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CLINICAL DECISION MAKING IN VETERINARY PRACTICE

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**Thesis submitted to the University of Nottingham
for the degree of Doctor of Philosophy**

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Abstract

Aim

The aim of this study is to develop an understanding of the factors which influence veterinary surgeons' clinical decision making during routine consultations.

Methods

The research takes a qualitative approach using video-cued interviews, in which one of the veterinary surgeon's own consultations is used as the basis of a semi-structured interview exploring decision making in real cases. The research focuses primarily on small animal consultations in first opinion practice, however small numbers of consultations from different types of practice are included to highlight contextual influences on decision making.

Findings

The study reveals differences between the way clinical decision making is taught and the way that it is carried out in practice. In comparison to human medicine, decision making in veterinary practice appears to be more a negotiated activity, relying on social context, which takes account of the animals' and owners' circumstances, as well as biomedical information.

Conclusions

Veterinary practice especially that provided for companion animals has similarities with medical practice, however there are also differences caused by the status of the animal; the contrast between predominately fee for service veterinary care and state funded medical provision; and the acceptability of euthanasia as a "treatment" option.

Clinical decision making in veterinary practice is affected by a range of factors including the resources of the owner, the value placed on the individual animal and the circumstances in

which the decision making takes place. Veterinary surgeons in practice need teaching and evidence based resources to take account of these factors in order to provide the best care to their animal patients. Further sociologically informed research is required to provide a greater understanding of the contextual factors which influence clinical decision making.

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Last, but by no means least, I thank my daughter Charlotte for supporting me in this (ad)venture and putting up with the disorganisation in the house that has at times resulted from my involvement in this project.

The real purpose of the scientific method is to make sure
*Nature hasn't misled you into thinking you know something you
don't actually know.*

Robert M Persig – Zen and the Art of Motorcycle Maintenance

We shall not cease from exploration
And the end of our exploring
Will be to arrive where we started
And know the place for the first time.

T S Eliot – Little Gidding

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Abbreviations

BSAVA	-	British Small Animal Veterinary Association
BVA	-	British Veterinary Association
CPD	-	Continuing Professional Development
EBM	-	Evidence-based Medicine
EBVM	-	Evidence-based Veterinary Medicine
ECG	-	Electro-cardio gram
EMS	-	Extra – mural Studies
ENT	-	Ear, Nose and Throat
GMC	-	General Medical Council
GP	-	General Practitioner
MRI	-	Magnetic Resonance Imaging
NHS	-	National Health Service
PDSA	-	People’s Dispensary for Sick Animals
PDP	-	Professional Development Phase
RIAS	-	Roter Interaction Analysis System
RCGP	-	Royal College of General Practitioners
RCP	-	Royal College of Physicians
RCT	-	Randomized Controlled Trial
RCVS	-	Royal College of Veterinary Surgeons
RSPCA	-	Royal Society for the Prevention for Cruelty to Animals
SDM	-	Shared Decision Making
SPVS	-	Society of Practicing Veterinary Surgeons
UK	-	United Kingdom
WHO	-	World Health Organization

Excerpt notation

All excerpts are referenced to their source so that they can be easily located in the original material. The excerpt below is excerpt 4 in chapter 5. It comes from the first consultation recorded (C1) from the first veterinary surgeon interviewed in practice E (E1), the characteristics of individual veterinary surgeons are provided in Appendix H.

The numbers in brackets refer to the line numbers from the consultation or clip as transcribed in Transana¹.

Excerpt 5-4: Consultation E1C1 (1-5)

V> *That's his right front leg, and that's his left front leg and there's a lot of heat round the coronary band*

C> um

V> *and heat round the foot, so that's pretty significant really*

C> *and the other one seems to be hot all over*

V> *no this is his right front leg – white is hot, black is cold so it goes white, red, yellow, green blue black, so you've got a blue halo there very, very hot round the coronary band so we've got form of coronary shunt here .*

The person talking is identified by the symbol V> for veterinary surgeon, or C> for client or I> for interviewer. Where more than one client is present they are numbered sequentially i.e. C1 and C2.

In longer consultations line numbers are given to it make easier for the reader to locate the references in the text. Several longer excerpts, which are analysed over several pages, have also been provided in loose leaf format for ease of reference. The video recordings of these excerpts are also provided on the accompanying DVD.

¹ Transana is a type of CAQDAS originally created by Chris Fassnacht, it is now developed and maintained by David K. Woods at the Wisconsin Center for Education Research, University of Wisconsin-Madison.

In interview excerpts which include material from the original consultation this material is indented to distinguish the veterinary surgeon's comments in the interview (lines 3-5, and 8-9) from those in the consultation (1-2 and 6-7).

Excerpt 5-14: Interview C1 (203-222)

1 C> will she have to be on tablets all the time now then
2 V.....yes is the short answer...
3 V> he asked me a point blank question and I thought I can't just give him a simple
4 answer and I need to pause to get him to realize that what I'm about to say is quite
5 complicated
6 V> There is a plan B and a plan C ... The plan C which nobody ever takes is
7 that she goes away to University
8 V> so I try to steer him away from exploring that avenue cos I see it as a fruitless
9 avenue to explore

Chapter 1 - Introduction

The primary role of the veterinary surgeon is the prevention and treatment of animal disease, but veterinary surgeons also have a broader role in protecting the health of both animal and human populations. In these roles they will have to make clinical decisions concerning the health of their animal patients and advise their owners on the options available for treatment. In the majority of cases the advice and treatment is provided on a fee for service basis. Veterinary surgeons in the U.K are regulated by the Royal College of Veterinary Surgeons which lays out their professional responsibilities through ten guiding principles in the Guide to Professional Conduct (RCVS GtPC 2009), the first of these is to “make animal welfare your first consideration in seeking to provide the most appropriate attention for animals committed to your care” (ibid 1B). This document explicitly states that “having reached a provisional diagnosis taking into account the animal's age, the extent of any injuries or disease and the likely quality of life after treatment, [the veterinary surgeon must] make a full and realistic assessment of the prognosis and the options for treatment or euthanasia based on welfare considerations” (ibid 1C). At the same time the veterinary surgeon has a responsibility to the client to “ensure that a range of reasonable treatment options are offered and explained, including prognoses and possible side effects”; this includes giving realistic fee estimates, obtaining the client's consent, and recognizing that the client has freedom of choice (ibid 1D).

In their guide entitled “The Role of the Vet in Treatment Choice Decision-Making” the British Veterinary Association (BVA) state several factors that are considered to make decision making in veterinary practice more complex (BVA 2009). These are that:

1. Recent advances in veterinary science have increased the treatment options available for the management of disease and injury in animals and that some of these options will carry significant cost implications for the owner.
2. Domestic animals have a value to their owners, this may relate to financial, emotional or status depending on the function / role which the animal is expected to fulfil.
3. Animal welfare has become a more prominent consideration in society.
4. There is a general call for increased accountability and transparency in the professions with a shift away from paternalistic decision making.

The document stresses that animal welfare concerns over-ride the client's interest as owner of the animal and therefore that it is reasonable for the veterinary surgeon to influence the client's choice "*as for a variety of reasons, there are occasions when some owners do not always act in the best interests of their animals.*" (BVA 2009, p4). The need to discuss and potentially educate the client on the welfare needs of their animal requires that the veterinary surgeon "*engages in a process of ethical reasoning when considering treatment choice*" (BVA 2009) and is prepared to discuss euthanasia if it is considered to be in the best interests of the animal.

While both these documents stress that the veterinary surgeon's primary responsibility is to the welfare of their patients they also indicate the need to involve the owner in decisions about their animal's care and the financial costs of treatment. Therefore in addition to making clinical decisions about the diagnosis, prognosis and treatment of the animal patient the veterinary surgeon will need to consider the circumstances and context in which the decisions are being made. Meeting these different expectations can lead to conflict for the veterinary surgeon as they try to balance medical, ethical and business demands.

1.1 The Veterinary Profession in the UK

The veterinary profession has undergone major changes in emphasis as it has evolved through stages of being primarily involved with horses, farm animals and small animals (pets). There are 23,888 veterinary surgeons registered with the Royal College of Veterinary Surgeons of whom 17,260 are working in the UK and 14,843 (86%) are in general practice (RCVS 2010). This compares to 239,189 doctors registered with the General Medical Council in the UK, of whom 59,813 (25%) are in general practice (GMC 2010), the majority of doctors being employed within National Health Service (NHS) hospitals. Along with many other professions the veterinary profession has been subject to increasing feminization with women outnumbering men in practice for the first time in 2006, although they are still more likely to be employees than partners or practice principals, a situation which may partly reflect their younger average age (RCVS 2006).

There are 3,935 veterinary practices in the U.K. and although there are now several very large practices the majority of practices are small with a mean of 2 partners and 3 assistants (RCVS 2006). The majority of practices now deal with small animals (pets) with 53% dealing exclusively with small animals and a further 42.6% being mixed practices of which the majority will include small animals in their mix (RCVS 2010). This contrasts with 1975 figures in which 60% of practices were described as “mixed practices” in which farm animal work predominated and only in 20% of vets worked in exclusively small animal practice (Swann 1975). Only a very small number of practices now deal exclusively with horses (4.3%) or farm animals (2.7%) (RCVS 2010). In some mixed practices vets continue to deal with a wide range of species but increasingly, in the larger practices, there will be division into separate departments in which the veterinary surgeons deal with small animals or large animals only. Small animal work now accounts for 70% of all veterinary time (RCVS 2007)

Historically the veterinary surgeon (predominantly male) would visit his patients on the farm although he may have seen small animal patients at surgery premises, often attached to his home. With the increasing emphasis on small animal patients, and the expansion of the range and sophistication of diagnostic and treatment options available, the majority of small animal patients are now treated at purpose built premises. Consultations in first opinion small animal practice vary in length of time allotted from 5-20 minutes with 78% scheduled a 10 minute appointment and 14% scheduled for 15 minutes (SPVS 2007). Large animal practices will normally visit farms and work is increasingly based on herd health visits. Equine work divides between veterinary surgeons who visit horses at the owners' premises or yards and those who examine horses brought to a central clinic. However in contrast to most general practitioners in medical practice, for whom the consultation forms the major part of their work load (Byrne and Long 1976), the veterinary surgeon in general practice is likely to be involved in a wide range of diagnostic and surgical procedures which in human medicine are normally undertaken in hospitals.

As veterinary knowledge and techniques advance and provide ever more sophisticated methods of diagnosis and treatment there has been an increase in practices taking referrals, covering either single or multiple areas of specialisation. Initially most specialist referral work took place within university veterinary schools, with some general practitioners developing areas of expertise and taking referrals from local practices. In the last 20 years an increasing number of specialist practices have developed outside the university system, employing specialists qualified to diploma level and specialist equipment and techniques often imported from human medicine (Trees 2010).

All veterinary surgeons are required to provide a "24 hour emergency cover for the care of animals of those species treated by the practice during normal working hours" (RCVS GtPC 2009 para 1b). However it is now becoming more common for small animal

veterinary practices in urban areas to use dedicated out of hours service providers rather than provide this service themselves. The first 24 hour emergency veterinary clinic opened in central London in 1980 and this was followed by several large veterinary practices employing separate staff to cover night shifts for groups of branch surgeries. There are now a number of different out of hours service providers, the largest of which uses separate staff working within existing veterinary premises to provide an out of hours service to the host practice as well as neighbouring practices. However this is only a service for small animal clients within reach of large enough urban areas to make these services viable. Veterinary surgeons in rural areas or those providing care to a range of species are left having to provide cover themselves or through arrangements with neighbouring practices.

The veterinary profession has similarities with the medical profession from their origins through the way their education is delivered and in their practice (Quentin-Baxter et al. 2005). Although there are many similarities there are also significant differences which should lead to caution in the extrapolation of findings from one to the other.

1. Veterinary patients are animals and the relationship that their owners have with them will vary depending on circumstances. While for certain domestic pets, which are treated like members of the family, there may be comparisons with the parent-child relationship encountered by paediatricians (Shaw et al. 2004), there are no well defined analogies for production or performance animals.
2. In the majority of cases veterinary medicine is a private business with the client paying directly for services, although there are cases where insurance companies or charities pay part of the costs. This requires financial considerations to be addressed directly during clinical decision making process (Klingborg and Klingborg 2007). In contrast to the National Health Service where the doctor may have a role in rationing access to care to control costs (Evans et al., 2002; Jones

et al., 2004) the veterinary surgeon may have a financial incentive to increase access to services, but may also have to tailor the care provided to fit the clients financial circumstances (Manning 2006).

3. Finally it should be remembered that euthanasia is an accepted option in veterinary practice and may need to be addressed directly during clinical decision making (Shaw and Lagoni 2007).

1.2 Studying decision making

To make a decision is to choose a course of action (Hastie 2001) and clinical decisions will be defined as those decisions taken in the care of patients. Even though, in the literature, the terms clinical decision making, clinical reasoning, clinical judgment, clinical inference and diagnostic reasoning are used interchangeably (Hardy and Smith 2008) this study will distinguish between clinical reasoning as a “complex and mostly invisible process that is often largely automatic and therefore not easily accessible to others in practice or research” (Higgs et al. 2008, p 6) and clinical decision making as the end point of reasoning which reveals itself in a choice or action which is therefore more amenable to study.

Decision making has been studied in many ways from the experimental to the observational. It has been shown that the context in which decisions are made, and particularly organizational goals and norms, influence decision making (Orasanu and Connolly 1993). Therefore it has been recommended that in order to produce descriptively adequate models, which include the social and collaborative dimensions of decision-making, decisions are studied in real-world settings using qualitative methodologies (Patel et al. 2002).

1.3 Research aims and questions

The aim of this study is to explore clinical decision making by veterinary surgeons in practice in the U.K. and to develop an understanding of the main factors which influence their decision making. Although research into decision making in human medicine has been studied from a range of perspectives over several decades (Norman 2005; Elstein 2009) there has to date been little research into decision making in veterinary practice. While there are similarities in the biomedical approach to clinical decision making between human and veterinary medicine the social context in which these decisions take place is very different. In order to include these contextual factors this study will take a sociological approach to the study of decision making using qualitative methodology to investigate decision making in real consultations. The research will combine direct observation of consultations in practice (which will be recorded on video) with interviews to elicit the veterinary surgeons' accounts of the factors which they consider influence their decision making.

The primary research question it will seek to answer is: **What factors influence veterinary surgeons' clinical decision making in the consultation?**

In order to answer this question the research will look at clinical decision making from several different perspectives to build up a more complete picture:

1. How does the structure of the consultation affect clinical decision making?
2. To what extent are these decisions made by an individual veterinary surgeon or shared with others?
3. What types of evidence are veterinary surgeons using to support their clinical decision making?

It is hoped that in developing a greater understanding of the factors influencing clinical decision making in veterinary practice it will be possible to improve the undergraduate

and postgraduate training of veterinary surgeons in clinical decision making; inform the development of evidence based decision aides to assist clinical decision making; and improve the standards of the care that veterinary surgeons are able to provide to their human clients and animal patients.

1.4 Organization of dissertation

The next section of this dissertation (**Chapter 2**) will be a **literature review** which will be divided into four sections considering decision making; evidence; the consultation as the site of clinical decision making; and the professional and ethical context of decision making. Each section will give an overview of the main ideas in that field as well as more specific details of any literature related to veterinary practice.

Chapter 3 will provide an overview of the **methodology and methods** of the research project. It will start with a discussion of the rationale for taking a sociological approach and the use of qualitative research methods to study clinical decision making in natural settings. It will then go on to a more detailed discussion of the video-cued interview, why this method was selected and a description of the study design including issues related to sampling, ethics and access. The chapter will conclude with a discussion of the role of the researcher in the process of data collection.

The introductory chapters will be followed by four analytic chapters each looking at different aspects of clinical decision making. **Chapter 4** will describe **the veterinary consultation** in more detail, based on the recordings of sixty nine consultations from a range of practices. This chapter will then go on to compare the process of actual consultations with three commonly taught models: the tasks of the consultation as defined by the bio-medical model of disease; the Calgary-Cambridge model, concerned with communication in the consultation; and models of diagnostic decision making. It will

then go on to consider the similarities and differences between different types of practice; the effect of context on clinical decision making and the constraints imposed by working to scheduled ten minute appointments.

Chapter 5 will look in more detail at **shared decision making in the veterinary consultation**. This chapter starts with the observation that veterinary consultations rarely appear to include explicit shared decision making while veterinary surgeons themselves say that involving the client in the decision making process is essential. It will go on to explore the different ways that veterinary surgeons involve their clients in diagnostic and treatment decisions. The chapter will conclude with a discussion of how veterinary surgeons deal with uncertainty in the consultation and how this affects the process of shared decision making.

Chapter 6 will look in more detail at the **evidence** that veterinary surgeons use to support their clinical decision making. It will start with an analysis of the importance of the clinical history, physical examination and investigative test results on clinical decision making in the consultation. This will be followed by discussion of the sources of evidence that veterinary surgeons report using and their views of evidence-based veterinary medicine.

The final analytic chapter, **Chapter 7**, will draw on the findings of the previous chapters to look at some of the major **factors which influence clinical decision making** in the veterinary consultation. The first section will look at factors related to the animal, client and veterinary surgeon respectively, looking at the variations that may influence decision making in individual cases. This section will end with a discussion of how role conflicts may contribute to veterinary surgeons' stress. The second section will look at the effect of providing veterinary services within the context of a small business and include an analysis of how money is, or more often is not discussed during the veterinary consultation. This section will also look the effect of pet insurance on clinical decision

making. The final section will look at the way that quality of life decisions, and the possibility of euthanasia, affect clinical decision making in veterinary practice.

Chapter 8 will conclude the dissertation by providing a summary of the findings of the study on a chapter by chapter basis. It will also look at the limitations of the study before discussing the implications of the findings both for veterinary practice and for further research.

Chapter 2 - Literature Review

This literature review will be divided into four sections; each section will give an overview of the main ideas in that field as well as more specific details of literature that relates to clinical decision making in veterinary practice. However it should be remembered that these four sections do not indicate natural divisions but rather a way of organizing a very broad literature review. Since the topics covered are so broad it is of necessity a selective literature review and because of the paucity of literature relating specifically to veterinary practice often draws on the medical literature.

The first section will provide a brief introduction to some of the ideas on **decision making** before looking more specifically at the literature on clinical decision making, and the factors which may lead to variations in process or outcome. It will then consider the effect of uncertainty on clinical decision making and finally look in more detail at the literature related to decision making in veterinary practice. The second section will look at the literature relating to **medical knowledge and evidence** and how this has changed over time. It will look more closely at the concept of evidence-based medicine (EBM) and some of the criticisms of EBM before considering the implications for evidence-based veterinary medicine. The third section will look at the literature relating to **decision making in the consultation** and the effect of context on decision making as well as the literature on the veterinary consultation. It will also look at the literatures relating to shared decision making. The final section will look at the **professional and ethical context of decision making** starting with an overview of relevant ideas from the sociology of the professions and the concept of making decisions in “best interests” of the animal. The chapter will conclude with an overview of factors which may influence clinical decision making in veterinary practice including the role of the veterinary surgeon, the status of the animal patient and the role of the owner.

2.1 Decision making

Decision making is part of our everyday lives, both private and professional, and how decisions are made has been the subject of study in many different disciplines. Decisions imply choice between options; consequently the study of decision making becomes the study of how and why certain choices are made and perhaps how they could be made better.

2.1.1 Models of decision making

Much of the initial study of decision making took place in economics and proposed a “rational actor” who selects between options based on stable preferences in pursuit of explicit goals. This requires knowledge of all the available choices and their consequences. In situations where there is some uncertainty decision analysis can be used to assign numerical values indicating the probability and utility (value) of each option. Within this theory a “good decision” is the one indicated by the highest numerical value based on the likelihood of the outcomes and the values and preferences of the decision maker; and a “good outcome” as one that is profitable or otherwise highly valued by the decision maker (Neumann and Morgenstern 1944). However as the decision process may involve elements of uncertainty a “good decision” does not guarantee a “good outcome”.

The major problem with “rational actor” theories is the need for complete knowledge of all the possible outcomes at the beginning of the decision making process. In order to deal with this, and the findings that not all choices are explained by rational theories, Herbert Simon (1957) proposed that fully rational choices are often not possible because of limitations in our ability to formulate and solve complex problems, a theory he called “Bounded Rationality”. The theory recognizes that information gathering itself has a cost and therefore people often use heuristics or shortcuts in making decisions and will often settle for decisions that are “good enough” rather than optimal. The concept of heuristics

was developed further by Tversky and Kahneman (1974) who found that these shortcuts could be classified and that each was associated with particular types of error and introduced particular biases into the decision making process. While these theories help to explain the finding that in many cases real life decisions do not conform to those predicted by rational choice theories, they share the position of viewing the decisions made in these ways as sub-optimal.

More recently it has been proposed that in certain situations, particularly those that involve skill and other circumstances in which tacit knowledge is being used, heuristics may in fact lead to better decisions than the use of rational choice alone (Gigerenzer and Selten 2002). This highlights an important distinction in the study of decision making between normative theories which outline an ideal process by which we can model how decision should be made and descriptive theories which are concerned with how people actually make decisions.

Philip Tetlock (1991) identifies three competing mechanisms for understanding human decision making which he characterizes as:

1. The “naive economist” who uses the rational perspective in pursuit of maximum expected utility, this is easy to model mathematically but provides a poor description of individual behaviour.
2. The “naive psychologist” in which a person is seen as striving to achieve cognitive mastery of his or her environment using heuristics to simplify the complexity of decisions.
3. The “naive politician” where the decision maker can be thought of as trying to satisfy the different constituencies to which s/he feels accountable.

This final point brings in the idea that people do not make decisions in isolation but rather that there are a range of influences and constraints on decision making in the real world. Whereas economists and psychologists view the constraints on decision making in terms of knowledge and cognitive power, sociologists look at the wider context within which

decisions are made; they consider the social acceptability of decisions as well as the constraints that society places on individual decision making. Sociological approaches to the study of decision making are discussed at greater length in section 3.1.2.

2.1.2 Clinical decision making

Clinical decision making is the process of making decisions about the care of individual patients, and is an integral part of the work of many health professionals (Higgs et al. 2008). Medical decision making is taken to be a specific example of clinical decision making by doctors. Interest in medical decision making has risen in recent decades, both inside and outside the medical profession. Within the profession the interest has been stimulated because the increase in biomedical knowledge and technological developments which have led to an increase in the options for investigating and treating disease. Outside the profession rising public expectations and changes in attitudes to the professions have also led to increasing questioning of the decisions that are taken.

Medical decision making has been described as a process involving deciding what information to gather; which diagnostic tests to perform; how to interpret and integrate this information to draw diagnostic conclusions; as well as deciding which treatments to give (McGee 2010). Research into medical decision making has been broadly divided into two approaches with problem solving research primarily aimed at describing reasoning by expert physicians with the aim of being able to increase the expertise of less experienced clinicians; and psychological decision research identifying departures from the statistical models of reasoning under conditions of uncertainty (Elstein and Schwartz 2002 ; Norman 2005).

Diagnosis, or deciding what is wrong with the patient, is seen as one of the major clinical decisions of the consultation. The term diagnosis refers both to the naming of the disease

or condition from which the person or animal is determined to be suffering, as well as the process by which such a conclusion is reached (Del Mar et al. 2006). Diagnosis has been described as a process of categorisation and in western medicine the dominant method of categorization is based on the idea of the patho-physiological localisation of disease, although advances in diagnostic technology have led to diseases being categorised in new ways, such as those relating to biochemical or genetic abnormalities (Jewson 1976; Wulff et al. 1990). In contrast to diagnostic decisions which involve the clinician in a process of clinical judgment based on evidence collected from the clinical history, physical examination and diagnostic tests, treatment decisions are often considered to follow logically from the diagnosis. However the paradigms of evidence based medicine, which recommends that treatment decisions are based on empirical evidence from clinical trials; and shared decision making which involves integrating patient, or client, preferences and values into the decision making process, require that the clinician also integrates a range of evidence in making treatment decisions.

This idea that the role of the practicing clinician is to do more than just treat the disease has been discussed in the medical sociology literature where the concept of treatment of the disease has been expanded to the idea of response to the patient's problem. In order to do this the physician needs to transform the patient's predicament into a solvable problem (Berg 1992) which is amenable to the types of services which the profession is able to provide (Abbott 1988). Therefore before treatment can be provided the problem must be reconstructed, within the biomedical model this process of defining and reconstructing the problem is known as diagnosis. However there are many cases where treatment is undertaken before a definitive diagnosis is reached and in some cases response to medication may be used as part of the diagnostic process, a procedure referred to as test of treatment (Glasziou et al. 2009).

2.1.3 Factors influencing clinical decision making

Initial studies of medical decision making were concerned with variations in practice, focusing on consistency (intra-observer variability) and variations between observers (inter-observer variability). These studies revealed significant differences in the interpretations of clinical signs (Comroe and Bothelho 1947), radiographs (Yerushalmy 1955) and even in taking medical histories (Cochrane et al. 1951). More recently similar variation has been confirmed in veterinary medicine in procedures ranging from measuring the height of ponies (Lamas et al. 2007) and radiographic measurements (Fettig et al. 2003; Verhoeven et al. 2007) to assessment of udder health (Fossing et al. 2006).

In looking at reasons for variations between individuals, research has focused on differences in the expertise of the clinician (Dreyfus et al. 1986; Greenhalgh 2002); the complexity of the task (Hammond 1981; Hamm 1988; Schmidt et al. 1990) and the context within which the decision is made (Eisenberg 1979 ; Clark et al. 1991).

The expertise of the clinician

Early research characterized medical decision making as the process of testing hypotheses and noted that “experienced clinicians typically formulate initial hypotheses within 15 seconds of talking with a new patient” (Elstein et al. 1978 quoted in Hamm 1988, p79). However although this research demonstrated that clinicians formulated and tested a small number of hypotheses as predicted by the concepts of bounded rationality (Simon 1991) and cognitive psychology (Elstein 2009), it failed to explain differences in decision making between novices and experts who all appeared to use the hypothetico-deductive method. This led to a shift in research into how individuals organize and represent their knowledge using basic mechanisms of disease, illness scripts and exemplars derived from experience to inform their decision making (Schmidt et al. 1990). In this model expertise is not related to greater hypothetico-deductive skills or greater knowledge, but the

integration of knowledge and experience allowing relevant knowledge to be accessed quickly and easily (Gale 1980; Gale and Marsden 1983). Experts are able to draw on their experience of previous “cases” to recognize patterns (Heneghan et al. 2009) or deviations from expectations (Klein et al 1989). It also predicts that even experienced practitioners will revert to “novice” analytical reasoning in areas with which they are unfamiliar or when presented with novel or complex cases. More recently dual processing theory has explained the way in which experienced clinicians largely rely on pattern recognition for the diagnosis of common conditions and reserve hypothetico-deductive reasoning for complex or unusual cases (Evans 2003).

The complexity of the task

Analysis and intuition have been seen as two poles of a “cognitive continuum” with most decision making containing elements of both depending on the complexity, ambiguity and presentation of the task (Hammond 1981). Dual processing theory draws on research in psychology to suggest that humans have access to two different methods of reasoning (Evans 2003). These have been variously referred to as intuitive - analytic; implicit – explicit; and System 1 – System 2 reasoning; with the last of these now becoming most common in discussion of clinical reasoning since it does not make assumptions about the cognitive processes being used (Evans 2003; Croskerry 2009; Maskrey et al. 2009). System 1 processes are considered to be rapid, involve parallel processing of information and automatic, with only the result of deliberation being “posted” into consciousness (Evans 2003). In clinical decision making this is considered to be characterized by pattern recognition, based on experience, using cues to arrive at rapid decisions. It is considered to be “fast and frugal”, requires little effort, and frequently gets the right answer, but it is subject to error and bias (Croskerry 2009). In contrast System 2 processes are slow, systematic, linear and fully conscious, but because they are reliant on working memory are limited in the amount of information that they can process (Evans 2003). In clinical decision making they are associated with systematic review and appraisal of evidence

(Maskrey et al. 2009). They are slow and resource intensive but more likely to reach a correct diagnosis than System 1, at least in those cases which deviate from the classic presentation (Croskerry 2009).

Hamm (1988) proposed that the accuracy of clinical reasoning is determined not only by the experience of the doctor but also by the match between the cognitive mode and the task. He goes on to comment on structural factors stating that “The institution too affects the prevailing mode of cognition used in diagnosis and decision making, through the kind of staff training it provides or pays for, the amount of time it allows for reasoning about each patient, the kind of information that is routinely made available (e.g. tests, records, literature), the accessible tools (e.g. computers, software) and the rewards and punishments that are contingent on patient outcomes or physician practices” (ibid p84).

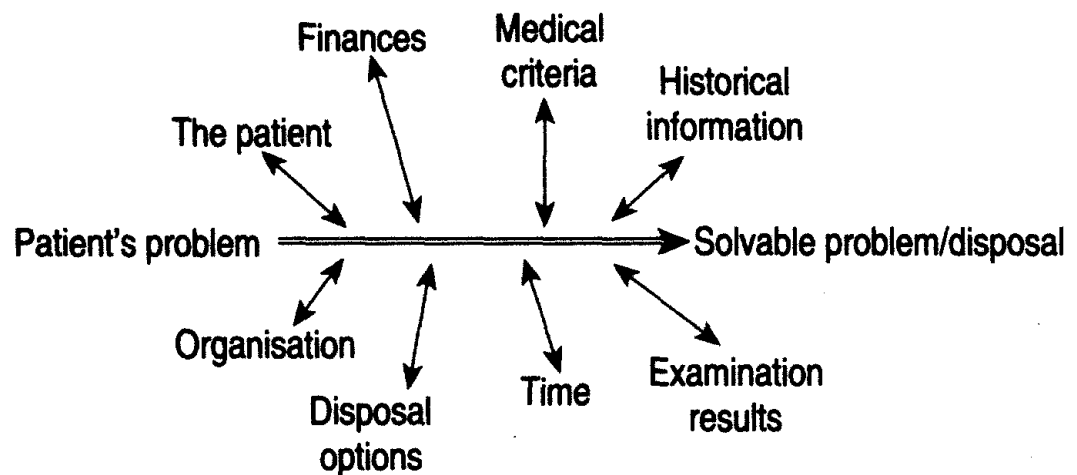
The context of decision making

Although many studies of medical decision making have been undertaken under normal clinical conditions they have generally seen the decisions as technical or cognitive problems which are not affected by context. While studies of individual decision making tend to focus on process, usually through the account of the decision maker, or outcome in terms of the choices made, sociological studies investigate the context within which the decisions are made. Eisenberg (1979) advised that clinical decision making needed to be described in the context of “sociologic influences” including patient, physician and practice settings. The effect of social structure on clinical decision making was reviewed by Clark and colleagues who concluded that “Socio-demographic characteristics of *patients, physicians’ professional and social backgrounds, and the organization of practice settings appear to determine, at least partially, physicians’ responses to patients complaints*” (Clark et al. 1991, p 358).

Berg (1992) proposed changing the view of the doctor and his decision making from a cognitive to a social model. In the former the doctor is seen as someone who uncovers a

diagnosis through the collection and interpretation of the history and examination, which are viewed as external “facts” to which s/he responds with a fixed given treatment. In this model variation between clinicians in the face of constant external facts can only be explained by errors in decision making and judgment. However in the social model the doctor is seen as someone who transforms the patient’s problem into a solvable problem to which s/he is able to offer a range of responses depending on the individual’s circumstances and the clinician’s decision is not only affected by biomedical “facts” but by a wide range of factors as indicated in the diagram below.

Figure 2-1 : Elements involved in transforming the patient’s problem into a solvable problem (Berg 1992 p168)



In an observational study of decision making by ENT specialists in outpatient clinics Bloor (1976) found five sources of variation in clinical decision making: variation in the procedures used in the examination of the child; variation in the decision rules used leading to differential emphasis on the findings of the physical examination and the clinical history; variation on the procedures used for the history-taking; variation in the decision rules pertaining to the history; and variation in routines according to the age of the child.

Eddy discusses how variations in practice occur not only in interpretation of signs but also in selection of diagnostic procedures and choosing which outcomes to monitor,

breaking down medical practice into separate steps, each of which poses its own challenges: defining a disease; making a diagnosis; selecting a procedure; observing outcomes; and assigning preferences. He goes on to say “It is difficult for nonphysicians, and for many physicians, to appreciate how complex these tasks are, how poorly we understand them, and how easy it is for honest people to come to different conclusions” (Eddy 1984, p45). He concludes that while we cannot eliminate uncertainty, we can improve our ability to deal with it by the use of statistics, probability theory and decision analysis.

Statistical approaches to decision making

The use of statistical decision making was initially championed by Meehl (1954), a clinical psychologist, who suggested that statistical (actuarial) predictions, i.e. those that applied rules which required no professional judgment, could outperform clinicians decisions in many cases. This led him to recommend that actuarial methods of prediction should be applied to clinical cases (Meehl 1986; Grove and Meehl 1996). Despite several decades of research there still remain two major and conflicting approaches to decision making (Ericsson 2007; Elstein 2009): those who consider that clinical decision making is best undertaken using statistical and formal decision analytic approaches; and those who favour a non-analytic reasoning approach. Experimental studies have confirmed that where decision rules based on good quality population based evidence are available they can outperform the clinical judgment of individual clinicians, for example in making decisions about the management of abdominal pain (De Dombal et al. 1972). In a meta-analysis of 136 trials comparing clinical and mechanical (statistical) decision making, mechanical predictions outperformed clinical prediction overall however the authors caution that “our results qualify overbroad statements in the literature opining that such superiority is completely uniform; it is not. In half of the studies we analyzed, the clinical method is approximately as good as mechanical prediction, and in a few scattered instances, the clinical method was notably more accurate” (Grove et al. 2000, p 25).

These findings suggest that further research is needed into clinical decision making and particularly those factors which enable individual clinicians to perform well.

2.1.4 Uncertainty in clinical decision making

Fox in her study of the training and socialization of medical students in the 1950's identified uncertainty as a key aspect of medical knowledge and culture and recognised training for uncertainty and training for detached concern as hallmarks of medical education (Fox et al. 1978) . She identified three types of uncertainty which medical students encounter and with which they need to learn to cope:

- Uncertainty arising from their incomplete mastery of current and expanding medical knowledge.
- Uncertainty arising from gaps, limitations and inadequacies in medical knowledge.
- Uncertainty due to difficulty in distinguishing between the limitations of medical knowledge and personal ignorance (Fox 1989).

In contrast Atkinson characterises medical training as a process which serves to insulate doctors from uncertainty and which treats medical knowledge as established facts to be memorized and mastered (Atkinson 1984). Where medical knowledge is absent practitioners appeal to personal experience, opinion and judgment to fill the gaps (Atkinson 1995) stating that “Distinctions between theory and practice, or between science and experience are not drawn in order to contrast feelings of certainty and uncertainty, or to justify alternative ways of problem solving. **Both** are ways of *warranting knowledge for practitioners' practical purposes*” (ibid 115).

This tendency to minimise uncertainty enhances the ability of the practitioner to carry out work based on practical reasoning, experience and routine but makes it harder to admit or discuss uncertainties with the patient (or client). It has also been suggested that doctors

may maintain uncertainty pragmatically in order to avoid giving bad news, or in order to maintain hope or avoid emotional confrontation (Davis 1960).

Katz contrasts a physician's ability to discuss the uncertainties of treatment with a colleague with his lack of willingness to do so with his patients. He goes on to suggest that the strategies that physicians develop in order to cope with uncertainty can lead to an attitude of apparent over-certainty which can negatively impact on interactions with patients (Katz 1984). However it is acknowledged that the admission of uncertainty is difficult to manage within the context of a consultation in which the client is paying for the professional's advice.

Whereas in the past medical uncertainty was largely the doctor's problem an ideological shift from paternalistic to shared decision making now requires the doctor (or veterinary surgeon) to share this uncertainty with their patient or client in the interest of informed decision making. A questionnaire based survey, undertaken in six small animal practices in the UK, found differences between client and veterinary surgeon attitudes to expressions of uncertainty during the consultation. The survey found that the veterinary surgeons significantly underestimated the desire of clients to be told about uncertainties in treatment and significantly overestimated how the expression of uncertainty would reduce client confidence. However both clients and veterinary surgeons agreed that verbal expressions of uncertainty would lead to greater reduction in client confidence than behavioural expressions of uncertainty, such as asking for a second opinion (Mellanby et al. 2007). A similar study into the effect of doctor's expressions of uncertainty on their patient's confidence found that "older patients, who viewed themselves as from a higher social class and stated that they knew their doctor better indicated that they would feel more confident after either behavioural or verbal expressions of uncertainty" (Ogden et al. 2002, p 175). This research indicates that different patients may respond in different

ways to the disclosure of uncertainty depending on their own level of knowledge and their relationship with their doctor.

A particular problem for the veterinary surgeon in discussing the risks and benefits of the various options for treatment is the paucity of the knowledge base. Many of the procedures used in current practice are based on accepted practice rather than controlled studies (Fettman and Rollin 2002). This leaves the veterinary surgeon with the added problem of discussing uncertainty about many commonly accepted procedures, and indicates a need for both more evidence based resources and clinical audit to provide information about the success of treatment in an individual practice. While evidence-based medicine may be presented as a way of reducing the doctor's uncertainty by grading evidence and providing an increasingly numerical approach to discussing risks it may also introduce a further level of uncertainty to the doctor who may feel inadequately prepared to interpret the published evidence (Timmermans and Angell 2001).

2.1.5 Decision making in veterinary practice

There has as yet been little research into clinical decision making in veterinary practice. One study into veterinary surgeons' decision making in cases of metritis in dairy cattle, used observation and semi-structured interviews in order to understand variation in veterinary medical records (Lastein et al. 2009). The authors concluded that variations were caused not only by differences in perception between veterinary surgeons but also in their motivations for decision making. They identified four external factors influencing decision making: those related to production and economic considerations on the farm; those relating to animal health and welfare; group practices that had been agreed between veterinary surgeons; and factors related to wider public health issues such as anti-biotic resistance. They also identified different categories of motivation in the veterinary

surgeons which ranged from the “epidemiological”, for those using guidelines and criteria based on population data, to those making “clinical” decisions based on the individual animal. The authors concluded that clinical decisions are likely to be based on both explicit and implicit types of information; they advised that “human factors” should be considered by future researchers, teachers and decision makers. While this study focused on veterinary decision making in farm animal practice where economic factors and herd health considerations are explicitly considered it is reasonable to assume that human factors, working at different levels, also play a role in veterinary decision making in other contexts.

Most of the literature on decision making in veterinary practice is prescriptive in nature giving advice on how to make decisions in general or in specific conditions. It has been suggested that decision analysis may be a useful approach for helping the veterinary surgeon and owner choose between different options under conditions of uncertainty (Galligan et al. 1987; Cockcroft 2007). However it has also been noted that there may be problems using decision analysis in everyday practice “The main limitations of this technique are the time involved in using it and the uncertainty about decision criteria, as well as the difficulty in establishing the value of model inputs and outputs and in deriving probabilities” (Ngategize et al. 1986, p 187). There have been a number of examples of decision trees being developed to aid decision making in particular conditions (Bennett 1992; Peters and Van Sluijs 2002; Cockcroft and Holmes 2003). However it has been said that because there is a time cost to seeking the information cases which will benefit from a decision analysis approach need to be chosen with care (Cockcroft 2007).

When asked how well their veterinary training prepared them for practice in terms of diagnostic and problem solving skills 76% of graduates replied “well” or “very well”, however when employers were asked the same question this fell to 54% (Gilling and Parkinson 2009). This paper concludes that the first year in practice is critical in the

development of professional skills including decision making, describing it as a “make or break” period.

In order to ease the transition from student to practitioner the Royal College of Veterinary Surgeons has introduced an advisory “Professional Development Phase” (PDP) based on self-assessment in practice. The PDP is meant to guide the new graduate from the “day one competencies” with which they are expected to graduate to “year one competences” where the graduate “will be able to perform a range of common clinical procedures, or manage them without close supervision, in a reasonable period of time and with a high probability of a successful outcome ” (RCVS 2009, p 3). The essential competencies expected of veterinary graduates do not explicitly refer to clinical decision making skills although they do refer to the ability to communicate effectively (A1.2 and 2.1); an awareness of the economic and emotional climate of practice (A1.5 and 2.5); the ability to cope with uncertainty and adapt to change (A1.10 and 2.10) and the ability to evaluate evidence (B1.3 and 2.3) (Gorman 2001). There is no indication of how these particular competencies are expected to develop between graduation and completion of the PDP, only in the case of A2.1 and A2.5 that they should have been demonstrated to the practice principal. The only explicit reference to clinical decision making comes in the guidance to those undertaking internships in a University or similar environment in which it is stated that in order “To complete PDP, graduates will need involvement with first opinion cases, and will also need to have primary responsibility for the clinical decision, which is one of main competences that need to be developed during PDP” (RCVS 2009, p 5). This implies that it is necessary to have primary responsibility for making clinical decisions in order to develop decision making skills.

Shuttleworth considers the link between experience and consulting skills in her doctoral dissertation, and comes up with the following hypothesis: “The advanced GP vet makes

an intuitive decision based on all the different evidence available early on in the diagnostic process as to where in the continuum from healthy, to common condition to problem case that the tentative diagnosis is likely to be. Depending on this decision, the advanced GP vet will then tend to use an emergent pattern recognition followed by attempted falsification approach to confirm or deny a tentative diagnosis at the healthy end of this continuum, compared to a reductionist (scientific hypothesis) method *approach to the 'problem case'*” (Shuttleworth 2006, p 198). This conclusion would seem to support similarities between veterinary and medical decision making. However it has also been stated that “veterinary surgeons face complex medical decision making with considerable uncertainty in a broad range of species with much less support than their *medical counterparts*” (Whipp 2003, p 31).

2.2 Medical knowledge and evidence

Disease and injury are an inevitable part of life and all societies develop beliefs to try to explain their occurrence. The knowledge and evidence on which doctors rely to support their decision making depends both on their beliefs about the nature of disease and the tests and treatments available. The development of science since the 18th Century has led to the idea of independently existing diseases which could be classified on the basis of the underlying abnormality, which could be structural, functional or, more recently, genetic.

2.2.1 Medical cosmologies

Jewson introduces the idea of medical cosmologies, which he describes as “Metaphysical attempts to circumscribe and define systematically the essential nature of medical discourse as a whole” (Jewson 1976, p 225). During the period 1770-1870 Jewson describes three distinct medical cosmologies that successively dominated Western

European medicine and which demonstrate a shift from a person oriented to disease oriented medicine.

The first of these was bedside medicine which was seen as the continuation of the traditional form of medical practice which dated back to the ancient Greeks. Within this system it was believed that disease related to the unique characteristics of the individual person and medical practitioners offered “a wide selection of theories and therapies to the sick” (Jewson 1976, p 233). Since the patient was paying directly for the service they could select the practitioner of their choice, and the status of a practitioner often depended more on the social standing of their patrons rather than the success of their treatments. The emphasis was on eliciting a history which enabled the practitioner to understand the requirements of his client and on providing details of prognosis and therapy.

As a result of social changes in the early 19th Century medicine moved from the bedside to the hospital (Foucault 1973). The removal of patients from their home environment to that of the hospital enabled medical practitioners to see more patients and to observe the development of disease. This provided the opportunity to study many cases of similar disease and led to the introduction of statistical analysis (Louis 1835). As patients were often not paying directly for their treatment the power shifted from patient to doctor. Diagnosis came to focus on the localization of lesions, and the medical examination was extended by the use of various “scopes”. These instruments enabled the clinician to have access to knowledge about the body which the patient did not have and decreased reliance on the clinical history in making a diagnosis. The patient’s reported symptoms contrasted with signs of disease which were only available to the doctor. Medicine started to be divided into anatomically based disciplines, which enabled the doctor, now characterized as a clinician to develop expertise in a certain area.

The third stage described by Jewson was the development of laboratory medicine, which saw the focus of disease shift to functional explanations at a cellular level. The

introduction of the germ theory of disease increased the tendency to see diseases as entities in their own right which could be studied independently of the bodies in which they occurred. Diagnosis was based on chemical tests of body substances in order to identify abnormal physiological processes, and as these tests could be carried out away from the patient, further separating the patient and the diagnosis of disease.

Jewson has been criticized by medical historians for the simplistic and schematic nature of his medical cosmologies and his failure to provide evidence to support his position. Historical studies suggest that this progression was neither inevitable, nor based on a consensus of medical opinion and shows that rather than one cosmology replacing another the different thought systems often co-existed and vied for dominance (Warner 1995; Lawrence 1999). Where one system gained dominance it was often for social rather than epistemological reasons. For example it has been suggested that the development of laboratory sciences was funded and supported because it embodied a way of knowing “*characterized by a logic of diagnostic categorization and therapeutic standardization*” which “*contributed to the efficient management of patients*” within the increasingly corporate health care systems that were developing at that time (Sturdy and Cooter 1998, p 3) .

During the 19th Century, and running in parallel to the development of hospital medicine there was also a movement variously referred to as community or public health medicine (McKeown 1976; Bynum 2008). This concept was developed into an alternative model of medicine focusing on observation of seemingly healthy populations which emerged in the early twentieth century and which Armstrong (1995) calls “Surveillance Medicine”. This approach to medicine characterizes disease as distributed through a population and the role of the professional as the detection of deviations from “normal”. It contrasts the binary distinction between health and disease of the biomedical model with the idea of continuous distribution of variables throughout a population revealed by survey based

medical studies and screening. Surveillance medicine also introduces a temporal factor, encompassing not only those who are diseased now but those who are at risk of developing disease in the future. From the point of view of surveillance medicine the causes of disease are no longer located in the body but within the lifestyle of the individual, reintroducing the idea of moral responsibility for one's health.

Although veterinary medicine deals with different species in different contexts from human medicine there are many parallels between the two professions (Quentin-Baxter et al. 2005). Historically the two professions have adopted similar approaches to knowledge production and the importance of anatomical localisation of disease led directly to the formation of the first veterinary schools (Lanyon 1991; Pattison 1991; Porter 1994). Although specialization in the veterinary profession has only occurred much more recently (Lumel and Herrtage 2006) the ideas of population medicine and the prevention of disease have been dominant since the nineteenth century (Pattison 1991).

Jewson's description of medical knowledge as historically and socially contingent leads Nettleton to ask whether recent socio-technological changes have prompted the development of a new medical cosmology which she calls "e-scaped medicine" (Nettleton 2004). Within this cosmology medical knowledge becomes medical information which is not only "e-scaped" in terms of being available over the internet, but "escapes" medical control in being available to all. Within this worldview disease becomes characterized as information malfunction associated with genetic abnormality. Medicine also becomes separated from the body as the patient is increasingly converted into digital information, through imaging and recording which can be interpreted at a distance through the development of "telemedicine". Nettleton proposes that this emphasis on information underlies many of the debates on evidence based medicine and the current state of medicine. As the body of the patient becomes less important "The art of medicine associated with the experience of the individual clinician has given way to

aggregated research information which meets certain methodological criteria” (Nettleton 2004, p 270).

2.2.2 Evidence-based medicine

Evidence based medicine (EBM) has been described as a new paradigm for medicine (Guyatt 1992), which proposes the “conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett et al. 1998, p 3). Although the principles of Evidence-based Medicine (EBM) have a long history (Claridge and Fabian 2005) the term is more usually applied to an approach to medicine which formalized ideas that had been developing in epidemiology and the decision sciences for several decades (Sackett 1969; Guyatt 1992). The paper outlining this approach explicitly states four assumptions for the “new paradigm”:

1. Clinical experience and the development of clinical instincts are a crucial and necessary part of becoming a competent clinician as many aspects of clinical practice are not and will never be evidence based. However it does stress the need for systematic recording as intuition can be misleading.
2. The study and understanding of the basic mechanisms of disease are “a necessary but not sufficient guide for clinical practice”.
3. An understanding of the “rules of evidence” is necessary in order to correctly interpret the literature on “causation, prognosis, diagnostic tests and treatment strategy”.
4. “A final assumption of the new paradigm is that the physicians whose practice is based on an understanding of the underlying evidence will provide superior patient care” (Guyatt 1992, p 242).

Despite the fact that the paper explicitly refers to the importance of clinical expertise, evidence-based medicine has come to be associated most strongly with the explicit use of research literature in making decisions about the care of individual patients. This approach emphasizes the need for clinicians to develop critical appraisal skills to enable them to interpret the literature.

Types of Evidence

Within human medicine there is a well recognized hierarchy of evidence in which Randomized Controlled Trials (RCTs) and more particularly systematic reviews and meta-analysis of numbers of these trials form the “best evidence” (CEBM 2001). Significant resources have also been expended in producing evidence based guidelines (NICE 2008) and systematic reviews (Cochrane 2008) for the medical profession.

Evidence in Practice

Studies into evidence based medicine have produced mixed results. A study comparing General Practitioners (GPs) with hospital doctors found that GPs rated their skills in accessing and appraising evidence as lower than their hospital counterparts and gave time and access to libraries as the main barriers to evidence-based practice (Upton and Upton 2006). A number of surveys have indicated that although doctors in general practice have a largely positive attitude towards the introduction of EBM, the same respondents also considered it is too time consuming and difficult to apply in their everyday practice (McCull et al. 1998; Young and Ward 2001; O'Donnell 2003).

Young and Ward (2001) found that in addition to concerns about lack of time 45% of those interviewed cited patients' expectations for treatment “regardless of supporting evidence” as a problem with achieving evidence-based practice. They also expressed “difficulties with assessing the generalizability of research findings and applying study findings to the care of individual patients” (ibid p206). While they found considerable support for clinical guidelines in practice, rated as very useful by 55%, they also found

that the majority of respondents “stated they would seek information from a specialist colleague at a time of clinical uncertainty, rather than consult guidelines or systematic reviews of evidence” (ibid p208).

Another study, using unstructured non-participant observation over a two year period in two contrasting general practices in the UK, reported generally positive attitudes to EBM however the researchers failed to observe any practitioner (doctor, nurse or other medical staff) “go through the steps that are traditionally associated with the linear-rational model of evidence based health care—not once in the whole time we were observing them” (Gabbay and le May 2004, p 1014). Although nurses would consult guidelines when faced with an unfamiliar problem, once they were familiar with the procedure they would rarely if ever look at the guideline again and more generally that all the practitioners “took shortcuts to acquiring what they thought would be the best evidence base from sources that they trusted” (ibid p 1016), without ever questioning the evidence-base of their advice. They concluded that the clinicians were relying on collectively reinforced, internalized tacit guidelines which they called “mind-lines”. However the authors do not go on to explore the extent to which practitioners may be participating in evidence-based healthcare in a non-linear way and at times when they are not observed, such as by attending Continuing Professional Development (CPD) or through reading carried out at home. Nor did they give any assessment of the extent to which decisions were evidence based even if the practitioners did not go through the process explicitly.

Studies have estimated that at least 50% (McCull et al. 1998) and 70% (Young et al. 2002) of practice is evidence based, indicating that research based evidence does find its way into practice. Another study based on a retrospective review of case notes found that 81% of practice could be described as evidence based, in terms of being based on clinical trials, but raised questions about the appropriateness of this evidence and noted that assessing when a practice is evidence based can be complicated by unclear diagnoses, a

situation which they admit is more likely to occur in primary care by the nature of the presenting problems (Gill et al. 1996).

Practitioners failure to access and make use of research evidence and guidelines has been characterized as a practice-research gap which needs to be closed (Bero et al. 1998; Russell et al. 2004). Some authors have described a range of barriers which need to be overcome to ensure knowledge use in practice (Haynes and Haines 1998; Straus and Sackett 1998) while others have talked about the need for knowledge to be translated to enable its use in practice (Davis et al. 2003; Scott et al. 2007).

However it has also been suggested that rather than a gap between research and clinical knowledge the problem occurs because while researchers and practitioners may be concerned with the same field of knowledge, they work within different contexts and apply different criteria which need to be understood if research is to produce knowledge that can be applied in clinical practice (Andree Le May 1998; Larsen et al. 2002). More recently it has been acknowledged that good science is only one component influencing the clinical decision making of practitioners with patient preferences and the socio-cultural context of decision making also needing to be considered (Rycroft-Malone and Bucknall 2010).

2.2.3 Criticisms of evidence-based medicine

Knowledge claims

While proponents of Evidence-based medicine have been prepared to make claims about the inadequacy of knowledge acquired through the basic sciences, they have been accused of failing to look sufficiently carefully at their own knowledge claims (Miles et al. 2007) and failing to acknowledge that “Even within the confines of strictly evidence-based practice, empirical evidence undergoes numerous subjective interpretations” (Goldenberg 2006, p 2624). Despite the name, proponents of EBM have been criticised

for not defining the term “evidence” and of treating the findings of clinical research as objective truth, contingent only on the rigor with which the research methodologies have been applied rather than as “evidence” providing a reason for belief which, in a legal analogy, requires to be “judged” as relevant and supportive of a particular position or conclusion (Gupta 2003).

Evidence that it works

Research has produced little evidence either that EBM is being practiced in the explicit way originally envisaged (Gabbay and le May 2004) or that those practitioners who have received training in evidence-based medicine provide superior patient care (Haynes 2002; Shuval et al. 2007). It has been said that “A fundamental assumption of EBM is that practitioners whose practice is based on an understanding of evidence from applied health care research will provide superior patient care compared with practitioners who rely on understanding of basic mechanisms and their own clinical experience. So far, no convincing direct evidence exists that shows that this assumption is correct” (Haynes 2002, p 2). Haynes goes on to argue that it would be impossible and unethical to carry out such studies, as it is not possible to isolate doctors from the published literature, however this seems to be taking a rather extreme position as evidence-based medicine talks about the explicit use of evidence and it should be possible to distinguish different levels and approaches to the use of literature from which some conclusions could be drawn. The only evidence that has been published so far consists of individual “case reports” and anecdote which would count as poor quality evidence by EBM’s own standards (Sackett et al. 1996).

Professional autonomy

Evidence-based medicine has also been criticized for restricting doctors’ autonomy, defined as the freedom to exercise their professional judgment (WMA 1987). This is particularly important as autonomy is seen as one of the distinguishing features of

professional status (Hoogland and Jochemsen 2000). Interestingly it has also been argued that evidence-based medicine can increase doctor's autonomy in making it possible for more junior doctor's to use evidence-based principles to support their arguments in challenging their superiors (Gerber and Lauterbach 2005). However in practice this is not so much an argument between doctors, in how they should practice medicine, but whether doctor's treatment should be controlled by managers, insurance companies or others. Sackett has explicitly stated that this "would not only be a misuse of evidence based medicine but suggests a fundamental misunderstanding of its financial consequences" (Sackett et al. 1996, p 72).

Problem of application to individual patients

Evidence-based medicine is quite explicit in its recommendation that clinical research should be used in making decisions about individual patients. However reliance on the findings of research and the application of guidelines have led to accusations that it favours a "cook-book" approach to medicine, in which patients are treated according to a formula or algorithm. However it has been said that "In fact, this was never intended by the advocates of EBM, but it was perhaps not initially clearly emphasized that evidence from research can be no more than one component of any clinical decision" (Haynes 2002, p 4). A more recent definition of EBM as "the integration of the best research *evidence with our clinical expertise and our patient's unique values and circumstances*" (Straus et al. 2005) recognizes these different components but gives little advice about how to integrate different types of evidence or what to do when either there is no suitable evidence from high quality research or when evidence conflicts.

