



Managing Diabetic Patients Mini Series

Session Three: Nursing the Diabetic Out- Patient

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Session 3: Diabetes Mini-Series

Consulting Skills and Clinics.

Key Points.

Consultation skills are an important aspect of any one that communicates with clients, whether in specific clinics, during nursing consultation or in surgical admissions and discharges. Nursing clinics can aid in animal health and welfare, but also build client bonding and loyalty to the practice.

The structure of nursing clinics are generic no matter what practice you work in, they just need to be adapted to be workable in each individual working situation.

Additional qualifications can be achieved in order to aid in nursing clinics, but are not mandatory.

Introduction

The role of the veterinary nurse has evolved greatly, standing now as a fee earning regulated professional. Nurses have a vital role to play in the veterinary practice in the role as consulting nurses, not limited just to the offering of advice to clients, but including the performing the groundwork in collecting data parameters (blood tests, urine sampling, radiography, complex diet and behavioural histories) in order for the veterinary surgeon to then interpret the collected data and make a diagnosis, the undertaking of preventative healthcare for animals, post-operative appointments, and wound management.

For a nurse with a keen interest in consulting there is an ideal opportunity in which they can pursue the specialism that interests them, whilst still being of use to the veterinary practice. Veterinary practices are businesses, and nurses that consult need to perform sufficient work in order to not only to cover their costs and overheads, but also to make a profit. This isn't necessarily through the charging for nurse clinics, but through the products that are sold, increasing the footfall through the practice and helping with client loyalty and most importantly compliance. The aim of this chapter is to provide an introduction to the consultation model that the consultation process is formed around, give a format for many nursing clinics and ideas on how to run these clinics.

The changing role of the veterinary nurse

Veterinary nurses that fully utilise skills learnt during training are more likely to remain with the profession, and do feel a more valued member of the practice (LANTRA, 2004). A consulting veterinary nurses should not be viewed as a 'mini-vet', they perform a completely different role than veterinary surgeons, though many veterinary surgeons do undertake many roles that should be undertaken by a nurses, i.e. blood sampling. These types of appointments need to be scheduled with a veterinary nurse, this will 'free up' the veterinary surgeon's time, in order for them to undertake tasks that only they can undertake. From a business aspect this is making a much better use of time for the entire workforce. This is also the same argument for the use of animal nursing assistants and dedicated receptionists/telephonists.

Compliance

One of the roles of the veterinary nurse is to ensure that the client has good compliance with the recommendations given by the veterinary surgeon. In some cases this can refer to medications, and the nurse can discuss with the owner that they are able to administer the medications that their pet has been prescribed. In some cases a different format of medication, liquid instead of tablets, can be of use. In these cases referral back to the veterinary surgeon is required as the client will require a different medication to be prescribed. Many owners do appreciate guidance on the administrations of medications, whether this is verbally or with leaflets. In regards to nursing clinics they are best utilised when the veterinary surgeon offers all newly diagnosed patients an appointment with the nurse in order to discuss all aspects of care for that patient. What this involves in the clinic will range vastly depending on what the pet has been diagnosed with. Items that may be discussed in the clinics can include diet (weight gain or loss, veterinary diets and lifestage diets, assisted feeding), administration of medications, exercise regimes, palliative care, increasing water intake and how to monitor their pets (checking capillary refill time, heart rate, urine output, blood glucose), and why compliance is so important.

Discussion of all of these factors will mean that owners are more likely to comply with the veterinary surgeon's recommendations, and therefore bring in more income of the practice, and improve the welfare of the pet. The CRAFT model (Box 3.1) was developed in 2009, which shows that for compliance to occur the *Follow Through* aspect of the equation is required. The use of the nursing clinic to provide the follow through to ensure the acceptance from the client is vital.

$$C = R + A + FT$$

Compliance = Recommendation + Acceptance + Follow Through

A good clear recommendation is required, along with acceptance from the client that the recommendation that was made is required. The Follow Through is needed as many clients will accept the recommendation, but compliance is poor due to many factors including forgetting, money, time or the recommendation not being clearly made.

Setting Up Nurse Clinics

As professionals conducting their own nurse consultations nurses need to be able to portray themselves as professionals in order to be successful. This includes how and where the nursing consults are performed. The consultation room, as with a veterinary surgeon's consultation room, needs to be clean, tidy and fit for purpose. When setting up nurse clinics it is important to ensure that all the resources required are in place in order to make the venture a success. This can range from physical items (such as literature and weighing scales) to personnel training.

The literature that you decide to use within your consultations with clients' needs to be of a high standard. The majority of clients will find it difficult to remember everything that is said within a consultation. It is helpful to give clients hand outs on what has been discussed, and in some cases it can prove useful to provide written specific instructions. When clients walk out of the consultation room with information in hand, there is a perceived perception that they have received better value for money than just walking out empty handed. Clients that have received written instructions, whether this is a hand out or specific written instructions, are more likely to comply with the instructions given to them. If your handwriting is poor it can be useful to type instructions or bullet points for the client. This can be then printed out or directly emailed to the client. It can prove useful to be able to direct clients to more information resources, and having more details available on your practice's website can be useful rather than them seeking out their own websites. All of this needs to be in place prior to initiating the nurse clinics.

