VETERINARY COMMUNICATION SKILLS AND TRAINING IN THE

UNITED KINGDOM AND THE UNITED STATES OF AMERICA

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Abstract

Veterinary communication is a core clinical skill and is believed to have a positive impact on client satisfaction, trust and adherence to patient management recommendations. Veterinary communication skills training has therefore been incorporated into veterinary undergraduate and postgraduate education. This thesis focuses on the topic of veterinary communication and comprises two studies.

The aim of the first study was to gain a current understanding of the state, adequacy, and relevance of veterinary communication skills and training in the United Kingdom (UK) and United States of America (USA). This was done by conducting a survey of a sample of veterinary surgeons in each country about communication skills and training in the context of a veterinary consultation. A quantitative and qualitative analysis of the data from the survey was undertaken. Key findings were that 98 percent of respondents (1,708/1,748) believed communication skills to be equal in importance to, or more important than, clinical knowledge, whereas only 40 percent (705/1,759) were interested in further communication skills training. Barriers to participation in communication CPD appear to include lack of time and/or employer support, and a belief among some practitioners that communication training could no longer benefit them or was inadequately matched to real-world communication challenges.

The aim of the second study was to assess several factors that may impact on communication dynamics during a consultation. Fifty-five video-recorded veterinary consultations in the UK and USA were analysed as follows: 1. The complexity of the consultations was assessed using a tool previously validated for recording information

via direct observation of consultations. Elements recorded included details on the patient(s) and reasons for the visit, problems investigated, body systems involved, tests performed, diagnoses, and outcomes. Categorical data statistics were recorded as whole numbers and percentages and Chi-Square calculations were done to measure differences between UK and USA data. Continuous data statistics were recorded as median, range, and interquartile ratio (IQR) and Mann-Whitney U tests were performed to measure UK versus USA differences. (Continuous data for the remaining elements in the study were analysed in the same manner.) Key findings were that consultations were complex, involving multiple problems, body systems, tests, diagnoses, and outcomes. 2. Consultations were analysed for alignment with two consultation models, the Calgary-Cambridge Model for Veterinary Consultations (GCCVM) and the Patient-centred Clinical Method, by coding elements of each consultation model in the consultation transcripts. The frequency and proportion of model elements demonstrated in each consultation were assessed, as was the alignment of the consultations to each model, defined by the percent of possible model elements demonstrated in each consultation. There was 86.67% alignment with the GCCVM and 62.50% alignment with the Patient-centred Clinical Method. Veterinary surgeons in the study spent more time gathering information and explaining than empathising or soliciting client input. 3. Consultations were also analysed for dominance of medical versus lifeworld dialogue using the Mishler Discourse Analysis, and medical dialogue dominated over lifeworld dialogue (65.62% to 34.48%). 4. Client/relationship centredness was evaluated using a novel application of a tool in veterinary communication research, the Verona Patient-centred Communication Evaluation Scale (VR-COPE). Results suggested a relatively high

degree of client/relationship centredness (a median score of 76/100), though with somewhat lower scores for elements related to client emotions and the veterinary surgeon responding to them. 5. Client satisfaction was evaluated using the previously validated Client Satisfaction Quotient (CSQ). There was a high degree of satisfaction expressed by clients (median score of 94/114), though average scores were slightly lower for topics related to cost and expression of interest in the client's opinion.

Limitations of the research included the low response rate of US veterinary surgeons to the survey, the small, convenience-based sample used in the consultation study, the reliance on the researcher for maintaining quality and validity, and the scoring of client/relationship-centredness with a tool that heretofore had not been used in veterinary medicine and was not subjected to extensive inter-rater variability testing.

The findings in this thesis support the contention that communication skills are important for veterinary practitioners. The work also highlights the need for making communication training a priority in undergraduate veterinary education and an accessible and relevant component of postgraduate CPD. The findings also suggest a need to equip veterinary students and practitioners for communication during consultations that are relatively complex with highly iterative flow between topics, as well as for addressing emotions and inviting input of clients. Elements of the GCCVM and other models may help provide a framework for training in these competencies.

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List of Abbreviations	
Abbreviation	Meaning
AAHA	American Animal Hospital Association
AVMA	American Veterinary Medical Association
CE	Continuing Education
CEVM	Centre for Evidence-based Veterinary Medicine
CPD	Continuing Professional Development
CSQ	Client satisfaction quotient
DF	Degrees of Freedom
GKCSAF	Gap-Kalamazoo Communication Skills Assessment Form
GVCCCM	Guide to the Veterinary Consultation based on the Calgary-Cambridge Model
IQR	Interquartile ratio
IR	Iain Robbé
IRR	Inter-rater Reliability
KPMG	Professional Consulting Firm, acronym stands for "Klynveld Peat Marwick Goerdeler"
NAH-USA	Novartis Animal Health, USA, Inc.
MC	Malcolm Cobb
MI	Motivational Interviewing
MMcD	Michael McDermott
NR	Natalie Robinson
NUVACS	National Unit for the Advancement of Veterinary Communication Skills
OSCE	Observed Structured Clinical Examination
RCVS	Royal College of Veterinary Surgeons
RD	Rachel Dean
RIAS	Roter Interactive Analysis System
SVMS	School of Veterinary Medicine and Science
X^2	Chi-Squared
UK	United Kingdom
USA	United States of America
VAF	Visual Analog Format
VDS	Veterinary Defence Society
VR-COPE	Verona Patient-centred Communication Evaluation Scale
VT	Victoria Tischler

Contents

1. Literature Review

1.1 Introduction

Substantial evidence from over 40 years of research in human medicine supports the importance of optimised communication between physicians and patients (Brunett et al., 2001, Kurtz, 2002, Makoul, 2001a, Pinto et al., 2012, Kurtz and Silverman, 1996). It has been proposed that physician-patient interactions have an impact on patient health, patient- and physician satisfaction, adherence, and malpractice risk (Alexander et al., 2003, Brook, 2010, Epstein et al., 2005, Hahn, 2009, Hausberg et al., 2012, Kenny et al., 2010, Makoul, 2001a, Christen et al., 2008). This has led to investigations in veterinary medicine that have led to similar conclusions about the importance of communication between veterinary surgeons and clients (McDermott et al., 2015, Mellanby et al., 2011, Shaw, 2006). Communication skills have been defined as being able to structure a consultation, build a relationship with a client, gather information, offer explanation and engage in planning, and tailor dialogue to the client's needs (Hamood et al., 2014). Communication skills in veterinary medicine have been further delineated as content skills (information gathered and given), process skills (how communication is delivered), and perceptual skills (including ability to understand and perceive, be aware of feelings, and express compassion)(Adams and Kurtz, 2017). In a recent article (Cake et al., 2016) communication skills were the professional, non-technical competency best supported by evidence in the literature as contributing to practitioner success. Communication can influence veterinary surgeon- and client satisfaction, therapeutic outcomes, and practice success (Adams and Kurtz, 2012, Mossop and Belshaw, 2011, Shaw et al., 2012). Evidence for the importance and impact

of communication has been reported in various ways, including measured outcomes (e.g. client satisfaction and client/relationship-centredness scores for problem versus wellness appointments), consensus statements from working groups, data from qualitative research with clients or veterinary surgeons, or anecdotal evidence based on experience in practice. In the following review of the literature, a critique of findings and the limitation of their applicability is discussed for each study quoted.

Developments in veterinary communication research and training have often followed or happened in parallel to developments in human medicine. These paths of development are addressed in greater detail in the following pages, in hopes of assessing areas of both commonality and difference of communication in human and veterinary medicine. This may help to identify ways in which veterinary communication research and education can both draw from the rich pool of human medical communication knowledge where appropriate as well as forge its own path in areas requiring more tailored approaches.

1.2 The role of communication in human medicine

Communication is an important element of interaction, and training programmes can improve physicians' communication competence (Kurtz, 2002). Effective communication is credited for encouraging improved accuracy in data gathering, efficiency and supportiveness during medical visits, health outcomes, satisfaction for patients and physicians, as well as the quality of the therapeutic relationship (Silverman et al., 2013).

Maguire and Pitceathly (2002), in a review of the literature, noted the following about effective physician-patient communication: 1) Physicians tend to identify their patients' problems more accurately; 2) Patients are better able to adjust psychologically and are more likely to be satisfied with their care; 3) Physicians experience greater job satisfaction and less stress; and conclude that 4) Training should be available to help physicians experience the benefits of good communication skills. The authors proposed that physician communication training should provide detailed information about deficiencies experienced in communicating with patients, reasons for these deficiencies, and what can happen to physicians and patients as a result of poor communication. Effective communication skills training requires understanding of different types of communication skills, attitudinal changes that can help remedy communication deficiencies, and evidence of the usefulness of communication skills in clinical practice. These can both support skills training and help facilitate continuous improvement. A potential limitation of the Maguire article is that it draws a set of conclusions from a wide range of articles on physician-patient communication, each with its own circumstances and point in time. Because of this, the validity of stating that all these points, when followed together, represent the ideal formula for effective patient communication, is questionable. That having been said, the review's assessments are informative.

1.3   Communication and clinical outcomes

A systematic review of nineteen clinical trials (Oliveira et al., 2015) assessed the degree to which patient satisfaction with care, as well as pain and disability of patients in primary care and rehabilitation, were related to communication training. The authors

concluded that small improvements in satisfaction and the measured outcomes could be related to communication training. They also pointed out the difficulties in drawing conclusions such as these from a systematic review, including the difficulty of assessing the degree to which communication can affect care and outcomes, which is a challenge for measuring the benefit of communication skills in general.

A similar review by Schoenthaler et al. (2014) concluded that there was evidence for the positive impact of communication skill on outcomes in cardiovascular medicine, but the evidence was inconclusive and there were limitations in the study methodologies that made it difficult to assess the impact of communication on outcome completely. Both articles called for more rigorous research in order to determine the clinical impact of communication skills. The same is true for veterinary medicine.

Adherence to medical management recommendations is another outcome for which communication is felt to be important. Brand et al. (2013) suggested, however, that adherence was not simply a matter of the physician giving information and instructions and the patient understanding and following them. Instead, adherence was affected by a complex set of cultural and social influences that must be considered when communicating about the topic. The authors identified a set of integrated efforts, attitudes and understandings that contribute to increased inherence. The result is the following "Adherence Equation" (Figure 1–1).

Follow-up refers to the importance of repeated contact between the medical team and patients and/or parents. Dialogue infers a sharing of knowledge and decision-making between medical professionals, parents and patients throughout the treatment

process. Barriers and beliefs refer to the identification and discussion of treatment-related (e.g. dosing complexity), logistical (e.g. scheduling of appointments), and patient-related (e.g. the patient forgetting to take a medication) challenges to adherence. Empathy involves a physician expressing genuine interest in the patient's or caregiver's views, convictions, and preferences. Education refers to the physician providing information appropriate to the patient's or parents' engagement, desires, perceptions and perspectives. Finally, concordance will result, which means agreement on the therapeutic approach.

Figure 1–1 The Adherence Equation

(From Brand et al. (2013))

$$\mathbf{A} = \mathbf{F} + \mathbf{D} + \mathbf{B} + \mathbf{E} + \mathbf{C}$$

| Adherence | Follow-up | Dialogue | Beliefs/ Barriers | Empathy/ Education | Concordance |

1.4   Elements of effective communication

Participants in the 1999 Bayer–Fetzer Conference on Physician–Patient Communication in Medical Education (Makoul, 2001a), a consensus summit on elements of effective communication, identified seven essential sets of communication tasks: (1) relationship building; (2) opening the discussion; (3) gathering information;

(4) understanding the patient's perspective; (5) sharing information; (6) reaching agreement on problems and plans; and (7) providing closure. These tasks were felt to help form a useful framework for the development of standards and curricula in physician-patient communication (Makoul, 2001a) and became an early model for creation of communication training programmes for physicians. The passage of time may have caused some of the needs and priorities to shift, however (e.g. impact of the internet on patient perspective), thus emphasising the importance of evaluating the state and needs of healthcare professional-consumer communication on an on-going basis as conditions, challenges, and success factors change.

1.5 Communication training in medical school

Communication training has become an integral component of medical education and communication skills are a requirement in many countries for medical school graduates (Duffy et al., 2004, von Fragstein et al., 2008, Makoul, 2003). Following are examples of the background, implementation and evaluation of medical communication training programmes in different geographies.

1.5.1 United Kingdom

A consensus statement (von Fragstein et al., 2008) on medical school communication curricula was developed in an iterative process with input from all of the current 33 medical schools in the UK. The aim was to help medical schools provide an appropriate mix of learning experiences to equip graduating medical students for effective communication with patients and caregivers. The recommendations were based on: a) Respect for others (including recognition of social, cultural, or ethnic considerations

that help form the patient's worldview and attitudes toward certain aspects of medical care), b) Theory and evidence of communication skills (awareness of the body of evidence supporting the importance of effective communication and the hallmarks thereof, including patient-centredness), c) Tasks and skills of the clinical interview (following a model such as the Calgary-Cambridge Guide (Kurtz and Silverman, 1996) to ensure a complete and inclusive dialogue throughout the consultation), d) Specific issues (including navigating cultural and social areas of sensitivity, communication impairment, and communicating about emotional topics), e) Effectively using communication media, and f) Communicating beyond the patient, (i.e. with caregivers and colleagues).

Figure 1–2 is a graphic representation of the proposed elements of communication skills training content in the form of a "Communication Curriculum Wheel" (von Fragstein et al., 2008).

Figure 1–2: The Communication Curriculum Wheel (von Fragstein et al., 2008)
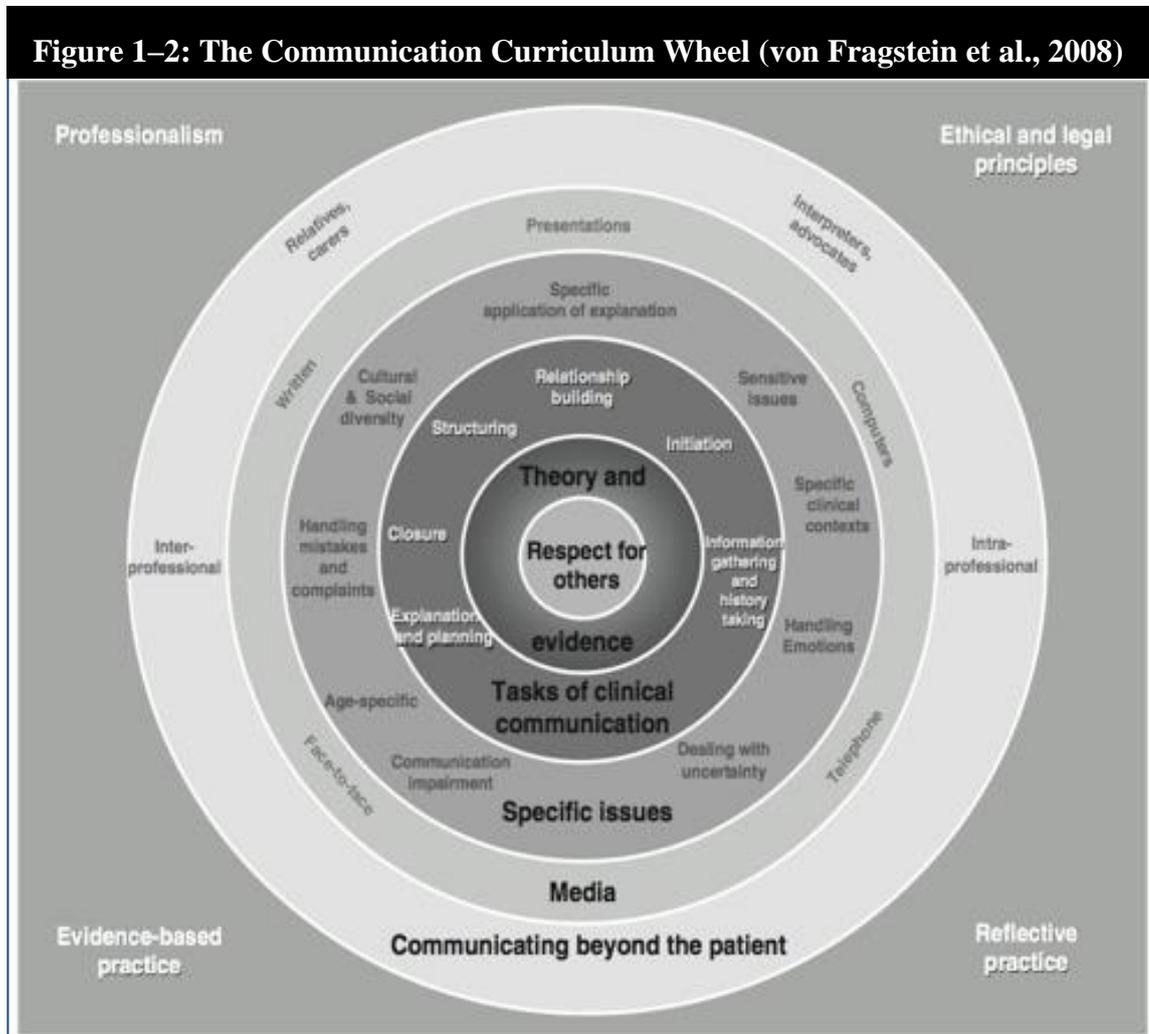
In a comparative study at a UK medical school, students were surveyed to determine whether communication skills training impacts performance across standard components of patient-centred communication (Joekes et al., 2011). The researchers looked at two groups of students, one group having pursued a traditional pre-clinical curriculum and a second group, which had communication skills training as part of a

"professional development" module. Students in the second group achieved higher ratings for hallmarks of patient-centred communication such as use of silence, avoiding interruption of the patient, and keeping the discussion relevant as compared to students receiving the traditional clinical curriculum. Both groups of students improved in their communication skills over time, however. A potential limitation of the study surrounds the use of a single interview rating scale to evaluate consultations, which does not cover all items of potential relevance to communication. Another was inter-rater variability, as well as the relative paucity of opportunities for students to practice with simulated patients (just one time per year in years one and two). In addition, the students were all from a single institution, which may limit the degree to which the findings are generalisable.

A study by Whitehead et al. (2009) used a survey to assess the perceptions of registered dietitians on the level, types and impact of communication training received before and after registration. Ninety-eight percent perceived communication skills to be very important to extremely important for client consultations. Forty-four percent of respondents had received pre-registration communication training, and 73% had received undergraduate training post-registration, and 90% of these perceived communication training to have had a positive effect on their relationships with their patients. Ninety-two percent of respondents said they would be interested in further training. Preferred teaching methods included formal assessments, demonstration of skills by video or live demonstrations, observation and informal feedback by tutors and supervisors, opportunities to practice skills (e.g. in role plays), and lectures or tutorials. Important elements for communicating with patients according to respondents included

communicating at an appropriate level for individual patients, listening attentively, developing rapport, and responding to patient concerns. Limitations of the study included the recruitment of respondents from the British Dietetic Association membership, which may have excluded non-member dietitians, the fact that not all respondents answered all questions in the questionnaire, a relatively low response rate (19.1%), and the potential for misunderstanding some of the terms used in the questionnaire, the authors having noted that terminology in the field was not always consistent. Nevertheless, the study was a meaningful assessment of healthcare professional attitudes toward communication skills and training.

1.5.2   North America

Graduates of Canadian and USA medical schools must demonstrate competency in patient communications in order to receive certification from their respective National Boards of Medical Examiners. Medical schools in both countries must offer communication training in order to qualify for accreditation (Kurtz, 2002).

In a study of communication in oncology settings, where the stress and emotion can be particularly high, Epner and Baile (2014) reviewed a communication training course that had been tailored for first-year participants in an oncology fellowship program (after graduation from medical school and a three-year residency in internal medicine) with little time available and with different communication styles and needs. The course was delivered in monthly one-hour sessions as part of a monthly "seminar day" at a USA oncology centre. Students were given baseline assessments at the beginning of the series, and second- and third-year fellows were enlisted as teaching

assistants. The authors used a range of teaching methods for the seminars, including case discussions, and reflective writing exercises (a clinical vignette would be performed by a teaching assistant, such as a patient asking the question "How long do I have?", then the course attendee was asked to write about how they would respond to the question, then share their thoughts with fellow students). The course also incorporated enhanced role-plays (including role-reversal where the student playing the doctor would play the patient next, and vice versa). The students were given periodic opportunities to offer feedback throughout the fellowship and as a result several improvements and enhancements were made to the course. Overall, the participants felt that the seminar series was clinically relevant and helped them to acquire important communication skills.

An article by Canadian authors Al Odhayani and Ratnapalan (2011) suggested that preceptors in medical training are expected to be role models in communication for their students. Some of the key features of effective communication are expected to be demonstrated by teachers. Videotaping teachers and students and using videotaped role-plays were found to be effective methods for learning and refining communication techniques. Interviewing actual patients specifically for the purpose of learning communication skills was another suggestion. Yet another centred on the point that although medical students are taught to use patient-centred communication styles, patients have different communication styles themselves, leaving some to prefer more biomedical communication and others more psychosocial. This "one size does not fit all" insight has important implications for communication skills training if communication is to benefit the largest number of patients.

1.5.3   Other Countries

Lausanne University in Switzerland (Bourquin et al., 2012) offers medical students eight hours of plenary sessions on communication skills in the first year followed by lectures and videotaped analyses of consultations and role-plays in small group settings during the second year. Third-year students have supervised interviews with patients in small groups, and fourth year students receive the same, including videotaped interviews in which they practice "breaking bad news" to simulated patients. Communication skills training methods for oncologists, which became mandatory in 2005, includes interactive and practical exercises, videotaped interviews with simulated patients, and individual supervision (Bourquin et al., 2012).

A faculty communication teaching skills development programme at Geneva University Hospital was found to be useful in improving the clinical skills of faculty members and encouraging them to seek opportunities to teach communication skills more often. The extent of the benefit and its ongoing value depended on creating and maintaining an environment that supports and allows time for communication teaching (Perron et al., 2014).

A communication skills training program was piloted in 2008 at the University Medical Centre Hamburg-Eppendorf in Germany. The goal was to both to improve the communication skills of medical students and to demonstrate the value of communication skills training early in the curriculum. Hausberg et al. (2012) surveyed pilot participants at the beginning and end of the courses and compared their experiences to students enrolled in a standard curriculum that did not include the same degree of communication training. The authors found that students undergoing the

enhanced training had better communication skills and a higher level of confidence in their communication skills versus the students in the standard curriculum. The findings of the study were to be used to develop a new communication skills training program for students at the Medical Centre. Limitations cited by the authors include the study's relative small sample size (13 students in the "standard" group and 20 in the "enhanced training" group), and the fact that the comparison groups were not randomly assigned. The differences in prior experiences between the students who had the standard– versus enhanced communications curricula may have impacted the study results.

A systematic review of literature examined communication skills teaching curricula at the Medical University of Vienna (Austria) and the Medical University of Basel (Switzerland) (Seitz et al., 2016). The authors used keyword searches related to the institutions and communication skills training on 212 citations and identified five web pages and four articles detailing coursework at the two universities. At the Medical University of Basel, main types of training included lectures and small group seminars. Communication skills were evaluated using Observed Structured Video Examinations (OSVE) and Observed Structured Clinical Examinations (OSCE). During the first year, lectures and role-playing group seminars are used to demonstrate best practice in clinical bedside manner. During subsequent years, communication techniques using simulated patients, integration of communication techniques into clinical training, and dealing with difficult topics are incorporated into the training. At the Medical University of Vienna, communication, social competence, and bedside manner are taught during four years of preclinical and clinical education classes. Theoretical knowledge is tested at the end of the first year using multiple-choice questionnaires.

Examinations are given at the end of the second and fourth years, using OSCEs with simulated patients to assess communication competency. Role plays with simulated patients are used to test bedside manner and the students' ability to deal with communication challenges. While the Medical University of Basel had no attendance requirements except for during year three, the Medical University of Vienna required one-hundred percent attendance. The authors proposed a number of potential enhancements of the curricula, including steps to increasing exam frequency as a means to encourage motivation to attend classes at the University of Basel. Limitations of the study include the relatively small number of references reviewed, the fact that the web pages and articles assessed may not have included all of the information pertinent to communication training at the two institutions, and the fact that no information about the efficacy of the training curricula was presented.

1.6   Communication Models

A number of different communication models or frameworks have been developed for structuring physician-patient communication (Schirmer et al., 2005) and some of these have been adapted for communication skills training and evaluation in veterinary medicine. Among the medical models are The Seque Model (Makoul, 2001b), The Patient-Centred Care Model (Levenstein et al., 1986), the Patient-Centred Clinical Method (also known as the "Disease-Illness Model")(Levenstein et al., 1986), The Model of the Macy Initiative in Health Communication (Kalet et al., 2004), and the Calgary-Cambridge Process Guide (CCPG) and accompanying Calgary-Cambridge Content Guide (CCCG) (Kurtz and Adams, 2009, Kurtz et al., 2003). Each of the models is designed to encourage an interactive dialogue between the healthcare

provider and patient or caregiver that ensures a complete and collaborative exchange of information about the patient's health concerns.

The Calgary-Cambridge Guides, which incorporate 71 process steps through all phases of a medical consultation (Kurtz and Silverman, 1996) have been used as the framework for skills-based communication training courses at a number of universities (Kurtz et al., 2003). The Guides were developed from learnings from over 25 years of research evidence of skills that help enhance communication between physicians and patients. The first Guide, "Interviewing the Patient," focuses on five core tasks that physicians and patients should focus on in the consultation setting: 1) Initiating the session, 2) Gathering information, 3) Building the physician-patient relationship and facilitating the involvement of the patient, 4) Explanation and planning, and 5) Closing the session. For the fourth task, "Explanation and planning," a second Guide provides further detail on specific skills needed for successful completion of the task: 1) Aiding accurate understanding and recall, 2) Collaborating with the patient in shared understanding and decision-making, 3) Bringing the session to closure, as well as 4) Discussion of opinions and the significant of the problem(s), 5) Negotiating a unified plan of action, and 6) Discussion of investigations and procedures. Elements of the Calgary-Cambridge model are presented in Figure 1–3.

Figure 1–3: Calgary-Cambridge Process Elements

(Adapted from Kurtz et al., 2003)

Providing Structure

Making Organisation Overt

Attending to Flow

Initiating the Session

- Preparation
- Establishing initial rapport
- Identifying the reason(s) for the consultation

Gathering Information

- Exploration of the patient's problem to discover:
  - Biomedical perspective
  - Patient's perspective
  - Background information

Physical Examination

Explanation and Planning

- Providing the correct amount and type of information
- Aiding accurate recall and understanding
- Achieving a shared understanding and incorporating the patient's disease framework
- Planning: Shared decision making

Closing the session

- Ensuring appropriate point of closure
- Forward planning

Building the Relationship

Using Appropriate Nonverbal Behaviour

Developing Rapport

Involving the patient

1.7   Assessing communication skills in medicine

In 2001, The Kalamazoo Consensus Statement was published, (Makoul, 2001a) which was the outcome of a conference sponsored by The Bayer Institute for Professional Education and The Fetzer Institute and attended by medical education and professional organisation leaders. The purpose of the conference was to identify essential elements of medical communication. The conference and resulting statement identified seven essential communication tasks: 1) Building the physician-patient relationship; 2) Opening the discussion; 3) Gathering information; 4) Understanding the patient's perspective; 5) Sharing information; 6) Reaching agreement, and 7) Providing closure.

Subsequent to the Kalamazoo Conference, the consensus statement has helped inform the development of communication models, teaching methods, and evaluation tools. Among the latter is the Kalamazoo Essential Elements Checklist, which was adapted and validated by Joyce et al. (2010) for the assessment of communication ability across the elements identified in the Kalamazoo Consensus Statement.

More recently, Peterson et al. (2014) used a related tool, the Gap-Kalamazoo Communication Skills Assessment Form (GKCSAF) to measure communication ability in simulated consultations. The GKCSAF uses a form that measures communication skill across nine categories, expanding slightly on the original Kalamazoo Consensus Statement seven:

   a. Builds a relationship

   b. Opens the discussion

   c. Gathers information

d. Understands the patient's and family's perspective

e. Shares information

f. Reaches agreement

g. Provides closure

h. Demonstrates empathy

i. Communicates accurate information

In each of these categories, clarifying points are included to aid in the assessment. For example, under "Demonstrates Empathy," characteristics in the form are "Clinician's demeanour," "Shows compassion and concerns," "Identifies/labels/validates patient's and family members' emotional responses," and "Responds appropriately to patient's and family members' emotional cues." The rest of the form includes a closed question about which three communication categories in which the participant did best, and open text box to elaborate on the choices, and the same for which three categories in which the participant did most poorly, with an open text box for suggestions on what the participant could have done better. The tool was determined to be effective in assessing communications skills and had a high degree of inter-rater reliability. Considering that similar objectives apply to effective communication in veterinary medicine, the GKCSA, or a modified version of it, could be a useful tool for use in assessing veterinary student performance in simulated consultations.

Kiessling et al (2016) developed and assessed a computer-based test that measured communication skills in medical students regarding shared decision making. The test presented several different clinical communication scenarios and having participants choose options for how to deal with them, and the assessors rated the

students according to their answers for shared-decision making competency. The authors concluded the test was acceptable for measuring the cognitive aspects of communication skills. Further work is planned, including addition of more questions, to make the utility and rigor of the test applicable to a wider range of assessments.

1.8   Parallels between paediatric and veterinary communication

Some interesting parallels between communication in human and animal health exist in paediatrician-parent-child communication. Tates and Meeuwesen (2001), in a review of several publications, noted that paediatrician-parent-child communication occurred in a triad as opposed to adult patient-physician communication, which occurs in a dyad, and thus presents specific challenges. One parallel that stood out regarding the youngest patients was the importance of non-verbal communication, which is also a component of animal health consultations, though the authors noted that this is still an under-studied topic and more work is needed to adequately investigate it.

Keir and Wilkinson (2013) proposed a communication skills development programme for paediatrics that could have some parallels for communication training in veterinary medicine. As in veterinary consultations, a paediatric patient is accompanied by a parent or other caregiver(s), and effective communication requires both verbal and non-verbal engagement with patient and parent/caregiver. Skills training content the authors recommended for paediatric consultations included training on using appropriate body language, the proper tone of voice, and first names and plain language to explain the situation, as well as encouraging the parents and, if possible, the child, to ask questions. While encouraging the pet to ask questions is not possible,

involving the pet in the communication by addressing it and engaging it verbally and physically certainly is. It is important to consider that that there are significant differences between human paediatric and veterinary medicine (e.g. euthanasia as an option and the impact of cost on treatment decisions). Therefore, parallels between the two disciplines must be considered with caution. Nevertheless, it could be worthwhile to engage in cross-disciplinary dialogue among communication stakeholders in paediatric and veterinary medicine to identify potentially common needs and solutions for healthcare provider – caregiver – patient communication.

1.10   Evolution of veterinary communication

With the publication of the KPMG (Brown and Silverman, 1999) and Brakke (Cron et al., 2000) studies – both of which surveyed veterinary surgeons about skills needed to be successful in the profession, it was clear that veterinary surgeon-client communication is similarly important to physician-patient communication. The KPMG study was based on focus groups conducted with, and surveys of, private, industry, academic and government veterinary surgeons. The sessions covered the reasons participants decided to enter the field of veterinary medicine, their satisfaction with their chosen profession, perceptions of success with the profession, opinions about veterinary education and training, and thoughts on the future of veterinary medicine. Among the findings was a perceived lack of management and communication skills (e.g. business, administrative and personnel management, effectiveness in speaking and writing) (Brown and Silverman, 1999). The Brakke study analysed a survey of 4,392 veterinary surgeons and 1,299 veterinary students in the USA with questions about demographics, income, standard business practices, and factors that influence financial

success. It also asked about characteristics of the veterinary population that could be identified with financial success or failure. While the survey did not query specifically about communication skills, the top three factors associated with increased income were related to employee satisfaction, employee retention, and rewards tied to client loyalty, all things in which communication can play a role. Though neither the KPMG or Brakke study was focused on communication skills, the findings of both studies helped increase discussion and inquiry about the role of communication in veterinary practice (Shaw et al., 2004a) and catalyse the effort to make it a priority.

Good communication skills are among the attributes expected of the graduates of veterinary medical training programmes (American Veterinary Medical Association, 2014, Royal College of Veterinary Surgeons, 2010) and proficiency in interpersonal skills is considered to be a desirable attribute of veterinary graduates (Australian Veterinary Association Ltd, 2013, Cron et al., 2000, Mills et al., 2006).

The importance of veterinary communication was confirmed in a survey of 243 small animal veterinary surgeons, 61 large animal or mixed practice veterinary surgeons, and 407 veterinary clients of five hospitals in the Cambridge, UK, area (Mellanby et al., 2011). Survey participants were asked to rate 20 attributes of veterinary surgeons in terms of importance. Interestingly, a significantly higher proportion of clients rated 12 of the 20 attributes as "very important" compared to veterinary surgeons. Among these were "good at explaining technical terms," "honesty," and "politeness," all traits that relate to communication. The authors noted that only one methodology was used, when perhaps multiple methods may have helped to validate the findings more completely. Also, respondents were asked to evaluate a

specific list of 20 attributes, which may have excluded other attributes that could have been equally or even more important.

Communication is believed to be a core skill for veterinary practitioners (Cornell and Kopcha, 2007, Royal College of Veterinary Surgeons, 2014b, Shaw et al., 2004a). Effective communication contributes positively to client experience, understanding and trust (Grand et al., 2013, Mellanby et al., 2011, Shaw et al., 2012). It also impacts compliance with recommended treatments and enhances patient outcomes (Abood, 2007, Gates and Nolan, 2010, Kurtz, 2006). In a recent article (Cake et al., 2016), communication skills were the professional, non-technical competency best supported by evidence in the literature as contributing to practitioner success.

The body of research on physician-patient communication lead to inquiry about the role of communication in veterinary medicine. As a result, more than two decades of work in veterinary surgeon-client-patient communication have resulted in a consensus that communication is a core skill for veterinary practitioners (Cornell and Kopcha, 2007, Royal College of Veterinary Surgeons, 2014b, Shaw et al., 2004a).

In an early article, Shaw et al. (2004a) reviewed literature on communication from human medicine that could help form a foundation for communication research and teaching in veterinary medicine. Content, process, and perceptual skills had been recognised as essential for ensuring the effectiveness of communication between physicians and patients. A strong push for communication skills training had begun in medical schools since the mid-nineteen-nineties, and as a result had begun to stress a shift from a physician-paternalistic approach to communication to a collaborative

partnership between the physician and patient for which the term "relationship-centred" care had been coined. This has become the framework from which research and teaching in physician-patient communication has been built. At the end of the article, the authors recommended an intensified focus on communication in veterinary medicine, which has been followed through on in over a decade of research and developments in veterinary education.

Two studies surveyed veterinary surgeons and pet owners, respectively, about skills needed to be successful in the profession, and each confirmed the importance of communication skills (Gilling and Parkinson, 2009, Lue et al., 2008). Recent graduates and final year veterinary students in the UK have ranked communicating with clients and the public highest among attributes that help further the client-veterinary surgeon relationship (Rhind et al., 2011).

A concept that has been given considerable attention in veterinary education is adult learning, and how the adult learner's experiences influence the way he or she approaches and engages with learning inputs (Dale et al., 2008). Experiential learning is related to this concept, and describes the interaction between experience, reflection, conceptualisation, and application of the learning in a continuous cycle in which experiences influence learning and vice versa (Mossop and Cobb, 2013). Yet another concept believed to influence the way an adult student approaches and engages with learning is known as the "hidden curriculum" (Mossop, 2017). This speaks to significant influences that come from life and society that underpin a learners' attitudes and behaviours, such as symbols, rituals and routines, organisational and power structure, core assumptions, role models, and several other inputs that shape the

student's ability and interest to engage with educational offerings (Mossop et al., 2013). Taking these all into account, the adult learner is not a passive recipient of education. He or she comes to the learning experience informed by his or her own influences and experiences (Mossop et al., 2013). Adult learners are characterised by motivation and a desire for feedback, and desire that learning be applicable to real-world problem solving (Dale et al., 2008, Mossop and Cobb, 2013). Researchers in adult veterinary learning have recommended that the motivations and experiences of learners, as well as the influences from society and life that underpin the hidden curriculum, be taken into account in the planning and delivery of undergraduate veterinary education and CPD (Dale et al., 2008, Mossop and Cobb, 2013).

Motivation for participation in veterinary CPD have been cited by several researchers (Dale et al., 2010, Dale et al., 2013, Moore et al., 2000, Moore, 2003, Neel and Grindem, 2010). In a study involving focus groups with 84 veterinary practitioners in the USA, Moore et al. (2000) queried participants on things that encouraged or discouraged them from participating in veterinary CPD. Among the negative influences were scheduling challenges, distance to travel, practice and family responsibilities, and financial limitations. Positive influencers included delivery method (with a preference for lectures and seminars), dynamic speakers, helpful handouts, and topics that were clinically relevant and practical. Neel and Grindem (2010), in a survey of 150 veterinary students in the USA, profiled the learning styles of participants. The authors concluded from the study that the participants preferred learning approaches that were active rather than reflective (regarding how people process information), sensing as opposed to intuitive (regarding the type of information an individual prefers to perceive),

sequential versus global (indicating how people progress in their understanding of subject matter), and visual versus verbal (aligned to the type of sensory information an individual most effectively perceives). Dale et al. (2010), in a survey of 775 practicing veterinary surgeons in the UK, identified a preference for complexity, defined by the authors as "a preference for deep learning, high need for cognition, and use and application of knowledge" as being positively associated with intrinsic, social and extrinsic motivations for participating in veterinary CPD. The authors proposed that developing a preference for complexity beginning with early learning would help overcome barriers to participation in CPD. There are limitations to the findings of each of these researchers, including the limited geographies of the studies, the amount of time that has passed since one of the studies was conducted (Moore et al., 2000), and the emphasis that should be placed on learning styles, as the learning styles theory has been contested as a guide for educators by some researchers in recent years (Newton and Miah, 2017).