While evidence-based medicine gives clear guidelines on how empirical evidence should be judged, both in terms of the hierarchy of evidence and through critical appraisal of research papers, the only way it can deal with non empirical evidence is to consider it as low value information which should only be used when research evidence is not

available. Tonelli (2006) considers that this is a mistake, suggesting that the evidence from clinical experience, patho-physiology and client values are different in kind, not just degree, from that achieved by experiment and all need to be considered and evaluated in making clinical decisions. Tonelli (2006) goes on to propose a casuistic, or case based, alternative to evidence-based medicine, recognizing five different types of information which all need to be considered when making a decision:

- 1) Empirical evidence, derived from clinical and basic research
- 2) Experiential evidence, derived in the course of practice by clinicians
- 3) Patho-physiologic rationale
- 4) Patient goals and values (or in our case client goals and values)
- 5) The circumstances in which the treatment is being carried out.

However while explicitly recognizing a wider range of evidence that needs to be considered in making decisions about patient care he gives little indication of how the integration of this evidence might be achieved.

2.2.4 Evidence-based veterinary medicine

Evidence-based veterinary medicine is at a much earlier stage in its development than its medical counterpart and the veterinary literature has been described as “patchy in its coverage of even common diseases” with few systematic reviews available (Cockcroft and Holmes 2003, p 3). This situation is likely to continue without access to funding for high quality clinical research (Michell 2000; Mair and Cohen 2003).

Studies of information usage in the veterinary profession have indicated that time to access and appraise the literature are important constraints on the practice of evidence-based veterinary medicine. An early study reported that veterinary surgeons could not spare the time to do their own literature searches and did not want elaborate literature searches or long lists of references, but rather preferred summaries and critical reviews

(Grey 1976). Research in the 1980's indicated that it was only necessary to review a small number of journals to keep up to date with advances in veterinary medicine (Raw 1987; White 1987). However more recent studies have indicated that a much wider range of journals are now needed to keep up with advances in veterinary practice (Bryn 2002; Crawley-Low 2006)

A survey, looking at information use and information seeking behaviour of veterinary surgeons in the UK found that journal articles, textbooks and conferences were still the preferred sources of information on drugs, diagnosis and therapeutics (Wales 2000). However the author also concluded that promotional literature and company representatives were highly ranked as sources of information, especially in small animal practice, and that a wide range of other sources of information were also in use. The same study also revealed differences between information use by small animal and mixed practitioners citing the wider range of species covered by the latter as the reason. However the author failed to consider differences in working arrangements such as the effect of working away from the practice premises on the veterinary surgeon's ability to access information. While this study was undertaken before internet access made primary literature readily available it does support the claim that "work to access" is an important factor in determining the use of information (Shaughnessy et al. 1994). These findings suggest that while the evidence base available is less well developed in veterinary medicine the veterinary profession is likely to share with the medical profession the challenge of getting the evidence that is available into practice.

2.3 Decision making in the consultation

This section will look at the literature relating to decision making in practice, particularly that occurring between the professional and patient or client in the consultation. It will

look at the context in which the consultation takes place as well as the communication involved in accomplishing decision making. Context has been described as providing “the space or site in which people interact; it constrains but it does not determine their behaviour” (Silverman 1987, p 20).

2.3.1 The context of decision making

Strong, in his ethnographic study into encounters between doctors and the parents of neurologically handicapped children carried out in different settings in Scotland and the USA during the 1970's, identified four different styles of health encounter (Strong 1979). These four different formats were determined by “the amount of **technical authority** claimed by the participants; and the overt types of **moral work** that actors engaged in with respect to the other participants” (Murcott 2006, p 66). In the **bureaucratic format**, which characterized most of the NHS encounters and non fee-paying American encounters, the doctor claims authority and expertise as a function of his role and this is rarely challenged by the parent. In return the doctor does moral work to maintain the idealized character of the parent, a finding which was also reported in the description of the responsible parent identified by Silverman (1987). This leads to encounters which are superficially polite but in which the doctor has significantly more power than the patient. In the **charity format** the doctors retained their authority but parents were no longer idealized and doctors felt able to pass moral judgment on the parents who in turn had to demonstrate their competence to look after their children. This further increased the power difference between doctor and patient in these encounters.

These formats contrasted with two other styles of consultation the **private format** and the **aristocratic format**. In the private clinic doctors would see clients in a private office and introduced themselves and referred to colleagues by name, the doctors' authority was seen as individual and was often demonstrated by having qualifications on display. The

client, who was now paying for the service had increased power within the encounter but still rarely, or only politely, challenged the doctor. The final style of encounter was characterized as aristocratic and in this case the roles were reversed with the client assuming power and making judgments about the doctor's authority.

The difference between encounters is also distinguished by the physical environment in which they take place. Silverman (1987) contrasts the carpeted study, personalised care and longer appointment times of the private oncology clinic with the functional buildings, team approach to care and shorter appointments, often associated with long waiting times found in NHS oncology units. Silverman does point out that since the introduction of health care insurance the majority of patients consulting private doctors are not from an aristocratic background. However there are still features of the private consultation in which the patient, as paying client albeit indirectly through their insurance company, has higher status and a greater measure of control. While these studies were undertaken several decades ago and attitudes to the professions have changed, they still provide an interesting way of examining different types of professional encounter. Their application to different types of veterinary practice will be discussed in Section 4.3.

More recently Gutek et al (2000) distinguished three different types of service encounter depending on the relationship between the provider and client. Where the customer expects to interact again with the same service provider it is described as a **service relationship**. In this model the service provider and client become interdependent, with payment in return for service. Both parties benefit from co-operation and a sense of trust develops over time. They get to know each other both in their respective roles and as individuals, becoming a partnership or team. Within the veterinary field this would provide the ideal model in which the client and veterinary surgeon work together over a period of time to ensure the optimum healthcare of the animals.

A variation of this is the **pseudo-relationship**; in this case the client has an on-going relationship with the providing organization rather than with the individual within it. This situation can occur commonly in veterinary practice where clients may have been using the practice for longer than many or even all of the staff. Because the client has an on-going relationship with the practice it can be easier for individuals within it to develop trust and co-operation with the client but repeated client dissatisfaction can damage the relationship with the practice. In order to work well the pseudo relationship requires co-ordination of the service provided by the individual staff.

In the **service encounter** the service provider and client do not expect to interact in future, in this case there is no intrinsic reason to co-operate. Management determines conduct and controls service delivery. This type of encounter is less common in veterinary practice, for although in a large practice it is possible that vet and client will not meet again there is no certainty of this and they are more likely to behave in a pseudo-relationship. Two places where this type of encounter may occur are the referral practice and the out of hour's practice where the veterinary surgeon is unlikely to develop an ongoing relationship with the client.

2.3.2 The consultation as the site of clinical decision making

The consultation has been described as “the essential unit of medical practice” (Spence 1960) and “the keystone and the main load of work of the general practitioner” (Byrne and Long 1976). As such medical consultation skills have been the subject of research and discussion for several decades with the classic model of the consultation based on history taking, clinical examination, diagnosis and treatment (Ledley and Lusted 1959) being replaced by models which aim to capture the process of consultation more accurately. These models go beyond the biomedical model of disease to reflect the psycho-social nature of many of the problems that are presented to doctors in general

practice and have raised awareness of the importance of communication skills (Balint 1957; Byrne and Long 1976; Pendleton et al. 1984; McKinley 2003) .

Recently there has been some interest in consultation skills in veterinary practice with the opinion being expressed that communication may be a greater problem in veterinary practice because it attracts people who want to work with animals rather than with people (Lewis and Klausner 2003; Cornell and Kopcha 2007). On the other hand it has also been reported, following ethnographic research in veterinary practice, that veterinary interactions are more likely to include open emotionality, the use of “plain language” and overt discussions of death than medical consultations (Sanders 1994). However it has been reported that a high proportion of complaints against veterinary surgeons, especially in the early years of their careers, have been found to involve problems with communications (RCVS 2007). In response to this all the veterinary schools now teach communication skills to undergraduates (Gray et al. 2006), most commonly in the form of the Calgary-Cambridge model (Silverman and Kurtz 1996; Adams and Kurtz 2006; Kurtz 2006).

In one of the few studies into communication in veterinary practice 300 small animal consultations were videotaped (Shaw et al. 2004) and analysed using the Roter Interaction Analysis System (RIAS) (Roter and Larson 2002). Further analysis of the same material found that veterinary surgeons used two major communication patterns during consultations. The first communication type was the bio-medical model, which accounted for 58% of the consultations and was more likely to be used in consultations made by the client because of a perceived problem. The second type of consultation identified was termed the “bio-lifestyle social” model (43%), a variation on the psychosocial model used in human medicine, was more likely to be used in those consultations relating to “wellness” or preventive healthcare. In both of these types of consultation the veterinary surgeon dominated the consultation, contributing 62% of the

conversation and none of the consultations showed a “consumerist” format in which the client dominated (Shaw et al. 2006).

The characterization of the veterinary surgeon as dominating, because they contribute more of the conversation, may be misleading since the consultation is not just about communication between the veterinary surgeon and client but is also an encounter in which the client presents an animal in need of care. In order to carry out their role veterinary surgeons need to collect information from the owner both about medical symptoms and about the owners personal circumstances as well as provide information about the range of treatment options and care required. This is likely to involve the veterinary surgeon in a larger proportion of the conversation.

While research into communication in the consultation is essential it is also important to remember that during the consultation the clinician is also required to complete a number of tasks: “as well as conversing with the patient, the doctor engages in a myriad of other activities in the patient's presence including — conducting physical examinations, reading and writing the medical record cards, issuing prescriptions, sick notes and the like. These concerns may be dealt with in distinct phases of the consultation, though it is frequently the case that they are conducted alongside the flow of talk between the patient and the doctor” (Heath 1984, p 312).

The purpose of the consultation is usually to make decisions about the patient’s health with the major decisions being to making an assessment of the patient’s problem (diagnosis) and considering the options regarding management of the condition. It has been suggested that in the veterinary consultation the processes of diagnosis and treatment are more negotiable than in the medical consultation since the client is paying for the diagnostic tests as well as treatment and that this requires a degree of shared decision making (Sanders 1994; Stivers 1998).

2.3.3 Shared decision making

In human medicine there has been an increasing emphasis in both policy and practice on patient centred approaches to healthcare which promote patient autonomy, informed consent and professional accountability (Coulter 1997; Elwyn 2006; GMC 2010). Shared decision making (SDM) has been characterized as a process in which both the physician and the patient are involved in sharing information, expressing preferences and agreeing to a treatment plan (Charles et al. 1997). The emphasis on SDM has been influenced by an increase in the range of treatment options available and a shift in medical services from acute toward chronic disease, which entail long term treatment which in turn require the patients to become more involved in their own healthcare (Charles et al. 1997). SDM has also been claimed to be associated with improved patient satisfaction and adherence to treatment recommendations (Elwyn et al. 1999; Crawford et al. 2002) although other authors have expressed more caution (Joosten et al. 2008).

Shared decision making is contrasted with paternalistic decision making, in which the doctor assumes responsibility for the decision making process in the best interests of the patient; and informed decision making, in which the doctor's role is to provide the patient with all the relevant information to make their own decision. In the paternalistic model the doctor has a responsibility to place the patient's interests above his or her own and to seek expert opinion when s/he is unsure of the best course of action (Emanuel and Emanuel 1992). However the paternalistic model is based on a number of assumptions including that for most conditions a single best treatment exists and that doctors would consistently select the most appropriate treatment for their patients. These assumptions have been challenged on the grounds that doctors vary significantly in their decision making even when given the same information (Eddy 1984); because there are usually several treatment options available; and because doctors and patients may not share the

same values and that therefore may select the a different course of action (Emanuel and Emanuel 1992; Charles et al. 1999).

The informed (Charles et al. 1999) or informative (Emanuel and Emanuel 1992) model of decision making assumes that providing patients with information will enable them to make decisions about their treatment. It generally assumes that patients will make “rational” decisions based on full knowledge of the consequences of their actions to select the option which gives the best outcome based on their own personal values (Lupton 1997). However it has been said that “Many patients faced with a serious illness, substantial uncertainty as to the outcome, and a time pressure to make a treatment decision among several competing alternatives, feel extreme psychological and/or physiological vulnerability, which may make it difficult for them to participate in treatment decision-making no matter how well informed they may feel (Charles et al. 1997, p 684).

While paternalistic decision making places the responsibility for decision making with the doctor, and informed decision making places responsibility with the patient, shared decision making covers a wide spectrum of different arrangements in which both parties play a role. Deliberative decision making is a type of shared decision making in which the physician’s role is expanded to that of teacher or friend not only giving information on what the patient could do but also taking a more moral stance in advising what the patient should do (Emanuel and Emanuel 1992). It accepts that medical decisions involve an ethical as well as a technical element. This model of decision making requires that the doctor makes explicit not only the scientific evidence but also the moral values on which s/he is basing decisions. It may be criticised if the doctor imposes their values on the patient but can assist patients who are unsure of the best course of action to choose.

While there is much discussion of the benefits of shared decision making, research into how it is implemented in practice has produced mixed results. There is conflicting

evidence on the degree to which patients wish to be involved in the decision making process (Coulter 1997; Frosch and Kaplan 1999; Edwards et al. 2001; Levinson et al. 2005; Say et al. 2006), with variations being expressed in the extent of desired involvement between patients and even within patients under different circumstances (Deber et al. 1996; McKinstry 2000; Levinson et al. 2005).

In a large scale survey (N=2765), 96% of patients preferred to be offered choices and to be asked their opinions. In contrast, half of the respondents (52%) preferred to leave final decisions to their physicians and 44% preferred to rely on physicians for medical knowledge rather than seeking out information themselves (Levinson et al. 2005). This supports the idea that patients feel the need to be informed about their condition and the treatment options, and have their concerns and perspectives understood without necessarily wishing to take responsibility for the decisions (Edwards and Elwyn 2006). Where the client prefers that the doctor takes the decisions this is described as the doctor having decisional priority, that is the right to propose a course of treatment while the patient, has decisional authority, that is the right to accept or reject the physicians proposal (Whitney et al. 2004).

Shared decision making depends not only on the preferences of the patient but also those of the doctor. Although doctors report being broadly in favour of the concept of shared decision making they express concerns about the extent to which patient's wish to be involved in decision making; the complexity of the patients' agendas; the limitations of time; and the communication skills required to discuss options and risks. It has been noted that all the variations of "shared decision making" take considerably more time than paternalistic decision making, as information has to be transferred between doctor and patient. It has also been suggested that it is easier, though still not easy, for doctors to convey medical information to patients than it is for patients to clearly express their values and preferences to the doctor (Gafni et al. 1998).

Despite expressing support for the idea of shared decision making analysis of consultations has indicated that is rarely put into practice (Elwyn et al. 1999; Elwyn et al. 2000; Stevenson 2003; Ford et al. 2006). It has also been acknowledged that there are cases where it is inappropriate to involve the patient in the decision making process. There may be occasions where life saving procedures limit the time available for discussion and “*When there is only one realistic treatment option, the clinician’s job is not to offer alternatives but to explain why there is only one viable choice and move the decision-making process forward*” (Whitney et al. 2008, p 699).

While in medical decision making the two key participants are taken to be the doctor and the patient it should also be remembered that there may be other people involved in the decision making process. It has been noted that decisions are often distributed over not only a considerable length of time but also a number of different people. This may include a range of professionals, particularly but not exclusively once the patient is in secondary care, and in many cases relatives as well (Anspach 1993; Rapley 2007).

The need to consider the viewpoints of all parties in the decision making process has been described as “relationship centred care”, which considers not only the relationship between the clinician and patient but also the relationships of everyone involved in providing care (Beach and Inui 2006). More recently these ideas have been applied to the veterinary consultation (Frankel 2006; Adams and Frankel 2007), where the consultation process involving the veterinary surgeon and client in making decisions about the animal patient has been likened to paediatric decision making in which the doctor and parents make decisions about the child patient (Shaw et al. 2004).

Silverman (1987) in his study of decision making in paediatric consultations discusses how the parent demonstrates their fitness to be involved in the decision making process by showing that they are responsible parents. This involves:

1. Bringing an obviously well cared for client to the consultation
2. Behaving toward the child in a patently caring way
3. Meeting and sometimes anticipating the doctors instructions (e.g. undressing the child for examination)
4. Answering the doctor's questions in a way that reveals their close attention to their child and any drug regime determined by the doctor
5. Asking sensible questions about diagnosis and treatment

While the term “responsible pet ownership” is in common usage it does not appear to have been subject to research to establish what components are considered to make up this phenomenon. In usage it appears to be most frequently associated with the uptake of preventive healthcare, such as parasite control and neutering, but from the veterinary surgeon's point of view it is likely to encompass at least some of the components described by (Silverman 1987).

In order to become involved in decision making patients and their carers require information about the choices available. In a study into parents' information needs and involvement in treatment choices for children with cancer it was found that “ the accessibility, support, information and degree of control afforded to parents by healthcare professionals impacts upon their satisfaction with both the decision-making *process and their confidence in the decisions thus made*” (McKenna et al. 2009, p 621). However the amount of information and involvement desired varied between parents and even for the same parents during the course of the disease.

The role that carers take in the decision making process has also been studied. A focus group study of parents of children with cancer found that parents characterize their role in the decision making process as that of advocacy, speaking and acting on behalf of their child (Holm et al. 2003). The form of advocacy was found to vary through the course of the disease from noticing a problem and seeking professional help; persisting to get a diagnosis in the face of inconclusive results or opposition from health professionals; managing information about and practicalities of care; and on occasion limiting the

medical procedures carried out on their child. “Actively advocating for their *children’s* needs appears to be one important way parents were able to restore some small sense of control and a sense that they were protecting their child the best that they could” (Holm et al. 2003, p 310). Thus advocacy becomes closely associated with demonstrating caring and responsible parenthood and “Even though parents will not really take the decision the question and answer session does important moral work both by expressing their proper *concern for their child’s fate and by reassuring themselves* that the doctors do indeed seem to display competence and authority” (Silverman 1987, p 24-5).

The idea that parents expect to be included in the treatment decisions concerning their children appears to be repeated in veterinary medicine. In a study using focus groups of to investigate veterinary surgeons and pet owners’ perceptions of various aspects of veterinary care pet owners indicated that they expected to be presented with a range of treatment options and this “included an expectation that the pet owner be educated about *each option in terms of the pet’s age and prognosis. With the pros and cons of each option* provided so that the owner could make an informed decision” (Coe et al. 2008, p 1074). The authors note that the owners always refer to these options as alternatives and although they wished to be made aware of the costs of each option they also wanted information on the pros and cons of each option as well as prognosis. Other veterinary surgeons admitted that they often initially presented clients “with a single option and then adjusting the *option on the basis of the client’s response*” (ibid p 1074). The owners in this study stressed that they did not want to be made to feel guilty if they had to make difficult decisions regarding their pets care, veterinary surgeons acknowledged this but felt that clients sometimes expected them to go further and validate their decisions which they found challenging. The paper concludes that in order to alleviate some of the conflicts raised by the monetary aspects of veterinary care there needs to be better communication both to explore client expectations and educate clients about the costs of veterinary care.

2.4 Professionalism, ethics and decision making

Clinical decision making takes place in the context of veterinary surgeons, acting as professionals, making decisions about the health and care of animal patients, usually at the request of their owners who are paying for the advice, services and treatments provided.

2.4.1 Sociology of the Professions

Although the concept of professions goes back to ancient times, the professions as we know them today have their origins in the nineteenth century; these professions were seen as an unusual group of occupations which stood outside the industrialization and commercialization that was occurring at the time (Abbott 1988). Durkheim characterized professions as occupations organized as communities based on shared ethical values and as fulfilling a function within society often interceding between the State and the people. Within the veterinary context the equivalent would be the role of the profession as agents of the government in the control and eradication of notifiable diseases. This functionalist approach tried to establish the defining characteristics of professions by comparing individual occupations (Carr-Saunders and Wilson 1933). Professions came to be seen as organized bodies of experts who applied esoteric knowledge to particular cases (Abbott 1988). Along with this normally went extensive period of training, which increasingly came to be associated with the universities; codes of ethics and conduct; and autonomous control and self regulation concerning standards of practice and entry into the profession. However this approach to classifying professionals has been criticized for oversimplifying the complexity and constraints faced by professionals in their working lives (Cohen et al. 2005).

Professions have also been characterized as occupations which have “licence” to carry out certain actions and “mandate” to define what counts as proper conduct in the

pursuance of their work (Hughes 1958). The Veterinary Surgeons Act (1966) grants the profession licence over the diagnosis of animal disease and treatments involving surgical intervention and certain medical treatments (Brock 1994). The veterinary profession fulfils a role in public health, predominantly through the control of infectious diseases in farm animals. However the decreasing importance of agriculture in the economy and the current importance of companion animals to the veterinary profession have led to a weakening link with the State leaving a profession that is largely dependent on their lay clientele for patronage.

Freidson distinguishes two major types of profession; the scholarly (or learned) professions such as academia and theology and the consulting professions such as medicine and law. While he describes the former as being able to survive by attracting patronage from a powerful sponsor, often the State, the latter are required to solve the particular problems that their clients bring. The request is “Doctor do something” not “Doctor, tell me if this is true or not” (Freidson 1970). Freidson also makes the point that certain professions, such as medicine, broach the divide by having both an academic and a practicing arm. While the academic version is well placed to produce new knowledge, which may open up new areas of jurisdiction to the profession, this knowledge must be converted into actual practice for the claims to be realized (Abbott 1988). This leads to a situation where the professional must determine how best to relate their clients’ problems to the expert service and the types of knowledge and techniques of management that the profession is able to provide (Abbott 1988), as indicated in the following quotation “The interaction of a solicitor with a *client involves not only ascertaining the client’s wishes but translating them into legal form, translating the relevant legal knowledge back into everyday language , and confirming the client’s choice against other carefully explained options*” (Cain 1979) .

In medicine and veterinary medicine this process of translating the patient's problem into a form that can be managed is known as diagnosis and the management options are possible treatments (Abbott 1988). However it is acknowledged that the practice of medicine involves judgment in the face of uncertainty and that because of the tacit experiential basis of many judgments "doctors are vulnerable to the charge that their *decisions are neither transparent nor accountable*" (RCP 2005). The Royal College of Physicians goes on to say that in order to maintain trust and demonstrate accountability doctors must become clearer about what they do, and how and why they do it.

2.4.2 The ethics of decision making

As the veterinary consultation involves veterinary surgeon and client in making decisions about a third party, the animal patient, comparisons have been drawn with paediatric consultations (Sanders 1994; Adams and Ladner 2004; Shaw et al. 2004). Parents play a significant role in decisions about their children's care, however it should also be remembered that children, even at a fairly young age, may be brought in to the decision making process leading to triadic decision making (Cahill and Papageorgiou 2007). While the veterinary patient is not going to develop decisional competence the owner is likely to become more knowledgeable during the course of chronic disease condition and may develop opinions and preferences about the ongoing management of the condition. Therefore the veterinary consultation is more properly considered as dyadic consultation about a third party and may therefore have more in common with decision making for very young children or those with severe cognitive dysfunction who are unable to express their wishes.

The concept of decision making for "incompetent" patients is widely accepted in medical and legal circles. There are two central issues, who should decide for the incompetent patient and what standards or principles should guide those decisions (Brock 1994). In

those patients who have previously been competent, advance directives, such as enduring power of attorney, naming a surrogate decision maker, enable patients to have some control over decision making in the event of them being unable to make decisions for themselves. In the absence of a designated surrogate it is common practice to turn to a close family member, as it is usually assumed that this is the person who the patient would have selected and the person most likely to be aware of the patient's values and wishes.

Where there is no advance directive those making decisions should use the **Substituted Judgment Principle** "which directs the surrogate to use available knowledge of the patient and his or her values and wishes to attempt to decide as the patient would have decided in the circumstances" which is "typically interpreted as making the choice that most competent or reasonable persons would make" (Brock 1994, p 2)

As it is not really possible to talk about substituted judgment with respect to animals the process is more correctly described as "**Best Interests**" decision making. For someone to demonstrate that they are making decisions in the animal's best interests they need to demonstrate that they have:

- Knowledge of animals
- Knowledge of the particular animal for whom the decisions are being taken
- Knowledge of the disease or injury requiring treatment
- Independence from competing interests (Rollin 2006).

The owner claims a right to make decisions for the animal by virtue of their knowledge of the individual animal and the fact that they will be paying for the treatment as well as carrying out much of the day to day care of the animal. The veterinary surgeon claims a right to make decisions for the animal on the basis of their expert knowledge of animals in general and therefore ability to assess their welfare, as well as detailed knowledge of disease and injury and their treatment. Both parties may be considered to be compromised

in their ability to make objective decisions about the animals treatment, the owner because they may be too emotionally involved and financially disadvantaged by the treatment, the veterinary surgeon because they stand to gain financially from the treatment.

The concept of the “best interests” of the animal is an ethical judgment and can be thought of as a combination of the ethical principles of beneficence, promoting the animals welfare, and non-maleficence, avoiding suffering, although it is accepted that short term suffering caused by treatment may be necessary for long term gain (Beauchamp and Childress 2001).

Utilitarian approaches to ethical decision making in veterinary practice are open to the criticism that greater good would be achieved by using money and resources to treat people or even animals in developing countries, therefore it has been suggested that veterinary ethical decisions should be framed in terms of responsibilities (Yeates 2009). This approach confers responsibility for an animal’s health and wellbeing on an owner while at the same time acknowledging that an individual may have other competing responsibilities. However it does not define the extent of the relationship or the responsibilities that are entailed.

2.4.3 Factors influencing clinical decision making in veterinary practice

Veterinary surgeons have to fulfil a range of different roles in providing care for their patients and a service for their clients. During decision making veterinary surgeons may need to balance their sometimes conflicting responsibilities to animal and owner. The need to combine different rolls is not unique to the veterinary profession, also being described in law, architecture and pharmacy (Denzin and Mettlin 1967; Cain 1979; Harding and Taylor 1997; Cohen et al. 2005), however the imperative to place the

welfare of the animal first may lead to particular ethical problems for the veterinary surgeon.

The role of the veterinary surgeon

Tannenbaum (1995) describes four models of veterinary professionalism which portray the roles the veterinary surgeon may fulfil at different times: **healer; friend and counsellor; herd health consultant;** and **business person**. It is in the role of healer that the veterinary surgeon most closely approaches the role of the doctor, providing treatment and care to animal patients. However Tannenbaum cautions against taking the analogy too far as veterinary surgeons are not required to preserve life at all costs and frequently take life either to prevent further suffering or at the owners request. The second role as friend and counsellor emphasizes the veterinary surgeon's relationship with the client rather than the animal. The final two roles emphasize the need to consider economic profitability to the farmer as client and to the veterinary practice respectively.

The question of whether the veterinary surgeon's primary responsibility is to the patient or the client and the importance of economic considerations recur in many discussions of veterinary practice. Rollin proposed two extremes that characterize the role of the veterinary surgeon "One is that of a **garage mechanic** wherein the veterinarian sees her/himself as operating only at the behest of the owner who might require a mechanic to junk a vehicle if repair costs exceed its value. In contrast, there is the **paediatrician** model wherein the veterinarian sees her/himself as operating predominantly on behalf of the patient and would not *allow a parent to "junk" a child*" (Fettman and Rollin 2002, p 1388). Rollin (2006) also states that in his experience 90% of veterinary surgeons see themselves as working in the role of paediatricians.

Morgan (2009), in her doctoral dissertation, criticizes Tannenbaum and Rollin's characterizations as being unable to account for the diversity of views regarding professional roles that she found during her interview studies. She identifies three

recurrent concepts to which veterinary surgeons refer when discussing their role in the “veterinarian-client-patient relationship”. She uses these three concepts: prioritizing interests; the importance of client autonomy and the importance of information disclosure to develop four models of veterinary professional practice. In the **information provider** model, the role of the veterinary surgeon is to provide information which enables the client to make the decision. This role stresses the importance of client autonomy and information disclosure and, barring cases where animal welfare is severely compromised, the client’s right to have the final say in decision making. In this model the veterinary surgeon is characterized as a neutral expert who does not choose allegiance either to client or patient. In the **service provider** model the veterinary surgeon’s role is to provide services to the client as a business transaction. In this model client autonomy dominates and the client’s interests are prioritized over those of the animal. The veterinary surgeon’s role is to carry out the client’s wishes and the discussion of alternatives through the provision of information is of lower importance. In the **client advocate** model the veterinary surgeon takes the prioritization of client interests further to the point where they may limit disclosure of information and take a paternalistic approach in order to protect them from difficult decisions, for example not discussing an expensive treatment option in the belief that the client would find this difficult to afford. The final model is that of the **animal advocate** and in this case the veterinary surgeon prioritizes the animal’s interests over client autonomy and information disclosure in order to pursue the course of action which they consider most appropriate for the animal. In this model the veterinary surgeon considers him or herself as acting in the role of guardian to the animal (Cornell and Kopcha 2007).

Morgan does conclude that these models are just that and that while individual veterinary surgeons may hold general beliefs regarding their role they are also aware of the need to adapt their practice to the context in which they find themselves and move between these models depending on the circumstances.

The status of animals

Owned animals have been, and continue in law to be considered as the property of their owners. The historical roots of the veterinary profession in providing care first for horses as transport, and then as farm animals as food producers, has emphasised the instrumental status of animals. In these conditions “the principle interest of the animal owner was to protect his/her investment in a business asset, and the main concern of the veterinarian was to provide a reasonable estimate of the cost for medical services with a mind to *minimizing expense and maintaining profitability for the client*” (Fettman and Rollin 2002, p 1386).

As the veterinary profession increasingly becomes involved in the care of companion animals, whose importance to their owners is their emotional rather than their economic value, “the economic foundation of informed consent has largely been replaced by an emotional and moral one, wherein risk and benefit are judged in terms of quality of life, empathy, anthropomorphism, and considerations for informed consent not unlike those *for parent, child, and pediatrician*” (Fettman and Rollin 2002, p 1386).

Companion animals are increasingly being treated by their owners as members of the family (Hirschman 1994; Bonas et al. 2000; Charles and Davies 2008; Lue et al. 2008). In all of these studies dogs are most likely to be treated as family members due to their interaction and relationships with their human owners. However the role of dogs in human society is complex and “Veterinarians meet owners who are unwilling to provide a minimum of treatment for their dogs, owners who are doing what they can for their dogs within reasonable limits, owners who are willing to sell their houses to afford state-of-the-art veterinary treatment for their dogs and owners who keep their dogs alive in spite of *the animal’s possible suffering*” (Lund et al. 2009, p 106).

The role of the owner

The Animal Welfare Act (DEFRA 2006) imposes a duty of care on animal owners to ensure that the animal's welfare needs are met, including the need to be "protected from pain, suffering, injury and disease". Therefore the animal's owner has a duty to seek veterinary care to ensure that the animal does not suffer from pain or disease. However while the act does make failure to provide for an animal's needs an offence it does not allow the veterinary surgeon to override the owner's wishes (DEFRA 2006). The veterinary surgeon is therefore required to obtain informed consent from the owner for any intervention proposed (RCVS GtPC 2009).

The level of care that owners are willing and able to provide will vary between individuals depending on their resources and their relationship with the animal. While for certain domestic pets, which are treated like members of the family, there may be comparisons with the parent-child relationship encountered by paediatricians (Shaw et al., 2004), there are no well defined analogies for production or performance animals. The owner is considered to have the right to make decisions about the level of care to provide, as in most cases they are also required to pay for the veterinary services and in many cases carry out treatment at the direction of the veterinary surgeon.

It has been stated that pet owners who report stronger bonds with their pets are more likely to seek high levels of veterinary care and follow veterinary surgeons recommendations regardless of cost (Brockman et al. 2008; Lue et al. 2008). However many owners consider veterinary care to be expensive and need to take financial considerations into account when making decisions about the care of their pet (Coe et al. 2007; Klingborg and Klingborg 2007; Brockman et al. 2008). It has also been found that the desire to provide healthcare and the ability to afford it are not correlated (Lue et al. 2008).

This literature review has tried to give an overview of the current information that is relevant to clinical decision making in veterinary practice. During this review of the literature it has become clear that while there is a significant amount of literature in the medical field relating to clinical decision making much of this has been applied to situations in which the bio-medical model of medicine predominates. In general practice, where there is greater emphasis on communication and shared decision making; there is less research into the factors which influence clinical decision making. Also while veterinary medicine shares a great deal with human medicine in the way it is taught and practiced there are significant differences which should lead to caution in extrapolating findings from one to another.

Getting to grips with the literatures relevant to this project was a complex task. Reading outside my area of training was initially daunting, both in terms of choosing what to read and in understanding what I was reading. One of the things that became apparent during this process was the difference in approach and expectations between the different disciplines. While the veterinary and medical literature emphasises articles published in peer review journals, many of the seminal works in the sociological literature were in book form, where ideas and theories were developed. There were also differences in the format of journal articles between disciplines both in the material that was expected and in length. These differences appeared to be both as a result of the differences between qualitative and quantitative research and the norms and expectations of the discipline.

Chapter 3 – Methodology, Methods and Reflections

This has proved the most difficult section to write because it has involved explicitly bringing together two completely different approaches to research. Veterinary science is strongly influenced by a positivist approach (Rollin 2006), but in research, whether in the basic or clinical sciences, this standpoint is normally taken for granted and the philosophical and methodological assumptions are rarely discussed. In contrast research into the social world encompasses a wide range of methods depending on the subject matter and the researcher's beliefs about how social reality should be studied (Bryman 2008).

Social research differs from research into the natural world in that “Unlike objects in nature, humans are self aware beings who confer sense and purposes on what they do. *We can't even describe social life accurately unless we first grasp the concepts that people apply in their behaviour*” (Giddens 1997, p12). This suggests that if we want to understand peoples' actions we have first to understand them in the way that they do (Silverman 2006 ; Bryman 2008).

The other major difference is that social researchers are inextricably part of the world they are studying. This means that in undertaking and writing up their research the researcher needs to be aware of and make their own position and assumptions explicit so that the reader is able to judge the effect that this may have had on their findings. My role as a veterinary surgeon has been integral throughout this study, from my reasons for carrying out the research, through my ability to negotiate access to practices and throughout the processes of data collection, interpretation and analysis.

This chapter is an attempt to make these issues explicit and discuss the ways in which they have influenced both the research project and my own attitudes. The chapter is divided into three sections. The first section will look at some of the philosophical and

methodological issues with which I have had to come to terms in undertaking this research and the implications that these have had on the research findings. The second section will look at the practical decisions that were taken and describe the actual methods used in the collection and interpretation of the data. The final section will be a more reflective discussion of the process of carrying out data collection.

3.1 Methodology

3.1.1 Philosophical & methodological basis

The purpose of research is to increase our knowledge and understanding of the world (RAE 2008), however the means by which this can be achieved depend on our assumptions about the nature of the world (ontology) and how we come to have knowledge of the world (epistemology). Methodology refers to more than the methods used during research; it also refers to the rationale and philosophical assumptions that underlie a particular study.

Epistemology has been defined as the philosophical enquiry into the nature and scope of human knowledge (Benton and Craib 2001), it considers such questions as “how” we gain knowledge of the world and “what relationship” our knowledge has to the world. Auguste Comte, writing at the end of the eighteenth century, proposed that human understanding of the world has gone through three phases: initially a theological (religious) phase in which events were explained by magic or the actions of the gods; this was followed by a metaphysical (philosophical) stage in which events were explained by reference to abstract ideas; and finally a positive (scientific) phase in which knowledge is based on observation and experiment (Benton and Craib 2001).

The positivist philosophical stance assumes an independently existing world which behaves in a predictable way. Knowledge of the world is achieved by collecting data through observation and measurement, using variables which are operationally defined by

the researcher (Silverman 2006). These data provide evidence for the development of theories (induction) and the testing of hypotheses that allow the explanations to be assessed (deduction). The key approach of the scientific method is the experiment which enables manipulation of the data collected, and the aim of science is to produce logical, value free and context independent knowledge that enables explanation and prediction of the world (Ayer 1956).

The positivist approach to creating knowledge has been criticised on philosophical grounds because induction based on observation can never give us certain information of the world but rather only information, which on past experience, is statistically probable (Popper 1959; Losee 1980). Positivist science has also come under attack from those who have shown that in practice all data undergo interpretation depending on the knowledge, experience and expectations of the observer, which undermines the claim to objectivity (Chalmers 1982). It has also been shown that rather than working in a value free environment scientists actually work within paradigms (Kuhn 1962); styles (Hacking 1992); or epistemic cultures (Knorr Cetina 1999) which each have their own assumptions and values.

More recently the activities of scientists themselves have come under scrutiny. Studies in the sociology of science have called into question the objectivity of science by demonstrating that the production of scientific knowledge is a social process in which negotiation and consensus formation are an essential part of the construction and authorization of scientific knowledge claims (Bloor 1976; Knorr Cetina 1981; Gilbert and Mulkay 1982; Collins 1983).

Whilst I had been aware of many of these criticisms of positivist science I had not really studied the alternatives or had to make my own position clear. In reading more about the philosophical underpinnings of social science research I had to start thinking about the ideas that were most resonant with my own and their implications for my research.

The alternatives to positivism fall into two main groups: constructivism and realism, which both acknowledge the role of the researcher in the construction of knowledge. However while both taking a constructivist approach to epistemology they differ in their view of the nature of reality. The constructivist approaches emphasise that it is not only our knowledge of the world which is socially constructed but also reality itself (Berger and Luckman 1966), however there is debate about which aspects of reality can be considered to be socially constructed (Searle 1996; Hacking 1999). In contrast realist approaches considers that while our knowledge is constructed this knowledge only makes sense if it is seen as relating to an independently existing reality (Archer et al. 1998).

I found it easier than I expected to accept that many of the things that we treat as real are in fact socially constructed either in the physical sense, such as dog breeds; or in the conceptual sense for example in the way we categorise diseases. However I struggled to let go of the idea of an independently existing reality and therefore found myself naturally drawn to realist approaches.

Critical Realism is an approach which claims to be able to combine and reconcile ontological realism, epistemological relativism and judgmental rationality. It assumes the existence of reality, both natural and social, separate from our knowledge of it (Archer et al. 1998). Critical realism accepts that much of our understanding of the world only makes sense if we presuppose that there are underlying mechanisms which may themselves not be observable but can be inferred from our observations of the world. These ideas, while initially quite foreign, actually resonate well with much of what we do in the veterinary medicine, where we are used to inferring pathological processes and diagnosing diseases based on clinical signs and test results.

In claiming that underlying mechanisms make sense of the world it may appear that the critical realists are proposing a coherence theory of truth, however they also refer to the practical adequacy of knowledge, a position much closer to pragmatism (Sayer 1992).

Pragmatism takes the view that we accept our theories because they are useful in understanding the world and may enable us to make predictions. It was developed in the late nineteenth century as an attempt to reconcile the conflicts of empiricism and rationalism, placing inductive and deductive reasoning as complementary rather than competing approaches. It also proposed the addition of abductive reasoning, also known as “inference to the best explanation”, that is a method of reasoning in which one chooses the hypothesis that would, if true, best explain the relevant evidence (Lipton 2004). Again this approach seemed in keeping with my experience in the process of diagnosing disease.

Critical realists see the primary role of research as to identify these underlying mechanisms, through the process of theorising that goes beyond the empirical findings, to uncover the structures and social relations which give rise to observable behaviour. Most critical realists acknowledge that there is a difference in the methods that are appropriate to study natural and social reality (Sayer 1992). The role of the researcher is considered important in realist research and it is stressed that knowledge generation is an active process which involves the researcher in interaction both with the world and with others in order to have their ideas accepted. This leads to understanding of science as a historically changing and socially situated human practice whose products (currently accepted scientific knowledge claims) are always provisional and subject to modification or rejection in the face of future evidence and argument (Benton and Craib 2001).

Implications for the study of decision making

Decisions are very different from other things that are normally studied in science; they are considered as a class of thought or mental event which show intentionality and which are able to cause action in the real world. However the cause and effect of decision and action are not related in same deterministic way as causes and effects in the physical world are often taken to be, but rather human actions are explained by “appeal to ...

desires, *habits, knowledge and perceptions*” as aspects of a human agent (Davidson 1979). This philosophical approach resonates with the ideas of critical realism which consider reasons as an underlying mechanism for actions (Archer et al. 1998). It should also be remembered that people do not act in isolation but are influenced by the society in which they live. Social scientists maintain that the knowledge that people have of their social world affects their behaviour, and the role of the researcher is seen as examining how these factors may influence behaviour (May 2001). In taking a broadly critical realist stance this study aims to uncover the underlying factors which may influence clinical decision making in veterinary practice.

3.1.2 Why take a sociological approach to decision making?

To some extent the approach to this research was already determined as it was advertised as an interdisciplinary PhD, jointly supervised by the School of Veterinary Medicine and Science (SVMS) and the School of Sociology and Social Policy (SSSP) at the University of Nottingham. However taking a sociological approach to the investigation provided an ideal approach to considering the human and interactive elements of clinical decision making in veterinary practice.

Decisions, as mental events, cannot be observed in themselves however their consequences can be seen in the actions and effects that they cause in the observable world. In contrast people’s reasons for making decisions are not even indirectly visible, however we generally assume that they do have reasons and that these are rational (i.e. they make sense) or are, in some other way, meaningful to them. The study of meaningful social action is the province of the social sciences (Weber 1968/1921).

Sociology has its roots in the philosophy of the enlightenment and at the outset sought to apply the techniques of the natural sciences to the study of social and cultural institutions

as well as the processes of social change (Benton and Craib 2001). Weber described sociology as “a science which attempts an interpretive understanding of social action in order to arrive at a causal explanation of its course and effects” (Weber 1968/1921). He argued that sociologists need to understand both how societies work and how people operate within them through a process of *Verstehen*, which is translated as understanding or interpretation, and contrasts with *Erklaren* or explanation as used in the natural sciences. He describes two methods of reaching this understanding:

1. Direct observational understanding of the subjective meaning of a given act.
2. Explanatory or motivational understanding in which the particular act has been placed in an understandable sequence of action, the understanding of which can be treated as an explanation of the actual course of behaviour.

The process of understanding meanings within the social sciences is referred to as hermeneutics (from Hermes, the messenger and interpreter of the Gods) and although the term was initially used in relation to the interpretation of texts, it has come to be used in the context of interpreting meanings, culture and social structures. Hermeneutics makes clear both that knowledge is historically situated and that the researcher does not have a privileged objective position from which to observe the world, but rather takes on the role of interpretation in order to make sense of the original material (Taylor 1971).

In sociological models of decision making the individual “rational actor” of economic models becomes an “agent” who takes decisions within the constraining “structure” of society. This need to understand the society, the individual and the interaction between them has led to much debate, with those using an interpretive or hermeneutic approach tending to emphasize “agency” and those using a structural or functional approach tending to emphasize “structure”. The dichotomy between structure and agency has been described as the fundamental problem in sociology, with other dualities, such as that

between macro and micro-sociological approaches being described as variations on it (Archer 1998).

Archer has also proposed that we should distinguish carefully between the terms structure and culture when considering influence on action, she uses the example of marriage which is both a legal institution (structure) and a daily practice (culture) and emphasizes that both can influence the actions of individuals (Archer 1988). The same analogy could be applied to professions, such as the veterinary profession, which have a legal and social structure which is carried out by individuals in daily practice (culture).

3.1.3 Why choose qualitative methods?

Qualitative research is an approach to the study of the social world which seeks to describe and analyze human culture and behaviour from the point of view of those being studied (Bryman 1988). As well as emphasizing words and other non-numerical data it tends to be inductive in that it seeks to generate rather than test theory; interpretive in emphasizing that an understanding of the social world develops through an examination of the interpretation of the participants; and constructivist in seeing that research data as produced by the researcher rather than read directly off reality. It also generally takes place in natural rather than experimental settings (Bryman 2008).

While at one level the distinction between quantitative and qualitative research can be seen as that between research which is carried out by counting, measuring or categorising and research which deals primarily with textual and other non numerical data, this belies major philosophical differences. Although quantitative and qualitative methods have often been seen as opposing approaches working within conflicting paradigms there has more recently been a move to combine them within “Mixed Methods Research”, with, for example, qualitative research being used to flesh out some of the reasons behind findings from quantitative research, or quantitative methods being used to test hypotheses

generated in qualitative research (Creswell and Clark 2007). It is increasingly accepted that social science becomes scientific not by using the basic scientific method, but by adopting research methods that are appropriate to the topic of study (Silverman 2006) .

Qualitative research is seen as being particularly appropriate for exploratory and in depth studies of “phenomena relating to what people actually do in their day-to-day lives” (Silverman 2006, p 6). It enables the researcher to look at the phenomena from the point of view of the participants to build contextual understanding (Bryman 2008). Qualitative research is still seen as being empirically grounded, but with more emphasis on developing new theories than testing what is already known.

Although decision making has been studied in many ways, from the experimental to the observational, it has been recommended that in order to produce descriptively adequate models, which include the social and collaborative dimensions of decision making, studies should take place in real-world settings using qualitative methodologies (Patel et al. 2002). The study of people and their interactions in natural settings is referred to as naturalism (Gubrium and Holstein 1997; Bryman 2008). However as Bryman (2008) points out, the term “naturalism” has several different meanings in the discussion of research. In this case it will be used to describe research which takes place in natural rather than experimental settings and tries to remain true to the phenomenon being studied. A naturalist approach accepts the epistemological assumption that social reality is not out there waiting to be discovered but is a subjective construction based on the interpretation and interaction of the participants. There are differences between different schools of thought as to the level at which this construction occurs. While ethnomethodology studies the routine of everyday activities and how people produce social reality through interactive processes, structuralist approaches take the view that cultural systems of meaning frame and constrain the perception of the individual and the making of social reality. Although these may be seen as conflicting approaches the idea

that there are different factors working at different levels to influence decision making fits well with the critical realist perspective.

In this research I have looked at the factors which influence clinical decision making at different levels from the structure of the consultation (Chapter 4) and the way that decisions are shared and negotiated with the client (Chapter 5) to the way that decisions are related to professional knowledge in the form of evidence (Chapter 6) and broader social influences such as the status and value of the animal (Chapter 7).

Qualitative research tends to generate a large volume of material for analysis and it is common for initial findings to be fed back into the data collection process to inform and refine the interview questions or observations. As analysis progresses themes or concepts are identified which relate the material not only into a coherent theory about the subject under study but also enable the material to be related to other areas of discourse within the social sciences, so called rich description. It is this level of analysis which goes beyond the specific topic to considering the wider significance of the findings that enables the research to be relevant to a wider audience.

The video-cued interview

While I was convinced that a qualitative methodology would provide me with a way to investigate veterinary surgeons own perspectives on their clinical decision making. I was also acutely conscious that these methods are sometimes perceived as lacking in rigour by those used to an experimental approach to research. Qualitative research includes a wide range of approaches and methods with Dingwall (1997) suggesting that there are three basic approaches to sociological research: asking questions (interviews); hanging out (observation) and reading the papers (documentary analysis). I was drawn to the video-cued interview because it combines elements of both observation, through the recordings of consultations of what people actually do, and interview to what they say they do and

their reasons for why they say they do it. It also provides an evidence trail as video clips and excerpts from transcripts can be used to illustrate the analysis and support arguments.

The video cued interview uses recordings of naturally occurring events to prompt discussion and has been described as an effective method for accessing relational, practice based and tacit experience as “The immediate nature of the videotape captures emotional nuances, embodied perceptions, spatial influences, relational understandings, situational factors, and temporal manifestations” (Raingruber 2003, p 1155).

The use of video recorded consultations to stimulate doctors’ recall of decision making was first used in the 1970’s using simulated patients (Elstein et al. 1978). Video recorded consultations and subsequent interview were also used to study clinical decision making from a psychological point of view by Gale and Marsden (Gale 1980; Gale and Marsden 1983). The video-cued interview has also been used in sociological studies of decision making in studies as diverse as understanding what makes a good consultation (Arborelius and Bremberg 1992); GP’s consulting behaviour regarding the decision to discuss smoking with their patients (Coleman and Murphy 1999); and the effectiveness of nurse therapists (Raingruber 2003). While these studies varied in their philosophical approach and subject matter they all concluded that video cued interviews provide a useful method for investigating decision making by allowing the participants to review and comment on their decisions either by defining their own area of interest (Arborelius and Bremberg 1992) or a subject selected by the interviewer for discussion (Coleman and Murphy 1999).

Although video-recording has become an established technique in research into consultations in human medicine (Coleman 2000; Heath et al. 2007) some authors have expressed the opinion that in comparison to audio-recording little extra information is made available, although the video recording may be easier to interpret (Weingarten et al. 2001). This is probably because of the focus of research into medical consultations on

the spoken word and analysis of verbal communication. It was considered that video recording would be important in the case of veterinary consultations to enable non verbal interactions, such as the physical examination of the animal and the interaction between the human participants and the animal to be captured (Carson 2007).

While studies have shown that video recording of consultations in general practice is practical and acceptable (Themessl-Huber et al. 2008), they have also highlighted some limitations with the method, such as the increased cost of equipment and time to set up compared to audio-recording (Coleman 2000). The use of video recording is also likely to lead to self selection of those participants willing to take part, with one study of medical practitioners finding that participants were more likely to work in training practices and have qualified in the last 10 years (Coleman 1996).

Video recorded consultations have also been used with simulated patients (Elstein et al. 1978) but this method, while providing the possibility of greater standardisation, is dependent on the researchers choice of information and therefore may influence the decision making of the subject as well as removing contextual features of the clinician's own practice.

Several other methods of data collection were considered but rejected. Participant observation, in which the researcher spends a significant period of time immersing themselves in the "culture" of the subject being studied (May 2001), was rejected because although it would have provided in depth insight into a single practice it would not have been possible to study the range of practices within the time available. This was considered important because as there is no organizing body for veterinary services, similar to the NHS for medical services, there could be significant differences between practices which could be missed if only a single practice were studied, making any level of generalization from the findings difficult. Also had I spend a significant period of time in a single practice as a participant observer there may have been conflicts in my roles as

veterinary surgeon and researcher, making it harder for me to achieve “a judicious combination of involvement and estrangement” required for ethnographic study (Hammersley 1992).

“Think aloud” or “Talk through protocols”, in which the subject is asked to give a commentary on their actions and the reasoning behind their choices, have been widely used in studies of decision making in natural settings (Crandall et al. 2006). They have been recommended as a method of eliciting people’s accounts of what they are doing and thinking while they are carrying out routine procedures. However they are poor at eliciting tacit knowledge (Bachmann et al. 2008) as people may have a poor understanding of those aspects of their behaviour which have become routine or tacit (Silverman 2006). These methods were rejected because it was considered that it would have been inappropriate to ask the veterinary surgeon to talk through what they were doing in front of the client and that the presence of the client might have affected what was said.

The use of vignettes was also rejected despite their use in decision making studies, either by asking participants to talk through their decision making in standardised cases or by using controlled changes to the presented scenario to assess the effect on the decision making of participants (McKinlay et al. 2002; Bachmann et al. 2008; Bryman 2008; Lutfey et al. 2008). Although vignette studies can be given to a wide range of participants it was considered that there was insufficient knowledge about the factors influencing decision making in veterinary practice to enable vignettes to be designed without making significant assumptions. It was considered that asking veterinary surgeons to comment on hypothetical cases would be more likely to elicit knowledge and competence of how cases should, in their opinion, be treated rather than the way that actual cases are treated in practice.

In looking at and discussing actual consultations this study will be able to investigate decision making in particular cases, the factors that veterinary surgeons

consider influence their decision making and the ways that this may differ from the way they would like or are expected to practice. My main concern in selecting this methodology was how easy it would be to persuade veterinary surgeons to allow me to video record their consultations, as in contrast to the medical profession, where recordings are frequently made for training and assessment; few veterinary surgeons have experience of this.

The process and interpretation of interviews

The video cued interview is a particular type of interview. It has been said that interviews have become an almost ubiquitous part of our society as a way for people to give accounts of themselves leading to the phrase “the interview society” being coined (Atkinson and Silverman 1997). However while the interview is well suited to collecting participants’ accounts of their own behaviour it has been criticised for not providing any evidence on how these accounts relate to actual behaviour. The video cued interview gets round this to some extent by providing evidence of actions in at least a sample of occasions. They also make it easier for the participant to reflect on behaviour which has become automatic or tacit.

Interviews vary in the degree of structure, from highly standardized interviews in which all the informants are asked the same questions, producing data which lends itself to quantitative analysis, to “life history” interviews in which individuals are given the freedom to talk about a subject in their own terms (Mason 2002; Murphy and Dingwall 2003). However even with standardized questions there is no guarantee that people will interpret or respond to them in a standardized way. Therefore it is probably more productive to consider the degree of structure of the interview as a continuum (Mason 2002). The semi-structured interview is an attempt to collect information from the respondent on the subject of interest to the researcher without narrowly defining what sort of responses will be given.

The status of the data collected from interview has been the subject of much debate with Seale (1998) drawing a broad distinction between interview data as a **resource**, in which the interview data are broadly seen as reflecting the interviewee's reality outside the interview; and interview data as a **topic** in which the data are seen as reflecting a reality jointly constructed by the interviewee and interviewer together during the course of the interview. These two approaches broadly represent the positivist and constructivist positions respectively. The realist position on the status of interview data takes a slightly different approach in seeing data as information about the way in which people interpret events and relationships (May 2001). This approach accepts that the information given may be an account, constructed either by the interviewee alone or in conjunction with the interviewer, but also accepts that this account relates in some way to the perceived reality. This position is perhaps easier to defend in relation to video-cued interviews, which tie the account to reality, than in some other forms of interview.

The view that interviewees are providing accounts is based on the idea the interview is a form of social interaction in which both the interviewer and interviewee(s) are trying to portray or account for themselves in particular way (Dingwall 1997; Silverman 2006). People usually seek to portray themselves in a good light, as shown in the work of Gilbert and Mulkay (1982) who in a study, using discourse analysis on the accounts of scientists' descriptions of their own work and the work done in rival laboratories, found that not only did the scientists portray themselves in a better light than their rivals but that they actually used different language when doing so.

It should also be remembered that the idea of self portrayal or accounting extends beyond the interview to our interactions in life (Goffman 1978). In this study the concept of providing a good account of oneself extends not only to the interviewees but also in the recorded consultations in which the veterinary surgeons are likely to wish to portray

themselves as knowledgeable, thoughtful, competent and caring but also to the clients who are likely to wish to portray themselves as competent and caring animal owners.

The role of the researcher in qualitative research

It is also important to consider the way in which the researcher portrays him or herself both during the study and to the readers of the research findings. The perceived role of the researcher is often intimately connected with philosophical assumptions about the type of research. While in positivistic research the ideal is a detached researcher making objective observations or measurements of an independently existing world in pursuit of the truth; the role of the researcher in other types of research, particularly qualitative research is more complex. Once research is seen as a social process and knowledge as at least to some degree socially constructed the role of the researcher of creating and the reader in judging the output becomes important.

The role of the researcher in qualitative research is often described as being to present the social world from the perspective of those being studied (Lofland and Lofland 1995; Bryman 2008). However the role of the researcher goes beyond this in the need to make sense of the participants' viewpoint by placing it in social and historical context. In order to do this the researcher must develop an understanding not only of the perspective of the participants but also to be able to use their own knowledge to probe beneath the surface and place the behaviour in its context (Bryman 2008).

Throughout this project the researcher's role as a veterinary surgeon cannot be ignored. Two of the participating veterinary surgeons are on record as saying that they would not have been prepared to talk so candidly to someone who did not have direct experience of working as a veterinary surgeon and it is likely that gaining access to veterinary practices and consultations would have been more difficult for a non veterinary surgeon. However one veterinary surgeon, who was not taking part in the study, expressed the opinion that she would have felt less self conscious if her consultation was being viewed by a

researcher who was not a qualified veterinary surgeon. This suggests that there is likely to some degree self selection of participants with the confidence to have their consultations subjected to peer review.