Good effective communication is one of the most important skills to learn in veterinary practice, (Box 3.2) Different forms of communication need to be utilised for diverse demographics of pet owners that we see. Social media is the communication method of choice for one generation, but wouldn't be for another. Adapting how you convey your message is important.

- Seek Clarification
- Take Notes
- Avoid Distractions
- Use pauses and silences.
- Restate and Summarise.

Box 3.2: Effective Listening: Good listening skills are an essential part of communication.

Consultation Training

Several frameworks for consulting have been developed for medical education. However, none have been developed specifically for veterinary use. The Cambridge-Calgary consulting model was adapted by the National Unit for the Advancement of Veterinary Communication Skills (NUVACS), and therefore the most relevant to all veterinary professionals undertaking consultations (Figure 3.1). Learning how to conduct consultations is very important and does lead to more successful outcomes in compliance and understanding from the pet owner. The training of personnel is a very important aspect of the overall success of nurse clinics. There are many sources of training for nurse clinics, these can include webinars, reading, and day lectures. There are specific courses for nurses (and veterinary surgeons) wanting to learn consulting skills. Theoretical learning of a practical task can be difficult, the utilisation of practical sessions, workshops and observations can help adapt the theoretical learning into these practical skills. Watching other people consult can be really beneficial. Everyone conducts their consultations in a different manner, and observing other nurses and veterinary surgeons within practice can give ideas that can be incorporated into the learners' consultations. These methods of coaching can even be extended to include video coaching and simulations, (Grosdidier; 2014).

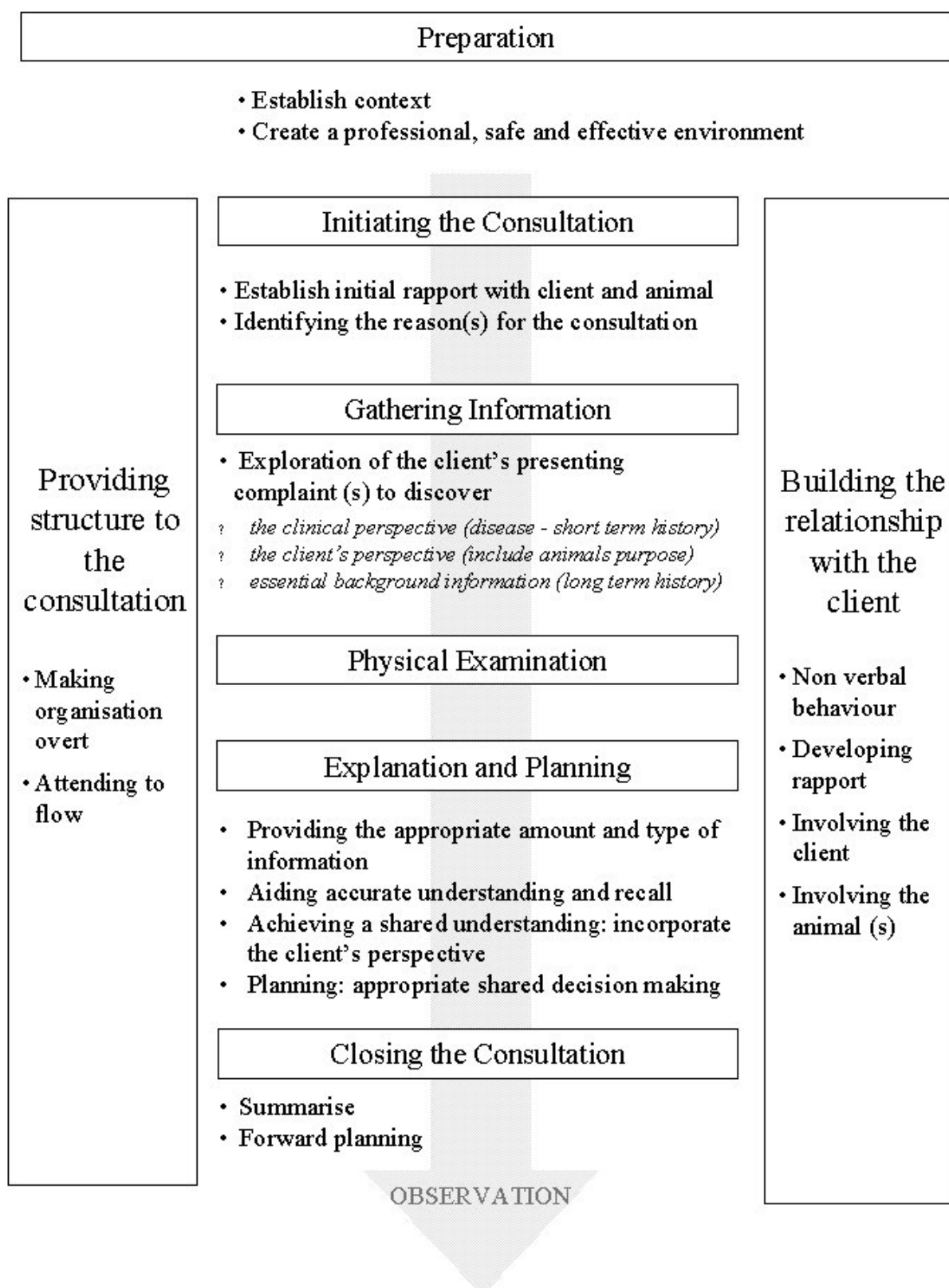


Figure 1: Adapted Cambridge-Calgary model of veterinary consultation skills.