1.11   Communication styles in veterinary medicine

The Roter Interactive Analysis System (RIAS) (Roter and Larson, 2002), a tool used to classify dialogue in medical consultations, was used to identify communication patterns in Canadian veterinary practices during clinical appointments in a qualitative study of client consultations in Northern Ontario, Canada veterinary practices (Shaw et al., 2006). A random sample of 50 companion animal veterinary surgeons and 300 clients and pets was used to identify the types and characteristics of communication patterns. The authors identified two distinct patterns of communication: "biomedical," and "biolifestyle-social." Biomedical communication was used in 58% of appointments and

biolifestyle-social communication in 42% of appointments. Expressed differently, the predominant communication pattern for 46% of veterinary surgeons was biomedical (46%), 38% of veterinary surgeons used a mixed communication pattern most often, and only 16% used a biolifestyle-social communication pattern most often. Interestingly, communication skills training appeared to impact the communication patterns employed. Veterinary surgeons who had undergone communication training were more likely to use the biomedical pattern, though the authors admitted that the sample size of veterinary surgeons having received communication training was relatively small. Other limitations cited by the authors of the study included the fact that only six consultations per veterinary surgeon were videotaped, at maximum, and that there was overlap in some of the attributes of the various communication patterns, which could hamper their differentiation. The type, duration, and the degree to which the visit was client- and patient centred appeared to influence the communication pattern, with wellness visits (routine visits for vaccination, physical exam, etc. as opposed to visits for a specific ailment or symptom) more likely to encourage a biolifestyle-social communication pattern and appointments associated with specific medical problems more likely to encourage a biomedical communication pattern. Wellness visits also tended to be more relationship-centred. Biomedical communication was associated with visits of longer duration, which does not support the hypothesis that veterinary surgeons might not have enough time to engage in lifestyle and psychosocial conversation with clients (Shaw et al., 2008).

As part of a review article, Cornell and Kopcha (2007) outlined a sample encounter between a veterinary surgeon and a client. The author described how the

conversation is controlled and how information-sharing and decision-making is determined based on three different models: 1) Guardian, 2) Teacher, and 3) Collaborator, with the communication being increasingly interactive, or client-centred, as one moves from the left-hand column (Guardian) to the right-hand column (Collaborator) in Table 1–1. In a collaborative relationship, medical information relevant to client preferences is provided by the veterinary surgeon, veterinary surgeon and client have a more equal voice in the conversation, a range of options is provided and discussed, and decision-making is shared.

Table 1–1: Roles in Decision Making (Adapted from Cornell and Kopcha, 2007)			
Stages	**Guardian**	**Teacher**	**Collaborator**
Acquiring knowledge	All information provided by the veterinary surgeon	Client obtains information from the veterinary surgeon but also from many other sources	Medical information provided by veterinary surgeon; information relevant to preferences of client provided by client
Verbal Dominance	Conversation dominated by the veterinary surgeon	Conversation dominated by the veterinary surgeon	Shared decision-making power; the veterinary surgeon and client are approximately equal in the conversation
Elucidation of options	Typically only the option the veterinary surgeon feels is best is presented	All options are presented but no weight given to veterinary surgeon treatment preferences	All options are given; preferences of veterinary surgeon and client are provided
Decision making	Veterinary surgeon is the primary decision maker	Client is the primary decision maker	Shared decision making between client and veterinary surgeon

This previous model is similar to the continuum ranging from paternalism to relationship-centred care to consumerism described by Shaw (Shaw, 2013), see Figure 1–4. A paternalism-centred relationship is one in which the veterinary surgeon sets the agenda, assumes that his or her and the client's values are identical, and takes on the role of "guardian." The other end of the spectrum, "Consumerism," describes a relationship in which there is a more passive role of the veterinary surgeon, who acts as a technical consultant to the client, providing information and medical services based on the client's wishes. Relationship-centred care is characterised by shared decision-making between the veterinary surgeon and client, where the two act in partnership in decisions about the care of the animal. Relationship-centred care includes respect for the client's perspective and interests as well as recognition for the role that the animal plays in the life of the client. Benefits of relationship-centred care cited by the author were expanding the explanatory perspective to include lifestyle and social factors, building a strong veterinary surgeon-client relationship, and encouraging shared decision-making.

Figure 1–4: Paternalism to Consumerism Continuum (adapted from Shaw, 2013)

| PATERNALISM | ⬌ | RELATIONSHIP-CENTRED CARE | ⬌ | CONSUMERISM |

In another review article, Carson (2007) discussed the role nonverbal communication may play in making clients feel more secure and willing to participate in their animals' care. The author stressed that learning to observe nonverbal behaviour and responding to its signals can be a useful clinical skill to apply to any encounter with a client. As is the case with all review articles, there is inherent limitation in trying to draw general conclusions from a number of separate studies and observations. Still the body of evidence suggests a role of non-verbal communication that should be studied further to effectively assess all elements of effective veterinary surgeon-client-patient communication.

Several approaches have been used to demonstrate different communication styles, but the common theme is the evolution of the veterinary surgeon-client conversation from a paternalistic one, in which the veterinary surgeon completely directs the topics and flow of conversation, to a shared conversation, in which both veterinary surgeon and client play an equal role in determining the flow of communication (Shaw, 2013). One approach that has been proposed help to promote a shift from paternalism to partnership by encouraging client motivation towards positive behavioural change is motivational interviewing (MI) (Bard et al., 2017, Blaxter et al., 2017). MI, as the name suggests, uses the intrinsic motivation of individuals to help them navigate complex decision-making and better engage in conversations about them (Blaxter et al., 2017). MI incorporates communication skills that promote empathy, collaboration and maintenance of client autonomy, while also encouraging compassion, acceptance, partnership and inviting the client to share their perspectives (Bard et al., 2017, Lundahl et al., 2013). It has been proposed that MI be incorporated into veterinary

communication training content, including making it part of the framework of instruction using communication models such as Calgary-Cambridge (Bard et al., 2017, Blaxter et al., 2017).

1.12 Communication training in veterinary medicine

As a result of the increased appreciation of the importance of communication ability for veterinary surgeons, there has been increased attention paid to communication skills training in veterinary school curricula and in continuing professional development (CPD)/continuing education (CE) (Kogan et al., 2004, Mossop et al., 2015, Radford et al., 2003, Shaw and Ihle, 2006).

The American Veterinary Medical Association (AVMA), the accrediting organisation for veterinary colleges in the USA, require communication training to be in the curricula of all veterinary schools (American Veterinary Medical Association, 2014). The Royal College of Veterinary Surgeons (RCVS), the accrediting organisation for UK veterinary schools, include communication skills in their "Day One Competencies" (Royal College of Veterinary Surgeons, 2010). Recent evidence suggests the increased focus on training in veterinary school may have a positive impact, including an improvement in veterinary students' measured communication skills evaluations and improvement of students' self-perception of communication ability (Mossop et al., 2015, Kedrowicz, 2016, Latham and Morris, 2007).

Utrecht University in the Netherlands updated its veterinary curriculum in 1995 to shift focus from teacher-centred to student-centred training, concentrating on problem-solving skills, communication skills, and academic skills into the content, and

the incorporation of research internships into the delivery of training, among other steps. Communication skills training was implemented in years 1-6 as part of the curriculum reform (Jaarsma et al., 2008). A survey was administered to University of Utrecht veterinary graduates who graduated between 2001 and 2003. Students who began their undergraduate programmes before 1995 received a "traditional" curriculum without the reforms, and those beginning in 1995 went through the reformed curriculum, including communication skills training. The participants in the survey answered a series of questions using a 1-to-5 Likert scale (Jamieson, 2004). In questions related to communication, students who had pursued the post-1995 reformed curriculum gave significantly higher ratings for their ability to communicate with clients, communicate with colleagues, and break bad news to clients. Despite this, graduates who had participated in both the traditional and reformed curricula felt that communication skills were underemphasized, suggesting both the importance and need for greater preparation for the communication challenges of practice (Jaarsma et al., 2008). Limitations of the study noted by the authors include differences in the age and demographic makeup of the two study groups, potential for some graduates to forget details of their communication learnings with the passage of time, and impact of the practitioners' self-perception of successes and failures on their opinion regarding their teaching programmes.

Communication education in veterinary medicine in the UK and Ireland has been bolstered by the formation of a National Unit for the Advancement of Veterinary Communication Skills (NUVACS), which was sponsored by the Veterinary Defence Society (VDS) in collaboration with the veterinary schools of the UK. The concept of

NUVACS was to create a coordinated national body to encourage and support the training of veterinary undergraduates in communication skills (Gray, 2006). The University of Liverpool led the way in the development of the NUVACS activities, though all UK veterinary schools have now incorporated communication skills training into their curricula. Most courses combine the delivery methods of lectures, videotaped best-practice examples, and role-plays of simulated consultations. These are often videotaped or observed by a moderator or a group so that feedback may be given on communication strengths and weaknesses. Most of the universities offer communication modules in some if not all years of undergraduate training. NUVACS run an on-going "train the trainers" programme to ensure that communication training facilitators at UK veterinary schools are able to keep ahead of the needs and challenges of veterinary school communication skills training as they evolve (Gray, 2006).

Adams and Kurtz (2006) suggested the Calgary-Cambridge Guides be used for teaching veterinary communication skills in the practice setting and that development of communication skills should be a career-long endeavour for practitioners. The Calgary-Cambridge Guides, adapted for veterinary consultations, were used as the framework for a skills-based communication-training course at the Ontario Veterinary College (Adams and Kurtz, 2006). The Bayer Animal Health Communication Project was begun in 2002 to encourage collaboration among veterinary schools in the development of communication training and faculty. At least 18 veterinary schools in the USA and Canada have participated in the development and training offerings of the program (Bonvicini and Keller, 2006, Lloyd and Walsh, 2002).

In 2015, Mossop et al. assessed the current status of communication training at seven veterinary colleges in the UK (Mossop et al., 2015). Each of the schools offer communication training methods including seminars, lectures, videotaped consultation, workshops, and peer observation during all five years of the veterinary course. Topics include scene setting, history taking, consultation structure, dealing with difficult clients and situations, and clinical reasoning and communication.

The Argus Institute at Colorado State University was established specifically to strengthen veterinary surgeon-client communication and to provide consumer-friendly information to pet owners about a wide range of topics, including sensitive issues such as end-of-life considerations (Colorado State University, 2014).

In the UK, the VDS have also launched a CPD initiative to enhance communication skills in veterinary practices. A cornerstone of the VDS programme is The VDS Consultation Guide, based on the Calgary-Cambridge Guide, and this has been used to develop practitioner training modules, including DVDs with videotaped simulated consultations (Gray et al., 2006). In their training sessions, the VDS concentrate on three categories for communication skill: a) Content skills (elements of the conversation), b) Process skills (both how a practitioner structures the interaction and how she or he interacts with the client), and c) Perceptual skills (what the practitioner thinks and feels, including clinical reasoning and problem-solving as well as the practitioners' emotions and how they relate to the client).

Since 2002, Bayer Animal Health have provided educational grants to the Institute for Healthcare Communication specifically for the development of

postgraduate communication training for veterinary surgeons. Under the banner of "The Bayer Animal Health Communication Project" (Institute for Healthcare Communication, 2016), the initiative has developed twelve educational modules and trained 210 faculty members from 36 veterinary schools across North America in a wide range of communication topics. Since the introduction of the programme, its administrators estimate that over 9,000 veterinary students and 350 veterinary residents and interns have participated in Communication-Project sponsored training. A further collaboration with the AVMA has extended access to training to practicing veterinary surgeons, with an estimated 3,000 practitioners participating worldwide (Institute for Healthcare Communication, 2010).

CPD/CE in communication is now widely available through veterinary associations (Gray et al., 2006, Veterinary Defence Society, 2016), from industry (Institute for Healthcare Communication, 2016, Onswitch, 2016), and from independent consultants (Communication Solutions for Veterinarians, 2016).

A study of in-practice communication training (Shaw et al., 2010) suggested that this alternative to off-site training might help bring the benefits of training to life more vividly for practice owners. Four veterinary surgeons in a single practice in Denver, Colorado, USA participated in a training programme delivered through interactive communication modules, individual coaching, and communication laboratories. Six consultations were measured for each of the participating veterinary surgeons before and after training. The RIAS was used to analyse 48 videotapes of the veterinary surgeon-client interaction. After twelve months of one day per month training sessions onsite in one practice, client-centredness of consultations improved

significantly for veterinary surgeons who went through the training. The veterinary surgeons gathered twice as much lifestyle-social data and used 1.5 times more partnership-building techniques and positive rapport-building communication after, as compared to before, the training. Clients in the interactions provided 1.4 times more lifestyle/social information and expressed 1.7 times more emotional statements in post-training interactions compared to pre-training interactions. Key limitations of the study include its small number of veterinarians and clients and the fact that it occurred in a single practice and location. Still, the results suggest the potential benefits of an intensive training program for client/relationship centredness

1.13   The Calgary-Cambridge Model in Veterinary Communication

In 2002, delegates from veterinary schools across the UK and Ireland participated in a workshop designed to develop a communication model for the veterinary consultation (Radford et al., 2006). Facilitators of the workshop were Dr. Jonathan Silverman, one of the developers of the Calgary-Cambridge Model for human medical communication (Kurtz and Silverman, 1996), and Dr. Sue Kaney, communication skills instructor at Liverpool Medical School. The workshop began with the delegates to develop their own structures for a veterinary consultation and was followed by an introduction to the Calgary-Cambridge Model and its use in medical education. Requirements for different types of veterinary consultations (e.g. small animal, equine, and farm animal) were discussed to ensure the model would be applicable across the range of veterinary surgeon-client interactions. Finally, small groups were used to devise the adaptation of the Calgary-Cambridge model for veterinary consultations. The result was titled "The

Guide to the Veterinary Consultation based on the Calgary-Cambridge Model (GVCCCM).

The GVCCCM was piloted at Liverpool Veterinary School among third-year undergraduates as part of a communication skills training course. The model was introduced in half-day, large group sessions and later used to facilitate learning and feedback in a three-hour small group session incorporating role-plays. Participating students completed a questionnaire about the model shortly after the session. The students responded positively to the training, particularly the small group sessions. As a result, the GVCCCM was introduced during the first year of study and continued to be employed throughout the curriculum at Liverpool. Figure 1–5 details the adapted GCCCVM with its amendments to complement the unique features of a veterinary consultation (e.g. "Client" vs. "Patient," "Establishing initial rapport with Client and Animal," and "Involving the Animal(s)").

Figure 1–5: Calgary-Cambridge Model for Veterinary Consultations

(Adapted from Radford et al., 2006)

Preparation

- Establish Context
- Create a professional, safe, and effective environment

Initiating the Consultation

- Establish initial rapport with client and animal
- Identifying the reason(s) for the consultation

Gathering Information

- Exploration of the client's presenting complaint(s) to discover
  - The clinical perspective (disease–short-term history
  - The client's perspective (include animal's purpose)
  - Essential background information (long-term history)

Physical Examination

Explanation and Planning

- Providing the appropriate amount and type of information
- Aiding accurate understanding and recall
- Achieving a shared understanding: Incorporate the client's perspective
- Planning: appropriate shared decision making

Closing the session

- Summarise
- Forward planning

Providing structure to the consultation

- Making organisation overt
- Attending to the flow)

Building the Relationship with the client

- Nonverbal behaviour
- Developing rapport
- Involving the client
- Involving the animal(s)

OBSERVATION

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The Calgary-Cambridge Model for veterinary consultations (GVCCCM) is now the primary model used in veterinary communication training in undergraduate school and in CPD (Gray et al., 2006, Latham and Morris, 2007, Mossop et al., 2015, Shaw and Ihle, 2006, Shaw et al., 2010)

Everitt et al. (2013), in a study of 48 veterinary consultations, demonstrated that most consultations incorporated process elements of the Calgary-Cambridge Model but not necessarily in the order in which they appear in the Calgary-Cambridge Guides. This reflects an observation of Silverman, one of the original developers of the Guides, who stressed that they should be considered a flexible toolkit drawn from as needed to fit the dynamics of a conversation rather than a dictated set and order of tasks to achieve (Silverman, 2007).

In a qualitative study of the applicability of the GVCCCM to dog and cat owners in the teaching of veterinary communication skills (Englar et al., 2016), two focus groups (with 13 owners in total) were used to identify the degree to which one adaptation of the GVCCCM fulfilled client expectations of what they considered effective communication by the veterinary surgeon. Owners were asked to complete a pre-focus group assignment in which they evaluated the effectiveness of communication by their veterinary surgeon during their most recent veterinary appointment. Owners discussed the results of the pre-focus group exercise during the focus groups, then were divided into two teams in each session and asked to develop a list of the 10 most important communication skills for a veterinary surgeon. Owners were then provided a list of the 10 core communication skills taught at the Midwestern University College of Veterinary Medicine (Glendale, AZ, USA) using their adaptation

of the GVCCCM and asked to evaluate the importance of each to the veterinary surgeon-client relationship. They were also asked to name the one most important communication skill that they believed to have the greatest impact on the patient's outcome. The authors concluded from the research that for the most part, the core communication skills taught at Midwestern University College of Veterinary Medicine were applicable and important to pet owners, there was room for improvement in the expression of compassionate transparency and unconditional positive regard. As a result of the study, the authors recommended that these concepts be introduced into communication training along with emphasis on the veterinary surgeon being fully present to the client from his or her perspective (Englar et al., 2016). As this was a small qualitative study in a specific region in the USA, it is difficult to determine how applicable the findings and recommendations would be to other regions or owners. Still, the study is an example of how the utility of the GVCCCM in meeting clients' expectations regarding veterinary communications could be enhanced through owner feedback and consideration of the implications of that feedback for communication training content.

1.14   Characteristics of effective communication in veterinary medicine

Numerous researchers have explored the elements that define effective communication in veterinary medicine. Among these are client/relationship-centredness, meeting client expectations, effectively dealing with communication challenges, and considering the human-animal bond.

1.14.1 Client/relationship-centred communication

Adams and Frankel recommended the adoption of a relationship-centred model for provider-patient interaction developed for human medicine, called "The Four Habits" (Adams and Frankel, 2007). The first habit is "Invest in the beginning." Taking time at the beginning of a visit to build rapport with the patient (or in the case of veterinary medicine, the client), elicit the full spectrum of concerns, and planning the visit beforehand. Benefits of this approach are that the patient/client is more likely to feel welcomed and secure. Habit Two is "Elicit the patient/client's perspective." This involves creating a partnership between patients or clients and providers and using both closed- and open-ended questions to gather complete information. Habit Three, "Demonstrate Empathy," involves taking time to understand the emotional state and concerns of the patient or client and using non-verbal cues to demonstrate that their concerns are shared. Finally, Habit Four, "Invest in the End," points to attention toward information sharing on the part of provider and patient/client that yields complete and accurate information about the diagnosis and treatment options and encourages participation of the client or patient in information sharing and decisions about the course of treatment.

Just as patient-centred (or relationship-centred) communication has become understood as the standard for effective communication in human medicine, client– or relationship-centred communication has been defined as the hallmark of effectiveness in veterinary communication. Kanji et. al. (2012) defined relationship-centred veterinary care as "a collaborative veterinarian-client partnership in which there is a

mutual understanding and recognition of the client's perspectives and expertise in the pet's care through shared negotiations and balance of power."

The concept of client or relationship-centredness had been explored previously by Shaw et al. (2006) in an article titled "Four core communication skills of highly effective practitioners." In her article, Shaw defined relationship-centred care as reflective of the relationship between the veterinary surgeon and the client, the client and the pet, and the veterinary surgeon and the pet. With this in mind, the author defined relationship-centred care as characterised by "…a joint venture between the veterinarian and client to provide optimal care for the animal." The first important skill cited was "non-verbal communication," evidenced by facial expressions, body language, touch, and other forms of engagement outside of dialogue between the veterinary surgeon and client. The second skill, "open-ended questions," involves a veterinary surgeon optimising the options a client has for asking questions without leading them to provide a specific answer. In this type of questioning, the client is encouraged to tell a story about what is going on with their pet and what they are feeling about their health condition or treatment options. Instead of asking "do you think her lameness is caused by the arthritis we treated her for last fall?" the veterinary surgeon could ask, "What do you think might be contributing to her lameness?" Use of more open-ended questions was proposed as a means for increasing client participating and revealing more information about the client's perspective as compared to a consultation predominated by closed questions. The third skill, "reflective listening," involves the veterinary surgeon verbalizing his own thoughts about the answers and thoughts shared by the client. This had several benefits, including enabling the client to absorb what she has

shared and know that her thoughts have been acknowledged. Reflective listening allows both parties to clarify, expand on and correct information thus enhancing the accuracy and value of the information-gathering process during a consultation. Techniques the author identified for reflective listening include "echoing," "paraphrasing," and "summarising." The fourth and final skill of highly effective practitioners is "[use of] empathy statements." Empathy statements allow the veterinary surgeon to see the patient's situation from the client's perspective, and to let the client know she does, by communicating that understanding back to the client with language that demonstrates that the veterinary surgeon is aware and appreciative of the client's feelings. An example of an empathetic statement suggested in the article is "I can see how hard it is to make this decision." The author also stressed that non-verbal communication can be an effective means of expressing empathy to a client. Recommended methods for encouraging implementation of these four core skills included "Delineation of the skills," "Observation of skill use," "Self-reflection on videotaped interactions," "Feedback," and "Opportunities for practice." These have become the hallmarks of veterinary skills training that has been instituted in veterinary schools and in continuing education/continuing professional development, as will be discussed in a later section.

One of the keys to effective veterinary surgeon-client communication involves using language that is concise and easily understood by the client. Excessive use of technical jargon, for example, can be problematic because clients may be reluctant to ask for a term to be explained because they are afraid of appearing ignorant (Adams and Kurtz, 2017). This requires the veterinary surgeon to understand the difference between what he or she understands and what the client understands (Mossop and Gray,

2008). Misunderstanding may also occur in the other direction, when the client uses language unfamiliar to the veterinary surgeon and the veterinary surgeon fails to ask for clarification (Adams and Kurtz, 2017). The level of technical language must be customised to the knowledge and comfort level of the client, making sure one is aware of the client's level of understanding (Severidt, 2010). Likewise, feedback and summarisation may be used to ensure the veterinary surgeon understands what the client has said (Adams and Kurtz, 2017).

In veterinary medicine, relationship-centred care is perhaps best characterised by a partnership between the veterinary surgeon and the client with the shared goal of providing optimal care for the animal. Thirty percent of participants in a study of graduates of the North Carolina State University College of Veterinary Medicine cited "working with clients and building relationships" as the most satisfying aspects of being veterinary surgeons (Bristol, 2002). Veterinary surgeons who exemplify relationship-centred care show respect for the client's perspective and interest for the role the animal plays in the life of the patient in all aspects of the care they deliver (Bristol, 2002).

1.14.2 Matching veterinary surgeon and client expectations

In a presentation to attendees of the North American Veterinary Conference, Felsted (2006) cited a number of success factors for communication between veterinary surgeons and clients, drawing from his experiences and observations in a career in practice. One suggestion was that veterinary surgeons should strive to convey appreciation for the client's loyalty, express pleasure in seeing the client and their pet each time they visit and reinforce his or her interest in delivering the best possible care

for the pet. It was recommended that they should also express a sincere interest in listening to the client and inviting the client to inform the veterinary surgeon if they feel they are not being listened to adequately or if there is any problem with the veterinary surgeon's service. In the case of dissatisfaction or misunderstanding, the veterinary surgeon was encourged to convey his or her genuine interest in understanding and resolving the problems. The client, on the other hand, was believed to desire that the initial contact at the veterinary surgery understands why they are calling and what they need, and that this is obviously known when they arrive with their pet. Clients were described as expecting the veterinary staff to be warm, welcoming, and pleased to see them. Once in the surgery, the client appreciates a careful and unrushed explanation of what is done to their pet, the treatment options, the treatment itself, and what is expected on the part of the client once the pet returns home (Felsted, 2006). Clients were also described as wanting an explanation of the probable prognosis and what to expect throughout the course of therapy, including what the treatment will cost. It was also noted that they appreciate phone call updates during surgical procedures and hospitalisations, reminder notices for appointments and procedures, and should the disease result in the death of the pet, sympathy, including sympathy cards (Felsted, 2006). As these recommendations are based on personal opinions and observations and not from research evidence, they should be interpreted with caution as to their applicability to veterinary surgeon-client communication in general.

1.14.3 Effectively dealing with communication challenges

Communication in veterinary practice is closely intertwined with clinical activities such as diagnostic procedures, physical examinations, and treatments (Everitt et al., 2013). Conversations also include topics that are unique to veterinary medicine with different topics (e.g. euthanasia and cost) presenting particular challenges (Hamood et al., 2014, Shaw and Lagoni, 2007). Communicating with a dog or cat owner is also different from communicating with a horse owner or dairy farmer (Kleen et al., 2011, Moreau, 2012). A veterinary surgeon working with a dairy farmer, for instance, needs to be able to offer financial advice and guidance on herd– and process management in addition to providing medical services (Kleen et al., 2011). Equine patients, in the minds of the owners, can be economic investments, companions, or something in between the two, and health considerations may be affected by the client's perception of the relationship to his or her animal (Best, 2013). Even communication with a dog owner can differ depending on the nature of the owner's relationship to the animal. A dog considered a family member when compared to a working farm dog may engender very different client interests and concerns (Milani, 2003).

One of the topics for which communication can be particularly challenging is complex or critical disease states. In a review of the literature, Bateman (2007) cited the particular challenges of communication in the veterinary emergency care setting. Clients find themselves in a strange environment interacting with multiple professionals whom they don't know. The severity of their pets' medical conditions, the likelihood of bad news being communicated, the pressurised environment of emergency treatment, and the high cost of care may compound the other challenges to effective

communication. The author mentioned several benefits of applying the principles of relationship-centred communication in such high-stress situations. These include interactivity, ensuring that the client's needs are expressed, understood and valued, and allowing for a shared ownership of dialogue and decision-making. Other elements are ensuring the client's understanding of the medical problem and greater readiness and ability on both the part of the veterinary surgeon and client to make decisions and accept outcomes. Once again, the article derived its content from a literature review.

Shaw and Lagoni (2007) discussed in a review of the literature the impact that end-of-life communication can have on clients, veterinary surgeons and staff. The authors noted the stress that the death of an animal can cause for both clients and veterinary professionals, the latter who must experience the death of their patients much more frequently than other health care professionals. End-of-life communication in veterinary medicine involves communicating bad news, evaluating quality of life, discussing and guiding patients in decision making about euthanasia, and providing support for grieving clients. The principles of effective communication are perhaps more important surrounding the terminal illness or injury of a pet than in any other situation, and effective communication may help lessen feelings of stress, inadequacy, and other negative emotions. Despite this, the authors felt that not enough time and attention are given to communication skills training content for end-of-life discussions in veterinary schools and continuing veterinary education.

Coe et al. (2007) conducted focus groups with clients on the topic of costs discussions. Cost was felt to be both an important topic for discussion between veterinary surgeons and clients and a barrier to effective communication. While most

clients felt that care of the animal should take precedent over cost of treatment, they also felt that treatment costs should be mentioned up-front, that cost should be considered within a reasonable context considering financial means of the owners and outcome of the recommended treatment. Failure to communicate early and openly about cost was felt to increase an owner's suspicion of, and lessen trust in, the veterinary surgeon's recommendations. One issue identified by the researchers was that veterinary surgeons tend to think of costs in terms of the value of their services whilst owners consider cost against the impact of the service on outcomes and wellbeing of the pet. While the small sample size and focus-group methodology prevent the findings of this study from being applicable to all veterinary surgeon-client interactions, the strength of feelings expressed by veterinary surgeons and clients regarding cost discussion suggests this topic can both facilitate and derail the veterinary surgeon-client relationship.

Coe et al. (2008) conducted additional focus groups on the broader topic of perceptions of veterinarian surgeons and clients on communication in the companion animal practice. Clients and veterinary surgeons were asked to identify factors contributing to effective communication as well as barriers and challenges experienced in veterinary surgeon-client communication. The authors identified eight themes from the focus groups: 1) Pet owners expected veterinary surgeons to be a reliable source of information on the care and health of their pets; 2) Pet owners expected information about the overall process, diagnosis, treatment, and cost to be covered up-front; 3) Clients expected information to be made available in varied, accessible, and understandable formats, including take-home literature to supplement the live

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discussion; 4) Pet owners expect to be presented with options; 5) Pet owners expect their decisions to be respected; 6) Pet owners expected a partnership with the veterinary surgeon in the care of their animal; 7) Pet owners expected to be communicated to in language they understand; 8) Pet owners expect veterinary surgeons to "ask the right questions". From the clients' perspective, breakdowns in communication were described as occurring when the client feels as if he or she has been misinformed, or when they were given inadequate opportunity to exercise choice. Veterinary surgeons were cited as perceiving barriers to communicating with clients in discussions around cost, countering misinformation clients receive from external sources, having more than one client involved in decision-making, not having enough time, and dealing with clients whose native language was not theirs. As was the case with the cost-related focus groups, it is not possible to extrapolate all these findings perfectly to any other communication situation or setting. Most of the themes the authors identified however are consistent with other work defining the elements of and barriers to effective communication and therefore form a good basis for things a veterinary surgeon should do and not do when communicating with clients.

1.15 Challenges in veterinary communication

A qualitative study designed to explore communication in veterinary medicine (Hamood et al., 2014) identified a number of challenges in communicating with clients and suggested ways to deal with them. The study involved qualitative analysis of interview responses to a number of research topics regarding communication. The study sample was approximately 100 veterinary surgeons from South Australia. One challenge identified was "selling service," such as preventative care, which is

recognised as a routine responsibility for a veterinary surgeon. Respondents recommended having a semi-scripted dialogue that allowed the veterinary surgeon to present the rationale for the owner to agree to the service. One challenge identified in using this approach was making sure that the veterinary surgeon strikes the right balance between respecting the emotional considerations of the client and serving the commercial needs of the practice. The study (Hamood et al., 2014) also explored the challenge of explaining costs to clients. The authors suggested the importance of flexibility, avoiding assumptions, and approaching the discussion with an open mind. Mishandling cost discussions was believed to be a source of potential confrontation and complaints.

Explaining costs is a common challenge, and it can present difficulties for the veterinary surgeon in providing enough information for the client to make an informed decision without causing offence, anger or distress to the client. Knowing when to be firm with clients who argue about costs is also an important skill, particularly when the client's decision may impact the welfare of the animal. Minimising surprises about costs and recognising that the client's financial limitations may require negotiation to arrive at the optimum, yet realistic decision about standard of care to provide, was also recommended by the participants in the study (Hamood et al., 2014). There are some important caveats to consider when assessing results of the study. As with all qualitative research of this nature, the selection and framing of the questions can limit the coverage of topics regarding communication challenges and success factors. The limited geographical scope of the study sample also makes it difficult to apply findings to the broader veterinary population.

1.16   Considering the human-animal bond

There is increasing interest in the human-animal bond, which is thought to have significant impact on the physical and emotional wellbeing of people (Bonas et al., 2000, Timmins, 2008). In a review of the literature on the human-animal bond from a veterinary perspective (Timmins, 2008), the author proposed the importance of the veterinary surgeon understanding the attachment between the client and animal, and the responsibility of the veterinary surgeons to educate the client on proper care of the animal to help optimise the relationship of owners with their pets.

In a survey of veterinarians on the subject of the Human-Animal Bond and its relevance to veterinary practice, the majority of participants believed that veterinarians who recognise and support the human animal bond would have a greater likelihood of success in their practice than those who do not (Martin, 2006).

The above-mentioned study by Hamood et al. (2014) identified the importance of engaging with the animal. In the GVCCCM, specific reference is made to "Involving the animal(s)." The Guides encourage veterinary surgeons to "acknowledge the animal and/or alert the animal to their presence," as well as to "relate to the animal, taking into account the relationship between the client and the animal," and to "approach and handle the animal sympathetically" (Radford et al., 2006). One of the key benefits of engaging the patient is making sure that it is relaxed. Communicating with the pet is also a way for the veterinary surgeon to demonstrate that she or he is genuinely interested in the animal. Balancing communication with the pet and client is key, making sure that neither is ignored in the process. Effective engagement of the patient

may be done by using all senses: sight, hearing, smelling, and touch. Participants recommended that communicating with a pet should begin as soon as the veterinary surgeon enters the waiting room.

1.17   Benefits of effective communication with clients

1.17.1 Improved veterinary surgeon-client relationships

As stated previously, effective communication can have positive impact on the veterinary surgeon-client relationship (Mellanby et al., 2011, Shaw et al., 2012). It can also improve adherence with medical management recommendations and patient outcomes (Abood, 2007, Grand et al., 2013). The converse can also be true, where poor communication is deleterious to the relationship between a veterinary surgeon and a client. As part of a review article on veterinary surgeon-client communications, Adams and Frankel (2007) shared some examples of letters from dissatisfied clients sent to a Canadian hospital in Ontario. The authors suggested that the letters all characterised a lack of trust and poor communication between the clients and their veterinary surgeons. Reasons for these, stated the authors, included client perceptions of veterinary surgeon incompetence and veterinary surgeons caring only about the money they would make from a treatment. One cautionary note about the article is that it combines letters to veterinary practice with a literature review and makes links between the two that might not be entirely valid. Still, the complaints are real as are the examples of communication breakdown in the literature, which all build a strong case for the importance of effective communication to client satisfaction (Adams and Frankel, 2007). Another example was the client feeling she was part of a three-ring circus in which she was passed among

people she didn't know, without apparent reason. The same client felt that her pet emerged in worse condition than when it had been brought to the hospital. A potential limitation is the fact that the article was drawn from a convenience sample of letters from dissatisfied clients, and might not have represented the relationship between communication effectiveness and client opinions about their veterinary surgeons across all communication and relationships (Adams and Frankel, 2007).

1.17.2 Communication and trust

Trust has been identified as an essential element of client relationship building, an ally for encouraging clients to be active participants in the care of their animals and even advocates for the veterinary practice with other pet owners (Shaw, 2006). Shaw (2006) defined the importance of trust in the following manner: "A trusting relationship enables the client to tell his or her story and share concerns, helps to prevent misunderstanding and conflict, and promotes client and veterinarian satisfaction." Use of empathic statements is one means through which the author recommended for building trust.

Grand et al. (2013) cited statistics that correlated a decline in veterinary visits with a declining trend in trust. In effort to explore client perceptions and behavioural actions of veterinary surgeons that influence the development of trust in veterinary medicine, the authors conducted a correlational study with 103 veterinary students and 19 standardised clients in a simulated animal health clinic at Michigan State University. Simulated consultations were conducted with the veterinary students and actors representing clients using two different scenarios: 1) Collection of a diet history and

completion of a routine physical examination on a healthy pet, and 2) interpretation and explanation of diagnostic test results for a dog presenting signs of either mitral insufficiency or Addison's disease. A questionnaire was used to measure aspects of the veterinary student-"client" interactions believed to contribute to trust building (e.g. "The veterinary student physically interacted with my animal in a manner that clearly demonstrated he or she knew what he or she was doing"). Results of the study indicated two client perceptions as being most indicative of trust in a veterinary context: professionalism and technical candour. Because the study involved veterinary students and clients in simulated consultations in a simulated veterinary clinic, it is difficult to say whether the elements contributing to trust-building in a veterinary context would apply to actual practices, clients, and patients. Also, the contributors to trust development named in the questionnaire were predetermined by the researchers in advance of the study, and therefore may have omitted other potential contributors. The importance of professionalism and candour identified by the authors however is consistent with other conclusions in the literature (Mellanby et al., 2011, Mossop, 2012).

An editorial opinion article (Dale, 2013) recommended "establishing a trusting relationship of clients" as a means of countering a decline in veterinary visits. The author recommended building trust with a client by "having conversations and demonstrating that you care." This includes speaking about not only the health of the client's pet, but about family activities, life changes, and sharing personal details with the client. A veterinary surgeon openly expressing emotion about an ill pet was another example the author gave (from personal experience) of actions that could build a client's

trust. As the article was an expression of the personal opinions and experience of the author, it is not a tested guideline for building trust in a veterinary surgeon or practice. It nevertheless highlights the value of the importance of communicating with clients about their lives and feelings as part of the dialogue that a veterinary surgeon and client share.

Another opinion article (Brightman, 2015) recommended a checklist of actions for building strong relationships with clients:

- ✓ Create a clinic environment that is comfortable, friendly, and unintimidating
- ✓ Ensure that all staff are compassionate, patient, and warm-natured
- ✓ Always present a professional appearance and demeanour
- ✓ Listen to the client's concerns and opinions
- ✓ Courteously provide advice you feel your clients need
- ✓ Ensure that clients understand what they are being told
- ✓ Don't discredit any type of treatment
- ✓ Don't rush clients into making decisions
- ✓ Make clear to clients that the health of your patients is your top priority

These align well with elements of the Calgary-Cambridge Model/GVCCCM, including creating a safe and professional environment, developing rapport, exploration of the client's perspective (including determining and acknowledging their ideas), providing the appropriate amount and type of information, summarising to confirm the client's understanding, using empathy, and demonstrating understanding of the animal's importance and purpose (Radford et al., 2006).

As with all opinion articles, the recommendations suggested in the Dale article (2013) express the feelings and thoughts of the author rather than the conclusions of well-controlled research and may not necessarily apply to all veterinarians, clients, or situations. Also, the fact that the article is from an integrative veterinary care journal may imply some bias in the recommendations made (e.g. "Don't discredit any type of treatment"). Nevertheless, most recommendations in the article reflect observations commonly made in the literature regarding client relationship building (Coe et al., 2008, Mellanby et al., 2011, Shaw, 2006).

Trust (and response to the advice of a practitioner) may be influenced by factors outside of the relationship between a client and a veterinary surgeon. A study was conducted among Dutch dairy farmers (Jansen et al., 2010) to identify and understand attitudes and motivations of farmers considered "hard to reach" regarding advice on udder health management. Qualitative interviews were conducted with 24 farmers served by eight veterinary practices in effort to explore language used by the farmers in discussions about mastitis with their veterinary surgeons. The researchers found that the farmers reacted to udder health advice based on their trust in external information and their orientation to the outside world. Following the interviews, the farmers were classified into four groups: 1) "Proactivists" (farmers who were more outwardly oriented, well-informed, and interested in learning about new developments); 2) "Do-it-yourselfers" (active and well-informed but more critical of external information); 3) "Wait-and-seers" (farmers reasonably open to external advice but less likely to act on their own to seek information or make management changes); and 4) "Reclusive

traditionalists" (both inwardly-orientated and adverse to external interference). See

Figure 1–6 for a representation of the groups.