Assessing qualitative research

Quantitative research is generally judged against the criteria of reliability and validity. Reliability in quantitative research is generally taken to mean the extent to which a study can be replicated; this concept can be problematic in qualitative research where the individual qualities of the researcher are so integral to the research. Validity refers to whether you are observing, identifying or measuring what you say you are and can be described as internal, that is whether there is a good match between the researcher's ideas and the claims they make or theoretical ideas they develop; or external which refers to the generalizability to other settings (Bryman 2008).

Lincoln and Guba (2000) have suggested that the criteria of reliability and validity are inappropriate when judging qualitative research, since they presuppose a single absolute account of social reality and that if there are a number of possible accounts of the same phenomenon different criteria should be used in judging research. They recommend that the main criteria in assessing qualitative research should be trustworthiness and authenticity.

Graneheim and Lundman (2004) have suggested four criteria to enhance the trustworthiness of qualitative research: credibility; transferability; confirmability and dependability. Credibility is the term used to describe the accuracy of the researcher's interpretation of the data. This may be achieved by providing evidence of cross checking of the data by more than one researcher or providing an audit trail from data to explanation allowing the reader to make their own judgment. Transferability describes the applicability of the study to other situations or contexts. It is narrower than

generalizability in that it does not claim that the research findings would apply in all situations but shares similarities with moderatum generalization (Williams 2002).

In order to demonstrate how these criteria apply to an individual study the researcher will need to make their own position and involvement clear and demonstrate to the reader the process by which they developed their ideas from their data. They will also need to provide sufficient detail about the participants and context of the study for the reader to assess the extent to which the findings may be appropriate to their own circumstances.

It has been suggested that where research refers to practitioners the detail and transparency provided in good qualitative research will “allow practitioner audiences imaginatively to juxtapose their own everyday practices with the research description” (M. Bloor quoted in Silverman (2006, p 369) allowing them to use their own professional judgment about the relevance and applicability of the research to their own practice.

3.2 Methods

This is an exploratory study using predominantly qualitative methods in order to increase understanding of the factors which influence clinical decision making in the veterinary consultation. It takes a naturalistic approach to research, studying the subjects in their natural environment rather than in an experimental setting. It is empirically based but acknowledges that many of the factors being examined will not be amenable to measurement and therefore rich qualitative data in the form of video recordings of consultations and semi-structured interviews will be collected and analyzed.

The video-cued interview was selected as the main research method because it combines elements of both observation, what people actually do, and interview, what they say they do. It also provides an evidence trail as video clips and excerpts from transcripts can be used to illustrate the analysis and support arguments. The use of different methods of data

collection and analysis will provide complimentary methods of looking at the same process in order to increase understanding.

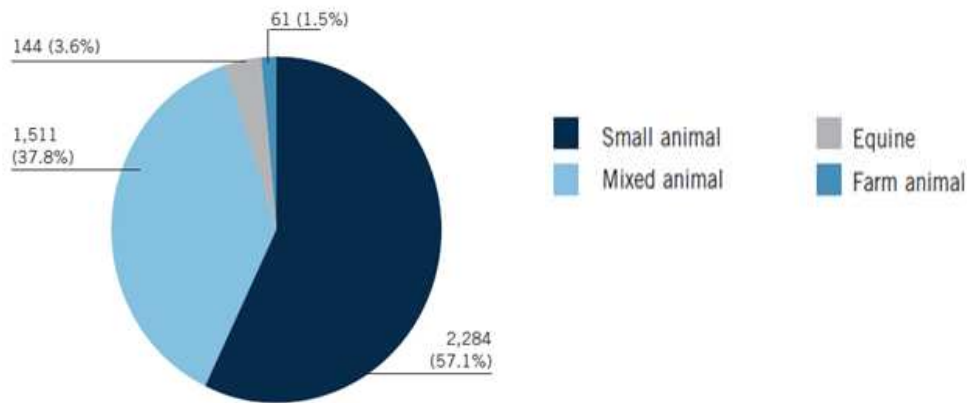
3.2.1 Design of the study

As the veterinary profession is diverse, both in terms of the species treated and the way that services are provided, it was considered necessary to collect data from a number of individuals working in different types of practice. Therefore this project can best be considered as an example of a collective case study, where a number of cases were selected in order to study the subject of clinical decision making in different contexts. This contrasts with intrinsic cases studies, cases studied for their own sake, or instrumental cases studies which are used to facilitate our understanding of something else (Becker et al. 1961; Ragin and Becker 1992; Stake 2000). While the case study has become one of the most common ways to conduct qualitative research, particularly in practice settings it has been pointed out that the “Case study is not a methodological choice but a choice of what is to be studied” (Stake 2000, p 435).

In quantitative research participants are usually selected using probability sampling in order to produce a sample which is likely to be representative of a broader population enabling results to be generalized. However because qualitative research collects and analyses large amounts of complex data it is rarely possible to include the number of participants that are normal in quantitative research, and with small sample sizes randomized sampling is unlikely to produce a representative sample. It is therefore necessary to balance the need to collect sufficient data to answer the research questions while still allowing the data to be analyzed in depth. In order to get round this problem purposive sampling was used in this study in order to collect data from a range of veterinary surgeons with different levels of experience working in different types of practice.

In order to determine the sample information about the variations in veterinary practice was sourced from data provided by the Royal College of Veterinary Surgeons. The first variable that was looked at was the species being treated as shown in figure 3.1 below.

Figure 3.1: UK Veterinary Practice by Species - RCVS Annual Report 2008



These figures indicate that more than half of practices provide veterinary services to companion animals (pets), as the majority of mixed practices also treat companion animals this is now the major area of work for the veterinary profession. It was therefore decided to concentrate on small animal consultations for the study, both because they constitute the major area of veterinary work but also in practical terms because as the majority take place by appointment at the practice premises they were more easily accessible for study. However it was considered necessary to include a small number of farm animal and equine consultations in order to pick up differences that might be related to the species treated.

The second area looked at was practice ownership. While the majority of practices are privately owned, either by a sole principal, a partnership or trading as a limited company there are also a small number of corporately owned and charity clinics although these each account for less than 3% of the total as shown in Figure 3.2 below.

Figure 3.2: Practice Ownership RCVS (2006)

PRACTICE OWNERSHIP	PERCENTAGE
PARTNERSHIP	50
SOLE PRINCIPAL	29
LIMITED COMPANY	15
CHARITY	3
CORPORATE	2
OTHER	2

This shows that the majority of practices are still privately owned either by veterinary surgeons either alone or in partnership, although an increasing number of these are trading as limited companies for tax purposes.

The final area that was looked at was differences in individual veterinary surgeons, both in terms of age and gender (Figure 3.3), and their role in the practice (Figure 3.4).

Figure 3.3: UK practicing veterinary surgeons by age and gender RCVS 2008

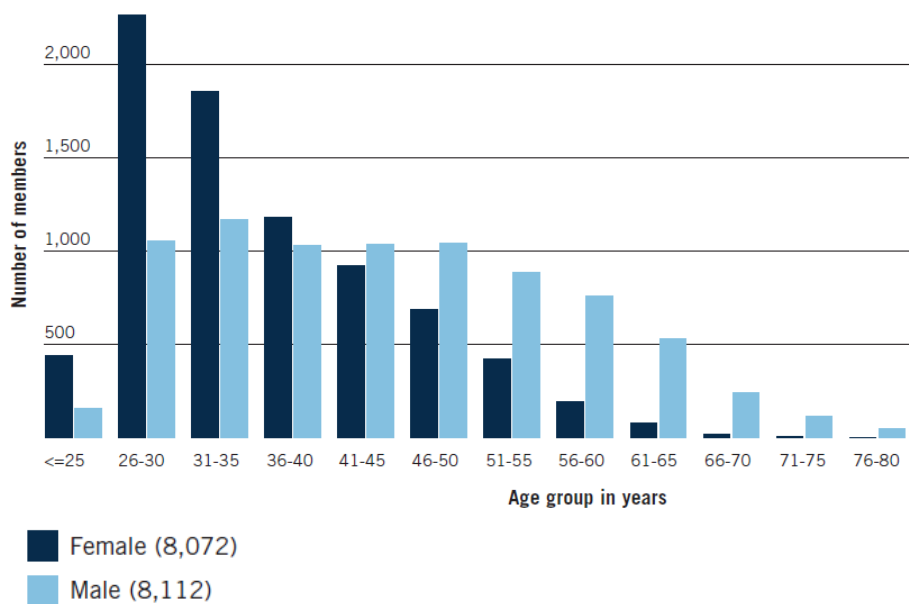


Figure 3.4: Role in practice - RCVS 2008

	MALE %	FEMALE %	TOTAL %
SOLE PRINCIPAL	17	5	11
PARTNER/DIRECTOR	16	4	10
SALARIED PARTNER	2	1	2
PARTNER	25	7	16
TOTAL PARTNER	43	12	28
ASSISTANT (Full time)	28	52	40
ASSISTANT(Part time)	3	20	11
CONSULTANT	2	1	1
LOCUM	5	8	6
OTHER	1	2	2

These figures indicate that in common with many other professions that the veterinary profession is seeing a significant increase in female members but that these are more likely to be working as assistants in practice rather than participating in practice ownership. This may in part be related to their younger average age.

These figures provided a sampling frame which enabled practices to be recruited. It was decided to concentrate on small animal consultations in private practice but to include both equine and farm animal consultations to enable the variation by species to be considered. Practices which treated small animals in different contexts were also included in the form of a charity clinic, an out of hours' clinic and a referral practice. In all these contrasting cases two veterinary surgeons were interviewed in order to ascertain those views which were particular to the individual veterinary surgeon and those which could be considered related to the context.

Practices were selected using purposive sampling, that is strategic sampling to select participants relevant to the study (Bryman 2008), using contacts known to the researcher or through the School of Veterinary Medicine and Science at The University of Nottingham to gain access. In privately owned practices contact was made directly with the veterinary surgeon, usually a practice owner or partner. Where the veterinary surgeon agreed to participate they were asked if any other members of the practice would be prepared to participate, this enabled veterinary surgeons with different levels of experience to be recruited to the study. While using known contacts to recruit participants appears to have been successful in providing a range of participants from different types of practice and with different levels of experience (APPENDIX H) it has led to the selection of a higher than expected number of male veterinary surgeons with postgraduate qualifications (RCVS 2010). This is probably because these people were more interested in research and therefore more willing to participate. A similar bias was not apparent in the female participants which may reflect the fact that many were younger employees, in line with the demographics of the profession (RCVS 2010).

3.2.2 Ethics, access and consent

In planning and undertaking a study it is important to be aware of the likely impact on the participants in terms of time and effort as well as possible disruption to their normal work. This is especially important in veterinary practices which are usually small businesses where time spent talking to the researcher is time which would otherwise be spent with clients and earning fees for the business. As the veterinary profession has little experience of social research methods it was important to explain not only the purpose and potential benefits of the research but also the methods to be used.

Before any practice was approached ethics approval was obtained from the University of Nottingham for the collection and analysis of data (APPENDIX A). The process of gaining ethical approval requires the researcher to consider the research from the participants' point of view and ensure that issues such as confidentiality, anonymity and data storage have been considered before the research begins.

Once ethics approval had been granted practices were approached about participation in the study. If a practice agreed to take part an appointment was made to meet one of the veterinary surgeons to discuss the requirements for data collection. Factors which were discussed at this meeting included the aims and methods of the research project as well as the practicalities of collecting data, such as the positioning of the equipment in the consulting room and how best to obtain consent from clients. Access to veterinary surgeons working for organisations was slightly different with permission being sought from the umbrella organisation before individual veterinary surgeons were approached.

As this project was to include not only audio recordings of interviews with the veterinary surgeon but also video recordings of consultations it was necessary to gain informed consent from both veterinary surgeons and clients. To this end information sheets containing details of the research project and consent forms were prepared explaining the purpose of the research; how the data would be used; and the participant's right to withdraw from the project at any time (APPENDIX B). Before data was collected veterinary surgeons and clients were shown the participant information and asked to sign a consent form. In most practices the clients were approached by members of the practice staff, as it was considered that they would be more likely to accept a request from someone that they already knew. The exception to this was the referral practice where there was no prior relationship between veterinary practice and client. In this case the researcher approached the clients directly to explain the purpose of the study and request consent to record the consultation. In those practices where the staff obtained client

consent the researcher was available to answer any further queries. Consent was usually obtained either by receptionists prior to the consultation or by the veterinary surgeon at the start of the consultation. Only one client showed any reticence at being recorded and she was reassured once the purpose of the study was explained.

3.2.3 Data collection

Pre-pilot

The researcher tested the equipment for data collection on a small number of her own consultations, with the consent of the practice principal and clients, before starting data collection in participating practices. This enabled her to familiarise herself with the equipment as well as experience the effect of the video recorder on her own and her client's behaviour.

Pilot study

Since the data collection depended on both recordings of consultations and the subsequent interview it was considered most appropriate to pilot the data collection in the field. The practice selected for this was a 15 vet mixed practice in a market town. An initial meeting was arranged to discuss the aims of the study and the practicalities of data collection. Following this meeting arrangements were made to visit the practice on four separate occasions to record consultations and interview four veterinary surgeons.

Prior to the visit an interview guide was produced (APPENDIX C). The interview was designed to collect information about the individual and practice and then use one of the recorded consultations to prompt detailed discussion of the decision making in a particular consultation before going on to a more general discussion about the factors influencing clinical decision making.

The pilot study demonstrated that the video-recording of consultations was feasible, and that although placing the video camera in a static position meant that some material was not clearly visible, the high quality of the picture and sound meant that the recording was of sufficient quality to enable the veterinary surgeon to remember and reflect on their actions and decisions. The interview was also generally successful however following the pilot study some amendments were made to the interview guide including the addition of a series of prompts for those questions which veterinary surgeons sometimes found difficult to answer. It was also found that rather than a series of individual decisions the consultation involved a more iterative process of decision making and although the question prompts for use during the playback of the video were left in for use when appropriate the factors involved in decision making were more likely to arise in discussion rather than in response to specific questions. The pilot data was considered to be of sufficiently high quality to include in the main study.

Main Study

Following assessment of the pilot study further practices were contacted in order to recruit participants. Once a practice agreed to participate an initial meeting was arranged to discuss the practicalities of data collection. Arrangements were usually made to record consultations in the morning so that interviews could be conducted later the same day. In small animal consultations a digital camcorder (Panasonic NV-GS330) was set up in the consulting room and the researcher was not present during recording. This decision was taken as it was considered that an extra person in the consulting room holding the camera was likely to be more intrusive and therefore more likely to effect the normal flow of the consultation than a statically positioned camera. In most practices the video camera was set up at the start of a consultation period and allowed to run for one hour, the duration of the tape, while in those practices where clients were seen individually the camera was started immediately before the commencement of the consultation. In large animal and equine consultations it was not possible to position and leave the video camera due to

both the size of the locations and, in the case of farm visits, the presence of other animals. In these cases the researcher held the video camera during recording, but made an effort to stand at a sufficient distance so as to be unobtrusive. Secondary audio recordings of all consultations were made as a back-up using digital voice recorder (Olympus WS331M).

Once the consultations had been recorded they were downloaded onto a laptop computer to enable them to be reviewed on a larger screen. This process also gave the researcher an opportunity to see the consultations which had been recorded before discussion with the veterinary surgeon.

The interviews were divided into three parts guided by an interview schedule (APPENDIX C). Interviews lasted on average 1hr 5minutes (range 30 minutes to 2 hours). All interviews were recorded onto the digital voice recorder (Olympus WS-331M). The first part of the interview collected structured information about the veterinary surgeon and practice. The second part involved a discussion of one of the recorded consultations prompted by playback of the video-recording. Veterinary surgeons were asked to describe the consultation in their own words before playback; this was important for developing rapport and enabled the interviewer to get some idea of the veterinary surgeon's point of view before reviewing the consultation. The final part of the interview involved more general discussion, including questions about evidence and information sources as well as more general influences on decision making. This part of the interview bore most resemblance to the description of the semi-structured interview with specific questions that the participants were free to answer in their own terms (Mason 2002 ; Bryman 2008).

3.2.4 Data management and storage

The data collected consisted of video-cued interviews with 22 veterinary surgeons from 11 different practices. Video recordings of 69 consultations were obtained, 48 of which were from 12 veterinary surgeons in 6 small animal practices. Consultations were also recorded from a specialist small animal referral practice (2); a small animal charity clinic (6) and a small animal “out of hours” clinic (4). There were also 4 recorded consultations from 2 veterinary surgeons in equine practice and 5 consultations from 2 veterinary surgeons in farm animal practice.

All audio and video recordings were downloaded and stored on a hard disk used solely for that purpose. Practices, veterinary surgeons and consultations were assigned a unique code to enable identification while maintaining anonymity. A separate folder was created for each vet containing video clips of each individual consultation (usually 4 or 5 within the 1 hour tape) as well as an audio recording of the interview and transcripts of the interview and consultation on which it was based. Because of the size of the files consultations longer than 20 minutes had to be split for filing. Where this occurred the sub files were labelled a & b respectively. The original tapes were labelled and securely stored along with consent forms and annotated interview sheets.

All the interviews and those consultations on which they were based were fully transcribed from the audio recordings using Olympus DSS software. Transcription has been described as the process of translation from an oral to a written language (Kvale and Brinkmann 2009) and it has been noted that in rendering the verbal communication in written form there is always a tension between readability and fidelity (Atkinson 1995). Initial attempts at transcription which included pauses, overlapping speech and the ever present “ums and errs” proved too time consuming and was eventually dropped in favour of a less detailed transcription which concentrated on what was said rather than how it

was said, although long pauses and interruptions, including dogs barking or tannoys were included.

In general interviews were easier to transcribe than consultations, partly because there are only two voices, but also because the convention of turn taking is more strictly adhered to than in the consultations where overlapping speech is common. The main problems with transcription of consultations were extraneous noise, such as dogs barking or telephones ringing and the problem of identifying the speaker, especially where there was more than one client present. In cases of doubt the audio recorded material was checked against the video recording of the consultation which was frequently helpful in clarifying who was speaking.

The video of all the 69 recorded consultations were imported into Transana (www.transana.com), a computer assisted qualitative data analysis system (CAQDAS) developed primarily for the analysis of video data. This program has the facility to associate multiple transcripts with a recording; those consultations which had been fully transcribed were associated with the transcripts of the consultation and the relevant parts of the interview. Transcripts were checked against the video recordings and time coded to enable material to be quickly located. A third transcript containing the researcher's notes and explanations of those areas that were not clear from the visual or audio material, such as details of a condition or treatment being discussed was also included.

Figure 3.5: Screenshot of Transana

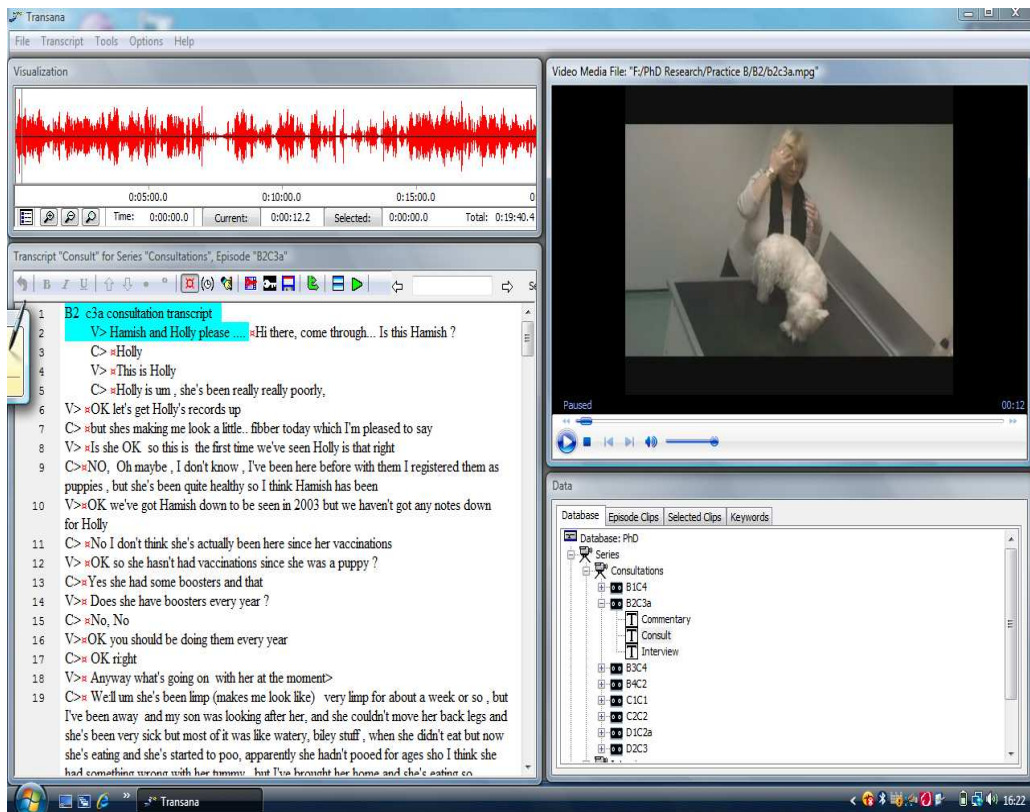


Figure 3.5 shows an example Transana screen showing the database window (bottom right) indicating the consultations and transcripts available; video window (top right); visualization window (top left) in this case showing the waveform for the audio track of the consultation and finally the transcript window (bottom left) showing the transcript of the consultation with time codes (red asterisks).

3.2.5 Data interpretation and analysis

Coding

Coding is considered to be the starting point for most forms of qualitative data analysis and can be considered to be a form of indexing (Bryman 2008). It involves breaking down the data into manageable segments which are each described by one or more

keywords in order to enable the researcher to locate areas of interest and collect related data for comparison, interpretation and analysis (Kvale and Brinkmann 2009).

As stated above all the interviews and their associated consultations were “time coded” against their transcripts so that all the related material could be easily located. The remaining 47 consultations were coded using a word or short phrase to describe the activity or subject of discussion. This enabled material to be rapidly located and transcription was confined to those parts required for detailed analysis or inclusion in publications. At this stage codes were descriptive and not specifically related to the research themes or questions. The terms used described either what was going on in the consultation, for example “vet examining eyes” or “vet takes dog “out the back” for blood sample” or the subject being discussed such as “owner concerned about money” or “discussing other cat”. Every part of the consultation had at least one description associated with it. As more consultations were coded certain events or discussions were repeated and by constantly comparing the codes used across all the consultations recurrent themes were recorded. Where these related to the research question they were noted, this enabled all the recorded consultations to be brought into the analysis.

All the interview transcripts were also coded using a word or short phrase to describe the subject matter under discussion and those parts relating directly to the consultation were time coded against the video and transcript of the consultation. This type of coding is provisional but allows for recurring subjects to be identified and rapidly located across all the transcripts.

Preliminary analysis of the recorded consultations involved recording the attributes for each consultation and brief notes to characterise the interaction (Appendix D). This material was then collated into an Excel spreadsheet enabling the characteristics of consultations to be compared and analysed using descriptive statistics.

The second phase of analysis was to compare the recorded consultations against the biomedical model (Ledley and Lusted 1959) and Calgary-Cambridge model (Silverman and Kurtz 1996) of the consultation. Because this required much more detailed analysis this was confined to the smaller group of fully transcribed consultations. This analysis was carried out using the “Keyword Analysis” in Transana, matching the activities with the time coded consultations. The details of how each keyword was defined and interpreted are given in Appendix E. This analysis enabled “Keyword Sequence Maps” of the consultations to be produced indicating the time dedicated to each activity during a consultation. Examples of “Keyword Sequence Maps” are shown in figures 3.6 and 3.7 below. Consultation H1C1 was recorded in an out of hours’ clinic and divided into two parts (H1C1a & b) at the point where the veterinary surgeon left the room to analyse a blood sample. The second consultation (I1C1) was recorded a charity clinic.

These Keyword Sequence Maps enable the time spent on each activity during the consultation to be coded so that consultations can be compared with each other and with the models of the consultation which are usually taught in veterinary schools in the U.K.

Figure 3.6 Keyword Sequence Map - Bio-medical model

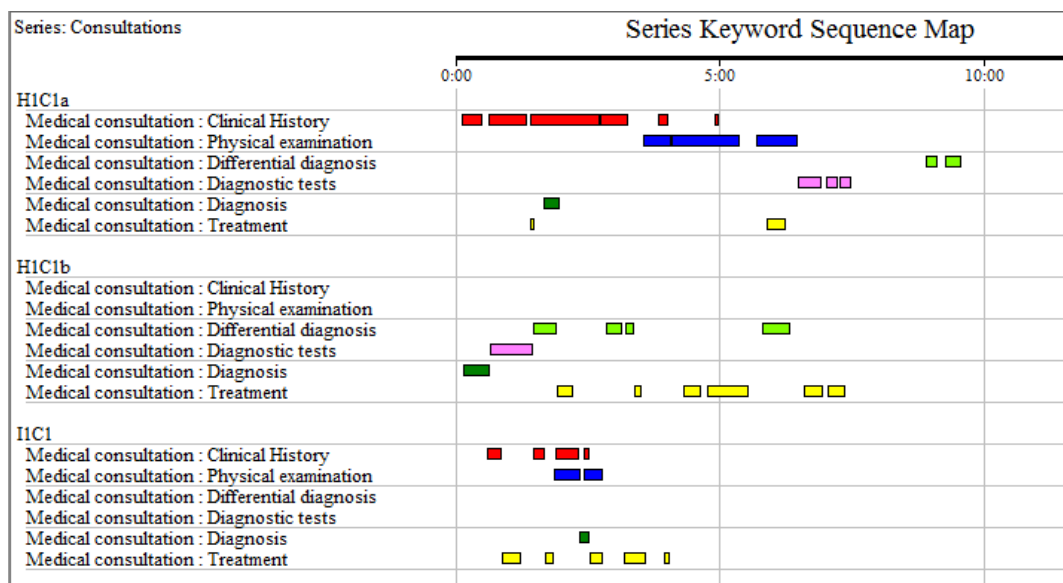
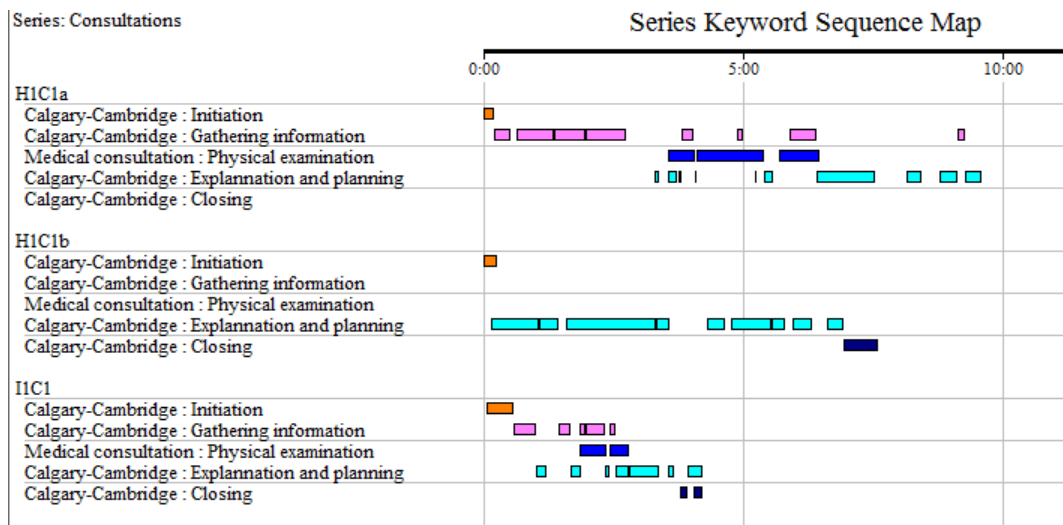


Figure 3.7: Keyword Sequence Map Calgary-Cambridge model



The final analysis of the consultations compared the way that diagnosis and treatment are discussed during veterinary consultations. Each consultation was assessed under the headings of diagnosis, diagnostic tests and treatment (Appendix F). It appeared from initial analysis that the shared decision making process in the veterinary consultation involved not only discussion of treatment as in human medicine (Charles et al. 1997) but also diagnosis. Therefore a specific analysis was carried out into the way that diagnosis is discussed by comparing the way that diagnosis is delivered in veterinary consultations with that in medical consultations as described by Perakyla (2006). In this study the author distinguishes three ways in which doctors deliver diagnostic statements: plain **assertions**, in which the doctor names the disease; **indexing** the diagnostic statement to evidence such as that obtained during the physical examination with phrases such as “the ear looks red and inflamed”; and **explication** of the evidence where the diagnosis is preceded or followed by the details of the evidence which the doctor used to reach their diagnostic conclusion.

The process of interview analysis was an iterative process, starting during the processes of transcription, reading and descriptive coding as the researcher became familiar with the material. More detailed analysis involved a combination of content and thematic analysis.

Content analysis is a relatively quantitative technique which can be applied to a wide range of unstructured information, such as documents and interviews (Bryman 2008). In this research it was used to compare the way that veterinary surgeons discussed recurring subjects. Once a subject had been identified all the transcripts were searched using appropriate keywords in Microsoft Word (www.microsoft.com), to identify any further material relating to that theme. If further keywords were found the process was repeated. All the transcript material related to a particular subject was identified and collected together in a single Word document for easy reference. A short description of each segment of interest was then made on a post-it note along with a reference so that the material could be located. This enabled the material to be compared and grouped in different ways so that the main themes could be identified. Once these had been organised a mind map was developed for each major theme showing how the individual components related to the theme and enabling material to be easily located. An example mind map is provided in APPENDIX G.

In contrast thematic analysis is a qualitative technique which predominantly concentrates on what is said rather than how it is said and although it is frequently cited as a method in qualitative research it has also been criticised for having no identifiable heritage (Bryman 2008). In this research themes were identified, either from the interview questions (theoretically informed analysis) or from subjects raised by the participants (inductive, data driven analysis) (Braun and Clarke 2006).

3.3 Discussion

3.3.1 Participation, consent and ethics

Overall the video-cued interview has proved to be an effective method of data collection enabling both naturally occurring data, in the form of recorded consultations; and participants' accounts, in the form of interviews, to be collected with minimal disruption

to the practices. Only two practices declined to participate in the study both citing time and concern about being video-recorded as reasons. However within practices there were individuals who declined to take part, usually because they did not wish to be video-recorded as shown in the below:

Excerpt 3-1: Interview G1 (4)

V> I repeated the request to my colleagues, whether any of them were interested *in having it done, and you'd have thought that I'd actually asked them to have all their teeth pulled, without anaesthetic*

Despite my initial concerns, and the comment reproduced above, it did not prove particularly difficult to persuade veterinary surgeons to take part and allow me to video-record their consultations. The relative ease of recruitment indicates that generally this study was considered relevant and important by practitioners who were willing to give up their time to participate.

Only one client expressed either surprise or concern about being video-recorded, believing that she had been singled out, however once it was explained that all clients seeing the veterinary surgeon that morning were being approached she seemed reassured and agreed to participate. The majority of clients showed no surprise and many seemed quite interested in the study. There was some concern at the charity clinic that clients, who are all on means tested benefits, would be reluctant to sign a consent form so we wrote a script for the nurse who was recruiting clients which assured them that no personal details except their name and their animal's name would be collected. In fact none of the clients showed any concern and readily agreed to take part.

While obtaining ethical approval is a procedural necessity the need for ethical sensitivity extends throughout the whole research process. Researchers undertaking investigation that allow them access to otherwise private activities are always asked to consider what they would do if they were to observe something they consider inappropriate, unethical or

even illegal. While I thought it unlikely that I would observe anything of that nature when both veterinary surgeon and client knew that they were being video recorded I did have to think much more carefully about how I would respond to seeing cases treated in ways that may be significantly different from the way I would approach a case. My conclusion actually followed from my own experience and motivation for undertaking the research in the first place which stemmed from my realisation that I often treat apparently similar cases in different ways depending on the circumstances. It therefore seemed reasonable to assume that other veterinary surgeons would do the same and this was something that I would seek to explore in the interview. I also decided that anything short of that which I considered to be professional misconduct, which thankfully did not occur, would be treated in confidence.

I also decided not to include consultations involving euthanasia since this was not the focus of the study and it seemed inappropriate to ask to video record clients who were undergoing such an emotional decision. One recorded consultation did result in euthanasia however apart from noting this as the outcome of the consultation and noting the basic description of the consultation in terms of who was present and how long it took this consultation was not included in the detailed analysis.

While no major ethical issues arose during the collection of the data a more significant challenge has arisen since in that I have been asked on a number of occasions to provide video material for teaching purposes. While the consent forms did include the use of the material for teaching as well as research purposes this will be restricted to those in which I am directly involved so that I am able to fulfil my ethical responsibility to my participants by controlling the way in which the material is presented.

3.3.2 Data collection

Video recording

All the veterinary surgeons were asked if they felt that the presence of the video camera had an effect on the consultation. The majority of veterinary surgeons responded that they felt that there had been little effect although a few as in the excerpt below commented that they were initially self conscious, although it should be noted that as this was an equine consultation the researcher was also present to hold the camera.

Excerpt 3-2: Interview E1 (98-99)

I> did you feel that the presence of the video camera altered either your or the client's behaviour in any way

V> it certainly didn't alter hers. It did mine just to begin with for the first 10 minutes, but after that no.

In this excerpt the veterinary surgeon also comments on the behaviour of the client and that she had not noticed any change in her behaviour. One veterinary surgeon did comment that behaviour of one client had changed completely in comparison to previous meetings, suddenly agreeing to treatments that he had previously resisted. While there may have been many other factors which prompted this change it is important to consider the extent to which the knowledge that they were being recorded affected the behaviour of veterinary surgeon and client during the consultation.

In only one practice had veterinary surgeons previously been video recorded while consulting although on the previous occasion the camera had been held by the owner's wife.

Excerpt 3-3: Interview D3 (80-85)

I> did you find the presence of the video camera altered your consulting?

V> No

I> It wasn't too intrusive?

V> It was fine yeah, I think if it had been the first time I'd had a video camera on me it might have been more

I> but the fact you'd been videoed previously

V> and that fact that we'd been videoed before and this was far less obvious

This veterinary surgeon commented that the statically positioned camera was less intrusive than having a person hold the camera although previous experience of being recorded had made this process less daunting.

One of the restrictions of most small animal consulting rooms is size making it difficult for the researcher to stand discretely out of the way, as was possible for the large animal consultations taking place in a yard or barn. Although the choice of a statically positioned camera had the advantage of not having the researcher present in the consulting room it did have the disadvantage that some material was not captured on camera, however the video recordings were still of sufficient quality to act as an aid memoire for the veterinary surgeon to recall the decision making in the consultation. Had the intention been to study other aspects of the consultation more thought may have been needed to ensure that the action all took place “in camera”.

Interviews

Although the initial section of the interview involved structured questions regarding the veterinary surgeon and practice there were differences in the way individuals responded with some veterinary surgeons giving significantly more background information than others. Although these questions were the start of the interview they were not the first discussion between the researcher and participant. In most cases the researcher had met with the participant prior to the day of data collection and in all cases had discussed the purpose and methods of the study. The researcher had also had conversations with the veterinary surgeon on the day of data collection while the camera was set up and in any gaps in consultations. This meant that by the time the interview started there was already some degree of expectation of the subjects that were likely to be covered in the interview. While some participants were initially unsure of what was expected in a semi-structured interview, where they could answer questions in their own way, others were only too

ready to talk at length, one participant describing the process as being “like therapy”. As I was keen to collect as much information as possible regarding the participants’ viewpoint allowed them to talk round the subject in quite broad terms following their leads with clarifying questions or prompts to relate what they were saying to clinical decision making.

Although the choice of consultation to review was always offered to the interviewee, most often the choice was arrived at by a process of discussion as indicated in the excerpt below:

Excerpt 3-4: Interview F1 (88-99)

- 1 I> OK so during this morning’s consultations, were there any that you think
2 threw up any particular interesting decision making
3 V> *I’ll think back, what was there, there was first of all there was thetrying to*
4 *think through I can never remember, have you got notes there*
5 I> I’ve got the names, OK the first one was Toyola
6 V> Oh yeah that was a vaccination
7 I> but noting particular, the next one was Clark
8 V> Clark yeah, that was probably quite an interesting one, um and then there
9 was another one
10 I> Then Barry and Baxter
11 V> Boring
12 I> Was Baxter the pet health check one
13 V> There was another one that was interesting as well,
14 I> Ashley
15 V> yes either Ziggy Clark or the Ashley one that was quite something to talk
16 about

This excerpt raises an interesting point about the way in which the veterinary surgeon viewed the consultations, with the “Oh yeah that was a vaccination” (line 6) and “*Boring*” (line 11) contrasting with the comment “there was another interesting one as well” (line 13). Several other veterinary surgeons also apologised that the cases recorded were boring, usually making the assessment based on the degree of medical decision making involved in the consultation. From my point of view as a researcher the interesting consultations were one’s which showed the veterinary surgeon considering a

range of factors in making their decisions. While it must be acknowledged that this rather unstructured method of selecting a consultation for discussion in the interview may have led to the selection of cases which either the participant or researcher considered provided something interesting to talk about, all the recorded consultations were included in the later analysis.

While many veterinary surgeons were initially self-conscious seeing themselves on camera the video playback did enable veterinary surgeons to observe and reflect on their performance.

Excerpt 3-5: Interview C1 (401-406)

- I> OK, so watching that back were there any things that surprised you
- V> about me
- I> about the consultation particularly
- V> how much I interrupted him, how much I moved round the consultation room
- I> yeah
- V> *I didn't stand still I wasn't passive and in fact how much he steered the conversation*

This participant noticed that despite his previous comment that he liked to let the client talk, he in fact interrupted the client on several occasions, however he also noticed that the client was able to steer the consultation.

While veterinary surgeons were asked to pause the recording if they wished to comment on the consultation, it was more frequently the researcher who paused the recording in order to start a discussion. This may in part have been because people are not always aware of the decisions that they take especially in those circumstances which are habitual or routine as the actions become automatic and based on tacit knowledge (Polanyi 1958). It may also have been because the researcher had the advantage of having watched the consultations back and the knowledge of the type of information she wished to collect. In

retrospect it may have been better to allow the participants time to watch the consultations, in their entirety prior to questioning, although this would have added to the time required from the veterinary surgeon to participate in the study. It may also have elicited different information in that the participants would have had time to construct rationalisations of their performance.

The interviews themselves brought home to me the role of the researcher in qualitative research. While I was conducting semi-structured interviews and working to an interview guide it quickly became apparent that I had to be able to adapt very quickly to the individual I was talking to. This was partly because each consultation was unique and raised different issues but more because each veterinary surgeon answered the questions differently and seemed interested in different aspects.

In listening back to the interview recordings it is obvious that I adopted an active approach to interviewing. This was partly because I was so interested in the subject matter that I was studying and the almost unique opportunity that I had to see and discuss other veterinary surgeons' consultations, but also because a number of the veterinary surgeons seemed initially very uncomfortable discussing their consultations and I had a natural urge to put them at their ease. The ability to build rapport in a short period of time is something that I have probably developed through many years of consulting. The advantage of this approach was that I was able to get most of the veterinary surgeons to open up and go beyond the interview questions; the disadvantage was that I had to be careful not to lead interviewees or put words into their mouths. Although I can't say I always got this exactly right I was conscious of the potential problem and it is noticeable that I take a more active approach in those interviews with older veterinary surgeons than with the relatively recent graduates where I am more conscious that my position as an experienced veterinary surgeon may influence their responses.

Another issue that arose with the inexperienced veterinary surgeons was their desire for feedback on their consultation skills. In one practice a veterinary surgeon specifically asked to be included in the study as, by her own admission and the assessment of a number of other vets in the practice, she found decision making and communication in the consultation difficult. I was slightly reticent about this interview as I felt that I was being encouraged to take on a mentoring role, which although it indicated that I had built up a reasonable level of trust with the practice also seemed outside the remit of my research. However I felt that the opportunity to observe and discuss decision making with someone who had confessed to finding the process difficult was too good to miss. The recording and interview went well and it was only after the main part of the interview was completed that I was asked to give my opinion as to how she might be able to improve. During the process of the research a number of the recently qualified vets wanted to discuss their performance. While not completely happy in this role I did feel that I owed it to these veterinary surgeons to give something back and it also showed me that with further development the technique of reviewing video recorded consultations has the potential for teaching and self evaluation. I agreed with participants that I would provide a brief summary of findings so that they receive some return for their participation.

Chapter 4 -The Veterinary Consultation

The veterinary consultation has similarities to the medical consultation, with the veterinary surgeon performing many of the same tasks and procedures as a doctor: collecting information through the clinical history and physical examination in order to make decisions about diagnosis and treatment. The aim of this chapter is to give an overview of veterinary consultations and provide contextual information for the analysis in the following chapters.

The first section will present analysis, using descriptive statistics, of the 48 recorded consultations from small animal practice, looking at the setting, participants and structure of the consultations. The second section will look more closely at what goes on within the veterinary consultation and compare the consultations recorded in this study with the models of the consultation derived from the classic bio-medical (Ledley and Lusted 1959); the Calgary-Cambridge model relating to communication in the consultation (Silverman and Kurtz 1996) and models of diagnostic decision making. The third section will provide description of the similarities and differences between veterinary consultations in different contexts. The final discussion will bring together these individual findings with information from the published literature to look at how the context of the consultation can affect clinical decision making.

4.1 Characteristics of small animal consultations

4.1.1 The site of the consultation

The majority of small animal patients are now examined and treated at the practice premises, although there are a small number of veterinary surgeons that provide an

entirely peripatetic veterinary service and many veterinary practices arrange home visits in certain cases.

The layout of the “front of house” areas of small animal veterinary practices are similar to many doctors’ surgeries, with a reception area, seated waiting area and one or more consulting rooms. However many veterinary practices now also have an area displaying retail products such as dog foods and other pet related products (figure 4.1).

Figure 4-1: Reception and waiting area practice D



Consulting rooms in veterinary practice often have a similar layout as described in this quotation from a textbook on practice management “The room does not have to be large but there must be space for an examination table between the veterinary surgeon and the client (preferably between the two doors) A hand basin and a small cupboard to contain the routine medicines and injections is all that is needed, plus a computer terminal if one is used” (Bower et al. 2001, p 15-6). The layout of the room tends to determine the position of the participants with veterinary surgeon and client often standing on opposite sides of the table with the animal in the middle. While this facilitates examination of the animal, the central positioning of the table may be perceived as a barrier between client

and veterinary surgeon and contrasts with design recommendations for the NHS which state that there should not be physical barriers between doctor and patient (DH 2010). However veterinary surgeons would sometimes move around the table in order to facilitate examination of the animal (Figure 4.2) and in ten consultations examination of the animal was carried out entirely and another 4 partially with the animal on the floor. This was usually because the size of the animal made lifting it onto the table impractical or to enable the veterinary surgeon to observe the animal's movement.

Figure 4-2: Veterinary consulting room practice G



In 10 of the consultations, involving a total of 12 animals the veterinary surgeon separated the animal from the client. Animals were taken “out the back” for blood sampling, nail clipping or to lance an abscess. More experienced veterinary surgeons, that is those qualified more than 5 years, were more likely to carry out these procedures in front of the client suggesting that this is largely an issue of confidence. While taking the animal out of the consulting room may facilitate the technical tasks of the consultation it also has the effect of excluding the client from these activities and the associated decision making.

4.1.2 Who is present during the consultation

The veterinary consultation requires the presence of a veterinary surgeon, animal patient and client. The small animal patients in this study consisted predominantly of dogs and cats with 34/48 (71%) of the consultations involving one or more dogs, 13/48 (27%) involving a cat and 1 (2%) a guinea pig. These figures appear to over-represent dogs and under-represent cats as compared to national figures of pet ownership (PFMA 2009) and veterinary consultations (Cormack 1999; Robinson 2009) which indicate that nationally dogs account for just over 50% of veterinary consultations. However these figures are correlate closely with the figures for turnover by species in small animal veterinary practice (Robinson 2009). The discrepancy in the figures may be because of small sample size and both the location and timing of the samples. The majority of practices visited were in towns rather than cities and recordings took place in the mornings or early afternoon, to allow time for the interview. This may have lead to a bias towards people who were not working at that time which may have favoured dog owners over cat owners (Murray et al. 2010).

In two consultations the owner brought a second animal to see the vet, in both cases dogs, and in one case a second dog was present but not examined. In four other consultations the client discussed a second animal which was not present at the consultation (2 dogs and 2 cats).

In 37/48 consultations the animal was brought into the consulting room by a single client and in 11 consultations 2 people were present with the animal, although in all cases it was easy to identify a principal client who did most of the talking. 34 principal clients were female and 14 male. Female clients appeared slightly more likely to bring somebody else with them. Clients appeared slightly more likely to consult a veterinary surgeon of the same sex (figure 4.3 below), however although many surgeries encourage clients to see the veterinary surgeon of their choice and clients may become develop a preference for a

particular veterinary surgeon no data was collected on the extent to which clients were exercising a choice .

Figure 4-3: Characteristics by Primary Client

Primary Client	Male		Female	
	No.	%	No.	%
Total	14	29	34	71
Alone	12	86	25	74
Male Vet	8	57	13	38
Female Vet	6	43	21	62
Dogs	11	79	23	68*
Cats	3	21	10	29*

1 female client brought a Guinea Pig for consultation *

In general the veterinary surgeon consults alone. In one practice there was a veterinary student “seeing practice” during one recording session (4 consultations). In 6 consultations a nurse was present for part of the time to assist in holding the animal, although the nurses would often talk to both animal and owner they were not involved in the decision making process. On only one occasion was a second veterinary surgeon brought into the room to assist in the decision making, in this case a recent graduate brought in her employer to give advice on the post-operative care of a patient on which he had performed surgery.

4.1.3 Reason for consultation

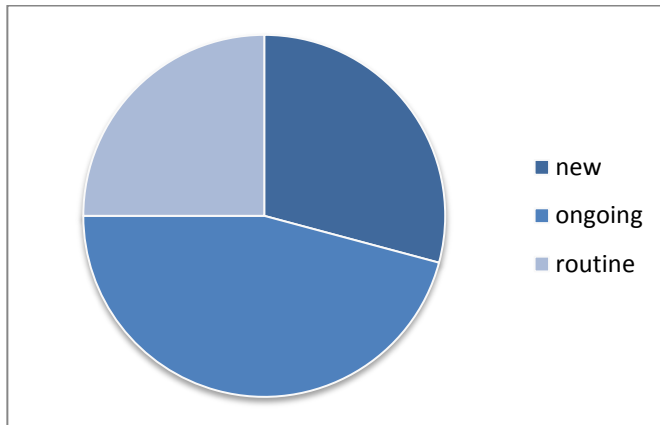
Analysis of the recorded small animal consultations showed three main types of consultation. The first were those in which a new complaint or condition was presented. The main decisions being taken in these consultations, as determined by observation of the recorded consultations and discussion with veterinary surgeons during the subsequent interview, relate to the seriousness of the condition, which influences the timescale over

which decisions need to be taken; whether the veterinary surgeon feels they are able to decide what is wrong with the animal (diagnosis); needs to collect further information (diagnostic testing); and the treatment required. New conditions accounted for 14 out of the 48 recorded consultations (29%), of these 7 received a diagnosis at the time, 9 had diagnostic tests either taken or discussed and 10 received medication.

The second type were routine consultations and accounted for 12 of the 48 recorded consultations (25%). The majority of these animals were presented for vaccination and the decision making in this type of consultation is often straightforward in that vaccination schedules are usually laid down by product data sheets or practice protocols. Although all these consultations included elements of clinical history and physical examination these were often cursory and appeared to be designed to rule out disease rather than make a diagnosis. However it is in this type of consultation that the owner is most likely to raise other issues regarding the pet and may ask for apparently minor problems to be checked or for advice on other issues. This led to diagnoses being made in 2 consultations; diagnostic tests being performed in 2 consultations and discussed in 2 others; surgical procedures being arranged in 2 consultations and discussed in 2 others; and medication, other than vaccination, being provided in 4 consultations. In 3 consultations the client also discussed an animal other than the one presented for consultation.

The final and largest group of consultations involved ongoing conditions for animals that were already under treatment; these accounted for just under half of all the consultations, 22/48 (46%). Many of the decisions in these consultations related to assessing response to treatment with further tests being carried out or recommended in 10 of these consultations and treatments prescribed in 13.

Figure 4-4: Veterinary consultations by type (n=48)



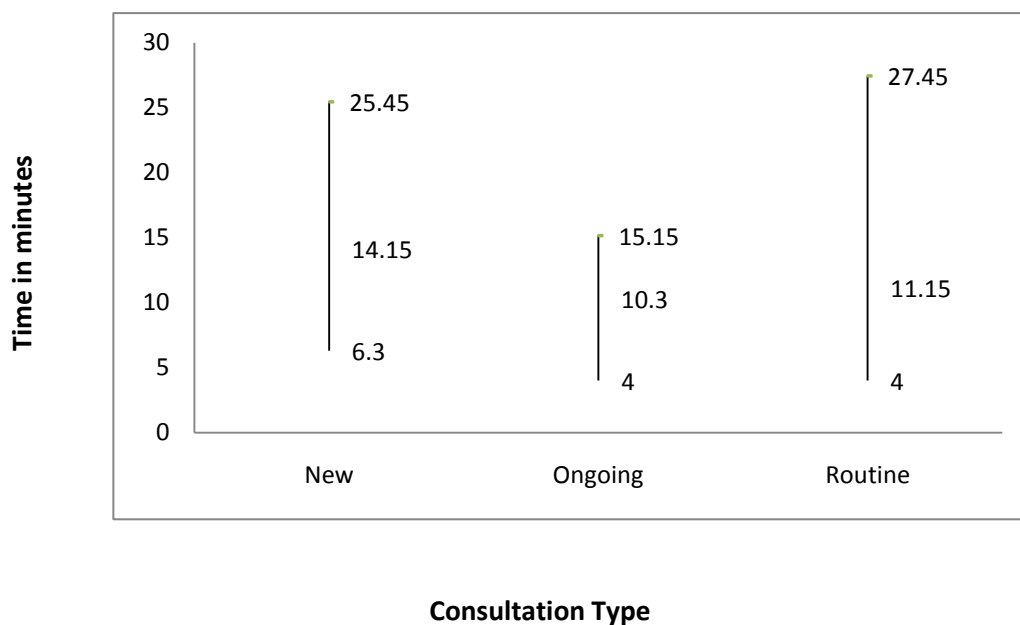
4.1.4 Length of consultation

The mean length of the 48 recorded small animal consultations was 11 minutes and 45 seconds with a range of 4-28 minutes (taken to the nearest 15 seconds). These timings were measured from the time the veterinary surgeon called the client into the consulting room to the point when the client left the consulting room. It was taken to include any time in which the vet left the consulting room to get equipment or assistance and any time in which the vet took the animal “out the back” leaving the client in the consulting room. However it did not include any time that the veterinary surgeon spent reading the case notes before the client entered the room or writing up notes or dealing with samples after the consultation, as these could not be accurately determined from the video recordings. Neither did the timings include any time in which the veterinary surgeon spent talking to the client in the waiting room either before or after the consultation. In this way these measures will underestimate the actual time that the veterinary surgeon was directly involved in a particular consultation.

Consultations involving the presentation of new conditions were, on average, slightly longer with a mean time of 14 minutes and 15 seconds and a range from 6 minutes and 30 seconds to 25 minutes and 45 seconds. The routine consultations in which the animal was

presented for vaccination or routine health check had a mean length of 11 minutes and 15 seconds (range 4minutes to 27 minutes 45 seconds) and although they accounted for several of the shortest consultations they also accounted for some of the longest, since the clients often had a number of other concerns that they wished to discuss. The consultations involving ongoing conditions had a mean duration of 10 minutes and 30 seconds (range 4 minutes-15 minutes 15 seconds). The differences in mean duration along with the range of consultation time for each type of consultation are shown in figure 4.5 below:

Figure 4-5: Veterinary consultations – Duration - mean and range



While it is not possible to generalize from such a small sample it is interesting to note that the results appear very similar to those obtained by Shaw and colleagues in their analysis of 300 video-recorded veterinary consultations in Canada (Shaw et al. 2008). Although the authors divided their consultations slightly differently, characterizing consultations as either relating to “problem appointments”, with a mean duration of 14 minutes (range 2-49 minutes) or “wellness appointments” with a mean duration 13 minutes (range 2-46 minutes) the figures for mean duration are similar. However while the scheduled time for appointments in Canada was 15 or 30 minutes all the practices in this sample had

appointments scheduled every 10 minutes which is standard for the veterinary profession in the UK (Gray and Cripps 2005; SPVS 2007) as well as the medical profession (Deveugele et al. 2002). Although in many practices there was the facility to book a “double appointment” for longer procedures or if more than one animal was brought in, feedback from the veterinary surgeons indicated that this did not always occur.

These figures indicate that veterinary surgeons in small animal practice are on average spending longer than the allotted time on each consultation. The effect of this on decision making will be discussed in greater detail in section 4.4 below.

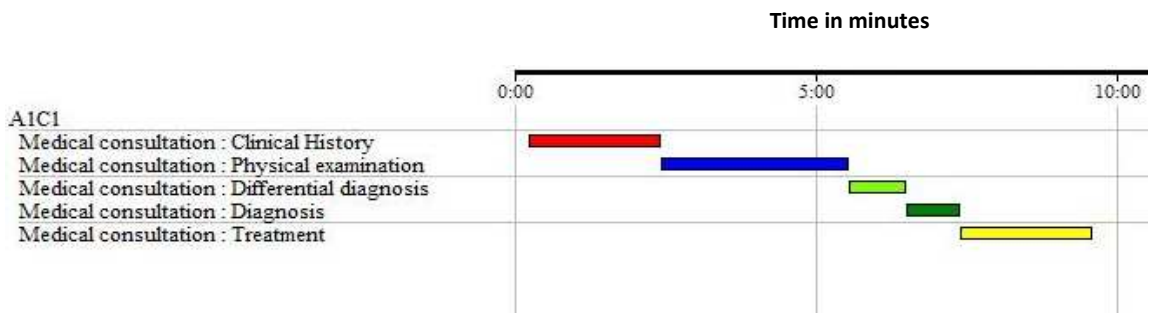
4.2 Models of the veterinary consultation

This section will look in more detail at the structure of the veterinary consultation and how actual consultations, recorded in this research project, compare to two commonly used models of the consultation: the bio-medical model, primarily concerned with the tasks of the medical consultation and Calgary-Cambridge models of communication in the consultation. It will then go on to look at the diagnostic strategies used in veterinary practice.

4.2.1 The bio-medical model

The bio- medical model gives rise to an idealised format of the consultation characterized as a linear process led by the doctor from the patient’s complaint through history taking and clinical examination to hypothesis generation (differential diagnosis) and then to diagnosis and treatment (Ledley and Lusted 1959). This process can be represented schematically for a hypothetical 10 minute appointment as a timeline as shown in Figure 4.6 below.