The success of nurse clinics is directly related to the support from others within the veterinary practice. Awareness from the clients is required that they are being conducted. Marketing of clinics is a key point and needs to be performed in a way that all the practice members are 'on-board' for the initiative. Recommendations from colleagues is invaluable, having one of the veterinary surgeons referring clients is the best way to increase client numbers attending nurse clinics.

Although there are several frameworks for consulting in medical education none had been developed specifically for veterinary use. The Cambridge-Calgary consulting model (Figure 3.1) has been adapted by the National Unit for the Advancement of Veterinary Communication Skills, (NUVACS) as the most relevant framework for the veterinary profession. The consultation process is broken down into seven separate sections, which if followed help to bring structure and flow to the process.

1. Preparation

As with everything preparation is key, any equipment required for the consultation should be prepared, the consulting room needs to be clean and the nurse should be familiar with the clinical history of the patient, in particular any relevant details. Make a note of the animal's name, sex and age, and use these when talking about the patient. Your appearance is also highly important as it governs the client's perception of you.

2. Initiating the Consultation

The consultation should be started by confirming the name of the client when calling them through from the waiting area. Always introduce yourself, and confirm the nature of the appointment at the outset. Clients often make an appointment for one cat, and then bring the other one instead as they could not locate or catch the initial one! If there is a delay keep the waiting clients updates, they don't like to be kept waiting, but not acknowledging increased waiting times will lead to frustration on the client's part.

Spend a few minutes getting acquainted with the patient. Dogs should be patted and spoken to and cats interacted with prior to removal from their basket, use of the pet's name is vital. If cats are unwilling to leave their baskets then removal of the top half of the basket if possible and then either examine them in the bottom half of their basket, or lift them out on their blanket onto the consulting table.

This stage is very important for creating rapport with the client and their pet. Remember to use the client's name too and consider whether it is appropriate to, shake hands with the client but most importantly involve the pet. In order to create good rapport, nurses should empathise with the owners, indeed empathy is an essential trait for all the practice team. In the majority of cases the pet is an integral family member, and this special bond needs to be respected. When children are brought into the consulting room, involving them can prove to be useful. Getting the children to weigh the pet, or to read off the weight are a good example of this, especially in weight loss clinics as it helps compliance with the children feeding the pet. Having colouring books and pencils are useful to distracting children – just remember to put their pictures on the wall in your consulting room. Whether or not the consult is regarding the previous clinical history of the animal, if you mention or ask how the pet has been since the incident, the client feels that you care about their pet.

3. Information gathering

Background information can be gained from the clinical history, but additional information can be obtained through carefully focussed questioning. Many clients are more than happy to offer information whether it is relevant or not, some need specific questioning in order to retrieve the required information. The use of open and closed questions should be utilised, as different types of answers can be gained. Questioning also helps provide information regarding the client's expectations and specific concerns. If conducted appropriately this part of the process allows you to demonstrate your professionalism and knowledge, whilst helping to build rapport with the client. Questions also help to give you time to think and time to focus. Use communication cues such as nodding your head to demonstrate interest in what the client is saying, listen to what the client is saying and in cases repeating back to the client what they are saying in order to confirm details.

This is a very important stage of the consultation, and one that is often overlooked or not completed to the full. In many situations when the consultation has finished the client often adds, '...and another thing.' This can be pre-empted by focused questioning of the client at the outset. In some cases the client may have a very long list of queries or tasks. Prioritise the most important ones for the patient by negotiation with the client, if necessary, as they may have a different perspective to you as a veterinary professional. You may decide, for example, that the dramatic weight loss and polydipsia are the most important factors to be considered whereas the client may be more worried about overlong nails or an increase in vocalisation for no reason. If this situation is experienced then the client should understand why you feel that these factors need to be prioritised over the clipping of the patient's nails. In situations where the client has a long list of non-emergency questions or procedures it is important to hold a dialogue with the client at the outset as to which things are to be completed first, and then a subsequent appointment can be made in order to complete the outstanding requirements. Reasons for more than one appointment being necessary may include, insufficient time to correctly cover all the items, too much information for the client to retain in one appointment, the pet becoming stressed for example if its coat is matted it would be unfair to undertake removal of them all in one consultation, or to aid in compliance.

4. Physical Examination

When initiating the physical examination it is important to be aware of the clinical history of the animal. If the animal is known to have a tender abdomen, or arthritic joints, care must be taken not to exacerbate any discomfort. With larger dogs, or those that don't like being on the consulting table, the physical examination can be conducted on the floor. Whilst performing the clinical examination it is important to talk through with the client what you are doing and looking for. Work systematically from the head backwards, having a set routine will help to ensure that things are not missed out.