Figure 1–6   Orientation of "Difficult to reach" farmers
(Adapted from Jansen et al., 2010)
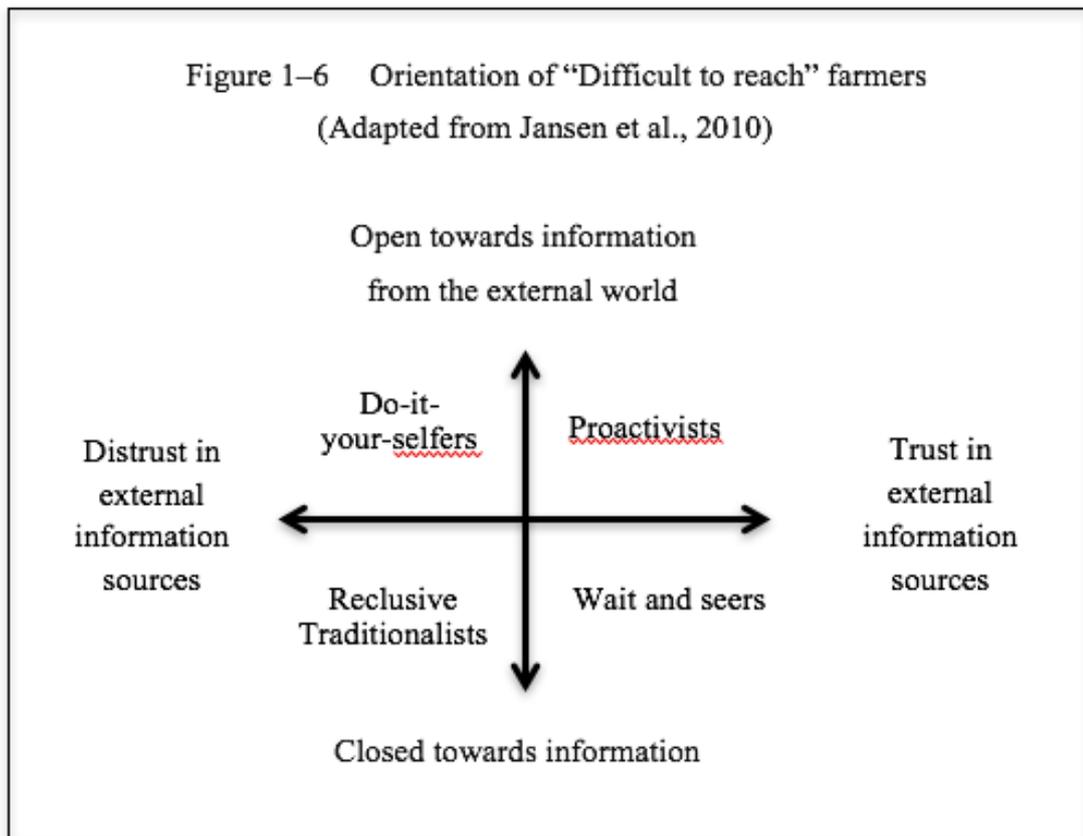
The authors recommended different strategies for approaching each type of farmer.

"Proactivists" could be best reached by pointing to information easily obtained from the

Internet of from print publications. "Do-it-yourselfers" were more likely to respond to

extensive discussion backed by cost-benefit information, demonstrations, and

interaction with colleagues. "Wait and seers" were likely to be best reached by proactive

communication from the veterinary surgeon, through providing recommended goals,

clear instructions, and suggested actions. "Reclusive traditionalists" were felt to be the

most difficult group to reach, given their adversity to outside contact and information, but would respond best to free, objective, and independent practical information.

As this was a qualitative study of a relatively small group of pre-selected farmers that were classified by their veterinary surgeons as "hard to reach," it is difficult to say with confidence that the participants represented hard to reach dairy farmers in general, or to apply the findings to farmers or veterinary surgeons outside of the region in the Netherlands from which the participants were recruited. Nevertheless, the idea of trust being influenced by the attitudes of clients toward different types of communication is thought provoking.

A study on the impact of veterinary surgeon communication on client motivation and behavioural change was conducted in the UK using simulated consultations with 15 bovine veterinary surgeons and an actress playing the role of a dairy farmer (Bard et al., 2017). Veterinary surgeons were provided a written description of disease issues and risk factors on the "client's" farm, including mastitis and lameness status. The actress was given general information about productivity and herd health status, including lameness and mastitis, on a typical UK farm. The veterinary surgeon was instructed to conduct a consultation on mastitis and lameness management, and the actor was asked to react to the veterinarian's questions and information based on the information she had received in the description provided before the simulations. Video-recordings of the consultations were analysed thematically, with three prominent themes emerging: 1) "The consultation strategy," 2) "Building the interpersonal relationship," and 3) "The language of the advisory process." The study revealed that the consultation strategy was to focus briefly on eliciting the problem, then move back

and forth between gathering information and making a plan. The focus of the consultation was dominated by the veterinary surgeon, largely limited to issues surrounding the disease process and reflecting a paternalistic approach. In building the interpersonal relationship, there was a notable lack of the "farmer" being asked about her personal opinions, concerns, motivations, or goals. Veterinarians offered functional or practical support, but very little emotional support. Language of the consultation included use of the word "we" to imply a collaborative approach to problem solving, metaphors to simplify explanation of disease processes and convey optimal state of health management, and euphemisms to avoid discomfort and soften the blow of corrective advice. To encourage greater motivation and behavioural change, the authors recommended going beyond simply the suggestion of partnership to a move from paternalism to shared dialogue and decision making. One suggestion for encouraging a more mutualistic approach was to employ motivational interviewing (MI, discussed previously in section 1.11), which is underpinned by a philosophy of acceptance, acceptance, partnership and invitation of client input. Limitations of the study include the small sample size and the used of simulated, rather than actual consultations. Nevertheless, the implications regarding the limited client-centredness of the consultations studied and how they may be improved by techniques such as the MI are worthy of further study and development.

The utility of MI in human medical care settings was explored in a systematic review and meta-analysis of 48 randomised clinical trials comparing MI to other interventions for lifestyle and wellness changes (Lundahl et al., 2013). Among the targeted outcomes in the studies were tobacco cessation, introduction of healthful foods

to the diet, increasing exercise, moderation in alcohol consumption, and blood glucose management. Compared to other interventions, MI was found to have a statistically significant positive impact in the majority of studies (63%) and across a diverse range of outcomes including cholesterol level, blood pressure reduction, body weight, cessation of smoking, and alcohol consumption. Moreover, the positive effects of the intervention endured for at least a year after the interventions. On the other hand, some outcomes, including blood glucose maintenance, alcohol cessation, marijuana use, and healthful eating, MI did not have a statistically significant beneficial effect. A potential reason for this cited by the author was the relatively small number of studies in all but one these problem areas for which no statistical difference was shown. Among the limitations of the study cited by the authors were those health areas for which few studies were published, the exclusions of some studies by the authors' inclusion criteria, and the incomplete assessment of MI delivery in some of the studies. Nevertheless, this was an important addition to the body of literature on MI because of the breadth of the analysis and the fact that it contributed evidence of the benefits of MI in medical care settings outside of substance abuse- and specialty practices, where much of the early application of MI in human health care had been done.

1.17.3 Communication and compliance/adherence

In a review article, Abood (2007) looked at evidence in the literature about compliance and adherence and the factors contributing to them. Compliance and adherence both imply the carrying out of recommended actions by the client but stand at different ends of a spectrum (see Figure 1–6). Compliance implies giving orders whereas adherence implies a collaborative approach in which the client is invited to connect with and

participate in the animal's care. While adherence is generally the preferred route, in some cases, such as rabies vaccination, a compliance approach is necessary.

Figure 1–6   Compliance/Adherence Spectrum
(Adapted from Abood (2007))
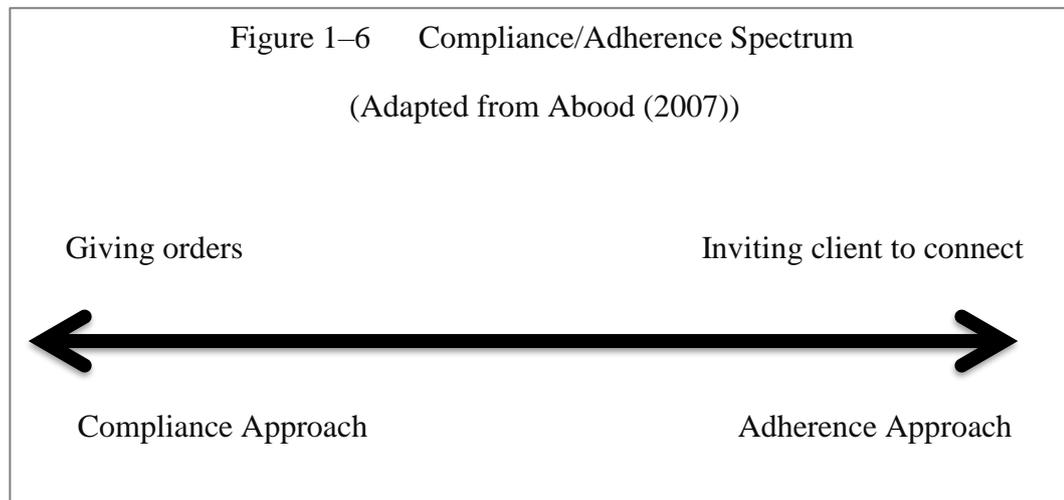
The author cited statistics that suggest that compliance for many interventions is much lower in reality than what veterinary surgeons perceive, particularly for some preventive (e.g. vaccinations) and diagnostic (e.g. heartworm testing) treatments/procedures. This is substantiated by the landmark 2003 report from the American Animal Hospital Association "The Path to High-Quality Care: Practical Tips for Improving Compliance" (American Animal Hospital Association, 2003), where veterinary surgeon assumptions about their clients' compliance with recommendations for common preventative health inputs was lower than the actual compliance rates. Challenges to adherence proposed by the Abood (2007) include time limitations, convenience, and the perception of the benefit or worth of a treatment by the owner. The author noted that 30 years of work in human medicine support the positive impact of compliance and adherence on patient-

physician understanding, satisfaction and adherence, and credited effective communication skills for contributing to this.

Abood (2007) recommended the "4 Habits" approach, mentioned earlier, as a means for encouraging adherence. Other factors the author credited for encouraging adherence are conviction and confidence. Conviction was described as referring to one's beliefs about the need for a specific action. Confidence was believed to be built by a client's perceptions of their ability to carry out a recommendation (e.g. administering injections at home). In addition, it was proposed that the client's health literacy and ability to remember information may affect adherence. It was suggested that these two factors may be mitigated by avoidance of medical jargon and providing written information for the client to take home. In a separate study (Amberg-Alraun et al., 2004), compliance among owners instructed to administer an oral antibiotic was highest when dosing complexity was simplest and owners were provided with supplemental written information. Abood (2007) reported that providing general instructions (on exercise, feeding, etc.) in addition to therapeutic instructions and helping clients to prioritise actions can also help to encourage greater compliance. Summarising the positive inputs for encouraging compliance, the author proposed that engaging and maintaining a connection with clients through the "4-habits approach" appeared to be the best evidence-based approach for enhancing client adherence as well as satisfaction.

In another study (Kanji et al., 2012), adherence and client satisfaction were measured in 83 appointments in which a recommendation for dentistry or surgery was given. Consultations were videotaped and those during which a recommendation was made for dentistry, surgery, or both, were evaluated using the RIAS for client-

centredness. Clients were also asked to complete an appointment-specific client satisfaction questionnaire, the results of which were used to form a Client Satisfaction Quotient, or CSQ (Coe et al., 2010) with 15 questions about the visit. Overall adherence was 30%, and adherence was 7x greater for clients whose consultations included clear recommendations according to the evaluation of the consultation videos versus those in which recommendations were classified as ambiguous (88% versus 12%). Adhering clients were also more satisfied (median CSQ per question was 5.8/6.0) than non-adhering clients (median CSQ per question 5.0/6.0). Limitations noted by the authors include a small sample size, a relatively low incidence of dental or surgical recommendations among all consultations videotaped, and the sample being drawn from a small geographic region with low demographic diversity among the clients, all of which could impair assumptions being made about all clients and veterinary surgeons based on the study results.

1.18   There remains room for improvement

Despite the building evidence of the importance of communication in veterinary practice, the state of veterinary-client communication education may not be ideal in terms of preparing veterinary surgeons for communicating with clients. Fourth-year veterinary students in the USA in 2002 (Butler et al., 2002) responded to a questionnaire about the importance and adequacy of training to help them meet clients' emotional needs. Eighty-four percent felt they had not received adequate client relationship training. This applied particularly to training in communicating with clients around the veterinary surgeon-client relationship, which they felt was important for their professional development (Butler et al., 2002). The study raised some questions that

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deserve further inquiry. One was some significant gender difference in responses, with females generally agreeing to a greater extent than males that the client's emotional bond to their companion animal should be a concern. Female respondents felt to a larger degree that more attention should be paid to coursework on the human-animal bond in veterinary school. The authors agreed that findings such as this could reflect gender stereotypes, but that they also may signal a need for revisiting veterinary curricular decisions, considering the increasing proportion of female students in veterinary schools. A significant limitation of the study was the gap between when the responses were collected (1996) and when the study was published (2002).

Other studies have indicated that important elements of veterinary communication such as expressing empathy and soliciting concerns, were missing from veterinary consultations. Dysart et al. (2011) analysed dialogue from 334 video-recorded consultations and found that there was no solicitation of client concerns at the beginning of 63% of consultations, while in 76% of consultations where a solicitation of concerns was observed, an open-ended question was used. Even among consultation where a solicitation was done, the veterinary surgeon interrupted the client before their response was completed, the most common cause of the interruption being a closed-ended question. Nearly a third of the consultations involved a concern being raised near the end of the appointment and in 86% of those consultations, a concern had not been solicited at the beginning of the appointment. The authors also found that solicitation of concerns was more likely to happen in wellness consultations than in consultations for health problems. This study was done on a small sample of veterinary surgeons and

clients in a limited area of a single Canadian province, which may limit the applicability of the findings to other settings.

As noted in the previously mentioned study by Bard et al. (2017), cattle veterinarians in the UK demonstrated a paternalistic/directive style of communication, dominated the conduct of the consultations, and did little to elicit client opinions. Veterinarians in the study used four times as many closed- as open questions and failed in all cases to directly query farmers about their goals and motivations. The authors concluded that doing more to understand the clients' motivations and perspectives could help veterinarians tailor communication for their clients that might more effectively and directly address their needs. The authors also proposed that cattle veterinarians already have a well-developed ability to understand the complex factors behind farmer motivations. This may place them in a posittition to be positively predisposed to investigate those motivations directly if given the proper training to do so,

In a third study conducted in Australia (McArthur and Fitzgerald, 2013), 64 audio-recorded consultations were analysed using RIAS as well as client assessments of satisfaction and "relational communication" using a tool adapted from human medicine with questions about topics related to empathy such as "showing care and compassion." Among the results were that empathic statements were not expressed toward the client or patient in 59% percent of the consultations, and open-ended questions were not used in 10% of the consultations. Client-reported satisfaction was generally high, with higher satisfaction scores in consultations in which veterinary surgeons expressed empathy toward clients. Again, this was a study done in a limited

geography on a small number of consultations, which may limit the applicability of the findings to a broader population. In addition, the measures used for assessing client satisfaction and relational communication had not been validated for veterinary use at the time of the study.

It has been suggested that client satisfaction may also be decreased by inadequate communication, while the risk of litigation is increased. In fact, client complaints are most often associated with poor communication and interpersonal skills (Shaw et al., 2004a), results similar to what has been reported in human medical literature (Levinson et al., 1997). Other common reasons cited by Adams and Frankel (2007) for communication troubles include 1) failure to ask for the pet's name, 2) not returning client phone calls, 3) failure to provide postoperative instructions, and 4) not demonstrating empathy at the end of a pet's life.

In an opinion-editorial based on consultations with colleagues and personal observations, Severidt (2010) proposed that even among today's recently graduated veterinary surgeons in the USA, there is a lack of ability to relate to, or communicate effectively with, clients. The author described the client as often leaving the consultation confused and unclear about what he or she has been told by the veterinary surgeon. This, contended the author, may make it difficult for the client to comprehend, much less agree to the recommended therapeutic intervention. The ineffective communication described may also result in the client's ultimate dissatisfaction with the services rendered by the veterinary surgeon to the pet. The author speculated that this could be the result of the veterinary surgeon feeling superior to the client, the feeling that clients "just don't get it," or even the veterinary surgeon's use of

sophisticated terminology in an effort to bolster their own self-image. The limitation of these conclusions is that they rely completely on the author's observations and opinions and are not made in the context of any controlled study.

Communication breakdown is often cited by the VDS as a chief contributor to client complaints and litigation (Gray et al., 2006). The concept of NUVACS was to create a coordinated national body to encourage and support the training of veterinary undergraduates in communication skills (Gray, 2006).

1.19   Summary

Communication is recognised is a core skill in veterinary medicine, and decades of research in human and animal health has resulted in research and curriculum development designed to optimise communication skills in veterinary professionals. Hallmarks of effective communication have been identified and studied, and models and training approaches have been designed to equip veterinary students and practitioners for communicating effectively with clients. Communication is complex and challenging, however, and even though significant progress has been made in understanding and addressing needs for communication skills development, there may still be opportunity for improvement. Such improvement is likely to have significant and lasting benefits for veterinary surgeons, clients, and patients.

2 Rationale, objectives and structure of the thesis

2.1 Rationale for the research

Reasons for conducting further research into veterinary surgeon-client communication in general, and this proposed study specifically, include the fact that veterinary communication skills and training have to date been studied less extensively than physician-patient communication. Much that is known of effective communication skills is still based on human health-based understanding, and there are still relatively little research data that take a comprehensive look at veterinary-client communication in a "real world" setting. There thus exist further opportunities to compare communication style to measurable elements of client satisfaction and clinical results in veterinary medicine.

Our study was designed to contribute additional knowledge to these areas, and to do so from data gathered in the UK and the USA (which might provide some interesting comparisons and contrasts). It was hoped that the findings of this research will add to the body of knowledge about optimised veterinary surgeon-client communication. The desire was also to contribute information that will help in the evolution of communication skills training for veterinary students and practitioners that enhance the quality of care, relationship between the veterinary surgeon, pet, and client, and the strength of the human-animal bond.

2.2   Objectives of the research

This PhD programme has the following key objectives, all designed to further the understanding of:

a. The role and importance of veterinary surgeon-client communication in the relationship between veterinary surgeons and clients

b. The amount and quality of communication skills training of veterinary surgeons in the UK and in the USA received during and after their undergraduate studies

c. The relative importance of communication skills to veterinary surgeons

d. Challenges veterinary surgeons encounter in communicating with clients about the health of their pets, and potential ways to address those challenges

e. The dynamics of the veterinary consultation and how it impacts client understanding and satisfaction and the performance of clinical actions

f. The roles of the veterinary surgeon, client, and pet in the veterinary communication triad

g. Potential opportunities for improving veterinary communication skills training content and delivery methods

2.3   Structure of the thesis

The rest of this thesis is organised into six different sections:

Chapter 3: A quantitative study of a survey on veterinary communication skills and training

Chapter 4: A qualitative study of select elements from the veterinary communication skills and training survey

Chapter 5: A descriptive analysis of veterinary consultations using five tools to measure consultation complexity, alignment with communication models, proportion of medical to lifeworld dialogue, client/relationship centredness, and client satisfaction with consultations

Chapter 6: Summary of findings/conclusions from the literature review and studies

Chapter 7: References

Chapter 8: Appendices

3. Veterinary Communication Skills Survey – Quantitative Analysis

(Some of this chapter has been published in a peer-review journal (McDermott, M. Tischler, V., Cobb, M.A., Robbé, I. & Dean, R. S. 2015. Veterinarian–client communication skills: Current state, relevance, and opportunities for improvement. *Journal of Veterinary Medical Education,* 42**,** 305-314.)

3.1. Introduction

The topic of veterinary communication skills and training is constantly evolving (Mossop et al., 2015) and a current assessment can help ensure that both practitioners and veterinary communication trainers have the latest and most useful information. The aim of this study was to assess the degree to which veterinary practitioners in the USA and UK have had veterinary communication skills training, to understand the relative importance of communication skills to personal and practice success, and to identify new opportunities to inform the teaching and practice of communication skills for veterinarians.

3.2 Methods

This study was granted Ethical Approval by the University of Nottingham School of Veterinary Medicine and Science (Ethical Review Number 891 130612).

3.2.1 Study Design

A cross-sectional survey of veterinary surgeons in the UK and USA was undertaken in 2012/13. The objective was to seek the views of a representative sample of practitioners in each country. Questions were designed to assess level of communication skills training, determine the degree to which communication skills training prepares

practitioners for communicating with clients, identify the relative importance of communication skills in typical practice situations, and determine peoples' interest in, and need for, further communication training.

The membership lists of the American Animal Hospital Association (AAHA) in the USA and the Royal College of Veterinary Surgeons (RCVS) in the UK were used for identifying participants. The AAHA is a professional organisation in the USA responsible for accrediting companion animal hospitals and is focused primarily on companion animal practitioners (American Animal Hospital Association, 2015). Members have access to continuing education, professional development and practice management training. Membership in the AAHA is voluntary. The RCVS are responsible for keeping the register of all veterinary surgeons eligible to practice in the UK, as well as setting the standards for veterinary education and professional conduct. Membership in the RCVS is compulsory for veterinary surgeons wishing to practice in the UK (Royal College of Veterinary Surgeons, 2014a).

3.2.2   Instruments

A questionnaire titled, "The Importance of Veterinary Communication Skills: What are Your Views?" was devised (See Appendix 9.1). The content was based on literature about veterinary communication and on existing questionnaires involving healthcare professionals and veterinary surgeons or veterinary students on the topic of communicating with patients and clients (Butler et al., 2002, Whitehead et al., 2009). The questionnaire contained 26 open, closed, and Likert-scale type questions and was divided into three sections: 1) demographics, 2) communication skills training, and 3)

importance of communication in practice. The questionnaire was piloted by the Centre for Evidence-based Veterinary Medicine (CEVM) at the University of Nottingham School of Veterinary Medicine and Science and with five veterinary practitioners in each country.

3.2.3   Power Calculation

We conducted a power calculation to determine the sample size needed to conduct relevant statistical analyses from survey responses. Using an online sample power calculator, we set the margin of error at 5%, the confidence level of 95%, with the first question of the survey as a basis (a closed question on gender with two possible answers) we determined that 1,000 people from each country would needed, or 2,000 in total. Assuming a response rate of 33% based on previous surveys of veterinary practitioners) (Australian Veterinary Association Ltd, 2013, Hall and Wapenaar, 2012, Nielsen et al., 2014), this meant our survey audience would need to be 6,000, or 3,000 in each country.

3.2.4   Distribution

The questionnaire was distributed by post in each country and accompanied by a postage-paid (freepost) return envelope. Two mailings were sent to recipients, an initial mailing of 3,000 to each country in December 2012, and a follow-up mailing to non-responders in February 2013. A cut-off date of October 31, 2013, was set, after which no additional responses were included in data analysis.

3.2.5 Data extraction and preparation

All questionnaires were electronically scanned and verified using Teleform® software V10.2 (a program that classifies, captures, and indexes data from forms). Twenty per cent of the returned questionnaires were manually checked for accuracy against the data recorded by Teleform. The data were exported into an Excel® spread sheet, cleaned, and coded for subsequent analysis.

3.2.6 Statistical methods

Data were analysed using SPSS® Version 21.0. Statistical analyses included descriptive and inferential statistics. Categorical data, including Likert Scales, are presented as absolute numbers and percentages. Continuous data (such as age and year of graduation) are presented as ranges and medians. Inferential statistics for categorical data (e.g. USA practitioners vs. UK practitioners, gender, and age vs. interest in receiving additional communication training) were analysed using Pearson's Chi-Squared Tests. Statistical significance was set at $P \leq 0.05$.

3.3 Results

3.3.1 Response Rates

A total of 1,190/3000 responses were received from the UK (39.7% response rate), 882 (74.1%) from the initial mailing and 308 (25.9%) from the reminder mailing. A total of 584/3000 responses were received from the USA (19.5% response rate), 398 (68.2%) from the initial mailing and 186 (31.8%) from the reminder mailing. Total response rate for all of the veterinary surgeons was 29.6% (1774/6,000).

3.3.2 Demographics

The demographics of the respondents are shown in Figure 3–1. There were more females than males (57.3% to 42.7%), a range in age of 23 years to 79 years, and a range in year of graduation from veterinary school from 1944 to 2012.

3.3.3 Veterinary Education

Respondents did their undergraduate/veterinary school studies at 105 different institutions in 36 different countries. UK-based practitioners had graduated from 74 schools in 30 countries and practitioners based in the USA had graduated from 49 schools in 15 countries.

3.3.4 Type of Practice

Of the 1,486 respondents, 1,070 (72.0%) indicated they were exclusively involved in small animal practice, 44 (3.0%) were exclusively farm animal practitioners, 81 (5.5%) identified themselves as full-time equine practitioners, and 291 (19.6%) as mixed or "other" practice. The majority of respondents, (1243/1,637, 75.9%), described their caseload as ""First Opinion/Primary Care." Among the remainder, 144 (8.8%) identified as "Referral/Specialty," 204 (12.5%) as "Mix of First opinion/Primary Care and Referral/Specialty" and 46 (2.8%) as "Other."

Figure 3–1: Demographics of the survey respondents

Figure 3–1a: Gender of Participants by Country
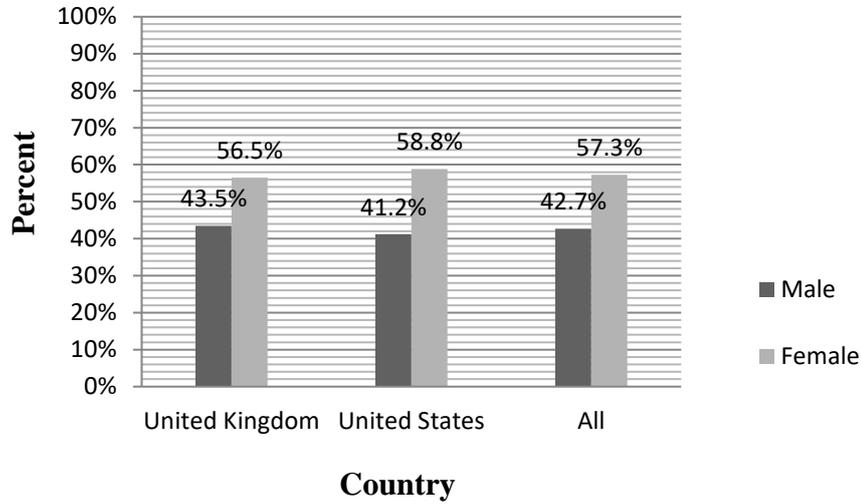
Figure 3–1b: Age of Participants by Country (Minimum, Median and Maximum)
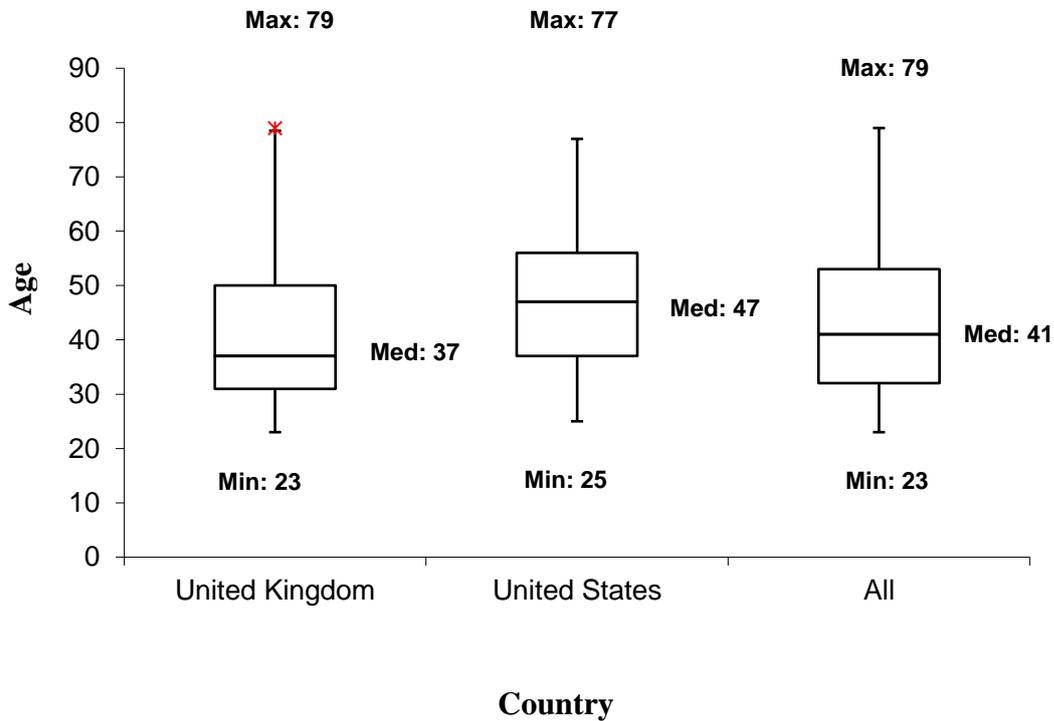
Figure 3–1c: Median Year/Range of Years of Graduation of Participants by Country
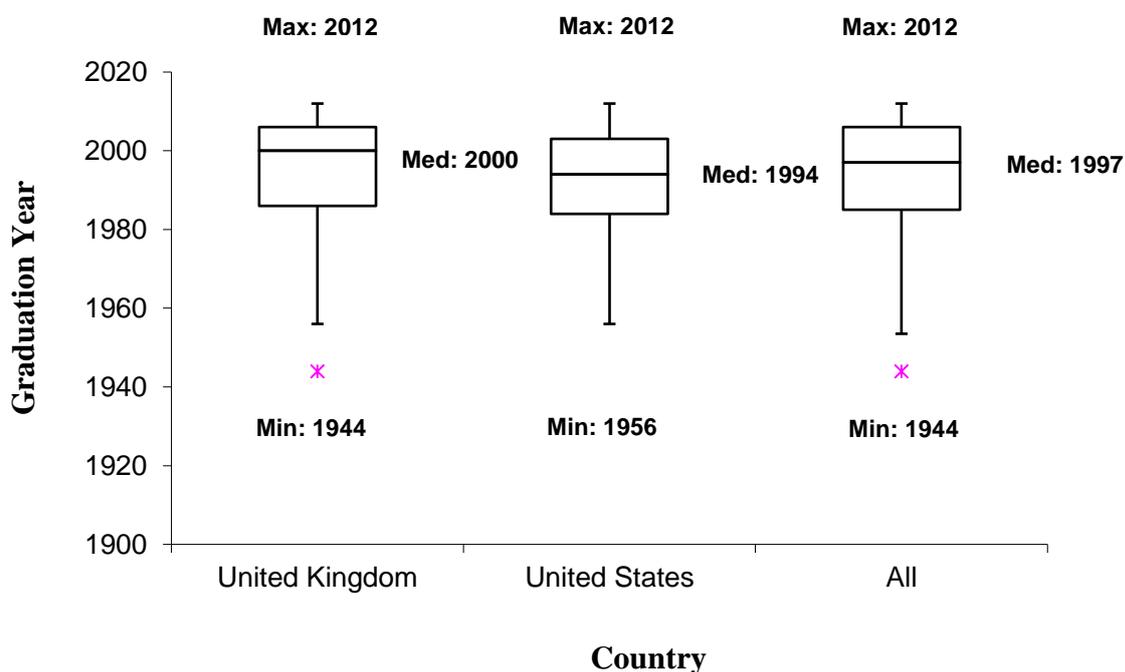
3.3.5 Communication skills training during veterinary (undergraduate) school

Of the respondents 43.8% (774/1,766) had received communication skills training (defined in the survey as "dedicated teaching in skills to equip you to effectively speak to clients about the care of their animals") during veterinary school, 50.3% (888/1,766) had not, and 5.9% (104/1,766) could not remember. The predominant types of training received were simulated consultations – scenarios in which actors play the role of owners of pets with common health issues and students play the role of attending veterinary surgeons (74.4%; 562/755), and lectures (67.3%; 508/755).

UK practitioners (44.5%; 527/1185) received training more frequently than USA practitioners (42.5%; 247/581), although the difference was not statistically

significant (X^2=1.380; DF=2; p=0.501). Respondents who graduated in 2000 or later were significantly more likely to have received communication skills training during veterinary school than earlier graduates (X^2=415.989; DF=2; p=0.000; see Table 3–1).

Year Graduated	Communication Skills Training Received?			
	Yes **N (%)**	**No** **N (%)**	**Don't Remember** **N (%)**	**Total Responses** **(N)**
2000 or later	549 (68.4%)	210 (26.3%)	41 (5.1%)	800
1999 or earlier	166 (17.5%)	710 (74.7%)	75 (7.9%)	951
TOTALS	715 (40.8%)	920 (52.5%)	116 (9.5%)	1,751

Table 3–1: Communication Skills Training During Veterinary School among Practitioners Graduating Before and After 2000*

N=1,756

*X^2=415.989; p=0.000

Across age ranges, younger veterinary surgeons (<40 years of age) were significantly more likely to have received communication skills training in veterinary school than veterinary surgeons 40 years or older (X^2=343.77; DF=2; p<0.000; see Figure 3–2). Those graduating before 2000 were also more likely to have cited less formal communication training such as rounds, having a senior colleague observe consultations, and "learning by doing" in a practice.

Figure 3–2: Communication skills training received during veterinary school by veterinary surgeons in different age groups (N=1,775)
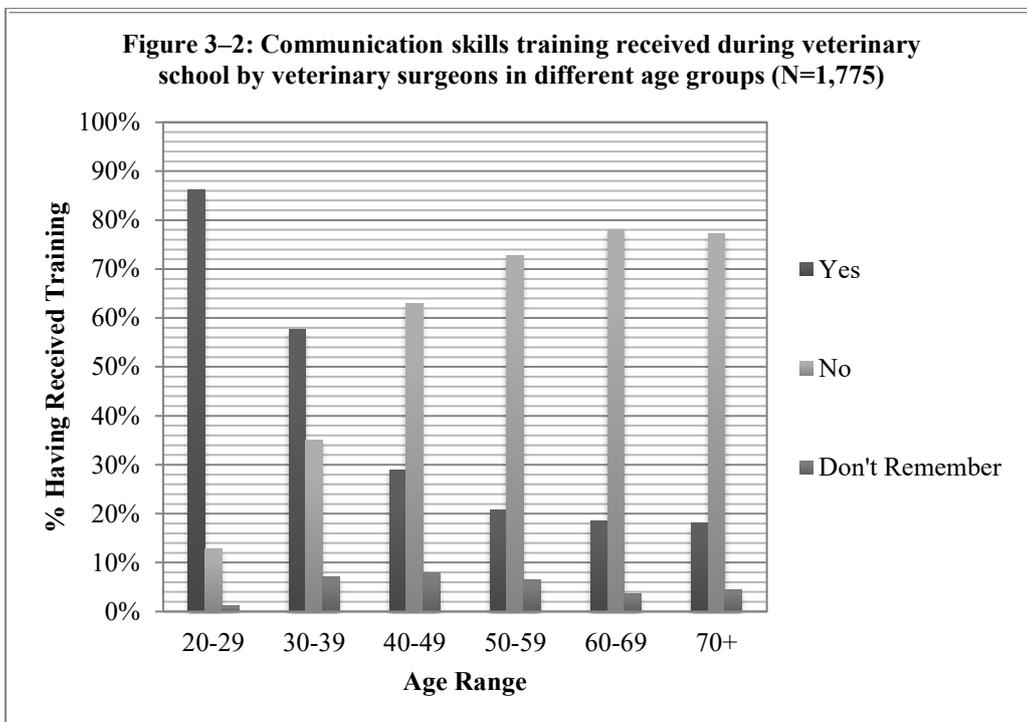
3.3.6   Postgraduate communication skills training

Slightly fewer than half of respondents (833/1,768; 47.1%) had received communication skills training after graduating from veterinary school. The most commonly received types of postgraduate training included lectures (605/830; 72.9%), simulated consultations (314/830; 37.8%), and "Other" (258/830; 31.1%). Other types of training mentioned included industry-sponsored programmes such as the Bayer Animal Health Communication Project (Institute for Healthcare Communication, 2010) (3/52; 5.8%), "Frank" communication training from Pfizer Animal Health/Zoetis (Zoetis, 2016) (7/52; 13.5%), association-sponsored training from the Veterinary Defence Society (32/52; 61.5%) (Veterinary Defence Society, 2016) or the American Animal Hospital Association (American Animal Hospital Association, 2015) (3/52; 5.8%), and Dale Carnegie Courses (Dale Carnegie Training, 2015) (7/52; 13.5%). Again, many respondents had received multiple types of training.

United States practitioners were significantly more likely to have received post-graduation communication skills training (316/582; 54.3%) compared to UK practitioners (517/1186; 43.6%) (X^2=19.826; DF=2; p<0.000). A Pierson's Chi Squared analysis also showed a significant difference in the likelihood of having received postgraduate communication skills training across age ranges (see Figure 3–3), older veterinary surgeons ($\geq$ 40 years of age) being more likely to have received post-graduate training than students less than 40 years old (X^2=13.692; DF=2; p=0.001).

Figure 3–3: Communication skills training received after veterinary school by veterinary surgeons in different age groups (N=1,757)
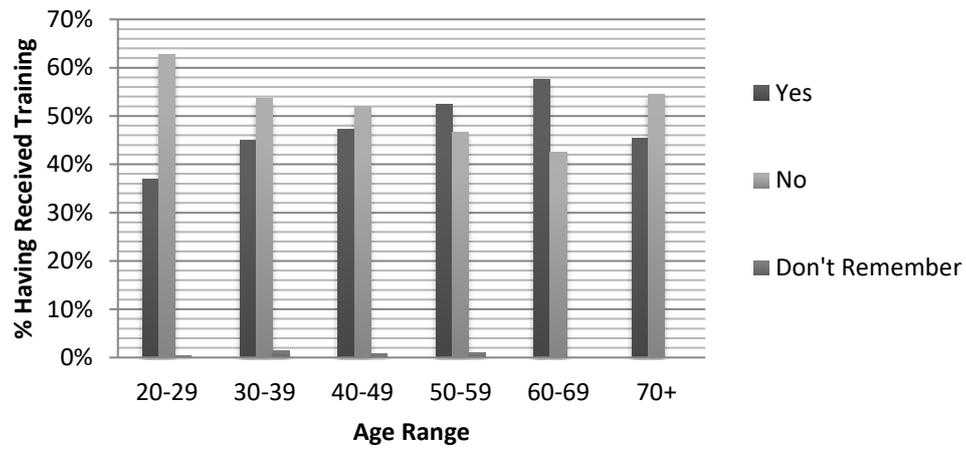
3.3.7 Utility of communication skills training

In response to the question "How well did your communication skills training during veterinary school prepare you for communicating with clients about the health of their animals?" 303 of the 874 respondents to the question (34.7%) answered "well" or "very well." A significantly higher proportion of respondents who graduated in or after 2000 (239/581; 41.1%) answered "well" or "very well" compared to those graduating before 2000 (62/287; 21.6%); (X^2=48.058; DF=4; p=0.000). In response to a similar question about post graduate training, the majority of respondents (527/870; 60.6%) indicated that postgraduate communication skills training prepared practitioners "well" or "very well" for communicating with clients about their animals' health (Table 3–2).