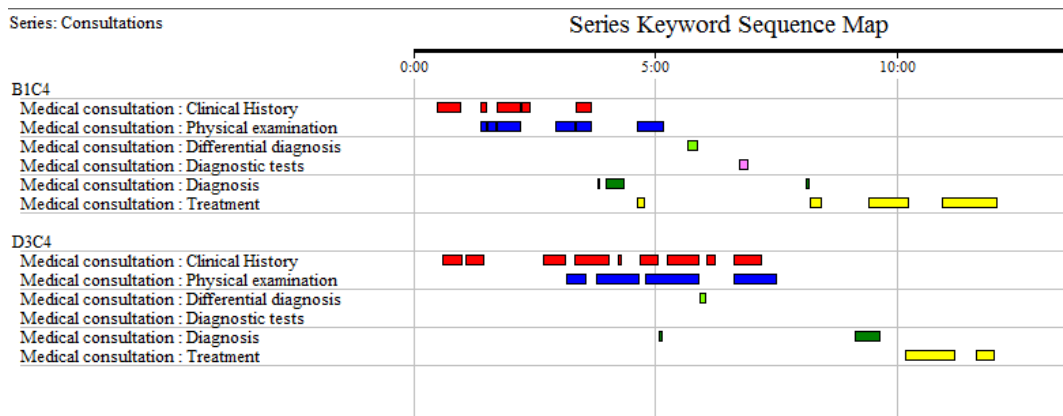
Figure 4-6: Schematic representation of a medical consultation



However the analysis of actual consultations reveals several variations from this classic linear model. While all consultations recorded included some elements of both clinical history and physical examination not all of them included either diagnosis or treatment. Review of the recorded consultations indicated several reasons why a diagnosis may not be made during a particular consultation. Some animals were presented for routine consultations, such as for vaccination where no problem was reported by the owner or picked up by the veterinary surgeon. In other cases the consultation was a follow up visit for an ongoing condition in which the diagnosis had been made and no further diagnosis was required. Finally there were those cases in which a new condition was presented but a diagnosis was not reached, although possible differentials were often discussed. Similarly treatment may not be prescribed either because the animal has recovered and does not need further treatment or because the further diagnostic tests are going to be performed to provide more evidence before treatment is given.

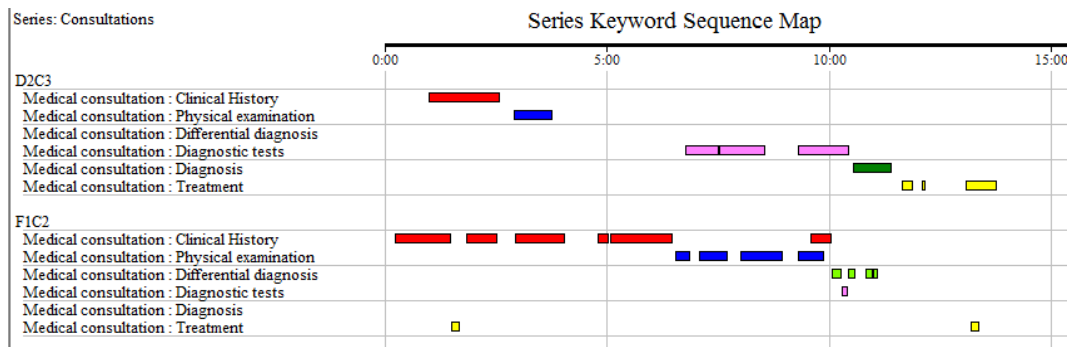
As well as variation in the components present, analysis of the recorded consultations also shows that rather than following the linear format the majority of consultations had a more complex structure. Figure 4.7 shows timelines indicating the time spent on the components described by the bio-medical model of the consultation. It show the iterative nature of clinical history (red) and physical examination (blue) during two routine veterinary consultations.

Figure 4-7: Iterative nature of clinical history and physical examination in the veterinary consultation.



This iterative pattern was present in the majority of consultations. However there were two consultations in which the linear format was more closely followed with the physical examination following the clinical history, these are shown in figure 4.8.

Figure 4-8: Consultations in which physical examination followed history taking



In the first example (D2C3) it appeared to be the type of consultation which imposed the structure, in that the animal had been presented for a routine check up for heart failure which included the taking of an electrocardiogram (ECG) during the consultation. The structure of the consultation could therefore be planned in advance. The client also appeared to know what to expect as revealed in the interview afterwards (excerpt 4.1).

Excerpt 4-1: Interview D2 (245-6)

I> From an outsider's point of view that sounds like a fairly well trained client, you ask her how the dog is and she almost knows what questions she needs to answer, she's been here before and she's

V> Well she has gone through this before so she probably knows some of the questions I ask and I find a lot of clients are like that anyway, you ask them, they give you all the answers, but yes definitely worth listening at the beginning .

This consultation also involved the presence of a nurse to assist with the ECG and connecting the animal to the ECG machine which imposed some structure on the consultation. This consultation seemed to have similarities to equine consultations in which tendon scans or x-rays were taken (E1C1, E2C1) and also consultations in referral practice. In all these cases the veterinary surgeon knows something of the case in advance and is therefore able to plan a more structured consultation. This contrasts with the majority of consultations in small animal practice in which the veterinary surgeon has to establish the client's reason for and expectations of the visit during the consultation itself.

In the second example (F1C2) the veterinary surgeon specifically stated during the interview (excerpt 4.2) that he made a conscious effort to separate out the clinical history and physical examination during the consultation.

Excerpt 4-2: Interview F1 (150-153)

1 I> you seem to spend a long time listening to the client is that a very positive
2 choice to do that?
3 V> Yeah I always do that, I'm not doing that for the camera, I tend to try ...when
4 I first started consulting we always used to ask, has he done this, has he done that
5 and very closed questions. It really it just wastes time so I started just asking
6 more open questions and just got into the habit of just trying to listen to people....
7 I don't know how vets work by sort of talking to someone and looking at a dog at
8 the same time. To me it's you just got to separate it out, I just have to separate it
9 out, I have to just look at them, listen, just look at the dog and see how it's
10 breathing and what it's doing and to me it's sort of time well spent, even if I've
11 got loads of clients waiting, they just have to keep waiting, cos you just can't get
12 to the bottom of things.

Analysis of further consultations by this veterinary surgeon confirmed that he did separate his clinical history taking and physical examination to a much larger extent than other veterinary surgeons observed in this study. This example shows that characteristics of the individual veterinary surgeon, including their preferred way of working, can affect

the structure of the consultation. However it should also be noted that the veterinary surgeon states that while he is listening to the client he is also looking at the dog (lines 9-10) and therefore performing some element of the physical examination at the same time.

There also appear to be gaps in the consultations which are not accounted for by the model. These gaps relate to other activities such as the veterinary surgeon carrying out procedures or talking to the client about other subjects, not related to the current consultation. The veterinary surgeon may also leave the room to get materials or assistance or take the animal out of the consultation in order to carry out procedures.

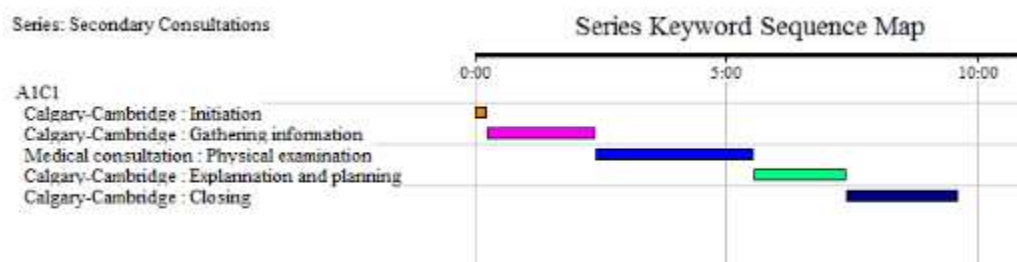
4.2.2 The Calgary-Cambridge Model

As well viewing the consultation as an interaction between clinician and patient leading to diagnosis and treatment the consultation can also be viewed in terms of the communication between the veterinary surgeon and client. The importance of communication in the medical consultation is now accepted (Roter and Hall 2006) and in recent years consultation skills training has been incorporated into the veterinary curriculum. In order to analyze the communication between veterinary surgeon and client the Calgary-Cambridge approach has been used as this is the approach taught in all the veterinary schools in the UK (Mossop and Gray 2008).

Just as in the classic medical consultation, there is an idealized linear model of a Calgary-Cambridge consultation in which the consultation is described as passing through a series of well defined stages starting with the initiation of the consultation in which greetings take place and followed by a period of information gathering. Within the Calgary-Cambridge model information gathering is taken to refer to the verbal exchanges and roughly correspond to the clinical history taking of the bio-medical model. Although the Calgary-Cambridge model concentrates on communication in the consultation the

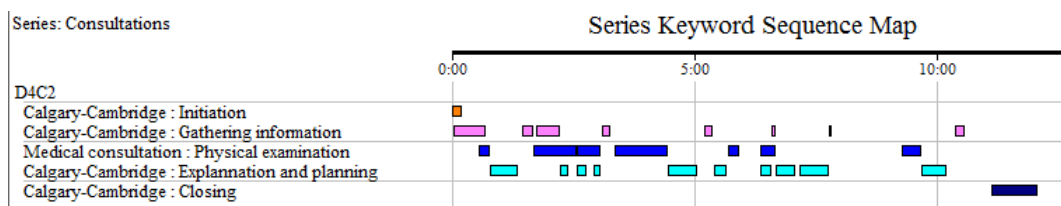
physical examination has now been incorporated into the model to facilitate integration with the tasks of the consultation (Kurtz et al. 2003). The later part of the consultation, after the physical examination, is primarily associated with explanation and planning which encompasses the talk of diagnosis and treatment in the bio-medical model. The final stage of the Calgary-Cambridge model is the closing of the consultation. The description implies a linear process as shown in figure 4.9.

Figure 4-9: Schematic representation of Calgary-Cambridge consultation



However analysis of actual consultations during this study again shows that in practice a more iterative approach is adopted with information gathering (pink) and explanation and planning (green) being carried out throughout the consultation, and both being interspersed with physical examination of the animal (blue) (figure 4.10).

Figure 4-10: Example of Calgary-Cambridge elements in an actual consultation



Looking more closely at the opening of the consultation depicted in figure 4.10 it is possible to see how the different stages of the Calgary-Cambridge model become intertwined. The excerpt below reproduces the talk during the first minute of the same consultation, in which a cat with neurological symptoms is being re-examined after a week's treatment. The cat was brought in by two female owners, a mother, identified as C1, and her adult daughter C2.

Excerpt 4-3: Consultation D4C2 (4-17)

1 V>Hello
2 C1> *Hi, she seems to be getting better but she's not better better*
3 V> *right, but she's better than she was is she?*
4 C1> It seems to me that when she puts her head down she falls over
5 V> Right, come on
6 C1> but she is walking and eating
7 V> *she's eating, good, do you think she can see?*
8 C1> *well that's what we're wondering, whether or not she can't see*
9 V> *so looking at her she looks a little as if she's not sure*
10 C2> come on
11 V> going, cos of all the smells
12 C2> Good girl come on
13 C1> When she has the antibiotics she sort of drools a lot
14 V> Yes they do often froth at the mouth and dribble, I meant to warn you of that ,
15 *after you'd gone I realised I hadn't said anything but yes that's quite normal um and*
16 *sometimes you do loose a bit in the process but um still she's getting most of it.*
17 When you give her the antibiotics does it sort of distress her, does it?

VIDEOCLIP & TRANSCRIPT 4.3

The initial greeting in this consultation is very short (lines 1-2) probably because this is a follow up consultation and seen by both clients and veterinary surgeon as a continuation of the consultation the previous week. The client then immediately gives information about the cat's condition (line 2). This information is not given in response to a question by the vet but indicates that the client is expecting to report on the cat's progress by the nature of the consultation. This information giving continues in lines 4, 6 and 8 in which the client provides information. The veterinary surgeon responds both by asking clarifying questions to collect further information from the client (lines 3 and 7) and by starting to examine the animal (lines 5 and 9). The final part of this excerpt (lines 13-17) relates to the cats reaction to the oral antibiotics that had been prescribed, with the veterinary surgeon responding with an explanation. This excerpt shows that even in a the first minute of the consultation there may be a greeting, information gathering as well as elements of physical examination and explanation.

These findings suggest that both the tasks of the consultation, as indicated by the biomedical model of the consultation, and the communication taking place, as indicated by the Calgary-Cambridge model do not take place in the linear fashion proposed by the models. Instead the consultation is a more interactive process with the clinical history and physical examination as well as information gathering and explanation and planning taking place in an iterative fashion. The main reason that this appears to occur is that the client has a significant influence on the structure and interaction of the consultation and that rather than taking a controlling role in structuring the consultation the veterinary surgeon is often responding to the client's concerns and agenda. However while this study shows clearly that this iterative pattern is used by veterinary surgeons it does not provide any evidence as to whether this approach is a more effective approach from the point of view of the any of outcomes of the consultation such as accurate diagnosis or client satisfaction. As the iterative approach appears to be so widely used this would be an appropriate areas for further research.

4.2.3 Models of diagnostic decision making

If a physician is asked, "How do you make a medical diagnosis?" his explanation of the process might be as follows. "First, I obtain the case facts from the patient's history, physical examination, and laboratory tests. Second, I evaluate the relative importance of the different signs and symptoms. Some of the data may be of first-order importance and other data of less importance. Third, to make a differential diagnosis I list all the diseases which the specific case can reasonably resemble. Then I exclude one disease after another from the list until it becomes apparent that the case can be fitted into a definite disease category or that it may be one of several possible diseases or else that its exact nature cannot be determined" (Ledley and Lusted 1959, p 9).

Diagnosis, or deciding what is wrong with the animal, is seen as one of the major clinical decisions of the consultation. This section will look in more detail at how clinical decisions relating to diagnosis are made during the veterinary consultation. In the classic bio-medical model diagnosis is considered to be the result of hypothetico-deductive reasoning on the part

of the clinician using data collected from the clinical history, physical examination and diagnostic tests. It would therefore be expected that discussion of the diagnosis would follow on from the clinical history and physical examination. However in those cases where a diagnosis was made it did not always come after the completion of the information gathering. This observation is supported by literature which reports that doctors frequently form their hypotheses very rapidly and that “experienced clinicians typically formulate initial hypotheses within 15 seconds of talking with a new patient” (Elstein et al. 1978 quoted in Hamm 1988, p79)).

While diagnosis, in terms of naming the disease does not occur in all consultations, all consultations involve the veterinary surgeon in some degree of collecting a clinical history and performing a physical examination in order to make an assessment of the animal’s health.

Strategies used in decision making

It has been proposed that medical practitioners use a number of rapid diagnostic strategies in primary care situations (Heneghan et al. 2009). Careful examination of the recorded consultations indicated that veterinary surgeons may also employ these strategies.

Two of these strategies, **spot diagnosis** and **pattern recognition** rely on the clinician’s experience and ability to recognise when the disease fits the signs and perhaps more importantly when it does not, indicating the most likely diagnosis without going through a long list of differentials. The difference between them is that **spot diagnosis** is taken to relate to recognition of a single sign which is often visual such as the recognition of measles or meningitis from their distinctive rash. This strategy was evident in recorded consultations and included diagnosis of lick granuloma (see excerpt 4.4 below) and corneal ulceration.

In contrast **pattern recognition** achieves a diagnosis through the detection of a cluster of signs which together are taken to be indicative of a disease. Examples in veterinary medicine

would be the recognition of pyometra in a bitch presented as being off colour, with increased thirst and reduced appetite, two months after the end of her season; or the recognition of displaced abomasum in a cow with sudden milk drop, but no evidence of mastitis or metritis, shortly after calving. The use of pattern recognition does not preclude the use of further testing to confirm or refute the diagnosis, nor does it suggest that this combination of signs can only be caused by one disease, rather it is a shortcut used by experienced practitioners to alert them to common presentations.

The excerpt below is from an interview with a veterinary surgeon discussing how her diagnostic strategies have changed with experience:

Excerpt 4-4: Interview D4 (249-254)

- 1 I> do you think your decision making skills have changed with time in practice, do
2 *you feel that's something that has developed?*
3 V>Umm.. I think, yes I think I condense everything into a much shorter version of
4 the same, you just look down the problems that are real problems and the obvious
5 I> So you look at everything and you pick out, it becomes quite obvious after a while
6 *doesn't it?*
7 V> yes and like the dog with a lick granuloma, you know to me that was definitely a
8 *lick granuloma I didn't sort of worry about that it might have other problems*
9 *because it didn't have any other skin problems*
10 I> so you're happy to go OK that's a lick granuloma so we can forget a massive
11 clinical examination
12 V> differential yeah, which to some degree is not best practice.

The veterinary surgeon's comments at line 3 indicate that she is aware that she now condenses what she does during the consultation and that certain problems become "obvious". Her comments in line 7 indicate that she recognized a lick granuloma when she saw it, but goes on to also comment that she realizes that not carrying out a full differential is not "best practice" (line 12).

The idea that in working in practice leads to decision making which deviates from the ideal was repeated by other veterinary surgeons such as that in excerpt 4.5 below who indicates that time is a major constraint on the type of decision making used.

Excerpt 4-5: Interview B2 (345-350)

I> So with experience you can move from the sort of book or written type cases that perhaps you were given and taught with to those *that you've developed with learning*

V> which is probably a bad thing cos you should write out your problem list at all *times and then you've got it but you don't have time for that in a 10 minute consult.*

Other strategies used for rapid decision making involve the clinician taking information offered by the client as the working hypothesis. Most consultations take the client's **presenting complaint** as a starting point. However in some consultations the symptom or problem presented by the owner becomes the working hypothesis or provisional diagnosis without further transformation by the veterinary surgeon. This is used particularly where a patient's condition is treated symptomatically, an example would be a dog with diarrhoea.

The second way in which the **client** can be involved in is in presenting a **diagnosis** themselves. The client may have acquired this diagnosis from a previous veterinary surgeon or from their own experience with other animals or extrapolating from human disease. In the excerpt below the client has brought in a cat with blood in its faeces which is straining to defecate, the cat had been seen by another veterinary surgeon at the same practice 18 months earlier.

Excerpt 4-6: Consultation D3C4 (57-59)

1 C> what she said was it could be a form of that irritable bowel syndrome

2 V> yeah

3 C> which humans can have

Later in the same consultation (94-97)

4 V> I mean obviously if he has got irritable bowel

5 C> but I *don't know do I how do I find* out

6 V> I think just from the symptoms he is displaying we would be quite suspicious that
7 he has got some sort of irritable bowel disease, *now if he's not responding to the*
8 *medication then we would need to look at doing further investigations, um did he*
9 *improve with the medications he had last time?*

10 C> well he seemed to yes

In this consultation it is the client who first raises the possible diagnosis of irritable bowel syndrome, based both on the comments from the previous veterinary surgeon (line 1) and apparently drawing on comparisons with human medicine (line 3). Later in the same consultation the veterinary surgeon picks up on the possible diagnosis of irritable bowel syndrome, although her comments in lines 4 and 6 indicate that this is a provisional rather than a definitive diagnosis. The ways in which clients present diagnoses will be discussed further in section 5.1.4.

There were also cases in which veterinary surgeon appeared to be using a more explicit, reasoned approach to diagnosis. It should be remembered that as veterinary surgeons were not asked about their decision making in all the consultations they may have been using hypothetico-deductive reasoning in other cases which was not made apparent by observation of the consultation. The most obvious indication that a reasoned approach to decision making was being undertaken was the use of diagnostic tests. In the excerpt below the veterinary surgeon describes his thought processes regarding a Chihuahua presented with respiratory distress.

Excerpt 4-7: Interview F1 (118-125)

- 1 I> So had you seen it before?
2 V> Yeah, when did I see it January, yes, was it January, yeah that's right I gave it
3 some Corvental² in January, not got any better it's just got this sort of, she says it
4 gets cyanotic and really has these terrible episodes or retching and not being able to
5 get the air in, stridor and when I examined it, it had this sort of stridor, so I think
6 it's, from that it's not got any better with Corvental, cos I thought possible it might
7 have tracheal collapse.
8 I> yep
9 V> Um but at the moment without doing any tests on it we won't know, what's going
10 on with it, but it's not improved with Corvental and its actually becoming cyanotic
11 as well so it certainly needs some further investigation
12 I> So has she agreed to investigation?
13 V> um yeah

² Corvental tablets contain Theophylline and are indicated for the treatment of bronchitis and congestive heart failure in the dog

14 *I> so what's it coming in for?*
15 *V> its coming in for sort of examine its throat , radiographs of its cervical spine , its*
16 *neck and its chest and then we'll probably, maybe do a BAL on it as well, but it may*
17 *just be that this dog's got tracheal collapse and there's not much we can do about it,*
18 *but the dog is really quite bad, it seems to have this upper sound, which, yes you can*
19 *get that with tracheal collapse but it seemed to be more upper airway and I*
20 *wondered if it might have a soft palate problems as well, if it has that then at least*
21 *something can be done about it.*

In response to a question from the interviewer as to whether he had seen the dog previously the veterinary surgeon describes his previous treatment (lines 2-3), however the lack of response to the medication and the owners report of the dog having cyanotic episodes and problems breathing has led him to consider the possibility of respiratory obstruction, either in the form of tracheal collapse (line 7) or soft palate problems (line 20). He admits that without further investigations it will not be able to determine what is wrong with the dog (lines 9-11) and details the tests he intends to carry out in lines (15-16).

Two other notable features of this transcript are that at the initial consultation in January (5 months earlier) only medical treatment had been given and the client waited a significant time before coming back; and that the veterinary surgeon is thinking through the implications of the diagnosis for treatment, commenting twice on the implications of different diagnoses at lines 17 and 20-21. Later in the same interview the veterinary surgeon provides a more reflective comment on the diagnostic decision making process.

Excerpt 4-8: Interview F1 (164-166)

1 *V> yeah, I disagree with the way that we are taught to construct a differential,*
2 *because the methodical method: history, clinical examination, forming a differential*
3 *diagnosis, it is just so much more complex than that. If it's about something that's*
4 *simple, you can't go through the whole list of differentials, if you've got a vomiting*
5 *dog for example , you know you don't think "Addison's", and you don't list those*
6 *sort of things cos it's a young dog,*
7 *I> so you start with the simple things and if it doesn't respond*
8 *V> yeah I don't , personally I don't think there's anything wrong having a core list*
9 *of things that you think it is , ruling in or out on the basis of what you're seeing and*
10 *what you're hearing, asking the sort of questions that rule in or rule out, if nothing*

11 fits and you do further tests perhaps, to rule in or rule out then you start moving on
12 *to things that are less likely, that's probably how I approach things but I would quite*
13 *commonly start thinking about treatments at a very early stage, you know I'm sort of*
14 *thinking, if I get a dog with diarrhoea in I'm sort of thinking, shall I give it*
15 *antibiotics or not, is it going to need Protexin³, is the, does this owner look like she's*
16 *going to be able to give medication, you know, if it's an old lady I'm not going to*
17 *give her Protexin to stuff down her dog's throat it's just not going to be viable and*
18 *I'm thinking that right from the start.*

In this excerpt the interviewee starts by criticizing the way that veterinary surgeons are taught to construct a differential diagnosis (lines 1-2), suggesting that the actual process is more complex, involving an initial assessment of the most likely conditions. He goes on to explain that he starts with a core list of possible causes which he tries to rule in or out on the basis of the physical examination and clinical history (lines 9-10) before considering diagnostic tests or less likely options (line 12). This description supports the observation that veterinary surgeons in practice perform their consultation as an iterative process rather than following a linear route through the consultation. In the later part of the excerpt the veterinary surgeon describes how he starts thinking about treatment at an early stage of the decision making process (line 13) and how not only the condition of the dog but the ability of the owner influence the management of a patient's condition. These factors will be discussed at greater length in sections 7.1 and 7.2 respectively.

This analysis suggests that veterinary surgeons use similar strategies to their medical colleagues in reaching a diagnosis, with experienced clinicians in primary care using spot diagnosis and pattern recognition (system 1) and reserving hypothetico-deductive reasoning (system 2) is for complex cases or where system 1 reasoning has failed (Evans 2003; Elstein 2009). Veterinary surgeons are theoretically aware of the shortcomings of using rapid diagnostic techniques and the fact that they are not practicing in line with the logical approaches to problem solving which they have been taught. However the ill defined nature

³ Protexin = Probiotic used in the treatment of diarrhoea

of many problems in first opinion practice as well as pressures of time and money favour system 1 reasoning (Croskerry 2009; Heneghan et al. 2009).

4.3 Variations between different types of practice

Consultations were also recorded from different types of small animal veterinary practice as well as farm animal and equine practice. While there were insufficient consultations from each type of practice to enable quantitative analysis they do provide contrasting cases studies and highlight some of the contextual factors which may influence clinical decision making in veterinary practice. This section describes some of the main differences noted between veterinary consultations in different contexts.

4.3.1 The charity clinic

The first variation was the charity clinic; this clinic was part of a national organization providing free veterinary care to pet owners in receipt of certain means tested benefits. Owners are asked to make a financial contribution to the cost of care but this is not required. Until recently the organization only provided care for sick animals but it has recently started to provide preventive healthcare, such as vaccination, neutering and parasite control. These services are chargeable but usually at a lower cost than in private practice.

The practice setting appears similar to a private practice with reception and waiting areas although there were no items for sale in the waiting room and the receptionists sat behind glass screens. Some consulting rooms were incompletely divided so that consultations could often be overheard and staff members would sometimes walk through a consultation leading to a loss of privacy compared to private practice.

In contrast to private veterinary practices, many of which have reported a decline in client numbers during the recession (FDI 2009 Q3-4), the charity clinic had noticed a significant

increase in demand for its services, with people queuing to be seen throughout the day.

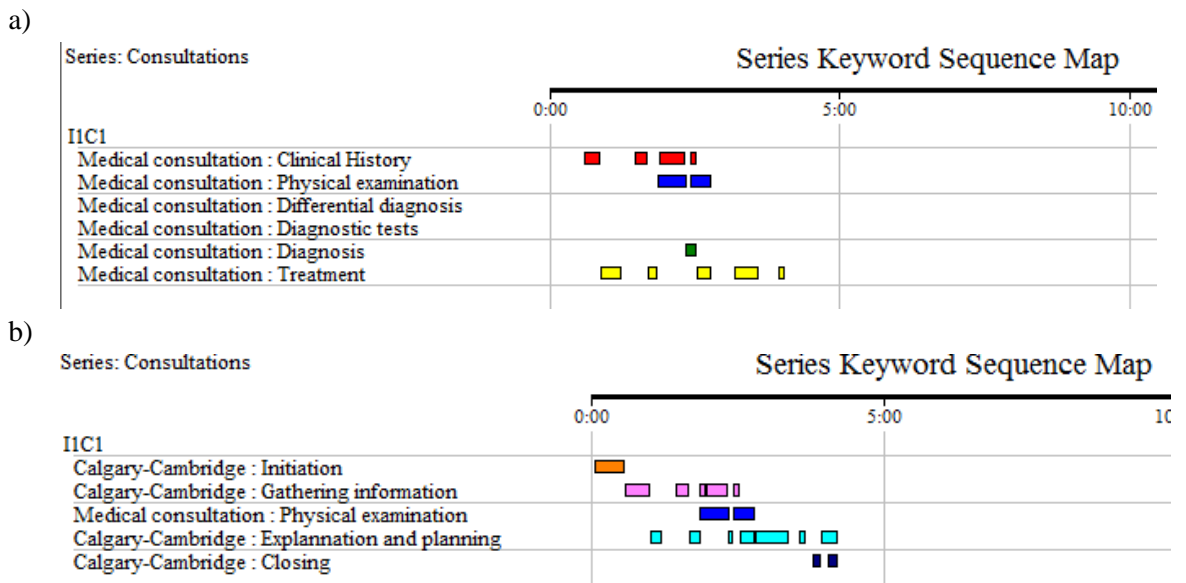
Veterinary surgeons reported feeling pressured for time as reported in excerpt 4.9.

Excerpt 4-9: Interview I2 (178)

V> Yes, there's huge time pressures sometimes, and certainly there's time pressures, receptionists I think have the worst pressures with all those people queuing but if you have a list of 5 or 6 people you know you have to get through and then any extras that come in, any emergencies that come in. You've got different people asking you questions all the time, so you've got the client firing at you, nurses firing at you colleagues firing at you, receptionists firing at you and you feel it sometimes, but it does put pressure and certainly the timing of the consult, I think my worst day I've ever seen was 67 clients

Appointments were booked every 7.5 minutes but on the very small sample recorded most clients were in the consulting room for less time than this (average 5 minutes). Analysis of the recorded consultations indicate some differences from those recorded in private practice as shown below (figure 4.10).

Figure 4-10 Timeline of consultation from charity clinic a) biomedical model, b) Calgary-Cambridge model



In comparing the charity consultations against the bio-medical model it was noted that main area that was likely to be missing was the discussion of differential diagnoses and diagnostic testing (figure 4.10 a). While all the components of Calgary-Cambridge model are present (figure 4.10 b) they are frequently significantly shorter than in private practice. It appears that this is mainly because in the charity consultations there is little discussion of the options which reduces the length of the consultation as demonstrated in the excerpt below from a consultation in which a dog with a chronic ear infection is brought in for re-examination.

Excerpt 4-10: Consultation I1C6 (7-11)

V> he's had quite a lot of treatment here hasn't he
C> Yeah
V> right OK I'm going to give him some more treatment. I'm going to hit it a little bit harder with these ears
C> OK
V> because it's not settled as it might do

In excerpt 4.10 the veterinary surgeon, having established that the ears had not improved with the previous treatment, informs the client that he is going to give the dog more treatment, indicating a paternalistic approach to decision making. This contrasts with the more negotiated approach when later in the same consultation the client requests Panacur (a worm treatment) and Frontline (a flea and tick treatment), for which he will be paying (excerpt 4.11).

Excerpt 4-11: Consultation I1C6 (30-35)

C> and can we have some Panacur and (pause) Frontline?
V> well XXX is what we give out for, do you want Frontline for any particular reason or
C> It does ticks doesn't it as well
V> yeah if you specifically have a problem with ticks we can give him Frontline. Has he had anything before?
C> no but we had a Shepherd and he had big gray things on his back and we were told it as a tick so
V> and would you like worming treatment for this one?

This suggests that the extent to which the animal's owner is involved in the decision making is to some extent determined by the fact that they are paying for the products or services. The degree of involvement in the decision making process may also be affected by the expectations of the clients as indicated in excerpt 4.12 below.

Excerpt 4-12: Interview I2 (87-89)

V> and I think we're noticing a lot more with all the credit crunch and all the rest of it , the unemployment, we're getting a lot of clients move from private practice that recently have been made unemployed and they're much more aware of how it works and they ask the questions, they know that they want to make the decisions
I> is there an issue there that they're perhaps expecting a private practice experience, but free?
V> yeah I think that happens a lot and I think that the problem we have is things like surgical procedures , they want it scaled and polished, or they want this little lump removing and we say we can't do it at the moment and they're expecting tomorrow they'll have that done

In this excerpt the veterinary surgeon draws attention to the expectation of clients who have had previous experience of private practice, both in that they are more likely to be involved in the decision making process and that treatments can be arranged to suit them rather than being determined by the needs of the animal.

These examples suggest that in charity practice, where veterinary services are not being provided on a fee for service basis, the veterinary surgeon may be more likely to use paternalistic approaches to decision making (Charles et al. 1999) and to prioritise their role as animal advocate over that of client advocate or service provider (Morgan 2007). Where charity clinics start to provide chargeable products or services there may need to alter their approach and involve the client to a greater extent in the decision making process

4.3.2 "Out of Hours" services

The second variation on small animal consultations was the "out of hours" clinic. The clinic at which recording took place is part of a national chain which provides "out of hours" services for small animals within the premises of a "host practice". These host practices may

be either private practices or charity clinics and out of hours care is usually provided for a number of practices in the area, so in some areas treatment for private and charity cases are carried out side by side.

Although “out of hours” services often promote themselves as emergency service providers, staff working there admit that about 80% of the cases presented relate more to minor injuries and client reassurance for animals already under treatment than those things which may be considered emergencies within the veterinary curriculum. However those cases which are considered emergencies may provide particular challenges with the veterinary surgeon having to discuss costs of care and possibly to have “bad news” and “end of life discussions” within a short time of meeting the client (Bateman 2007).

Veterinary surgeons working in this environment recognise that they are providing a service to two different clients, the veterinary practices which subscribe to their service as well as the individual animal owner. Their relationship with the subscribing veterinary practice may also affect clinical decision making both because they may be providing care to an animal which is already under treatment and because the practice may have provided instruction in the way that certain cases should be dealt with.

The out of hours clinics do not have set appointment times and staff report that one of the benefits of the job is being able to spend more time with clients.

Excerpt 4.13: Interview H1a (35)

V> Yes it's quite nice actually because you're not confined to the 10 minute consultation that we used to be, although so you can more or less consult at your leisure, unless for example this morning we starting having time pressures, coming in when we had to be more economical with our time.

However, although the veterinary surgeon in excerpt 4.13 refers to having more time in the very small sample recorded in this study the average length of consultations was 13 minutes, similar to that in private practice for new conditions. However there does appear to be a

difference in the extent to which cost are explicitly discussed. The cost of the consultation is given to the client when they first call the service and estimates are usually given to clients before undertaking major procedures. There are probably two reasons for this; the first is that the majority of clients will not have used the service before and staff report that a significant number express surprise at the level of fees charged; the second reason is that in many cases there may be an option to provide first aid or temporary relief and arrange for the client to return to their normal practice for further treatment.

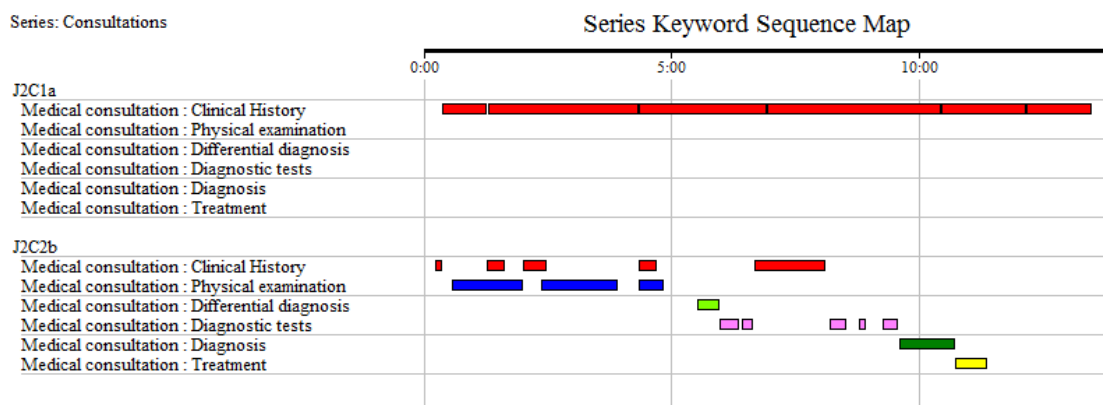
4.3.3 The specialist / referral clinic

The specialist clinic visited during this project provided referral services in the area of cardio-respiratory medicine for dogs and cats. All animals had been previously seen by a veterinary surgeon in general practice who would have contacted the specialist and provided information about the presenting problem and animal's clinical history. Since referral had been planned the clients' expectations of the visit, in terms of the likely investigations and costs, would already been discussed leading to selection of clients who were willing and able to afford specialist veterinary care

All clients were seen by appointment and the majority of animals were admitted for further diagnostic procedures. Most morning consultations related to history taking and admission of patients, while afternoon appointments involved the discussion of diagnostic findings and treatment. No routine consultations were carried out and in most cases follow up consultations were carried out at the referring veterinary practice. Although clients were given set appointment times, of 15 or 30 minutes, the low number of cases being seen meant that there is little or no time pressure and appointments could overrun without causing disruption.

The lack of time pressure and prior knowledge of the presenting problem allow for a more structured approach to the consultation and these consultations do appear to follow the bio-medical model more closely. The keyword sequence map showing the time line for a referral consultation (figure 4.13) shows that the first half of the consultation (J2C1a) is taken up entirely with the clinical history the later part of the consultation shows iteration between clinical history and physical examination (J2C1b).

Figure 4-13: Consultation from referral practice



During the first half of this consultation the veterinary surgeon collected information about the presenting problem, an episode of collapse while the dog was walking, although he repeatedly asked the clients whether the animal had any other symptoms it was only when he started examining the animal that the clients recalled information relating to the animals skin and eyes. This suggests that taking the clinical history and performing the physical examination in an iterative fashion, rather than being poor practice may have developed as the most efficient way of collecting information about the nature of the problem and the health of the animal.

As with the “out of hours” service the referral practice is likely to have only a transient relationship with the animal’s owner but an ongoing relationship with the referring practice.

4.3.4 Equine practice

Veterinary care for horses may take place either at the stable or field where the horse is kept or at a veterinary clinic to which the horse is transported. A small proportion (3.4%) of practices treat horses only with the remainder being treated by mixed practices who may or may not have veterinary surgeons dedicated to equine work on their staff (RCVS 2007). In this study the equine consultations were recorded at the clinic of a dedicated equine practice. Horses may be kept for a wide variety of reasons including competition or pleasure riding and may be viewed in very different ways by their owners as described in by the veterinary surgeon in the interview 4.14 below:

Excerpt 4-14: Interview E1 (395)

V>Well I think within the horse clientele there are some clients who regard their horses as companions, and some regard them as conveyances, and some regard them as business. So the ones that regard them as companions I would treat those clients very similarly to the way I used to treat small animal clients understanding their needs of having a companion. The ones that just treat them as a conveyance *well they're quite difficult I think on welfare grounds, but the ones that use them as a business that's an entirely different ball game and you have to make sure that whatever you do is financially justifiable.*

The veterinary surgeon in this interview indicates that how the client views their animal will have implications for the veterinary surgeon's decision making and the role that she, as a veterinary surgeon, adopts in each case. While horses are generally treated as individual animals their value to their owner can be very variable encompassing both emotional and economic factors. The clients may also have very different levels of knowledge and experience of horses and this may also affect the clinical decision making. The effect of the client's knowledge and ability to provide care will be discussed further in section 7.1.2.

Consultations in equine practice fell into the same categories of new conditions, ongoing cases and routine consultations as did the small animal consultations. However in the case of

new conditions the client may already have discussed the problem with the veterinary surgeon in an initial telephone conversation from which the appointment was made. This contrasts with small animal practices in which appointments were usually made by a receptionist. Because of the smaller number of cases seen compared to small animal practice, there is less time constraint on consultations but higher fees are likely to be charged. In many cases the client is responsible for restraining the horse during the consultation and in those consultations involving diagnostic imaging the client may remain present throughout the procedure. This contrasts with small animal practice in which these procedures are usually carried out without the owner present, however the equine veterinary surgeons interviewed did admit that they would use staff members rather than inexperienced owners to restrain horses.

4.3.5 Farm practice

Farm work is almost exclusively carried out by veterinary surgeons visiting animals on the farm. While individual animals do receive treatment greater emphasis is placed on herd health. Routine visits are common on larger progressive units with the veterinary surgeon making scheduled visits on a regular basis. In dairy practice visits will often centre on reproductive function. The veterinary surgeon may also schedule time to review the health and management of certain sections of the herd. Routine procedures such as vaccination are often carried out by the farmer rather than the veterinary surgeon. However farm animal veterinary surgeons may also visit farms for routine testing such as that for tuberculosis as directed by the Department for Environment, Food and Rural Affairs (DEFRA) or in the case of notifiable disease. In these cases although the farmer is a client of the veterinary practice these visits are paid for by DEFRA to the veterinary surgeon who is acting as a Local Veterinary Inspector (LVI).

Farmers, whether owners or stockmen, on large herds become experienced in recognizing and treating common problems and veterinary surgeons are less frequently called to treat individual animals.

Excerpt 4.15: Interview L1 (36-37)

I> and do you get much out of hours farm animal work?

V> *not as we used to , I work a one in five on call certainly week nights I reckon I'm probably called out every 3 or 4 nights I'm on call, so that's very sensible really, um weekends a typical weekend on call I might get called out 4 or 5 times and a lot of that is equine work, I mean and that's because I think farmers have just got better at doing stuff themselves , they're all very good at calving cows and treating Milk Fevers and that sort of thing, it just make it much harder for new graduates who come out now to get experience, they don't get easy stuff to do any more.*

The excerpt indicates that the veterinary surgeon is less likely to be called to farms out of hours because farmers are better at doing things themselves. The same occurs during working hours in that farmers will often start treating cases themselves and present them for examination by the veterinary surgeon during the routine health visit. In all the farm animal consultations recorded in this study the individual “sick” animals presented at the time of scheduled visits and were already on treatment at the time of examination.

While the veterinary surgeon may have set aside a certain amount of time for the visit there is no constraint on the time spent with individual animals. These “consultations” often involved minimal discussion as similar cases will usually have been encountered and discussed before. The veterinary surgeon’s history taking and physical examination are usually directed at checking the farmers “diagnosis” and then advising on treatment.

As stated in a recent report into the role of the veterinary surgeon in food animal production “All veterinarians look after the animals in their care on behalf of their clients, but food animal veterinarians are caught up in a more extended web of relationships. In deploying their expertise in the care and treatment of animals they serve as key intermediaries, not only between animals and their keepers, but also between government and farmers, between

agriculture and the food industry and between the livestock sector and consumers. Food animal veterinarians are thus required to reconcile very divergent interests” (Lowe 2009, p 5).

Thus farm animal veterinary surgeons, while making decisions about the health and welfare of animals do so in the context of a business involved in food production with its implications for public health

4.4 Discussion

This chapter has given an overview of the structure of veterinary consultations and context in which clinical decision making takes place. It has shown that real life consultations, while containing many of the elements of the commonly used models of the consultation, are more iterative and interactive than the models suggest. While the iterative nature of the clinical history and physical examination appear to be consistent across a wide range of contexts the concept of fitting the process into a 10 minute appointment is particular to small animal first opinion practice and is a significant source of stress to the clinician.

The small animal veterinary consultation has many similarities to the medical consultation, from the environment of the clinic to the tasks and procedures performed. The adoption of the “10 minute” appointment appears to have been influenced by normal practice in the medical profession and the introduction of computerised appointment systems. While the “10 minute” appointment is common in the National Health Service, private consultations in the UK usually provide longer appointments (Wilson 1991; Gray 1998; Wilson and Childs 2006). The situation in veterinary practice in the UK contrasts with the longer (15-30minute) consultations which appear to be normal in the USA and Canada and (Ackerman 2006; Shaw et al. 2006).

This tendency to model the small animal veterinary consultation on the medical consultation has some interesting consequences which are highlighted by comparing the different contexts within which consultations take place with those described by Strong (1979) (section 2.3.1). The contrast between consultations in the charity clinic and private practice indicate that the act of paying for the service does appear to influence the veterinary surgeon's behaviour toward the client and the extent to which they involve them in the decision making process. The charity clinic consultations in this study appear similar to the "charity" format described by Strong (1979): with the veterinary surgeon assuming responsibility for the decision making. While in small animal private practice the veterinary surgeon involves the client to a greater extent in the decision making process the appearance of the premises and 10 minute consultation slots to have more in common with Strong's "bureaucratic" format common within the NHS than the "private" format of medical practice, this is despite the fact that the client is paying directly for this service.. It is only the referral practices with longer consultation times and certificates displayed on the walls, which appears to provide the type of service which approximates to the "private" medical format. In contrast equine and farm animal consultations appear to be closer to the aristocratic format with the veterinary surgeon visiting the client at their own premises, and on some occasions dealing with employees in the form of grooms and stockmen rather than directly with the owner.

Although appointments provide a way of managing the workflow and, if the system is working efficiently, providing an improved service to clients, the analysis above shows that many consultations exceed the allocated 10 minutes. This may lead veterinary surgeons to try to "catch up" time when routine or straightforward cases are presented. While veterinary surgeons, acting in the role of healer or business person, may consider that completing the tasks in the least time is acceptable, clients as paying customers who have not had their allocated "10 minutes" with the veterinary surgeon may feel that they have not received value for money. While in situations, such as the charity clinic where there is high demand

for services it may be necessary to ration the veterinary surgeon's time with the client, in the current economic climate which is seeing many small animal practices experience in decline in demand for their services (Robinson 2009) it may be more appropriate to offer longer appointments at least for those clients presenting animals with new conditions or having a number of different problems to discuss. However it should be noted that as in the majority of cases veterinary surgeons fees are calculated on an hourly rate (SPVS 2007; Robinson 2009) this would have implications for consultation fees. The influence of money on clinical decision making in veterinary practice will be discussed in more detail in Chapter 7.

Veterinary surgeons in first opinion small animal practice frequently report that they feel time pressure during consultations, especially those relating to new conditions. The effect of this perceived time pressure also affects clinical decision making in that it is likely to encourage intuitive system 1 decision making, based on recognition and routine responses rather than the more time consuming analytic system 2 decision making processes (Evans 2003; Croskerry 2009). Veterinary surgeons in small animal practice respond to this stress by prioritizing the decision making and dealing with problems over a series of consultations. The fact that so many consultations are repeat visits means that rather than considering the consultation as a standalone unit it is important to bear in mind that the consultation is part of an ongoing dialogue (Gray 1998).

In contrast to farm animal and equine practice where clients often develop a long term relationship their veterinary surgeon it is increasingly common in small animal practice for several veterinary surgeons to be involved in the care and decision making of a patient. While clients may consider themselves to be registered with a single practice it is likely that they will see different veterinary surgeons when they visit the practice, even during treatment of a single problem. This mirrors the situation in medical practice where it has been noted that decisions are often distributed over not only a considerable length of time but also a number of different people (Anspach 1993; Rapley 2007).

This means that the client, while having an ongoing relationship with the practice may only have transient “pseudo-relationships” with individuals within the practice (Guttek et al. 2000). With the increase in referral and out of hours services clients may also visit several different practices. Where the client attends one of these clinics on a one off basis they are unlikely to develop a relationship with the veterinary surgeons who they consult.

These changes in the way that veterinary services are delivered may have an impact on the relationship between veterinary surgeon and client. The next chapter will continue to focus on the consultation but look more closely at the ways in which veterinary surgeons involve clients in the decision making process.

Chapter 5 - Shared Decision Making in the Veterinary Consultation

The BVA guide to “The role of the vet in treatment choice decision making” advises that ideally decisions about the animal should be taken by the veterinary surgeon and client together in a process of shared decision making (BVA 2009). However the document stresses that animal welfare concerns over-ride the client’s interest “*as for a variety of reasons, there are occasions when some owners do not always act in the best interests of their animal*” (BVA 2009, p4). It goes on to say that the veterinary surgeon may need to educate the client on the welfare needs of their animal, including euthanasia as a valid treatment choice, by engaging “*in a process of ethical reasoning when considering treatment choice*” (ibid, p 4).

The concept of shared decision making has been widely adopted in the medical world where it is contrasted with both paternalistic decision making, in which the professional takes decisions in the best interests of the patient; and informed decision making in which the role of the health professional is seen as that of providing information to enable the patient to make their own decisions through the process of informed consent (Charles et al. 1997). In the most frequently quoted description shared decision making is described as a process in which both the physician and patient:

- Are involved in the treatment decision-making process.
- Share information with each other.
- Take steps to participate in the decision-making process by expressing treatment preferences.
- Agree on the treatment to implement.

(Charles et al. 1999)

This chapter will look at the process of decision making in the veterinary consultation, through the analysis of excerpts from recorded consultations and interviews with veterinary surgeons. It will look at the different ways in which decision making is shared and some of

the factors which influence how it is accomplished. The first section will compare discussions of diagnosis in the recorded consultations in this study with those reported from a study in general medical practice in Finland (Perakyla 2006), considering both the way that veterinary surgeons deliver the diagnosis and that clients respond. Although there are a number of other studies which use conversation analysis to analyse the way that diagnosis is delivered and responded to in medical practice (Heath 1990; Gill and Maynard 2006), this study was selected for comparison as it included numerical data to enable comparison on the frequency of the different methods of diagnostic delivery and response. It will then look at the way that clients present diagnoses and how veterinary surgeons respond.

The second section will provide an overview of decisions relating to treatment in the veterinary consultation and how clients react to veterinary surgeons' recommendations for treatment. This will be followed by a more detailed look at how treatment options are offered and discussed during the consultation. The third section will look at the effect of uncertainty on the decision making process and how it is discussed, this will include uncertainty about the diagnosis and treatment as well as uncertainty about the owner's preferences. The final discussion will draw together the findings with a discussion of clinical decision making as a skill and the role of experience.

5.1 Discussing the diagnosis

Involvement of patients in diagnostic decision making in human medicine is considered to be unusual, as diagnosis is usually considered to be the domain of the doctor (Stivers 2006). However the fact that in veterinary practice the client will be required to pay for diagnostic tests means that they are also involved in decisions about the extent to which a diagnosis is pursued.

5.1.1 Delivering the diagnosis

In a study of primary care medical consultations in Finland Perakyla (2006) distinguishes three ways in which the doctor can establish the relationship between the diagnosis and the evidence used in clinical decision making. The first are plain **assertions**, in which the doctor names the disease, merely asserting the character of the condition without bringing out the evidence on which the diagnosis is based. In his study, based on 100 consultations, diagnostic statements were made in 71 out of 100 consultations and assertion was the most commonly used method of delivering diagnosis, found in 31 out of the 71 (44%) of consultations. The second type of diagnostic statement was **indexing** in which the diagnostic statement is directly related to evidence, such as that obtained during the physical examination with phrases such as “there appears to be” or “it feels”. Indexing was reported in 12/71 (17 %) of the consultations. The final way that doctors delivered a diagnosis to patients was by **explication** used in 28/71 (39%) of consultations. In these cases the delivery of the diagnosis was preceded or followed by the details of the evidence which the doctor used to reach their diagnostic conclusion. In the following discussion the term diagnosis has been taken to include statements which classify a patient as either having or not having a disease in line with Perakyla’s study.

In this study, based on 69 recorded consultations including small animal consultations from a range of contexts, as well as equine and farm animal consultations, diagnostic statements were considered to have been made in 42 consultations. This included 4/13 routine consultations and 21/36 ongoing consultations as well as 17/20 consultations for new conditions. The consultations in which no diagnostic statements were made included 10 routine consultations, in which animals were presented for routine vaccination or other procedures: 14 ongoing consultations for conditions already under treatment and 3 new conditions in which diagnostic tests or procedures were carried out but a diagnostic statement was not made. In 7 consultations 2 diagnostic statements were made giving a total

of 49 diagnostic statements. In 8 consultations the diagnostic statement involved the negation of a disease either because a previous condition was now considered to have resolved or in order to allay a clients concern.

In contrast to the results published by Perakyla **assertion** rarely appears to be used by veterinary surgeons in delivering diagnostic statements. In this study statements which could be considered as assertions only occurred in 2 consultations. In both cases the veterinary surgeons considered this noteworthy and referred to the incident in the following interview.

The first occurrence of assertion related to a dog brought in with a lesion on his head which the owner thought might be a tick, a situation which was concerning the owner as she reported that she was being treated for “first stage Lyme disease”, a tick borne infection. In response, and having established that the lesion on the dogs head was not a tick or the result of a tick bite, the veterinary surgeon asserts that “*He’s not exhibiting any of the signs of Lyme disease*”.

In the subsequent interview (excerpt 5.1 below), the veterinary surgeon raises this consultation in response to a question about whether he was conscious of the video camera.

Excerpt 5-1: Interview G1 (lines 54-57)

- 1 I> did you feel that the video camera changed your behaviour in any way? Were you
2 very conscious of it?
3 V> err no, the only time I was even vaguely conscious of it in there was when I
4 virtually told one person that it was complete nonsense that she had Lyme’s disease
5 *because she’d had a tick, I just thought I shouldn’t really have said that. It just irked*
6 *me that it was going to be one of these sort of cover all diagnoses and she was going*
7 *to be dumped in with Lyme disease and she had no history of having had any ticks or*
8 *specific area of erythema migrans.*

The fact that the veterinary surgeon raised this issue in response to a more general question about the effect of the video camera indicates that he considered it noteworthy and not an approach he normally adopts. That he goes on to say “*I shouldn’t really have said that*” in line 5 indicates that it is not an approach he feels that he should adopt. Although the owner

had consulted him about the dog, which, during the consultation, he had confidently asserted did not have Lyme disease, his comments in the interview went beyond this and asserted that she (the owner) probably did not have Lyme disease (line 4).

The second incidence of assertion occurred in a charity clinic with a dog that was suffering from severe sickness and diarrhoea, thought by the veterinary surgeon to be a possible case of Parvovirus, a disease which can be prevented by routine vaccination. The following exchange takes place during the subsequent playback of the consultation, when the practice manager (PM), who had entered the room laughs on overhearing the veterinary surgeon's describe the dog as having "quite a nasty bug" (excerpt 5.2).

Excerpt 5 -2: Interview I1 (151-159)

- 1 V> *she's got a temperature. She's got quite a nasty bug*
2 Laughter
3 V> are you laughing at my consultation
4 PM> no nasty bug was the only bit I heard
5 V> they understand that
6 I> *this is putting it in a term, you don't know what it is, that they're going to fully*
7 grasp here
8 V. *yeah, some of the vets will say he's got a nasty, he's got infectious gastro-*
9 *enteritis, that it's whatever*
10 I> *Yeah he's got a nasty bug is something that they're going to understand*
11 V> and implies that it might have bad consequences... like death.

Although the veterinary surgeon's comment to the client in line 1 "*she's got quite a nasty bug*" follows directly from the comment "*she's got a temperature*" it is not directly indexed to it. The veterinary surgeon's comments at line 5 and line 10 indicate that this method of delivery has been used for effect and has been chosen over the use of a term like "infectious gastro-enteritis" which the client may not understand.

Even in these two cases the veterinary surgeon has provided some level of evidence for their diagnosis, in the first example by stating that the dog was not showing symptoms of Lyme disease, and in the second by making his comment immediately following the clinical examination of the dog and following the comment that the dog has a temperature.

The second type of diagnostic utterance described by Perakyla is **indexing**, which gives reference to an inferential process without explicit explanation of the details of that process. This appeared to be the most common method of delivery of diagnostic utterances in the recorded veterinary consultations occurring in 35 consultations and 39/49 (80%) of diagnostic statements. In 31/39 cases the diagnosis was indexed to the physical examination of the animal and occurred either during or immediately after the examination and referring directly to it.

In the example below the veterinary surgeon is examining a lame cow, the picture shows the veterinary surgeon (kneeling) sniffing his left hand after palpating between the two hooves (clays), he then explicitly refers to the characteristic odour of foul in the foot in giving his diagnosis.

Figure 5-1: Vet examining lame cow



Excerpt 5-3: Consultation L1C3 (1-2)

V>She's got a bit of a foul going on right in the back between the clays, it's hard to imagine that that's enough to make her as lame as she is but nevertheless it is there and it is pretty stinky, so that's possible *that that's what it is but it's not going up deeply*

C>you can't really see up that last back bit very well can you,

This consultation was unusual in that the diagnosis was clearly indexed to the characteristic smell; this was the only consultation in which this happened in this study with indexing to visual signs or palpation of abnormalities being most common.

On 6 occasions the diagnosis was indexed to diagnostic test/examination results. In the example below (excerpt 5.4) the veterinary surgeon is showing the client an image on a

thermal camera, which demonstrates differences in skin temperature and therefore blood flow to an area leading her to diagnose a “coronary shunt”.

Excerpt 5-4: Consultation E1C1 (1-5)

V> *That's his right front leg, and that's his left front leg and there's a lot of heat round the coronary band*

C> um

V> *and heat round the foot, so that's pretty significant really*

C> *and the other one seems to be hot all over*

V> *no this is his right front leg – white is hot, black is cold so it goes white, red, yellow, green blue black, so you've got a blue halo there very, very hot round the coronary band so we've got form of coronary shunt here .*

In the remaining two cases the diagnoses were indexed to the animal's response to treatment (D4C2) and symptoms respectively (D3C4).