Start by looking at the symmetry of the head, and jaw. This is important when animals are presented with dental disease, as lumps or bumps on the mandible or maxilla can be an indicator of tooth root problems. Any nasal discharge should be noted, along with its colour and whether it is lateral or bilateral. When examining the eyes, the size of the pupils and their symmetry should be noted. The conjunctiva surrounding the eye should be examined, in order to check for infection, and any discharge should be noted. Ears should be checked for discharge, wax, dirt and smell. Examination of the mouth will depend on the cooperation of the animal being examined. If the animal is known to be difficult to handle, in some circumstances asking the owner to lift the animal's lip up so that you can look at the teeth can be appropriate, provided that you are confident that this will not put the owner at risk of being bitten.

When palpating the animal's neck and shoulders, the lymph nodes should be checked, and if palpable this needs to be noted and referred to the veterinary surgeon. The condition of the coat and skin need to be accessed, and checked for parasites. Limbs should be checked range of movement in limbs, careful questioning about mobility should be instigated with questioning owners about cats. As most behavioural changes are put down to old age rather than reduced mobility.

Examination should also include measuring and assessing the heart and, respiratory rate. Finally the overall condition of the animal should be noted including Body Condition Score (BCS), Muscle Condition Score (MCS), and a note of weight. Even if these parameters are the same as a previous recording, they should be recorded again in order to show stability of the animal's weight.

5. Explanation and Planning

Once all the information has been gathered and the animal examined, your initial findings need to be explained to the owner, and conveyed to the veterinary surgeon if necessary. If your consultation is primarily aimed at dealing with issues such as weight reduction or care of the geriatric patient veterinary intervention may not be required as it will be your responsibility to explain and plan the next steps in such a way as to ensure that the information is conveyed in a form that the owner understands. This can be oral or written, and in some cases educational DVDs can be utilised. Some points will need to be reiterated, and a useful tip is to do so in a different format as this can enable the owner to fully understand the information that is being conveyed. When planning the next step the owner must agree with the decisions that are being made and be able to comply with the instructions given. If these steps are not complied with the risk of non-compliance increases dramatically. There

are three elements involved in the implementation of care: the veterinary professional, the client and the pet. All parties need to be in agreement in order to make a plan work. The owner may agree to administration of oral medication on a daily basis, but the pet may resist, resulting in non-compliance. Breaking down the information into 'digestible' chunks can be helpful for the owner. During lengthy consultations it can be useful to ask the owner if they want to take notes, have a pen and paper ready in order to allow them to do so. Asking the client to identify any challenges associated with the implementation of the proposed plan at home is important as it not only identifies potential pitfalls but also encourages the client to feel a degree of ownership of the process.

6. Closing the Consultation

When closing the consultation the aim is to summarise the decisions that have been agreed, and to arrange future appointments as necessary. It is important to confirm that the owner is happy with any agreed protocols such as medications that have been dispensed or diets recommended. Also ensure that the client is provided with contact details which may be either phone or e-mail, ideally both are recommended and don't forget to reinforce your name by either writing it on any documentation provided or giving a card with your details. Whilst primarily considered the tool of the business person 'business' cards can be produced very cheaply for all clinical staff and are appreciated by clients.

Professional Accountability

The Code of Professional Conduct for Veterinary Nurses (RCVS, 2014) states that veterinary nurses seek to ensure the health and welfare of animals committed to their care and to fulfil their professional responsibilities, by maintaining five principles of practice:

- Professional competence
- Honesty and integrity
- Independence and impartiality
- Client confidentiality and trust
- Professional accountability.

When undertaking nursing clinics these principles need to be adhered to. The veterinary nurse is still working under the direction of the veterinary surgeon, and the use of written protocols can help staff. Good quality training is required in order to ensure that veterinary nurses are competent in the process of consultations. There are always situations where the veterinary nurse will need guidance from the veterinary surgeon, protocols can be utilised in these situations.

Diabetic Obesity Clinics

The nature of the veterinary profession is moving towards preventative care rather than "fire engine medicine". Obesity has to be viewed as one of the many diseases that can be prevented. Dental disease is a preventable disease, and many clinics are devoted to educating clients how to prevent dental disease, tooth brushing, diet etc. Obesity should also be viewed along the same lines, rather than at the treatment stage. Obesity is a chronic medical disease that needs to be managed throughout the life of the pet.

The aims of nursing clinics and nutritional management diet to promote weight loss include:

- Monitoring weight loss, alongside BCS and MCS
- Recommend a diet that supplies adequate nutrients, within a reduced calorie diet.
- Promote smooth weight loss, whilst maintaining a lean body mass as much as possible.
- Increase conversion of stored fat to energy, through exercise programmes.
- Motivating the client with the continuation of the weight loss programme.
- Educating the client in potential behavioural traits that need to be altered in both the pet and the owner.

Prevention is obviously better than cure and the ideal place to start is in puppy clinics, first vaccinations, and puppy parties. It has been clearly demonstrated that animals that remain at or marginally below their ideal weight throughout their growth phase are less likely to become obese in later life. Following up animals during the post neutering phase is vital as this is when most fat gain occurs.

With a decrease in metabolism and change in diet many animals do tend to increase their weight and body condition score (BCS) at this stage in life, and subsequently battle with it into adulthood. The RVN is the ideal person to discuss post operatively changes in diet and feeding amounts. Why not encourage all animals to see a RVN at 9months of age, for a weight check (most animals will require worming at this stage to), and to discuss diet/feeding. Many animals are about to transition to a junior or adult light/neutered diet at this stage.