Table 3–2: Perceived Benefit of Communication Skills Training Received During and After Veterinary School												
When	Very Poorly		Poorly		Neutral		Well		Very Well		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
During Veterinary School	70	8.0%	189	21.6%	312	35.7%	252	28.8%	51	5.8%	874	100%
Post-Graduation	13	1.5%	42	4.8%	288	33.1%	408	46.9%	119	13.7%	870	100%
N=874 (Undergraduate Training); 870 (Postgraduate Training)												

3.3.8 Interest in further communication skills training

Regarding willingness to receive further communication skills training, 60% (1.054/1,759) said they would not and 40% (705) said they would. Of those expressing interest in receiving further communication skills training, the main training types in which they were interested were simulated consultations (19.4%; 134/689), online training (18.9%; 130/689), lectures (10.2%; 70/689), a combination of one or more of the above (44.1%;304/689), and other types of training (7.4%; 51/689). These "other types" included workshops, training on specific topics such as cost discussions, and training for trainers in veterinary communication skills. Significantly more females (43.8%; 441/1,008) wished to receive further communication skills training compared to males (34.9%; 260/745) (X^2=13.984; DF=1; p=0.000). USA respondents (44.7%; 258/577) were also significantly more likely than UK-based respondents (37.8%; 447/1182) to be interested in receiving further training (X^2=7.679; DF=1; p=0.006). Practitioners aged 39 or younger (47.6%; 389/817) were significantly more interested in further training than those over age 40 (33.5%; 312/932), (X^2=36.229; DF=1; p=0.000).

3.3.9 Perceived importance of communication skills vs. clinical knowledge

When asked the question: "Compared to clinical knowledge, how important are communication skills to the successful outcome of a client consultation?" 97.7% (1,708/1,748) of respondents, said that communication skills were equal to or more important than clinical knowledge.

3.3.10   Importance of communication skills in specific situations

Regarding the importance of communication skills to aspects of personal and practice success, the most frequent rating was either 4/5 or 5/5, on a scale where 1 signified "not at all important" and 5 "extremely important" for all aspects. For client- and colleague relationships the score was 5 from 88.2% and 64.3%, respectively, of respondents (See Table 3–3). Outside of the options offered, other examples of personal and practice success in which communication skills were perceived to be important were gathered in an open response box labelled "other." These included relationships with spouse and family members, being sure one is understood, communicating with colleagues and staff, professional and personal development, and avoiding complaints and litigation.

Scores were also high for the perceived importance of communication in different components of a consultation, such as discussing treatment options or gaining client agreement (Table 3–4). Outside of the options offered, other examples of specific components of a consultation for which communication skills were perceived to be important were gathered in an open-box labelled "other." Among them were the handling of conflicts, putting the client at ease, discussing clinic finances, grief counselling, discussing errors, understanding client goals, being an advocate for the patient, dealing with pet behavioural issues, and discussion of after-care with the client.

For communicating about potentially sensitive topics with clients, the difficulty of communication was rated either 2/5 or 3/5 for most topics on a scale where 1 signified "very easy" and 5 "very difficult."   Difficult-to-diagnose conditions and

expensive treatments were considered the most difficult topics to discuss, and euthanasia the least difficult (Table 3–5). In response to an open question inviting further comment regarding communicating about sensitive topics with clients, situations included variation in client knowledge and ability to understand, time limitations, distractions (e.g. mobile phones), involvement of other family members, clients armed with outside information and/or preconceived notions, and language barriers.

Table 3–3: Perceived Importance of Communication Skills to Aspects of Personal and Practice Success														
Variable	**Scores: 1 = Not at all important; 5 = Extremely Important**												**Total responses**	**Median Score**
	1		**2**		**3**		**4**		**5**		**"Don't Know"**			
	N	%	N	%	N	%	N	%	N	%	N	%	N	
Self-confidence	9	0.5%	21	1.2%	133	7.5%	736	41.7%	861	48.8%	4	0.2%	1,764	4.00
Job satisfaction	3	0.2%	30	1.7%	199	11.3%	816	46.3%	709	40.2%	6	0.3%	1,763	4.00
Time management	18	1.0%	89	5.0%	349	19.8%	696	39.4%	602	34.1%	12	0.7%	1,766	4.00
Income/ profitability	11	0.6%	23	1.3%	156	8.9%	661	37.5%	885	50.2%	12	1.5%	1,748	5.00
Client relationships	1	0.1%	6	0.3%	11	0.6%	189	10.7%	1558	88.2%	1	0.1%	1,766	5.00
Colleague relationships	4	0.2%	11	0.6%	84	4.8%	528	29.9%	1134	64.3%	3	0.2%	1,764	5.00
Other	0	0.0%	0	0.0%	3	1.1%	20	7.6%	125	47.7%	114	43.5%	262	4.00
TOTALS (N)	46	0.4%	180	1.7%	935	8.6%	3,646	33.7%	5,874	54.2%	152	1.4%	10,833	

Variable	Scores –% answering; 1 = Not at all important; 5 = Extremely Important												Total responses	Median Score
	1		2		3		4		5		D/K			
	N	%	N	%	N	%	N	%	N	%	N	%	N	
Obtaining a medical history	3	0.2%	9	0.5%	64	3.6%	394	22.3%	1293	73.2%	3	0.2%	1,766	5.00
Diagnosing a condition	25	1.4%	120	6.8%	475	26.9%	730	41.4%	410	23.3%	3	0.2%	1,763	4.00
Explaining diagnoses	2	0.1%	4	0.2%	16	0.9%	313	17.7%	1429	80.9%	2	0.1%	1,766	5.00
Discussing treatment/ management options	4	0.2%	5	0.3%	11	0.6%	270	15.3%	1475	83.5%	1	0.1%	1,766	5.00
Gaining client agreement on treatment/ management options	7	0.4%	4	0.2%	31	1.8%	295	16.7%	1426	80.8%	2	0.1%	1,765	5.00
Discussing prognoses	2	0.1%	3	0.2%	50	2.8%	451	25.6%	1255	71.2%	2	0.1%	1,763	5.00
Managing client expectations	4	0.2%	5	0.3%	31	1.8%	363	20.6%	1358	77.0%	3	0.2%	1,764	5.00
Optimising client compliance	4	0.2%	5	0.3%	72	4.1%	398	22.6%	1280	72.6%	5	0.3%	1,764	5.00
Prompting follow-up visits	1	0.1%	16	0.9%	143	8.1%	618	35.0%	979	55.5%	8	0.5%	1,765	5.00
Talking about costs	4	0.2%	16	0.9%	81	4.6%	485	27.6%	1167	66.3%	6	0.3%	1,759	5.00
Other aspects of a consultation	0	0.0%	0	0.0%	8	3.1%	25	9.6%	120	46.2%	107	41.2%	260	4.00
TOTALS (N)	56	0.3%	187	1.0%	982	5.5%	4,343	24.3%	12,191	68.1%	142	0.7%	17,901	

Table 3–4: Perceived Importance of Communication Skills in Different Components of a Consultation

Table 3–5: Perceived Difficulty of Communicating about Potentially Sensitive Topics with Clients														
Variable	**Scores: % answering; 1 = Very Easy; 5 = Very Difficult**													**Total responses**	**Median Score**
	1		**2**		**3**		**4**		**5**		**"Don't Know"**			
	N	%	N	%	N	%	N	%	N	%	N	%	N	
Life-threatening conditions	218	12.5%	680	39.0%	507	29.1%	290	16.6%	41	2.4%	8	0.5%	1,744	2.00
Difficult-to-diagnose conditions	107	6.1%	450	25.8%	547	31.3%	493	28.3%	141	8.1%	7	0.4%	1,745	3.00
Difficult-to-treat conditions	130	7.5%	574	33.1%	546	31.5%	397	22.9%	78	4.5%	10	0.6%	1,735	3.00
Euthanasia	284	16.3%	801	45.9%	440	25.2%	158	9.1%	48	2.8%	13	0.7%	1,744	2.00
Expensive Treatments	141	8.1%	456	26.2%	511	29.3%	469	26.9%	145	8.3%	20	1.1%	1,742	3.00
Time-consuming Treatments	149	8.5%	538	30.9%	608	34.9%	356	20.4%	74	4.2%	18	1.0%	1,743	3.00
TOTALS (N)	1,029	9.8%	3,499	33.5%	3,159	30.2%	2,163	20.7%	527	5.0%	76	0.7%	10,453	

3.4   Discussion

These new findings support previous research on the importance of communication as a core clinical skill (Adams and Kurtz, 2006, Cornell and Kopcha, 2007, Rhind et al., 2011, Shaw et al., 2004a). They also confirm the impact of increased attention being given to the importance of communication skills in the literature and in veterinary school curricula and postgraduate education. Nevertheless, the fact that more than half of even the most recent (post-2000) graduates felt that veterinary communication skills training did not prepare them well for communicating with clients suggests there is room for improvement. If adding additional skills training is difficult because of the amount of clinical training required, perhaps communication skill development could be incorporated more fully into the overall veterinary school curriculum content and delivery. This could be done through adding communication-specific courses or by ensuring that communicating about clinical topics is an integral part of the clinically focused courses.

Nearly half of respondents in this study had received communication skills training either in veterinary school or post-graduation, and nearly all respondents believed that communication skills were equal in importance to or more important than clinical knowledge. Despite this, more than half were not willing to make additional communication skills training a priority. This could impact the ability to improve an important skill that practitioners need to optimize client relationships as well as the health of the animals they treat. The relative lack of interest among the majority of practitioners in further communication skills training may be influenced by different factors including time, distance, and financial limitations, all of which were identified

by Moore et al. (2000) as being associated with reluctance to participate in veterinary CPD in focus group interviews. A survey by Dale et al. revealed that graduates since the year 2000 perceived CPD/CE to be more valuable than earlier graduates, and that women believed more strongly than men that CPD would benefit their own development (Dale et al., 2013) These findings are consistent with the current study.

Evidence in the literature (Dale et al., 2013, Dale et al., 2010, Moore et al., 2000, Moore, 2003) suggests that practitioners are motivated to participate in CPD/CE by the perceived benefits and the type of training offered, as well as their preferred learning style. Veterinary surgeons recognise benefits from CPD/CE in interacting and socialising with colleagues, honing their skills, identifying weaknesses, and reaffirming their current practice approaches (Moore et al., 2000). Neel and Grindem (2010) found veterinary students prefer learning approaches that are active, sensing, sequential, and visual, which could describe live workshops.

Other ways in which participation in, and engagement with, CPD may be affected include the principles of adult learning and experiential learning. Adult learning draws on the concept that adults experience learning in unique ways, influenced in part by their life experiences (Mossop and Cobb, 2013). Adult learners are able to direct their learning to a certain extent by drawing on these experiences, which provide important input for their learning. Adult learners have learning needs connected to their changing social roles (e.g. transitioning from veterinary student to veterinary practitioner), and they become interested in problem solving and acquiring knowledge that can be immediately applied (Dale et al., 2008). They are also characterised by an interest in feedback and self-motivation (Mossop and Cobb, 2013).

Understanding the perspective from which adults approach learning can help ensure that learning offerings are aligned with the experiences and motivations of the learners in undergraduate education and through a career in practice (Dale et al., 2008). Experiential learning refers to a cycle in which learning is impacted by experience with real-world problem solving and vice-versa. As the learner experiences new challenges and learns how to meet them, they become active participants in the learning process and are able to gain new tools for problem-solving from both internal and external sources (Dale et al., 2008).

Dale, et al. (2010) in a further study found that a preference for complexity (characterised by the authors as "a preference for deep learning, high need for cognition, and use and application of knowledge") increases both motivation to participate in CPD/CE and the value of the learning itself. Sadler-Smith and Allison (2000) concluded from a study of human resource professionals that learners are more likely to prefer modes of professional development that best fit their preferred choice for information processing and that both gender and cognitive style impact preference for methods of learning; findings that were also found in a survey of postgraduates in occupational medicine (Smits et al., 2004).

It is not clear to what degree these observations about CPD/CE in general would apply to communication-specific training. Nevertheless, further study is needed into how to make communication training more appealing and thereby to encourage greater lifelong participation of veterinary surgeons by tailoring the training to different career stages, genders, cognitive styles, and practice contexts within the available time and financial constraints.

The concept of the hidden curriculum helps to describe one of the ways a practitioner develops communication skills in school and in work (Mossop, 2017). The hidden curriculum is characterised by the transference of values, beliefs and social constructs from education and society. Examples are influences of role models, symbols, organisational hierarchies, core principals of an academic institution, daily activities, and rituals (an example being the "White Coat Ceremonies that symbolise the tradition from academia to practice") (Mossop et al., 2013, Mossop and Cobb, 2013). Awareness of the hidden curriculum can help educators understand its impact on students' learning, encourage staff training and the development of mentoring programmes, as well as promote the training of students to differentiate between positive and negative role models (Mossop et al., 2013, Mossop, 2017).

In a commentary about barriers to success in veterinary practice, Burge (2003) identified that communication skills are important for personal and practice success, such as self-confidence, time management, job satisfaction, financial success, and client relationships; all ingredients for a satisfying and sustainable career in the profession. One of the important aspects of communication is demonstrating empathy, or stepping into the shoes of the client, or patient, as described amongst physicians by Hojat et al. (2002). The authors found empathy to be a measurable attribute of relationship building that varies by medical specialty and gender. Because it was felt by the researcher and his supervisors that it would be useful to delve further into the topic of empathy in veterinary medicine to see if similar observations could be made, elements of empathy were studied in the consultation study covered in Chapter 5 of this thesis.

In our study, high scores were also given to common aspects of a veterinary consultation that correspond to the elements of the Calgary-Cambridge Model (Adams and Frankel, 2007, Silverman, 2007), which is used as a framework for structuring and guiding the consultation in medical and veterinary communication training. This result lends support to the view that the optimal consultation has effective communication at its core.

An unexpected finding was the relatively low level of difficulty ascribed to communicating about euthanasia, life-threatening conditions and other topics considered sensitive. While it may be that many veterinary surgeons are relatively comfortable speaking with clients about these topics, it might also be that exploring them in greater detail would reveal more information about the difficulty of communicating about sensitive issues for certain individuals and in certain situations. It could be helpful to look more closely at the "Other" situations noted by respondents in which they perceived communication skills to be important for personal and practice success, communication in certain aspects of a consultation, and topics that prove particulary challenging in communication with clients, through additional research on these topics.

The demographics of the respondents were representative of the practicing veterinary populations of the UK and USA, with regard to diversity in age, gender, and practice types (Royal College of Veterinary Surgeons, 2013, The Center for Health Workforce Studies, 2013). This suggests that observations about the study sample may be applicable to the veterinary practitioner communities in these countries.

3.5   Limitations of the study

While this study gathered information from a large sample of veterinary surgeons in two countries and yielded novel findings, there were limitations. The response rate for the survey was consistent with those of previous surveys targeting veterinary surgeons, (Australian Veterinary Association Ltd, 2013, Hall and Wapenaar, 2012, Nielsen et al., 2014). The USA response rate, however, was lower than that suggested necessary by the power calculation. This may make observations about USA veterinary surgeons less reliable. It is difficult to tell whether this is a function of the survey coming from a UK institution, the relative willingness of practitioners in each country to participate in surveys, or some other reason. A minor but perhaps significant difference in mailings sent to UK versus USA audiences, discovered after the mailings, was that the UK envelopes had "Not a solicitation" stamped on them. It is uncertain whether this could have made such a difference in participants' willingness to open the mailings, but it could be part of the explanation.

The questionnaire was highly retrospective for some respondents, for whom it may have been thirty years or more since graduating from veterinary school. This may have made it difficult to recall specific details about communication skills training received, or the perceived benefits of that communication training. Although the survey audience was randomly sampled from the membership lists of the RCVS and AAHA, in the case of at least the AAHA, the membership is not completely representative of the US veterinary surgeon population, being primary composed of companion animal practitioners. The AAHA also has relatively strong CE requirements as well, another factor that could influence the responses of members to

our survey. We chose the AAHA for our USA sample because of the ready availability of mailing addresses from their membership. The RCVS can only pass on the details of members who have agreed to let their details be used for projects such as this and other initiatives. This means that a random sample of the RCVS register given for this study may not completely represent the whole profession in the UK. Farm animal veterinary surgeons, who deal with patients that are economic assets for their clients and for whom health decisions can be part of the overall management strategy for the farm (Jansen et al., 2010, Kleen et al., 2011), may have had entirely different perspectives than their companion animal veterinary surgeon counterparts, and therefore may have answered in different ways to certain questions. The survey also had participants from diverse areas and it could have been that not all questions were deemed appropriate for all participants.

Likert scales provide a simple and efficient way to collect data, but there are limitations in using them, including the inability to assume that intervals between values are equal (and therefore apply statistical methods such as measurement of mean or standard deviation) (Jamieson, 2004), and social acceptability bias (Dean, 2015), which might have been a factor in the greater interest of females and USA respondents in further communication training (Taveira-Gomes et al., 2016). Other issues include the inability to probe for more information in some cases, and the tendency for answers to have a skewed or polarised distribution (Jamieson, 2004). There was no specific analysis of data from recent graduates (e.g. within 2 years of the study), which might have revealed attitudes and experience of those practitioners who trained when communication content had been relatively well entrenched within the undergraduate

curriculum. There are also inherent limitations in the use of surveys themselves, such as the challenges posed by making generalizations about surveys with low response rates, and analytical errors associated with missing data (Coughlan et al., 2009). In addition, self-assessment is an inaccurate indicator of performance (Eva and Regehr, 2011), particularly in relation to memory. Nevertheless, it is possible to build on the findings in ways that address these limitations and strengthen the base of evidence for this important topic.

3.6   Conclusions

This is the first survey on veterinary communication skills including UK- and USA-based practitioners. The findings underscore the importance of communication as a core skill, potentially even more important than clinical knowledge. This validates the efforts of so many who have taken up the mantel to improve the core clinical skill of communicating effectively with clients.

At the same time, most veterinary surgeons feel their undergraduate communication training did not prepare them adequately for communicating with clients. This, combined with the majority view that practitioners would not be interested in continuing communications training, suggests further work could be done in making training during veterinary school and post-graduation more valuable, applicable, and accessible to all veterinary surgeons. This could include further research on the data from this study to measure the influence of type of practice, prior experience, and preference for learning formats on the desire of practitioners to participate in postgraduate communication training.

4   Veterinary Communication Skills Survey – Qualitative Analysis

(Some of this chapter has been published in a peer-review journal (McDermott, M., Cobb, M.A., Tischler, V., Robbé, I. and Dean, R. S. Evaluating veterinary practitioner perceptions of communication skills and training. *Veterinary Record,* 2017:180**,** 305))

4.1   Introduction

As a result of the increased appreciation of the importance of communication ability for veterinary surgeons, there has been increased attention to communication skills training in veterinary school curricula and in continuing professional development (CPD)/continuing education (CE) (Kogan et al., 2004, Mossop et al., 2015, Radford et al., 2003, Shaw and Ihle, 2006), and recent evidence suggests this emphasis has had a positive impact (Kedrowicz, 2016, Latham and Morris, 2007, Mossop et al., 2015). CPD/CE in communication is now widely available through veterinary associations (Gray et al., 2006, Veterinary Defence Society, 2016), from industry (Institute for Healthcare Communication, 2016), and from independent consultants (Communication Solutions for Veterinarians, 2016).

Despite this increased emphasis and the positive impact it has made (Kedrowicz, 2016, Mossop et al., 2015), the majority of participants in a survey of practitioners in the United Kingdom (UK) and the United States of America (USA) (McDermott et al., 2015) reported that, even among recent graduates, communication skills training during veterinary school and post-graduation did not prepare them sufficiently for communicating with clients. Also, when asked whether they would be interested in receiving further communication skills training, more than half of the

respondents replied that they would not be interested (McDermott et al., 2015). Furthermore, other studies have reported that important elements of veterinary communication such as expressing empathy and soliciting concerns were missing from veterinary consultations (Dysart et al., 2011, McArthur and Fitzgerald, 2013).

In summary, this complex situation suggests there is scope for improvement in communication competence training and in the performance of communication skills among veterinary practitioners. With this complexity in mind, the aim of this study was to investigate communication gaps and challenges as well as motivations for, and barriers to, participating in further communication training.

4.2   Materials and methods

This study was granted Ethical Approval by the University of Nottingham School of Veterinary Medicine and Science (Ethical Review Number 891 130612).

4.2.1   Instrument

A survey on veterinary communication skills and training was conducted during 2012 and 2013. The cross-sectional study included a sample of veterinary practitioners in the United Kingdom and the United States, allowing for comparison between the two groups. The study gathered information on communication training during and after veterinary school, the degree to which training helped practitioners communicate with clients, the need for additional training, the importance of communication skills relative to clinical knowledge and in specific practice scenarios and the challenges encountered by veterinary surgeons regarding communication with clients. A combination of closed, open and Likert-Scale type questions was used. Further details on the survey and

previous data are reported in Chapter 3 and in a published article (McDermott et al., 2015).

4.2.2 Data analysis

Thematic analysis was used to analyse the responses to the open questions in the survey that related to veterinary communication gaps and needs as well as the motivation (or lack thereof) for participating in postgraduate communication skills training. The open questions studied were:

Question 11:   Details on other types of communication training received

Question 14:   Details on other types of postgraduate communication training received

Question 18:   Reasons for preferred types of communication skills CPD

Question 19:   Additional comments about communication training

Question 20:   Comments on relative importance of communication skill versus clinical knowledge

Question 21:   Comments on importance of communication skills to personal and practice success

Question 22:   Comments on the importance of communication skills in various aspects of a consultation

Question 24:   Comments on challenges in communicating with clients

Question 25:   Suggested ways to solve communication challenges

Qualitative methods are particularly well suited to analyzing open questions in surveys, facilitating the exploration of perceptions and experiences, and understanding a wide range of topics (Braun and Clarke, 2006, Braun and Clarke, 2013). Thematic analysis is one of the most commonly employed qualitative methods as it is useful for exploring and identifying patterns and themes across a dataset. It can also be used to develop descriptions of phenomena explored in the research (Braun and Clarke, 2006, Braun and Clarke, 2013).

Data were collected from the survey responses and imported into a spreadsheet and reviewed by the authors. The data were transferred to NVivo® (NVivo qualitative data analysis Software; QSR International Pty Ltd. Version 10, 2014), pooled, and organised for thematic analysis. To help ensure reliability of the data (Barbour, 2001) the responses were co-coded by two authors (MMcD and IR) using an iterative process to generate themes (broad patterns that capture important elements of the data) and subthemes (specific aspects of the themes) (Braun and Clarke, 2006). Collaboration in the coding process has been cited as a means to promote clarity, transparency and integrity of the data interpretation (Cornish et al., 2013, Hall et al., 2005). After themes and subthemes were defined, representative quotes from the responses were selected for the themes and/or subthemes.

4.3 Results

4.3.1 Response rates and demographics

A total of 1,190/3000 responses were received from the UK (39.7% response rate), and 584/3000 responses were received from the USA (19.5% response rate). The overall response rate was 29.6% (1,774/6000). Mix of respondents was 57.3% female (1,013/1,768) and 42.7% male (755/1,768), with similar gender mix in the UK and USA. Range in age was 23 years to 79 years (median age 41 years), with a higher median age in the USA (47 years) than in the UK (37 years).

4.3.2 Themes and subthemes

The themes identified from the free text responses and reported in this study were: 1) Why communication matters, 2) Room for improvement, 3) What good communication means, 4) Why the lack of interest in further training? and 5) Implications for communication training. These and emergent subthemes are presented in Figure 4–1, and details are presented below.

Figure 4-1: Themes and Subthemes
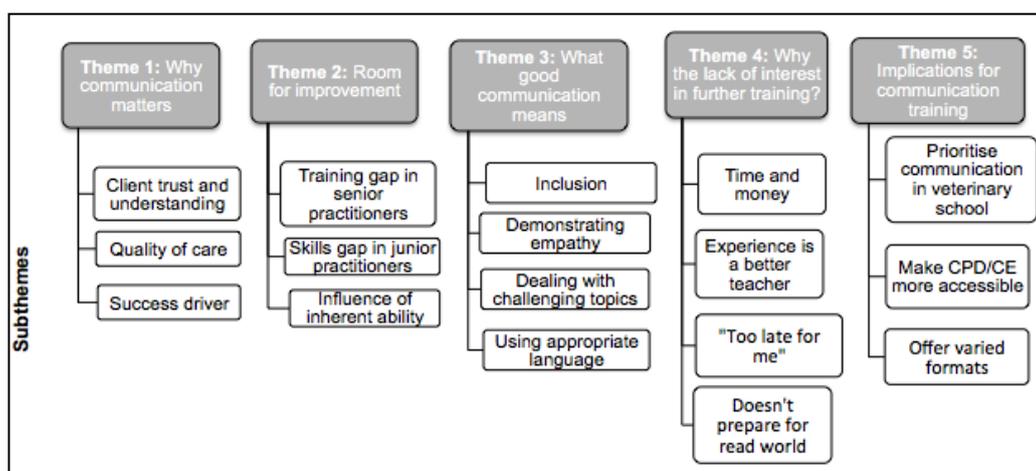
4.3.2.1 Theme 1 – Why communication matters

Respondents described reasons why they considered communication skills equal in importance to or more important than clinical knowledge. Building client trust and understanding and encouraging client participation in health management were felt to depend largely on effective communication.

4.3.2.1.1   Client trust and understanding

Good communication was credited for engendering trust among clients, which is essential for optimising client relationships, understanding and compliance, and patient care.

As one respondent said:

> *"The client has to feel confident and sure that you know what you are doing in order for them to follow your instructions (treatment, revisits etc.)" (Female practitioner, age 55, UK)*

> *"I've seen poor clinicians [who] are loved by their clients due to communication skills alone." (Female practitioner, age 57, USA)*

The opposite can happen when communication is poor:

> *"Lack of communication is the number one reason clients are unhappy with their veterinarian." (Male practitioner, age 66, USA)*

4.3.2.1.2   Quality of care

Effective communication was believed to play a role in ensuring the best care for the patient. For example:

"[Communication helps in] being our patients' advocate, not being worried or afraid of offering the best that one can offer for the patient." (Female practitioner, age 59, USA)

"Better communicators ultimately provide better patient care, leading to more successful clinical outcomes." (Male practitioner, age 58, USA)

4.3.2.1.3   A driver of success

Successful communication was also cited as a positive contributor to personal and practice success as well as to self-esteem and job satisfaction:

"The ability to explain things and interact with all different types of people can mean a huge difference in your overall success and fulfillment." (Female practitioner, age 50, USA)

"It's the single biggest factor (along with caring and an acceptable level of competence) in being a decent vet. [You] cannot do your job without it." (Female practitioner, age 41, UK)

4.3.2.2 Theme 2: Room for Improvement

As mentioned in above Section 3.3.8 and in the published study, (McDermott et al., 2015) only 35% of respondents felt the communication training they received in

veterinary school prepared them "well" or "very well" for communicating with clients. Results from the current study suggest this may be due to a combination of the amount and type of training received, experience in practice (which can be summarised by the comment "it's difficult to know what one needs to do until one has had to do it"), and individual ability.

4.3.2.2.1   Training gap for senior practitioners

Many veterinary surgeons who graduated before 2000 described communication training as being primarily "on the job," and very limited as part of the veterinary curriculum:

> *"Some communication [related] helpful tips were passed along by*
> *individual teachers. No formal separate class was given as I recall."*
> *(Female practitioner, age 52, USA)*

> *"I learned [communication] by observing vets speaking to clients…"*
> *(Male practitioner, age 54, UK)*

> *"The only real communication skills training I had at college was*
> *obtained during time I spent during vacations at RVC field station on*
> *a one-to-one basis with staff seeing referral cases." (Male*
> *practitioner, age 71, UK)*

4.3.2.2.2   Skills gap for junior practitioners

Several respondents felt that recent graduates, despite being more likely to have had communication training in veterinary school, were deficient in communication skills.

"We have had 12-15 vets in our practice over the last 30 years. We have hired veterinarians from most of the USA universities and the biggest problem all new graduates have is communicating with the clients and building their trust." (Male practitioner, age 69, USA)

"I'm always surprised at the variation in communication skills in young graduates – from excellent to woeful." (Male practitioner, age 68, UK)

"I am concerned that the Y Generation [is] too technological, not able to communicate face to face." (Male practitioner, age 60, USA)

4.3.2.2.3   Influence of individual ability

Other respondents suggested that communication is a skill that may be developed more easily in some than others, depending on individual ability:

"Communication skills can be learned to some degree, but it's been my experience through the years that certain people are naturally better with communication than others and with some, training doesn't improve skills that much." (Female practitioner, age 68, USA).

"[Communication is] a learned skill, one difficult to actually teach. You must inherently ENJOY talking with people." (Female practitioner, age 61, USA; [emphasis in the original]).

4.3.2.3 Theme 3: What good communication means

Responses to questions about the relative importance of communication and how to overcome the challenges of communicating with clients provide an understanding of what constitutes "good communication" in veterinary practice.

4.3.2.3.1 Inclusion

Ensuring the presence and agreement of all stakeholders and involving the animal in the communication dynamic were cited as important:

> *"[Make] sure all involved family members hear your explanations, not just the one that brings the pet, especially when someone else is paying the bill." (Female practitioner, age 62, USA)*

> *"Animals behave better when you spend some time communicating with them and their owners and in some cases, show their symptoms better" (Female practitioner, age 55, UK)*

4.3.2.3.2 Demonstrating empathy

Empathy was felt to be critically important in communicating with clients:

> *"In situations where clients are very upset (e.g. in emergency clinic/euthanasia consults), communicating well with the clients can make a huge difference. They prefer to deal with a vet who has a good rapport with [them] and can show empathy and be sympathetic whilst remaining professional." (Female practitioner, age 37, UK)*

4.3.2.3.3 Dealing with challenging topics

Respondents described common and difficult communication challenges in veterinary practice including delivering difficult news, countering misinformation, and explaining costs:

> *"[Communication is essential for] digging yourself out of a hole explaining why/how a procedure went wrong and avoiding litigation and still keeping the client." (Male practitioner, age 46, UK)*

> *[Another communication challenge is] "Having to overcome what clients read on the Internet or information given to the client by a breeder." (Female practitioner, age 33, USA)*

> *"I think that managing client expectations, clear explanations of options and costs, frequent communications if a patient is hospitalised, compassion and working with the client to establish the approach most suited to them is key to my job." (Female practitioner, age 36, UK)*

4.3.2.3.4 Using appropriate language

Veterinary surgeons must speak with clients who have different levels of knowledge, a challenge that is faced on a regular basis:

> *"Many people have no scientific or medical background and these clients need to be treated differently to those who have some basic medical knowledge." (Male practitioner, age 57, UK)*

4.3.2.4 Theme 4: Why the lack of interest in further training?

While no specific question asked why a respondent was not interested in further postgraduate communication training, free text comments revealed some of the possible reasons.

4.3.2.4.1   Time and money

Among the factors standing in the way of participation in postgraduate communication training are time and financial limitations and support of employers.

> *"[My] boss is unlikely to see need for communication skills training and therefore unlikely to pay for it or allow time off." (Female practitioner, age 45, UK)*

> *"Communication training takes time, which is very limited." (Male practitioner, age 56, UK)*

4.3.2.4.2   Experience is a better teacher

Many suggested that communication skills training was not a substitute for the practical experience gained in practice.

> *"In my opinion, the best way of improving communication skills is by experience." (Female practitioner, age 25, UK)*

> *"Training is not as effective as actually talking to clients and dealing with problems." (Male practitioner, age 26, USA)*

4.3.2.4.3 "Too late for me"

Several of the more senior and experienced respondents supported the concept of training students and younger practitioners but felt the opportunity to learn themselves may have passed.

> *"At my age communication skills training is probably too little too late! It is essential for new graduates. I learnt my own style from my own mistakes." (Male practitioner, age 61, UK)*

> *"It is certainly important for new graduates but too late for me now." (Female practitioner, age 61, UK)*

> *"I think you learn a lot on the job and for someone who like me [who has] been working for 25 years; we probably wouldn't gain much from it." (Female practitioner, age 49, UK)*

4.3.2.4.4 Does not prepare for real world

Some comments suggested that communication training does not prepare veterinary surgeons for "real life" practice.

> *"There needs to be more about how to deal with different types of clients and less emphasis on situation…" (Female practitioner, age 30, UK)*

> *"Training doesn't prepare you for the angry/offensive client, those who you have to have difficult money conversations with, and those who will not control their children - these are the more common problems in our area." (Male practitioner, age 28, UK)*

4.3.2.5   Theme 5: Implications for communication training

Respondents shared recommendations for undergraduate and postgraduate curriculum planning and delivery.

4.3.2.5.1   Prioritise communication in veterinary school

Many respondents suggested that greater effort be devoted to communication training during veterinary school, beginning with the screening of applicants:

> *"[Introduce] pre-selection for communication skills when considering vet school applicants." (Male practitioner, age 65, USA)*

> *"Communication skills should be incorporated into clinical years at university." (Male practitioner, age 62, UK)*

> *"I wish that we had such training when at university – I have had to learn the hard way and have felt very unprepared for many situations especially early in my career." (Male practitioner, age 52, UK)*

4.3.2.5.2   Make CPD/CE more accessible

In order to make training more beneficial to all practitioners (and perhaps address the contention that some can be taught better than others), some suggested it should be tailored to participants' personalities and inherent communication ability, as well as to the most significant needs and challenges:

"It has been said that 75% of veterinarians are introverts. Learning how we process information and what our strengths are, helps more to develop communication needs than anything else." (Male practitioner, age 68, USA)

"As it doesn't come naturally to me, ongoing effort and training is necessary to maintain and improve communication skills." (Male practitioner, age 42, UK)

4.3.2.5.3 Offer different formats

People learn in different ways, and there was variety in preference for training format. Some preferred lectures, both because of the familiarity of the format and the benefit of hearing from and seeing experts:

"You see what the speaker is talking about, as body language is as important as the words themselves." (Male practitioner, age 60, USA)

Online training was preferred for its convenience and flexibility:

"Very hard to fit CPD around current family/work commitments; [I] find that online training allows me to fit it around the rest of my life." (Female practitioner, age 34, UK)

Simulated consultations were felt to be most similar to actual practice:

> *"It is the most effective way of identifying pitfalls in communication which occur in real-life situations and analysing how to avoid them/deal with them." (Female practitioner, age 25, UK)*

The majority of respondents indicated a preference for a combination of communication formats, as one noted:

> *"[You] need a combination of theory of how to deal with clients and practical to see how you perform." (Male practitioner, age 35, UK)*

4.4   Discussion

Our study confirms the work of previous authors who have established the case for communication being a core clinical skill for veterinary practitioners (Hamood et al., 2014, Kogan et al., 2004, McDermott et al., 2015, Shaw, 2006).

Our study also identified hallmarks of effective communication, including involving the client, demonstrating empathy, preparing for and dealing with challenging topics (e.g., cost), and using language appropriate to each client's level of understanding. These are consistent with the work of previous researchers that has helped form the basis for current veterinary communication training methods, and should be emphasised in communication training (Abood, 2007, Coe et al., 2010, Cornell and Kopcha, 2007, Dysart et al., 2011, Fogelberg, 2009, Hamood et al., 2014, Kurtz, 2006, McArthur and Fitzgerald, 2013, Mossop et al., 2015, Shaw, 2006).

In pursuing the study aims of investigating communication training gaps and challenges, motivations for further training, and barriers to further training we were

able to identify a need for improvement in communication ability among practitioners at all levels of experience. This room for improvement has been referenced by others (Bachynsky et al., 2013, McArthur and Fitzgerald, 2013, Severidt, 2010) and this is despite the increased emphasis on communication training in veterinary medicine. In our study, likely reasons for this result include the lack of formal training in senior practitioners, the relative inexperience in practice for more junior veterinary surgeons (they don't know what skills they'll need until the encounter enough communication situations), and individual ability in communicating. The training gap for senior practitioners could be addressed in part by making CPD/CE more relevant to veterinary surgeons of all levels of experience.

The results of our study demonstrate how the perceived value of communication skills training, and participation in this training, could be improved by developing and promoting program content that addresses "real-world" communication challenges, such as cost discussions, dealing with distractions in the exam room, and responding to difficult clients. (It is notable that dealing with clients armed with misinformation from the internet was considered more challenging than discussion of euthanasia.) The skills gap for junior practitioners could be addressed through a combination of increased emphasis on communication during veterinary school and increasing the appeal of, and support for, CPD/CE for younger practitioners. Each of these is covered in further detail in the discussion of Theme 5.

Our findings indicate that the lack of interest in further training (Theme 4) was due in part to lack of time and money. Since some practitioners would apparently welcome further communication training but feel their employers do not support it, we

need to find ways to demonstrate and convince practice owners that time and money invested in building this crucial skill are well spent. One way to do this would be conducting studies to demonstrate the financial benefits of effective communication to a practice (e.g. in client retention and improved compliance). It may also be useful to highlight and further study the benefits of communication skills to the personal and job satisfaction of the veterinary surgeon, which could be important considering current attention being paid to resilience and mental health in the profession (Moffet, 2017). Encouraging practices to include communication in client satisfaction surveys and promoting the benefits of effective communication to client relationships are additional ways to illuminate the value of communication training.

Bringing the training to the practice is an alternative to off-site courses that might facilitate the provision of communication skills for practice owners. After twelve months of one/day per month training sessions onsite in one practice, client-centredness of consultations improved significantly for veterinary surgeons who went through the training (Shaw et al., 2010).

Another barrier to participation in training was the feeling that experience was a better teacher. Though it is likely that the best communication training cannot prepare a practitioner for every communication experience she or he will encounter, it is also likely that learning by experience alone will not support the most complete development of communication competence (Kurtz, 2006). An improved approach would be to combine experience with training during and after veterinary school which encompasses as many of the communication situations encountered in practice as possible (Hamood et al., 2014); this also addresses another source of reluctance; a

feeling that training does not adequately prepare one for the "real world" of client communication.

Communication in veterinary practice is closely intertwined with clinical activities such as diagnostic procedures, physical examinations, and treatments (Everitt et al., 2013). Conversations also include topics that are unique to veterinary medicine with different topics (e.g. euthanasia and cost) presenting particular challenges (Hamood et al., 2014, Shaw and Lagoni, 2007). Communicating with a dog or cat owner is also different from communicating with a horse owner or dairy farmer (Kleen et al., 2011, Moreau, 2012). Educators should ensure that training considers the various topics and audiences likely to be encountered by practitioners and the variety of challenges they represent.

The fifth theme identified was "Implications for communication training." The results of this study suggest that communication skills development be addressed in a comprehensive manner. This should begin with the selection of students for veterinary school and the prioritisation of communication throughout the undergraduate curriculum. It should continue with accessible and relevant CPD/CE offerings, so that every practitioner, regardless of personality, learning preference, level of experience, or specific communication need is equipped to communicate with clients through a career in practice (see Figure 4–2). This could also be achieved by incorporating communication skills content into traditional CPD/CE courses, e.g., a course on heart failure, to make sure the veterinary surgeon is properly equipped to deliver important messages the owner needs to hear. Nontechnical skills are considered important for veterinary practitioners (Rhind et al., 2011) and have been recommended for

incorporation in veterinary CPD (Lloyd, 2007). To broaden the accessibility of communication training in CPD, communication content could be included in comprehensive nontechnical skills training (Kinnison and May, 2017, Lloyd, 2007).