The final type of diagnostic utterance referred to by Perakyla is **explication**, a form of explanation, in which the doctor gives further details of the evidence on which the diagnosis is based. This method of giving diagnostic information was used in 8/49 cases and in a further 4 cases in which the diagnosis was delivered by indexing further explication took place later in the consultation.

In the example below the veterinary surgeon give the diagnosis of lick granuloma in line 1 but continues to explain that it is an area of inflamed skin (line3) and that it may be caused by a cut (line 5) or something that makes the joint painful such as arthritis (lines 9-10).

Excerpt 5-5: Consultation D4C3 (1-7)

- 1 V> What it is, what it is now is something that we call a lick granuloma
2 C> Oh right
3 V> which is obviously an area of sort of inflamed skin
4 C> because he's been licking at it
5 V> usually something sets it off like a cut or something like that but um they can be
6 very difficult to heal and the fact that they're licking at it doesn't help
7 C> Yeah
8 *Tannoy: ...to reception please ... to reception thank you*
9 V> sometimes if there's something that makes it painful that makes them carry on
10 licking, often if they've got arthritis in their joint or something like that..

This excerpt demonstrates the veterinary surgeon's use of explication in not only delivering the diagnosis of "lick granuloma" (line 1), but also explaining what that means (line 3) and how it may have arisen (lines 5-6 and 9-10). It also shows how the client responds, with minimal responses in lines 2 and 7 and a more extended response at line 4.

5.1.2 Responding to the diagnosis

Perakyla (2006) also looked at the responses of patients to the doctor's diagnostic utterance, he concluded that both silence and minimal responses, a token "yeah", "OK" or "umm", may be used by the patient to encourage further elaboration from the doctor, although they may not always be intended to do so. The third type of extended responses is more likely to follow an explication of the evidence than either a plain assertion or indexing of the evidence.

In this study, clients most frequently responded to the diagnostic utterance with a minimal response, ranging from a single word to short phrase, indicating that they have heard the information (e.g. excerpt 5.5 line 2). In three cases the diagnostic utterance did not appear to elicit any response from the client. In 13 of the 42 consultations in which a diagnosis was given the client gave a more extended response. The extended responses were given in response to diagnoses given by explication on 3 occasions and indexing on 10 occasions (6 where indexed to examination, 2 to test results and 1 each where the diagnosis was indexed to symptoms and response to treatment). The example below (excerpt 5.6) is from a consultation in a referral practice for a dog that had experienced an episode of collapse while exercising, the veterinary surgeon explains that this sounds like a faint rather than a fit (lines 5-6).

Excerpt 5-6: Consultation J2C1 (256-263)

1 C> *cos we've been a bit anxious*

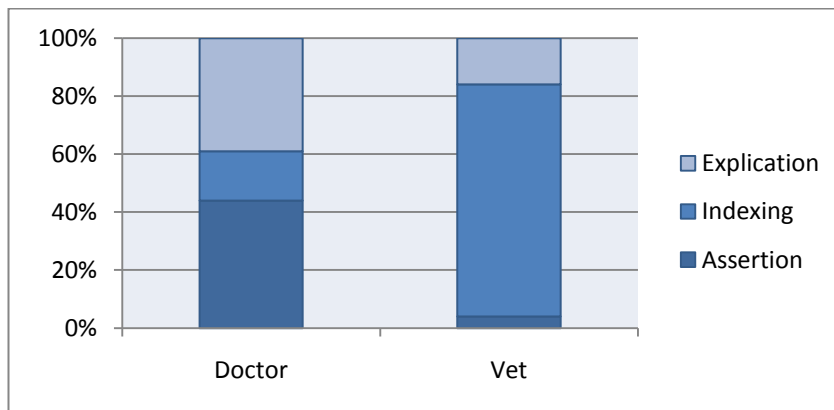
2 V> no no *as normal, I wouldn't be too worried if they do faint*
3 C2> would you say that was a faint would you?
4 V> Yeah that does sound like a faint and the breathing can be very, very shallow
5 often owners think gosh their not breathing at all in fact they are but it will be so
6 shallow it can be very hard to see, so it does sound most like a faint , with a fit, fits
7 tend to occur when they are at rest and they do tend to go rigid with their legs and it
8 does sound like a faint and then sometimes they can be dizzy or dazed for minutes to
9 even hours afterwards, it does sound like a faint yeah
10 C> cos you thought she stopped breathing, cos I assumed it was the same in a dog
11 as in a human she stopped breathing and ... perhaps
12 V> yes the breathing is often very shallow, extremely shallow, most people, it does
13 *look like they're not breathing, they can stop for some seconds the breathing can be*
14 *stopped but not for a significant amount of time that they can become hypoxic*
15 C2> will sort of rubbing her chest aggravate anything?
16 V> It definitely *won't* aggravate anything but it will get back into motion even if you
17 did nothing, they will usually after a few seconds you will notice a breathing pattern
18 re-establish itself, whether you do anything or not, normally just kicks in itself

This exchange, which follows the clinical history and physical examination, was prompted by the owner's expression of concern, at this stage the veterinary surgeon had outlined the tests that he proposed to do but does not have test results. Despite the fact that this is only a provisional diagnosis the veterinary surgeon provides an explanation (lines 4-9) in response to the owner's question (line 3). This elicits a more extended response from the owner (lines 10-11) and further explanation from the vet (lines 12-14) which in turn elicits a further question from the owner (line 15) and further explanation from the vet (lines 16-18).

5.1.3 Comparison of medical and veterinary consultations

While it is important to exercise caution in the comparison of studies carried out by different people in different contexts it would appear that the veterinary surgeons in this study are much more likely than the Finnish doctors to use indexing and less likely to use either assertion or explication as a method of delivering diagnostic statements (Figure 5.2 below).

Figure 5-2 : Diagnostic delivery – proportion



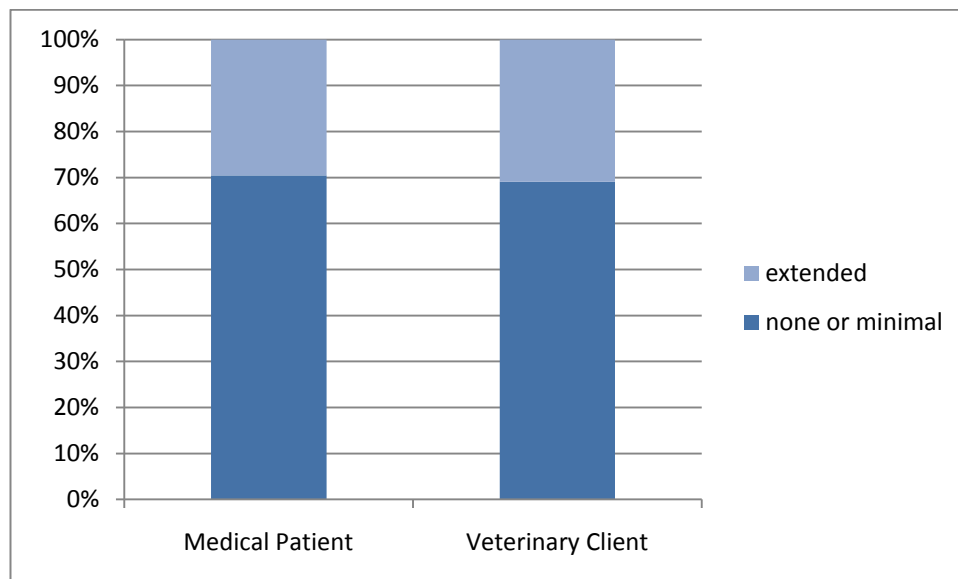
Although it should be remembered that in assigning diagnostic statements to different categories judgment calls were made, the magnitude of the difference found suggests that there is a real distinction in the method of diagnostic delivery between veterinary and medical consultations. However it must be acknowledged that having the statements coded by an independent person and calculating inter-rater agreement would have increased the reliability of these findings.

There are a number of possible explanations for these findings which may warrant further investigation. There may be cultural differences between the Finnish and the British in the way that they treat their professionals and the degree of evidence that they expect. There may also have been a change over time with the increase in the availability of diagnostic testing and the ideas of evidence based medicine and shared decision making leading patients/clients to expect greater explanation from their professional advisors. However there may be also be more diagnostic testing in medical consultations leading to greater certainty in the diagnosis and therefore more assertion on behalf of the medical clinicians. Finally there may be differences between the medical and veterinary consultation. It is possible that indexing is used more frequently in the delivery of veterinary diagnoses because it is easy to do. In the majority of veterinary consultations the veterinary surgeon examines the animal in front of the owner and is in a position to share his or her findings with the owner. This explanation would be supported by the finding that the majority of diagnoses are indexed to

the physical examination. It may be that in medicine issues of delicacy in examining another human may mean that it may be considered inappropriate to introduce the findings of the physical examination in this way. It may also be that doctors consider the findings of the physical examination to be self evident to the patient and therefore not requiring comment. Finally it is possible that the veterinary surgeon uses indexing as a way of sharing their findings with the owner and therefore involving them in the clinical decision making.

Despite the differences in diagnostic delivery the rates of minimal and extended responses were very similar in the two studies (Figure 5.3).

Figure 5-3- Diagnostic response - proportion



Although there was little differences in the rate of extended responses between the medical patients and veterinary clients in the two studies (30% v 31%) there may be a difference in the reasons why they occur. Perakyla indicates that in his study extended responses were more likely to occur where there is controversy over the diagnosis, this did not seem to be the case in veterinary consultations where there was little evidence of overt controversy but instead it appears that clients may take a more active role in the diagnostic process.

5.1.4 Client diagnoses

While it is normally the doctor or veterinary surgeon that makes the diagnosis there were 11 consultations in this study in which the client offered a diagnosis. In 4 cases the diagnosis offered by the client was as a result of a previous encounter with a veterinary surgeon as in except 5.7 below, in which a Chihuahua with severe breathing difficulties was being examined:

Excerpt 5-7: Consultation F1 C2 (21-24)

- 1 V> yes.... really, is there anything that tends to bring it on or, what sort of thing
2 C> *no, no there's nothing that brings it on, as I said at the beginning we thought it*
3 *was just like getting excited and you know that type of thing but it's not, it, see he*
4 *had an operation on his hip, this leg, when he was young about 7 months, and I was*
5 *told from the vets before you that the tube down his throat could have damaged his*
6 *larynx*
7 V> um
8 C> *but he's never been x-rayed, you know he's never been actually, other than*
9 *those tablets you gave me the other few weeks ago, he's never been checked up for*
10 *it.*

In this case the veterinary surgeon is still collecting clinical history when the client goes beyond the question “*is there anything that tends to bring it on*” at line 1 to reporting that the previous vets considered he could have damage to his larynx from previous surgery (lines 5-6).

In other cases the client is reporting their own inferences about the cause of the disease as in excerpt 5.8 below the client goes beyond answering the veterinary surgeons question in line 1 to suggest that the reason for her being off her food is that she has pain when she chews (line 3) to “*I just wonder if she's got a bad tooth*” line 9:

Excerpt 5-8: Consultation B4 C3 (22-32)

- 1 V> So how long have you noticed her being off her food for then?
2 C> Oh I should think about well about a week and then she ... *it's as though she's*
3 *got pain when she chews*
4 V> Right
5 C> *She won't even look at biscuits now she sort of eats the jelly off the food*

- 6 V> Right, right
7 C> sort of leaves the lumps of meat
8 V> Right um
9 C> *I just wonder if she's got a bad tooth, I don't know just a thought?*
10 V> *so does she approach the food as if she's interested and lick off the jelly*
11 C> Well yes she asks for the food she has a fairly good appetite
12 V> Right

Although the client is offering a diagnosis the tentative manner of his comments (lines 2 & 9) show that he is still being deferential to the veterinary surgeon in phrasing his comments as a question. However in other consultations the client may be more direct in offering their diagnosis as in excerpt 5.9 below from a consultation at an out of hour's clinic.

Excerpt 5-9: Consultation H1C1 (138-142)

- 1 C> I think she is dehydrated
2 V> *yeah, yeah, I don't think she's dehydrated enough to need a drip just yet*
3 C> no?
4 V> but if we can get an idea from a blood test and it can give us a rough idea of the
5 kidney function, a rough idea of any sorts of whether there is an infection perhaps,
6 OK?, and the cost of that is £25 to do that basic blood test
7 C> No problems

The possibility that the dog, who had been reluctant to eat, was dehydrated was first raised by the client (line 1), who goes on to question the veterinary surgeon's response with a further question (line 3). The veterinary surgeon then offers a blood test which the owner accepts indicating a more negotiated approach to decision making.

From the analysis and examples presented it can be seen that clients vary significantly in the degree to which and the way that they take part in the decision making process. Veterinary surgeons therefore have to be able to adapt their approach to their clients. The next section will look in more detail at how decisions regarding treatment are discussed during veterinary consultations.

5.2 Recommendations and options

The Royal College of Veterinary Surgeons' Guide to Professional Conduct states that the veterinary surgeon has a responsibility to the client to “ensure that a range of reasonable treatment options are offered and explained, including prognoses and possible side effects”, and goes on to state that the client should have “freedom of choice” (RCVS GtPC 2009).

This advice seems to recommend that the veterinary surgeon adopts the informed model of decision making, in which the veterinary surgeon provides the information from which the client makes a decision, however this pattern was not seen in any of the consultations recorded in this study. Instead veterinary surgeons were observed to either make a recommendation about treatment, (paternalistic decision making) or to offer options to the client in a process of shared decision making. Explicit options for treatment were discussed in 19/69 of the consultations with direct recommendations being made in 50/69 consultations, there were no consultations in which no advice was given.

5.2.1 Recommendations

There appears to be a difference in the way that veterinary surgeons discuss treatment for disease and treatments designed to prevent disease. When veterinary surgeons talk about treatment they normally phrase their recommendations as a statement, often prefixed by a phrase such as “I think” or “In my opinion”, as shown in excerpt 5.10 below. Client responses to these recommendations are frequently a minimal “OK”, “yes” or “right”.

Excerpt 5-10: Consultation D3C4 (102-103)

V>I think what we need to do is start him on some antibiotics and also on some gastric protectants, so some medication to protect the lining of his guts form being *inflamed cos I think he's bleeding into his guts cos his guts are inflamed*
C> yes

In contrast when talking about preventive healthcare recommendations are more often phrased as a question as shown in excerpt 5.11 from the same consultation.

Excerpt 5-11: Consultation D3C4 (74-75)

V> have you wormed him recently?
C> *actually I haven't but I've got tablet at home*

This suggests that veterinary surgeons are approaching these treatments differently and clients may consider the recommendations regarding preventive healthcare to be optional. These findings may have implications for the reportedly low incidence of compliance with preventive healthcare recommendations in veterinary practice such as heartworm prevention, dental prophylaxis and prescription diets (AAHA 2003; Gates and Nolan 2010).

5.2.3 Discussing treatments

Although clients rarely directly refuse treatment they do enter into discussion with the veterinary surgeon regarding the treatment proposed, particularly when they have had previous experience of the condition or wish to make the veterinary surgeon aware of any practical constraints on treatment. The section of consultation reproduced below (excerpt 5.12) shows the discussion about the management of a dog with a skin infection and some of the issues that can affect a veterinary surgeon's recommendation for treatment.

Excerpt 5-12: Consultation B3C4 (41- 58)

1 V> Thinking about the skin, yes she is very warm, she has little lumps, little scabs
2 which are infection and that would make it itchy and warm so we need to treat that
3 infection.
4 C> right OK
5 V> so we need to get that under control, that needs at least 3 weeks of antibiotics,
6 that's one thing to start on. She's not on any other medication for anything?
7 C> She's on Metacam - that's always a problem with any other tablets isn't it
8 V> It will be a problem if I wanted to give her steroids, which is a problem because I
9 was going to give her steroids, but I won't because she's on the Metacam
10 C> *well can't, I mean ...*

11 V> you'd have to take her off the Metacam for a few days before we started the
12 steroids, what I'll think we'll do, it's worth trying to start the antibiotics to see if they
13 make a difference um, shampooing is too much hard work is it in this weather and
14 stuff?
15 C> Well, I can't do it inside and getting her with all the shampoo out..I mean even
16 with two, two gallon buckets you know it's just not, and that's why I took her to
17 Mucky Pups because they've got, you know the great big hose you know spray um
18 and she quite liked that , but she's gone downhill againand I mean £40 for each
19 time
20 V> It is difficult because I'd say steroids would stop her itching temporarily but on
21 the Metacam it is difficult, what dose of Metacam is she on ?
22 C> She's on 35 mls per day
23 V> yeah a 35 kilo dose, yeah. You see the trouble is to be safe I'd have to tell you to
24 leave a 2 or 3 day break before you thought about starting the steroids, I'll tell you
25 what we'll do
26 C> She's not happy about it, cos you know first thing if you open the back door she
27 goes straight into the garden and the frost at this moment she just lays on her back
28 and is you know
29 V> Well let's see if we can treat the skin infection if that's what's causing the
30 problem at the moment then OK. We need to also think about what the underlying
31 problem to the skin infection is that's something else another bridge we need to
32 cross as well someone has suggested in the past testing her thyroid function taking a
33 thyroid assay and a TSH which is the precursor of the thyroid. Is she insured or not?
34 C> No
35 V> that's the problem isn't it this is costing you quite a lot of money
36 C> yep
37

VIDEOCLIP AND TRANSCRIPT 5-12

The excerpt starts with the veterinary surgeon giving the diagnosis of infection to the owner, indexing his diagnosis to the warmth and lumps in the skin (lines 1-2), and explains that it is this that would make the dog itchy before indicating the need to treat the infection (line 2). This recommendation is accepted by the owner's minimal response "right, OK" in line 4. Once this recommendation has been accepted the veterinary surgeon expands this to indicate that the dog will require at least 3 weeks' worth of antibiotics (line 5). The next section of the excerpt (lines 5-10) represents a dialogue between veterinary surgeon and owner about

the medication (Metacam⁴) that the dog was already taking for arthritis and the effect of this on the treatment that can be prescribed for the skin infection. The owner indicates in line 7 that the Metacam can be a “problem with any other tablets”, presumably drawing on previous experience. The veterinary surgeon confirms that he cannot give the steroids that he was considering without taking the dog off the Metacam for a few days (line 11 and lines 19-20), indicating that treatment decisions may have to balance the management of more than one condition.

The veterinary surgeon also raises the possibility of shampooing the dog (line 13), to which the owner responds with a longer explanation as to why this is difficult in terms of the practicalities of bathing the dog at home, and expense in terms of taking her to the grooming parlour (lines 15-18).

When the veterinary surgeon indicates that he is about to make another recommendation with “*I’ll tell you what we’ll do*” in lines 24-25 the owner again stresses how the skin irritation is affecting the dog, going into the garden to roll in the frosty grass (lines 26-28). This prompts the veterinary surgeon to not only reiterate the need to treat the infection (line 29) but also to make the offer to investigate further if there is no response to the antibiotic treatment by testing to see whether there is a underlying cause for the skin infection such as an under active thyroid gland (lines 29-32). The excerpt ends with a reference to whether the dog is insured and the costs to the owner (35).

When asked about the decision making in this case during the following interview (excerpt 5.13) the veterinary surgeon revealed some of his thought processes.

⁴ Metacam = Non steroidal anti-inflammatory drug, which may be used in the management of arthritis

Excerpt 5-13: Interview B3 (18-19)

1 I> and did you find any of the decision making in the case particularly difficult in
2 any way?
3 V> Yeah, it's just it's hard to decide to try and do in the 10 minute period, you have
4 to try and cover all your bases um simply because the dog could have lots of
5 different things going on, it could have an underlying hypothyroidism, it could have
6 something odd like pemphigus going on which is why its suddenly started um rather
7 than just being a normal allergic skin disease, so that was quite difficult. Also the
8 dogs was on non steroidal anti-inflammatories which complicated the treatment
9 options, hence why I've you know just you know treated the infection and pretty
10 much nothing else. *She couldn't shampoo the dog, or didn't feel she could shampoo*
11 *the dog so that made it more difficult so that's why I've put it on a decent dose of*
12 *antibiotics and see her back in a week and if she's not getting anywhere then we'll*
13 address some of the more complicated issues and try and actually change those

The veterinary surgeon mentions the complicating effect of the concomitant medication (line 8) and the owner's reluctance to bath the dog (lines 10-11). He also indicates that while he was treating the skin infection he was aware that there could be a range of underlying causes (lines 5-7) which may need further investigation if the dog does not show a good response to treatment (lines 12-13). The veterinary surgeon also refers to the effect of time on the decision making process and the need to make decisions about what to cover in a single consultation (line 3).

The analysis of this excerpt indicates that there may be many factors affecting clinical decision making and a period of negotiation with the client even in those cases where the veterinary surgeon is clear in his recommendation for treatment.

5.2.3 Framing options

In those cases where there are options but the veterinary surgeon perceives that some choices are better than others they are likely to convey this through the framing of the alternatives as shown in excerpt 5.14 below. This excerpt is taken from the interview section in which the veterinary surgeon is talking through his framing of the treatment options for a cat with

hyperthyroidism (indented lines relate to the conversation between veterinary surgeon and client in the consultation being reviewed).

Excerpt 5-14: Interview C1 (203-222)

- 1 C> will she have to be on tablets all the time now then?
2 V.....*yes is the short answer...*
3 V> *he asked me a point blank question and I thought I can't just give him a simple*
4 *answer and I need to pause to get him to realize that what I'm about to say is quite*
5 *complicated.*
6 V> There is a plan B and a plan C ... The plan C which nobody ever takes is
7 that she goes away to University
8 V> so I try to steer him away from exploring that avenue cos I see it as a fruitless
9 avenue to explore
10 I> *OK so there was again it was a slightly I'm giving you this information but I'm*
11 *slightly loading it*
12 V> more than that
13 V> *I've yet to meet someone who takes up that option, but if you'd like to*
14 look into it
15 C> what for the thyroid gland
16 V> *but that's plan C, plan B is that if we get a good response to the tablets*
17 and it seems as though we are, then we can take out the overactive thyroid
18 gland
19 V> Even the label as ABC gives them first second and third

The veterinary surgeon in excerpt 5.14 is explicitly framing the options to guide the client's decision away from "plan C", which he describes as a "fruitless avenue to explore" (lines 8-9) although he does make the offer "if you would like to look into it" (lines 13-14). He also indicates that plan B, removal of the overactive thyroid gland would be dependent on a good response to tablets (the implied plan A). The veterinary surgeon acknowledges that he was loading the options (lines 10-12). This consultation then goes on to discuss the risks to the patient in view of its age and kidney function, as determined by previously obtained blood results, as well as the costs of the plans A & B, plan C was dropped from further consideration.

Other veterinary surgeons frame the options by talking about “gold standards” of care either as part of a range of options or as a starting point as shown in the excerpts below:

Excerpt 5-15: Interview H1b (15-16)

I> to what extent do you feel that you do bring in the client or other people into the decision making process?

V> *Oh essential to, the client's essential to the decision making process, the yeah I always give them a range of treatment options where feasible um, mainly I try to offer a gold, silver and bronze level of treatment depending on the money, of how much of the available funds they have at their disposal.*

Excerpt 5-16: Interview G1 (355)

V> *the issue is that if you present everything at the start in my opinion you're confusing the issue, people are emotionally distraught, they're going to retain 10-12 per cent of what you say to them, regardless of how much you try to emphasise that this is so much better than this which is so much better than this, they're going to come out confused as to what decision they should make, and the fact that you mentioned all of them has in fact, regardless of how much you've emphasised compressed them in terms of difference in their minds. If you start off with a single thing, this is the best way of actually doing it, then once they've actually refused that then moving on to the other things they've had to mentally accept that this is a compromise and that means that everybody knows where they stand, so that they know where you stand, you know that they don't want, that they've accepted that compromise and that they don't want the Gold Standard and they've made a definitive decision that no, that's out the window.*

These two veterinary surgeons, while both talking about “gold standard” care report taking different approaches to involving the client in the decision making process. The veterinary surgeon quoted in excerpt 5.15 considers the options in terms of the funds available to the client, while the veterinary surgeon in excerpt 5.16 considers the options in terms of outcome for the patient.

While this study did not explore the clients perception of the way options were presented a focus group study undertaken in Canada found that pet owners expected to be presented with a range of treatment options and this included the expectation to be “educated about each option in terms of the pet's age and prognosis. With the pros and cons of each option

provided so that the owner could make an informed decision” (Coe et al. 2008, p 1074). The authors note that owners always refer to these options as alternatives, and although they wished to be made aware of the costs of each option they also wanted information on the pros and cons of each option as well as prognosis. Veterinary surgeons admitted that they often initially presented clients “with a single option and then adjusting the option on the *basis of the client’s* response” (ibid, p 1074). Owners also stressed that they did not want to be made to feel guilty if they had to make difficult decisions regarding their pets care; veterinary surgeons acknowledged this but felt that clients sometimes expected them to go further and validate their decisions which they found challenging.

The veterinary surgeon in excerpt 5.16 also raises the potential problems of providing the owner with options and therefore the need to make an explicit choice. He expresses the opinion, echoed in the focus group study that veterinary surgeons may prefer to start with a single option, the best or “Gold Standard” approach , and then adjust from there. He also talks about waiting for the client to refuse this option and their need to mentally accept the compromise involved in their choice. In this way he is acting in accordance with the informed model of decision making and presenting the information but expecting the client to make the choice. It may be relevant that this particular veterinary surgeon sees predominantly second opinion cases, referred either from within the practice or from neighbouring practices and therefore his clients will, in most cases, already have been through a selection process.

5.3 Uncertainty

In order to offer the client options, and guide them through the decision making process, the veterinary surgeon must have a clear idea of the options available and appropriate to the case. It is often assumed that the decision making for the veterinary surgeon will be

unproblematic so that they are able to make a diagnosis and explain the treatment options to the client. However there are many cases in which the veterinary surgeon may be uncertain either of the diagnosis or the relative benefits of the various options.

Uncertainty has been recognized as a key aspect of medical knowledge and practice affecting both doctor's decisions and their ability to discuss their decision making with their patients (Fox et al. 1978; Eddy 1984; Katz 1984; McKinlay et al. 1998; Ogden et al. 2002). It has been suggested that uncertainty may be even greater in veterinary practice both because of a lack of scientific evidence to support decision making (Cockcroft and Holmes 2003) and because of "the constraints that may be applied to a diagnostic work up as a result of financial limitations" (Mellanby et al. 2007, p 26).

5.3.1 Uncertainty in the consultation

The following excerpt represents a two and a half minute segment from a thirteen and a half minute consultation at a dedicated out of hours service provider. The patient, an older neutered male Golden Retriever, was presented with a swelling in his neck, which was already under treatment, as the owner had noticed a blood stained discharge from the mass. The owner, an adult female (standing in the picture below) was accompanied by her mother who remained in the waiting room during the consultation. The female veterinary surgeon (crouching) had not met either the client or animal previously. Unfortunately because the dog is examined on the floor much of the action takes place out of sight of the camera (Figure 5-4 and excerpt 5.17 below). This excerpt was selected both because it clearly shows the interaction of veterinary surgeon and client and because it illustrates how uncertainty can affect clinical decision making.

Figure 5-4: Consultation H2C1



Excerpt 5-17 – Consultation H2C1 (54-74)

- 1 V>we've got a couple of options about what we do next, um because the swelling is
2 getting smaller I think he probably is responding to the antibiotics, and as I say I think that
3 blood is just an indication that it's coming to a head and starting to leak out. What we could
4 do is think about lancing it and removing you know as much of the fluid as possible, you may
5 well find that it will continue to weep quite a bit even though we've done that
6 C> right
7 V> (pause) The other option would be to carry on with the antibiotics over the weekend and
8 see if it gets smaller.
9 C> right
10 V> (pause) um it's a bit of a difficult one to decide what to do. The other thing that's
11 worrying me slightly is this mass in his mouth
12 C> umm
13 V> if the swelling was on the same side as the mass in his mouth then I'd be more
14 concerned, but just having a feel of the lymph nodes in his shoulder, the one on this side does
15 actually feel a little bit enlarged which just makes me wonder if this mass here has started
16 thinking about spreading, so it's something that might be worth investigating at some point
17 C> right
18 V> probably not tonight because it's not an emergency sort of thing to do, but your daytime
19 practice might just want to have a look into it and see what's going on with that
20 C> yes

21 V> it may just be a benign epulis, which is a fleshy growth in the gum, *but it's possible that*
22 *it could be something, the fact that it's come up quite quickly, you've not seen it and you're*
23 *looking in the mouth quite frequently would just make me wonder if umm it's you know*
24 *something a little bit more worrying that's grown more quickly*
25 C> mm, yeah cos I mean last year he had to lose his testicles cos there was a lump on one of
26 them
27 V> Yeah, and this sort of soft cough that he's got, *you know there's a possibility with the*
28 *lumps that he's had, that something could have spread to his lungs as well, you know, really*
29 *we'd need to x-ray to investigate that, I know that he is insured, on your records it mentioned*
30 *that if this isn't clearing up it may be best to have an MRI scan done, but that may be the*
31 *best way of finding lumps and bumps elsewhere as well*
32 C> right
33 V> it might
34 C> *is that general anaesthetic? I didn't ask last time cos I was a little bit...*
35 V> *I'm not sure if they could do it under just a sedation, or whether it would have to be a*
36 *general, I'm not 100 % sure about that, that would be something to discuss with the referral*
37 *centre, which is at XX*
38 C> *because I'm thinking of his age*
39 V> Yeah
40 C> and another general anaesthetic
41 V> yeah exactly

VIDEOCLIP AND TRANSCRIPT 5-17

The segment of talk reproduced in excerpt 5.17 above, represents the part of the consultation in which the veterinary surgeon starts to discuss options with the owner. It follows on from the history taking in which it has been established that the dog had been examined at the client's "daytime practice" earlier in the week and had been taking the prescribed medication. The veterinary surgeon had also performed a physical examination which revealed a second mass in the mouth which had not been noticed by the owner or mentioned by the previous veterinary surgeon. In this particular case the veterinary surgeon progressively discovered more problems during the consultation, and refers in the interview to "trying to get clear in my own head what was the best option" as shown in excerpt 5.18 below.

Excerpt 5-18: Interview H2a (263-265)

I> is that a pause to see if the owner says anything at that point?

V> *well sometimes they go "Oh my god I can't cope with" and you go well that's not an option then, and it was also just trying to get clear in my own head what was best option because given the fact that the dog was 13 and a half and had other things going on, um did I want to be sedating it?*

This indicates that the veterinary surgeon herself was uncertain about the best course of action and she was trying to gauge the client's attitude to the options that she was suggesting. The veterinary surgeon clearly signals that there are options for the next stage (excerpt 5-17, lines 1 & 7) including whether to continue with the current treatment with antibiotics (line 7) or undertake further investigations (line 16). Although the client indicates that she has heard this information (lines 9 & 17) she gives no indication of preference at this point. It is only after further discussion that the veterinary surgeon goes back to the offer of further investigations (lines 29-31) which elicits a response from the owner in line 34 where she asks if the procedure will involve a general anaesthetic.

The veterinary surgeon acknowledged the problem of engaging this client in the decision making process during the subsequent interview making the following comments after watching back this section of the consultation.

Excerpt 5-19: Interview H2a (270-275)

I> *you're not getting a lot back from the client*

V> *No she wasn't helping at all*

I> *cos sometimes you'll get a client who you'll know they're going "Oh no I don't want to do that" or "Oh yes I do want to do that" but*

V> *She was just kind of standing there going umm*

I> *so bringing her into the decision making process, while a nice idea wasn't really*

V> *wasn't happening, no*

This pattern of the veterinary surgeon going through the options but getting little immediate reaction from the client is repeated in a number of consultations. Where the owner doesn't express an opinion the veterinary surgeon often responds by giving further information and

making offers of other possible investigations or treatments (lines 13-16 and 27-31). This would suggest that veterinary surgeons are interpreting these minimal responses as indicating the client's lack of uptake to the proposed option and that further explanation or other options are required (Heritage and Sefi 1992; Stivers 2006). However it is also possible that the owner has not realised that the veterinary surgeon has finished outlining the diagnosis and treatment options available and that it is now her time to express a preference or choose an option.

Stivers (1998) distinguishes between the official diagnosis, given following the physical examination of the patient as a distinct phase of the consultation, and the comments made subordinate to another activity such as the physical examination, which she calls "pre-diagnostic commentary". This activity which she describes as akin to thinking out loud may be seen by the client as requiring no or only minimal response. Stivers goes on to say that this activity appears to be more extensively used in the veterinary than medical consultation. This may be in part because the physical examination in the veterinary consultation does not form a distinct phase as in the medical consultation, but rather is an iterative process in which the veterinary surgeon uses physical examination to check the history from the owner and guide further questioning (see previous chapter). Although it cannot be seen clearly on camera the veterinary surgeon's description in lines 13-16 indicates that she is still in the process of examining the dog at this stage so the owner may reasonably assume that the veterinary surgeon's comments at this stage are a form of "thinking out loud" which do not require a response. While the client may not consider that the veterinary surgeon's pre-diagnostic commentary requires a response the veterinary surgeon's rapid response to the client's comment about the lump removed last year (lines 25-26) indicates that this "thinking out loud" was intended to prompt a response from the client.

Stivers also notes that in the veterinary consultation “*Some instances of pre-diagnostic commentary may deal with both the diagnosis and the treatment and thus may allow for negotiation about the treatment and diagnosis as well*” (Stivers 1998, p 257) and “the veterinarian makes the diagnostic reasoning process transparent as the visit progresses by offering observational and etiological pre-diagnostic commentary throughout the consultation” (ibid, p263). While the process of pre-diagnostic commentary was not used in all veterinary consultations it was used in many consultations to demonstrate the veterinary surgeon’s reasoning process to the client, as shown in lines 1-3 and 8-11 of excerpt 5.20 below:

Excerpt 5-20: Consultation C2C2 (32-36)

- 1 V> Well I think the problem is its probably multi-factorial, because of where it is,
2 *wounds in this area are notoriously difficult to heal because yes it’s pulling all the*
3 *time*
4 C> and Springers particularly groom their backsides
5 V> and um its looks like its healing quite well here and its healing really well there
6 but in the middle definitely not
7 C> in the middle area of discharge in the middle
8 V> *and you can see that the actual skin sides there aren’t actually knitting together*
9 *and the sutures are actually holding it together but I don’t really know .. it might be*
10 better to let it heal by second intention , what I mean is obviously when we do the
11 surgery the two fresh edges are opposed by stitches and we call that primary
12 healing.

Excerpt 5.20 also demonstrates how the client responds to the veterinary surgeon’s comments by adding observational comments of their own (lines 4 and 7) this contrasts with the lack of response in excerpt 5.17.

5.3.2 Floating ideas

This process of “thinking out loud” is sometimes used quite deliberately by veterinary surgeons in order to assess how a client feels about certain procedures or treatments as indicated in the comments made by veterinary surgeons during interview.

Excerpt 5-21: Interview C1 (252)

V> well yes I float lots of ideas and see which ones the owners pick up on, sometimes I will float the idea of does he want tablets and injection or just a Convenia⁵ with no tablets, some of them like to have the control some like to have the no bother and I float both.

Excerpt 5-22: Interview B1 (94-98)

I> Were you also floating to see if the owner picks up on that idea , the idea of wanting a blood test or something

V> Yes , yes trying to involve the owner with my thinking to allow the owner to *interact with that thinking, so there's enough information for them to show a symptom of interest or cost benefit thoughts, and by and large she is usually sensitive to the pounds and again that's partly background knowledge so I don't look to spend more money than I absolutely think is necessary, and she's not a client who's expressed the view "I want the gold standard version of things", because it's possible we should she's very much the other way round so I'm filtering that a little bit past the client but again hopefully it's.... this thing for the you know ... here's the bait.*

The veterinary surgeon in excerpt 5.21 is alluding to a situation in which there is a straight choice between how the treatment is administered and indicates that he suggests both in order to give the client choice depending on their own preferences. The veterinary surgeon quoted in excerpt 5.22 indicates that he is floating the idea of blood testing even though his previous knowledge of the client has led him to believe that this is probably not the route that she will wish to take. He also indicates by the phrase “to show a symptom of interest or cost *benefit thoughts*” that he does not necessarily expect explicit choice but will be watching her response in order to guide the direction of the consultation. A lack of reaction by the clients is often taken, by the veterinary surgeon, as a need to offer further options or change the direction of the consultation.

⁵ Convenia is a long acting antibiotic injection.

However although the veterinary surgeons appears to be using the methods of “thinking out loud” and “floating ideas” to engage the client in the decision making process it appears that the client is not always picking up on these cues as an invitation to respond. Further research into the clients’ perception of their role in clinical decision making is needed to clarify the situation.

5.3.3 Discussing uncertainty

Throughout excerpt 5.17 the veterinary surgeon uses a number of techniques to soften the effect that, as the consultation progresses, what initially appeared to be a check on a condition that was already under treatment (line 2) is complicated by the finding of a previously unnoticed mass in the dogs mouth (lines 10-11) and the client’s revelation (line 25) that the dog had had been castrated last year because of a “lump”. Mitigators are described as modifications to speech which soften the effect or ease the process of delivering bad news (Fraser 1980). The veterinary surgeon in excerpt 5.17 uses a range of methods to do this. “Qualifiers” are phrases used to reduce the impact of certain statements as in “worrying me slightly” (line 11) “a little bit enlarged” (line 15) and “something a little bit more worrying” (line 24). These phrases are used to play down the new information that is being given and the veterinary surgeon’s level of concern. The veterinary surgeon also used “hedges”, words whose job it is to make the information given less certain, the words “could” (lines 3,22,28,35), “may” (lines 5,21,30) and “might” (lines 16,19,33). While all these could be examples of politeness (Brown and Levinson 1987) they could also indicate to the client that the information that the vet is giving may not be certain, opening the way for the client to express an opinion and for the veterinary surgeon to gauge the client’s reaction to the information and can adapt her delivery (Fraser 1980; Stivers 1998).

While mitigators are used in other consultations this consultation has a number of characteristics which may explain their particularly high occurrence. In discussion of this consultation during the subsequent interview the veterinary surgeon raised three factors which were influencing her decision making: uncertainty about the best course of treatment (excerpt 5.18), not having previously met the client, and the fact that the patient was already under treatment by another veterinary surgeon as shown in the excerpt below:

Excerpt 5.22 Interview H2a (349-349)

I> were there any other things that were particularly challenging in that case
V> Um I think the biggest thing really was that it was already under treatment by *another vet and you don't want to interfere too much, um you don't want to be critical and you don't want to do something that's going to upset what the continuation of their plan is.*

5.3.4 The effect of uncertainty on decision making

Veterinary surgeons acknowledged that uncertainty about the best course of action was one factor which led to them offering the client options rather than making the decision themselves.

Excerpt 5-23: Interview I2 (105)

V> Yeah, I think I certainly make more decisions now whereas probably when I started I gave them a lot more options. I kind of washed around things and I think *partly that's being in XXXX longer and partly being graduated longer and recognising things and knowing, having tried that, that didn't work, knowing it's not going to work.*

It has been suggested that uncertainty may be a greater problem in veterinary practice than medical practice “because of the reduced number of diagnostic techniques and equipment available to veterinarians in contrast to our medical counterparts together with the constraints that may be applied to a diagnostic work up as a *result of financial limitations*” (Mellanby et al. 2007, p 26). Unsurprisingly it was the more recent graduates who, during

the interview, were most likely to express uncertainty about decision making. Although most graduates felt reasonably well prepared in terms of technical knowledge they felt less well prepared to actually use this knowledge to make decisions. Several veterinary surgeons, including the one quoted in excerpt 5.24 below, commented on the fact that as students they were more likely to be required to discuss all the possible diagnoses or tests rather than select one:

Excerpt 5-24: Interview D3 (375)

V> we were never taught decision making at University, you're taught a list of differentials , you're never taught how to decide what it is or like you know you're told that this is your list, you're taught how to narrow things down and treatment paths are but they don't teach you how to make a decision.

Several veterinary surgeons reported that where they were involved in decision making as students this was normally without financial or time constraints as shown in the quote below:

Excerpt 5-25: Interview C2b (53)

V> it's hard, because the decision making I found almost easier because there were never any catches it was sort of like we've got insurance the whole door was open what are you going to do and it's just like pretty much everything that you said that you wanted to do could be justified.

These excerpts contrast decision making at University where there were seen to be few financial or time constraints with the practice situation in which these constraints were present in virtually every situation. This approach to decision making is contrasted with the type of decision making used by experienced practitioners “Students are usually taught to take a problem oriented approach to diagnosis, generating a complete data base for every case and then working from first principles. This technique is not generally used by an experienced general practitioner working under normal time constraints who are thought to keep a mesh of disease templates in their mind, which they match to cases” (Viner 2010, p 147). This description echoes findings from the medical literature where experienced

practitioners are described as using illness scripts and exemplars derived from experience to inform their decision making (Schmidt et al. 1990).

Being placed in a situation where you have to make decisions was often stressful for recent graduates particularly for those who were alone on a farm or yard, although even those in small animal practice could feel isolated and unsupported, or put on the spot by clients once they were in the consulting room. Decision making, as a skill, and the need to take responsibility for decisions once qualified were seen as an area that could cause problems for the recent graduate:

Excerpt 5-26: Interview E2 (111-116)

I> Do you think that decision making was taught to you at University, or do you think that's something you had to learn?

V> no and that's something that I found really difficult when I first started. It's being responsible for the decision, even if it's a tiny decision, you can't teach that, you can't because no matter how much practice you see, ultimately you're not making the decision, until you're in that field making that decision, with no one to ask.

The veterinary surgeon in excerpt 5.26 raises some important issues regarding responsibility and the development of decision making skills, suggesting that decision making is something that is difficult to teach but a skill that is developed when you have to take responsibility for decision making. She refers to the difficulty that this creates while other veterinary surgeons refer to the stress that they felt. The stress of veterinary work is discussed at greater length in section 7.1.3.

5.4 Discussion

The idea that clinical decision making skills are developed through experience is echoed by the view that “graduates will need involvement with first opinion cases, and will also need

to have primary responsibility for the clinical decision, which is one of main competences that need to be developed during PDP” (RCVS 2009, p 5).

This presents a problem for the newly qualified veterinary surgeons who, unlike their medical counterparts, are not required to go undergo structured training during their first years after qualification although they are now encouraged to complete a self assessed Professional Development Phase (PDP) in order to achieve year one competence (Gorman 2001; RCVS 2009; RCVS 2010). The recent graduate will therefore be very dependent on the level of support they receive from colleagues, but even in practices that provide good support the veterinary surgeon is unlikely to have the degree of support that will be available to junior doctors working in a hospital environment.

The literature on medical decision making reports that the development of expertise depends not on the acquisition of further knowledge but rather on the restructuring of the knowledge so that it can be rapidly accessed. Expertise in decision making is acknowledged to be highly dependent on personal experience (Grant and Marsden 1988) with judgment defined as the highest level of expertise used to make “holistic and balanced decisions in situations of uncertainty and complexity” (Eraut and Du Boulay 2000 Sect 3.1).

While the restructuring of knowledge and development of personal experience require time there is an increasing body of literature regarding clinical decision making and it may be possible to teach students skills such as an understanding of decision making processes (Croskerry 2002; Evans 2003); critical appraisal and structuring decisions (Hunink and Glasziou 2001; Del Mar et al. 2006) as well as an appreciation of some of the non-medical factors which can influence decision making (McKinlay et al. 1996).

All the veterinary surgeons interviewed in this study considered that the client had a major effect on the decision making process and in most circumstances veterinary surgeons were keen to involve the client in the decision making process and gain their agreement to any

treatment plan. However the recorded consultations show that veterinary surgeons do not involve clients in the decision making process in the explicit way recommended by the Royal College of Veterinary Surgeons (RCVS GtPC 2009). Instead it appears that veterinary surgeon and client both use a range of techniques to negotiate care for the animal patient.

Veterinary clients appear to influence the decision making process in a number of ways either by suggesting diagnoses, discussing treatments or withholding assent. It is possible that veterinary clients are more assertive than (non private) medical patients because they themselves are not sick; they are paying for the service and in the case of experienced animal owners because they have developed some knowledge about diseases and treatments.

Veterinary surgeons try to involve clients in the decision making process demonstrating the evidence they are using by indexing their diagnostic statements to findings from the physical examination or diagnostic tests. In terms of treatment the veterinary surgeon may make recommendations or offer options for which they seek assent from the client. This process may include floating ideas to see how the client reacts. Where the client appears not to be giving assent the veterinary surgeon usually reacts by making further suggestions. The veterinary surgeon may also use the framing of options in order to guide clients through the decision making process. Although this negotiation takes place in a subtle way it does appear that both veterinary surgeon and client are involved to some extent the process of shared decision-making process as described by Charles (Charles et al. 1999).

While in the medical consultation shared decision making is considered to relate only to treatment decisions it appears that in the veterinary consultation clients are also involved in diagnostic decision making through their need to assent to and pay for further investigations.

It is also worth noting that although the term shared decision making is normally taken to mean sharing between the clinician and client or patient decision making may also be shared between a number of professionals over a period of time (Anspach 1993; Rapley 2007). This

may be because more than one veterinary surgeon is involved in the case or because the veterinary surgeon consults other colleagues either directly through the process of referral or indirectly through the use of diagnostic sampling and informal discussion.

It also appears that veterinary surgeon may be more likely to discuss options in the cases where they themselves are uncertain of the best option, a situation which has also been recognized in life and death decision making in neo-natal care (Anspach 1993). In veterinary medicine uncertainty may relate to the diagnosis, relating to lack of information; treatment due to lack of comparative studies and evidence based resources; or to knowledge about the owner's values and preferences which can only be obtained through communication.

Veterinary surgeons may suggest uncertainty through the use of language rather than providing explicit numerical measures of risk or uncertainty. This is probably to a large extent because veterinary surgeons do not have sufficient evidence in many areas of practice to enable explicit comparison of treatment options (Cockcroft and Holmes 2003). The sources of evidence to which veterinary surgeons refer to support their clinical decision making will be discussed in the next chapter.

Chapter 6 - Evidence

The making of a medical diagnosis depends on three things: the history obtained from the patient, the signs noticed on physical examination and the results of laboratory investigations.

(Hampton et al. 1975)

For any patient condition there are dozens of procedures that can be ordered, in any combination at any time. ...the value of any particular procedure depends on who performs it, on whom it is performed, and the circumstances of performance.

(Eddy 1984)

The choice of treatment given cannot be decided by one factor alone. The pros and cons of each option need to be considered individually and compared.

(BVA 2009)

Veterinary surgeons need to make many clinical decisions in the course of their work and guide their clients through the decision making process. In order for the clinician to be able to discuss options with the owner or make justifiable recommendations, the clinicians must be aware of the decisions they are making and the type and validity of evidence on which they rely. The major decisions during routine consultations relate to establishing the condition of the animal (diagnosis or assessment) and the action required (intervention or treatment).

Evidence that enables the clinician to establish the condition of the animal may come from the clinical history given by the client; the veterinary surgeon's own assessment of the animal through physical examination; and from tests performed either directly on the animal or on samples taken from the animal. This information about the individual (or herd) will need to be integrated with more general evidence about diseases and treatments that the veterinary surgeon gains from their professional knowledge base, which may be made up of personal experience; accepted practice; expert opinion; and published literature.

Diagnosis can be seen as a method of categorisation, which enables the clinician to consult the professional knowledge base about the most appropriate treatment in similar cases (Abbott 1988). However the veterinary surgeon must then use his personal knowledge and experience to assess the appropriateness of the information retrieved for the individual patient requiring treatment, taking in to account the circumstances and values of the client and the context of the decision making in the process of evidence based decision making (Sackett et al. 1996).

This chapter will look at the evidence, in its broadest sense, on which the veterinary surgeon relies during clinical decision making in routine consultations. It will start by looking at the evidence that veterinary surgeons collect during the consultation, in the form of the clinical history, physical examination and test results. The second section will look at how veterinary surgeons use and integrate this evidence and explore how differences in the experience of the veterinary surgeon and aspects of the case affect clinical decision making. The third section will examine the sources of evidence that veterinary surgeons use when they are uncertain about the diagnosis or treatment a particular case and the value that they place on evidence from colleagues (personal or expert opinion), textbooks (accepted practice) and peer reviewed literature. This will lead on to a discussion of the veterinary surgeons' views on evidence-based veterinary medicine.

6.1 Sources of evidence in the consultation

This section will look at the evidence veterinary surgeons collect during routine consultations and explore the different types of information gathered from the clinical history; the uses of the physical examination; and decisions regarding further investigations. This section is based on the analysis of video recordings of consultations as well as veterinary surgeons' own assessment of the evidence as revealed during semi-structured interviews.

6.1.1 Clinical history

The excerpt below (excerpt 6.1) is from the beginning of a consultation for an elderly dog which was undergoing treatment for a heart condition and illustrates several different aspects of the information gathered from the clinical history which can influence clinical decision making. The consultation was a scheduled routine check up, to monitor the dog's progress and assess the effect of medication; both veterinary surgeon and client were expecting an electrocardiogram (ECG) to be performed during the consultation.

Excerpt 6-1: Consultation D2C3 (10-37)

1 V> Hello, *how's she been?*
2 C> Umm
3 V> She seems very happy
4 C> *Well my niece, I thought she'd got a bit worse, but my niece seems to think who*
5 *hadn't seen her for a month thought she was a bit brighter*
6 V> Oh right yeah
7 C> *so she's passing a lot of water*
8 V> Oh right
9 C> *and drinking the same amount um she's not so good at holding her toi(let) you*
10 *know you have to make sure every two hours get her outside*
11 V> *she'll wet herself*
12 C> *or she'll wet herself I'm afraid.*
13 V> OK
14 C> Silly old lady, um but no she still runs about, you know take her for a walk, put
15 her off the lead *and she's got the energy to run*
16 V> *that's the most important isn't it?*
17 C> *That is important, she's eating all right, I haven't noticed her coughing umm I*
18 *wouldn't say she's any more, well I thought she's a little bit more lethargic but as I*
19 *say my niece seemed to think that she was alright. No don't jump up...don't jump up*
20 V> *So that's good so just make some notes. She's got no cough?*
21 C> *I haven't noticed her cough.*
22 V> a little bit more urine?
23 C> a little bit more urine
24 V> and needed to go out more often?
25 C> yesand make sure she goes out
26 V> and exercise is quite good?
27 C> *yeah the exercise has pretty much been the same as before and we've been*
28 *taking her out as much as we can, as frequently as we can or even just make sure*
29 *she's let out in the garden so she can pass you know.*

After an initial introduction to a veterinary student observing the consultation, the veterinary surgeon starts with an open question to prompt the client to talk about her pet (line 1). The client's pause and reply of "umm" in line 2 suggests she is not sure how to answer the question; this seems to be supported by her ambivalent reply in lines 4-5 where she reveals she felt the dog was worse, but that her niece, who hadn't seen the dog for a while, thought she had improved. The vet only responds minimally at this stage and the owner continues by giving further information about the dog's increased need to urinate (lines 7-10). This information is minimally responded to by vet at this point though it is picked up again in line 22 when the vet comments "a little bit more urine?" which the client echoes. However when the client talks about dog's ability to exercise (lines 14-15) the veterinary surgeon picks up on this straight away, indicating to the owner that he thinks this is important and inviting the owner to agree by phrasing his response as a question. This is followed by more structured observations from client regarding the dog's appetite, coughing and energy level (lines 17-19).

This excerpt indicates how much information a client will provide in response to an open question from the veterinary surgeon. During the subsequent interview (excerpt 6.2) the veterinary surgeon acknowledged that the client was probably drawing on her past experience to provide the information that he was likely to ask.

Excerpt 6-2: Interview D2 (324-329)

I> From an outsiders point of view that sounds like a fairly well trained client, you ask her how the dog is and she almost knows what questions she needs to answer

V> Well she has gone through this before so she probably knows some of the questions I ask and I find a lot of clients are like that anyway, you ask them, they give you all the answers, but yes definitely worth listening at the beginning.....Its sometimes difficult to get out of them you know is it better or worse, and what have they got to measure it by?

I> yes

V> *I do quite like the idea that if they're playing and happy then that's probably quite a good indicator actually, yeah*

In this excerpt the veterinary surgeon recognized that many clients are able to give information if given the chance but may find it harder to make an assessment as to whether the animal is better or worse. He goes on to refer to his own opinion that if the animal is “playing and happy *that’s probably quite* a good indicator”.

Signs and symptoms

There is debate in the veterinary profession regarding the status of the description presented by the owner. While the term “symptom” refers to an occurrence or happening it has more recently come to mean the subjective description of illness by a patient (OED 2010). This term is contrasted with the term “sign” in which the doctor is able to interpret the patient’s symptoms in the light of the physical examination and their own medical knowledge as “signs” of a particular disease. While in the medical consultation the patient is reporting their own subjective assessment of their condition, in the veterinary consultation the owner is reporting their assessment of the health not only of a third party, but one of a separate species and this may be made up of subjective impressions or objective observations depending on the knowledge and experience of the owner. The excerpt below demonstrates that it can be difficult for the veterinary surgeon to determine the status of the owner’s comments:

Excerpt 6-3 : Consultation C2-C2 (lines 17-19)

V> how are we getting on?

C> *Well until a few days ago I’d have said very badly, Friday I almost rang up for an emergency appointment ‘cos he still had quite a high temperature.*

A report like this may suggest to the veterinary surgeon that the owner had taken the dog’s temperature; however later in the same consultation (excerpt 6.4) the owner reveals that they had in fact been describing subjective impressions.

Excerpt 6-4 : Consultation C2-C2 (lines 37-38)

V> *So what’s his temperature been like then*

C> well I would say from just feeling his nose I would say yesterday and Saturday it was fine.

It should be noted that veterinary surgeons also make subjective statements about an animal's condition as in the description of the dog as seeming happy (excerpt 6.1 – line 3 and excerpt 6.2 above). This would suggest that using the distinction between symptoms, as those things subjectively reported by the patient from their experience, and signs as objectively interpreted by the doctor does not translate well to veterinary medicine. This is not because the animal is unable to voice subjective symptoms and the owner and veterinary surgeon are both discussing objective signs, but rather because both client and veterinary surgeon make subjective and objective comments about the animals behaviour and condition. This may in fact be a necessary part of the veterinary consultation as not only do decisions have to be made regarding the diagnosis of the animal's condition and the most appropriate treatment, from the point of view of the medical evidence or the owner's preferences, but consideration must also be given to the best interests of the animal and the welfare implications both of the condition and any proposed treatments (BVA 2009). As there at present few validated instruments to assess quality of life in companion animals this assessment is often made based on subjective assessments of the animal's wellbeing (Mellanby et al. 2003; Wojciechowska and Hewson 2005; Wiseman-Orr et al. 2006). This means that the clinical history in veterinary medicine needs to include sufficient information for these assessments to be made.