Owner education

Owner perception of their animal's weight can vary, as it does with their own weight. Owners need to be advised/educated to what is deemed as obese or overweight. Management systems/protocols need to be in place in veterinary practices in order to aid in obesity prevention. Every animal should be weighed and BCS at each visit to the practice and recorded on the clinical history. The animal's weight can then be tracked throughout its life. It is also easier to estimate an ideal lean body weight for the animal if you know its weight and BCS history. It is also useful to state to an owner when you see a pet at it's ideal body weigh, "this is the pet's ideal weight". Ensure that you log this onto the clinical history. If the animal does subsequently gain weight you can also look back and say to the owner do you remember when your pet was this weight and remember how active they were then.

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, but also to reduce the diameter of the urethra and cause reduced flow of urine. The animal ultimately needs to change from a positive energy balance to a negative energy balance in order to lose and then maintain an ideal body weight.

Weight loss is an exceptionally difficult thing to achieve, and not just nutritional advice is required in order to achieve this goal. Behavioural modifications of both the owner and pet are required, alongside advice on exercise; which can be difficult if the animal or owner has a mobility problem. In many cases owners are not receptive to comments that their pets are overweight, and therefore it can be really difficult to motivate owners to initiate a weight loss programme if they don't feel that there is a problem there initially. Some owners feel that being overweight by a few kilograms doesn't make any significant difference to the animal. The effect of only being overweight can be easily demonstrated to an owner by asking them to put on the practice's lead radiography apron, (they weigh about five kilograms, and when you take off the apron you really notice the difference). By demonstrating to the client that only a small amount of weight gain can be a significant percentage gain to the animal depending on the animal's size, one kilogram weight gain in a four kilogram cat, is the same as a woman gaining 2-3stone.

Satiation (feeling full) is related to: the rate of food consumption, (animals can overeat before realising that it is satiated), and food constituents (protein more satiating than carbohydrates) and the animal's own ability to sense of fullness. These three factors should be used in the construction of a dietary plan in obesity control. Nutritional management only comprises part of a weight loss management programme; the animal's exercise levels and lifestyle also need to be considered.

Renal element of Diabetic Clinics

In all animals, clinical symptoms of renal dysfunction are not evident until 65 to 75 per cent of renal tissue has been destroyed, and many veterinary practices do instigate renal screening for older patients and prior to the start of pharmaceutical regimes. Nutritional management can affect many consequences of renal failure, and is the cornerstone of management. Chronic Renal Failure (CRF) has many physiological effects these include the decreased ability to excrete nitrogenous waste (and thus build-up of azotaemia), sodium and phosphorus, and an increased loss of potassium. Other clinical symptoms also include systemic hypertension, secondary hyperparathyroidism and non-regenerative anaemia, and should be monitored as part of the nursing clinic.

Nurse clinics for animals that have been newly diagnosed or suspected renal disease should be instigated as soon as possible. All patients should be referred to speak to the nurse, in order to discuss diet, medications (if required), compliance and any future requirements for diagnostics and reviews of the patient. The nurse is also well placed to answer any questions that the owner may have.

The aim for nursing clinics is to aid the client

- To reduce accumulation of nitrogenous waste in the blood stream (azotemia), by minimising protein precursors for urea and creatinine, and in control of blood phosphate levels.
- Educate the owner in monitor hydration status of the animal.
- Adequate calories to prevent further catabolism or malnutrition, helping to maintain an ideal body condition score.
- Ensure compliance of the owner with medications, if any, and repeat diagnostic monitoring methods.
- Ensure that the animal's blood pressure is controlled, by routine monitoring and referral back to the veterinary surgeon as required.
- Providing support to the client during the later stages of the animal's life.

Diagnostic Monitoring

The International Renal Interest Society (IRIS) have developed a renal scoring index that does help to identify the progression of the disease in order to facilitate appropriate treatment and monitoring of the patient. The initial staging is based on a fasted plasma creatinine level, and then sub-staged dependent on proteinuria levels, and arterial blood pressure. Fasted blood samples must always be used as even a moderately high protein meal prior to sampling can elevate blood plasma creatinine levels. Repeat blood sampling should occur, as required, but should be performed more regularly if urinalysis shows changes in proteinuria levels.

Owners may need guidance on methods on how to obtain urine samples, as these are the most useful diagnostic tools in the progression of renal failure. Urine concentration should be routinely measured through refractometer, and should the urine protein creatinine (UP/C) ratio, should be routinely performed. Medications such as Angiotensin converting enzyme (ACE) inhibitors should only be instigated when proteinuria is present. It should be noted that proteinuria can present at any stage of the renal failure, and is not directly linked to the level of azotaemia.

All newly diagnosed renal patients should have their blood pressure monitored. Renal function is directly affected by an increase in blood pressure, and as the kidneys play a role in blood pressure secondary hypertension can result. Hypertension should be treated, as the effects of hypertension are ultimately negative.