Figure 4–2: Lifelong learning in veterinary communication

Application
- Assess communication ability as part of applicant evaluation

Veterinary undergraduate school
- Emphasise communication training early and continue throughout curriculum
- Integrate communication with clinical subject matter
- Including teaching on hallmarks and challenges of effective communication

Post-graduation
- Offer training in a variety of formats
- Tailor subject matter to participant needs and interests
- Encourage practice owners to support training

During the veterinary school recruitment process, interviews could include assessment of communication ability. This is already done in some veterinary and medical schools (Conlon et al., 2012, Hecker et al., 2009, Hudson et al., 2009). Once accepted into veterinary school, students should receive early reinforcement of the importance of communication skills. (Burns et al., 2015, Chun et al., 2009). This emphasis should be maintained throughout the undergraduate curriculum, and our study suggests some specific ways in which this could be done. Communication skills assessment should be done throughout the veterinary undergraduate curriculum, based on the assumption that "assessment drives learning" (Rösch et al., 2014).

Communication training should be interwoven with the teaching of clinical skills in the veterinary curriculum. This was done recently at Texas A&M University, by combining physiologic concepts, clinical application, and communication with clients about the concepts in a physiology course assignment (Washburn et al., 2016). An online module about conducting a surgical procedure could include instruction on how to communicate with the client about the procedure and post-surgical follow-up (Mossop et al., 2015), Implementing or expanding the use of simulated consultations (Adams and Ladner, 2004, Chun et al., 2009, Radford et al., 2003), and peer-assisted learning (PAL) including peer- and/or instructor assessment could also improve preparation for communication situations students will encounter in practice (Epstein, 2007, Strand et al., 2013).

Our findings and recommendations are consistent with and build on those of other researchers who have studied learning preferences and motivations and barriers to participating in CPD/CE (Dale et al., 2010, Moore et al., 2000, Neel and Grindem, 2010). CPD/CE may be made more accessible in part by accommodating the learning styles and preferences of practitioners (e.g. by offering training in varied formats or by incorporating it into other more traditional courses), and by addressing the most pertinent topics at each stage in a veterinary surgeon's career (Dale et al., 2013, Lloyd and Walsh, 2002).

Digital technologies have greatly expanded the number of ways in which to receive information. Broadening the range of training formats available to practitioners, including, in addition to live offsite and practice-based training, web-accessed training modules (de Almeida and Agnoletti, 2015), online professional communities (Baillie

et al., 2011), digital games and simulators (de Bie and Lipman, 2012), training apps (Frankel, 2014) and recorded programming (e.g. podcasts) (Sandars, 2009) could also make communication CPD/CE more practical, affordable, and relevant.

4.5   Limitations of the study

While this study helped further define what good communication can offer the practice of veterinary medicine and how it may be more completely incorporated into veterinary learning, there were some limitations. The lower response rate from USA– compared to UK practitioners makes drawing conclusions from this audience less reliable as a representation of the practitioner community in the USA.

There are also limitations in using surveys for research of this nature. Survey data usually provide less detail than interviews, which are the most common data collection method for qualitative research (Braun and Clarke, 2006, Braun and Clarke, 2013). Unlike interviews, surveys do not permit the research to develop rapport and to ask follow-up questions, which can enhance the understanding of a topic and questions may be misunderstood or misinterpreted (Braun and Clarke, 2006, Braun and Clarke, 2013).

As data were pooled and quotes representative of the themes and subthemes were chosen by the researchers, they may not have elucidated the implications of the themes in the same way that other quotes, if chosen, would have. Given the length of the statements, many of which were extensive, they did not lend themselves to other methods of analysis.

Though we used a collaborative coding method to increase rigor in interpreting the themes from the data, intercoder/interrater reliability calculation is being employed increasingly to ensure the reliability of qualitative analysis (Vaismoradi et al., 2013).

In this study, most free-text comments were made by more senior practitioners. This might have skewed the overall results, particularly regarding the state of communication skills and communication challenges faced by younger practitioners. Finally, in the words of some respondents, asking about the importance of communication in communication situations could be viewed as somewhat circular. It may be that asking the questions in other ways (e.g. by asking practitioners what specific communication skills were most important when dealing with difficult topics rather than whether communication is important) could have better identified and illuminated some of the key issues and topics in the study.

4.6   Conclusions

Communication training is a valuable pursuit that should begin from the earliest days of veterinary school and continue through a lifetime in practice. While this is widely recognised, it has not been fully reflected by the emphasis on communication in undergraduate curricula or the willingness of practitioners to participate in postgraduate communication training. Our findings indicate that further work should be done to align communication training with individual needs and abilities, and to build on the communication-training framework that has been developed in recent years.

Making communication an integral part of all undergraduate and postgraduate training will help ensure that more practitioners have the opportunity to improve this

essential clinical skill. Future studies should address equipping veterinary practitioners for the variety of communication situations and challenges they face. Ongoing dedication to this aspect of veterinary decision making/practice however will yield significant and lasting benefits to the veterinary profession and the clients and patients it serves.

5   Veterinary Consultation Study

5.1   Introduction

While there has been a growing body of research focused on veterinary communication skills and what effective communication means, (Bard et al., 2017, Kanji et al., 2012, Shaw et al., 2004a, Shaw et al., 2012) there has been relatively little research done on the impact of "client/relationship-centred communication" on client satisfaction and willingness to follow management recommendations. Other factors, such as complexity or alignment with currently taught communication models, have not been studied for their influence on communication and its outcomes.

Client-centredness in a veterinary consultation involves a sharing of dialogue and decision-making between the veterinary surgeon and client (Cornell and Kopcha, 2007). This is achieved in part through the use of open questions, active listening, making eye contact, inviting the client's thoughts and opinions, and showing empathy and understanding of the client's perspective (Abood, 2007, Cornell and Kopcha, 2007, Shaw, 2006). Client-centred dialogue is generally accepted as the model for effective veterinary surgeon-client communication (Gray et al., 2006) and presently taught in veterinary schools and in continuing professional development (CPD) (Burns et al., 2015, Mossop and Gray, 2008, Mossop et al., 2015, Shaw and Ihle, 2006).

In a recent study (Bard et al., 2017), role-play interactions between 15 United Kingdom (UK) cattle veterinary surgeons and an actress playing the role of a dairy farmer were analysed for elements of communication. The authors found that the veterinary surgeons used a primarily directive style, eliciting relatively few client

opinions and used relatively little communication characterising empathy, collaboration, or motivation. As these three elements have all been associated with client/relationship-centred communication (Mellanby et al., 2011, Shaw, 2006, Shaw, 2013), according to the findings of this study, at least, some veterinary surgeons may have not fully incorporated them into their communicative approaches.

Client satisfaction relates to the client's trust in the skill and recommendations of the veterinary surgeon and assurance that he or she is doing the best for the health of the animal (Grand et al., 2013). It can be influenced by communication skills, including the client-centredness of the dialogue, the type of consultation (wellness versus problem-related) the provision of appropriate information by the veterinary surgeon, and even the self-confidence and self-esteem of the veterinary surgeon (Coe et al., 2008, Shaw et al., 2012). Maintaining client satisfaction can mean longer-lasting client relationships, greater adherence to veterinary surgeon recommendations (Abood, 2007), and greater job satisfaction for the veterinary surgeon (Mellanby et al., 2011).

There are additional aspects of the veterinary consultation that affect the execution of a consultation and could impact its quality and results. One of these is the way a consultation is structured. In the mid nineteen-nineties, the Calgary-Cambridge Consultation Model was introduced to medical communication (Kurtz and Silverman, 1996). The Model, and its corresponding guides, structures the consultation from establishing rapport through forward planning and have been adapted to a veterinary context (Radford et al., 2006). The Calgary-Cambridge Model is the model that has been most widely adopted by medical and veterinary schools for communication

training. Another model, The Patient-centred Clinical Method, was developed in the 1980s. It describes the consultation in the contexts of "Disease" (Physician's perspective), and "Illness" (Patient's perspective) (Levenstein et al., 1986). Other consultation models are The Seque Model (Makoul, 2001b), and The Model of the Macy Initiative in Health Communication (Kalet et al., 2004). Communication models, used in training, are designed to encourage an interactive dialogue between the healthcare provider and patient or caregiver that ensures a complete and collaborative exchange of information about the patient's (or in the case of veterinary medicine, the client's) health concerns.

It was in the interest of gaining an improved understanding of the interrelationships between the aspects of the veterinary consultation that impact the dialogue between the veterinary surgeon and client that this study was conducted. The hope was that the additional learnings would provide valuable insights to those researching veterinary communication and those participating in and delivering veterinary communication skills training.

5.2 Aims

The first aim of this study was to describe a convenience sample of veterinary consultations in the United Kingdom (UK) and the United States of America (USA) in terms of:

- their scientific complexity (Robinson et al., 2015),

- their degree of alignment with two current consultation models (The Calgary-Cambridge Consultation Model (Radford et al., 2006) and The Patient-Centred Clinical Method Model (Levenstein et al., 1986),

- their proportion of "Medical" versus "Lifeworld" dialogue (Mishler, 1984),

- their client-centredness using the VR-COPE assessment (Del Piccolo et al., 2008), and,

- the degree of client satisfaction following each consultation (Coe et al., 2010),

The second aim of this study was to identify aspects of the consultation that may influence or correlate with client satisfaction and/or client-centredness. A third was to compare characteristics of consultations in the UK to those in the USA to identify differences and similarities (e.g. practice types, consultation structure, role of the veterinary technician or veterinary nurse, scheduling of appointments, etc., as well as differences between the data recorded from each country for elements studied). Describing the differences found could help shed light on the findings of the current study and generate hypotheses for future research.

5.3   Objectives

To meet the aims of this study, the objectives were to:

- videotape 50 veterinary consultations in small animal practice, 25 in the UK and 25 in the USA,

- analyse the videotaped consultations for complexity (Robinson et al., 2015), alignment with the Calgary-Cambridge and Patient-Centred Clinical Method consultation models (Levenstein et al., 1986, Kurtz and Silverman, 1996), proportion of "Medical" versus "Lifeworld" content (Mishler, 1984), and client-centredness (Del Piccolo et al., 2008),

- request all clients to complete a post-consultation client satisfaction survey (Coe et al., 2010).

5.4   Methods

This study was granted Ethical Approval by the University of Nottingham School of Veterinary Medicine and Science (Ethical Review Number 891 130612).

The research was done in two phases:

1.   A pilot study to test feasibility of data collection and utility of the study tools, conducted in two veterinary practices on 13 June 2013 in the UK and on 13 August 2013 in the USA, respectively.

2.   The main study, conducted in five practices from 20 October 2014 through 24 October 2014 in the UK and in five practices from 24 November 2014 through 22 June 2015 in the USA. The pilot study informed the data

collection methods for the main study, and changes applied after the pilot study are explained in relevant sections of the main study methods. Analysis of the components outlined in the objectives was undertaken from July 2015 through July 2017, on the data recorded in the main study only (with the exception of an inter-rater analysis of client-centredness data from the pilot) after data collection was completed.

5.4.1 Pilot Study

5.4.1.1 Practices

A convenience sample of one practice in the UK and one practice in the USA was selected for the pilot study.

5.4.1.2 Practice recruitment

The UK pilot practice was contacted by phone by the researcher's (MMcD) supervisor (RD) who followed up with a visit in person to secure willingness to participate. The US practice was contacted by phone by a business colleague of the researcher (a key account manager of Novartis Animal Health, Inc., USA (NAH-USA), of whom the practice was a customer) to solicit permission to participate. A written description of the study and sample consent forms (see Figure 5–1) were delivered in person to the UK practice and sent by email to the USA practice for the practice owners to review. Practice owners were asked to identify veterinary surgeons in their practices to participate in the study and invite to participate, which they agreed to do. Once

permission was granted, a date was scheduled with each practice for conducting the pilot study.

5.4.1.3 Planning of the data collection day

In advance of the pilot study day, plans were made as to what cameras to use, what additional equipment (e.g. tripods, chargers) would be needed and how the cameras would be set up and turned on and off. Plans were also made for how the clients would be recruited, and how the client satisfaction survey would be administered. Cameras were tested in advance of the collection day to make sure they were operational and could capture video within a space similar to the consulting rooms in which we would be recording.

Figure 5–1a   Study Description and Consent Forms

Participant Information Sheet

Research Project – Client-Centred Communication 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 Mickey McDermott BSc, MSc, and a PhD student at the University of Nottingham. The aim of this study is to investigate the impact of client-centred communication on client attitudes. (Client-centred communication is characterised by interactive communication that in which the patient plays an equal role in the conversation and client needs are assessed and addressed.) The research is designed to answer the question: Does client-centred communication impact client satisfaction and willingness to follow practitioner recommendations? It is hoped that this study will provide information which will enable both the understanding and development of communication principles that will enhance client satisfaction and adherence to treatment and health management recommendations.

The research will use video recordings of actual consultations to assess degree of client-centeredness, using a validated analysis tool. In order to take part veterinary surgeons will need to agree to the video recording of consultations and, with the agreement of the client, to have the researchers conduct a brief interview with each client regarding his or her impressions of the consultation. These interviews will be audio recorded to ensure that all responses are captured completely and correctly. 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 Mickey McDermott (svxmm@nottingham.ac.uk) to arrange a mutually convenient time for him to visit the practice.

Figure 5-1b   Study Description and Consent Forms

Mickey McDermott BSc, MSc

<div align="center">

PARTICIPANT CONSENT FORM – Client

University of Nottingham

</div>

Project title: Client-Centred Communication in Veterinary Practice

……………………………………………………………………………………………

Researcher's name ………Mickey McDermott (svxmm@nottingham.ac.uk +1 917 975 3024)

Supervisor's name ……Professor* Rachel Dean (rachel.dean@nottingham.ac.uk +44 (0)115 951 6575)

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 ....

(*Should be Doctor Rachel Dean; was miswritten on form)

Figure 5-1c   Study Description and Consent Forms

PARTICIPANT CONSENT FORM – Veterinarian

University of Nottingham

Project title: Client-Centred Communication in Veterinary Practice

....

Researcher's name ....Mickey McDermott (svxmm@nottingham.ac.uk +1 917 975 3024)

....

Supervisor's name ... Professor* Rachel Dean (rachel.dean@nottingham.ac.uk +44 (0)115 951 6575)

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 ....

(*Should be Doctor Rachel Dean; was miswritten on form)

5.4.1.4 Client recruitment

The researcher asked clients of the pilot study practices at the time of their arrival for their appointments if they were willing to participate in the study. The focus and purpose of the study was explained in a written description of the study they were given and verbally, including that the consultation would be videotaped and they were required to complete a post-consultation survey aimed at assessing their satisfaction with the consultation.

5.4.1.5 Consent

Each veterinary surgeon who had agreed to participate was given a study description and consent form (Figure 5–1 a and c) by the researcher to review and complete before the first consultation was videotaped. They were required to sign the paperwork before the first consultation was recorded. Similarly, clients identified for the pilot study were given study description and consent forms (Figure 5–1a and b) to sign before the consultation was videotaped.

5.4.1.6 Video-recording

The video-recording methodology was informed by a previous study done by Everitt et al. (2013) in which veterinary consultations were video-recorded in a similar manner.

The researcher arrived before the first consultation at each practice, accompanied by a supervisor (RD) for the UK pilot and the colleague who had introduced the researcher to the practice for the USA pilot. On each pilot day, two video cameras were set up on tripods in the consulting room and positioned to allow for the most complete

capture of activity between the veterinary surgeon, client(s), and animal(s). For the UK, two camcorders from the video department of the University of Nottingham School of Veterinary Medicine and Science (SVMS) and for the USA, two camcorders from the communications department of NAH-USA, (the researcher's employer at the time of the pilot) were used. The cameras were tested in the consulting room before the first consultation to ensure the video could be captured with minimal risk of the veterinary surgeon, client(s) and/or animal(s) blocking the view.

Two consultations were recorded in succession in the UK– and USA pilot practices. The cameras were turned on at the beginning of the first consultation and turned off at the end of the second consultation in each location by the researcher. Video recordings were made of the entire consultations and stored temporarily on the hard drives of the cameras.

Following each pilot day, the consultation videos were uploaded to a laptop computer owned by the researcher. For the UK pilot, a computer from the SVMS was used to download the video via AV cable in real time. Then the video files were transferred again to the researcher's laptop computer and edited into separate video files; a process necessary because of the technology of the camera. For the USA pilot, the videos were transferred by AV cable directly into the researcher's computer using Apple iMovie, and separate files were saved for each consultation.

5.4.1.7 Client satisfaction survey

The client satisfaction survey was piloted in order to assess the practicality of administering the client satisfaction survey after a consultation amidst the activity of a busy practice. After having agreed to complete the survey upon arrival, a blank client satisfaction questionnaire (see Figure 5–2) was given to each pilot study client as he or she emerged from the consultation by the researcher. The clients completed the survey on their own, with the researcher standing by to answer any queries about the study/survey. In the UK pilot practice the survey was handed back to the researcher after completion. In the USA pilot practice, the clients returned their surveys to a box at the reception desk with a slot cut into the top of it. This was done, to see if making the survey process as private as possible would increase willingness to complete the survey in its entirety or to answer the questions more objectively.

The client satisfaction tool was previously validated by researchers at Ontario Veterinary College (Coe et al., 2010). It contained 15 questions about different aspects of the consultation (e.g. amount of time spent with the client and pet, understanding of costs, the veterinary surgeon's recognition of client concerns) and four questions regarding willingness to follow the veterinary surgeon's recommendations were added by the researcher. Questions were scored from "1" to "6," with 1 meaning "Poor" and 6 meaning "Couldn't be better." The highest possible score was 114/114.

Figure 5–2   Client Satisfaction Questionnaire

Client Satisfaction Survey

We'd like your impressions...
Regarding Your Veterinary Hospital Visit

This survey asks you to respond to a series of questions about the visit you've just completed with your pet and your veterinarian. The answers will be used as part of a postgraduate research project at The University of Nottingham School of Veterinary Medicine and Science/Centre for Evidence-based Veterinary Medicine, about communication between veterinarian surgeons and pet owners. Results of the study will be used to develop insights into what aspects of communication most influence pet owner satisfaction and understanding.

If you would like to take part in this survey, we would be very grateful if you would take a few minutes to score the following aspects of the survey below, according to your impressions of the visit. Your answers will be kept completely confidential, as will your personal information, including your name and that of your pet. Thank you very much for your time.

Part I: Please score the following aspects of your visit on a scale of **1 to 6**, where **1** represents "poor, or least favourable," **2** represents "Fair," **3** represents "good," **4** represents "very good," **5** represents "excellent," and **6** represents "could not be better."

	1	2	3	4	5	6
	Poor	Fair	Good	Very Good	Excellent	Couldn't Be Better
a. Amount of time the veterinarian gave your pet	☐	☐	☐	☐	☐	☐
b. How well the vet understood the reason for your visit	☐	☐	☐	☐	☐	☐
c. The vet's confidence interacting with you and your pet	☐	☐	☐	☐	☐	☐
d. How well the vet involved you in the appointment	☐	☐	☐	☐	☐	☐
e. The veterinarian's examination of your pet	☐	☐	☐	☐	☐	☐
f. How well the vet explained the diagnostic process	☐	☐	☐	☐	☐	☐
g. How well the vet explained treatments and procedures	☐	☐	☐	☐	☐	☐
h. How well you understood the costs today	☐	☐	☐	☐	☐	☐
i. The vet's discussion of options with you	☐	☐	☐	☐	☐	☐
j. The vet's discussion of costs with you	☐	☐	☐	☐	☐	☐

(Please complete reverse side as well)

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Impressions of your veterinary hospital visit, page 2

	1	2	3	4	5	6
	Poor	Fair	Good	Very Good	Excellent	Couldn't Be Better
k. The interest the veterinarian expressed in your opinion	☐	☐	☐	☐	☐	☐
l. The amount of information you received from the veterinarian	☐	☐	☐	☐	☐	☐
m. How well the veterinarian addressed all of your concerns	☐	☐	☐	☐	☐	☐
n. The vet's recognition of the role this pet has in your life	☐	☐	☐	☐	☐	☐
o. The amount of time the vet spent with you and your pet	☐	☐	☐	☐	☐	☐

Part II: Please indicate your willingness to the following recommendations your veterinary surgeon made during today's visit, where **1** represents "not at all likely," **2** represents "most likely not," **3** represents "somewhat unlikely," **4** represents "somewhat likely," **5** represents "most likely," and **6** represents "definitely." Please mark the square for "**Not Applicable**" where no such recommendation was made.

	1	2	3	4	5	6	
	Not at all Likely	Most likely	Some-what	Some-what unlikely	Most likely not	Definitely not likely	Not Applicable
a. Further diagnostic tests	☐	☐	☐	☐	☐	☐	☐
b. Recommended treatment(s)	☐	☐	☐	☐	☐	☐	☐
c. Follow up visit(s)	☐	☐	☐	☐	☐	☐	☐
d. Other (please describe below)	☐	☐	☐	☐	☐	☐	☐

Thank you very much for agreeing to participate in the study

Note: If you would be willing to contacted for a brief follow-up interview in a few weeks, please write your name, phone number and/or email address in the space below. It will only take 3-5 minutes and, your name and that of your pet will be held in strict confidence and not shared with anyone.

Name_____   Telephone
_____

E-Mail address_____

5.4.2 Main study

For each practice in the main study it was decided that the study would be completed in one working day. All recordings would be completed on that day and the clients would be asked to complete the client satisfaction forms immediately following their consultations. There was no provision to return the forms after they have left the practice. The day of data collection was agreed between the researcher and the practice and was always a weekday and with routine consultations (no emergency or euthanasia consultations) during normal consultation hours.

5.4.2.1 Practices

A convenience sample of 10 veterinary practices, five practices in the UK and five in the USA, was selected for this study.

5.4.2.2 Practice recruitment

Practices for the UK portion of the main study were recruited from the network of practices with whom the Centre for Evidence-based Veterinary Medicine (CEVM) had previously worked on research– and academic initiatives. The USA practices were recruited from among the participants in the veterinary communication skills survey (Chapters 3 and 4) who had opted in to provide their contact details for potential participation in additional research, or from the researcher's network of contacts (personal acquaintances or customers recommended by colleagues of the researcher from the sales team of NAH-USA).

The practices were contacted by phone, email, or in person with the practice owner/ partner or one of the veterinary surgeons working at the practice. In the UK, the contact was made by one of the supervisors, RD, director of CEVM. In the USA contact was made by email or phone by the researcher. The planned methodology of the study (setting the consulting rooms for video-recording, reviewing the process with participating veterinary surgeons and staff members, recruiting clients, turning cameras on and off, and administering the post-consultation survey) was explained by one of the supervisors (RD) for the UK practices and by the researcher for the USA practices. The practices were also provided with the written study description and blank consent forms for veterinary surgeons and clients to review (in person by the supervisor (RD) in the UK or by email from the researcher in the USA). The researcher or supervisor directly addressed any queries or concerns raised by participants.

It was made clear that the intention was not to interfere with the running of the practice. It was re-emphasised that the clients and veterinary surgeons would be required to sign consent forms prior to participating in the study, a camera would be present, and clients would need to complete a client satisfaction study after the consultation. It was stated that the vets could switch the camera off if they thought it appropriate and no euthanasia or critical care consultations should be included. Any client or veterinary surgeon who did not wish to be involved in the study would be excluded from the study and assured that their consultations would not be video-recorded. It was agreed that consultations would be recorded in each practice in a consecutive fashion if clients agreed to participate. If a client refused, then the next available client would be asked.

5.4.2.3 Planning of the data collection day

The method of data collection used for the pilot study was deemed feasible and appropriate for the main study with some adjustments. The adjustments were optimising the positioning of the camera to make sure they could capture video within the space of the examination room and eliminating the box for collecting the completed client satisfaction questionnaires, as this had no apparent effect on the client responses. In advance of each day at each practice, plans were made as to what cameras to use, what additional equipment (e.g. tripods, chargers) would be needed, how the cameras would be set up and turned on and off before and after video-recording the consultations, how the clients would be recruited, and how the client satisfaction survey would be administered. Cameras were also tested in advance of the collection day to make sure they were operational.

5.4.2.4 Client recruitment

The methods used for client recruitment in the pilot study were deemed feasible and appropriate for the main study. The only aspect that varied was that in one of the five UK practices and in one of the five USA practices, a practice employee behind the reception desk recruited the client. In all other cases the researcher directly asked the clients if they would be willing to participate in the study.

5.4.2.5 Consent

It was determined that the methods for obtaining consent in the pilot study were feasible and appropriate for the main study. Each veterinary surgeon who had agreed to

participate was given a study description and consent form by the researcher to review and complete upon arrival at the practice, which they signed before the first consultation. Similarly, clients identified for the main study were given consent forms by the researcher to review, and in the case of the consent form, to sign, upon their arrival before the consultation was videotaped.

5.4.2.6 Video Recording

As a result of the pilot study, it was determined that cameras with sufficient memory to record a full day of consultation and the ability to transfer video data more easily to a computer were needed for the main study. It was also agreed that given the variety of layouts and dimensions we could expect with a wide range of practices in two countries, we also needed to come prepared to set up the cameras in a number of different viewing positions. For these reasons, two new video cameras (Canon Legria HF R606) with sufficient storage capacity and with the capability to transfer video data via AV cable to a computer in one step, two full-sized tripods, and one mini-tripod were purchased.

On each day of video recording, the researcher (and in the case of the UK practices, a colleague from CEVM or a supervisor, RD or MC) arrived before the first consultation at each practice. After discussing the plans for the day with the participating veterinary surgeons and staff members, the two video cameras were set up. Cameras were situated on tripods or on an appropriate surface (such as a shelf) in the consulting room before the first consultation to allow for the most complete capture of activity between the veterinary surgeon, client(s), and animal(s). As in the pilot study, we tested the cameras in each consulting room before the first consultation to

ensure the views to be captured were optimal. Photos of the camera set-up procedure are in Figure 5–3.

For the first practice in the UK, the cameras were turned on before the first consultation and turned off at the end of the last consultation, as was done in the pilot studies. This resulted in the last two consultations of the session not being recorded due to the camera batteries running out. For subsequent study days, the cameras were turned on before the beginning consultation and turned off at the end of each consultation by the researcher, unless the next consultation followed in quick succession. When possible, the cameras were plugged in to a wall power outlet, to prevent the batteries from running out before the end of the session. Video recordings were made of the entire consultations and stored temporarily on the hard drives of the cameras. Following each day of recording, the consultation videos were downloaded by the researcher onto a secured laptop computer with backups files copied onto an external hard-drive attached.

Figure 5–3   Camera set-up

a. Still shot of camera placement in consulting room
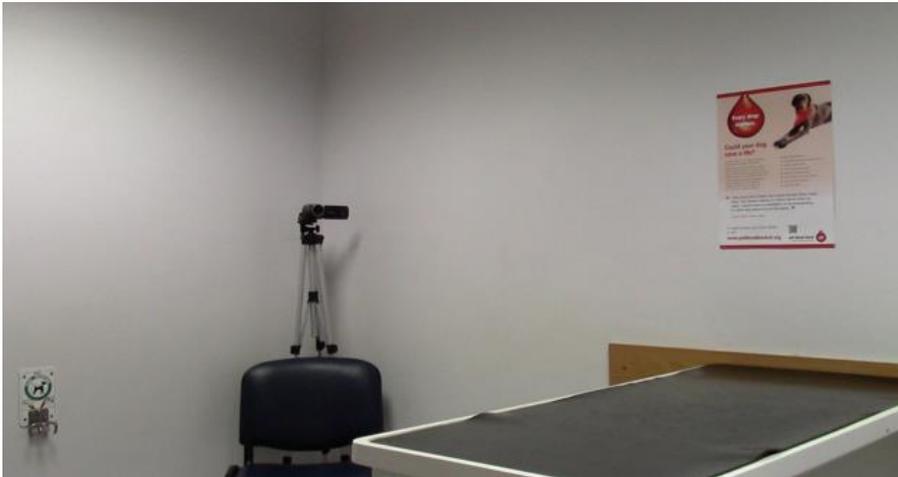
b. Still shots of camera being set up

5.4.2.7 Client satisfaction survey

After having agreed to complete the survey upon arrival, a blank client satisfaction questionnaire (see Figure 5–2) was given to each client as he or she emerged from the consultation. Clients completed the survey on their own, and the researcher stood nearby ready to answer any questions the client may have had. In all practices but one UK practice, where the survey was returned to a member of staff at the reception desk, the survey was handed directly back to the researcher.

5.4.3 Data recording, coding and analysis

The process for data collection, recording and coding for each aspect of the consultation measured is described in the following sections.

5.4.3.1 Practice and consultation coding and time recording

In the main study, each practice and consultation was coded by number (e.g. UK1-1) and that number was used consistently across data sources. This was done to ensure all data would be matched correctly to the corresponding consultation videos. For each consultation, the country, practice number, and duration of the consultation in minutes (using the time marker for the videos) were recorded on an Excel$^{®}$ spreadsheet. The researcher wished to record the length of consultation in order to assess whether there were differences between the UK and USA as well as whether time of consultation had any impact on Client-centredness or Client Satisfaction. The data from the spreadsheet were imported to SPPS$^{®}$ (Version 23) to calculate median, range and IQR for length of consultation for all practices, UK practices, and USA practices. A Mann-Whitney U

test was used to determine whether there was a significant difference (significance at $p < 0.05$) between length of UK– versus USA consultations.

5.4.3.2 Scientific Complexity collection and recording

For describing the consultations, the patient demographics and the scientific complexity of the consultation, a tool developed by Robinson et al. (2015) was used. This tool is a data collection form (see Figure 5–4) that was created in Microsoft Word®. The tool includes the collection of information such as number of animals seen, number of problems discussed, number of tests administered, and number of outcomes, through direct observation of the consultation. N. Robinson (NR) used this tool to watch the video-recorded consultations from both camera angles and recording the data manually on the data collection form. It was decided that NR should do this for consistency, as she was the original researcher who has worked extensively with the tool and therefore has the greatest familiarity with the tool. In addition, unlike the researcher, she is a veterinary clinician herself, so better placed to capture the complex clinical nuances of the consultation. The researcher transferred the handwritten data from the data collection form to an Excel spreadsheet.

Figure 5–4a   Scientific Complexity Data Recording Form

☐☐ / ☐☐ / ☐☐   ☐☐☐   ☐☐☐☐   ☐☐☐☐ / ☐   ☐☐☐   VN Client type ☐ Private
Date (DD/MM/YY)   Practice   Consult. No.   Animal. No.   Vet Initials   ☐ PDSA

Questionnaire

1. Were multiple animals presented? Complete a separate questionnaire for each animal.   ☐ Yes   ☐ No

2. Select the best description of the type of case from the following options:

☐ First Consult	☐ Recheck	☐ Elective Euth	☐ Recurrent	☐ 2nd Op
☐ Ongoing: Acute	☐ Ongoing: Chronic	☐ Monitoring	☐ Prev Med	☐ Admit/Discharge
☐ Other				

3. Which species was presented during the consult?

☐ Dog	☐ Cat	☐ Rabbit	☐ Ferret
☐ Rodent ____	☐ Bird ____	☐ Reptile ____	☐ Other ____

4. What was the animals breed?

Records: _____   Vet: _____   Owner: _____

5. What was the animals age?

Records: ☐☐ ☐☐ ☐ ☐   Vet: ☐☐ ☐☐ ☐ ☐   Owner: ☐☐ ☐☐ ☐ ☐
          Y   M W D   Y   M W D   Y   M W D

6. What was the animals sex including neutering status?

	MN	ME	FN	FE	MU	FU	U
Records:	☐	☐	☐	☐	☐	☐	☐
Vet:	☐	☐	☐	☐	☐	☐	☐
Owner:	☐	☐	☐	☐	☐	☐	☐

7. Was a clinical exam performed?   ☐ Yes: full exam   ☐ Yes: focused exam   ☐ No

If yes, were any abnormalities detected?   ☐ Yes   ☐ No

8. Was the animal weighed during the consultation period?   ☐ Yes   ☐ No

Figure 5–4b   Scientific Complexity Data Collection Form

	Problem 1		Problem 2		Problem 3		Problem 4	
Problem summary/ clinical signs								
Related C.E. findings?	☐ Yes ☐ No ☐ N/A		☐ Yes ☐ No ☐ N/A		☐ Yes ☐ No ☐ N/A		☐ Yes ☐ No ☐ N/A	
Raised by	☐ Owner ☐ Vet ☐ Prompt		☐ Owner ☐ Vet ☐ Prompt		☐ Owner ☐ Vet ☐ Prompt		☐ Owner ☐ Vet ☐ Prompt	
Bodysystem affected	☐ Skin ☐ Neuro ☐ Urin ☐ Repro ☐ Cardio ☐ Resp ☐ Dental ☐ Prev Med	☐ MSK ☐ Eyes ☐ Renal ☐ GI ☐ Haemo ☐ Endo ☐ Non-sp ☐ Behav	☐ Skin ☐ Neuro ☐ Urin ☐ Repro ☐ Cardio ☐ Resp ☐ Dental ☐ Prev Med	☐ MSK ☐ Eyes ☐ Renal ☐ GI ☐ Haemo ☐ Endo ☐ Non-sp ☐ Behav	☐ Skin ☐ Neuro ☐ Urin ☐ Repro ☐ Cardio ☐ Resp ☐ Dental ☐ Prev Med	☐ MSK ☐ Eyes ☐ Renal ☐ GI ☐ Haemo ☐ Endo ☐ Non-sp ☐ Behav	☐ Skin ☐ Neuro ☐ Urin ☐ Repro ☐ Cardio ☐ Resp ☐ Dental ☐ Prev Med	☐ MSK ☐ Eyes ☐ Renal ☐ GI ☐ Haemo ☐ Endo ☐ Non-sp ☐ Behav
Diagnostic tests	☐ In-cons ☐ Post-cons ☐ None		☐ In-cons ☐ Post-cons ☐ None		☐ In-cons ☐ Post-cons ☐ None		☐ In-cons ☐ Post-cons ☐ None	
In Cons								
Post Cons								
Diagnosis	☐ Open ☐ Presumed ☐ Working	☐ Definitive ☐ Prev. Dx. ☐ N/A	☐ Open ☐ Presumed ☐ Working	☐ Definitive ☐ Prev. Dx. ☐ N/A	☐ Open ☐ Presumed ☐ Working	☐ Definitive ☐ Prev. Dx. ☐ N/A	☐ Open ☐ Presumed ☐ Working	☐ Definitive ☐ Prev. Dx. ☐ N/A
Outcome	☐ Nothing ☐ Work up ☐ Euth ☐ Refer	☐ Manage ☐ Ther. Tx ☐ Prop. Tx ☐ Other	☐ Nothing ☐ Work up ☐ Euth ☐ Refer	☐ Manage ☐ Ther. Tx ☐ Prop. Tx ☐ Other	☐ Nothing ☐ Work up ☐ Euth ☐ Refer	☐ Manage ☐ Ther. Tx ☐ Prop. Tx ☐ Other	☐ Nothing ☐ Work up ☐ Euth ☐ Refer	☐ Manage ☐ Ther. Tx ☐ Prop. Tx ☐ Other

5.4.3.3　　　　Complexity data coding and analysis

Categorical and continuous data from the select variables were transferred from the research form (Figure 5–4 a and b) to an Excel spreadsheet and imported into SPSS® (Version 23) for analysis. Only a select number of categorical and continuous variables were chosen for analysis to describe the consultations, as these were believed to have the greatest impact on communication dynamics in a consultation. Categorical data statistics were calculated as whole numbers and percentages for all consultations, UK consultations, and USA consultations. Chi-Square calculations were done to measure differences between UK and USA categorical data (with significance at $p<0.05$). Continuous variable data statistics were calculated as median (because the data were not normally distributed), range, and interquartile range (IQR). Mann-Whitney-U tests were done for all continuous variables to measure differences between UK and USA data (significance at $p<0.05$). All coding and measurements for complexity data are in Table 5–1.

Table 5–1 Complexity Data Coding and analyses					
Item Analysed	**Code (in brackets)**		**Measurements**		**Comparison (UK vs. USA)**
Categorical Variables					
Reason for consult	Preventive medicine (1)	Specific health problem (2)	Number	Percent	Chi-Square Test
Number of animals presented	Single (1)	Multiple (2)	Number	Percent	Chi-Square Test
Type of case	First consult Recheck Elective euthanasia Recurrent 2nd Op On-going: Acute	(1) On-going: Chronic (2) Monitoring (3) Preventive medicine (4) Admit/discharge (5) Other	Number	Percent	Chi-Square Test
Species Presented	a. Dog (1) b. Cat (2)	c. Rabbit (3)	Number	Percent	Chi-Square Test
Continuous Variables					
Number of problems	N/A		Median / Range	IQR	Mann-Whitney U Test
Number of body systems	N/A		Median / Range	IQR	Mann-Whitney U Test
Number of tests	N/A		Median / Range	IQR	Mann-Whitney U Test
Number of diagnoses	N/A		Median / Range	IQR	Mann-Whitney U Test
Number of outcomes	N/A		Median / Range	IQR	Mann-Whitney U Test

5.4.3.4 Video Transcription

Data preparation for the analysis of the consultations for alignment with both consultation models, content analysis and client-centredness began with the researcher reviewing each video-recorded consultation, manually transcribing each consultation and time-coding each segment of dialogue. This was done using Transana (version 3.1), a program that supports the qualitative analysis of text, still images, and videos. Once the transcribing and time coding was done, each dialogue segment was assigned a "Keyword Code" from a list created for each measured element. (For example, in the Calgary Cambridge Model analysis, the Keyword Code for the "Building Rapport" element of the model was "RAPPORT-C" when the client was speaking during rapport-building, and "RAPPORT-V" when the veterinary surgeon was speaking.) A sample transcript is in Appendix 8.2.

The keyword codes were then assigned to unique dialogue segments throughout the consultation, which makes possible the generation of a Keyword Report of the number of times an element occurs during the consultation, the duration of time for each element, and the total time of the consultation. A sample Keyword Report is in Appendix 8.3. Transana was also used to generate a "Keyword Map," examples of which appear in sections 5.5.4.6, 5.5.5.6, and 5.5.6.5, which is a visual representation of the consultation using coloured bars to represent different elements, with the length of the bar indicating the time of the dialogue instance, from the start to the finish of the consultation. The Transana keyword codes are described in each of the relevant sections to follow.