Information about the relationship between animal and owner

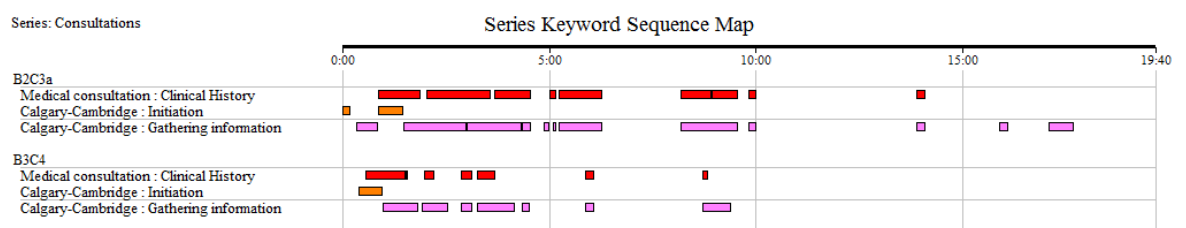
The classic model of a medical consultation talks about “obtaining the facts” from the clinical history (Ledley and Lusted 1959), and medical and veterinary students are taught to “take” a clinical history, focusing on the presenting problem. In the medical profession changes toward a more patient centred approach, and training in communication skills have expanded the idea of the clinical history to include the patient's perspective on their illness

(Tuckett 1985). Similar changes are now entering the veterinary profession with the concept of “relationship centred care” in which the relationship between animal and owner, as well the relationship between veterinary surgeon and client, veterinary surgeon and patient, and the other the relationships of everyone involved in providing care are accepted as an important factor in the provision of veterinary care (Frankel 2006; Adams and Frankel 2007).

With increasing emphasis on communication skills for medical and veterinary practitioners the concept of taking a history has been redefined as gathering information which includes not only the bio-medical perspective about the disease but also the patient’s, or in veterinary medicine client’s, concerns and values as well as information about the context in which decision making is taking place (Silverman et al. 2005; Radford et al. 2006).

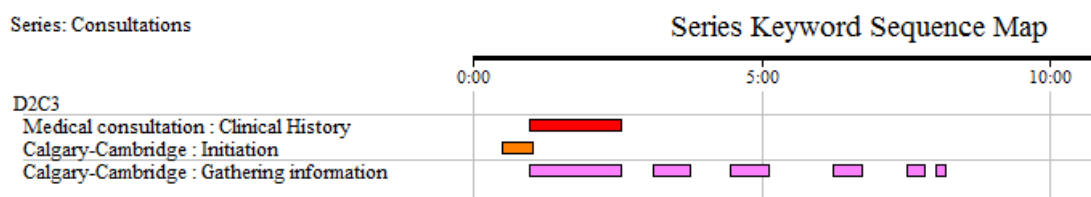
In some of the consultations recorded in this study the processes of “clinical history taking” and “gathering information” overlap almost completely with most of the information collected focusing on the biomedical history as shown in figure 6.1 below. This image shows the coding of clinical history (red) from the biomedical model of the consultation against the initiation (orange) and gathering information (pink) stages of the Calgary-Cambridge model for two separate consultations.

Figure 6-1 : Comparison of Clinical History and Gathering Information – Keyword sequence map



However in other consultations there may be significantly less overlap as shown in figure 6.2 below which relates to the consultation presented in excerpt 6.1.

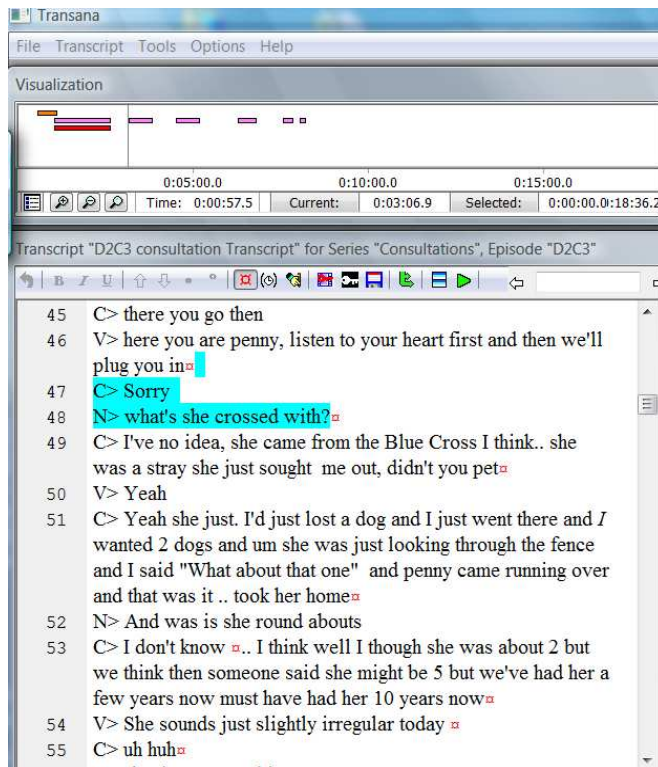
Figure 6-2 : Consultation in which information gathered extends beyond clinical history



In this consultation the first section of gathering information corresponds to the clinical history taking which has been partially reproduced in excerpt 6.1. Although it is normal to refer to “taking” a clinical history and “gathering” information, which both put the professional in charge, in this study there were many examples of the client “giving” information. This information may be related to the current condition; to other animals in the household; or more general information about the client’s relationship with the animal.

In excerpt 6.1 the client as well as giving information about her animal also provides information about herself and how the animal’s condition is impacting on her. She describes her uncertainty about whether the dog is getting better or worse and the difference of opinion between herself and her niece (lines 4-5 and 17-19) and describes how she has to let the dog out “every two hours” to toilet (lines 9-10). This sequence was coded as representing both clinical history and gathering information (Figure 6.2 above). This is then followed by several sections which have been coded as representing information gathering but not clinical history (figure 6.3 below).

Figure 6-3: Screenshot – Transana – Consultation D2C3 – Lines 45-55



The screen shot above (figure 6.3) shows information given by the owner about how the dog was acquired (lines 49, 51, 53). This information was given in response to a question from the nurse in line 48. It is not clear that this information is intended for the veterinary surgeon as the transcripts shows that at the time he is listening to the dog's heart (line 46 & 54).

In this study there were several examples of owners telling “rescue stories” about how they took on the animal (these occurred in 6 of the small animal consultations) or the extremes to which they have been to look after the animal (again occurring in 6 recorded consultations) as shown in excerpt 6.5 below in which a client talks about the acquisition of his cat as a young kitten:

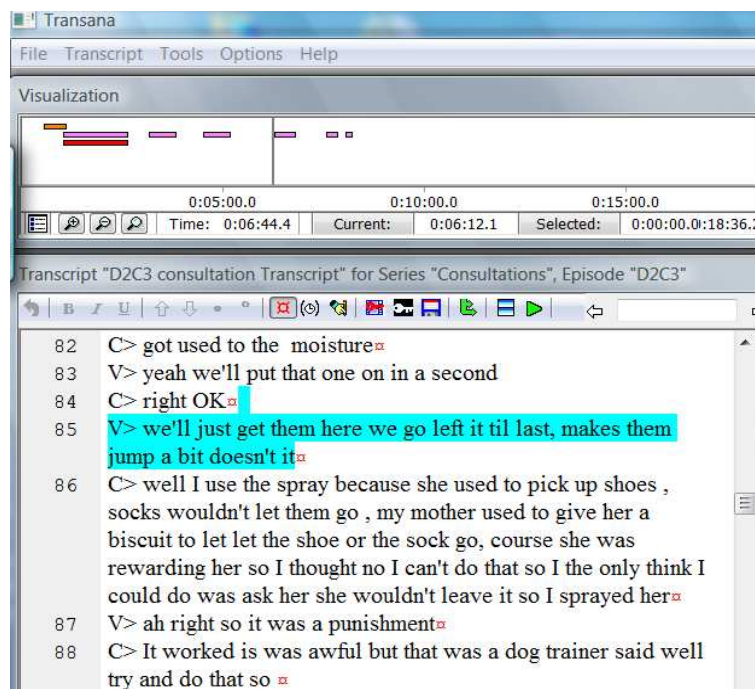
Excerpt 6-5: Consultation C1C1 (131-133)

C>when we got her she'd got cat flu straight away, we got her from Wood Green and we took her back and they said well quite honestly you'd be better to look after her yourself, she'd get more attention so the wife fed her with a pipette, she was on the hall floor on Saturday afternoon, and we thought she'd gone, and we all cried, but she survived that and here she is at 17 and a half.

It is interesting to note that similar stories are not told regarding the purchase of pet animals, this information is only given in response to direct questioning by the veterinary surgeon, for example at the time of puppy vaccinations. In contrast details of the purchase of horses are frequently given with, both the source and cost of the horse being used to demonstrate its importance and value to the owner.

In a second example of the client giving information (figure 6.4) from the consultation D2C3 the client is obviously giving information to the veterinary surgeon to explain the dog's response to the spray, which in this case was being used to improve contact with the ECG leads.

Figure 6-4 - Screenshot – Transana – Consultation D2C3 – Lines 82-88



The owner explains that she has previously used a spray to get the dog to drop objects (line 86). The use of the spray, which the veterinary surgeon comments was being used as a punishment (line 88) was defended by the owner, both because it replaced the reward that

her mother had previously used to distract the dog from its unwanted behaviour (line 86) and because it had been recommended by a dog trainer (line 88).

These examples indicate that the information gathered from the owner extends beyond that which is directly related to the animal's current condition. While some of this information may be seen as providing factual information about the condition of the animal or information about the client's circumstances and values the examples above demonstrate that the owner is also involved in performing "moral work" by portraying themselves as a responsible and caring pet owner in a similar way to the demonstration of responsible parenthood (Silverman 1987).

Transforming the history

The clinical history is often taken to be the information which is collected from the client during the course of a consultation. However it has another meaning in terms of the information recorded by the veterinary surgeon which becomes the permanent record of the animal's condition.

The final part of excerpt 6.1 (lines 20-29), shows the veterinary surgeon structuring the client's previous comments into notes for the computer record. It is noticeable that the veterinary surgeon changes the order and importance of the symptoms from those given by the owner, elevating "cough", which he considered as a possible symptom of cardiac failure to first on the list and downplaying the owner's report of increased urination, which may be a side effect of diuretic treatment, by describing it as "a little bit more urine". This may indicate a difference in perspective with the veterinary surgeon concentrating on the animal's disease, while the owner is emphasizing the effect that the animal's condition and treatment are having on her own life. However structuring the information in a way that transforms the

client's problem into one that is amenable to the treatments that the profession is able to offer is considered to be one of the characteristics of a profession (Abbott 1988).

It has also been pointed out that the way that the information is recorded, whether on a paper form or computer record may also affect the way that the information is collected and structured (Timmermans and Berg 2003; Jones 2009). While most computer programs in veterinary practice allow completely free entry of clinical information this practice had recently changed to a computer system (Rxworks.com) with prompted entry, which may have had an effect on the way that the veterinary surgeon entered the data.

Information recorded in the patient's notes includes not only elements of the clinical history but also findings from the physical examination and the results of diagnostic tests. This written record becomes especially important in those cases where more than one clinician is involved in the treatment of an animal. While the RCVS expressly states that case records "should be passed on request to a colleague taking over the case" (RCVS GtPC 2009) and this routinely happens for animals which have been referred, veterinary surgeons working in out of hours' clinics rarely have access to the animal's clinical history. However, as the excerpt below, from the interview with a veterinary surgeon in referral practice shows, the case notes do not always provide all the information that is required.

Excerpt 6-6: Interview J2 (60-64)

1 V> well a significant percentage of cases the history we get from the owner differs
2 from the history written down by the vets, partly because they see many different vets
3 on many different consultations and each vet might have a different outlook,
4 different slant on *the case, so quite often we've picked up pretty valuable*
5 *information from the owner that hasn't been mentioned by the vets or has been*
6 *glossed over so yeah so talking to the owners is invaluable..... but one big*
7 disadvantage of a lot of the histories from *practices is that unfortunately we don't*
8 get any précis, any summary of the case we get an extensive computer print out of
9 *the history that goes back many years sometimes to the year dotand at the end*
10 *of reading the notes you still don't have what you're actually looking for, so*
11 computer print out alone , and often notes are quite sketchy without any handwritten
12 or personalised letter from the vets can be of limited use.

In this excerpt the veterinary surgeon indicates several points relating to the clinical history as evidence. He starts by commenting that the history that they (as referral practitioners) get from the client can differ significantly from that given by the referring veterinary surgeon in the clinical record (lines 1-2). He suggests that one possible reason for this may be that in first opinion practice the client may see a number of different veterinary surgeons who may each have slightly different approaches or ideas about the case (lines 3-4). However he doesn't mention the possible effect of increased time to talk to the client in the longer consultations that are normal in referral practice or that the client may provide a different account of their animal's condition. There may be differences in the history obtained both in response to slightly different questions and as the owners' come to view the condition differently, for example as a condition that warrants referral to a specialist or because of the extra knowledge they have gained either from their consultations with veterinary surgeons or through their own research. The difference between the veterinary surgeon's and client's history may also indicate that the veterinary surgeon and client have different perspectives on the animal's condition and therefore place different emphasis on the information as demonstrated in the analysis above.

The veterinary surgeon quoted in excerpt 6.6 goes on to talk about the problem of receiving print outs of computerized records without any covering letter from the referring veterinary surgeon (lines 6-12). He indicates that the clinical notes in these computerized records can be "quite sketchy" (line 11) and that it is not the information in these records themselves that is useful but rather the professional's interpretation of the information that is of value.

6.1.2 Physical examination

Within the bio-medical model the purpose of the physical examination is to detect variations from normal that may be associated with disease. This in turn will enable the clinician to explain the patient's symptoms and recommend treatment. During the medical consultation,

clinical history taking and examination of the patient are often separated both because of layout of the consulting room, with a separate area for examination, and because of the potentially intimate nature of some examinations (Fraser 1999). However the layout of most veterinary consulting, and the separation of client who gives the clinical history from the patient who is physically examined, enable both procedures to be carried out at the same time. It has already been shown that in the majority of veterinary consultations the clinical history and physical examination occur in an iterative fashion (Chapter 4) where the clinical history often focuses the veterinary surgeon's physical examination of the animal, and in turn the veterinary surgeon's findings during the physical examination guides further questioning in the clinical history.

In this study all of the recorded consultations involved some degree of physical examination including visual examination and palpation of the animal. This direct physical examination was often extended by the use of instruments, with the stethoscope being the most frequently used instrument in 41/69 consultations followed by the thermometer in 23/69 consultations. However when veterinary surgeons discuss the process of physical examination it becomes clear that it is seen not only a way of discovering abnormalities but also as a means of showing clinical care and demonstrating findings to the client, as shown in the excerpts below:

Excerpt 6-7 : Interview F1 (313) general practice

V> I just feel *the clinical exam, there are things that I'll look for and I can do it quite quickly I know that, I don't know how long we're meant to take over a clinical examination, but I can do it pretty quickly and pick up an awful lot.*

Excerpt 6-8 : Interview H1a (343) out of hour's service

V> I think one of the luxuries we have of having more time is that we are able to *show in front of the client that we're fully examining all the animal thoroughly, and maybe just commenting every now and then on what I'm doing, but when I was in general practice I just rapidly went through it, maybe didn't have the time to demonstrate that I was taking the time to do everything and maybe to explain exactly what I was doing, sometimes either.*

Excerpt 6-9 : Interview J2 (402-403) cardio-respiratory referral service

I> OK so now we're moving on to physical examination which again was much more thorough, it was not just a cardiac or a collapsed physical.

V> No, Yeah you have to just, there's too many cases where there may be other clues, I think going on somewhere in the body, particularly the older the patient is, young animals probably the hit rate for additional signs, clinical signs or clinical findings, the hit rate would be low in young animals, but you go through the set routine starting with the eyes and the retinas, just in case.

In excerpt 6.7 the veterinary surgeon indicates that he is able to pick up a lot of information even in a quick clinical examination, this is re-iterated by the veterinary surgeon in excerpt 6.8 who confirms that when he was in general practice he also went through the physical examination quickly, he goes on to describe having more time as a “luxury”. This second excerpt also raises the idea that the physical examination, as well as providing the veterinary surgeon with information about the animal’s condition and any abnormalities, is a way of demonstrating care to the owner and by commenting on what he is finding the veterinary surgeon contributing to the pre-diagnostic commentary (Stivers 1998) and indexing (Perakyla 2006) as discussed in Chapter 5.

The final extract (excerpt 6.9) is from a veterinary surgeon in referral practice, he characterises the physical examination as a process of looking for “clues” and the way that veterinary surgeons often develop routines for the physical examination, so that the same procedures are carried out on every animal. The implication of more careful examination in referral practice may indicate differences both in the context of the consultation, with the owner seeking an expert opinion; and in the type of patients seen with those in referral practice being more likely to have a serious condition.

While each veterinary surgeon tends to develop their own routine for carrying out the physical examination, there are also differences depending on the species being examined, as indicated in the excerpt below from the interview with a farm animal veterinary surgeon, describing the examination of a dairy cow.

Excerpt 6-10 : Interview K1 (138-143)

I > I was going to comment on that because again, mostly when you're doing small animal consultations most people start at the front and work backwards
V > You're right that it is usual and that's the way you're taught, eyes, ears mouth
I > is that partly the way the cow is presented to you in a crush, and the fact that being a dairy cow most of what's going wrong is perhaps
V > Partly because of the way they're presented and usually that end, but also partly in a ruminant animal its usually abdomen, dung, udder you know those sorts of things, it's not generally cardio-respiratory or that sort of thing
I > so you're going to clear those things out before you move forward,
V > absolutely, and there's an awful lot you can do at the back end from condition scoring, to temperature to watching her breathing rate, you know I just stand there just looking at her, but your just at her cleanliness you know how she walked in was she obviously lame or whatever, there's quite a lot you can do just by standing and looking, and so how full her rumen was , good gut fill that sort of thing.

This conversation shows the difference between the routine used to examine most small animals, that is from front to back and that used in dairy cows where the veterinary surgeon is more likely to start at the back and work forward. A third variation was observed in lame horses which were usually examined from the foot up. It appears that each veterinary surgeon develops routines which are most likely to be effective in detecting the abnormalities that they consider most likely.

6.1.3 Further investigations

Where the clinical history and physical examination do not provide all the evidence that the veterinary surgeon needs, further investigations may be carried out. These include laboratory investigations on samples collected from the animal, for example blood or urine, as well as imaging and other investigative techniques such as radiography. While these are often

referred to as “diagnostic tests” they may in fact be used for a range of purposes, of which diagnosis is only one. These investigations are most frequently used in small animal practice where a wide range of blood tests are available either “in house” or from commercial laboratories. Diagnostic imaging is also common with radiography and ultrasound widely available and MRI and CT scanning becoming available through referral centres. Diagnostic imaging is also common in equine practice particularly in the investigation of lameness, while in dairy practice ultrasound pregnancy diagnosis and herd health decisions based on serology or cell counts are common.

However while clinical history taking and physical examination are expected to occur in all consultations further investigations, as a separate procedure that will incur a cost to the owner, usually requires both recommendation by the veterinary surgeon and consent from the owner.

Further investigations were mentioned in 38 of the 69 recorded consultations, indicating that these are now a common occurrence in veterinary practice. This included the discussion of results of tests that had previously been performed as well as tests that could be performed in the future. For the purposes of this discussion investigative tests were taken to be those tests which gave information that could not be determined by the veterinary surgeon’s physical examination of the animal, and excluded extensions of the physical examination by stethoscope, thermometer, ophthalmoscope or auroscope. Examination of the eye assisted by fluorescein, a dye used to make corneal ulcers visible was excluded, whereas the Schirmer Tear Test, a measure of tear production in the eye was included.

Investigative tests were recommended by the veterinary surgeon in 24 consultations. In a further 8 consultations the veterinary surgeon floated the idea of testing without actually recommending that such tests were carried out and in two of these cases the veterinary surgeon explicitly stated that he did not consider the tests necessary at the time. Clients generally reacted positively when veterinary surgeons recommended testing, responding

with a brief “OK” or “yes”. However this study was not able to follow up cases and establish how many of the clients take up these recommendations.

Investigative tests were mentioned in 11/20 (55%) of consultations for animals presented with a new condition; 22/36 (61%) of animals with an ongoing condition and 5/13 (38%) of animals presented for routine consultations. These figures show that the most frequent use of testing in this sample was not for the diagnosis of new conditions but for the monitoring of ongoing conditions. These tests may be used to assess any change in the condition of the animal or to assess response to treatment. While this information can be of use to the veterinary surgeon in making decisions about management of the animal and the required medication it can also be used to provide evidence to the owner that treatment is or is not working.

The excerpt below is from the same consultation quoted in excerpt 6.1, in which an ECG was performed, in this section the veterinary surgeon discusses the results with the client:

Excerpt 6-11 : Consultation D2C3 (139-152)

- 1 V> These things will usually be down to interpretation more than anything and I
2 *think we haven't seen much change in the amplitude as they call it*
3 C> No
4 V> *Of these or the shape of the complexes, the only thing that's changed really is the*
5 *interval in these irregular ones so you've got a long and a short, a long and a short*
6 *there and what's tending to happen now you've got normal, normal, normal, normal*
7 *short*
8 C> Yeah
9 V> Normal, normal
10 C> which is better.... *whereas now, it's every so often rather than almost every other*
11 *beat..... So the medications that we've got has been helping her then.*

This extract demonstrates several different aspects related to the performance of investigations. The first is that in line 1 the veterinary surgeon acknowledges the role of interpretation in analysing test results. Several veterinary surgeons raised the issue of

interpreting tests during interview, although interestingly none did so with reference to the results of the physical examination despite published evidence which demonstrates variability both within and between individuals in the ability to detect or interpret physical findings (Keg et al. 1997; Fossing et al. 2006; Lamas et al. 2007; Busschers and Van Weeren 2008). The veterinary surgeon then goes on to point out to the owner what he is seeing in the ECG trace with little change in the amplitude (line 2), or the shape of complexes (line 4). While the veterinary surgeon provides only description of the ECG, it is the owner who adds the interpretation (lines 10-11) that this “is better” and that the medication is helping. Discussion with the veterinary surgeon during the subsequent interview suggested that the veterinary surgeon and client may be viewing the evidence provided by the ECG in slightly different ways. In this case the condition of the dog would be expected to deteriorate over time and the veterinary surgeon was looking for evidence that the dog’s condition was not deteriorating and whether there was any indication to change the medication. The owner appeared to be looking for evidence that the medications were helping the dog (line 11), she may also have been looking for reassurance that she is doing the best she could for her dog and that her efforts in giving the medication are worthwhile. The veterinary surgeon revealed in interview that this animal was insured, but where a client is paying the bill directly they may also be looking for evidence that their expenditure is worthwhile.

Another veterinary surgeon raised a further issue regarding the role of testing in the monitoring of disease as a defence against litigation (excerpt 6.12), with many pharmaceutical companies now including recommendations regarding blood testing, both before and during treatment, in their data sheets (NOAH 2010).

Excerpt 6-12 : Interview B1 (92- 93)

V> That was bouncing past the ideas about sort of Vidalta⁶ being monitored and *looking at levels and all the other bits and pieces and not because I actually feel it’s*

⁶ Vidalta is a medication used in the management of hyperthyroidism in the cat

important but because, one of my colleagues knows a friend who's being sued because they didn't devise monitoring and all the defensive medicine stuff. I try and put a nod in the direction at least making clients aware that there was a discussion.

This veterinary surgeon is talking about a consultation with a client, well known to him, and floated the idea of using a test to monitor the patient, just to see if the client was interested although he personally did not see a need for the test at this time. He also mentions the issue of defensive medicine which was also raised by other veterinary surgeons who talked about the effect that this can have on both the diagnosis and prognosis they are willing to give, especially to clients with whom they do not feel that they have a strong relationship. In these cases investigative testing may be used to provide evidence that goes beyond personal opinion and offers a defence against litigation. The excerpt below is from an interview with an equine veterinary surgeon discussing the examination and subsequent diagnosis of a lame horse.

Excerpt 6-13 : Interview E1 (63-75)

- 1 V> I would say about that particular consultation is fairly minimalistic, but from
2 *experience I'm pretty, I'm sure that's what the problem is. If we find its not then um*
3 *we'll have to look at it in more depth, but I could easily rack up an awful lot more*
4 *money, by nerve blocking, x-raying and all the rest of it.*
5 I> yes and you offered to that to her at the end and she
6 V> Yes, cos I know her
7 I> *would you feel that perhaps if it was a client you didn't know so well you'd feel*
8 *the need to do more at that point*
9 V> *I'd push to do more, yes that's right*
10 I> because
11 V> offer, it its interesting because *now I probably wouldn't in the recession, but a*
12 *year ago if I hadn't known the client I would have said I think you perhaps ought to*
13 *confirm this by nerve block and I might have scanned it as well.*
14 I> and do you feel, is that partly for your benefit, is that slightly defensive
15 V> *so they don't sue.*

The veterinary surgeon in this excerpt acknowledges that she took a fairly minimalistic approach to the use of diagnostic testing in this horse (line 1), relying predominantly on her experience (line 2). She indicates that her decision making is influenced by the fact that she

knew the client (line 6) and goes on to add that had she not known the client she would have wanted to confirm her diagnosis by further tests (line 13) to avoid being sued (line 15). This sentiment was echoed by other veterinary surgeons and may be a particular issue for those working in out of hours' services or referral practice where there is not an ongoing relationship with the client and where the circumstances of the consultation, either as a perceived emergency or a serious condition may increase the need for certainty. This excerpt also demonstrates that the veterinary surgeon is balancing the increased certainty afforded by the test results against the increased costs that would be incurred (lines 3-4).

The role of investigative tests in increasing the confidence in the diagnosis has been studied in human medicine where a prospective study of 80 outpatients with previously undiagnosed conditions found that 61 (76%) were diagnosed by history alone however it as reported that the doctor's confidence in the diagnosis increased following both physical examination and diagnostic testing (Peterson et al. 1992). However in another study it was found that in a small number of cases the findings from the physical examination or diagnostic tests may decrease the doctor's confidence in their original diagnosis, or indicate possible diagnoses that had not previously been considered (Hampton et al. 1975).

6.2 Effect of evidence on decision making

It is difficult to assess the relative importance of the clinical history, physical examination and diagnostic testing on decision making from observing the consultations as all three interact. This section will look in more detail at veterinary surgeons accounts of their use of evidence in clinical decision making.

6.2.1 Differences between veterinary surgeons

Individual veterinary surgeons appear to place different emphasis on the relative importance of the clinical history, physical examination and investigative tests as shown in the excerpts below:

Excerpt 6-14: Interview F1 (154 & 311)

V> I get a lot more from a history in all honesty than I do from a clinical examination, *whilst obviously the clinical examination's important, the history for me, and listening and thinking whilst I'm taking a history is critical, I don't know* how vets work by sort of talking to someone and looking at a dog at the same time. To me it's you just got to separate it out, I just have to separate it out, I have to just *look at them, listen, just look at the dog and see how it's breathing and what it's doing and to me its sort of time well spent....* I would far rather do a 7 or 8 minute history and a one minute exam than the reverse. I get so much more from it.

Excerpt 6-15: Interview C1 (467-471)

V> I think I rely quite heavily on clinical examination ... um more than typically more than most compared with lab result, typically more than most compared to the *history, and if owner tells me that's a 17 year old cat and I examine it and it looks like a 4 year old cat*
I> *you'll believe your own eyes rather than*
V> *I'll put a big question mark next to the 17*

The veterinary surgeon quoted in excerpt 6.14 considers the clinical history more important; however he does acknowledge that while he is talking to the owner he is looking at the dog at the same time. In contrast the veterinary surgeon quoted in excerpt 6.15 states that he relies most on the physical examination but goes on to acknowledge that this is untypical and he recognizes that others may rely more heavily on the clinical history or test results.

Differences between individual veterinary surgeons may be determined by a range of factors, but several more experienced veterinary surgeons commented on a perceived overreliance on testing by their younger colleagues. It has been shown that there are differences between individual clinicians in the tendency to use diagnostic tests which may relate to individual tolerance of uncertainty (Hampton et al. 1975). Therefore it is possible that new graduates undertake more diagnostic testing because of lack of confidence in their own diagnosis as

well as uncertainty as to which test will provide the information that they need. Making decisions about diagnostic testing can be particularly challenging for recent graduates as indicated in the excerpt below:

Excerpt 6-16: Interview C2 (97-99)

V> I think as well when you're at college though because everything's available to you it's trying, the biggest problem I have to prioritise what tests would be actually the most useful and most cost effective which one's going to give me the most relevant information that's the quickest, the cheapest and that's quite difficult but I guess it's hard for college to teach you that I guess they can to an extent but really it's down to you finding out how expensive things are.

This veterinary surgeon acknowledges that prioritising which tests to perform and assessing their cost effectiveness was not something she had been prepared for at University. Failure to recommend or carry out necessary tests can also cause problems in reaching a diagnosis and instigating treatment, as indicated in the excerpt below from an employer talking about some of his younger employees:

Excerpt 6-17: Interview D2 (672-674)

V> I've actually asked some of my vets, 'cos I've not been able to understand why sometimes they're in practice, and they don't do the tests that they need to do, they wouldn't do the ECG, they wouldn't take the culture and sensitivity, they wouldn't take blood tests or the x-ray or the second view, that's a classic one, take one view... I say look, take me back to your university if you were in the university and the client came in what would you do there, they say we'd do 3 x-rays, ultrasound, blood tests and all that, so now what's the difference?

I> and they answer?

V> the answer tends to come, oh we're in practice so the client doesn't necessarily afford it, how do you know that, they don't know the answer to that cos they don't know how to figure that out, they just assume because they're in practice they won't want to spend as much.

An excerpt from an interview with one of his current employees gives further insight into the factors which influence decision making regarding carrying out further investigations:

Excerpt 6-18: Interview D3 (359)

1 V> X.... talks a lot about strength of recommendation and I would say I try to give
2 clients the option, a lot of the time as to how quickly you jump on things as well, like
3 *if the animal's insured then I'll always recommend best practice, push for best*
4 *practice, if the animal's not insured and the clients concerned about money then you*
5 *tend give a, similar to the PDSA, give like a systematic (sic) treatment approach or*
6 *give it 24-48 hours depending on how sick I think the animal is and then say right*
7 *but then we will need to do such and such, such and such , and I think there are, I*
8 *would say that I'm not very good at pushing clients on a first consult if they're*
9 *concerned about money to do lots of tests, I think often, I don't know whether,*
10 *whether it helps or whether it doesn't help, but I find that if you present them with*
11 *this is what we need to do, but if you want to try systematic treatment, we can try*
12 *that but if it doesn't work then we need to do this, and that gives them a chance to*
13 *mull it over and not worry about how much it's going to cost them at the start.*

In this extract the veterinary surgeon talks about offering the client options (line 2) in acknowledgement that this is an area where the client as paying customer does have choice, but then goes on to describe the effect of insurance on whether she will recommend testing in accordance with “best practice” (line 3), which she appears to associate with carrying out diagnostic tests. The effect of financial issues and insurance on clinical decision making will be discussed further in section 7.2. She also acknowledges that, providing the animal is not too sick (line 6), the delay before testing may give the client time to consider the decision (lines 8-9 and 12-13). However in presenting the client with options rather than recommendations the veterinary surgeon may be displaying uncertainty about the need for diagnostic testing (Chapter 5).

6.2.2 Differences between clients

The other variable that can affect veterinary surgeons' relative reliance on the clinical history physical examination and investigative tests is the ability of the owner to give clear information about the animal. In cases where the veterinary surgeon feels that they have not

been able to get a clear or reliable history from the owner they will typically rely more heavily on the physical examination. This is shown in the excerpt below from an interview discussing a consultation in which the client described a number of symptoms which the dog has apparently suffered while she was on holiday:

Excerpt 6-19: Interview B2 (21-25 & 42-44)

I> do you want to tell me your take on this consultation before we start?
V> *It was an absolute nightmare, I don't think I got very far. I was finding it very I felt I wasn't getting a very good history from her.*
I> *I think that's a perfectly reasonable*
V> *and she was, I couldn't get it clear in my mind what exactly was going on and was getting a kind of hearsay from her son as to what happened when he had the dog and I couldn't piece it together and then it had then it had always been vomiting, and I was just getting completely confused and I was trying to steer her to a start point but I just felt I couldn't I just wasn't getting very far..... yes um interestingly enough I found the case difficult simply because I couldn't work out what was going on but at the same time I think once I'd examined the dog and was happy in my mind that there wasn't anything I was particularly concerned about then my decision making was based on what*
I> you found rather than what the owner was telling you
V> exactly

The veterinary surgeon in this case acknowledged that she relied almost totally on the physical examination. Assessing the reliability and accuracy of the clinical history as it relates to the animal's illness may be particularly important in veterinary practice where animal owners vary enormously in their knowledge and experience and therefore their ability to present a clear account of the animal's illness.

Where the veterinary surgeon still does not have sufficient information they may recommend further investigations. From the consultations recorded in this study clients generally appear to accept the veterinary surgeon's recommendation for testing. However it should be remembered that the clients were aware that they were being recorded as part of a research project and in one case the veterinary surgeon specifically commented that one of his clients completely changed their behaviour in the presence of the camera agreeing to investigations that had previously been resisted.

Focus group studies have confirmed that clients are open to the idea of testing but want information about how the test will benefit their animal (Coe et al. 2008), they also want information about costs (Coe et al. 2007). These findings suggest that it is important for veterinary surgeons to be able to understand and communicate the reasons for testing in each case, critically appraising the need for the tests as well as the results.

6.2.3 Combining evidence in clinical decision making

Despite the fact that sources of evidence can be discussed individually in real life decision making involves the integration of evidence as described in the example below. This excerpt is taken from an interview with a veterinary surgeon discussing his decision making in the case of a cat with an over active thyroid gland (hyperthyroidism). It demonstrates how the veterinary surgeon integrates a range of different evidence as well as the influence of the client on the decision making process. This excerpt was chosen because the veterinary surgeon concerned was able to explain his thought process with little prompting, however many other veterinary surgeons also described how they would tailor their approach and recommendations to the individual client.

Excerpt 6-20: Interview B1 (185-190)

- 1 I> Do you have a normal way of approaching your thyroid cases, would you put
2 *most of them on medication before surgery assuming that's the way the owners are*
3 *going or does it vary very much from case to case?*
4 V> Stage 1 suspicion, *stage 2 client information as to what you're suspecting what*
5 *the consequences are and differential awareness*
6 I> Yeah
7 V> and so that we can always suspect it but is there something else we should be
8 aware of as well, um with client's understanding set out a plan, and *that's the point*
9 *you then go and that plan may then be different cos that's where "my depends" has*
10 *already kicked in. So my plan A would be typically for most clients and by and large*
11 *you can average most clients' approaches the plan A would be to recommend a*
12 *blood test and medication as your first line of approach and the blood test I perform*
13 *is for diagnostic purposes the thyroid level as standard and I routinely will screen*
14 *urea and creatinine, because of the differential of kidney issues and subsequent*

15 anaesthetic requirements, *a general health profile is lovely but if I have to I'll snap*
16 *shot those as my requirements if urea/ creatinine is OK the cat is otherwise well and*
17 *the thyroid is supportive of the diagnosis I medicate I don't really like medicating*
18 *without a blood test to confirm or to support though I have occasionally as you*
19 *probably have as well, the odd one that doesn't flag but everything else pointed but*
20 *I will usually run that on a little bit and usually have all the clinical justification*
21 *behind it, then explain to the client., medicate, review at a month typically 3-4 weeks*
22 *so that we can and normally just hear that the cats a lot better which is sort of*
23 *fairly reliable um at which point I will reiterate what I will probably have seeded*
24 *about the subsequent options I will have probably pre-prepared them for my*
25 *recommendation of surgery as the likely way we'll go if I can palpate one, if I can't*
26 *palpate I don't ... like embarking on surgery for non palpable thyroid I can usually*
27 *feel even quite small ones, cos they're usually thin anyway, though a non palpable*
28 *thyroid worries me and I get a bit twitchy all the issues about palpable bilateral yes,*
29 *bear in mind I will counsel them and talk about radiotherapy, ongoing medication.*

The excerpt followed on from the specific discussion regarding a recorded case, so the interviewer's question (lines 1-3) refers to the way in which this particular case was being treated. The first part of his response (lines 4 and 5) indicates that his decision making starts with the suspicion that the disease is present and that it is important to involve the client in the process at this stage.

He describes a plan A, which would be typical for most clients, in which he would recommend blood tests, both specifically to confirm the overactive thyroid gland (line 13) and to screen for kidney disease (urea / creatinine) which is both a differential diagnosis and a factor which could influence the subsequent treatment of hyperthyroidism (lines 14-15). His description indicates that he sees the blood test as supportive of the diagnosis rather than diagnostic in itself (line 17) and that he will occasionally make decisions based on the clinical examination alone and response to treatment (lines 18-22).

Throughout the excerpt he also indicates the involvement of the client starting with an acknowledgement of the clients influence with "my depends" in line 9. This relates back to previous discussions during the interview in which he had stressed his opposition to the idea

of strict guidelines or protocols because of the uniqueness of individual cases leading to a response to most questions about how to treat a case with “it depends”.

The veterinary surgeon refers to the different types of evidence he uses to support the decision making process. The suspicion of disease is raised from the clinical history and physical examination and confirmed by blood tests, which may also be used to rule out other differentials in the diagnosis of disease. All three components of evidence are used again to make decisions about management once the diagnosis has been made. He also refers to the importance of time in the decision making process. His reference to reviewing the case after 3-4 weeks to assess response to treatment (lines 21-22) is an example of “test of treatment” (Glasziou et al. 2009) he also refers to the role of time for the client to consider the options and his recommendation regarding surgery (lines 23-24).

Throughout this consultation the veterinary surgeon is relying on his professional knowledge of the disease condition and treatment options and makes no reference to external sources of evidence during the description of his decision making. During this research project no references to published literature were made during consultations and veterinary surgeons were only seen to consult information sources in front of the client on two occasions.

6.3 The professional knowledge base

6.3.1 Sources of evidence

Despite the fact that veterinary surgeons rarely referred to, or consulted, other sources of evidence in front of the client they do have a range of resources available. Veterinary surgeons were asked about the sources of evidence which they are most likely to consult when they are uncertain about the management of a case (Appendix C Part 3 Q 3-6). The

excerpt below is from the interview with a veterinary surgeon who had only been qualified 2 years sums up the view of many:

Excerpt 6.21: Interview D3 (396-401)

- 1 *I> OK you mentioned textbooks, when you're not sure about anything are you most*
2 *likely to go to books to try and find things out?*
3 *V> I'd go to my uni notes first, cos they're more concise and then I'd probably go to*
4 *BSAVA manuals and then I might pick up something like Fossum if I had to*
5 *I> BSAVA manuals are popular I must admit, just about everybody thinks, cos they*
6 *are quite*
7 *V> concise and they tell you what you need to know, they don't tell you all the rest*
8 *of the rubbish, but a medicine or surgery text book if I had to. Obviously if I've got*
9 *somebody around, who I trust their opinion then I would ask because I judge on*
10 *other peoples experiences much better, it's kind of second best to your own*
11 *experience rather than a textbook which you think what are they telling me is this*
12 *what I actually need to know.*
13 *I> and journals?*
14 *V> Yeah if I know there's an article recently in a journal that I've seen and is*
15 *relevant or I've done that with journals yeah, some of them are good, some of them*
16 *are rubbish.*

The veterinary surgeon interviewed in excerpt 6.21 mentions a range of sources of information starting with her university lecture notes (line 3). These were mentioned as a reference resource by several recent graduates because they are considered concise and the veterinary surgeons are able to locate information easily. BSAVA manuals⁷ were popular with many veterinary surgeons dealing with small animals for similar reasons (lines 4-5).

Individually named textbooks, such as Fossum⁸ were less frequently mentioned as they were perceived to provide too much unnecessary information (lines 8 & 11) although some veterinary surgeons would refer to favourite books depending on their own area of interest.

⁷ The British Small Animal Veterinary Association (BSAVA) produces a range of textbooks covering aspects of small animal practice

⁸ Textbook of Small Animal Surgery

This veterinary surgeon goes on to say that she would prefer to consult a trusted colleague, because the information that they are likely to give, based on experience is more likely to be useful (lines 9-11). This indicates that the relevance of information is considered to be an important factor (Shaughnessy et al. 1994).

Other people are the most frequently mentioned source of information under uncertainty, be they colleagues in the same practice; contacts that individuals have made; or those with recognised expertise. One interviewee expressed the opinion that *“I think we learn more as a species chatting to each other informally than we gain by going to CPD, what you do, chatting about cases with your mates at the bar very often is hugely useful”* (B1). This may indicate that the uncertainty that veterinary surgeons experience is often more to do with the application of knowledge in the treatment of individual cases rather than the technical knowledge more frequently conveyed in text books. Consulting colleagues over the internet is also becoming common with internet forums and subscription services such as the Veterinary Information Network (VIN) being popular with some respondents.

Journal articles were only mentioned after prompting (lines 14-16) and were considered to be of variable usefulness. While primary research papers were a favoured resource for a few veterinary surgeons, a larger number had a less positive opinion of journal articles with one interviewee expressing the opinion given in the excerpt below:

Excerpt 6.22 - Interview D2 (698)

“I don’t use journals much at all, in fact a lot of them are still in wrappers, because I find that they’re not practically oriented evidence, they might be fine for academics, but they’re not necessarily written for the practitioner so and if they’re written with academic criteria behind them they’re not written with the practical criteria, well how do we make the decision, using that information, so anyway I don’t use them”

This rather poor opinion of veterinary journals has some support from other sources with a professor of medical primary care as describing them as “full of fascinomas such as patent ductus arteriosus in the badger or firework injury in a goldfish” (Greenhalgh 2003, p 1175). Veterinary surgeons report that they would like to see more articles from practitioners

(Duncanson 2003; Duncanson 2006). However although veterinary journals are keen to encourage practitioners to submit articles for publication, practitioners report finding it difficult to produce papers from practice that achieve the required standard for publication (Wood et al. 2006).

Veterinary surgeons were also asked about the evidence that they would seek out when considering introducing a new product or service into their practice (Appendix C Part 3 Q7) a range of responses are given in the excerpts below:

Excerpt 6.23: Interview F1 (576)

V> Um right at the bottom of the scale would be what a rep says, and then at the top would be published work, um followed by, you know I might have read something, in a text book or something which happened to alert me to a particular thing, or the experience of a colleague would be in the middle there. *I don't always do what other people say, because it's just experience of n=1.*

Excerpt 6.24: Interview J1 (48)

V> I mean yeah there's a range of vets out there, some believe the marketing and some don't realise it's marketing. *And I don't know why that is but, it's certainly some companies are very good and powerful marketers and they sell the story very well and convince some vets very well so the vets end up changing a routine away from what I would consider to be a normal routine.*

Excerpt 6.25: Interview K1 (312)

V> Yeah the evidence behind it I suppose, the evidence base, we had nice example *the other week where one of the farm advisors there's a new vaccine on the mastitis market for example, which is unusual in mastitis but it's, I've got a couple of clients using it, why don't you use it um I put my foot down and said we're not using it until we have some UK published data. Um so a lot of the time, the most common thing in farming is the antibiotics, normally respiratory disease type antibiotics, and um yes I would look at it very differently, I would be inherently very sceptical to start with, um which is unusual I suppose because most farm vets want to just use a new drug.*

The interviewee in excerpt 6.23 sees evidence on new products as a continuum stretching from “what the rep says” at the bottom to published evidence at the top, with text books and colleagues opinion in the middle. Many veterinary surgeons mentioned company representatives as a source of evidence but many were cynical about their claims and this

cynicism tended to increase with the age of the veterinary surgeon. However they were often the first source of information about new products. This idea was picked up again by the veterinary surgeon from excerpt 6.24 who comments on the effect of marketing on veterinary surgeons in causing them to change their treatment choices. The veterinary surgeon in excerpt 6.25 raises another side to the story in that once a new product is available there may be pressure from the client to use it. This situation may be more common for experienced or professional animal keepers such as farmers, who become aware of these products through talking to others within the business, as there are restrictions on the advertising of prescription only medicines to the public.

Veterinary surgeons also raised concerns about the large number of “nutraceuticals” being introduced and promoted to animal owners. Nutraceuticals are a class of products which are not licensed as drugs and therefore should not make claims about their efficacy in disease, however many are promoted both to the profession and the public as being useful or supportive to animals with certain conditions. Veterinary surgeons did discuss the use of these products with their clients but were more likely to inform them of their existence rather than make specific recommendations for their use, and many expressed concern about the lack of supporting evidence as in the interview below with a recently qualified equine vet:

Excerpt 6-26: Interview E2 (134-135)

L> what sort of evidence resources do you consult do you look at?

V> Journals well everything journals, textbooks, CPD um I look to experts in the field so *a diverse range, I mean the thing is I'm for evidence based medicine and then you get all these treatments that are um nutraceuticals that have no evidence behind them, that cost owners a fortune and you know people recommend because they worked in this horse*

The veterinary surgeon in excerpt 6.26, as well as those in excerpts 6.23 and 6.25, all express caution about the idea of introducing new products based on anecdotal evidence. This seems to conflict with the reliance on colleagues as a source of evidence in treating and managing cases. However closer examination suggests that a distinction is being drawn between

anecdotal evidence that is reported to the veterinary surgeon, which is considered to be very low level evidence, and experience from trusted colleagues which is rated much more highly, presumably because the knowledge and integrity of the person making the claim is also being judged. There may also be a difference between the type of evidence being sought when considering a product in general terms and that sought to aid clinical decision making in a specific case. It appears that veterinary surgeons are most likely to report using published literature to check the claims of those who are not trusted or who may be considered to have an interest in promoting a particular product.

New procedures are more likely to be introduced from having attended continuing professional development courses (CPD) or by new colleagues joining the practice. While the drive to introduce new drugs, or change the brand of drug used tends to come from the pharmaceutical industry, new procedures are more likely to be driven by the veterinary surgeon who is either looking for a new challenge or to extend the range of services offered to clients..

6.3.2 Evidence-based veterinary medicine

While questions to veterinary surgeons were asked about evidence or information sources in general terms a number of veterinary surgeons specifically mentioned “evidence-based medicine” in their responses. Those who mentioned it were keen to implement it in their practice but all acknowledge that this was difficult. The most commonly cited problem was lack of good quality evidence, particularly that free from commercial interests.

Excerpt 6-27: Interview G1 (186)

1 V> I tend not to use that much medical literature, I tend to be most interested, well I
2 think the big buzz phrase is evidence-based medicine which slightly irritates me
3 *because I thought that's what we'd all been trying to practice the whole time, but if*
4 *you actually look at the levels of evidence within veterinary medicine, it's pretty*
5 *poor. We don't have the large scale high powered studies that they have in human*

6 medicine and even when we do have large scale high power studies, if we look at
7 Atkins work on ACE inhibitors in asymptomatic dogs you know he found no
8 *significant advantage and he's made a career out of travelling the world telling*
9 everyone that there is a trend that suggests it, so that sort of blows the whole concept
10 of academic driven evidence-based medicine out the window as soon as anyone sat
11 *back and thought about it. But you know we don't have a lot of high powered things*
12 and a lot of the studies *come out, there's the classic one, there's a whole group of*
13 *academics who won't use Ranitidine as an H2 blocker and that's based completely*
14 on a study that was done, *Barticus I think, Barticus's study and it was published in*
15 the Journal of Veterinary Medical Research⁹ and it involved 12 dogs.

The veterinary surgeon quoted in this excerpt starts by expressing his interest in evidence-based medicine (line 2), but then goes on to express his irritation that this has been proposed as a new approach by saying “*I thought that's what we'd all been trying to practice the whole time*” (line 3). He goes on to comment that in the veterinary profession we don't have access to large high powered studies that are considered to provide good quality evidence in human medicine (CEBM 2001). He gives two specific examples of problems with the evidence base of published literature citing Atkins work on ACE inhibitors in asymptomatic dogs (Atkins et al. 2007) , as work which while not demonstrating an advantage has provided a career for its author suggesting that academics are not free from commercial influence (lines 6-11). The second example he cites relates how a single study even on a small sample, in this case 12 dogs, can influence decision making and recommendations (lines 12-15).

Another veterinary surgeon commented specifically that even in areas where there is published evidence it doesn't always get into practice:

Excerpt 6-28: Interview K1 (275)

V> but there's certainly a lot of published evidence out there, a lot of the stuff with farms tends to be treatment orientated, like it is for most things, there's less

⁹ Probably referring to the study by Bersenas, A., K. Mathews, et al. (2005). "Effects of ranitidine, famotidine, pantoprazole, and omeprazole on intragastric pH in dogs." American journal of veterinary research **66**(3): 425-31.

published on management things, that sort of stuff, but if you look at RDA¹⁰ example *there's an awful lot published on success rates, with different surgical techniques for example, so there's a lot published out there whether or not people go and read it and then use that to inform their decision and that's the whole evidence-based veterinary medicine isn't, which still I'm afraid doesn't really happen.*

It has been proposed that *“as veterinary surgeons we will frequently find ourselves in situations where there is no primary scientific evidence on which to base our decisions, and that we will have to use evidence in the form of expert opinion, case reports, personal experience and other non-literature based sources, which should be collated, assessed and ranked in order to arrive at a decision”* (Cockcroft and Holmes 2003, p 3). While the veterinary surgeons observed and interviewed in this study are using a wide range of sources of evidence to support their clinical decision making they do not seem to be doing so in the explicit way suggested in this quotation.

6.4 Discussion

The material above shows that veterinary surgeons rely on and combine a wide range of evidence in making clinical decisions about individual patients. However this looks more like the case based reasoning described by Tonelli (2006) in which the clinician brings together different types of evidence in making clinical decisions rather than the explicit use of evidence as described by evidence based medicine (Guyatt 1992).

In making clinical decisions about the care of their patients, veterinary surgeons combine evidence gathered during the consultation from the clinical history, physical examination and diagnostic testing with professional knowledge from their own experience, trusted colleagues

¹⁰ RDA – Right Displaced Abomasum

and sources. Much of the veterinary literature concerning diagnosis and treatment confines itself to discussion of the condition of the patient however as the sections above have shown that the clinical history and physical examination do more than just collect information about the animal's state of health or disease. The clinical history also allows for information to be shared between veterinary surgeon and client about the animal's perceived wellbeing; and the relationship between animal and owner; and the owner's ability to undertake treatment. The physical examination, as well as providing information about the animal's state of health, also allows the veterinary surgeon to demonstrate the care that is being provided and the evidence which supports the diagnosis (indexing).

Despite the variation caused by the preferences of individual veterinary surgeons and the ability of the client to provide clear information about the animal's condition the clinical history and physical examination still appear to provide the majority of the evidence that the veterinary surgeon relies on to assess the condition of the animal and make recommendations or discuss options with the owner. However it is harder in veterinary practice than medical practice to separate out the relative contributions of the clinical history and physical examination because they take place in an iterative fashion.

In contrast to the clinical history and physical examination, which are expected components of the consultation, further investigations are explicitly discussed and require consent from the animal's owner. It would appear that owners are generally receptive to the idea of investigations provided they understand the benefits to their animal. Veterinary surgeons therefore need to be prepared to explain the rationale for any proposed investigations.

While it is common to talk about diagnostic testing these investigations are used for a variety of purposes including confirming the veterinary surgeons suspicion of disease; distinguishing between differentials; as well as informing decisions about treatment. These investigations may also be repeated to monitor the effect of treatment. The extent to which veterinary surgeons recommend further investigations appears to depend not only on the

individual animal but also on the context of decision making and the relationship with the owner. The factors which influence clinical decision making in veterinary practice will be discussed in greater detail in the next chapter.

Chapter 7 - Factors affecting Decision Making in the Veterinary Consultation

A veterinary practice is a small business, which rents/buys a site, employs qualified staff, pays rates, business tax etc. Veterinary practices do not receive any funding from Government — the National Health Service or any other agency. The practice income is derived solely from the business that flows through the veterinary surgery.

Increasingly, clients are coming to expect the same standard of care for their animals as they receive themselves and veterinary practices are striving to meet this trend. Many veterinary practices offer the equivalent service to a human hospital and are often able to provide speedier treatment than is possible through the NHS.

Charges for veterinary services can come as a shock because few of us are used to paying the full costs of human healthcare....You may also wish to consider taking out insurance to cover some of the veterinary expenses of caring for an animal.

The veterinary profession is often compared to the medical profession. In some ways, the studies and the nature of the work is similar, however, the environment in which they operate is very different.

(RCVS 2010)

Veterinary practice occupies a difficult and complex moral position because it serves animal and human interests, which may conflict (Tannenbaum 1993, de Graaf 2005). Ethical challenges are commonplace as veterinarians seek to balance their obligations to ensure the *welfare of their patients while accommodating the owners' expectations or demands, often within strict economic constraints, the views of professional peers, the wider interests of society as a whole, and the commercial interests of private practice* (Rollin 2006).

(Bartram and Baldwin 2010 392)

Although clinical decisions regarding the care of animals are taken by the owner and their veterinary surgeon, these decisions do not take place in isolation but rather need to be considered in context. As the above quotations indicate the social context in which healthcare decisions about animals are taken may be influenced by a number of factors other

than the condition of the animal. The first quotation, taken from the website of the Royal College of Veterinary Surgeons (RCVS), provides information to the public on the veterinary practice as a small business, stressing that clients and veterinary surgeons may both be expecting care similar to that provided for humans, but as there is no government funding for veterinary care the costs of this care will need to be met by the client or their insurance company. This information appears to be targeted primarily at the pet owner and focuses on the similarities and differences between human and animal care.

The second quotation is taken from an article reviewing possible influences on suicide in veterinary surgeons. This quotation highlights the potential ethical conflict for the veterinary surgeon in balancing their obligations to their animal patient with the “expectations or demands” of the animals owner.

Historically veterinary practice has been associated with agriculture where decisions about the treatment and welfare of animals have had to be taken within the context of the farm as a business with decisions regarding the treatment of animals being predominantly influenced by animal welfare and economic concerns (Tannenbaum 1995). The rise in small animal practice and the changing role of the pet have led to decisions about companion animals being taken on emotional and moral grounds (Fettman and Rollin 2002). However economic and welfare factors may still influence clinical decision making through the financial aspects of veterinary care and the consideration of euthanasia.

This chapter will look more closely at the factors that influence veterinary surgeons’ clinical decision making using excerpts from recorded consultations and interview accounts. Because this study did not include interviews with clients, discussion of the factors which influence clients will only be included where it is raised by the veterinary surgeon, although where possible evidence from research which has directly asked clients for their views and opinions will be included to support or refute these assertions

The first section will examine some of the factors which may affect clinical decision making by looking in turn at those relating to the animal, owner and veterinary surgeon. The second section will look in more detail at the influence of financial considerations on clinical decision making and the way that the costs of veterinary care are, or are not, discussed during consultations. The third section will look at the effect of euthanasia as an option in veterinary practice and how the requirement to consider animal welfare influences clinical decision making.

7.1 Individual influences on decision making

Veterinary surgeons in the U.K. takes an oath that “my constant endeavour will be to ensure the welfare of the animals committed to my *care*” (RCVS GtPC 2009, 1A), and animal owners are now required under the Animal Welfare Act (DEFRA 2006) to ensure that the welfare needs of their animal are met. This includes the need to be protected from pain, injury, suffering or disease as well as freedom from fear and distress. However the act itself gives little indication as to how these needs should be interpreted when making decisions about treatment in veterinary practice.

The majority of veterinary textbooks and teaching in veterinary medicine focus on the discussion of diseases or signs of disease. These tend to put forward the idea of the best way to approach the investigation and treatment of a particular condition. However veterinary surgeons discuss a number of factors which may affect their clinical decision making in individual cases leading to variations in the treatment of apparently similar cases. These factors may relate to differences between animals, their owners or the veterinary surgeons themselves.