Pharmaceuticals

The most commonly used pharmaceutical in animals with chronic renal failure is benazepril (POM-V), an ACE inhibitor. Inhibition of ACE leads to reduced conversion of inactive angiotensin I into active angiotensin II, therefore reducing the effects mediated by angiotensin II, including vasoconstriction of both arteries and veins, retention of sodium and water by the kidney and modelling changes (including pathological cardiac hypertrophy and degenerative renal changes). In cats with chronic renal insufficiency Benazepril reduces the protein loss in urine and reduces systemic and intraglomerular blood pressure. Benazepril also helps to increase the appetite, quality of life and survival time of the cats, particularly in advanced disease. Benazepril is therefore indicated when proteinuria is present, and therefore should be tested for. As ACE inhibitors decrease the intraglomerular blood pressure there will be a refractory increase in nitrogenous waste products.

In some cases addition hypertensive medications may be required in order to return the patient to a normotensive state. In these cases Amlodipine (POM) may be added into the regime. Once instigated, blood pressure monitoring is required in order to taper the dose according to the patient's readings, under veterinary direction.

If medications are prescribed for patients with chronic renal failure it is important that the veterinary nurse discusses with the client in clinics whether they are able to medicate their pet. Owners may need guidance on the administration of medications.

Diagnostic Clinics

The veterinary nurses' role is ideal in the provision of aiding the veterinary surgeon in the procedure of collection of samples for diagnostics. The veterinary nurse should be utilised in the procedure of blood sampling, blood pressure monitoring, Schirmer Tear testing, skin sampling and urinalysis. Nurses are not permitted to make a diagnosis, but are adequately trained in the preparation of the animal, and the collection of samples for the veterinary surgeon in order to make a diagnosis. Evidence gathering in order to aid the veterinary surgeon, means that there is better utilisation of the veterinary surgeon's time.

Blood Sampling

Routine sampling for many conditions can be performed by the veterinary nurse within the nursing consultation. These can include repeat sampling for fructosamine levels in diabetic patients, haematology for chemotherapy patients, and biochemistry parameters for renal patients. It is important that when taking samples that you need to make the decision whether or not to have the owners present during the procedure. Many owners are expecting to remain whilst you take the sample, some will not want to be present, but they do need to be aware of the option. You should also inform the owners that it is essential to clip any hair away from the site of sampling in order to prevent infections, aseptic preparation of the site is required. If the animal requires more than one site to be clipped it is important to inform the owner of the reasons for this. In all nursing clinics and consultations communication is exceptionally important, and owners like to be aware at all times of things that affect their pet.

Prior to taking the sample it is important to confirm that the owner understands why the sample is being taken, if it is for a repeat sampling the owner may be fully aware, but if the veterinary surgeon has requested that the animal is presented for a nurse appointment for sampling to be performed in a subsequent consultation, the owner may require clarification. Facts concerning when the animal received medication, or if and when fed need to be gained. It is also a good opportunity to weigh and condition score (BCS) the animal. In some cases this appointment may be their only point of contact with a veterinary professional for the few months in between prescription or other veterinary checks. If the animal is suffering from a particular condition, it also a good opportunity to question the owner on the animal's overall condition, water intake, urine output, food intake, exercise tolerance and general demeanour.

Ensure that all material required for blood sampling are prepared prior to bringing the client into the consulting room. All blood tubes should be labelled, and slides (if required) identified. When taking bloods for any haematological analysis blood films should always be produced. If performing the sampling in the consulting room with the client present a competent assistant will be required in order to restrain the animal, always remember to introduce your colleague to the client.

It is important to note onto the animal's clinic history where you took the sample from, and whether or not it was a stressed sampling. Blood samples taken from stressed cats will cause a stress hyperglycaemia and leucogram. If the veterinary surgeon isn't present when the sample is taken they will not be aware of this, and interpretation of the results can be altered. Always ensure that the correct blood sampling tubes have been used for the types of tests that are to be performed, and the laboratory that the samples are to be sent to.

Blood Pressure Monitoring

Routine blood pressure monitoring should occur in all patients suffering from renal, cardiac disease and diabetes; and all patients in the senior (mature) age category. Blood pressure monitoring should ideally be performed in the presence of the owner. Animals, especially cats, do tend to be calmer when their owner is present. Cat owners should be encouraged to bring a blanket that the cat normally sits on at home, as this will help the cat to relax more. Most cat owners do tend to put these in the cat's travelling basket any way.

It is important to allow the cat to come out of the basket, without dragging it out, or by removing the top of the travel box, and for dogs to free roam around the consulting room prior to monitoring the blood pressure.

All equipment required should be prepared beforehand, the cuff required to be used should be pre-measured, and the size used recorded on the clinical history. If different cuff sizes are used then different readings will be obtained. The secret here is to use the same cuff and site if you wish to monitor a patient long term. The cuff size is determined by the circumference of the limb on which it will be placed. For cats and dogs, the ratio of cuff width to limb circumference should be about 40%. If in between cuff sizes, round up. After placement, the cuff should not be so loose that it can be rotated over the site or so tight of obstruct venous return. If it does not stay connected when inflated, select the next larger size cuff.