5.4.3.5 Selection of Consultation Models

Two consultation models were chosen for inclusion in the study for analysis of alignment with the consultations. The Calgary-Cambridge Model was selected because the Guide to the Veterinary Consultation based on the Calgary-Cambridge Model (GVCCCM) is the primary model used in the teaching of communication skills in undergraduate veterinary school and continuing professional development (CPD) (Mossop et al., 2015, Shaw and Ihle, 2006). The Patient-centred Clinical Method (PCCM) (Levenstein et al., 1986) was chosen for inclusion in the study because it was designed specifically to model back and forth flow of dialogue between the physician and patient, which the developers defined as the "disease" and "illness" agendas. It also includes specific elements related to patient's (or in our case client's) thoughts, feelings, concerns, and expectations, which if understood and responded to by the practitioner, might help insure empathy and other aspects of client-centredness. At the same time, the model is designed to facilitate the solicitation of patient information, clinical investigation, and shared understanding similar to the GVCCCM, but in a somewhat different construct. For these reasons, the PCCM was felt to be a potentially useful comparator to the CVCCCM with potential applicability to the veterinary consultation. Elements of The Patient-centred Clinical Method that were studied are described in section 5.4.3.8.

5.4.3.6 Calgary-Cambridge Model Elements and Coding

Eleven different elements for the Calgary Cambridge Model has were chosen for analysis. Each refers to a specific aspect of the model within one of its key constituent

parts ("Preparation," "Initiating the Consultation," "Gathering Information," "Physical Examination," "Explanation and Planning," and "Closing the Consultation"):

1. Preparation

2. Establishing initial rapport

3. Identifying the reason(s) for the consultation

4. Exploration of patient's problem

5. Physical examination

6. Providing appropriate information

7. Aiding accurate understanding and recall

8. Achieving a shared understanding

9. Planning and shared decision making

10. Summarising

11. Forward planning

As the 'preparation' element happens prior to the period of our data collection, this was not included in the study, so 10 elements were considered for analysis. In order to capture as completely as possible, the dialogue between the veterinary surgeon, client, and pet during the consultations in this study, the first three elements ("establishing initial rapport," "identifying the reasons," and "exploration of the problem") were divided into veterinary-surgeon and client-oriented elements to reflect the contribution of each party.

Two additional elements were added for this study, both for the analysis of the Calgary-Cambridge and Patient-centred Clinical Method consultation models (the latter of which is discussed in the next section). The first element, "Interpersonal

Communication," includes discussion of home and family life and even animal-related topics not applicable to the consultation. The second, "Engaging the Pet," covers all conversation and physical interaction with the pet, whether by the veterinary surgeon or client. These two types of interaction happen frequently during a veterinary consultation, and each relates to a component of the GVCCCM, "Interpersonal Communication" to building rapport, and "Engaging the Pet" to "Including the animal." It was therefore felt that it was worthwhile to include these in order to gain the most complete picture possible of the consultation dynamics. They also relate to our aims of looking at rapport building and client/pet-centredness and their importance to the consultation. These are not exactly the same as similar terms as used in the GCCVM ("Developing Rapport" and "Involving the Animal,") but were chosen with the aim of capturing the specific type of communication described above about family activities, etc., which was a fairly present type of communication, and capturing dialogue directed to the animal, the role of which the researcher desired to investigate.

This resulted in 15 elements being assessed for Calgary-Cambridge: three veterinary surgeon-orientated, three client-orientated, and nine orientated to the veterinary surgeon and client combined. In the case of veterinary-surgeon orientated elements, for US consultations these included dialogue from both veterinary surgeons and veterinary technicians. In the UK consultations, there was no contribution of veterinary dialogue from veterinary nurses. Each element was assigned a keyword code (See Table 5–2 for elements and keyword codes).

Table 5–2 Calgary-Cambridge Model elements (and keyword codes in brackets)		
Client-Orientated	**Veterinary Surgeon-Orientated**	**Veterinary Surgeon/Client Combined**
1. Establishing initial rapport-Client (RAPPORT-C)	4. Establishing initial rapport/Vet (RAPPORT-V)	7. Veterinary surgeon conducting and speaking about physical exam with client (EXAM)
2. Identifying the reason(s) for the consultation/Client (IDENTIFYING-C)	5. Identifying the reason(s) for the consultation/ Veterinary surgeon (IDENTIFYING-V)	8. Providing the appropriate amount and type of information (PROVIDING)
3. Exploration of Patient's Problem /Client (EXPLORATION-C)	6. Exploration of patient's problem/Veterinary surgeon (EXPLORATION-V)	9. Aiding accurate understanding and recall (AIDING)
		10. Achieving a shared understanding: Incorporate the client's perspective (ACHIEVING)
		11. Planning: Appropriate shared decision-making (PLANNING)
		12. Ensuring appropriate point of closure (SUMMARISE)
		13. Forward planning (FORWARD)
		14. Interpersonal conversation (INTERPERSONAL)
		15. Engaging the pet (PET)

An Excel spreadsheet was created to record the data with practices listed in the y-axis and the variables listed on the x-axis. A new line of data was created for each consultation. The researcher watched the video recordings at least twice (and for some consultations more than twice if segments needed to be re-checked). For each of the 15 elements the absolute number of times (frequency) the element was encountered within each consultation was recorded. The duration of each occurrence was also recorded, and the total amount of time spent on each element was recorded and then calculated as a proportion of the total consultation time (as recorded for Calgary-Cambridge by the sum time of all coded dialogue instances for the element). In addition, the percent alignment with the Calgary-Cambridge consultation model was calculated, the number of Calgary-Cambridge elements included in each consultation was divided by the total number of possible variables (15), a method developed by the researcher for the purpose of this study. This method was chosen as a representation of the degree (in basic percentage) to which elements of the model as coded in this study were represented in each consultation and to allow comparison between consultations. It was not meant to make any inferences about the relative quality of the elements that were represented relative to the other potential or demonstrated elements.

Percent alignment =

$$\frac{\text{Number of elements included in each consultation}}{15 \text{ (total number of possible elements)}}$$

5.4.3.7 Calgary-Cambridge Data Analysis

Descriptive statistics for Calgary-Cambridge were generated by importing the data from Excel into SPSS®. Frequency of elements for each variable and proportion of each variable as percent of the consultation time were recorded, as was percent alignment with the consultation model (using the formula above). The median, range, and interquartile range (IQR) were reported for the duration of the consultation in minutes, the frequency of instances of each element was reported as median, range and IQR, and the proportion of time spent on each element for each consultation. The percentage alignment with the Calgary Cambridge Model was also calculated as median, range, and IQR for each consultation. For all elements of the Calgary Cambridge model the medians for frequency and proportion for UK and USA consultations were compared using Mann-Whitney U Tests (significance at $p<0.05$). The final reported measurements for the Calgary-Cambridge Model were two sample keyword maps.

5.4.3.8 Patient-centred Clinical Method data collection, recording and coding

A second consultation model, the Patient-Centred Clinical Method, (Levenstein et al., 1986), was analysed in a similar way as the Calgary-Cambridge Model, with elements representing combined perspectives, the veterinary surgeon's perspective, and the client's perspective chosen for analysis. The Patient-centred Clinical Method Model consists of 15 different elements:

Combined Perspectives
1. Presentation of Problem
2. Gathering Information

Veterinary Surgeon's Perspective	Client's Perspective
3. Symptoms	8. Ideas
4. Signs	9. Concerns
5. Investigation	10. Expectations
6. Pathology	11. Feelings
7. Understanding client perspective	12. Thoughts
	13. Effects on client/family life

Integrating the Two Frameworks
14. Planning
15. Shared understanding and decision-making

In order to capture the dialogue between the veterinary surgeon, client, and pet during the consultations as completely as possible in this study, "Symptoms," "Signs," "Ideas," "Concerns," "Feelings," "Thoughts" and "Effects" were further divided into veterinary-surgeon and client-orientated elements to reflect the contribution of each party to "establishing initial rapport, identifying the reasons and exploration of the problem." As with the Calgary-Cambridge model, veterinary-surgeon-orientated elements included dialogue from the veterinary surgeon and veterinary technician for

the USA consultations. (The veterinary technician- and veterinary surgeon dialogue were not distinguished from one another.) Again, as in the case of the Calgary-Cambridge Model analysis, two additional elements were added: "Interpersonal Communication" and "Engaging the Pet."

This resulted in 24 variables being assessed for The Patient centred Clinical Method: eight client-orientated, ten veterinary surgeon-orientated, and six orientated to the veterinary surgeon and client combined (See Table 5–3 for variables and codes).

Table 5–3 Patient-centred Clinical Model Elements (and keyword codes in brackets)		
Client-orientated	**Veterinary Surgeon-Orientated**	**Veterinary Surgeon/Client Combined**
1. Symptoms (SYMPTOMS-C)	9. Symptoms (SYMPTOMS-V)	19. Presentation of problem (PRESENTATION)
2. Signs (SIGNS-C)	10. Signs (SIGNS-V)	20. Gathering information (GATHERING)
3. Ideas (IDEAS-C)	11. Ideas (IDEAS-V)	21. Explanation and planning (PLANNING)
4. Concerns (CONCERNS-C)	12. Concerns (CONCERNS-V)	22. Shared Decision Making (SHARED)
5. Expectations (EXPECTATIONS)	13. Feelings (FEELINGS-V)	23. Interpersonal conversation (INTERPERSONAL)
6. Feelings (FEELINGS-C)	14. Thoughts (THOUGHTS-V)	24. Engaging the pet (PET)
7. Thoughts (THOUGHTS-C)	15. Effects (EFFECTS-V)	
8. Effects (EFFECTS-C)	16. Diagnostic Investigations (INVESTIGATIONS)	
	17. Disease pathology (PATHOLOGY)	
	18. Understanding the client's perspective (UNDERSTANDING)	

5.4.3.9 Patient-centred Clinical Method data recording and analysis

Descriptive statistics for Patient-centred Clinical Method were generated by recording the data from the Keyword Reports in an Excel file and importing the data into SPSS®. Frequency of elements for each variable and proportion of each variable as a percentage of the consultation time were recorded, as was percent alignment with the consultation model (using the formula presented in section 5.4.3.5 for the Calgary Cambridge model, using the number 24 as the denominator of the equation, for the 24 elements of the Patient-centred Clinical Method). This was done to indicate the relative representation of the coded elements from the model in each consultation and to allow for comparison between the consultations. Again, this measurement of the percent of potential elements represented in each consultation did not factor in the strength of the representation or the importance of represented versus non-represented elements.

The median, range, and interquartile range (IQR) were reported for the duration of the consultation in minutes, the frequency of instances of each element was reported as mean, range and IQR, and the proportion of time spent on each element for each consultation. The percentage alignment with the Patient-centred Clinical Method was also calculated as Median, range, and IQR for each consultation. For all elements of the Patient-centred Clinical Method the medians for frequency and proportion for UK and USA consultations were compared using Mann-Whitney U Tests (significance at p<0.05). The final reported measurements for the Patient-centred clinical Method were two sample keyword maps and a comparison between the flow of dialogue suggested by the model and the actual flow of conversation in a sample consultation according to the Patient-centred Clinical Method.

5.4.3.10   Mishler Discourse data recording and analysis

The Mishler Discourse Analysis compares the relative proportion and frequency of dialogue segments characterised as "Lifeworld" (pertaining to non-medical topics related to the life of the animal, owners or family members) and those characterised as "Medical" (pertaining to topics related to health, disease, body systems, diagnoses, etc.). Frequency of elements for each variable and proportion of each element as percent of the consultation time were transferred from the Keyword Reports into an Excel file and imported into SPSS®. The median, range, and interquartile range (IQR) were reported for the duration of the consultation in minutes, the frequency of instances of each element was reported as mean, range and IQR, and the proportion of time spent on each element for each consultation. For each element of the Mishler Discourse Analysis, the medians for frequency and proportion for UK and USA consultations were compared using Mann-Whitney U Tests (significance at $p < 0.05$). The final reported measurements for the Mishler Discourse Analysis were two sample keyword maps.

5.4.3.11   Client-centredness data collection and recording

The Verona Patient-centred Communication Evaluation scale (VR-COPE) (Del Piccolo et al., 2008) is a tool used for measuring patient-centredness in medical consultation and which was used in this study to measure client-centredness (see Table 5–4a). In order to ensure the utility of the tool for veterinary communication research, the researcher and postgraduate supervisors adapted the wording through several iterations in order to make the evaluation element descriptions more applicable to a veterinary consultation. This included simple changes such as using "Veterinarian" instead of "Physician," and "Client" instead of "Patient." In other cases, wording about the emotional impact of the disease, some details about shared decision making, and other items that were not commonly demonstrated in a veterinary consultation were condensed on the adapted form.

The VR-COPE tool was also evaluated in a pilot study in which two CEVM colleagues evaluated one of the pilot consultations from the UK and one from the USA, using the first-round adaptation of the VR-COPE tool to score the consultations. The results were recorded on an Excel spreadsheet and compared between the two evaluators. Based on the findings of the pilot study, the wording was further adapted to be even more applicable to veterinary medicine based on the experience of the assessors of VR-COPE in the pilot study. In addition, whereas in the pilot, scores were given for combined elements only, sub-elements (e.g. 1a, 1b, 1c) were scored in the full study, to allow for a more accurate calculation of combined scores for each element. Changes made in the adapted tool are outlined in Table 5–4b.

Table 5–4a   Original VR-COPE tool (C=Content; S=Skill; P=Process)
1.   **Patient Agenda – List of Problems**
1a. The physician sets up problem list (C,S)
1b. The physician checks if the list of symptoms/problems is complete (e.g. Asks "What else?") (S)
1c. The physician facilitates patient to list all her/his current problems which brought her/him to the present consultation (P)
1d. Tries to clarify and check all new information (P,S)
1e. Tries to understand how relevant each reported symptom or problem is for the patient (P,S)
2. Patient worries and emotional needs
2a. Patient's psychological state is discernible (C)
2b. The physician is concerned about the emotional impact of symptoms/problems (C)
2c. If patient is worried or signals worries or unpleasant emotions, the physician responds by facilitating, echoing or by asking questions (S)
2d. The physician explores, clarifies or checks the meaning of the reported worry or emotion (P.S)
3. Psychosocial impact of illness on everyday life
3a. Information on the patients psychosocial life context emerges (C)
3b. The patient has the opportunity to describe the impact of the physical or emotional problems on his/her life (C)
3c. The physician asks about the impact of the physical or emotional problems on his/her life. (C,S)
3d. The physician points to patient resources and conditions to cope (C,P)
4. Active listening
4a. To optimise understanding the physician listens by using reflecting and clarifying comments, checks and summaries (S)
4b. No abrupt changes, no haste, no interruptions (S)
4c. The physician's interventions are based on what the patient says (S,P)
5. Empathy and Support
5a. The physician handles expressed emotions (without minimising) and communicates that they are understandable and legitimate (S,P)
5b. The physician is able to see the problem from the patient's emotional perspective (S,P)
5c. The physician shows attention for cues of effective relationship as they develop during the consultation (S,P)
5d. The physician offers emotional support (P)

Table 5–4a (continued)   Original VR-COPE tool (C=Content; S=Skill; P=Process)
6. Patient point of view
6a. Patient's idea or "theory about his/her symptoms is evident (C)
6b. The physician asks the patient about his/her point of view (S)
6c. The physician tries to understand patient's beliefs and assumptins (S,P)
6d. The patient is free to communicate his/her ideas and to describe the causes or the conditions associated with occurrence of his symptoms/problems (P)
7. Patient expectations
7a. Patient's expectations are evident (C)
7b. The physician asks the patient to express his/her expectations (S)
7c. The physician tries to understand patient's beliefs and assumptions (S,P)
7d. The patient is free to report his/her expectations regarding the problem (P)
8. Structuring the consultation
8a: The physician evidences topic changes by using transitions and summaries (S,P)
8b. The physician evidences the different stages of the consultation (information gathering, physical examination diagnostic and therapeutic information, negotiation, conclusion) by signposting (S,P)
8c: The physician gives an explicit structure to the consultation (P)
9. Achieving a shared understanding and attempt to involve patient in decisional process.
9a. The physician provides information taking into account the informative needs of the patient and his/her level of understanding (C,S)
9b. The physician constantly check's patient's understanding (S)
9c. The physician seeks to actively involve the patient in defining the treatment strategies (S,P)
9d. The patient is solicited to ask questions (S,P)
9e. The information is given prior to any treatment proposal (P)

Table 5–4b Changes made in the Adapted VR-COPE tool (C=Content; S=Skill; P=Process)	
Global change: "Physician" to "Veterinarian," and "Patient" to "Client," or "Pet," depending on the subject to which the item was referring.	
VR-COPE terminology for medical consultation	**Adapted VR-COPE terminology for veterinary consultation**
Patient Agenda – List of Problems 1a. The physician sets up problem list (C,S) (combined with item 1c and reworded in adapted form) 1c. The physician facilitates patient to list all her/his current problems which brought her/him to the present consultation (P) (combined with item 1a and reworded in adapted form) 1e. Tries to understand how relevant each reported symptom or problem is for the patient (P,S) (Deleted in adapted form)	**1. Client agenda – List of animal's problems** 1a. The veterinarian encourages client to list all the patient's current problems which brought them to the present consultation (P) (reworded and combined bullets 1 and 3 from medical VR-COPE)
2. Patient worries and emotional needs 2b. The physician is concerned about the emotional impact of symptoms; problems (Deleted in adapted form)	**2. Client worries and emotional needs** (Deleted 2b from original form)
3. Psychosocial impact of illness on everyday life 3c. The physician asks about the impact of the physical or emotional problems on his/her life. (Deleted in adapted form)	**3.Psychosocial impact of illness on everyday life (client and patient)** (Deleted 3c in original form)
4. Active listening 4a. To optimise understanding the physician listens by using reflecting and clarifying comments, checks and summaries (S) (Shortened in adapted form) 4b No abrupt changes, no haste, no interruptions (S) (Added "of the client to adapted form) 4c. The physician's interventions are based on what the patient says (Deleted in adapted form)	**4. Active listening** 4a. Shortened for adapted form: The veterinarian uses reflecting and clarifying comments, checks, summaries (S) 4b. No abrupt topic changes, no haste, no interruption *of the client*. (S) (Italicised words added) (Deleted 4c from original form) 4c. Added to adapted form: The veterinarian makes good eye contact, nods at appropriate points, etc. (P)
5. Empathy and Support 5c. The physician shows attention for cues of effective relationship as they develop during the consultation (S,P) (Deleted in adapted form)	**5. Empathy and Support** (Item 5c deleted from original form)

Table 5	
VR-COPE terminology for medical consultation	Adapted VR-COPE terminology for veterinary consultation
6. Patient point of view 6a. Patient's idea or "theory" about his or her symptoms is evident (C). (Deleted from adapted form)	**6. Client point of view** (Item 6a deleted from original form)
7. Patient expectations Item Definition: "The patient expresses his/her ideas" changed to "The client is encouraged to express his or her ideas…"	**7. Client expectations** Item Definition: Wording changed to "The client is encouraged to express his or her ideas…)
8. Structuring the consultation 8b. The physician evidences the different stages of the consultation (information gathering, physical examination diagnostic and therapeutic information, negotiation, conclusion) by signposting (S,P) (Deleted from adapted form) Order of items 8a and 8c flipped in the adapted form: Original form: 8a: The physician evidences topic changes by using transitions and summaries; 8c: The physician gives an explicit structure to the consultation. (Adapted form places 8c first and 8c second	**8. Structuring the consultation** Item 8b deleted from original form and 8a and 8c re-ordered to new 8a and 8b: 8a. The veterinarian gives an explicit structure to the consultation (P) 8b. The veterinarian evidences topic changes by using transitions and summaries (S,P)
9. Achieving a shared understanding and attempt to involve patient in decisional process. Substantial rewording of content for updated form/Original Content: 9a. The physician provides information taking into account the informative needs of the patient and his/her level of understanding (C,S) (Changed in adapted form) 9b. The physician constantly check's patient's understanding (S) (Changed in adapted form) 9c. The physician seeks to actively involve the patient in defining the treatment strategies (S,P) (Deleted in adapted form) 9d. The patient is solicited to ask questions (S,P) (Changed in adapted form) 9e. The information is given prior to any treatment proposal (P) (Deleted in adapted form)	**9. Achieving a shared understanding and attempt to involve patient in decisional process.** 9. Achieving a shared understanding and attempt to involve client in decisional process. 9a. The veterinarian provides information in a manner appropriate for the client's level of understanding (C,S) 9b. The veterinarian checks to ensure client's understanding (S) 9c. The client is encouraged to ask questions and otherwise be involved in decision-making (S,P)
(No 10th variable in original VR-COPE)	**(New variable added) 10. Veterinarian-Pet Engagement** 10a. The veterinarian talks directly to the pet, including addressing it by name throughout the consultation. 10b. The veterinarian physically engages the pet (petting, scratching, hugging, etc.) 10c. The pet responds positively to the veterinarian's words and/or actions.

The adapted VR-COPE form, which was used to measure client centredness, is divided into 10 main variables, each with 2 - 4 sub-variables, describing different aspects of the consultation that relate to client-centredness. VR-COPE variables and sub-variables are in Table 5–5.

Data coding and cleaning for the VR-COPE analysis for client centredness involved viewing each of the videos from start to finish from both camera angles and manually entering a score from 1 to 10 for each variable and sub variable on a form. Once this step was completed, the data were transferred to an Excel spreadsheet for analysis.

5.4.3.12   Client-centredness data analysis

Descriptive statistics for the Client-centredness Analysis were generated by importing the VR-COPE data from the Excel spreadsheet into SPSS® and calculating median, range, and interquartile range (IQR) for each element for all consultations, all UK consultations, and all USA. For each element of the Client-centredness analysis, the median scores for UK and USA consultations were compared using Mann-Whitney U Tests (significance at $p<0.05$).

Table 5–5	Adapted VR-COPE Elements and Sub-Elements (P=Process; S=Skill; C=Content)
Element	**Sub-Elements**
1. Client agenda – List of animal's problems	1a. The veterinarian encourages client to list all the patient's current problems which brought them to the present consultation (P) 1b. The veterinarian checks if the list of symptoms/problems is complete (e.g. asks "What else?") (S) 1c. Tries to clarify and check all new information (P,S)
2. Client worries and emotional needs	2a. Client's psychological state is discernible (C) 2b. If client is worried or signals worries or unpleasant emotions, the veterinarian responds by facilitating, echoing or by asking questions (S) 2c. The veterinarian explores, clarifies or checks the meaning of the reported worry or emotion (P,S)
3. Psychosocial impact of illness on everyday life (client and patient)	3a. Information on client's psychosocial life context emerges (C) 3b. The client has the opportunity to describe the impact of the animal's physical or behavioural problems on his/her life (C,S) 3c. The veterinarian offers/ refers to client resources to help them cope (C,P)
4. Active listening	4a. The veterinarian uses reflecting and clarifying comments, checks, summaries (S) 4b. No abrupt topic changes, no haste, no interruption of the client. (S) 4c. The veterinarian makes good eye contact, nods at appropriate points, etc. (P)
5. Empathy and support	5a. The veterinarian handles expressed emotions (without minimizing) and communicates that they are understandable and legitimate (S,P) 5b. The veterinarian is able to see the problem from the client's emotional perspective (S,P) 5c. The veterinarian offers emotional support (P)
6. Client point of view	6a. The veterinarian asks the client about his/her point of view (S) 6b. The veterinarian tries to understand client's beliefs and assumptions (S,P) 6c. The client is free to communicate his/her ideas and to describe the causes or the conditions associated with the occurrence of the animal's symptoms/problems (P)

Table 5–5 (continued) Adapted VR-COPE Variables and Sub-Variables (P=Process; S=Skill; C=Content)	
Element	**Sub-Elements**
7. Client expectations	7a. Client's expectations are evident (C)
	7b. The veterinarian asks the client to express his/her expectations (S)
	7c. The veterinarian tries to understand client's expectations (S.P)
	7d. The client is free to report his/her expectations regarding the animal's problem (P)
8. Structuring the consultation	8a. The veterinarian gives and explicit structure to the consultation (P)
	8b. The veterinarian evidences topic changes by using transitions and summaries (S,P)
9. Achieving a shared understanding and attempt to involve client in decisional process	9a. The veterinarian provides information in a manner appropriate for the client's level of understanding (C,S)
	9b. The veterinarian checks to ensure client's understanding (S)
	9c. The client is encouraged to ask questions and otherwise be involved in decision-making (S,P)
10. Veterinarian-Pet Interaction	10a. The veterinarian talks directly to the pet, including addressing it by name throughout the consultation.
	10b. The veterinarian physically engages the pet (petting, scratching, hugging, etc.)
	10c. The pet responds positively to the veterinarian's words and/or actions.

5.4.3.13   Client Satisfaction data recording and analysis

The client satisfaction data were transferred from the completed client satisfaction questionnaires to an Excel Spreadsheet for analysis. Descriptive statistics for the Client Satisfaction were generated by importing the client satisfaction survey data from the Excel spreadsheet into SPSS® and calculating median, range, and interquartile range (IQR) for each element for all consultations, all UK consultations, and all USA consultations. For each element of the Client Satisfaction analysis, the median scores for UK and USA consultations were compared using Mann-Whitney U Tests (significance at $p<0.05$).

5.4.3.14   Correlations

To investigate any potential correlations between nine selected variables, Pearson r correlations was used to assess correlation between the following elements (Table 5–6):

Table 5–6: Correlations Measured		
ELEMENT	CORRELATION WITH CLIENT SATISFACTION TOTAL SCORE	CORRELATION WITH VR-COPE TOTAL SCORE
Client-centredness (Total VR-COPE score)	X	
Client Satisfaction (Total Score)		X
Specific health problem vs. Preventive Medicine consultation	X	X
Number of problems	X	X
Calgary-Cambridge alignment	X	X
Patient-centred clinical method alignment	X	X
Percent Lifeworld dialogue	X	X
Percent Medical dialogue	X	X

These elements were chosen for their presumed impact on the efficacy of communication (Abood, 2007, Cornell and Kopcha, 2007, Levenstein et al., 1986, Mossop et al., 2015, Robinson et al., 2015, Shaw, 2006).

5.5   Results

5.5.1 Practices

5.5.1.1 Pilot Study

There were two pilot study practices, one in Derbyshire in the UK and the second in Guilford County, North Carolina in the USA. Both were first-opinion, small animal practices.

5.5.1.2 Main Study

In the main study, there were five UK practices, in Warwickshire, Derbyshire, Leicestershire, and Rutland counties. Four were first opinion practices and one was a referral practice. Practices in the USA were in Bucks (two practices) and Delaware Counties in Pennsylvania, Morris County in New Jersey, and Essex County in Massachusetts. All five of these were first opinion practices. See Table 5–7 for practice descriptions.

Table 5–7: Practice Descriptions						
Practice	Date	Location	Practice Type	# Vets	Practice Accreditation(s)	Weather* (Day of Data Collection)
UK1	20 Oct 2014	Warwickshire County	First Opinion (Sm. Animal)	7	RCVS Accredited (Core Standards)	Sunny/Low temp: 10º C/ High temp: 14º C
UK2	21 Oct 2014	Derbyshire County	First Opinion (Sm. Animal)	18	RCVS Accredited (Small Animal Veterinary Hospital)	Light rain/Low temp: 7º C/ High temp: 13º C
UK3	22 Oct 2014	Leicestershire County	First Opinion (Sm. Animal)	9	RCVS Accredited (Small Animal Veterinary Hospital)	Sunny/Low temp: 8º C/ High temp: 11º C
UK4	23 Oct 2014	Derbyshire County	Referral (Sm. Animal)	5	RCVS Accredited (Small Animal Veterinary Hospital)	Partly cloudy/ Low temp: 11º C/High temp: 16º C
UK5	24 Oct 2014	Rutland County	First Opinion (Sm. Animal, Equine)	11	RCVS Accredited (Small Animal/Equine Hospital)	Sunny/Low temp: 12º C/ High temp: 15º C
USA1	24 Nov 2014	Bucks County, PA	First Opinion (Sm. Animal, Equine, Farm Animal)	32	AAHA Accredited	Partly cloudy/Low temp: 18º C/ High temp: 22º C
USA2	02 Feb 2015	Bucks County, PA	First Opinion (Sm. Animal)	5	No Accreditation	Sunny/Low temp: 2º C/ High temp: 5º C
USA3	23 Feb 2015	Delaware County, PA	First Opinion (Sm. Animal)	5	AAHA Accredited	Sunny/Low temp:-4º C/ High temp: 1º C
USA4	20 Apr 2015	Morris County, NJ	First Opinion (Sm. Animal)	3	AAHA Accredited	Rain/Low temp: 9º C/ High temp: 13º C
USA5	22 Jun 2015	Essex County, MA	First Opinion (Sm. Animal)	5	No Accreditation	Partly cloudy/Low temp: 17º C/ High temp: 23º C

*Source: timeanddate.com

5.5.2 Number and length of consultations

There were 55 consultations recorded, 28 in the UK[1] and 27 in the USA. These Data, and the median length of consultation overall, in each country and in each practice, are presented in Table 5–8. The median length of consultation (according to the video time record) across all consultations was 16.78 minutes (range 5.25-44.18 minutes, IQR 11.36 minutes, 20.28 minutes). For UK consultations, the length of consultation had a median of 16.06 minutes, range of 5.25-44.18 minutes, and IQR of 9.52 minutes, 18.98 minutes. USA consultation length median was 16.78 minutes, range was 7.77-29.57 minutes, and IQR was 11.92 minutes, 2.87 minutes. There was no significant difference in length of consultation in the UK versus USA (p=0.167).

In the analysis of consultation model components (Calgary-Cambridge and Patient-centred Clinical Method) and content using the Mishler Discourse Analysis (Lifeworld vs. Medical dialogue) in the upcoming sections, an important anomaly to point out is the difference in time of consultation recorded for the Calgary-Cambridge, Patient-centred Clinical Model, and Mishler analyses for all consultations, UK consultations, and USA consultations. While the relative difference in length of consultations between USA and UK visits was consistent across the three analyses, the actual times differed in each model and content analysis. This was due to the fact that

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[1] There were two additional consultations in practice UK1 (total of eight for that practice), but the cameras ran out of charge at the end of consultation six, so there was no video record of them.

time of consultation was calculated by the combined time of coded dialogue segments in each analysis, and limitations of Transana prevented those from being exactly equal. Once this discrepancy was noticed, the coded transcripts for each analysis were re-evaluated, and in some cases, mistakes were found in the original coding and corrected. This resulted in a decreasing of the gaps between durations of consultations, but it did not eliminate them completely.

Table 5–8 Number and length of consultations (from video time record)							
Country	**Date**	**Practice Code**	**Consulta-tions/ Practice**	**Consultation Length (minutes)**			**Comparison (UK to USA length of consultation)**
				Median	**Range**	**IQR**	
All Practices			55	16.78	5.25-44.18	11.36, 20.28	
UK			28	16.06	5.25-44.18	9.52,18.98	Not significantly different (p=0.167)
UK Practices	20 Oct 2014	UK1	6	9.94	8.32-30.42	8.81,18.64	
	21 Oct 2014	UK2	6	16.86	9.52-18.98	11.79,18.38	
	22 Oct 2014	UK3	5	16.06	8.25-19.05	10.25,17.96	
	23 Oct 2014	UK4	4	21.35	5.65-23.62	9.23,23.40	
	24 Oct 2014	UK5	7	17.90	5.25-44.18	14.35,22.07	
USA			27	16.78	7.77-29.57	11.92,21.87	
USA Practices	24 Nov 2014	US1	5	18.86	13.28-25.83	15.92,23.06	
	02 Feb 2015	US2	5	15.92	8.41-23.24	11.42,22.56	
	23 Feb 2015	US3	5	19.20	8.80-28.02	11.89,25.80	
	20 Apr 2015	US4	6	16.98	7.77-29.57	10.46,28.73	
	22 Jun 2015	US5	6	13.97	9.05-18.61	9.72,17.24	

5.5.3   Scientific Complexity Analysis

Scientific Complexity results for all consultations, UK consultations, and USA consultations are in Table 5–9 (categorical data) and Table 5–10 (continuous data). Complete results, including results by consultation, are in Appendices 8.4 and 8.5.

There was a slightly higher proportion of preventive medicine consultations recorded compared to specific health problem (SHP) consultations across all consultations (29, 53.7%) and in the USA consultations (17, 63.0%), but the reverse was true for UK consultations (12, 44.4%). The proportion of preventive medicine to specific health problem consultations was not found to be significantly different in the UK than in the USA ($p=0.413$). The majority of consultations involved a single animal (48, 87.0%), though the percent of consultations were statistically significantly more likely to involve multiple animals in the USA (6, 22.2%) than in the UK (1, 3.7%), $p=0.043$. Across all SHP consultations, the most common type of case was first consultation (18.5%), followed by re-check (13.0%). In UK consultations first consultation recheck were equally most common (18.5%), followed by recurrent (11.1%). In the USA, the most common type of consultation was first consultation (18.5%). Re-check and ongoing/acute were equally second most common (7.4%). The most frequently seen species across all consultations was the dog, followed by the cat. The same was true for all consultations, UK consultations, and USA consultations. In the UK, one consultation involved a rabbit. No other species were seen.

The number of problems ranged from 1-13 for all consultations (median 5, IQR 3,7) and was significantly higher in the USA compared to the UK ($p=0.001$). The total number of body systems involved varied from 1-7 across all consultations (median 3,

IQR 2,4), with results in the UK significantly lower than in the USA (p=0.034). The total number of tests had a range of 1-11 across all consultations with a significantly higher number in the USA (p=0.004). The number of diagnoses had a range of 1-12 for all consultations, with a significantly higher number in the USA versus in the UK (p<0.000). The total number of outcomes varied from 1-14 across all consultations, with a significantly greater number in the USA than in the UK (p<0.000)

Table 5–9 Complexity Categorical Data							
Element	N	%	Comparison UK/USA	Element	N	%	Comparison UK/USA
Reason for consultation: Preventive Medicine				**Type of case: First Consult**			
All	29	53.7%	Not significantly different (p=0.172)	**All**	10	18.5%	Not significantly different (p=0.227)
UK	12	44.4%		**UK**	5	18.5%	
USA	17	63.0%		**USA**	5	18.5%	
Reason for consultation: Specific Health Problem				**Type of case: Recheck**			
All	25	46.3%		**All**	7	13.0%	
UK	15	55.6%		**UK**	5	18.5%	
USA	10	37.0%		**USA**	2	7.4%	
Number of animals: Single			**Significantly different (p=0.043)**	**Type of case: Recurrent**			Not significantly different (p=0.227)
All	48	87.0%		**All**	3	5.6%	
UK	26	95.3%		**UK**	3	11.1%	
USA	21	77.8%		**USA**	0	0%	
Number of animals: Multiple				**Type of case: On-going/acute**			
All	7	13.0%		**All**	2	3.7%	
UK	1	3.7%		**UK**	0	0%	
USA	6	22.2%		**USA**	2	7.4%	

Table 5–9 (continued) Complexity Categorical Data							
Element	N	%	Comparison UK/USA	Element	N	%	Comparison UK/USA
Type of case: Monitoring				**Species: Dog**			
All	2	3.7%	Not significantly different (p=0.227)	**All**	41	75.9%	Not significantly different (p=0.599)
UK	1	3.7%		**UK**	20	74.1%	
USA	1	3.7%		**USA**	21	77.8%	
Type of case: Preventive Medicine				**Species: Cat**			
All	29	53.7%		**All**	12	22.2%	
UK	12	44.4%		**UK**	6	22.2%	
USA	17	63.0%		**USA**	6	22.2%	
Type of case: Admit/Discharge				**Species: Rabbit**			
All	1	1.9%		**All**	1	1.9%	
UK	1	3.7%		**UK**	1	3.7%	
USA	0	0%		**USA**	0	0%	

Element	Median	Range	IQR	Comparison UK/USA	Element	Median	Range	IQR	Comparison UK/USA
Table 5–10 Complexity Continuous Data									
Number of problems					**Number of diagnoses**				
All	5	1-13	3,7		**All**	4.5	1-12	3,6	
UK	3	1-7	3,5	**Significantly different (p=0.001)**	**UK**	3	1-7	3,5	**Significantly different (p<0.000)**
USA	6	2-13	4,9		**USA**	6	2-12	4,9	
Number of body systems					**Number of outcomes**				
All	3	1-7	2,4		**All**	5	1-14	3,7	
UK	3	1-5	2,4	**Significantly different (p=0.034)**	**UK**	4	1-7	3,5	**Significantly different (p<0.000)**
USA	3	2-7	3,5		**USA**	6	2-14	5,9	
Number of tests									
All	4	1-11	3,6						
UK	3	1-8	2,5	**Significantly different (p=0.004)**					
USA	6	2-11	4,8						

5.5.4   Calgary-Cambridge Model Analysis

Calgary-Cambridge model analysis results for all consultations, the UK consultations, and the USA consultations are in Table 5–11; complete results (all consultations, by country, and by practice) are in Appendix 8.6.

5.5.4.1 Median length of consultations – Calgary Cambridge

The median length of consultations according to the Calgary-Cambridge analysis was 16.06 minutes (range 4.42-44.25 minutes) with no significant difference in length of consultations in the UK (median 14.96 minutes, range 4.42-44.25 minutes) and the USA (median 16.06 minutes, range 7.91-30.06 minutes).

5.5.4.2 Calgary-Cambridge Frequency

The top three Calgary-Cambridge elements reported with the highest frequency across all consultations, UK consultations, and USA consultations were "Exploration-C," "Exploration-V," and "Pet." The bottom three Calgary-Cambridge elements reported with the lowest frequency across all consultations and in USA consultations were "Summarising," "Forward, "and "Identifying-C." The bottom three elements reported with the lowest frequency in the UK consultations were "Interpersonal," "Summarising," and "Identifying-C."

5.5.4.3 Calgary-Cambridge Proportion

The top three Calgary-Cambridge elements reported with the highest proportion across all consultations and in UK consultations were "Planning," "Exploration-C," and "Achieving." The top three elements reported with the highest proportion in USA consultations were "Planning," "Pet," and "Exploration-C." The bottom three Calgary-Cambridge elements reported with the lowest proportion across all consultations were "Rapport-C," "Identifying-C," and "Rapport-V." The bottom three elements reported with the lowest proportion in the UK consultations were "Interpersonal," "Rapport-V," and "Identifying-V." The bottom three elements reported with the lowest proportion in USA consultations were "Rapport-C," "Identifying-C," and "Identifying-V."

5.5.4.4 Calgary-Cambridge Model alignment

The median alignment with the Calgary-Cambridge across all consultations, UK consultations, and USA consultations was 86.67%.

5.5.4.5 Elements with significant differences between UK and USA

Calgary-Cambridge elements for which there were significant differences between UK and USA consultations in which the UK proportion was higher were "Providing" Proportion ($p=0.001$) and "Forward" Proportion ($p=0.010$). Elements for which the USA was higher in frequency were "Rapport-V" ($p=0.036$), "Achieving" ($p=0.048$), "Planning" ($p=0.004$), "Interpersonal" ($p<0.000$), and "Pet" ($p<0.000$). The USA was significantly higher than the UK in the proportion of time spent on "Pet" ($p=0.017$).