7.1.1 Factors relating to the animal

There are a number of factors relating to the individual animal that can influence the veterinary surgeon's approach to the investigation and treatment of disease as shown in the excerpts below:

Excerpt 7-1 : Interview C2b (152 – 159)

- 1 I> and do you think that there are any other things that particularly influence your
2 decision making?
3 V> um sometimes the temperament of the animal will decide for example going back
4 to antibiotics – cats I would prefer to give cats, or any animal an antibiotic that I
5 can take away if I need to.
6 I> Just in case it has a bad reaction?
7 V> *Yes bad reaction or it doesn't respond, what's the point in having something on*
8 *board if it's not working, um so while Convenia¹¹ is great I don't tend to give that to*
9 *animals unless the person's going to have difficulty giving it, whether it's the*
10 *animals temperament or the ability of the person. Some people will specifically ask*
11 *“Oh I hear there's a really long acting my friend had it can I have that one I don't*
12 *want to do the tablet” and I explain pros and cons and if they still want it I'll give it*
13 *to them and so that's the temperament yeah might affect my decision making, might*
14 *affect yeah the temperament of the animal, how bouncy the dog is and whether it's*
15 *got other medical issues and might decide you might encourage I suppose encourage*
16 *but suggest to somebody that euthanasia might be a better option than you know. We*
17 *recently had a case which probably had a splenic tumour is what we suspected*
18 *although obviously we couldn't be there for sure the x-rays suggested it um the dog*
19 *also had other issues as well, other health issues you know quite bad arthritis*

In this excerpt the veterinary surgeon raises two factors relating to the animal that could influenced her clinical decision making. The first of these is the temperament of the animal (line 3 and lines 13-14) such as a cat to which it is difficult to administer medication or the bouncy dog which may be difficult to restrict, for example following surgery. The other factor raised is animal's general health and the presence of more than one condition (line 15), in this case severe arthritis in a dog with a suspected splenic tumour (lines 16-19).

¹¹ Convenia = long acting antibiotic injection

It is also interesting to note the veterinary surgeon's language when she discusses euthanasia (lines 15-16), when she uses the words "decide", "encourage" and "suggest" in quick succession. The discussion of euthanasia will be further discussed below and in section 7.3.

The presence of co-morbidity (the existence of more than one condition) is poorly researched but appears to be a significant factor in both human and veterinary medicine (Saltman et al. 2005). In the 69 consultations recorded in this study 20 animals had more than one condition which was discussed during the consultation and 11 were prescribed treatment for more than one condition during the consultation. Where more than one condition exists there may be implications both for the treatment options and for the overall quality of life of the animal as shown in the excerpt below from the discussion of a consultation of a Cocker Spaniel which is being treated for several conditions:

Excerpt 7-2 : Interview G1 (58-61)

- 1 I> So with this particular consultation you've met both the client and the dog before,
2 I take it from
3 V> I have yes
4 I> and *there's several things* going on there
5 V> The dog's got piles of immune mediate disease, so it came to me actually as a
6 tertiary or even quaternary referral as a non responsive immune mediated
7 thrombocytopenia about 2 years ago um and one the previous referral vets had
8 noted that it had pancreatitis and in fact it had auto-immune pancreatitis but they
9 *hadn't* got far enough to discover that, and it also then had subsequently developed
10 Keratoconjunctivitis Sicca, but it's had an ongoing problem over the last 6 months
11 as well as that with deteriorating degenerative joint disease, osteoarthritis and joint
12 pain.

The veterinary surgeon, who sees referral medical cases within a predominantly first opinion practice, starts by describing the varied conditions for which the dog is receiving treatment (lines 6-10). While the dog is receiving treatment for a range of conditions related to problems with its immune system the major concern at this time is the arthritis and joint pain (lines 11-12).

The veterinary surgeon goes on to say “I think it is the mobility that is primarily the issue for *the dog*” and later in the consultation acknowledges the quality of life issues in discussion with the owner:

Excerpt 7-3 : Consultation G1C4 (92)

V> now because the 6 million dollar question comes down to the whole point is to *try and deal with her mobility issues we've got quality of life questions here and of course what we're interested in here is are we going to be able to reduce the [steroids] , you're still going with the eye drops are you?*

While any animal can have more than one condition the issues of co-morbidity and quality of life are particularly common in small animal practice where dogs and cats are living longer and now suffer from a similar range of chronic diseases (e.g. arthritis, heart disease and diabetes) as are seen in human medicine. The genetic manipulation of animals to exaggerate certain characteristics can also lead to variations which need to be assessed when considering clinical decisions. For example “a Pekinese may have never enjoyed walks; therefore, a disease that impacts on its ability to walk would not substantially decrease its quality of life. In contrast, the fact that its breathing has always been laboured does not mean that it is not *a problem now; rather, it has always been a problem*” (BVA 2009, p 2).

In assessing the appropriateness of treatment for an individual animal the veterinary surgeon is required to make animal welfare a priority. However the veterinary surgeon will also need to consider the relationship between the animal and owner, as it is the owner who in most cases will be paying for veterinary attention and carrying out much of the care.

7.1.2 Factors relating to the owner

Relationship between animal and owner

The effect of the relationship between owner and animal on clinical decision making is demonstrated in the excerpt below from an equine veterinary surgeon:

Excerpt 7-4 : Interview E1 (395)

V> Well I think within the horse clientele there are some clients regard their horses as companions, and some regard them as conveyances, and some regard them as business. So the ones that regard them as companions I would treat those clients very similarly to the way I used to treat small animal clients understanding their needs of having a companion, um the ones that just treat them as a conveyance well *they're quite difficult I think on welfare grounds, but the ones that use them as a business that's an entirely different ball game and you have to make sure that whatever you do justifies, is financially justifiable.*

The veterinary surgeon in this extract is talking about horse owners who she divides into three categories: those who keep their animals as companions and who are likely to be emotionally attached the same way that people are to their pets; those who treat their horses as a conveyance and may be less concerned about the animal's welfare than their ability to perform a particular function; and those for whom horses are a business and treatment has to be economically justifiable. The differences between emotional and economic influences on decision making were also raised in the interview with a veterinary surgeon comparing the approach to small animals and farm animals. This veterinary surgeon was a partner in a mixed practice and had only recently given up companion animal work to concentrate on farm animal work.

Excerpt 7-5 : Interview L1 (36-37)

1 I> do you think you work differently with the different species?

2 V> Oh very much, *because it's very different*, well, with regards to cat and dog work
3 I think what the client wants more than anything is probably a prognosis, they want
4 *to know whether you can make their animal better or not, um and there's a huge*
5 *emotional attachment there, so you've got to wear a very different hat you've got to*
6 *be very sympathetic, and economics do come into it, in as much as certainly in*
7 *[Town] where certainly a lot of our small animal clients don't have a huge amount of*
8 *money. You do have to talk around how much everything costs with regards to*
9 *diagnostics and stuff and how much you're going to spend and make sure your*
10 *estimates accurate, but there's that huge investment emotional investment in the pets*
11 *so they want a favourable sort of outcome. On the farm side you're working very*
12 *much within tight economic or business constraints so the individual animal doesn't*
13 *have as much importance, you know you could turn round to somebody and say I*
14 *can't economically get your cow in calf by a certain time, therefore lets cull it and a*
15 *decision will be made to have that animal shot or sold on or whatever and there's no*

16 *emotional sort of “Oh dear”, it’s just a business decision. There’s no welfare*
17 *implications, nobody’s talking about doing anything harmful to it, oh well except*
18 *(laughter) you know what I’m saying. It’s a completely different cap that you have to*
19 *wear really, you have to be very sort of sympathetic and empathetic on the small*
20 *animal side, on the large animal side it’s more of a business decision I think, or*
21 *increasingly so.*

In this extract the veterinary surgeon contrasts the emotional attachment of small animal clients (line 5 and 10) with the economic and business decisions of farm animal practice where the individual animal is less important (lines 12-16). However he does also stress that even with a high level of emotional attachment small animal clients do need to consider the costs of treatment (lines 6-10).

A survey of 600 pet owners in the USA has shown that owners who exhibit strong bonds with their pets seek higher levels of veterinary care, and are less sensitive to the price of care than owners who exhibit weaker bonds (Lue et al. 2008). However the same survey found that those with the strongest bonds were not those with the highest household income indicating that the desire to provide veterinary care is not necessarily correlated with the ability to afford it.

The relationship that an owner has with their animal is rarely discussed explicitly however owners do frequently provide information which indicates their relationship with their pet as discussed in section 6.1.1 and shown in the excerpts below which show examples of owners talking about their pets during consultations:

Excerpt 7-6 : Consultation G1 C4 (118)

C> Yes, oh yes, although she prefers Dawn’s food, which is, Dawn’s on Hills oral care and Lucy prefers to eat that *but maybe that’s because it’s Dawn’s and not hers* (laugh) but yeah.

Excerpt 7-7 : Consultation D3C4 (107)

C> He prefers wet food, I’ve got another Siamese, his sister now she loves her biscuits, you know, she loves she eats a lot of dry food, but he doesn’t he prefers wet food.

Excerpt 7-8 : Consultation H2C2 (45-47)

C> he lost his brother about December

V> right just

C> *he's so precious*

Excerpt 7-9 : Consultation D4C2 (76)

CI> *I thought we'd have problems then cos I've got the mum and dad of this one and the dad's a nightmare he doesn't like visits to the vets , take after your mum don't you umm, is that good*

The first two (extracts 7.6 and 7.7) relate to the feeding of the animal and indicates that the owners view their animals as individuals with their own preferences. In excerpt 7.8 the owner refers to how precious her dog is, this dog was brought in following a dog fight, but during the consultation it emerges that not only is the dog blind and suffering from diabetes but also has a liver tumour. In this extract the owner refers to how the dog “lost his brother” although it is not clear from the conversation if they were genetically related or if the owner was using the phrase to refer to another dog in the household. The final extract (extract 7.9) refers more clearly to the family relationships of a cat in discussing her behaviour at the vets. This extract is clearly referring to a family of cats and the feline patient is clearly being granted personality in taking after one parent. This seems to support the idea that owners see “the animals with whom they share their everyday lives as unique, emotional, reciprocating, and thoughtful “friends” or “family members”” (Sanders 1995, p 197).

However not all comments were positive although negative character traits may be described affectionately as in the excerpt below:

Excerpt 7-10 : Consultation D4C4 (7)

V> how's he been since you were last here

C> fine, absolutely fine, still a greedy little pig

And later (line 13)

C> very stubborn but he's good

In the consultations recorded in this study there was only one consultation where the client indicated that the animal was not important to them as shown in the excerpt below in which an adult female brought in a dog with a lesion on its leg of five days duration.

Excerpt 7-11 : Consultation B4C5 (6)

V> Is it improving?
C> *don't know it's mums dog.*

And a little later in the same consultation (line 9)

C> *She's usually of a narky disposition. It's nothing different.*

This excerpt indicates that the relationship with the pet may be different for different members of the family.

It has been said that “Veterinarians meet owners who are unwilling to provide a minimum of treatment for their dogs, owners who are doing what they can for their dogs within reasonable limits, owners who are willing to sell their houses to afford state of the art veterinary treatment for their dogs and owners who keep their dogs alive in spite of the *animal's possible suffering. Veterinarians must relate to owners with these different emotions and attitudes*” (Lund et al. 2009, p 106). This wide range of variation in the way that owners value their animals and wish to pursue veterinary treatment has a significant effect on clinical decision making. In situations where the veterinary surgeon and client have an ongoing relationship this type of information becomes incorporated into the veterinary surgeon's knowledge about the client as demonstrated in the excerpts below:

Excerpt 7-12 : Interview D2 (254)

V> *there may be things in the past that I've known about that client that tells me they don't want that ECG, or they've told me flat, you know they don't want to go there. Like there was a client later on this morning, you know I was talking, the cats got kidney problems been on Fortekor, and I said I think it would be a good idea to do blood test but I don't think you do, do you? She said no.*

Excerpt 7-13 : Interview D2 (232)

V> well what it was, it was a follow up examination with a client who is insured with *Petplan, who pay for all the treatment, she's a very, very good client, a very highly*

compliant client so everything I say she does, I have to be very careful, whatever I say, so that was really, the purpose of that was really to check that there were no arrhythmias creeping in, and treatment, cos the dogs reasonably stable.

Excerpt 7-14 : Interview G1 (266)

V> I think people expectations are different, we have people, we have one lady *who's involved with the RSPCA and she won't come and see me with an RSPCA case because I'm too expensive, but interestingly she has one animal which she considers her own and she insists on coming to see me because she has completely different expectations for that level of care, and I think that's perfectly reasonable.*

The first two excerpts (7.12 & 7.13) are from the same veterinary surgeon talking about two different clients and their attitude to monitoring their pet's disease. In excerpt 7.12 the veterinary surgeon talks about clients who he knows from past experience are not likely to want certain procedures even if he recommends them. This is contrasted by the client in excerpt 7.13 who is described as a very good client who has her animal insured (with Petplan) and is very highly compliant. The effect of insurance on clinical decision making will be further discussed in section 7.2.2 below. The final excerpt portrays a situation where the client is described as choosing different levels of care and expenditure for her own animal from those she brings for the RSPCA. This suggests that the expectations may vary between clients and, even for an individual owner, with regard to different animals.

Ability to carry out treatment

As well as considering the client's ability to pay for treatment the veterinary surgeon must also consider the client's ability to carry out the proposed treatment. The excerpt below is from an interview with a veterinary surgeon in equine practice, although she had only been qualified for two years she had extensive experience working with competition horses.

Excerpt 7-15: Interview E2 (89-92)

1 I> presumably you get a very wide range of owner knowledge, do you find that that
2 *alters what you're doing?*

3 V> definitely, definitely I mean one of the, *the important thing is do no harm and it's*
4 *very easy to create problems if you leave owners with treatment plans that are too*
5 *complicated for them and that is something that is really, really important. It's*
6 *something that was never mentioned to me the whole way through vet school. And*
7 *also if you if you go to a professional yard like you know what you're talking about*
8 *and they don't, they won't want you back again. When you go to a professional yard*
9 *the treatment plan you come up with is a discussion, because they will know a lot*
10 *about each condition ,they won't know the science behind it, but they will know "my*
11 *last horse had this it had this much time off using this, this and this. This worked for*
12 *the management and fits into the routine on my yard". And what you have to*
13 *remember is that all the treatment plans you come up with, they have to be doable,*
14 *and so if you go to a yard and say this horse right this horse has to be on 8 weeks*
15 *box rest, it's not allowed to leave its stable, and in 4 weeks time that horse is*
16 *unhandleable then they're not going to do it.*

In this excerpt the veterinary surgeon talks about the owner's knowledge and ability on clinical decision making. She stresses the importance of making sure that the treatment is not too complicated for the owner to carry out (lines 4-5 & 13-16). She also recognizes the clients experiential knowledge (lines 9-11) which may not be scientific (line 10) but which means that decision making must become a discussion between experts (Tuckett 1985; Charles et al. 1997). This type of shared decision making is most common with "expert" clients such as farmers and professional animal keepers, however even small animal clients may develop expertise in the care of their own animals. It should also be remembered that even those clients who have no particular expertise in their animal's medical condition will have knowledge of their own particular circumstances and values and therefore bring their own perspective which should be included in the decision making process.

As well as the level of expertise the clinical decision making may be influenced by the circumstances of the individual client as shown in the excerpt below in which the veterinary surgeon is talking about tailoring his treatment for a cat with a corneal ulcer to fit in with the owner who is going on holiday and leaving her cat in the care of a neighbour.

Excerpt 7-16: Interview B1 (126-129)

I> so you've made a treatment choice here

V> Yes, selected for simplicity. I wanted to achieve something I got the impression I was going to be lucky to get away with a couple of times a day and therefore I selected something that I felt by and large was easy to apply, hopefully will provide some background protection, it's not necessarily favourite, favourite. But it's easy, it's one of the easiest to apply and I think it will go in rather than being smeared all over the cat. Pragmatic.

In this case the veterinary surgeon has made a choice of treatment that he feels is most likely to be administered successfully. His final statement "pragmatic" and the comment "it's something that was never mentioned to me the whole way through vet school" (Excerpt 7.15 line 6) again contrast the difference between the ideal of scientific decision making as taught at veterinary school and the reality of decision making in practice. These veterinary surgeons are not characterising the treatment they provide for the animal as less than ideal but rather that they are providing the best treatment for the animal under the circumstances, indicating that they have accepted that many factors have to be considered in making clinical decisions.

7.1.3 Factors relating to the veterinary surgeon

Business and professional ethics

Veterinary surgeons, in the main, are working in a fee for service environment and veterinary practice must be run as a business. Those veterinary surgeons that have a financial investment in the practice are aware of the importance of business management and consider this to be an area that is poorly covered at veterinary school as indicated in the quote below:

Excerpt 7-17: Interview E1 (427)

V> I also think business management is extremely important, and I used to try and teach final year students a little bit of business management and they just thought *they'd got too many other things to think about, well I think that's the first thing they should think about.*

In this excerpt the veterinary surgeon, the owner of an equine practice, is talking about veterinary students on extra-mural studies (EMS) placements. She reports that in her experience students do not consider business management to be important even though one

of the stated aims of EMS is to enable veterinary students “develop their understanding of *practice economics and practice management*” (RCVS 2010). A survey of veterinary graduates reported that once in practice business management skills are the most frequently cited area in which they would have liked more teaching (Jaarsma et al. 2008). The importance of business skills for veterinary graduates is beginning to be recognised with the introduction of business modules into several veterinary courses (Lloyd and Walsh 2002; Lewis and Klausner 2003)

While veterinary surgeons acknowledge the importance of business considerations in discussing their practice when asked about their clinical decision making in individual cases most veterinary surgeons report that their decisions are more likely to be influenced by the animals needs (excerpt 7.18) or what the client can afford (excerpt 7.19).

Excerpt 7-18 : Interview D4 (294)

V> In most consults it's not you know I will give them the medication that I think the animal needs rather than what the owner can afford or what I think, don't for heaven's sake tell[bosses name], how much income it's going to generate for the practice.

Excerpt 7-19: Interview D3 (446)

V> I consider the clients more than the business from that point of view, if it'll do OK just starting on tablets that evening then I won't inject it – I don't know if there was performance related pay maybe I would.

These excerpts indicate that in their accounts of decision making veterinary surgeons stress that their professional role dominates over business consideration, seeing their role as to act as advocate for the animal (7.18) or client (7.19) (Morgan 2009). It is worth noting that both the veterinary surgeons quoted above are employed and so do not benefit directly from generating increased income. However even those veterinary surgeons that have a financial stake in the profits generated still play down the effect of business considerations on their clinical decision making:

Excerpt 7-20 : Interview F1 (577-578)

I> How much do you feel your decision making is influenced by business or financial considerations

V> err.. not *that much*, I'd say you know, it obviously has to be, to what the actual work that's done, very little. Promotions of flea and worming treatments would be a lot because of the discounts that we get and that sort of thing, but um the day to day work is work *that would need to be done anyway*, um so yeah I think its I'm certainly not doing work that doesn't need to be done, I wouldn't sort of rest easy at night if I was in that position .

The veterinary surgeon quoted in excerpt 7.20 makes a distinction between work which needs to be done and preventive healthcare products (such as flea and worm products) which can be promoted. Like many other veterinary surgeons he states that he would not undertake work that he did not believe needed to be done. However other veterinary surgeons do talk about doing work which may not be economically viable as in the excerpt below where the veterinary surgeon, the owner of a small animal practice, refers to occasionally paying for histopathology to be carried out for his own interest.

Excerpt 7-21 : Interview D2 (753)

V> *If I've got a personal interest in a subject or in a case then I might do it regardless of anybody's interests cos it's my interest*, um err, like doing *histopathology when they don't want to pay, cos I want to find out.*

Although no veterinary surgeon admitted to carrying out unnecessary procedures on an animal there were references to wanting to carry out certain procedures or having new equipment or services available that did influence the options that they offered to the client. While it would be expected that in interview veterinary surgeons would wish to portray themselves in a positive light there was no evidence from the recorded consultations of veterinary surgeons placing business considerations above their professional role. This may be an example of the social desirability bias which has been defined as “A distortion of the *data that is caused by respondents' attempts to construct* an account that conforms to a socially acceptable model of belief or behaviour” (Bryman 2008, p699). While in some cases

it may be possible to overcome this distortion by asking respondents about the behaviour of others this risks creating a distortion in the opposite direction as respondents portray others in a worse light to themselves (Gilbert and Mulkey 1982). Without resources which enable decisions on investigation and treatment to be based on evidence there is no external scale against which to evaluate the individual's professional judgment.

Practice ethos

Although veterinary surgeons are responsible for the decisions that they make they are still influenced by the practice in which they work, in terms of the products and equipment available, as well as by their colleagues.

During interview veterinary surgeons were asked if they considered that other veterinary surgeons would treat a particular case on condition in a similar way (APPENDIX C, Q5). This was partly a direct question about approaches to treatment but also gave the interviewee an opportunity to talk about other members of the profession, since work by Gilbert & Mulkey (1982) found that scientists tended to portray their own behaviour in a positive light during interview but were less complimentary about the work of others. This question was therefore designed to see veterinary surgeons would behave in a similar way and reveal information about the behaviour of others that they would not when discussing their own behaviour.

The excerpt below is from an interview with a partner in a practice and follows on from discussing the treatment options for a cat with hyperthyroidism.

Excerpt 7-22 : Interview B1 (197-198)

- 1 I> Do most of the vets in the practice follow the same sort of treatment or is it very
- 2 much to the individual?
- 3 V> I passionately believe in clinical autonomy. ...um with justification and so all my
- 4 vets when they are employed and when I talk to them, I will make it very clear that
- 5 you have the right to make a decision that is different from mine providing you
- 6 know *why you're doing it and those reasons are within the practice ethos. You*
- 7 cannot differentiate yourself from the practice ethos, by not being interested in

8 *clients, not thinking about things that we're here to do. But providing you can justify*
9 *and it's your justification and it's your judgment call based on right information*
10 *fine, I will defend you. If you think it's better to put on medication and you've*
11 *explained why to the owner fine put it on medication, if it's because somebody at*
12 *college told you that surgery is rubbish when you need to learn a bit more that*
13 *surgery does work and that's what we work with. But I was quite surprised that*
14 *some junior colleagues go "Oh no we wouldn't do that you know surgery on this cat*
15 *oh terrible, really bad idea"*

The veterinary surgeon in excerpt 7.22 is speaking as the employer of several younger veterinary surgeons. He starts by framing his response in terms of clinical autonomy (line 3) and the right to make different decisions (lines 4-5) providing they can be justified (lines 8-9). Although theoretically veterinary surgeons are responsible for their decisions as professionals, it is likely to be the employer who will have to deal with any problems or complaints in the first instance. This is acknowledged (line 9) along with the fact that it is alright to make different decisions providing they have been explained to clients (line 10). However he does go on to indicate that some decisions, such as recommending against surgery for the treatment of hyperthyroidism in the cat, may be based on a misapprehension about the risks of surgery (lines 11-13).

Despite talking about a practice ethos (line 7), and expressing preferences about the way cases are treated (lines 11-12), this veterinary surgeon in the same interview expressed a strong aversion to treatment protocols preferring the idea of guiding principles. However the excerpt below, from the interview with one of his employees indicates that protocols, where not strictly imposed provide a welcome level of guidance to the staff and consistency for the clients:

Excerpt 7-23 - Interview B2 (308-311)

I> do you have any formal or informal protocols in the practice?

V> *No we don't um*

I> would you or other staff like them?

V> *They'd probably feel happier if there were, not we're not talking about corporate practice policies, it would never be like that and this practice isn't like that and it could never be like that, and that's why we like it because we have that*

freedom. But at the same time I think that a certain amount of guidance would be helpful not only to the vets but also to the clients to get some consistency.

Another veterinary surgeon who had tried to introduce some basic protocols into his practice commented of his own staff “*cos they don’t like protocols, unless it’s the one they designed*” (D2) and that in one case where a protocol was agreed at a staff meeting that it was only a week before individual veterinary surgeons started deviating from it. The most frequent reason for not agreeing or deviating from an agreed protocol was seen as the individual circumstances of the case. These excerpts illustrate the views of many veterinary surgeons interviewed in this study that protocols were not used because they were seen, especially by more experienced vets, to restrict clinical freedom. However many younger graduates acknowledged that they would appreciate more guidance about how to approach cases.

While there were no cases in this study where formal written protocols were used there were examples where the veterinary surgeons were working to agreed standards. However in all these examples: the level of service to be provided in a charity clinic; how to investigate common presentations in a referral centre; and the management of reproduction in dairy herds; the variability of expectations that is found in small animal private practice had been reduced in some way: receiving a free service; expecting high levels of investigation or agreed aims. The challenge for producing protocols or guidelines in veterinary practice is to incorporate the evidence while allowing for flexibility depending on the owners circumstances, including their financial and other resources.

Individual factors – Personality, stress and emotion

When asked about other factors that influenced their decision making the most frequent response related to characteristics of the individual veterinary surgeon, such as their personality and mood.

Excerpt 7-24 : Interview J1 (105-106)

I> Do you think there are any other major factors that influence your decision making?

V> I think your mood, your *personal mood, not everyone's in a happy mood every day of the week sometimes you're in grumpy moods, sometimes you're in happy moods* I think that influences you yeah, *you know we're all human.*

The veterinary surgeon quoted in excerpt 7.24 refers to the effect of mood, as a transient and variable state on decision making whereas the veterinary surgeon in the excerpt below (7.25) talks about the effect of more enduring personality traits on decision making.

Excerpt 7-25 : Interview I1 (342- 353)

1 I> Do you think there are any other areas that affect decision making that we
2 *haven't covered?*

3 V> *Yes, I'm trying to think, well you've got the psychological angles, haven't you,*
4 *natural risk takers and non risk takers*

5 I> are we talking clients here?

6 V> *Vets, yeah I mean if they're bringing the owners along see that's going to be a*
7 *two way process, if you've got a very neurotic vet and a very neurotic owner*

8 I> you have potential for enormous...

9 V> *and if you've got a very un-neurotic vet and a neurotic owner that can be alright,*
10 *you know there is quite an element of interaction, if you've got a neurotic vet and a*
11 *neurotic client they wind each other up to fever pitch from anxiety.*

12 I> Do you think the present training system selects or creates neurotic vets?

13 V> *I think it does, I think it selects for to a certain extent, I don't see why I mean*
14 *very bright people and I think it certainly creates it with the sort of process at*
15 *university and the whole psychological reality gap that all this perfect state as we've*
16 *been saying in a specialist type position, all the stuff that's reflected off the telly*
17 *about vets and powerful figures that know everything and impart knowledge to*
18 *people who are ignorant, and this sort of very, it's a complete, going back to the*
19 *dark ages, you know that sort of social interaction with people, leaders and*
20 *followers, they're never trained to think for themselves and break out of that and it*
21 *goes on throughout their whole careers and then it seems to be embedded in their*
22 *psyche. Once they graduate, the one's that do maintain some sort of independence of*
23 *thought throughout their university career and they can keep that going or they've*
24 *lost it and their sort you know*

25 I> they have to go into the same situation

26 V> and a lot of them want to get back into the comfort zone a very controlled
27 environment where they control one particular animal.

The veterinary surgeon in this extract starts by talking about the effect of personality on decision making in talking about “risk takers” and neurotic personality types (line 4 and 6-11). He appears to be making an association between these types in their need for certainty before making decisions. Research into decision making in medical practice has shown that diagnostic testing may increase the certainty of diagnosis (Hampton et al. 1975; Peterson et al. 1992) and it has been suggested that the personality of the doctor may affect the decision to order tests (Ornstein et al. 1988). However other studies have found that variations in level of testing are more to do with the environment in which the doctors are trained than their individual characteristics (Epstein et al. 1984).

The veterinary surgeon quoted in excerpt 7.25 also points out that the client and veterinary surgeon interact in influencing decision making (lines 7-11) and suggests that an “un-neurotic” vet can calm a neurotic owner, if both are neurotic they will increase each other’s anxiety. This in turn may lead to the animal undergoing unnecessary investigations for conditions which while possible are unlikely. There is some evidence in the literature to support this assertion. Neuroticism is one of the traits described in the five factor model (FFM) of personality, being the polar opposite of emotional stability (Costa Jr and McCrae 2008). In decision making low levels of neuroticism have been associated with a preference for an active decision-making style and high levels of neuroticism with less risk taking (Flynn and Smith 2007). It has also been found that the degree of risk-taking is related to the degree of activation of the insular cortex of the brain (Paulus et al. 2003). These findings suggest that approaches to risk taking and decision making may be affected by personality and may warrant further investigation. Personality factors may not only be relevant to the clinician’s decision making but also to that of the patient or client. While there is little published research on this subject it is known that the way that choices are framed can influence decision making (Tversky and Kahneman 1981) and it has been suggested that “A better understanding of how personality traits relate to patient decision-making styles may

help clinicians tailor treatment discussions to the needs and preferences of individual patients (Flynn and Smith 2007, p 261).

The interviewer's question (line 12), was prompted by discussion with several other veterinary surgeons who had raised the concern about the selection of highly motivated and high achieving students producing graduates who had difficulty coping with the practice environment. It has been suggested that the high achievement required for entry into medical courses correlates negatively with personal qualities helpful in caring for patients such as empathy (Tutton 1996). However a study of personality and academic performance in three cohorts of veterinary students in South Africa concluded that students were more academically successful if they were conscientious, emotionally stable, socially adept, self-disciplined, practical rather than imaginative, and relaxed rather than anxious, all traits that are likely to also be correlated with success in practice (van der Walt and Pickworth 2007).

Another study of veterinary students reported that although students self confidence levels were relatively high they were inadequately equipped to deal with adversity; showed high levels of anxiety; and were prone to depressive episodes and procrastination (Zenner et al. 2005). The authors conclude that the predominant coping mechanism students employ to avoid making mistakes or embarrassing themselves in front of peers is silence and inaction (Bartram et al. 2009). While these methods may be effective in a student environment they are not an option in a practice situation where decisions have to be made.

Once graduated concern about mistakes lead to negative feelings such as lack of confidence, guilt and distress (Mellanby and Herrtage 2004). The authors concluded that "the fact that many young veterinarians feel depressed, stressed and have low self-esteem after a mistake, suggests that the negative emotions generated by a mistake may be a significant factor in the development of suicidal thoughts" (ibid 762). These findings are particularly worrying because of high suicide rate reported in the veterinary profession which is four times that in the general population and twice that medical profession (Halliwell and Hoskin 2005; Mellanby 2005).

Returning to excerpt 7.25 the veterinary surgeon in this interview refers to the possibility that one aspect of stress is the “psychological reality gap” (line 15) created by the ideal of specialist type practice (lines 16-17) and the image of veterinary surgeons as “powerful *figures that know everything*” (line19). He goes on to suggest that this may be one reason that veterinary surgeons prefer specialist practice to general practice (lines 28-29). This idea that veterinary surgeons may feel more confident within a defined specialist area of knowledge was supported in an interview with a veterinary surgeon in specialist practice:

Excerpt 7-26 : Interview J1 (341)

V> I certainly, when I was in general practice, found it quite *difficult that I didn't* know, in a range of variety of clinical cases I was immediately out of my depth, but I *was young I didn't have the knowledge or experience, but by focusing on one specialty I've gained that I'm comfortable with where I am in the knowledge* at the moment as far as the limitations of veterinary knowledge , *I'm comfortable with that so I know what can and can't be done.*

This suggests that general practice may be inherently more stressful than specialist practice where the veterinary surgeon is only expected to have mastery of a certain area of knowledge; where patients have been preselected as having a condition which warrants further investigation and clients have been preselected for the willingness and resources to pursue the diagnosis and treatment.

There is concern about the stress of veterinary work with 88% of approximately 10.000 respondents to the RCVS survey of the veterinary profession agreeing or strongly agreeing with statement that veterinary work is stressful (RCVS 2006). The main sources of stress reported were hours worked; making professional mistakes; client expectations; and unexpected outcomes. For recent graduates high levels of debt on graduation were an additional stress. Stress has also been associated with the need to keep up their knowledge and technical skills and high personal expectations (Gardner and Hini 2006).

Several male veterinary surgeons raised concerns about the ability of younger female colleagues to deal with the stresses of practice. There may be a number of reasons for this including gender differences in the expression of emotion and the change in the demographics of the profession, which means that there are now a large number of young female assistants working in practices owned by male partners or directors. However there is some research to support this assertion. A recent survey of nearly 9000 veterinary surgeons commissioned by the Royal College of Veterinary Surgeons used questions based on the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) (Tennant et al. 2007) to assess respondents perception of their own wellbeing. Female veterinary surgeons report that they find the work more stressful scoring two points lower, on average, than males, on the 56 point scale. Veterinary work was also reported to be most stressful by those in their twenties, with older veterinary surgeons finding the work less stressful, probably related to increased experience (Robertson-Smith et al. 2010). These findings support the idea that younger female veterinary surgeons experience their work as more stressful than their older male colleagues

The current economic climate is also having an impact on veterinary practice, a recent survey of the veterinary profession in the UK revealed a decrease in demand for services, particularly high cost services and specialist referrals and an increase in bad debts with a substantial minority reporting an increase in euthanasia numbers (Robertson-Smith et al. 2010). The remainder of the chapter will look in more detail at the effect of financial considerations and the option to carry out euthanasia on clinical decision making.

7.2 Influence of financial considerations on clinical decision making

Finances were considered to influence clinical decision making by all the veterinary surgeons interviewed. This includes a direct influence in the consultation, through the client's willingness to pay for procedures and treatment, and an indirect influence of working

within a small business. Financial considerations were often described as posing dilemmas for veterinary surgeons particularly where they believed that they were providing less than optimal treatment for the animal.

There are no guidelines for fee levels in the UK leaving veterinary practices to set their own fees, with factors such as local variations in the cost of living and the staffing and equipment levels leading to significant variation in fees between practices (McNeill 2001; SPVS 2007). This variation, along with the fact that many people have only limited experience of paying for human healthcare, can lead to clients having little idea of the level of fees to expect unless they have prior experience in a particular practice.

Veterinary surgeons are given conflicting messages from their professional bodies about the discussion of costs during the consultation. The Royal College of Veterinary Surgeons explicitly states that discussion of fees should be part of the process of achieving informed consent (RCVS 2009), while the Veterinary Defence Society warns that care should be exercised in the discussion of fees as it may be interpreted by the client as placing concern about the finances of the case above the welfare of the animal (VDS 2003). The next section will examine the way that veterinary surgeons raise the issue of costs during consultations.

7.2.1 Discussing costs in the consultation

The costs of treatment were mentioned in 12/48 small animal consultations in private practice as well as 3 of the 4 consultations at the “out of hours” clinic and 2 of the 6 consultations in the charity clinic, where they related to the cost of preventive healthcare. Costs were not discussed during the recorded consultations from farm animal, equine or specialist practice. This gave a total for all consultations of 17/69 (25%) in which cost discussions took place. In contrast written estimates were only provided on 2 occasions, both by the same veterinary surgeon for animals which were due to come in for further

investigation. These were provided to the owner at the reception desk at the end of the consultation and after the decision to investigate had been agreed.

While the sample in this study was small, similar results were found in the analysis of 200 small animal veterinary consultations in Canada where costs were discussed in 29% of consultations, although in this study written estimates were provided in 14% of cases (Coe et al. 2009).

It might have been expected that costs would most frequently have been discussed in consultations related to new conditions; however this did not appear to be the case with discussion of costs being observed in 4/20 (20%) consultations for new conditions; 7/36 (19%) consultations for ongoing conditions and 6/13 (46%) routine consultations. While the discussion of fees may not be considered necessary in routine procedures, because the price can be displayed in the waiting room, or for ongoing consultations where the client has experience of the fees to expect, these figures still indicate a significant number of consultations in which fees are not discussed.

The excerpts below provide examples of the ways in which costs may be discussed in the consultation.

Excerpt 7-27 : Consultation H1C1 (141-142)

V> but if we can get an idea from a blood test and it can give us a rough idea of the kidney function, a rough idea of any sorts of whether there is an infection perhaps, and the cost of that is £25 to do that basic blood test

C> No problems

Excerpt 7-28 : Consultation C1C1 (62-66)

V> and there might be something to bear in mind if we are thinking about surgery. Hard economics, the tablets will cost you with the blood tests and everything getting on for about a pound a day, the tablets plus the extra with the blood tests

C> yes

V> 2 or 3 months it would work out on average at a pound a day, the surgery is probably going to cost about £200 so it's

C> *I'm just a bit worried she might not survive the surgery*

In excerpt 7.27, from a consultation at an out of hours' clinic, the veterinary surgeon advises a blood test, states the price and the client accepts. This straightforward discussion of costs appears to be used when the price of an individual product or procedure is mentioned. This contrasts with excerpt 7.28 in which the veterinary surgeon provides details of price in the process of discussing of treatment options. In this case although the client replies with a "yes" to the idea of spending a pound a day for medication, he responds to the information that surgery would cost about £200 with his concern about whether the cat would survive surgery. In discussion of this response during the video cued interview the veterinary surgeon acknowledges that this was the end of the discussion of money and that he then switches to reassuring the client that he will check the cat thoroughly before recommending surgery (excerpt 7.29).

Excerpt 7-29 : Interview C1 (253-256)

- 1 I> but here he went no I don't want to talk about money I want to talk about the cat
2 surviving
3 V> yes and that was the end of the discussion of money, yep
4 V> I will check her over thoroughly and I wouldn't say yes if I thought she
5 wouldn't make it
6 V> So this is me really reassuring that before I answer his question I'm going to be
7 thorough, not that I've been but that I'm going to be thorough

This suggests that when costs are included at the same time as options it may be necessary to clarify if the owner's concerns are about the options proposed or the costs of treatment. In other cases there may be more discussion about cost as shown in the following excerpt from a consultation concerning treatment of a dog with a superficial skin infection (excerpt 7.30).

Excerpt 7-30: Consultation B3C4 (86-101)

- 1 V> the antibiotics are going to cost you a fortune
2 C> how much?
3 V> 3 weeks' worth: £80
4 C> yeah but hopefully that should, but it might not work
5 V> *that's the hardest part of my job because if they work then yes it's worth it, but I*
6 *can't absolutely guarantee*
7 C> guarantee ... no

8 V> *It's a big enough dose cos what I don't want to do , I could probably get away*
9 *with 1 tablet twice a day but I selected one and a half because if I under dose you*
10 *slightly it might not work that's the biggest mistake.*
11 C> yes
12 V> its easy to make
13 C> false economy then
14 V> yes exactly, exactly
15 C> *yeah we'll go for it*
16 V> *OK, I'll charge you a re-exam fee to save you a bit*
17 C> thanks

VIDEOCLIP AND TRANSCRIPT 7.30

The veterinary surgeon starts this excerpt by warning the owner that the antibiotics are going to be expensive (line 1), but does not give an actual cost until the owner asks (lines 2-3) suggesting that he may be “floating” the idea of the medication to assess the client’s reaction (see section 5.4.2). The client’s responses indicate that she has understood that the treatment is not guaranteed to work (lines 4 & 7) but is prepared to try (line 15). The veterinary surgeon’s attitude in this excerpt is interesting, his comments that the antibiotics “are going to cost you a fortune” (line 1) and that he finds making recommendations that will cost the client money, but do not guarantee success “the hardest part “of his job (line 6). This suggests that he is not entirely comfortable with the financial aspects of providing veterinary care. In the subsequent interview (excerpt 7.31) the veterinary surgeon’s comments somewhat contradict his behaviour in stating that we shouldn’t prejudge the client’s view of the costs of treatment. However he does acknowledge that cost benefit analyses need to be made in selecting treatment options.

Excerpt 7-31: Interview B3 (174)

V> *of course we don't assume what's going to be expensive or not for the client, you know, what I was trying to do was find out if there were any other options because you know is there another option that will work reasonably well , unfortunately there isn't so.*

The problems of discussing the financial aspects of veterinary care were confirmed by a focus group study of separate groups of veterinary surgeons and clients (Coe et al. 2007),

which revealed that clients wanted the care of the animal to take precedence over monetary aspects but also that the discussion of costs should be initiated upfront by the veterinary surgeon. The same study reported that veterinary surgeons often felt uneasy discussing the costs of veterinary care and “For many, this unease was rooted in experiences where the veterinarian had felt guilty or undervalued after discussing such costs” (ibid 1512).

The excerpt below from an experienced equine veterinary surgeon states that she now asks clients if they can afford the proposed treatment but goes on to recount a previous experience that shows the delicacy of such discussions.

Excerpt 7-32: Interview E1 (491)

V> I just ask them, because *the amounts involved are so big um that I'll ask them if they are or aren't insured and you have to be quite careful, I remember when I very very first came... when I very first started here, Colonel Hickman said to us you must always find out if an animal is insured, so I went to a horse that had fallen out of the back of a trailer and asked the lady if it was insured where upon she sent me packing, physically packing, and rung up S [my boss at the time] to say I'd got terribly bad bedside manner and all I was interested in was the money.*

Another veterinary surgeon acknowledged that she was made to feel uncomfortable by clients who perceive the veterinary surgeon's advice as motivated by the desire to make money, rather than provide healthcare for the pet.

Excerpt 7-33: Interview I2 (97)

V> *I think we find with a lot of clients you feel like you're trying to force something on them, trying to make you money, and it's not actually necessary so it's trying to educate them that actually your dog does need a vaccine, whereas they think you're trying to sell them something expensive, I think that can be quite difficult*

There was only one consultation in which a client directly asked the price of a treatment as shown in the excerpt below recorded at a charity clinic:

Excerpt 7-34: Consultation I1C1 (40-43)

C2> How much is it for the injections?

V> £28 pounds

C2> each?

V> no that's for the whole course, 2 injections OK?

In the other four consultations where the client raised the issue of costs it was to inform the veterinary surgeon of their concern about costs or issues with payment as indicated in the excerpts below:

Excerpt 7-35: Consultation H2C2 (75-77)

V> I should give you an idea of costs for doing it
C2> *It doesn't really matter does it?*
C1> *no cos I'm going to try and get this owner to pay for it anyway*

Excerpt 7-36: Consultation F1C2 (145-149)

V> *I've just spoken to the nurse out there cos I'm a pensioner*
V> yep
C> *but I do have him insured, cos the last time it was a thousand pound I can't pay up front if it's you know like that sort of money. I can pay it, I have to borrow the money to pay, if I have to pay it up front, but I did say to the nurse if like you know with today and whatever treatment the x-rays and that can I have the bill all in one?*
V> and then pay?
C> yeah

The first excerpt (7.35) is from the consultation at an out of hour's clinic for a dog that was attacked by another dog in the park, the second excerpt (7.36) is from the consultation where further investigations are recommended to investigate a dog's breathing difficulties. In the other two cases where the client raised the issue of money it appeared to be to alert the veterinary surgeon that they were concerned about costs. Excerpt 7.36 also raises the issue of pet health insurance from which the owner can claim back the costs of the treatment once completed.

While it has been suggested that animal owners are starting to behave more like consumers than like clients by "shopping around" for services (Tiffin 2005), it has also been said that decisions about pet healthcare are often more emotionally driven than other consumer choices, with degree of attachment to the animal as well the effect of the decisions on both animal and owner being taken into consideration (Brockman et al. 2008; Holbrook and Woodside 2008). It has even been suggested that people will make different decisions at the time that the animal is unwell than they would if they had been able to consider the same

decision before the animal was unwell. “For instance, when pet owners were considering the health and well-being of their own pets, emotions often appeared to drive their decisions, with monetary considerations put on hold. In contrast, when the emotional concern for their *own pet’s health and well-being* was not at the forefront, participating pet owners appeared to approach their decisions in a manner similar to their approach to other consumer *purchases, taking into consideration the financial aspects of their decisions*” (Coe et al. 2007, p 1514) . The excerpts above confirm findings from the literature that discussions about costs in veterinary consultations are not necessarily straightforward.

7.2.2 Insurance

The pet insurance market has been reported to be the fastest growing personal insurance sector, with a market worth an estimated £234 million in the UK (Anon 2005), however only an estimated 20-30% of owners have insurance cover for their pets, with dog owners and those with higher incomes more likely to have insurance (Kingsmill 2003; Mintel 2010). In the UK pet insurance is widely promoted by veterinary organisations and animal charities as a way to enable owners to afford veterinary treatment. Veterinary surgeons interviewed in this study generally saw insurance as a good thing as demonstrated in the excerpts below:

Excerpt 7-37: Interview D1 (27)

V> I mean insurance is great because you don’t have to worry about that, you can do whatever you want, not that you’d do anything you don’t think was needed.

Excerpt 7-38: Interview D2 (258 - 260)

V> and if it is insured then they tend to want the best for the pet and they’re not worried about the money

I> because they already feel they’ve made that investment, that decision, they’ve paid the money in

V> the purpose of paying that is to ensure that if they do need it they can have it so whatever it needs they have. Um I think we’ve definitely got two tiers of treatment which is very difficult for all of us vets to cope with. I’ve lost vets over this actually,

they've left the practice cos they say they just can't stand the RSPCA¹² people, well the people on low income, what they want to be able to do is like work in a BUPA¹³ hospital like situation.

These two excerpts raise several issues regarding the role of insurance in clinical decision making. Insurance can be seen as a benefit by enabling both the veterinary surgeon (excerpt 7.37) and client (excerpt 7.38) to make decisions regarding the care of the animal without considering money. It has been suggested that this may lead to over treatment with veterinary surgeons seeking to maximise profits (King 1999; Brechtel 2008). However the veterinary surgeons interviewed in this study were more likely to characterise their decisions as under-treating uninsured pets rather than over-treating insured pets. As indicated in excerpt 7.37 this can lead to a situation where animals are receiving different standards of care and this may be stressful for veterinary surgeons, particularly those who see their role primarily as healers (Tannenbaum 1995) or animal advocates (Morgan 2009) working close to the paediatrician model of veterinary medicine (Fettman and Rollin 2002).

While there have been suggestions in the media that veterinary surgeons are overcharging and carrying out unnecessary treatments the veterinary surgeons themselves claim that they are working in the best interests of the animal rather than as business owners motivated by profit. While it could be argued that veterinary surgeons are bound to portray themselves in a positive light without outcomes based evidence to compare the results of different treatment approaches judgments about the level of intervention required are likely to be based on opinion and influenced by the prevailing healthcare systems (McMillan 2008).

¹² The RSPCA provides some financial assistance for those unable to afford veterinary fees

¹³ Private healthcare provider in human medicine

7.2.3 Declining treatment

One of the reasons why discussions of costs can be so difficult is that they can lead to a client declining treatment for their animal because they are unable to afford the treatment.

One veterinary surgeon interviewed in this study talked about the need to distinguish what clients mean when they say that they are unable to afford the costs of veterinary treatment for their pets.

Excerpt 7-39: Interview D2 (270 – 278)

- 1 V> yeah well some of them, one of my vets [name of vet] asked this question just the
2 other day cos I said well there is a technique in handling clients who say they
3 *haven't got any money. Well first of all there's about 4 different categories and we*
4 *could probably split them up more*
5 I> Yep
6 V> *there could be one that says they want more information, cos they're a bit tight*
7 *this month, or and they want to make sure they've got value, and another person*
8 *might say they always ask for value cos that's why they drive the Jaguar*
9 I> so they can afford to drive the jaguar
10 V> *and always question what you're doing, there could be another category where*
11 *they're just not quite sure cos they've got the family to think about does the family*
12 *really want to do this and they have more explanation due to the fact, or they could*
13 *be the one person who says they haven't got any money and they mean it.*
14 I> there are some people who genuinely
15 V> *and then you've got that's a different ball game, the trouble is which box are you in,*
16 *and you've got to sort that out so um cos otherwise they've got a thousand pound*
17 *bill they can't pay, and then you lose the client anyway*
18 I> because they feel embarrassed or all the problems
19 V> *well you've got to get rid of them, so you've got to try have this honesty thing*
20 *with them um which is quite difficult sometimes, cos then they don't want to*
21 *necessarily be honest if the choice is detailed investigation or euthanasia, you know*
22 *because they don't want to go for euthanasia.*

The veterinary surgeon in this excerpt distinguishes several categories of client who have different reasons for saying that they don't have the money for veterinary care. The first category are those who are seeking further information (line 6) to ensure that they are getting value for money, either because of their current circumstances (line 7) or because they

always seek value for money (line 8). He implies that these people are not claiming an absolute lack of money but need to be sure that the expenditure is worthwhile. This idea is supported by the focus group findings that suggest that “pet owners focused on what their money was providing in terms of outcome and wellbeing for their pet” (Coe et al. 2007, p 1514). The next category is those who have to balance their different responsibilities and wishes of members of the family (lines 10-12). This group may be seeking more information in order to make a decision. The final category are those who really do not have the money to pay for veterinary care, these may be rare (lines 12-13) but may be particularly difficult to deal with as they may not be prepared to consider euthanasia as an alternative (lines 20-22).

Another veterinary surgeon expressed the opinion that clients are more likely to decline treatment because they do not want to put the animal through the procedure rather than for financial reasons. However he goes on to talk about different groups of clients: those who are upfront about not being able to afford treatment; and those who are in denial about what they can afford.

Excerpt 7-40: Interview G1 (365)

V> I think probably *more people actually decline it because they don't want to put the animal through a lot, than actually decline it on financial reasons. I think there are definitely a sub group of people and they're actually much better, there's nothing worse than the person who's in denial about what their financial situation is um and its quite nice when someone's up front about exactly how much they've got to spend on an animal. But I certainly think that the majority, I would suggest that its probably marginally more people just don't want to put their animal though something that intricate.*

In contrast discussions with veterinary surgeons working at a charity practice (excerpt 7.41 below) indicate that where the client does not have to pay they may be prepared to put the animal through procedures which they would not if they were paying:

Excerpt 7-41: Interview I2 (154)

V> *we've got here at the moment a 19 year old dog that's got a pyo¹⁴, and saying to the students, if it was in private practice, and you were charging them £800 's for it they wouldn't go ahead*

While these veterinary surgeons are dealing with very different groups of clients the opposing views suggest that the reality is complex and that while some owners do not consider financial issues in decision making far more are balancing the financial costs with the benefit to their animal (Coe et al. 2007; Brockman et al. 2008).

This discussion also indicates that conversations about the costs of treatment may often be about more than the absolute ability to afford veterinary care, and include concerns about the value of treatment both in monetary terms and in terms of the best interests of the animal. They may also be complicated by the knowledge that inability to afford or provide appropriate care may lead to euthanasia of the animal.

7.3 Euthanasia

The question of whether death is in an animal's interest is not necessarily black and white, many cases will fall somewhere in the grey area between these two extremes. The solution to a particular situation will depend on many factors including the welfare outcomes for each available option.

Identical animals may benefit from different treatment decisions depending on the environmental situation of each animal. Often the decisions reached by a vet will have to take into account owner factors, including the ability to pay for treatment, as well as animal factors and more specifically what the owner will do with the animal if it is not euthanased.

(BVA 2009)

¹⁴ Pyo = pyometra – infection of the uterus requiring hysterectomy

While no consultations involving euthanasia were included in this study the need to discuss the animal's quality of life, and the fact that euthanasia is an acceptable choice, does affect clinical decision making. As the quotation above indicates decisions regarding euthanasia are not necessarily clear cut but involve the veterinary surgeon considering how the options will affect both the animal and the client.

Surveys into the reasons for euthanasia in small animal practice indicate that old age and illness are the major reasons for euthanasia however there are also cases in which euthanasia is requested by the owner for reasons of the animal's behaviour; for the owner's convenience; or because the owner is unable to afford treatment (Stead 1982; Edney 1998; Lund et al. 2010). While decisions regarding the euthanasia of an elderly, injured or sick animal may involve the veterinary surgeon in the role of counsellor and animal advocate, requests by the client for the euthanasia of a pet which the veterinary surgeon believes can be treated can produce ethical dilemmas and stress for the veterinary surgeon (Sanders 1995 ; Yeates 2010).

These concerns are raised in the two excerpts below from an interview with a veterinary surgeon at an out of hours' service. In these circumstances issues regarding euthanasia may be more likely to arise because they are dealing with a higher proportion of emergency cases and in most cases have no previous relationship with either the owner or animal.

Excerpt 7-42: Interview H2b (7)

V> Because a lot of things that come in to us are very seriously ill and you have to *establish fairly quickly if the client's already decided* that they want it put to sleep. *You're wasting their time and yours by going through all the things you could do for this animal, and also it can make things more upsetting for them, because if they've come in with the firm decision that they want their animal put to sleep you can actually make it more traumatic for them if you start saying, "Oh but we could do this".*

Excerpt 7-43: Interview H2b (22-27)

1 I> And do you think that your clinical decision making, your decision
2 making in general, not just the medical part of it changes with experience,
3 *do you feel that's changed in your time in practice?*
4 V> *Yes, I think so, I think you become more aware of the client's needs , you*
5 *come out of Uni full of this is what we do and this is ideal*
6 I> *this is the right way to do it.*
7 V> *and you gradually realise that people don't always have the money to do*
8 *it or people don't actually want to do it, um we've had a cat in recently that*
9 *um it was brought in as an RTA and we treated it for the RSPCA and then*
10 *the host practice took it over the following day and the owner turned up and*
11 *the owner was basically wanting the cat put to sleep, but the practice didn't*
12 *really want to do that because they thought they could help it, um and it I*
13 *don't know I felt it was really up to the owner, if they would rather the cat*
14 *was put to sleep because it turned out, the cat actually bit me when it came*
15 *in but then it turns out that that wasn't because it was sore, the cat is*
16 *normally a bitey kind of cat.*
17 I> *So they weren't going to be able to medicate it very easily*
18 V> *yeah and they didn't really want to spend a lot of money on fixing it*
19 *when it wasn't a very nice cat anyway, and at the end of the day that's the*
20 *owner's decision and we can't force them to treat something just because we*
21 *think we can help it.*

In the first excerpt (7.42) the veterinary surgeon refers to the situation where the owner may have already decided to have their animal “put to sleep”, and therefore discussing the options for treatment could make the situation more distressing for the client. This indicates that the decision for euthanasia may be taken by the client alone, and may even have been made before arrival at the surgery. The second excerpt (7.43) provides an example of a situation in which there was conflict between an owner, who wished to have her cat put to sleep (lines 10-11) following a road traffic accident (RTA), and the veterinary practice who wanted to treat the animal (lines 11-12). In this case the veterinary surgeon being interviewed supported the client on the grounds that they owned the cat (line 13): didn't want to spend a lot of money on fixing it (line 18): and that the cat wasn't “very nice” as evidenced by the fact that it had bitten the veterinary surgeon (lines 14-16). However the veterinary surgeon acknowledges this may cause conflict for veterinary surgeons who thought that they could

treat the cat. This discussion is placed in the context of the difference between the type of ideal decision making regarding treatment that is taught at university (line 5) and the real world decision making which must take account of the client's wishes and ability to pay for treatment (lines 7-8). These excerpts discuss the situation in which the client has made up their mind; however other veterinary surgeons discuss the problem for both client and veterinary surgeon of being the first one to raise the subject of euthanasia.

Excerpt 7-44: Interview I1 (243-249)

1 V> I suppose it's another big issue, around euthanasia, big subject. We've just
2 started on, we've come up with this quality of life assessment, which in the CSQ¹⁵
3 caused a few problems, because our vets are often very reluctant to broach the
4 subject of euthanasia, cos the treatments don't cost anything so you can move it
5 along a stage and it does prompt people to say, is he suffering and all that. And if
6 the vets don't broach it often the clients don't want to broach it, even if they want to
7 have the animal put to sleep, which they might well do, but they don't want to be
8 seen to initiate, because that would be not very nice, sort of condemning their
9 animal. I wonder where that paperwork, I had it for my last clinical meeting,
10 anyway, there's a quality of life matrix where you score, whether they're in any
11 pain, whether any treatment's necessary, based on a very simple human thing they
12 do for babies, um but it's just a way the vet, you get a numerical score, very, very
13 basic for certain things and it's to encourage the vets to use it as a tool , but they
14 can say, it's getting worse.....