The use of clippers to remove hair from distal to the carpal stopper pad should be avoided as this can inadvertently increase the blood pressure as a stress response in cats. Instead wiping the area with surgical spirit, and then rubbing ultrasound gel well into the hair works just as effectively. In order to remove any stress response to the noise created by the Doppler probe headphones can be used. If none are available for use, the noise should be turned off, the probe positioned, and then the volume slowly increased until the pulse is audible.

All animals will react to the increasing pressure exerted by the cuff, and therefore the first reading should always be discarded, as it will be artificially elevated. Different texts will state different methods of finding a final measurement. Some recommend taking five readings and taking an average of the five, some state to take the third reading, personally I repeat the process until three readings that are similar (within 5mmHg) are recorded. All excess gel should be wiped from the animal, and it should be noted to the owner that if the animal licks any of it off that it is not harmful. The result, the cuff sized used and the location of where the cuff was placed should all be recorded on the pet's clinical records.

The use of blood pressure monitoring is a useful diagnostic tool that should be utilised in many areas in veterinary practice. Blood pressure monitoring is a good prognostic indicator for critical animals. The Doppler probes are also very useful for monitoring heart rate in small patients, e.g; rabbits, hamsters, birds, during general anaesthetics.

Urinalysis

The analysis of urine is a simple every day task that can provide an excellent insight to the health of the patient. Specific gravity should be conducted on every sample with use of a refractometer, and when conducting microscopy it is important not just to note whether there were crystals present but also the evidence of casts, cells and microorganisms.

Sample Collection

The easiest most commonly used method of collecting a sample is a free flow or voided sample. Collecting a midstream overnight sample is the best for routine urinalysis, as it contains the best indicator of the true composition of urine. Though depending on what specific conditions are being investigated for will dictate what part of the sample is required. When collecting a sample for urethral plugs, uroliths and bacteria then first part of the stream is the best. The end stream is the most appropriate to collect for examination for prostatic disease, haemorrhage or sediment analysis. This is due to the sediment or haemorrhage collecting on the floor of the bladder. Nearly all voided samples in cats are collected in a litter tray with non-absorbent litter, and these can prove to be invaluable in the treatment of urinary system problems. Many clients will require some guidance in how to collect the urine sample, and the importance of compliance in bringing in collected samples.

Veterinary nurse clinics provide a vital role in the provision of services for clients and their pets. There is huge financial sense in providing clinics as they free up veterinary surgeon time, in order for them to perform more profitable services that only they can undertake.

Clinical Nutrition of Diabetic Patients

Water

A clinical symptom of diabetes mellitus is polydipsia (PD) and polyuria (PU). Obligatory losses of electrolytes, such as sodium, potassium, chloride, calcium and phosphorus and the water-soluble vitamins will occur. Access to fresh water at all times is required, and in severe cases administration of parenteral fluid may be required. Monitoring fluid intake, if possible, is a good indicator of glucose control, and insulin effect. Diabetic diaries are a good idea, and if owners can comment on daily water consumption this can be helpful when stabilising patients.

Proteins

Protein levels with diabetic dogs may need to be increased, especially in the quality of the provided proteins. This is due to losses of amino acids in the urine, a consequence of renal glomerulopathy, or changes in hormonal signals. Excess protein levels need to be avoided, as renal damage can be enhanced. In cats the protein and carbohydrate balance is an important factor in the clinical nutrition of diabetic cats.

Carbohydrates

Consumption of soluble or simple carbohydrates is the primary cause of rapid postprandial hyperglycaemic spikes. Diets need to avoid high levels of soluble carbohydrates and the feeding of treats high in soluble carbohydrates should be stopped. Use of insoluble carbohydrates, fibre, has a positive effect on glycaemic control in dogs and cats. Diets that contain fibre, which exerts gelling properties, have an ability to slow the rate of presentation of nutrients (including glucose) to the body. This helps reduce the postprandial spike. The fermentation products of fibre, short chain or volatile fatty acids, also modify the secretion of some of the digestive hormones and the sensitivity of tissues to insulin. Complex carbohydrates should provide ~50-60% of the calories in diets for dogs, and in situations where cats are being fed a high fibre diet.

Felines are obligate carnivores, and have a unique metabolism. Initially, feeding a growth diet was the diet of choice, due to the relative protein increase and decrease in carbohydrate content. Specific diets aimed at diabetic cats are widely available, in cases where owners are unable to afford a prescription diet, a good quality kitten diet can still be recommended. A decrease in carbohydrate content will also create an increase in DM% of fat content. A high protein, low carbohydrate (less than 12%) diet has shown to enhance insulin sensitivity. Monitoring of blood glucose levels should be monitored after dietary introduction as hypoglycaemia can result. This combination of high protein, low carbohydrate closely resembles the natural diet of a cat in the wild. In studies examining this dietary therapy have shown that insulin treatments could be discontinued in 15 out of 24 cats.

Vitamins and Minerals

Polyuria (a common clinical symptom of diabetes) will increase the loss of electrolytes and water-soluble vitamins, with magnesium and phosphorous are being the most significantly lost. Chromium can be used to improve peripheral insulin sensitivity and glucose tolerance, though accurate studies on the use of chromium have not been conclusive. Vanadium, when dosed in pharmacological amounts has insulin –like effects, though vanadium does cause gastrointestinal side effects, and chronic excessive intake may have toxic effects.