Table 5–11 Calgary-Cambridge Model Analysis Data								
Variable								**Comparison**
Consultation Length (min)	Median		Range		IQR			
All	16.06		4.42-44.25		11.04,20.33			
UK	14.96		4.42-44.25		9.55,18.94			Not significantly different (p=0.341)
USA	16.06		7.91-30.06		11.90,21.31			
Variable	**Frequency**			**Comparison**	**Proportion**			**Comparison**
	Median	Range	IQR		Median	Range	IQR	
Rapport-C								
All	2	0-17	1,5		0.44%	0%-0.78%	0.11%,1.36%	
UK	2	0-14	0,3	Not significantly different (p=0.193)	0.73%	0%-7.81%	0%, 1.72%	Not significantly different (p=0.262)
USA	3	0-17	1,5		0.27%	0%-3.99%	0.13%, 1.06%	
Rapport-V								
All	2	0-14	1,5		0.62%	0%-11.51%	0.25%, 2.16%	
UK	2	0-14	1,4	**Significantly different (p=0.036)**	0.37%	0%-11.51%	0.20%, 2.89%	Not significantly different (p=0.469)
USA	4	1-14	2,5		1.06%	0.11%-5.00%	0.34%, 1.84%	
Identifying-C								
All	1	0-12	1,3		0.57%	0%-11.44%	0.13%, 1.75%	
UK	1	0-5	1,2	Not significantly different (p=0.749)	0.60%	0%-11.44%	0.17%, 2.51%	Not significantly different (p=0.199)
USA	2	0-12	1,3		0.33%	0%-6.57%	0.07%, 1.19%	
Identifying-V								
All	2	0-8	1,3		0.64%	0%-4.65%	0.18%, 1.75%	
UK	1	0-5	1,2	Not Significantly different (p=0.085)	0.56%	0%-4.65%	0.14%, 1.18%	Not significantly different (p=0.258)
USA	3	0-8	1,4		0.97%	0%-3.39%	0.27%, 2.11%	

	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Exploration-C								
All	27	6-121	19,43		14.55%	3.45%-45.76%	10.51%, 22.29%	
UK	22	6-121	17,43	Not significantly different (p=0.099)	16.28%	3.96%-35.16%	10.51%, 22.63%	Not significantly different (p=0.522)
USA	30	12-70	23,43		12.18%	3.45%-45.76%	9.58%, 22.29%	
Exploration-V								
All	22	5-122	15,34		7.89%	1.23%-22.00%	4.46%, 11.59%	
UK	19	5-122	15,34	Not significantly different (p=0.162)	7.89%	2.08%-18.02%	4.46%, 12.03%	Not significantly different (p=0.567)
USA	30	12-70	23,43		7.68%	1.23%-22.00%	4.21%, 10.67%	
Exam								
All	4	0-16	2,7		4.70%	0%-26.76%	2.18%,12.43%	
UK	5	0-15	2,6	Not significantly different (p=0.832)	6.71%	0%-26.76%	2.18%,13.20%	Not significantly different (p=0.259)
USA	4	0-16	2,8		3.50%	0%-23.28%	2.06%,6.45%	
Providing								
All	6	0-27	4,9		6.79%	0%-67.18%	3.06%, 9.99%	
UK	6	1-27	4,8	Not significantly different (p=0.577)	8.90%	1.81%-67.18%	5.81%, 12.82%	**Significantly different (p=0.001)**
USA	5	0-16	2,10		5.72%	0%-10.43%	1.06%, 8.24%	
Aiding								
All	2.50	0-22	1,5		2.88%	0%-21.00%	0.67%, 6.58%	
UK	3.50	0-13	1.75,5	Not significantly different (p=0.631)	4.25%	0%-20.27%	1.76%, 7.32%	Not significantly different (p=0.345)
USA	2	0-22	1,6		2.31%	0%-21.00%	0.63%, 5.60%	

Table 5–11 (continued)   Calgary-Cambridge Model Analysis Data

Table 5–11 (continued) Calgary-Cambridge Model Analysis Data									
Variable	**Frequency**			**Comparison**	**Proportion**				**Comparison UK/USA**
	Median	Range	IQR		Median	Range	IQR		
Achieving									
All	5	0-22	3,11		9.25%	0%-32.02%	3.49%, 18.58%		
UK	4	0-16	3,6	**Significantly different (p=0.048)**	7.75%	0%-30.82%	4.46%, 14.08%		Not significantly different (p=0.743)
USA	7	0-22	3,13		9.37%	0%-32.02%	2.95%, 19.72%		
Planning									
All	9	1-36	6,14		17.25%	2.53%-39.00%	10.98%, 22.28%		
UK	7	1-36	5,9	**Significantly different (p=0.004)**	15.13%	2.53%-33.56%	10.86%, 20.38%		Not significantly different (p=0.162)
USA	12	3-27	8,19		21.12%	4.13%-39.00%	11.33%, 23.36%		
Summarising									
All	1	0-3	1,1		1.26%	0%-31.22%	0.71%, 2.09%		
UK	1	0-2	1,1	Not significantly different (p=0.974)	1.38%	0%, 31.22%	0.80%, 2.88%		Not significantly different (p=0.143)
USA	1	0-3	1,1		1.15%	0%-4.68%	0.30%, 1.84%		
Forward									
All	1	0-9	0,2		1.65%	0%-15.31%	0%, 4.23%		
UK	1	0-9	0,2	Not significantly different (p=0.085)	2.47%	0%-15.31%	0%, 5.39%		**Significantly different (p=0.010)**
USA	1	0-7	0,2		0.59%	0%-8.28%	0%, 1.67%		
Interpersonal									
All	3	0-97	0,8		2.31%	0%-27.91%	0%, 6.79%		
UK	0	0-12	0,3	**Significantly different (p<0.000)**	0%	0%-27.91%	0%, 2.91%		**Significantly different (p<0.000)**
USA	8	0-97	3,12		5.78%	0%-23.85%	1.74%, 16.42%		

Table 5–11 (continued) Calgary-Cambridge Model Analysis Data								
Variable	**Frequency**			**Comparison**	**Proportion**			**Comparison UK/USA**
	Median	Range	IQR		Median	Range	IQR	
Pet								
All	12	0-45	8,19		8.38%	0%-42.68%	4.96%, 17.53%	
UK	9	0-45	5,12	**Significantly different (p<0.000)**	5.93%	0%-30.80%	2.64%, 12.59%	**Significantly different (p=0.017)**
USA	17	7-44	12,22		12.54%	2.43%-42.68%	5.76%, 18.71%	
Alignment								
All	86.67%	73.33%-100%	86.67%, 93.33%					
UK	86.67%	73.33%-93.33%	80.00%, 93.33%	Not significantly different (p=0.359)				
USA	86.67%	73.33%-100%	86.67%, 93.33%					

5.5.4.6 Examples of Calgary-Cambridge flow between elements

In Figure 5–5 are two representative Calgary-Cambridge consultation model "Keyword Maps" of one consultation in the USA and one in the UK. In this and nearly all consultations, there was a significant back and forth between, and skipping among, model components during the consultation, resulting in a flow through the model that is iterative and fluid, rather than uniformly structured and linear.

Figure 5–5: Calgary-Cambridge Keyword Map Examples
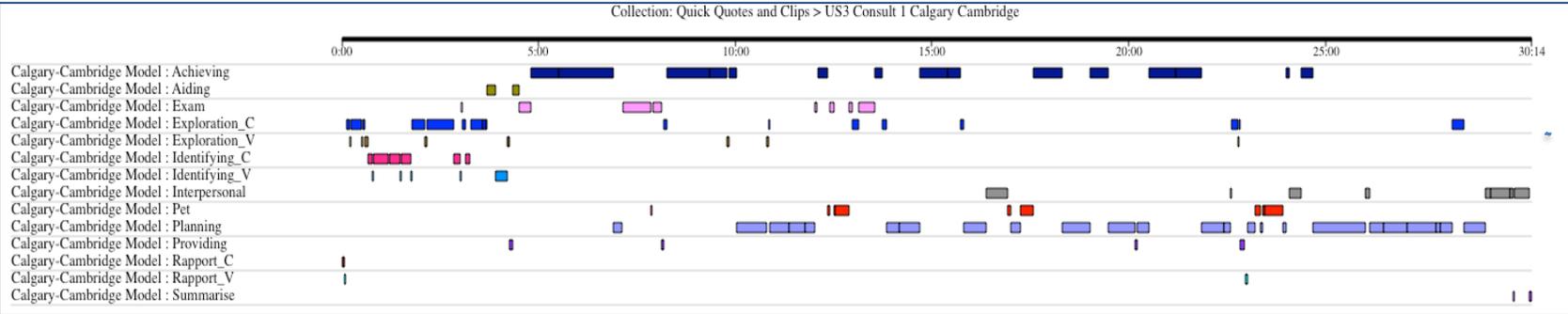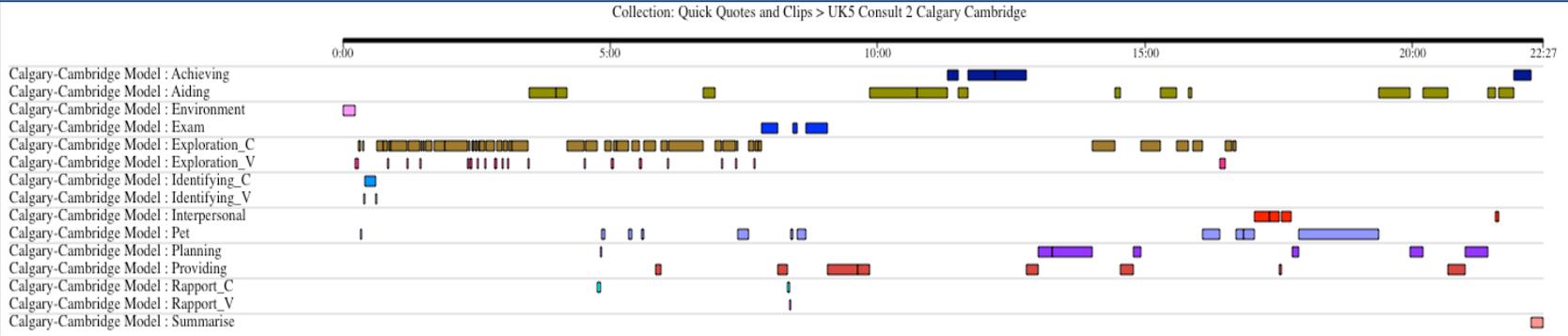
5.5.5   Patient-centred Clinical Method Analysis

Patient-centred Clinical Method analysis results for all consultations, the UK consultations, and the USA consultations are in Table 5–12; complete results (all consultations, by country, and by practice) are in Appendix 8.7.

5.5.5.1   Median length of consultations – Patient-centred Clinical Method

The median length of consultations according to the Patient-centred Clinical Method analysis was 16.08 minutes (range 4.81-45.75 minutes), with not significantly different length of consultations in the UK (median 14.96 minutes, range 4.81-45.75 minutes), and the USA (median 16.34 minutes, range 8.08-30.36 minutes), p=0.363.

5.5.5.2.   Patient-centred Clinical Method Frequency

The top three Patient-centred Clinical Method elements reported with the highest frequency across all consultations, UK consultations, and USA consultations were "Gather-C," "Gather-V," and "Pet." The bottom three Patient-centred Clinical Method elements reported with the lowest frequency across all consultations and in UK consultations were "Effects-V," "Effects-C," and "Understanding." The bottom three elements reported with the lowest frequency in USA consultations were "Effects-V," "Effects-C," and "Signs-V."

5.5.5.3 Patient-centred Clinical Method proportion

The top three Patient-centred Clinical Method elements reported with the highest proportion across all consultations and in UK consultations were "Planning," "Shared," and "Gather-C." The top three elements reported with the highest proportion in USA consultations were "Shared," "Gather-C," and "Pet." The bottom three Patient-centred Clinical Method elements reported with the lowest proportion across all consultations and in USA consultations were "Effects-V," "Effects-C," and "Signs-V." The bottom three elements reported with the lowest proportion in the UK consultations were "Effects-V," "Effects-C," and "Signs-C."

5.5.5.4 Patient-centred Clinical Method alignment

The median alignment with the Patient-centred Clinical Method across all consultations was 62.50%. UK consultations had a median alignment of 62.50% and USA consultations had a median of 66.67%, with no significant difference between the UK and USA.

5.5.5.5 Patient-centred Clinical Method elements with significant differences between the UK and USA

Among elements for which there were significant differences between UK and USA consultations in which the UK proportion was greater was "Planning" (p<0.000). Elements for which USA consultations had significantly greater frequency were "Presentation" (p=0.002), "Gather-C" (p=0.024), "Expectations" (p=0.002), "Feelings-C" (p<0.000), "Feelings-V" (p<0.000), "Effects-C" (p=0.036), "Interpersonal" (p<0.000), and "Pet" (p<0.000). Proportion was higher in USA consultations for "Expectations" (p=0.002), "Feelings-C" (p=0.029), "Feelings-V" (p=0.007), "Effects-C" (p=0.036), "Signs-V" (p=0.035), "Interpersonal" (p<0.000), and "Pet" (p=0.034).

Table 5–12 Patient-centred Clinical Method Analysis Data							
Variable							**Comparison**
Consultation Length (min)	Median		Range		IQR		
All	16.08		4.81-45.75		10.79,20.42		
UK	14.96		4.81-45.75		10.13,19.46		Not significantly different (p=0.363)
USA	16.34		8.08-30.36		11.95,22.76		
	Frequency		**Comparison**	**Proportion**			**Comparison**
	Median	Range	IQR		Median	Range	IQR	

Variable	Median	Range	IQR	Comparison	Median	Range	IQR	Comparison
Presentation								
All	1	0-7	1,3		1.96%	0%-13.55%	0.53%,3.09%	
UK	1	0-3	1,2	**Significantly different (p=0.002)**	1.70%	0%-8.84%	0.35%,2.64%	Not significantly different (p=0.337)
USA	2	0-7	1,5		2.16%	0%-13.55%	0.71%,3.18%	
Gather-C								
All	24	3-104	18,31		12.22%	2.04%-25.99%	7.75%,17.58%	
UK	18	3-104	11,30	**Significantly different (p=0.024)**	12.68%	2.04%-24.72%	7.53%,18.40%	Not significantly different (p=0.662)
USA	25	12-66	20,31		12.22%	3.31%-25.99%	7.75%,17.41%	
Gather-V								
All	18	4-98	12,27		5.29%	0.83%-18.51%	3.20%,8.24%	
UK	18	4-98	10,22	Not significantly different (p=0.102)	4.67%	1.64%-18.51%	3.11%,8.08%	Not significantly different (p=0.578)
USA	23	7-52	13,33		5.45%	0.83%-16.53%	4.05%,8.75%	
Ideas-C								
All	7	0-26	4,10		2.01%	0%-9.15%	1.38%,4.04%	
UK	6	1-22	4,10	Not significantly different (p=0.532)	2.53%	0.20%-9.15%	1.19%,4.27%	Not significantly different (p=0.533)
USA	7	0-26	5,11		1.69%	0%-8.82%	1.38%,3.40%	

Variable	Frequency			Comparison	Proportion			Comparison UK/USA
	Median	Range	IQR		Median	Range	IQR	
Ideas-V								
All	9	0-42	6,13		3.98%	0%-16.48%	2.59%,5.82%	
UK	8	1-42	6,12	Not significantly different (p=0.532)	4.57%	0.12%-16.48%	3.13%,6.69%	Not significantly different (p=0.062)
USA	10	0-26	5,15		3.36%	0%-7.31%	2.01%,5.58%	
Concerns-C								
All	0	0-14	0,2		0%	0%-6.97%	0%,0.88%	
UK	1	0-5	0,3	Not significantly different (p=0.579)	0.21%	0%-5.42%	0%,0.80%	Not significantly different (p=0.821)
USA	0	0-14	0,2		0%	0-6.97%	0%,1.01%	
Concerns-V								
All	0	0-9	0,1		0%	0%-3.44%	0%,0.09%	
UK	0	0-3	0,1	Not significantly different (p=0.484)	0%	0%-2.42%	0%,0.14%	Not significantly different (p=0.541)
USA	0	0-9	0,0		0%	0%-3.44%	0%,0%	
Expectations								
All	0	0-5	0,1		0%	0%-4.18%	0%,0.26%	
UK	0	0-5	0,0	**Significantly different (p=0.002)**	0%	0%-4.18%	0%,0%	**Significantly different (p=0.002)**
USA	0	0-5	0,1		0%	0%-2.64%	0%,0.76%	

Table 5–12 (continued)   Patient-centred Clinical Method Analysis Data

Variable	Frequency			Comparison	Proportion			Comparison UK/USA
	Median	Range	IQR		Median	Range	IQR	
Feelings-C								
All	2	0-15	1,4		0.42%	0%-3.75%	0.16%,0.98%	
UK	1	0-7	0,2	**Significantly different (p<0.000)**	0.25%	0%-3.75%	0%,0.74%	**Significantly different (p=0.029)**
USA	3	1-15	2,6		0.60%	0.07%-3.18%	0.26%,1.41%	
Feelings-V								
All	2	0-21	1,6		0.57%	0%-5.57%	0.10%,1.16%	
UK	1	0-10	0,3	**Significantly different (p<0.000)**	0.33%	0%-5.57%	0%,0.74%	**Significantly different (p=0.007)**
USA	5	0-21	2,9		0.81%	0%-4.55%	0.32%,1.51%	
Effects-C								
All	0	0-4	0,0		0%	0%-2.6%	0%,0%	
UK	0	0-0	0,0	**Significantly different (p=0.036)**	0%	0%-0%	0%,0%	**Significantly different (p=0.036)**
USA	0	0-4	0,0		0%	0%-2.60%	0%,0%	
Effects-V								
All	0	0-3	0,0		0%	0%-0.32%	0%,0%	
UK	0	0-0	0,0	Not significantly different (p=0.146)	0%	0%-0%	0%,0%	Not significantly different (p=0.146)
USA	0	0-3	0,0		0%	0%-0.32%	0%,0%	

Table 5–12 (continued)   Patient-centred Clinical Method Analysis Data

Variable	Frequency			Comparison	Proportion			Comparison UK/USA
	Median	Range	IQR		Median	Range	IQR	
Understanding								
All	0	0-7	0,0		0%	0%-4.79%	0%,0%	
UK	0	0-4	0,0	Not significantly different (p=0.395)	0%	0%-2.15%	0%,0%	Not significantly different (p=0.403)
USA	0	0-7	0,0		0%	0%-4.79%	0%,0%	
Symptoms-C								
All	2	0-14	0,4		0.56%	0%-12.02%	0%,2.31%	
UK	2	0-10	0,3	Not significantly different (p=0.452)	0.74%	0%-10.80%	0%,2.72%	Not significantly different (p=0.536)
USA	2	0-14	0,5		0.28%	0%-12.02%	0%,2.19%	
Symptoms-V								
All	1	0-11	0,4		0.33%	0%-5.71%	0%,0.90%	
UK	1	0-11	0,3	Not significantly different (p=0.142)	0.33%	0%-5.71%	0%,0.90%	Not significantly different (p=0.332)
USA	2	0-11	1,5		0.38%	0%-3.67%	0.05%,0.94%	
Signs-C								
All	0	0-8	0,1		0%	0%-3.13%	0%,0.23%	
UK	0	0-5	0,1	Not significantly different (p=0.396)	0%	0%-1.90%	0%,0.36%	Not significantly different (p=0.408)
USA	0	0-8	0,1		0%	0%-3.13%	0%,0.23%	

Table 5–12 (continued)   Patient-centred Clinical Method Analysis Data

Table 5–12 (continued) Patient-centred Clinical Method Analysis Data								
Variable	**Frequency**			**Comparison**	**Proportion**			**Comparison UK/USA**
	Median	Range	IQR		Median	Range	IQR	
Signs-V								
All	0	0-5	0,2		0%	0%-2.83%	0%,0.34%	
UK	0	0-4	0,2	Not significantly different (p=0.091)	0%	0%-2.83%	0%,0.95%	**Significantly different (p=0.035)**
USA	0	0-5	0,0		0%	0%-1.20%	0%,0%	
Investigations								
All	5	0-23	3,7		5.99%	0%-30.82%	2.64%,9.33%	
UK	5	0-15	3,7	Not significantly different (p=0.959)	6.55%	0%-30.82%	3.69%,11.92%	Not significantly different (p=0.092)
USA	5	0-23	2,8		4.31%	0%-23.18%	2.64%,8.09%	
Pathology								
All	1	0-7	0,2		0.95%	0%-22.72%	0%,3.07%	
UK	1	0-6	0,2	Not significantly different (p=0.742)	0.95%	0%-22.72%	0%,3.06%	Not significantly different (p=0.804)
USA	1	0-7	0,3		0.97%	0%-7.40%	0%,3.22%	
Diagnosis								
All	0	0-10	0,2		0%	0%-12.20%	0%,1.83%	
UK	0	0-7	0,1	Not significantly different (p=0.368)	0%	0%-12.20%	0%,1.90%	Not significantly different (p=0.757)
USA	1	0-10	0,2		0.23%	0%-5.65%	0%,1.83%	

Variable	Frequency			Comparison	Proportion			Comparison UK/USA
	Median	Range	IQR		Median	Range	IQR	
Planning								
All	10	2-35	7,13		13.72%	1.59%-73.70%	9.96%,23.13%	
UK	9	3-35	7,11	Not significantly different (p=0.723)	16.89%	8.89%-73.70%	13.41%,27.96%	**Significantly different (p<0.000)**
USA	10	2-26	7,13		11.00%	1.59%-30.31%	6.89%,15.39%	
Shared								
All	6	0-26	3,8		13.52%	0%-49.70%	7.27%,21.49%	
UK	5	0-23	3,6	Not significantly different (p=.089)	13.05%	0%-36.42%	6.13%,19.13%	Not significantly different (p=0.130)
USA	7	1-26	3,14		15.75%	0.78%-49.70%	7.82%,29.28%	
Interpersonal								
All	3	0-107	2,9		3.52%	0%-26.13%	1.35%,8.99%	
UK	2	0-18	0,3	**Significantly different (p<0.000)**	1.62%	0%-26.13%	0%,3.21%	**Significantly different (p<0.000)**
USA	8	2-107	5,13		6.63%	1.35%-24.74%	4.00%,13.78%	
Pet								
All	12	0-45	7,20		9.59%	0%-42.02%	4.09%,17.55%	
UK	9	0-41	4,13	**Significantly different (p<0.000)**	6.98%	0%-27.31%	2.16%,12.92%	**Significantly different (p=0.034)**
USA	18	6-45	11,25		11.48%	2.01%-42.02%	4.87%,18.05%	

Table 5–12 (continued)   Patient-centred Clinical Method Analysis Data

Table 5–12 Patient-centred Clinical Method Analysis Data				
Variable	**Frequency**			**Comparison UK/USA**
	Median	Range	IQR	
Patient-centred Clinical Method Alignment				
All	62.50%	33.33%-87.50%	58.33%,75.00%	
UK	62.50%	33.33%-83.33%	54.17%,70.83%	Not significantly different (p=0.091)
USA	66.67%	54.17%-87.50%	62.50%,75.00%	

5.5.5.6   Examples of Patient-centred Clinical Method flow between elements

In Figure 5–6 are two representative Patient-centred Clinical Method "Keyword Maps" of one consultation in the USA and one in the UK. Again, there was a significant back and forth between, and skipping among, model components during the consultation, resulting in a flow through the model that is iterative and fluid, rather than uniformly structured and linear. Also, information gathering occurred throughout the consultation.

Figure 5–6: Patient-centred Clinical Method Model Keyword Map Examples
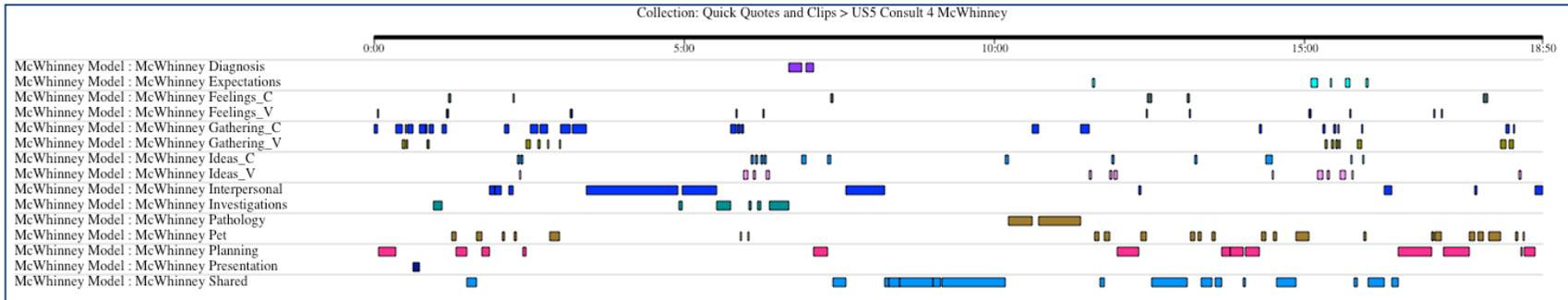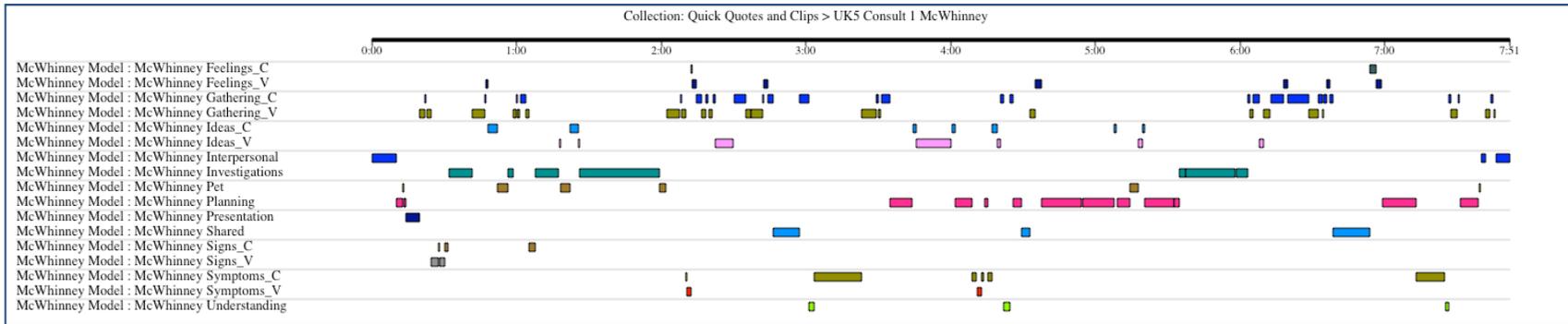
In Figure 5–7 is a representation of the ebb and flow between topics from the Veterinary Surgeon's "Illness" perspective and the client's "Disease" perspective according to the Patient-centred clinical model, compared with an actual dialogue flow following the order of dialogue instances according to the coded segments in the Patient-Centred Clinical Method model analysis of one of the consultations. The Patient-Centred Clinical Method model, though shifting between the two perspectives, proceeds in a somewhat structured fashion. In the present study, conversation flowed much more randomly between different elements of the model, often going back and forth from one "end" of the model to the other and returning to earlier elements throughout the consultation.

Figure 5–7: Patient Centred Clinical Method Model (l) and representation of conversation flow from Keyword Map (r)

Patient-centred Clinical Method
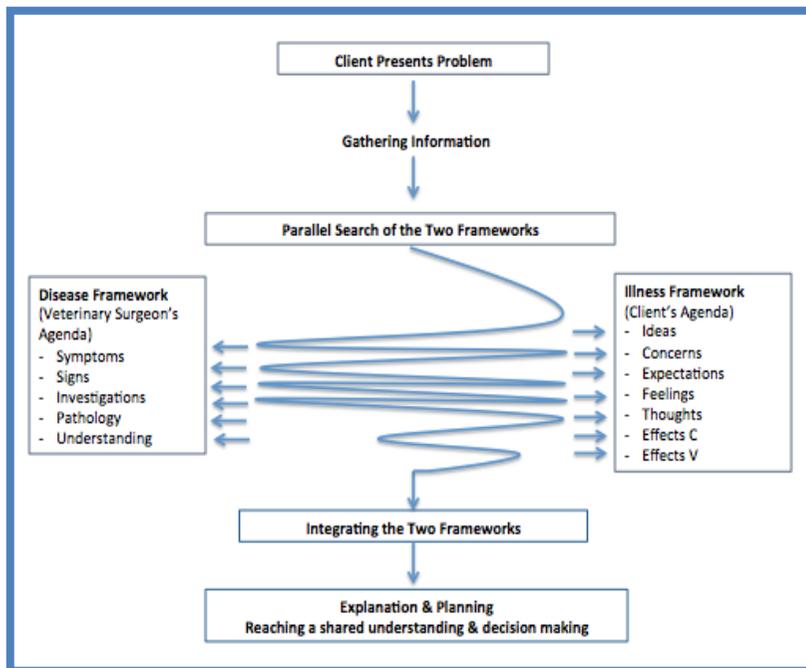
Example Patient-Centred Clinical Method Conversation Flow
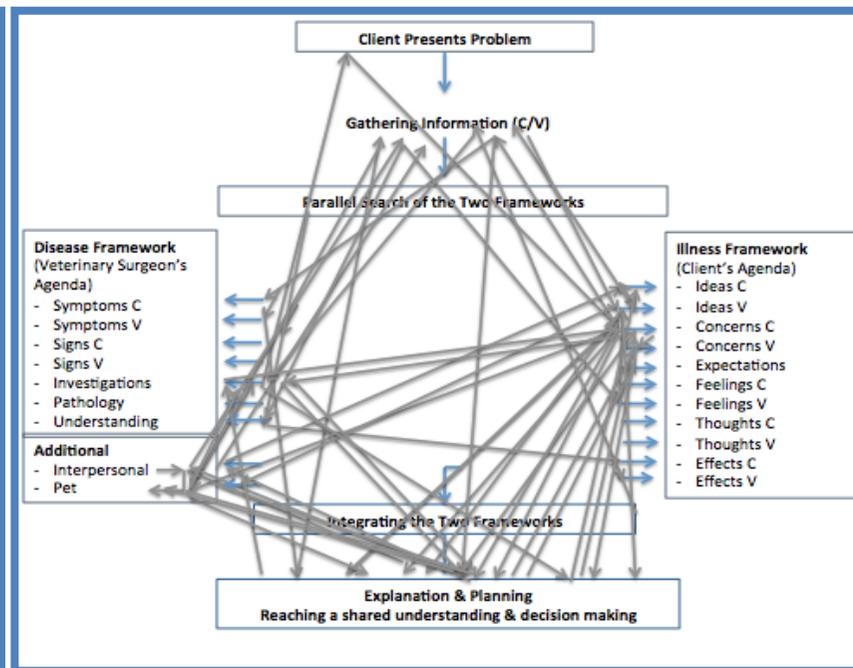
5.5.6   Mishler Discourse Analysis

Mishler Discourse (Content) Analysis results for all consultations and by country are in Table 5–13; complete results (all consultations, by country, and by practice) are in Appendix 8.8.

5.5.6.1 Median length of consultations – Mishler Discourse Analysis

The median length of consultations according to the Mishler Discourse Analysis was 16.79 minutes (range 4.94-43.77 minutes), with no significant difference in length of consultations in the UK (median 16.29 minutes, range 4.94-43.77 minutes), and in the USA (median 16.81 minutes, range 8.02-30.04 minutes), p=0.316.

5.5.6.2 Mishler Discourse Analysis Frequency

The median frequency of "Lifeworld" dialogue was 20 across all consultations, 14 in UK consultations, and 26 in USA consultations. The median frequency of "Medical" dialogue across all consultations was 22 for all consultations, 20 in the UK, and 29 in the USA.

5.5.6.3 Mishler Discourse Analysis Proportion

The median proportion of "Lifeworld" dialogue across all consultations was 34.48%, 28.17% in UK consultations, and 40.99% in USA consultations. The median proportion of "Medical" dialogue across all consultations was 65.52%, 71.83% in UK consultations, and 59.01% in USA consultations.

5.5.6.4 Mishler Discourse Analysis elements with significant differences between the UK and USA

There were significant differences between UK and USA consultations across all Mishler Discourse Analysis elements, with the UK being higher in "Medical" Proportion (p=0.004), and the USA being higher in "Lifeworld" Frequency (p<0.000), "Lifeworld" Proportion (p=0.004), and "Medical" Frequency (p=0.010).

Variable								Comparison
Consultation Length (min)	Median		Range		IQR			
All	16.79		4.94-43.77		11.16,20.15			
UK	16.29		4.94-43.77		9.70,18.71			Not significantly different (p=0.316)
USA	16.81		8.02-30.04		11.91,21.82			
	Frequency			**Comparison**	**Proportion**			**Comparison**
	Median	Range	IQR		Median	Range	IQR	
Lifeworld								
All	20	4-48	14,27		34.48%	7.14%-85.07%	25.46%,50.90%	
UK	14	4-48	10,20	**Significantly different (p<0.000)**	28.17%	7.14%-71.97%	21.24%,38.92%	**Significantly different (p=0.004)**
USA	26	14-44	20,29		40.99%	12.44%-85.07%	33.08%,57.33%	
Medical								
All	22	6-76	16,29		65.52%	14.93%-92.86%	49.10%,74.54%	
UK	20	6-62	13,25	**Significantly different (p=0.010)**	71.83%	28.03%-92.86%	61.08%,78.76%	**Significantly different (p=0.004)**
USA	29	10-76	19,37		59.01%	14.93%-87.56%	42.67%,66.92%	

Table 5–13   Mishler Discourse Analysis Data

5.5.6.5 Examples of Mishler Discourse Analysis flow between elements

In Figure 5–8 are two representative Keyword Maps from the Mishler Discourse analysis; again, one from a UK consultation ("Medical" dominant) and one from a USA consultation ("Lifeworld" dominant). There is clearly delineation between the "Medical" and "Lifeworld" components of the discussion but the dialogue flows back and forth between the two voices, regardless of which is dominant in the consultation.

Figure 5–8:   Content Analysis (Mishler Discourse Analysis) Keyword Map Examples

Collection: Quick Quotes and Clips > US4 Consult 2 Mischler

0:00   2:00   4:00   6:00   8:00   10:00   12:12

Mishler Discourse Analysis : Lifeworld
Mishler Discourse Analysis : Medical

Collection: Quick Quotes and Clips > UK3 Consult 1 Mischler

0:00   1:00   2:00   3:00   4:00   5:00   6:00   7:00   7:42

Mishler Discourse Analysis : Lifeworld
Mishler Discourse Analysis : Medical
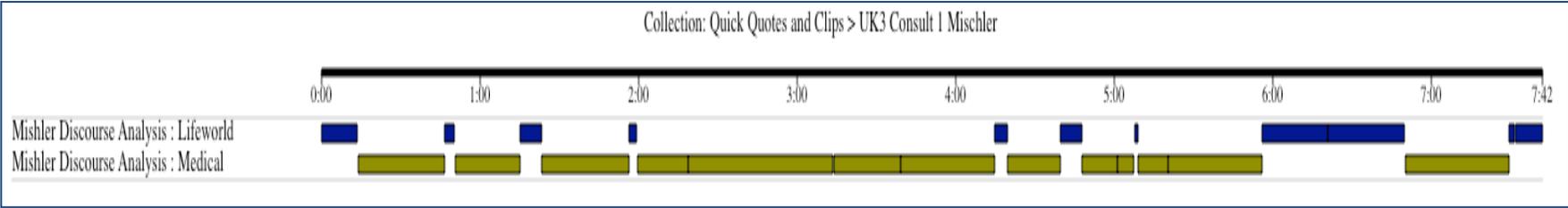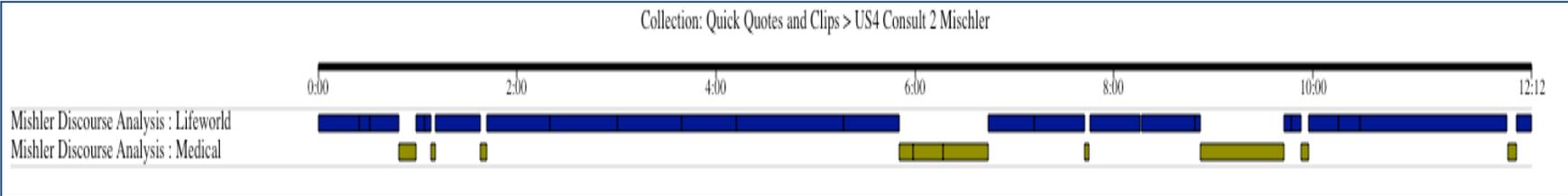
5.5.7   Client/Relationship-centredness (VR-COPE)

5.5.7.1 Pilot Study Results

Though the absolute scores varied considerably between the two colleagues in the VR-COPE pilot evaluation, there was relative uniformity between the scores that were high and those that were low. This, together with the relative ease with which the pilot participants were able to use the element descriptions to score the consultations, lead the researcher to conclude that inter-rater variability was acceptable and that the tool was appropriate for use in the current study. The data from the analyses of the pilot evaluators are in Table 5–14.

Table 6–14 Comparison of VR-COPE Pilot Scores				
Element	**UK Pilot**		**USA Pilot**	
	Colleague 1	**Colleague 2**	**Colleague 1**	**Colleague 2**
1. Client agenda-combined	10	9	6	6
2. Client worries and emotional needs - combined	10	9	2	5
3. Psychosocial impact of illness on life - combined	8	8	2	4
4. Active listening -combined	9	9	4	6
5. Empathy and support - combined	8	9	2	5
6. Client point of view- combined	5	9	5	7
7. Client expectations - combined	4	9	2	4
8. Structuring the consultation - combined	8	9	1	4
9. Achieving a shared understanding - combined	8	9	2	4
10. Veterinary Surgeon-pet interaction - combined	10	10	4	3
Total Score	**80**	**90**	**30**	**47**

5.5.7.2.   Main Study Results

Client/Relationship-centredness (VR-COPE) results for all consultations, UK consultations, and USA consultations are in Table 5–15; complete results (individual consultations, by country, and by practice) are in Appendix 8.9.

5.5.7.3 VR-COPE summary

The top three VR-COPE elements reported with the highest scores across all consultations, UK consultations, and USA consultations were "Vet provides appropriate information," "No abrupt changes," and "Vet uses explicit structure." The bottom three VR-COPE elements reported with the lowest scores across all consultations, UK consultations, and USA consultations were "Vet offers client resources to help them cope," "Vet explores client emotions," and "Vet responds to client emotions."