(Delay while vet looks for paperwork)

15 V> yeah, I can't remember, where's it got the numerical I think below 3, something
16 like that, obviously it's not, it just gives you, you can actually say it's going down,
17 but it's also getting them to talk, and the vets , the vets as I said will then usually go
18 for some sort of technical fix rather than talk about the whole issue of quality of life,
19 we'll do a scan or we'll do an x-ray and you think blood tests ... where there's no
20 real hope whatsoever, and they often raises the owners hopes.

In this excerpt the veterinary surgeon, the senior vet at a charity clinic, acknowledges that vets may be reluctant to raise the subject of euthanasia (lines 3-4) and that even those clients who want to have their pet put to sleep may be reluctant to raise the subject as this could be

¹⁵ CSQ = Clinical Scope and Quality committee

seen to be condemning their animal (lines 6-9). He goes on to discuss the idea of a “quality of life assessment” (lines 10-14) which is being introduced to prompt discussion between the veterinary surgeon and owner about those aspects of the animal’s condition which may affect its welfare. He goes on to say that veterinary surgeons may prefer to offer the client a “technical fix”, such as carrying out x-rays or blood samples (line 18-19) rather than discuss the animal’s quality of life (line 18).

In excerpt 7.44 the veterinary surgeon characterises the main problem as one of communication between the veterinary surgeon and client, a viewpoint that has been echoed by other authors (Jackson and Gray 2004; Shaw and Lagoni 2007). Raising discussions of euthanasia may be particularly difficult where there is not an ongoing relationship between veterinary surgeon and client, both because the client may not have developed sufficient trust in the veterinary surgeon to make decisions in the best interest of the animal and because there is room for misunderstanding about how the client values the animal and the decisions that they will be comfortable with.

While explicit discussions of euthanasia are possible it has been said that “More commonly the client approaches the emotion-laden decision hesitantly and with intense feelings of ambivalence and comes to the vet for his or her medically informed advice. In this role of counselor the veterinarian assesses the animal's situation, judges the client's orientation, determines whether further medical intervention is feasible, and, commonly, "steers" the client toward or away from euthanasia. One vet described the exchange as a complex mix of making medical judgments, evaluating the client, making a decision, and ultimately, taking responsibility for the decision” (Sanders 1995, p 205).

In avoiding honest discussions of the animal’s prognosis the veterinary surgeon may be failing to make the animal’s welfare their prime consideration. However where the animal is not in overt distress the veterinary surgeon may be hoping that further tests will reveal something which they are able to treat. As stated at the beginning of the section decisions

about euthanasia are rarely a black and white, with judgments about the animal's best interests usually being considered against a range of management options. Since euthanasia is an accepted option and animals are not generally considered to have a right to life, decisions regarding treatment options are usually framed within the context of animal welfare (Yeates 2010). However decisions regarding the point at which euthanasia becomes the best option for the animal in the eyes of the veterinary surgeon and or client are variable and may be a source of stress for both parties (Sanders 1995; Yeates 2010). It has been suggested that decisions about euthanasia can be divided into those which are absolutely justified, that is those where there is no better option for the animal; and those which are contextually justified, when although there may be other options available circumstances mean that euthanasia becomes the best option (BVA 2009; Yeates 2010).

Recent research in Iceland and Norway based on a questionnaire to a purposive sample of 105 dog owners indicated that when asked about valid reasons for euthanasia 29.5 % considered "expensive" and 46.7% considered "demanding treatment" valid reasons for euthanasia (Lund et al. 2010). The research did also indicate significant differences between attitudes in the two countries with relation to "demanding treatment"; however the authors noted that veterinary treatment is less advanced in Iceland than Norway and therefore owners are likely to have a different understanding of what is meant by "demanding treatment". The level of treatment which is considered appropriate varies between countries (Swabe 2005) and even between veterinary surgeons within a single country as evidenced by correspondence in the Veterinary Record subsequent to a letter by Chilcott (2007).

7.4 Discussion

This chapter has shown that there are a range of factors influencing clinical decision making in veterinary practice. These may be related to the characteristics of the individual case in

respect of the animal, owner and the relationship between them, or the circumstances in which the decision making is taking place.

Veterinary surgeons in general practice provide medical, surgical and preventive healthcare to their animal patients but need to supply these services in a way for which the client is willing to pay. Although there has been an increase in the options available for the investigation and management of animal disease, the variation in the relationship between people and their animals mean that veterinary surgeons need to establish the level of care that a client is seeking for their animal. This can be difficult for both sides as the discussion of both money and death are socially sensitive subjects and especially so when linked as in decisions over animal care (Sanders 1995; Klingborg and Klingborg 2007; Coe et al. 2008).

The need to adapt their professional practice to provide services for which clients are willing to pay is not confined to the veterinary profession but to all professions which rely on private patronage demonstrating Freidson's (1970) distinction between academic professions which often receive state patronage and consulting professions which rely on paying clients: with lawyers using their knowledge of the law to explain the legal implications of the choices open to their clients (Cain 1979); architects negotiating with their clients to design buildings which not only meet the client's needs but also the professionals aesthetic values (Cohen et al. 2005); and community pharmacists combining business and professional ethics in the running of their shops (Harding and Taylor 1997).

While veterinary surgeons in practice frequently report adapting their recommendations to the individual circumstances of the animal and client there may be cases where the client is unwilling or unable to accept the veterinary surgeon's advice. While there are clients who have the financial and other resources to make their choice purely on what is "best" for their animals there will also be clients whose desire and expectations for veterinary care may be outside their capacity for either financial or practical reasons. These clients may wish to select a particular treatment option but be unable to pay for it or carry out the home care

required, or may decline treatment because they do not wish to put the animal through a particular procedure. These situations may create ethical dilemmas and stress for the veterinary surgeon. It may be that in training veterinary graduates to expect to be able to undertake diagnostics and treatment in a manner similar to that provided for human patients under the care of the NHS we are increasing the stress they experience when confronted with the reality of imperfect decision making in practice.

Chapter 8 – Conclusions

The overall aim of this research has been to increase understanding of clinical decision making in the veterinary consultation, with particular emphasis on small animal practice. While this has been a small scale exploratory study it has revealed some interesting features of clinical decision making in the veterinary consultation. In taking a sociologically informed approach and studying decision making in real world settings using qualitative methodology, this research has highlighted contextual features of the clinical decision making in veterinary practice. The findings not only increase our understanding veterinary practice but also highlight some of the potential differences between veterinary and medical practice. At the same time this research contributes to debate in the sociology of the professions by investigating a profession which to date has been the subject of comparatively little research; and to discourse in medical sociology by providing a contrasting case study of medical care where the patient is an animal.

The veterinary profession has seen significant changes over the last few decades with a shift in emphasis from predominantly agricultural practice, providing a peripatetic service to farm animals, to small animal practice providing clinic based services to pet owners. At that same time advances in techniques for the diagnosis and treatment of disease have increased the options but also the costs for treatment. The increase in specialist referral practices and out of hours clinics for small animal patients have also increased the range of options available, with small animal veterinary practice increasingly modelling itself on human medicine.

Although there are similarities between clinical decision making in veterinary practice and medical practice, there are also differences. Obviously veterinary patients are animals, and although they may suffer from many of the same diseases and conditions as human patients, the value of the animal to its owner, which may be financial and or emotional, will affect the extent to which diseases are investigated and treated. One of the major reasons for this is that

the animal's owner, the client, is in most cases paying directly for the services of the veterinary surgeon. Another reason is that in contrast to human medicine, there is no obligation to preserve life, but rather the welfare and best interests of the animal must be considered in clinical decision making, and euthanasia may in some cases be recommended or selected.

8.1 Summary of findings

The analysis of recorded consultations in **Chapter 4** showed that clients consult their veterinary surgeons for a range of reasons, including illness and preventive healthcare for their animals, but that in first opinion small animal practice many consultations relate to the ongoing management of conditions which have already been the subject of diagnosis and treatment.

In contrast to models which depict the consultation as a linear process led by the clinician, the analysis of recorded consultations in this study reveals that they are better described as an interactive process involving the exchange of information between veterinary surgeon and client. The clinical history and physical examination appear to be performed in an iterative fashion in the veterinary consultation, with the information from the clinical history focusing the physical examination, which in turn is used to check the information from the clinical history. In the same way gathering and giving information (explanation and planning) occur in an iterative manner throughout the consultation.

The major clinical decisions of the consultation relate to making an assessment of the animal's condition (diagnosis) and the appropriate management of the problem (treatment). It would appear that veterinary surgeons use similar strategies to their medical colleagues in reaching a diagnosis, with experienced clinicians in primary care frequently using rapid (System 1) techniques such as spot diagnosis and pattern recognition, reserving hypothetico-

deductive reasoning (System 2) for complex cases or where System 1 reasoning has failed (Evans 2003; Croskerry 2009). Veterinary surgeons contrast the decision making techniques they rely on in practice (predominantly System 1) with those that they were taught at university (System 2). Whilst they are theoretically aware of the shortcomings of System 1 reasoning, they still report relying on it heavily in practice where pressures of time and money encourage this type of decision making.

Comparison of different types of veterinary practice, by the context in which the service is provided, or the species treated, raises some interesting points. While small animal practice has to some extent modelled itself on medical practice it is noteworthy that in the UK this generally means state funded healthcare through the National Health Service (NHS). However although veterinary services are predominantly provided on a fee for service basis the format of the veterinary consultation, from the layout of the surgery to the 10 minute appointment time, has more in common with the bureaucratic format of healthcare provided in the NHS than the environment and services provided in private medicine (Strong 1979; Silverman 1987).

While the “10 minute” consultation is the norm in many UK small animal practices the veterinary surgeons in this study indicate that it is often difficult and stressful to complete all the tasks within the allocated time. Comparisons with other contexts, such as charity and farm animal practice, suggest that the time pressure, at least for experienced clinicians, is created not so much by the biomedical tasks of examining the animal and making decisions regarding the diagnosis and appropriate treatment, but rather by the need to involve the owner in the decision making process and gain agreement for the proposed course of action through a process of shared decision making.

Chapter 5 looked in more detail at the process of shared decision making. The concept of shared decision making has been widely adopted in the medical world where it is contrasted with both paternalistic decision making, in which the professional takes decisions in the best

interests of the patient; and informed decision making in which the role of the health professional is seen as that of providing information to enable the patient to make their own decisions through the process of informed consent (Charles et al. 1997). However although shared decision making has been described as the ideal for the veterinary consultation it has also been acknowledged that “there are occasions when some owners do not always act in the best *interests of their animal*” (BVA 2009). This requires that the veterinary surgeon takes a role in educating the client and requires that clinical decision making takes account of the ethical concerns regarding the welfare of the animal (Tannenbaum 1995; Rollin 2006).

The recorded consultations in this study indicate that there is rarely direct conflict between veterinary surgeon and client during the consultation. Instead the veterinary surgeon enters a period of negotiation with the client which may include “floating ideas”, to see how the client reacts; making recommendations, which the client may accept or decline; and discussing options. It would appear that in the veterinary consultation diagnosis as well as treatment may become the subject of shared decision making, as the client is required to consent to and pay for diagnostic procedures. In many cases the decision making regarding further diagnostic procedures or treatment only consists of a direct recommendation from the veterinary surgeon and assent from the client. This suggests that veterinary surgeons, in common with many other professionals, enjoy decisional priority, that is the right to propose a course of action, while the client has the right to accept or reject the proposal (Whitney et al. 2006).

While the veterinary surgeon may use particular language and techniques in order to involve the client in the decision making process there is significant variation in the extent to which clients respond. Lack of response on the part of the client is often interpreted as resistance to the suggested course of action and further options are then generally offered, since the veterinary surgeon is aware that they need to obtain the clients consent to procedures and treatments. Clients appear to influence the decision making process in a number of ways

either by suggesting diagnoses; discussing treatments; or withholding assent. Simple assent appears to be the most common way of agreeing to treatments and procedures in the consultation with explicit consent, in the form of signed consent forms, being reserved for those cases where the animal is admitted for further investigations or major procedures.

This appears to support the findings of Silverman (1987) who relates the need for consent to the expectation of the consultation, likening the process to taking the car to be serviced or repaired. Where the work carried out is what the client would expect no further consent is required, but if unexpected problems are discovered further agreement from the client should be sought. However this approach can have problems if the veterinary surgeon and client have different interpretations of what is expected. This may be a particular problem where the veterinary surgeon and client do not have an ongoing relationship, for example at an out of hours' service.

Although all veterinary surgeons acknowledged the importance of the client in the decision making process, shared decision making in the explicit way described in the literature (Charles et al. 1999) or informed decision making as advised by the Guide to Professional Conduct (RCVS 2009) were not seen in the consultations recorded in this study. Instead veterinary surgeons appear to use a form of deliberative decision making (Emanuel and Emanuel 1992), and may sharing their findings with the client through the processes of pre-diagnostic commentary (Stivers 1998) and indexing (Perakyla 2006), which enable the client to enter the decision making process if they wish. It is interesting to note that while discussing options is considered to be one of the hallmarks of shared decision making (Charles et al. 1999; Elwyn 2006) veterinary surgeons in this study acknowledged they were more likely to discuss options with the client where they themselves were uncertain of the best course of action. This appeared to be a particular problem for recent graduates who reported finding the responsibility of clinical decision making, especially in the face of incomplete information, difficult and stressful.

Chapter 6 looked at the evidence that veterinary surgeons use to support their clinical decision making. Veterinary surgeons collect evidence about the individual animal during the consultation, in the form of the clinical history, physical examination and investigative tests, and these components are integrated to make an assessment of the animal's condition. The clinical history and physical examination still appear to provide the majority of the evidence that the veterinary surgeon relies on to assess the condition of the animal and make recommendations or discuss options with the owner. However it is harder in veterinary practice than medical practice to separate out the relative contributions of the clinical history and physical examination because they take place in an iterative fashion. This iterative process appears to be an efficient method of collecting information, both in allowing the veterinary surgeon to assess the information given by the client and in prompting the client to give further information. However this research does not provide any evidence as to whether this approach is more effective than a linear approach would be and indicates that further research is needed.

It also appears that each of these components also has a function which extends beyond providing biomedical information. The clinical history provides information not only about the animal but also the context in which decision making will be made, as the owner will often provide information about their relationship with the animal and factors which may affect their ability to provide care. The veterinary surgeon and client appear to draw on both objective information and subjective impressions of the animal's wellbeing. This appears to be necessary as the role of the veterinary surgeon is not only to make a diagnosis and prescribe a treatment, based on the bio-medical information, but also to assess and advise on the welfare implications and "best interests" of the animal.

The physical examination also provides a way for the veterinary surgeon to demonstrate care and skill to the animal owner and in so doing develop the trust that will be necessary for the owner to agree to treatment. The degree of trust between veterinary surgeon and client

appears to affect the way they deal with the uncertainty, with veterinary surgeons who do not have an ongoing relationship with the client saying that they are more likely to seek to recommend investigative tests than rely on their clinical judgment, both to increase their certainty and to defend themselves against litigation.

In cases of uncertainty or when considering introducing a new product or procedure veterinary surgeons report consulting a range of sources but particularly value opinion from trusted source; concise structured information; and colleagues who are able to contextualise the information to relate it to individual cases. The primary research literature is often considered to be of limited value to primary care clinicians. While veterinary surgeons do integrate evidence from a range of sources they appear to do so in a way that looks more like the case based casuistic reasoning described by Tonelli (2006) than the explicit use of evidence based veterinary medicine (Guyatt 1992; Cockcroft and Holmes 2003).

Chapter 7 draws on the findings of the previous chapters to identify the factors which veterinary surgeons report as influencing their clinical decision making in particular cases. These include factors related to the animal such as its temperament; and in small animal practice, where pets are often living longer, the co-existence of more than one condition; as well as the ability of the owner to provide care in terms of both financial and practical resources.

Financial considerations were considered to influence clinical decision in all types of practice however the treatment of companion animals, of whatever species, could be complicated by the emotional attachment of the owner. Veterinary surgeons acknowledge the need to adapt their treatment recommendations to the financial and practical resources of the owner. This study also confirms findings by Coe (2007) that explicit discussions of costs do not occur in most veterinary consultations and that veterinary surgeons perceive discussions about money to be difficult. Insurance was considered to be beneficial by the

veterinary surgeons in this study because it enables them to carry out testing and treatment of the animal without the need to discuss costs.

Financial considerations were often described as posing dilemmas for veterinary surgeons, particularly where they considered that they were providing less than optimal treatment for the animal, and may be one factor contributing to the high levels of stress reported by veterinary practitioners. This stress appears to be greater for more recently qualified veterinary surgeons who often referred to the constraints of practice, and described being unable to practice medicine as they had been taught. In contrast older veterinary surgeons are less likely to consider their practice as sub-optimal, but rather characterise it as doing the best they can under the circumstances.

8.2 Limitations of the study

The main limitation of this study has been its small size, involving only 22 veterinary surgeons and 69 recorded consultations. The number of participants in a study is always a compromise between breadth and depth, between the size of the sample and practicality in terms of time to collect and analyse the data. This is especially true in qualitative research in which the data collected is rich, complex and time consuming to analyse. However the participants in this study were selected to provide a range of opinions and examples of decision making in different contexts, and with the exception of the high number of male participants with postgraduate qualifications provided a reasonable sample of veterinary surgeons (Appendix H) and consultations.

The second limitation is that this research has only collected interview data from the veterinary surgeons involved in the consultations. This decision was taken for practical reasons since arranging an appropriate time and place to interview the client would have been difficult and also significantly increased the amount of data for analysis. However since

the analysis shows the importance of the client in clinical decision making this remains a significant limitation of this study, and an area for future research.

Another major limitation of the research was the inexperience of the researcher. By its nature research undertaken for a PhD necessitates a steep learning curve. This was particularly so in this case where I had to familiarise myself with a wide range of literature and approaches to research in order to undertake a sociologically informed study into clinical decision making in veterinary practice. The decision to undertake a broad exploratory study rather than concentrating on a specific aspect of clinical decision making was taken because of the dearth of research in this area, however in hindsight this was rather ambitious and has necessitated a degree of selectivity in analysing the data. Throughout this study my own role as a veterinary surgeon cannot be ignored. While there is no doubt that being an experienced veterinary surgeon significantly aided my access to veterinary practices to collect the data, my own preconceptions will have influenced the way that data has been analysed and presented.

While qualitative research seeks to represent the views of the participants I have to accept that my own voice is strongly present in this dissertation, both as the researcher and as a veterinary surgeon. In reviewing the collected data I have to acknowledge that there have been occasions when my own voice has perhaps been too strong and that the way that some of the interview questions were phrased may have influenced the answers received. I have tried in the analysis to make allowances for this influence and where possible presented my own questions with the responses so that the reader can form their own opinion of the influence of the question on the respondent.

Although inevitably I started with my own ideas and opinions about the factors that influence clinical decision making in practice undertaking this research has enabled me to develop a much greater understanding of how and why these factors are important and to include the analysis of other areas, such as the personality of the veterinary surgeon, which I

had not initially considered. In making decisions about which themes to analyse I have tried to be guided by the original research questions and concentrate on those aspects of the consultation which appeared to be most relevant to clinical decision making, however there are themes or subjects which were only raised by one or a few veterinary surgeons which for reasons of space I have not been able to analyse here.

The role of the researcher in collecting and interpreting data in a qualitative research study contrasts with ideas in quantitative research which is often judged by its reliability, which is its ability to be replicated by another researcher. Whilst my own role, in both the collection and analysis of data, has been critical in this study I have always tried to present examples of the phenomena I am discussing providing an audit trail back to the original data. I have also tried to relate my findings to the existing literature on the veterinary profession, where it exists. Throughout this study I have taken the opportunity to discuss my ideas with friends and colleagues as well as presenting my research to a range of different audiences. This has enabled me both to refine my own ideas but also to check that my findings resonate with other members of the veterinary profession.

8.3 Discussion and Recommendations

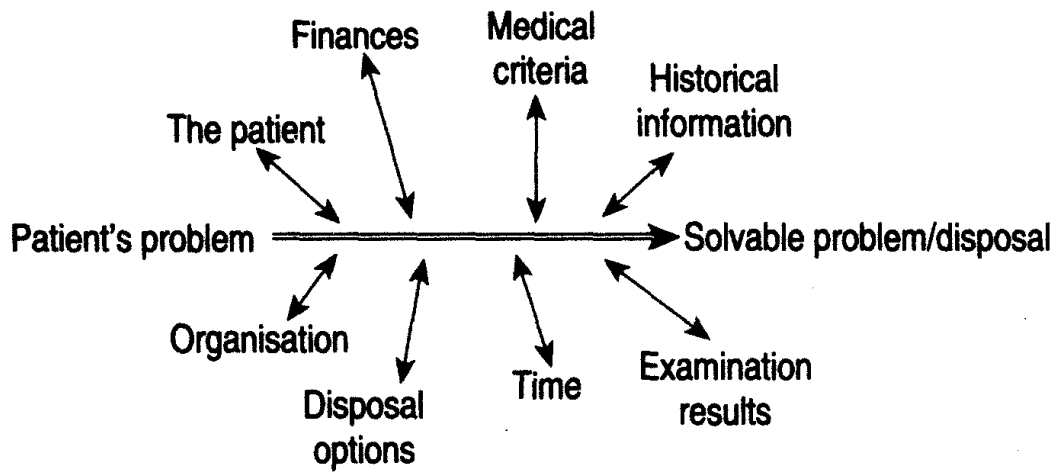
The aim of this study has been to explore clinical decision making by veterinary surgeons in practice in the U.K. and to develop an understanding of the main factors which influence their decision making. It has provided evidence that there are a range of factors influencing clinical decision making working at different levels, from the structure of the consultation; to the need to share and negotiate care for the animal with the owner to structural factors which influence the delivery of veterinary care and the role of animals in society.

A recurring theme throughout this research has been the way that veterinary surgeons consider that their clinical decision making in practice deviates from the ideal as taught to

them at university or described in text books. The major difference affecting clinical decision making in practice appears to be the presence of the client, who is largely absent from veterinary teaching and texts, with the exception of that relating to communication skills. Clinical decision making in practice, rather than being the logical linear process taught at university, is interactive, requires negotiation and involves many factors other than the condition of the animal. Constraints of time and money are referred to as constraining factors by the majority of participants but also mentioned by the respondents in this study is the variation between clients in the level of care that they are seeking and able to provide for their animals. While recent graduates often describe the shortcuts and compromise that they make in practice as a problem and the treatment that they are able to provide as less than ideal, more experienced practitioners are more likely to claim that they are providing the best treatment for the animal under the circumstances, indicating that they have accepted that many factors have to be considered in making clinical decisions.

These differences between veterinary medicine as it is taught and practiced appear to provide an example of the distinction between the academic and consulting arms of a profession as described by Friedson (1976). This study has shown that although the animal patient is both the focus and the subject of the consultation, clinical decision making is a human activity and is affected by a range of factors other than the condition of the animal. In this it appears that clinical decision making in veterinary practice, while still converting the patient's problem in to one that is amenable to the "treatments" that the profession has to offer (Abbott 1988) does so in a way that is closer to the social model of decision making described by Berg (1992), than the classical biomedical model of decision making (Ledley and Lusted 1959),

Figure 8.1 Social model of clinical decision making (Berg 1992)



The social model of clinical decision making acknowledges that many factors can influence the decision making process including the circumstances and context in which the decision is taken, and “disposals” describe the range of options which the clinician has to offer the client.

The veterinary surgeons interviewed in this study considered that time and money were major factors constraining clinical decision making in veterinary practice. Time is a particular issue in small animal practice where consultations are often scheduled at 10 minute intervals. The average length of consultations in this study was 11 minutes and 45 seconds rising to 14 minutes and 15 seconds for consultations for new conditions. Many veterinary surgeons reported feeling pressure to try to keep to appointment times, with some consultations such as vaccinations and post-operative checks being completed more rapidly as veterinary surgeons attempt to keep to time. The time pressure also appeared to have an influence on the clinical decision making in the consultation with veterinary surgeons reporting that they had to make decisions about which problems to deal with in a particular consultation, and ongoing consultations being used to assess changes over time and response to treatment. While in theory scheduled appointments should enable a more efficient service

to be delivered, and cut waiting times for clients, it may be appropriate to undertake further research to assess the effect of 10 minute consultations on client satisfaction. In the present economic climate where there is a reported reduction in demand for services in small animal practices (Robinson 2009), it may also be appropriate to consider increasing the allocated time at least for clients presenting animals with new conditions, although it will be necessary to consider the effect of any increase in consultation fees that may result.

Financial constraints on the investigation and treatment of disease were also considered to be important and have an effect on clinical decision making, with discussions over money being considered difficult. However there is some evidence from this study to suggest that discussions over the cost of veterinary care may be more about the perceived value of procedures and treatments than their actual cost. Veterinary surgeons need to be able to explain the benefits of the procedures and treatments that they recommend and to provide comparisons between options based on costs and outcomes. While this is normal in farm animal practice, where decisions include economic considerations, this information is less frequently included in research into treatments in small animal practice. While the profession needs to find ways to increase the availability of high quality evidence, individual practices could also start to build their own evidence by undertaking clinical audit of costs and outcomes for common procedures. Further evidence is also required on co-morbidity which is becoming an increasing issue in small animal practice with many animals living into old age and suffering from more than one condition.

Clinical decision making also appears to be affected by the context in which the decision takes place. The increased specialisation in small animal practice, with the development of referral and out of hours' services, has also affected clinical decision making, not only by increasing the range of options for the investigation and treatment but by altering the way that veterinary services are delivered. While these services enable veterinary medicine to approach more closely to human medicine, they may have implications for the relationship

between veterinary surgeon and client. In seeking veterinary care for their animal an owner may be involved in a range of individual encounters with different veterinary surgeons and even different practices, rather than the development of a true service relationship with an individual veterinary surgeon (Gutek et al. 2000). Although the bio-medical information about the animal may be transferred between veterinary surgeons more personal information about the client's relationship with the animal and their expectations of veterinary care are less likely to be passed on.

This research has shown that there are similarities but also significant differences between human medicine and veterinary medicine as practiced and therefore care should be taken in extrapolating findings from one to the other. While concepts such as evidence-based medicine and shared decision making may be applicable to both professions research is needed to establish how they can best be applied in the veterinary context.

In conclusion clinical decision making in veterinary practice is a human activity, and while the subject of the decision making is the health and welfare of the animal patient, this study provides evidence that this involves more than just biomedical information about the animal. Clinical decision making in veterinary practice needs to take account of the social and contextual factors relating to the circumstances of the individual client; the role and status of animals in society; and the way that veterinary services are delivered. These are all areas which need further research if the veterinary profession is to continue to improve the standards of care provided to their animal patients, which they can only do through their human clients.

Recommendations for Practice

- It may be appropriate to reconsider whether the 10 minute appointment is the best way to provide veterinary services in small animal practice; especially for those animals presenting with a new condition.

- In discussing costs with the owner it is important to present the value of the options in terms of benefits and outcomes for the animal.
- It is important to be able to offer a range of options to allow for the variation in the type of care that the owner is seeking for their animal and their practical and financial resources.
- Practices should look to develop their own evidence on costs and outcomes through the use of Clinical Audit.

Recommendations for Research and Education

- While clinical decision making is a skill which develops with experience teaching of the principles of clinical decision making may aid understanding.
- Further research is needed into veterinary practice as a human activity and the services which clients are seeking.
- Further research is needed into the client's view and role in clinical decision making, particularly the extent to which they are seeking recommendations or options.
- There needs to be more research on co-morbidity as increasing numbers of companion animals are being treated for more than one condition.
- Clinical teaching needs to include contextual information, such as information about the owner and financial constraints, when considering the diagnosis and treatment of clinical cases.
- Evidence based resources are needed which present the costs and benefits of a range of options to support shared decision making. These could take the form of decision aides which could make explicit the costs and options for the diagnosis and treatment common conditions and could be used to facilitate discussion of options and costs between veterinary surgeon and client.

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APPENDICES

APPENDIX A - ETHICS APPROVAL FORM



This form must be completed for all research projects, research assignments or dissertations/theses which are conducted within the School and involve human subjects. You must not begin data collection or approach potential research participants until you have completed this form, received ethical clearance, and submitted this form for retention with the appropriate administrative staff.

If the study is based only on a review of documentary sources and involves NO fieldwork of any sort, then this form does not need to be completed.

Completing the form includes providing a brief summary of the research in Section 2 and ticking some boxes in Section 4. Ticking a shaded box in Section 4 requires further action by the researcher. Two things need to be stressed:

- Ticking one or more shaded boxes does not mean that you cannot conduct your research as currently anticipated; however, it does mean that further questions will need to be asked and addressed, further discussions will need to take place, and alternatives may need to be considered or additional actions undertaken.
- Avoiding the shaded boxes does not mean that ethical considerations can subsequently be 'forgotten'; on the contrary, research ethics need to inform - for everyone and in every project – an ongoing process of reflection and debate.

The following checklist is a starting point for an ongoing process of reflection about the ethical issues concerning your study.

SECTION 1: THE RESEARCHER(S)

To be completed in all cases

Title of project: Clinical Decision Making in Veterinary Practice

Name of principal researcher: Sally Everitt

- Status: Undergraduate student
- Postgraduate taught student
- Postgraduate research student
- Staff

Email address: svxse@nottingham.ac.uk

Names of other project members:

To be completed by students only:

Student ID number: 4076439

Degree programme: PhD

Module name/number:

Supervisor/module leader: Professor Malcolm Cobb; Dr Alison Pilnick; Dr Justin

Waring

SECTION 2: RESEARCH WITHIN OR INVOLVING THE NHS OR SOCIAL CARE
--

Does this research involve the recruitment of patients, staff, records or other data through the NHS or involve NHS sites or other property?

Yes

No

If you have answered **YES** to the above question, ethical approval **MUST** be sought from the relevant NHS research ethics committee. Evidence of approval from such a committee **MUST** be lodged with the School office prior to the commencement of data collection.

Does this research involve the recruitment of users, staff, records or other data through social service authorities (children and adult services) or involve social service sites or other property?

Yes

No

If you have answered **YES** to the above question, then you must check whether or not the relevant social service authority has its own ethical scrutiny procedures. If appropriate, evidence of approval from such an authority **MUST** be lodged with the School office prior to the commencement of data collection.

Where external ethical approval has been obtained from a NHS committee or social service authority completion of this form is optional.

SECTION 3: THE RESEARCH

Please provide brief details (50-150 words) about your proposed research, as indicated in each section

1. Research question(s) or aim(s)

The purpose of this research is to investigate the decisions being made by veterinary surgeons during routine consultations, the evidence that is being used to support or inform these decisions and the factors which influence the use of evidence. The main research question is: **What evidence are veterinary surgeons in practice using to inform/support their clinical decision making?**

2. Method(s) of data collection

The preliminary part of the research will consist of an ethnographic case study carried out in a single veterinary practice collecting data by a range of methods including observation, interviews and documentary analysis to build a detailed picture of the use of evidence in clinical decision making. This will also provide the opportunity to pilot the video data collection method that will form the main part of the study.

The main study will consist of a series of videotaped consultations with a range of veterinary surgeons in different practices. These videotapes will then be used to prompt discussion of decision making and evidence use during semi-structured interviews.

3. Proposed site(s) of data collection

Data will generally be collecting in veterinary practices (see list of proposed practices at Appendix 4. A small number of consultations may be recorded on farms or stables where the veterinary surgeons concerned are visiting.

4. How will access to participants be gained?

Access will be negotiated through the principal or partner in the practice using contacts known to the researcher or other members of the School of Veterinary Medicine and Science at the University of Nottingham. For corporate or charity based practices access will be arranged through a senior member of the management team. It is hoped that once contact with the practice has been made a number of veterinary surgeons within the practice will be willing to participate.

Veterinary surgeons will be asked to obtain consent from their clients.

SECTION 4: ETHICAL CONSIDERATIONS

Please answer each question by ticking the appropriate box. All questions in section 4 **must** be answered.

4.1 General issues

	Yes	No
Will this research involve any participants who are known to be vulnerable due to:		
Being aged under 18?		X
Residing in institutional care (permanently or temporarily)?		X
Having a learning disability?		X
Having a mental health condition?		X
Having physical or sensory impairments?		X
Previous life experiences (e.g. victims of abuse)?		
Other (please specify)...		
Will this research place participants at any greater physical or emotional risk than they experience during their normal lifestyles?		X
Will this research involve any physically invasive procedures or the collection of bodily samples?		X
Will this research expose the researcher to any significant risk of physical or emotional harm?		X
Will this research involve deception of any kind?		X
Will this research involve access to personal information about identifiable individuals without their knowledge or consent?		X
I will inform immediately the School's Ethics Officer if I change the		

method(s) of data collection, the proposed sites of data collection, the means by which participants are accessed, or make any other significant changes to my research inquiry	X	
---	---	--

4.2 Before starting data collection

	Yes	No
I have read the Research Code of Conduct guidelines of the University of Nottingham, in particular sections 3 and 4, and agree to abide by them: http://www.nottingham.ac.uk/ris/local/research-strategy-and-policy/research-governance.php	X	
I have read the Data Protection Policy and Guidelines of the University of Nottingham and agree to abide by them: Policy - http://www.nottingham.ac.uk/%7Ebrzdpa/local/dp-policy.doc Guidelines - http://www.nottingham.ac.uk/%7Ebrzdpa/local/dp-guidance	X X	
My full identity will be revealed to all research participants	X	
All participants will be given accurate information about the nature of the research and the purposes to which the data will be put	X	
All participants will freely consent to take part, and this will be confirmed by use of a consent form. (An example of a consent form is available for	X	

you to amend and use.)		
One signed copy of the consent form will be held by the researcher and another will be retained by the participant	X	
It will be made clear that declining to participate will have no negative consequences for the individual	X	
It will be made clear that participation is unlikely to be of direct personal benefit to the individual	X	
Participants will be asked for permission for quotations (from data) to be used in research outputs where this is intended	X	
Incentives (other than basic expenses) are offered to potential participants as an inducement to participate in the research. (Here any incentives include cash payments and non-cash items such as vouchers and book tokens.)		X
For research conducted within, or concerning, organisations (e.g. universities, schools, hospitals, care homes, etc) I will gain authorisation in advance from an appropriate committee or individual. (This is in addition to any research ethics procedures required by those organisations, particularly health and social care agencies – see Section 2.)	X	

4.3 During the process of data collection

	Yes	No
--	-----	----

I will provide participants with my University contact details, and those of my supervisor, so that they may make get in touch about any aspect of the research if they wish to do so	X	
Participants will be guaranteed anonymity only insofar as they do not disclose any illegal activities	X	
Anonymity will not be guaranteed where there is disclosure or evidence of significant harm, abuse, neglect or danger to participants or to others	X	
All participants will be free to withdraw from the study at any time, including withdrawing data following its collection	X	
Data collection will take place only in public and/or professional spaces (e.g. in a work setting)	X	
Research participants will be informed when observations and/or recording is taking place	X	
Participants will be treated with dignity and respect at all times	X	

4.4 After collection of data

	Yes	No
Where anonymity has been agreed with the participant, data will be anonymised as soon as possible after collection	X	
All data collected will be stored in accordance with the requirements of the Data Protection Act 1998	X	

Data will only be used for the purposes outlined within the participant information sheet and consent form	X	
Details which could identify individual participants will not be disclosed to anyone other than the researcher, their supervisor and (if necessary) internal and/or external examiners without their explicit consent	X	
I will inform my supervisor and/or the School's research ethics officer and (if necessary) statutory services of any incidents of actual or suspected harm of children or vulnerable adults which are disclosed to me during the course of data collection	X	

4.5 After completion of research

	Yes	No
Participants will be given the opportunity to know about the overall research findings	X	
Data must be submitted to the School office and will be retained (in a secure location) for 7 years from the date of any publication based upon them, after which time it will be destroyed.	X	
All hard copies of data collection tools and data which enable the identification of individual participants will be destroyed	X	

SECTION 5: ETHICAL APPROVAL

Self-declaration of ethical research

1. **If you did not tick any of the shaded boxes** in section 4 of this form, please sign and date below.

Keep one copy of this form for your personal records and hand another to Alison Haigh in the School office who will keep it on file.

By signing this form you are agreeing to work within the protocol which you have outlined and to abide by the University of Nottingham’s Code of Research Ethics. If you make changes to your protocol which in turn would change your answers to any of the above questions then you **must** complete a new form and submit a copy to Richard Hammond (SVMS).

Signed

Date

2. **If you ticked any of the shaded boxes in section 4 of this form, then you must complete SECTION 6 (overleaf). You must then discuss all ethical issues arising, record the outcome and have this form countersigned by the following personnel**

Undergraduate student – module convenor/project supervisor

Postgraduate taught student – dissertation supervisor

Postgraduate research student – supervisor/upgrade panel

Staff – School Research Ethics Officer (REO)

Authorisation following ethical scrutiny

This section to be completed only in cases where section 6 has also been completed.

To be completed by module convenor/project supervisor and/or School Research Ethics Officer

Having discussed the ethical issues arising from the proposed research

- I am happy for the research to go ahead as planned.
- I have requested that changes be made to the research protocol. The principal researcher must complete and submit a revised form which integrates these changes
- This project must be referred on for more detailed ethical scrutiny. Please forward a hard copy to the School’s REO
- This project is to be referred to Research Development Group for consideration (this option is for School REO only)

School REO.....

Date

Note: **any** research protocols lodged with the School office may be subject to review by the School’s Research Ethics Officer

SECTION 6: FURTHER INFORMATION & JUSTIFICATION OF METHODOLOGY

One box should be completed for **each** shaded box ticked in section 4 of this form.

Ethical issue:

Participants under 18 or from other vulnerable groups

Those whose understanding of English means that they are unable to give informed consent

Rationale for chosen methodology and/or how ethical issue is to be addressed:

While it is not intended for any participants under 18 or from vulnerable groups to be included in the data collection, should this occur, for example a child accompanying an adult to the vets or a girl in a stable yard, no quotes or pictures which include these individuals will be used in any published material without explicit written consent from a parent or guardian.

If any client does not appear to have a sufficiently good grasp of English to give informed consent they will not be included in the study

Supervisor/REO's response (including whether ethical issue has been satisfactorily addressed):

APPENDIX B – PARTICIPANT INFORMATION & CONSENT FORMS

Participant information

Research Project – Clinical Decision making in Veterinary Practice

Thank you for expressing an interest in this project. This sheet provides further information on the aims and methods of the study and the involvement required from the practice if you agree to participate.

The research is being undertaken by Sally Everitt BVSc MRCVS, a PhD student at the University of Nottingham. The aim of this study is to investigate clinical decision making and the use of evidence in veterinary practice in the U.K. and seeks to answer the question: **What factors influence veterinary surgeons' clinical decision making in the consultation?**

It is hoped that this study will provide information which will enable both the development of evidence-based resources for practice and the teaching of clinical decision making.

The research will use video recordings of actual consultations to prompt discussion of the decisions made and evidence used during routine consultations. In order to take part veterinary surgeons will need to agree to the video recording of a small number of consultations and audio-recording of the following discussion. It is hoped that consultations will be able to be recorded with a number of veterinary surgeons of different levels of experience. The choice of consultations will be down to the veterinary surgeon concerned and consent forms will be required from both the participating veterinary surgeon and client (see attached).

While some personal information on the veterinary surgeon and practice will be collected this will be kept confidential and all references to individuals and the practice will be anonymised in any publications.

All participating practices will receive, and have the opportunity to comment on, a report of the findings.

If you are still interested in participating, or require any further information, please contact Sally Everitt to arrange a mutually convenient time for her to visit the practice.

Sally Everitt BVSc MRCVS

Consent Form - Client

PARTICIPANT CONSENT FORM – Client

University of Nottingham

Project title: Clinical Decision Making in Veterinary Practice

Researcher's nameSally Everitt (svxse@nottingham.ac.uk 01280 822971)

Supervisor's name ... Professor Malcolm Cobb (Malcolm.cobb@nottingham.ac.uk)

0115 9516416

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I have had the opportunity to ask questions. I understand and agree to take part.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.
- I understand that while information gained during the study may be published, I will not be identified and my personal details will remain confidential.
- I understand that I may be video recorded during the consultation.
- I understand that the original data will be analysed and that extracts from the recordings may be quoted in research papers or used for teaching purposes. I understand that all reasonable precautions will be taken to ensure my anonymity in these cases.
- The original data will be collected and stored in accordance with the requirements of the Data Protection Act.
- I understand that I may contact the researcher or supervisor if I require further information about the research, and that I may contact the Research Ethics Officer of Sociology and Social Policy, University of Nottingham, if I wish to make a complaint relating to my involvement in the research.

I agree to take part in the above research project

Signed

(Research participant)

Print name **Date**

.....

Veterinary Practice

Consent Form - Veterinary Surgeon

PARTICIPANT CONSENT FORM – Veterinary Surgeon

University of Nottingham

Project title: Clinical Decision Making in Veterinary Practice

Researcher's name Sally Everitt (svxse@nottingham.ac.uk 01280 822971)

Supervisor's name ... Professor Malcolm Cobb (Malcolm.cobb@nottingham.ac.uk)

0115 9516416

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I have had the opportunity to ask questions. I understand and agree to take part.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.
- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.
- I understand that I will be video recorded during the consultation(s) and audio recorded during the interview.
- I understand that the original data will be analysed and that extracts from the recordings may be quoted in research papers or used for teaching purposes. I understand that all reasonable precautions will be taken to ensure my anonymity in these cases.
- The original data will be collected and stored in accordance with the requirements of the Data Protection Act. The data will not be used for any other research purposes without my written consent.
- I understand that I may contact the researcher or supervisor if I require further information about the research, and that I may contact the Research Ethics Officer of Sociology and Social Policy, University of Nottingham, if I wish to make a complaint relating to my involvement in the research.

I agree to take part in the above research project

Signed

(Research participant)

Print name **Date**

.....

Veterinary Practice

APPENDIX C – INTERVIEW GUIDE

Part 1 - Prior to looking at the video of the consultation

1. Collect information on Practice and Individual attributes
2. How was the consultation to be used in the interview selected
3. Before we look at the video can you tell me about this consultation in your own words?
 - a. Prompts
 - i. Have you met the client/animal before
 - ii. Did you have any ideas or preconceptions before the consultation
 - iii. Did you find the decision making in this case difficult in any way?
 - iv. What factors influenced your decision making in this consultation
 - b. In what ways was it similar or different from other consultations?
4. Did you feel that the presence of the video camera altered your behaviour or that of the client?

Part 2 - During playback of video – which may be stopped at any point by interviewee or researcher (note which) to discuss decisions or use of evidence.

- a. What decision was made at this point?
- b. What factors did you consider when making this decision?
- c. What evidence are you aware of using to reach this decision?

Part 3 - At end of playback

1. Were there any aspects of the consultation that surprised or interested you?
2. Can you tell me about the decision making in the case we have just seen:
 - a. Prompts
 - i. Do you normally manage all cases of XXXX in this way?

- ii. If so what factors have led to you using this method of management
 - iii. If not what factors influence your management decisions
 - iv. Do you have any protocols or guidelines for the management of
XXXX
 - 1. If so how were they arrived at
 - 2. Did you follow the protocol/guidelines during this consultation
 - v. Did you consider any other treatments before making your decision
 - vi. Do you think that other colleagues in the practice would have managed this case differently? If not what do you think are the reasons for this.
3. Did any other the other consultations recorded raise any particular issues or difficulties in decision making?

Talking about decision making in more general terms

- 1. To what extent do you involve others in the decision making process?
 - a. Clients
 - b. Colleagues
 - c. Other professionals
- 2. How do you think you have developed your decision making skills?
 - a. To what extent do you feel the decision making skills that you use were taught at University
 - b. How do you feel that your decision making skills have changed with experience?
 - c. Do you find that there are areas where what you were taught conflicts with your experience or the way things are done in practice
 - d. Can you think of any particular examples that gave you problems with decision making or which changed your approach (critical incidents)
- 3. What types of evidence (in its broadest sense) do you find you rely on most when making decisions during the consultation? Which do you think were most important in the consultation we have just seen
 - a. Clinical History

- b. Physical examination
 - c. Knowledge of basic -normal anatomy /physiology
 - d. Knowledge of patho-physiology
 - e. Published research/clinical trials
 - f. Textbooks
 - g. Other reference – data sheets
 - h. Previous knowledge of client animal
 - i. Your own experience
 - j. Experience of colleagues/experts
4. Protocols and Guidelines
- a. Have you developed any formal or informal protocols or guidelines within the practice?
 - i. If so how were these decided
 - ii. If not what are the reasons for this
5. Do other colleagues in the practice tend to manage cases in the same way ?– if not what do you think are the reasons for this
6. Sources of Information/Evidence
- a. What reference materials are you most likely to consult?
 - b. When faced with uncertainty about how to manage a case what sources of information/advice are you most likely to consult
 - c. Do you find the primary literature useful or are you more likely to use other sources
 - d. Are there any other types of information/reference that you would like to have available in practice
7. What factors are most likely to influence your use of a new drug or procedure?
8. To what extent do you find your decision making being influenced by financial or business considerations?
9. Are there any other factors which you think influence your decision making that we have not covered?
10. Do you have any comments on the interview process?

APPENDIX D – ATTRIBUTES

Attributes of practices

1. Practice/identifier

2. Location

3. Species mix

4. Number of VS employed (total and FTVE)

5. Other Staff employed

6. Status of Practice – PSS/TP

7. Standard consultation length

8. Practice Management System

9. Protocols/Guideline

10. Information resources available

Attributes of individuals

1. Name/identifier
2. Gender
3. Practice/ identifier
4. Position in Practice
5. Year of Qualification
6. University of Qualification
7. Postgraduate experience
8. Postgraduate qualifications
9. Particular interests

Attributes of consultation

Consultation attributes	
Vet Identifier	
Location	
Animal(s) present	
Owner(s)/ Handler(s) present	
Others present	
Time allocated	
Time taken	
Owners reason for visit	
Owners comments	
Vets Comments	
Clinical examination	
Outcome	
Follow-up	

APPENDIX E - KEYWORD DEFINITIONS

Analysis of consultations - Classic biomedical consultation:

Clinical History – discussion of the animal’s medical problem including, clients presenting symptoms but not general discussion about the animal or other animals in the household unless directly related to this problem

Physical examination – veterinary surgeons examination of the animal by observation, palpation or through various instruments. This includes specific observation alluded to by the veterinary surgeon but not general observation which is not remarked upon. It includes the use of fluorescein and Schirmer tear tests and use of instruments such as thermometer, stethoscope and ophthalmoscope / auroscope.

Diagnostic tests – discussion of diagnostic tests or their results – including blood and urine tests, radiography, ultrasound, ECG, MRI.

Diagnosis – the naming of a disease or condition in either technical or layman’s terms or the discussion of differentials

Treatment – discussion of treatment options, prescription of medication or discussion/review of previous treatment or medication

Those things deliberately not included in this analysis:

Weighing the animal – although this was carried out in several consultations it often involved the animal leaving the consulting room. On other occasions the veterinary surgeon had access to this information already on the patient’s records or the owner was able to provide details having recently weighed the animal.

Taking blood or other samples – although this was occasionally carried out in the consulting room the animal as more often “out the back” for samples to be taken.

Reading or writing patient notes on the computer – although vets often referred to patient notes during the consultation this was not always on screen, and in some cases was not in the room. Three veterinary surgeons made obvious computer entries during the consultation whereas others wrote up the computer notes after the consultation.

Carrying out procedures – such as nail clipping, emptying anal glands or giving injections

Analysis of consultations - Calgary-Cambridge model:

Initiating the consultation – including: greeting the client and animal; introductions and establishing the reason for the consultation.

Gathering information – communication regarding the animals condition and the client's perspective including

- a) The short term history
- b) More general information on the animals purpose or relationship with the owner
- c) Background information – long term history

This section is likely to include but extend beyond the clinical history of the medical model and will include the veterinary surgeons summary of the information gathered

Physical examination – this section will match that in the medical consultation model

Explanation and Planning – communication about the findings of the veterinary surgeon's examination , including diagnosis and treatment and further information solicited by client.

Closing – summarising, safety netting and saying goodbye

As this model concentrates on communication in the consulting room it will exclude:

1. Procedures other than the physical examination
2. Communication between client and animal, or veterinary surgeon and animal other than in greeting

APPENDIX F –DECISION MAKING IN THE CONSULTATION

Diagnosis

Was a diagnosis made during this consultation? Yes / No

What was the diagnosis?

How was diagnosis given to client?

Assertion

Indexing

Explicated

How did client respond to diagnosis?

Silence

Minimal

Extended

Had a diagnosis been made previously?

Diagnostic tests

Were diagnostic tests recommended at this consultation?

How did the VS recommend tests?

How did client respond?

Were diagnostic test results given at this consultation?

How did the client respond?

Treatment

Was treatment prescribed at this consultation?

Was this a continuation of previous treatment?

What treatment was prescribed?

How was treatment recommended?

Single recommendation

Options

Where options were given did VS express preference

How did the client respond to treatment recommendation?

Minimally

Acceptance

Resistance

Outcome

Was an estimate given – written or verbal?

How was consent obtained?

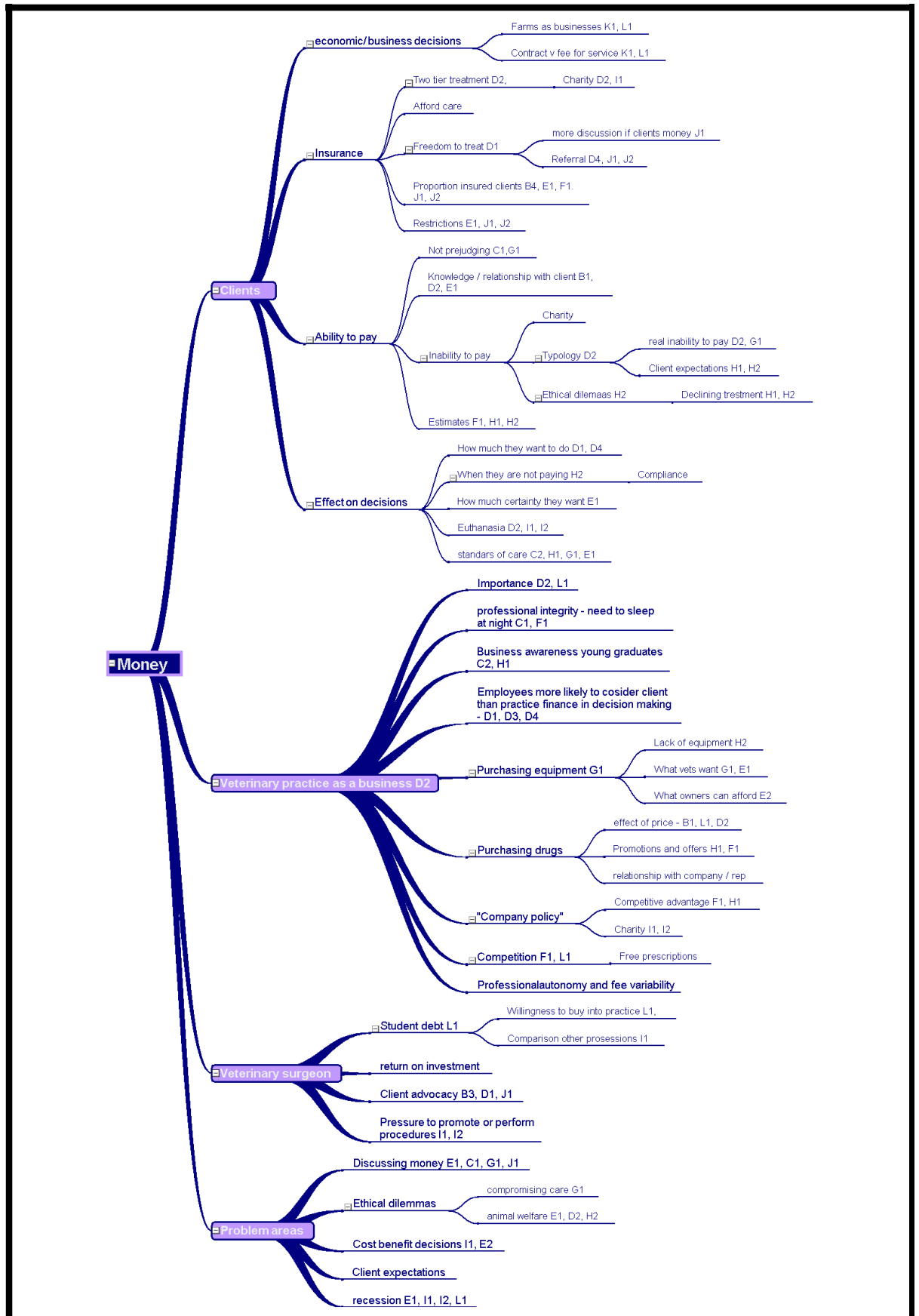
Presumed

Simple

Explicit

Verbal or written

APPENDIX G – SAMPLE MINDMAP



APPENDIX H – PARTICIPANT CHARACTERISTICS

	GENDER	YEAR QUALIFIED	UNIVERSITY	OTHER QUALIFICATIONS	STATUS	SPECIES TREATED	TYPE OF PRACTICE
B1	M	1988	CAMBRIDGE	Cert VR	PARTNER	SA/MIXED	PRIVATE
B2	F	2004	LONDON		ASSISTANT	SA	PRIVATE
B3	M	2002	LONDON	Cert ZOO MED	ASSISTANT	SA	PRIVATE
B4	F	2006	BRISTOL	BSc - Veterinary Pathogenesis	ASSISTANT	SA	PRIVATE
C1	M	1981	CAMBRIDGE	PhD , DLAM	DIRECTOR	SA/MIXED	PRIVATE
C2	F	2008	LONDON	BSc Animal Science, MSc Equine Science	ASSISTANT	SA/MIXED	PRIVATE
D1	F	2008	DUBLIN		ASSISTANT	SA	PRIVATE
D2	M	1979	CAMBRIDGE	MSc(VetGP) , D.PROF	PRINCIPAL	SA	PRIVATE
D3	F	2007	EDINBURGH		ASSISTANT	SA	PRIVATE
D4	F	1992	CAMBRIDGE	D32/33	ASSISTANT	SA	PRIVATE
E1	F	1978	CAMBRIDGE		PRINCIPAL	EQUINE	PRIVATE
E2	F	2007	BRISTOL		ASSISTANT	EQUINE	PRIVATE
F1	M	1996	BRISTOL	Cert SAS	JVP*	SA	CORPORATE
G1	M	1986	DUBLIN	PhD , Cert SAM	DIRECTOR	SA	PRIVATE
H1	M	2000	BRISTOL	Cert SAC	Senior Vet	SA	CORPORATE
H2	F	2002	GLASGOW		EMPLOYEE	SA	CORPORATE
I1	M	1977	CAMBRIDGE		Senior Vet	SA	CHARITY
I2	F	2002	LIVERPOOL		EMPLOYEE	SA	CHARITY
J1	M	1986	DUBLIN	DVC	PRINCIPAL	SA	REFERRAL
J2	M	1982	DUBLIN	Cert SAM, MACVS, DVC	EMPLOYEE	SA	REFERRAL
K1	M	1998	BRISTOL	PhD DCHP	EMPLOYEE	LA	PRIVATE
L1	M	1992	LONDON		PARTNER	LA	PRIVATE

JVP = Joint Venture Partner

LA = Large Animal

SA = Small Animal