reduce inflammation and assist healing. If a dog must be confined for a period of rest, or is on restricted exercise, massage helps to maintain muscle tone, muscle condition and mobility. After resolution of a surgical condition, massage is indicated to preserve flexibility of the joints and soft tissues and to prevent further loss of function.

A knowledge of anatomy is essential for correct application of this skill. Knowing which structures are under the hands is fundamental to safe practice. Bones, ligaments, connective tissue (fascia), muscles and joints are the structures handled and influenced by massage and these will be reviewed as part of this introduction to massage skills.

Massage is generally well-received and enjoyed by dogs (and other animals) and we hope you will be inspired to go away from this practical to apply your newly learnt skills to some grateful recipients.

We recommend that you review your canine musculoskeletal anatomy before attending this lecture to get the most out of it.

Dental charting – quick, neat and easy
John G A Robinson, Dentist to the Veterinary Profession (John@vetdentist.com)

Completing a dental chart should be done at the beginning of every dental treatment. It can be done on a very basic level or done more comprehensively depending on requirements.

A dental chart is a pictorial representation of the dentition on to which any abnormalities can be drawn and notated. A large amount of information from the dental examination can be recorded in a quick and concise way.

The absolute minimum requirement is to chart which teeth are missing and which were extracted (including why they needed to be extracted).

Type of chart
There are many different types of charts and the choice depends on purpose. In first opinion veterinary practice a simple format will be adequate. The flattened layout (similar to a map of the world) is best.

How to chart
The whole mouth and each tooth should be examined and charted in a methodical way.

For each tooth abnormalities to record are:

- Change in tooth colour or form - fractures, wear, cavities, resorptive lesions etc.
- Gingivitis score
• Changes in gum margin – recession or hyperplasia, root furcation exposure
• Periodontal pocket depth (greatest on each side of the tooth)

Storage
A completed chart is a permanent legal record and needs to be stored. It can be filed like a radiograph or scanned and attached to the patient's computer record (e.g. as a jpeg). The client can also be given a copy.

Basic abdominal ultrasound
Richard Doyle BVSc BSc CertSAM MRCVS
This practical session will be aimed at veterinary nurses who have some experience with abdominal ultrasound but are seeking guidance to reinforce their theoretical knowledge and structure their practical approach to a basic abdominal ultrasound. This workshop course is also suitable for complete beginners as the workshop groups will be organised according to experience.

The workshop will be a hands-on experience in which participants will get a chance to scan live dogs. We will develop a systematic approach to abdominal ultrasound ensuring that we look at every organ in turn and start to identify and recognise what these organs normally look like.

Advanced abdominal ultrasound
Richard Doyle BVSc BSc CertSAM MRCVS
This practical workshop is designed for veterinary nurses that are already comfortable with all major areas of abdominal ultrasonography and need to improve on only a few targeted and more challenging areas such as enhancing your ability at finding the adrenals, pancreas and lymph nodes. An understanding of Doppler ultrasound is essential to appreciate the usefulness of some of the contents of this session.

Practical radiography
Paul Mahoney BVSc DVR FHEA CertVC DipECVDI MRCVS And Richard Lam BVSc MRCVS
This workshop will be an informal, hands-on session aimed at first and second year student VNs, as well as qualified VNs wishing to refresh their practical radiography knowledge. A series of radiographs will be presented at a number of viewing stations. Delegates will be expected to critique the radiographs, identify what errors have been made, and offer suggestions as to how the images may be improved. Common film faults will be presented, as well as more challenging mistakes. By the end of the session, delegates should have developed a practical approach to assessing any radiographs that they may take in future, be able to identify many of the common errors in radiography, and most importantly, be able to plan their radiography in advance such that many of these errors become a thing of the past.