Feeding an Insulin Dependent Diabetic Pet

On diagnosis of diabetes mellitus, dramatic changes to the animal's diet can be contraindicated. A high carbohydrate diet should be avoided, as should semi-moist diets. These diets have a hyperglycaemic effect due to the increased levels of simple carbohydrates and other ingredients used as humectants (e.g. propylene glycol). Cost does play a deciding factor in choosing a diet for a diabetic patient, as does whether or not the animal eats the food.

High fibre diets are exceptionally useful in aiding stabilisation of glucose control in dogs, but if the dog is unwilling to consume adequate amounts this can be detrimental to the animal. An underweight

animal will need a modified diet in order to gain weight, but this can only be achieved with insulin therapy.

In cases of hypoglycaemia the owner can administer dextrose gels (Hypo-stop gel), or honey, jams or syrups to the mucous membranes of the mouth. This should only be recommended on advice from the veterinary surgeon once the owner has contacted the veterinary practice, or the blood glucose level has been measured. Use of an at home glucometer can be exceptionally useful, but obtaining sufficient blood for a test during a hypoglycaemic episode can be very difficult. This is due to a constriction of the peripheral blood supply, and in more severe cases shaking or convulsions. Depending on glycaemic control smaller frequent meals may prove to be more beneficial in obtaining control. The use of mini-glucose curves in establishing nadir, length of insulin action and dietary effect are invaluable.

Feeding a Diabetic Obese Cat

Many cats that present with diabetes mellitus are obese. A controlled weight loss programme is required in these cases. Predisposition to hepatic lipidosis during rapid weight loss is of concern in cats. Once an ideal body condition score has been achieved in these animals, and glucose levels remain stable it is important that these animals receive regular checkups, including weighing and fructosamine levels. Use of a higher fat and protein, decreased carbohydrate diet has proved to be very useful in cats suffering from diabetes.

The choice of diet will also depend on any secondary medical conditions. Renal dysfunction is commonly experienced when there has been a persistent hyperglycaemia. A low salt diet would be a more preferable choice, but care should be taken as these diets have higher carbohydrate content due to a restriction in protein levels.

Protocols for Nursing Diabetic Clinics

Having a protocol for the diabetic clinic can be useful. Having a checklist to run through can aid the veterinary nurse in ensuring that all points have been covered, and specific notes can be added where greater clarification is required by the owner.

- 1) All newly diagnosed diabetic cases should be discharge by the Diabetic care nurse, with a 30-45 minute appointment allocated.
- 2) Subjects to discuss with owner include, how to give injections, storage of insulin, disposal of sharps and monitoring of the animal. This includes polydipsia and polyuria, appetite levels, lethargy, activity levels, how to identify hypoglycaemic episodes. The treatment of hypoglycaemic episodes and what to do if the owner is worried at any point should be covered. Symptoms of hypoglycaemia include, but don't necessarily mean that all will be noted but the owner:
 - Polyphagic
 - Weakness/lethargy
 - Disorientation
 - Ataxia
 - Strange behaviour, e.g., aimless wandering (sometimes noted as being vacant), searching for food, licking lips
 - Severe neurological signs, e.g., collapse, convulsions, loss of consciousness and eventually death
- 3) If required the process of home monitoring can be discussed, and the owner shown how to use a glucometer. A second appointment can be made to cover this subject if the owner wants to have two consultations as it can be a large amount of information to take on board in one session. Having client literature or DVDs on this subject can be useful for the client to take away and view initially prior to having the second nurse consultation.
- 4) Discuss how the diabetes stabilisation programme works. Explain why the insulin levels are only increased once every 7-10days in small increments followed by glucose curve until correct dose

reached. Explain to the owner that it can take a long time, so that they are not disheartened if it does take a while to stabilise.

- 5) Discuss exercise regimes and feeding levels and timings. It can also be useful to discuss what to do if the animal is unwell, or has not eaten all of its diet. Again, it can be a little overwhelming for owners with newly diagnosed animals to have all of this information. Splitting up of the information into two consultations a week apart can prove to be useful.
- 6) Discuss the type of diet the animal is receiving. If the pet is already receiving a "good" diet, then it can remain on the diet. If not, this includes semi-moist diets; the animal's diet does need to be changed. Semi-moist diets are higher in simple sugars and can cause higher post-prandial hyperglycaemic spikes than any other diets. Ideally the pet should transition onto a diet specifically designed for diabetics as this can have several benefits.
- 7) Ensure that the owner has business card/contact details of the diabetes nurse in charge of the case. Having a named nurse can greatly increase compliance, and ease any worries that the owner may have. Ensure that the owners are aware that in an emergency not to wait until the diabetic nurse is next on duty, but to phone the practice as soon as possible. The use of e-mails can be just as helpful as a phone number in order to contact the diabetic nurse.
- 8) Fill out diabetes care sheet, and explain to the owner how to fill out the diabetes diary. This is very helpful if more than one person is caring for the animal, so that the pet isn't accidentally injected more than once. Having written instructions is very important with all new cases.
- 9) The diabetes nurse in charge of the case should contact the owner for the first couple of days to ensure that the owner is happy with injecting insulin. If not, the owner and pet can come to the practice for the first few injections with the nurse present to aid if required.

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Further Reading

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