5.5.7.4 VR-COPE total score

The median VR-COPE total score (out of a potential 100 points) was 76.00 for all consultations, UK consultations, and USA consultations, with no significant difference between the UK and USA.

5.5.7.5 VR-COPE elements with significant differences between the UK and USA

UK frequency was higher than USA frequency for "Vet checks understanding" (p=0.010). UK proportion was higher for "Structuring – combined score" (p=0.041). Elements were higher in frequency in the USA for "Vet-Pet interaction – combined score" (p=0.028). USA proportion was higher for "No abrupt changes" (p=0.024), "Vet talks to pet" (p=0.015), and "Vet physically engages pet" (p=0.017).

Element	Measure			Comparison	Variable	Measure			Comparison
	Median	Range	IQR			Median	Range	IQR	
1. Client Agenda – combined score					**2. Client Worries – combined score**				
All	8	3-9	7,8		**All**	7	5-9	6,7	
UK	8	5-9	7,9	Not significantly different (p=0.242)	**UK**	7	5-9	6,8	Not significantly different (p=0.463)
USA	8	3-9	6,8		**USA**	7	5-9	6,7	
1a. Lists client problems					**2a. Client's psychological state is evident**				
All	8	3-10	8,9		**All**	8	6-10	7,9	
UK	8	5-10	8,9	Not significantly different (p=0.111)	**UK**	8	6-10	7,9	Not significantly different (p=0.323)
USA	8	3-9	7,8		**USA**	7	6-10	7,9	
1b. Vet checks list					**2b. Vet responds to client emotions**				
All	7	3-9	6,8		**All**	6	5-10	6,7	
UK	7	5-9	6,9	Not significantly different (p=0.450)	**UK**	7	5-9	6,7	Not significantly different (p=0.841)
USA	7	3-9	5,8		**USA**	6	5-10	6,7	
1c. Vet clarifies new information					**2c. Vet explores client emotions**				
All	8	3-10	7,8		**All**	6	4-9	5,7	
UK	8	5-10	7,9	Not significantly different (p=0.162)	**UK**	6	5-9	5,7	Not significantly different (p=0.428)
USA	8	3-9	6,8		**USA**	6	4-9	5,7	

Table 5–15   VR-COPE (Client/relationship-centredness) Data

Table 5–15 (continued) VR-COPE (Client/relationship-centredness) Data								
Element	**Measure**			**Comparison**	**Variable**	**Measure**			**Comparison**
	Median	Range	IQR			Median	Range	IQR	
3. Psychological impact – combined score					**4. Active listening – combined score**				
All	7	4-10	6,8		**All**	8	6-10	8,9	
UK	7	4-9	6,8	Not significantly different (p=0.822)	**UK**	8	7-9	7,9	Not significantly different (p=0.101)
USA	7	4-10	6,8		**USA**	9	6-10	8,9	
3a. Psychological information emerges					**4a. Reflective comments – active listening**				
All	7	4-10	6,8		**All**	8	5-10	7,9	
UK	7	4-9	6,8	Not significantly different (p=0.870)	**UK**	8	5-9	7,8	Not significantly different (p=0.331)
USA	7	4-10	6,8		**USA**	8	5-10	7,9	
3b. Client has opportunity to describe impact on life					**4b. No abrupt changes**				
All	7	4-10	6,8		**All**	9	8-10	8,9	
UK	7	4-10	6,9	Not significantly different (p=0.932)	**UK**	9	8-10	8,9	**Significantly different (p=0.024)**
USA	7	4-10	6,8		**USA**	9	8-10	9,10	
3c. Vet offers client resources to help them cope					**4c. Good eye contact**				
All	0	0-4	0,0		**All**	8	6-10	7,9	
UK	0	0-4	0,0	Not significantly different (p=0.326)	**UK**	8	6-10	7,9	Not significantly different (p=0.782)
USA	0	0-0	0,0		**USA**	9	6-10	7,9	

Element	Measure			Comparison	Variable	Measure			Comparison
	Median	Range	IQR			Median	Range	IQR	
5. Empathy – combined score					**6. Client point of view – combined score**				
All	7	5-9	6,8		**All**	8	5-10	7,8	
UK	7	6-9	6,8	Not significantly different (p=0.359)	**UK**	8	5-9	6,8	Not significantly different (p=0.170)
USA	8	5-9	6,8		**USA**	8	6-10	7,9	
5a. Reflective comments – empathy					**6a. Vet asks client point of view**				
All	8	5-10	7,9		**All**	7	5-10	7,9	
UK	8	5-9	6,8	Not significantly different (p=0.077)	**UK**	7	5-9	6,8	Not significantly different (p=0.063)
USA	8	5-10	7,9		**USA**	8	6-10	7,9	
5b. Vet sees problem from client perspective					**6b. Vet tries to understand client**				
All	7	5-10	6,8		**All**	8	5-10	7,8	
UK	7	6-9	6,8	Not significantly different (p=0.690)	**UK**	8	5-9	6,8	Not significantly different (p=0.198)
USA	7	5-10	6,8		**USA**	8	5-10	7,9	
5c. Vet offers emotional support					**6c. Client is free to communicate**				
All	6	5-9	6,7		**All**	8	5-10	7,9	
UK	6	5-9	6,7	Not significantly different (p=0.426)	**UK**	8	5-10	7,9	Not significantly different (p=0.223)
USA	7	5-9	6,8		**USA**	8	6-10	8,9	

Table 5–15 (continued)   VR-COPE (Client/relationship-centredness) Data

Table 5–15 (continued) VR-COPE (Client/relationship-centredness) Data									
Element	**Measure**			**Comparison**	**Variable**	**Measure**			**Comparison**
	Median	Range	IQR			Median	Range	IQR	
7. Client expectations – combined score					**7d. Client is free to report expectations**				
All	8	6-9	7,8		**All**	8	6-10	7,9	
UK	7	6-9	7,8	Not significantly different (p=0.610)	**UK**	8	6-10	7,9	Not significantly different (p=0.560)
USA	8	6-9	7,8		**USA**	8	6-10	7,9	
7a. Client expectations are evident					**8. Structuring – combined score**				
All	8	5-10	7,9		**All**	9	6-10	8,9	
UK	8	5-10	7,9	Not significantly different (p=0.979)	**UK**	9	8-10	8,9	**Significantly different (p=0.041)**
USA	8	6-10	7,9		**USA**	8	6-10	8,9	
7b. Vet asks client expectations					**8a. Vet uses explicit structure**				
All	7	5-9	6,8		**All**	9	7-10	8,9	
UK	7	5-9	6,7	Not significantly different (p=0.338)	**UK**	9	8-10	8,9	Not significantly different (p=0.344)
USA	7	5-9	6,8		**USA**	9	7-10	8,9	
7c. Vet tries to understand client's expectations					**8b. Vet uses transitions**				
All	7	5-9	6,8		**All**	8	6-10	8,9	
UK	7	6-9	6,8	Not significantly different (p=0.228)	**UK**	9	7-10	8,9	Not significantly different (p=0.136)
USA	8	5-9	6,8		**USA**	8	6-10	7,9	

Element	Measure			Comparison	Variable	Measure			Comparison
	Median	Range	IQR			Median	Range	IQR	
9. Shared understanding – combined score					**10. Vet-pet interaction – combined score**				
All	8	6-9	7,8		**All**	8	5-10	7,9	
UK	8	7-9	8,9	Not significantly different (p=0.293)	**UK**	8	5-10	6,9	**Significantly different (p=0.028)**
USA	8	6-9	7,8		**USA**	9	6-10	7,10	
9a. Vet provides appropriate information					**10a. Vet talks to pet**				
All	9	7-10	9,10		**All**	9	5-10	8,10	
UK	9	8-10	9,10	Not significantly different (p=0.791)	**UK**	8	5-10	7,9	**Significantly different (p=0.015)**
USA	9	7-10	9,10		**USA**	9	6-10	8,10	
9b. Vet checks understanding					**10b. Vet physically engages pet (petting, scratching, hugging, etc.)**				
All	7	5-10	6,7		**All**	8	5-10	7,9	
UK	7	6-10	7,8	**Significantly different (p=0.010)**	**UK**	8	5-10	6,9	**Significantly different (p=0.017)**
USA	7	5-9	6,7		**USA**	9	6-10	7,10	
9c. Client is encouraged to ask questions					**10c. Pet responds positively to vet's words and/or actions**				
All	7	5-10	6,8		**All**	7	2-10	6,9	
UK	7	5-9	6,8	Not significantly different (p=0.945)	**UK**	7	2-10	5,9	Not significantly different (p=0.072)
USA	7	5-10	6,8		**USA**	8	5-10	7,9	

Table title: Table 6–15 (continued)   VR-COPE (Client/relationship-centredness) Data

Element	Measure			Comparison
	Median	Range	IQR	
VR-COPE total score				
All	76.00	62.00-92.00	72.00,79.00	
UK	76.00	62.00-86.00	72.00,79.00	Not significantly different (p=0.780)
USA	76.00	66.00-92.00	72.00,79.00	

Table 6–15 (continued)   VR-COPE (Client/relationship-centredness) Data

5.5.8 Client Satisfaction

Twenty-nine UK Clients and 27 USA clients completed satisfaction surveys (two more UK clients completed a satisfaction survey than we had video of, and one UK client for whom we had video did not complete a survey). Client Satisfaction Survey results for all consultations, UK consultations, and USA consultations are in Table 5–16. Complete results (all consultations, by country, and by practice) are in Appendix 8.10.

Client satisfaction scores were generally high, with a median score of 6/6 being the most common. Exceptions, where median scores were 5 or 5.5 out of 6, were for "How well you understood the costs today," "The vet's discussions of costs with you," and "Interest the vet expressed in your opinion." These were also the elements for which the range of responses were among the widest. The median Client Satisfaction total score (out of a maximum potential 114 points) was 94.00. There was no significant difference in Client Satisfaction total score between the UK and USA (p=0.780), nor was there for any element of the Client Satisfaction survey.

Element	Measure			Comparison	Variable	Measure			Comparison
	Median	Range	IQR			Median	Range	IQR	
1a. Amount of time vet gave your pet					**1e. Veterinary surgeon's examination**				
All	6	3-6	5,6		All	6	4-6	5,6	
UK	6	3-6	5,6	Not significantly different (p=0.769)	UK	6	4-6	5,6	Not significantly different (p=0.389)
USA	6	3-6	5,6		USA	6	4-6	5,6	
1b. How well vet understood reason for visit					**1f. How well vet explained diagnostic process**				
All	6	3-6	5,6		All	6	4-6	5,6	
UK	6	3-6	5,6	Not significantly different (p=0.712)	UK	6	4-6	5,6	Not significantly different (p=0.846)
USA	6	4-6	5,6		USA	6	4-6	5,6	
1c. Vet's confidence interacting with you and your pet					**1g. How well vet explained treatments and procedures**				
All	6	4-6	5,6		All	6	4-6	5,6	
UK	6	4-6	5,6	Not significantly different (p=0.718)	UK	6	4-6	5,6	Not significantly different (p=0.730)
USA	6	5-6	5,6		USA	6	4-6	5,6	
1d. How well vet involved you in the appointment					**1h. How well you understood the costs today**				
All	6	3-6	5,6		**All**	5	1-6	5,6	
UK	6	4-6	5,6	Not significantly different (p=0.821)	**UK**	5	1-6	4,6	Not significantly different (p=0.697)
USA	6	3-6	5,6		**USA**	5	3-6	5,6	

Table 5–16   Client Satisfaction Survey Data

Element	Measure			Comparison	Variable	Measure			Comparison
	Median	Range	IQR			Median	Range	IQR	

Table 5–16 (continued)   Client Satisfaction Survey Data

Element	Measure			Comparison	Variable	Measure			Comparison
	Median	Range	IQR			Median	Range	IQR	
1i. The vet's discussion of options with you					**1m. How well the veterinary surgeon addressed all your concerns**				
All	6	4-6	5,6		All	6	4-6	5,6	
UK	6	4-6	5,6	Not significantly different (p=0.944)	UK	6	4-6	5,6	Not significantly different (p=0.818)
USA	6	4-6	5,6		USA	6	4-6	5,6	
1j. The vet's discussion of costs with you					**1n. The vet's recognition of the role this pet has in your life**				
All	5	1-6	4,6		All	6	3-6	5,6	
UK	5	1-6	3,6	Not significantly different (p=0.157)	UK	5	3-6	5,6	Not significantly different (p=0.474)
USA	5	3-6	5,6		USA	6	4-6	5,6	
1k. Interest the vet expressed in your opinion					**1o. The amount of time the vet spent with you and your pet**				
All	5.5	3-6	5,6		All	6	2-6	5,6	
UK	5.5	3-6	4.25,6	Not significantly different (p=0.769)	UK	6	3-6	5,6	Not significantly different (p=0.746)
USA	5	3-6	5,6		USA	6	2-6	5,6	
1l. Amount of information you received from the vet					**2a. Willingness to pursue further diagnostic tests**				
All	6	4-6	5,6		**All**	6	1-6	5,6	
UK	6	4-6	5,6	Not significantly different (p=0.810)	**UK**	6	1-6	4,6	Not significantly different (p=0.389)
USA	6	4-6	5,6		**USA**	6	4-6	5,6	

Table 5–16 (continued) Client Satisfaction Survey Data								
Element	**Measure**			**Comparison**	**Variable**	**Measure**			**Comparison**
	Median	Range	IQR			Median	Range	IQR	
2b. Willingness to pursue recommended treatments					**2d. Other (follow-up actions)**				
All	6	1-6	5,6		All	6	6-6	6,6	
UK	6	1-6	5,6	Not significantly different (p=0.666)	UK	6	6-6	6,6	Not significantly different (p=1.000)
USA	6	4-6	5.75,6		USA	6	6-6	6,6	
2c. Willingness to schedule follow-up visits					**Client Satisfaction Total Score (x/114)**				
All	6	3-6	6,6		All	94.00	54.00-108.00	81.75, 102.00	
UK	6	3-6	6,6	Not significantly different (p=0.819)	UK	92.50	59.00-108.00	81.25, 102.00	Not significantly different (p=0.780)
USA	6	4-6	6,6		USA	94.00	54.00-108.00	83.50, 101.50	

5.5.9 Correlations

Results of the Pearson Correlation Coefficient calculations for major elements of the Complexity, Communication Model, Medical versus Lifeworld Content, Client-centredness and Client Satisfaction analyses are presented in Table 5–17. There were no significant correlations between the measured elements.

Table 5–17 Correlations between select elements		
ELEMENT	CORRELATION WITH CLIENT SATISFACTION TOTAL SCORE	CORRELATION WITH VR-COPE TOTAL SCORE
Client-centredness (Total VR-COPE score)	n =52 $r = 0.271$ p =0.052	
Client Satisfaction (Total Score)		n =52 $r = 0.271$ p =0.052
Specific health problem vs. Preventive Medicine consultation	n =52 $r = 0.101$ p =0.475	n =55 $r = 0.111$ p =0.418
Number of problems	n =50 $r = 0.134$ p =0.355	n =53 $r = 0.060$ p =0.672
Calgary-Cambridge alignment	n =52 $r = 0.000$ p =0.998	n =55 $r = -0.148$ p =0.281
Patient-centred clinical method alignment	n =52 $r = 0.218$ p =0.120	n =55 $r = 0.110$ p =0.424
Percent Lifeworld dialogue	n =52 $r = -0.213$ p =0.130	n =55 $r = 0.122$ p =0.373
Percent Medical dialogue	n =52 $r = 0.213$ p =0.130	n =52 $r = -0.122$ p =0.373

5.6   Discussion

The components researched in the present study assessed several different characteristics of the veterinary consultation. It was possible to make observations and suggest possible connections between communication elements that to the researcher's knowledge have never been studied together before (e.g. complexity, model alignment (including using a new model for veterinary communication research), "medical" versus "lifeworld" content, client/relationship-centredness, and client satisfaction). The findings of this study confirm previous research about the dynamics of the veterinary consultation (Everitt et al., 2013, Robinson et al., 2015). They also described various aspects of the consultation (e.g. the complexity of consultations and the flow of conversation between the coded elements of the communication models) in ways that can hopefully inform and enhance both the understanding, and teaching of, effective veterinary surgeon-client-patient communication.

Summarising the findings of the study, consultations are complex and active, with many things going on even in relatively routine consultations. The consultations in the UK and USA were similar in terms of practice types, consultation length, client -expressed satisfaction with the consultations and alignment with the communication models but different in aspects such as number of problems and diagnoses, proportion of "lifeworld" to "medical" dialogue, interpersonal conversation and engaging the pet. Communication happens during the whole consultation and it varies constantly across all components of the consultation models. Looking across the different measurements, veterinary surgeons spend the majority of time on the clinical/medical aspects of the consultation and much less time on the impact of the animal's condition on the owners'

lives and emotions. Despite this, owners expressed satisfaction with the consultations, with the exception of the elements related to cost discussions and entertaining the owners' opinions, which had slightly lower satisfaction scores. It would be interesting to determine what would happen if more time were devoted to encouraging owners to express their opinions and the emotional impact of the animal's condition on the owners. Other researchers have studied the structure and communication of veterinary consultations (Everitt et al., 2013), client satisfaction (Coe et al., 2008), and scientific complexity (Robinson et al., 2015). This study has explored these elements together for the same consultations, which provided a multidimensional characterisation of the communication dynamic.

5.6.1   Consultation Recording Pilot Study

The pilot study was essential for planning the proper approach to securing participation of veterinary surgeons and clients, video recording consultations in real-time in working practices, and soliciting client feedback. Some of the learnings from the pilot study helped us progress to the full study with optimal chance of success. Hopefully the learnings from the pilot study and its benefits for conducting the full study will be useful to anyone wishing to conduct similar consultation research in the future.

5.6.2   Study Sample

A convenience sample was used for this study. There are several reasons for this, and for not attempting to randomise the sample in some way. There are no readily available lists of all practices in the UK or in the USA that would allow for randomisation by practice. There is also no "average" practice or "average" consultation, as attested to by this and previous research that confirmed how variable they are (Everitt et al., 2013).

Furthermore, randomising within a practice was not possible for this study given logistical and time constraints. Nevertheless, had it been possible to take more time for the study (e.g. more than one day per practice), a wider range of consultations, clients, and veterinary surgeons might have been included and different results may have been gathered. Had consultations for more serious health problems been included (e.g. cancer, chronic kidney disease or serious injuries), it may have been possible to explore a wider range of emotions. There is no way to know this for certain, but future studies could look at more diverse consultations and participants.

Recruitment was vastly different in the UK versus the USA, and this was largely due to the fact that the CEVM have a strong network of partner practices with which they conduct research frequently. As a result, recruitment of the UK practices was possible within the span of a couple of weeks, and it was possible to schedule one practice a day within a single week. Conversely, recruitment of the USA practices, and conducting the study, happened over several months.

Recruitment methods for USA practices involved contacting personal or professional acquaintances or those veterinary surgeons who had participated in a communication survey (McDermott et al., 2015) and had opted in for participation in future research. While in theory this provided a willing pool of participants in the consultation study, in practice it was very difficult to obtain commitment from veterinary surgeons within the northeast USA, where the researcher was based. In the end only two study participants were secured from the participants in the communication survey.

Ultimately the practice mix was relatively similar in each country in terms of practice type and size (with the exception of the referral practice in the UK) as was types of consultations (again with the exception of the specialty consultations in the UK referral practice). The variability in seasons (from November through June) meant that the time of year and weather experienced by clients and veterinary surgeons was much more uniform in the UK than in the USA. However, there were no serious weather events in either country during data collection that would have greatly limited the mix of clients or veterinary surgeons available to participate. Nevertheless, the value of having a network of practices on which to call when it comes to ease of recruiting and standardisation of study conditions is noteworthy for planning studies of this kind.

The study had good internal validity, in that internal variables were controlled best as they reasonably could be (e.g. methodology for recruiting clients, video-recording consultations and administering and collecting the completed client satisfaction questionnaires). The external validity is unknown but based on the relatively small sample size, the lack of complete geographic diversity and other factors, it is difficult to assume how closely the studied consultations reflect the "average" consultation. There are therefore limitations as to how generalisable the study is to veterinary surgeons, practices, clients and patients across the UK and USA in general. Nevertheless, the study findings are relevant for anyone who consults or who teaches communication skills for veterinary consultations.

5.6.3   Study logistics and their impact

As noted previously, in the UK practices, the researcher was accompanied by a CEVM colleague or postgraduate supervisor on each day. Though this added another person to

the mix, it was not evident that the extra person created any more distraction. In fact, preliminary discussions with the veterinary surgeons and staff, equipment set-up and testing, and orchestrating scheduling of the consultations that would be studied went noticeably more smoothly in the UK practices than in the USA practices where the researcher had to do everything alone. One reason for this was the familiarity of the colleagues or supervisors with the practices and practitioners. This seemed to increase the comfort level for everyone involved.

The study was planned so that all consultations for a practice would be recorded during the same day to make the conditions of the day, practice, and veterinary surgeons as uniform as possible. Fitting all consultations per practice in one day did not appear to hinder the ability of the researcher to collect data effectively from a varied sample of cases. As mentioned in the methods section, two consultations in the first UK practice were not recorded because the camera batteries ran out before these consultations began. The reason why this was not anticipated by the pilot study is that the pilot study only involved two consultations in each practice, and in each case the consultations were back-to-back, thus not allowing enough time for the batteries to run out. In hindsight, it could have been possible to anticipate this problem by doing a more complete pre-test of the cameras during which their battery lives could have been measured.

Because there were two fewer consultations recorded than there would have been with better battery management, the data set for the study was not as compete as it could have been, both overall and particularly for UK practice 1. Nevertheless, the goal of the study was to record 25 consultations in each country (which we did in each

case) and 5 consultations in each practice (which we did in all cases, except for UK practice 4, and this was because of it being a light day for consultations in the practice, and it being a referral practice with fewer consultations in general, not because of any other limitations).

As mentioned previously, in one UK practice and one USA practice, the consent and client satisfaction forms were handed to the pet owner by a member of the practice staff, and in the UK practice returned to the staff member (in all others these steps were handled with by the researcher). This was simply a matter of practice preference; in the cases where a front-desk staff member dealt with the forms, it was because they volunteered to. This seemed to help to comply with the objective of interfering with practice operations as little as possible and did not appear to have any notable impact on the dynamics of data collection.

Nonetheless, despite concerted efforts to avoid interfering with normal activity of the practices, it is impossible to avoid interfering on some levels. CEVM have worked with practices extensively, and in the process have done much to minimise the impact on the practice. Nevertheless, it would be incorrect to assume that there is no burden placed on the practice, its associates and clients with an in-practice study. Because of this the members of the CEVM are very grateful that practices and clients make themselves available for participation in studies conducted by CEVM associates.

5.6.4 Consultation Characteristics

The consultations in this study were quite similar, despite their being done in two separate countries. They were conducted in first opinion practices in all but one case, involving mostly routine problem- or wellness visits. The median length of consultation was close to 16 minutes in each country, which is somewhat longer than the 9– to 13-minute duration of consultations recorded in previous research (Everitt et al., 2013, Robinson et al., 2014, Shaw et al., 2008). (The practice with the longest median length of consultation (21.35 minutes) was the UK referral practice.) The length of consultations in this study might be related to the consultations being filmed or simply to the fact that our study sample did not include enough long or short consultations. The role of the veterinary technician gathering information from the client in the USA consultations may have also impacted the length of the consultations in the USA, (among other other aspects of the consultation). Consultation length may limit application of the findings of the study to consultations of significantly shorter duration. In the UK, for instance, some practices have schedules incorporating 10-minute consultations (Robinson et al., 2014). The time pressures of shorter consultations may present challenges and suggest issues not revealed in this study. The role of the veterinary technician in the USA may impact comparison of the USA- to UK consultations as well, thoug this was not explored in the present study.

5.6.5 Scientific Complexity Analysis

The complexity analysis helped to paint a picture of veterinary consultations that cover multiple issues, varied investigations, wide-ranging discussions and in some cases more than one animal. Consultations evidenced complexity in both the UK and USA, though

to a greater degree in USA consultations. Communication between veterinary surgeons and clients in this study happened against the backdrop of a complex and quickly-changing dynamic of information gathering, physical examination, diagnostic tests, administration of treatments, discussion of diagnoses and treatment options. One of the reasons why the emotional aspects of the case were not always given priority in the consultations described may be the lack of time – there may not have been enough time to do gather information, diagnose, and treat and cover emotional impact. The addition of the additional owners, pets, children, and other influencers in the room appeared to provide a complex environment for the consultation and suggested that communication should not be considered in a vacuum. A key recommendation from the complexity findings is that communication should be taught with the complexity of a consultation in mind. This could include incorporating multiple health issues, patient and owner types, clinical activities, topics of discussion and interpersonal dynamics in simulated consultations. Trainers should ensure that everyone seeking to better their communication skills are able to imagine the elements of effective communication occurring in the busy, complicated environment in which it usually happens. Further research in this area could look for evidence of how skills to promote such real-world preparation could be best learned, such as in incorporation of aspects of consultation complexity into clinical skills labs that progress from models to simulations to actual cases (Rösch et al., 2014).

We were fortunate that N. Robinson was able to record the complexity data for us. Not only did she pioneer and validate the methodology we used (Robinson et al., 2015), she is a clinician herself, able to notice the smallest nuances of a consultation.

Doctor Robinson's involvement certainly enhanced the efficiency and accuracy of our complexity data gathering.

5.6.6   Calgary-Cambridge Model Analysis

The Calgary-Cambridge consultation model, adapted for veterinary use, is the primary model through which the skills required for conducting and communicating through a veterinary consultation are taught in both the undergraduate curriculum and in continuing professional development (Gray et al., 2006, Mossop et al., 2015, Shaw et al., 2004a) and was therefore chosen for this study. Since it is likely to be the basis for communication training for the foreseeable future, it is important that training using the Calgary-Cambridge model should be matched as well as possible to what happens in actual consultations.

Though our study demonstrated that most elements of the Calgary-Cambridge model were evidenced, the data were also consistent with those of Everitt et al. (2013), which suggested that progression through the elements of the model was not linear. Nor was each stage in the flow of the consultation compartmentalised. Information gathering and planning was done throughout the conversation, including in between examinations, diagnostic procedures and even interpersonal conversation. Elements of the Calgary-Cambridge model which dominated were "Exploration of the problem" by both client and veterinary surgeon and "Engaging the Pet," while "Summarising," "Forward Planning," and "Identifying" the issues around the problem by the client were underrepresented. The question arises, as suggested above, "Is this because veterinary

surgeons don't have enough time to do everything? Or do veterinary surgeons concentrate on what they have been taught?"

Future research could explore in more detail how veterinary surgeons are applying the model to their communication in practice, including measuring elements in addition to those that this study examined. Examples are the details in the GVCCCM that define the purpose of applying the model ("Providing Structure to the Consultation" and "Building the Relationship with the Client") and the elements that underlie each of these ("making organisation overt" "attending to flow," "non-verbal behaviour," "developing rapport," "involving the client," and "involving the animal(s))." The GVCCCM also provides explicit instructions for how to accomplish these objectives (e.g. "asking open questions," "listening attentively," "encouraging clients to tell a story," and "clarifying statements") (Radford et al., 2006). Each of these elements could be measured in consultation research designed to determine how effectively the model is being used, and in training in which the students are evaluated on their application of the model. Last but not least, principles of adult learning (Dale et al., 2008) and the hidden curriculum (Mossop et al., 2013) could be taken into account in the development and delivery of communication training content and methods to ensure the most effective delivery of communication training within the context of how veterinary students and practitioners best learn and from what perspectives they enter into the training.

The Calgary-Cambridge Model/GVCCCM is used both as a tool for teaching the structure and conduct of veterinary consultations (Mossop et al., 2015, Radford et al., 2006) and a rubric for setting standards of effective communication (Mossop et al.,

2015, Radford et al., 2006, Englar et al., 2016). It is important to ensure that the GVCCCM be considered from both these perspectives in its use in training, with the ultimate goal being students who are well prepared for putting its principles into practice. Mossop and Gray (2008) stressed the importance of students learning from the Calgary-Cambridge Guides through experience rather than solely through exposure to their theories and principles. This can include role-playing with skilled facilitators and supportive peers.

Role-models have been recognised as important for effective learning in veterinary medicine (Schull et al., 2012) and are identified as elements of the hidden curriculum (Mossop, 2017). In a study conducted with final-year veterinary students at the University of Queensland in Australia, (Schull et al., 2012), students identified attributes of positive role models from experience in clinical practice. Interestingly, among the positive attributes were good communication skills and effective management of relationships with clients, patients, and staff. Instructors and mentors who are conscience of their status as role models can enhance the learning experience by exemplifying best practices in communication as well as teaching them with all methods of delivery (Mossop et al., 2015). Conversely, demonstration of poor communication skills by role models can "undo" some of the benefits of learning effective communication skills (Mossop, 2017).

In teaching use of the Calgary-Cambridge model as a framework for conducting a consultation, it would be useful to emphasise to students that they need to be flexible enough to accept the iterative flow of discussion that is typical of a consultation. This includes understanding that the consultation is likely to be a characterised by an

iterative and complex set of interactions between the veterinary surgeon and the client (or clients), with dialogue switching from one to the other in each stage of the consultation model. Veterinary surgeons are encouraged in Calgary-Cambridge model training to ask open questions (Cornell and Kopcha, 2007, Shaw, 2006). Our study suggests they should also expect clients to answer them! This in turn raises the issues of how this can derail the consultation plan, and how to deal with that. Following the GVCCCM as regards active listening, proactively encouraging the clients to tell their stories, facilitating client responses, and clarifying statements (Radford et al., 2006) could help to make an open exchange of information between veterinary surgeon and client more natural and productive for both parties. This could be encouraged by practicing and incorporating these skills into the usual consultation plan. Likewise, trainers could teach students to dedicate enough time to understand the background of the condition, diagnostic work, evaluation, discussion and shared decision making on management that is in best interest of the animal. One way to do this would be to include practical communication training that mimics the iterative and rapidly changing flow of a consultation and reflects the reality of the clinical world. This could be done by using clinical teaching labs as described above, or through the incorporation of these dynamics into simulated consultations. Effective communication can be enhanced by the use of the Calgary-Cambridge model, and establishing goals for training with the model that include preparing students for what to what really happens in a consultation could help ensure this.

As noted previously, the Calgary-Cambridge Model includes specific categories related to "Engaging the Pet" and building rapport with the client, though not for "Interpersonal Conversation" as specifically assessed in this study (conversation about

life outside of the health of the pet). Since these two elements were represented in the majority of consultations (Interpersonal dialogue had a median proportion of 2.31% of all consultations and a maximum of 27.91%; Engaging the Pet had a median of 8.38% of all consultation and a maximum of 42.68%), the results of this study support the teaching of communication skills focused on these two elements. The current study demonstrated a significant amount of interpersonal communication, about pets outside of their health, children and their activities, things happening at home and at work, and shared interests in the community – but not as much on the feelings and emotions of the client or the client's opinions about their animals' condition or treatment. It could be beneficial to more widely study the role of interpersonal communication, querying about emotions and inviting the client's opinion, particularly in rapport building and creating a positive environment for the discussion of more clinical topics (Adams and Frankel, 2007). As noted in the methods section, "Interpersonal Communication" and "Engaging the Pet" could be considered part of "Developing Rapport" and "Involving the Animal" elements of the GCCCVM, yet were used as separate elements in this study. As noted in the methods there were specific reasons for singling these out. Were the study to have simply coded appropriate elements to the GCCVM however, the results may have provided for a closer analysis of model alignment.

Comparing the UK and USA in the Calgary-Cambridge analysis, consultations were broadly similar. Veterinary surgeons spend a great deal of time planning and doing and less time on rapport-building and interpersonal communication. Similarly, they frequently explain, but summarise, plan, and identify less often. Including these elements in veterinary consultations could be aided by emphasising the components in the GVCCCM that address them (e.g., "Providing the correct type and amount of

information," "Summarise at the end of a specific line of inquiry," "Identify the reasons for the consultation,") in training.

5.6.7   Patient-centred Clinical Method Analysis

In the current study, the Patient-centred Clinical Method was in some ways a closer fit to the study consultations than was the Calgary-Cambridge model and in other ways it was not. On the one hand, alignment of the study consultations was much better to the Calgary-Cambridge model than to the Patient-centred Clinical Method in terms of percent of model elements represented. This may be due in part to the fact that the Calgary-Cambridge model has already been adapted for veterinary consultations, whereas the Patient-centred Clinical Model has not. It would be interesting to create a combined "Veterinary Client and Patient-centred Clinical Model" considering the findings of this study to determine if the fit would be improved. One reason to do this is that the Patient-centred Clinical Method presupposes an iterative and free movement between the patient and physician (or in our case the veterinary surgeon and client) perspectives, which was evidenced by the results of this study. The movement among topics in this study was much more active and nonlinear than even the Patient-centred Clinical Method predicted (as evidenced by Figure 6–7). This resulted in an almost random series of communication "ricochets" between parties and across topics that differs from the still-orderly progression of the Patient-centred Clinical Method. As was the case with the Calgary-Cambridge model, these findings suggest that students or practitioners preparing for communicating with clients during a consultation should be ready (and prepared) for an often unpredictable and rapidly changing flow through topics.

The greatest amount of consultation time was spent in the "Planning," "Shared" Decision-Making, and "Gathering" components of the Patient-centred Clinical Method, followed by engagement with the "Pet." Notable is that most of these are the "doing" things, but not as many of the "thinking" things. This would suggest that the consultations we studied have some of the hallmarks of client-centred communication, incorporating two-way conversations and shared decision-making (Cornell and Kopcha, 2007, Shaw, 2006), but to a lesser extent demonstrating empathy by exploring emotions. Overall, though there was relatively little time spent in either country in dialogue about client or veterinary surgeon concerns, feelings, expectations, or the effect of the disease on the client's and family's life, things that the Patient-centred Clinical Method uniquely teases out. It could be either that these elements of a medical consultation play a larger role than in veterinary consultations or perhaps our specific consultations, which were relatively routine, were less likely to summon emotions as would be the context for visits for more serious health problems.

5.6.8   Mishler Discourse (Content) Analysis

The Mishler Discourse Analysis was selected as a means of measuring the relative amount of biomedical versus psychosocial dialogue in the consultations, identified as "Medical" versus "Lifeworld" dialogue in the Mishler Discourse Analysis. In other research, the Roter Interactive Analysis System, or RIAS, (Roter and Larson, 2002) has been used to measure biomedical versus psychosocial content as part of a greater analysis of patient (or in veterinary medicine, client) centredness. RIAS characterises the contributions of the veterinary surgeon and client by coding elements of the dialogue in a number of independent categories (e.g. "Client education and

counselling," "Data-gathering," "Rapport-Building," "Facilitation and Client Activation," and "Procedural Talk"). Attention to social-emotional topics (indicated by number of social-emotional utterances) are indicative of patient/client-centred dialogues (RIASWorks, 2014). Since the VR-COPE was used in our study to measure client-centredness (rationale described below), the Mishler Discourse Analysis, in combination with the VR-COPE analysis, enabled us to assess the same characteristics of the consultation that would have been possible with RIAS. This combination (VR-COPE plus Mishler Discourse Analysis) was chosen because using the RIAS analysis would have required specialised training and expense that were prohibitive for this study.

In the Mishler Analysis, medical dialogue predominated, to a somewhat greater extent in the UK consultations than in the USA consultations, but dominant nonetheless in both countries. This is similar to the findings of other researchers who used RIAS to measure the predominance of biomedical or psychosocial dialogue during veterinary consultations (Shaw et al., 2004a, Shaw et al., 2006). In previous work done in medical communication, Roter et al. (1997), found that consultations that were more biomedical-dominant (akin to the "Medical" component of the Mishler Discourse Analysis) seemed be characterised by patients having less input and less control over the dialogue than consultations that weighed toward psychosocial or consumerist communication patterns (akin to "Lifeworld" dialogue in the Mishler Discourse Analysis). The findings of this study suggest that further work is needed to encourage greater attention to the impact of an animal's health on the lives of the people with whom they live and/or interact.

5.6.9 A Potential Option for Future Research

Another consultation analysis method, The Motivational Interviewing Treatment Integrity (MITI) coding system, was developed originally for the field of substance abuse counselling to measure skill of clinicians across various aspects of motivational interviewing (Moyers et al., 2005), and has been developed further with input from evidence-based research in motivational interviewing (Moyers et al., 2016). The MITI code was designed to measure clinical skill in motivational interviewing, across elements of engaging, focusing, evoking, and planning (Pierson et al., 2007). The MITI evaluates global measures (Cultivating Change Talk, Softening Sustain Talk, Partnership, and Empathy) on a scale from 1-5 with 5 being the highest rating. A Coding Manual (Moyers et al., 2014) provides guidance for scoring each of the global measure. As an example, for "Cultivating Change Talk," a score of 5 is characterised by the clinician "showing a marked and consistent effort to increase the depth, strength, or momentum of the client's language in favour of change." A second element of the coding system involves the tallying of instances of interviewer behaviours. Codes are given to instances of giving information, persuading (or persuading with permission), question, affirmation, simple or complex reflection, seeking collaboration, emphasising autonomy and confronting clients. The MITI coding is applied to a segment of dialogue, the recommended length being 20 minutes, with the final analysis being a summary of the four scores for the global ratings and the number of instances for each of the behaviours. The MITI coding system has been used in research on counselling session dialogue (Pierson et al., 2007) and was deemed an effective tool for evaluating motivational interviewing skill. With evidence for the potential application of

motivational interviewing to veterinary communication (Bard et al., 2017, Blaxter et al., 2017), the adaptation and application of the system for veterinary communication research and training could be a valuable addition to the field of study. This could include use of a veterinary-adapted MITI coding system in further analysis of the data from this study.

5.6.10   Client-Centredness (VR-COPE) Analysis

The VR-COPE was chosen to measure Client-centredness of the consultations. Though, as with the Patient-centred Clinical Method, it had not been used previously in veterinary communication research, the categories of the tool aligned well with aspects of a veterinary consultation. The researcher, through correspondence with the developer of the tool, Lydia del Piccolo of the University of Verona (Del Piccolo et al., 2008), and through piloting the tool as described in the methods, determined that it would be suitable for the current study.

For the most part, VR-COPE proved a capable tool for measuring veterinary consultations for client/relationship centredness. Exceptions were some aspects of the veterinary surgeon's acknowledging and responding to client concerns, worries, and emotions, simply because these were not expressed strongly in the majority of the consultations studied. Future research using this tool could include removing or changing the description of some of these elements in order to determine if the tool could more closely fit the types of discussions that occur during a veterinary consultation, which might in turn increase the usefulness of the tool in veterinary communication analysis. Other elements, such as active listening and structuring the consultation, were more easily and thoroughly assessable with the VR-COPE. Adding

the Pet Engagement component was useful, and there were some clear differences between the UK and USA in pet engagement. It is recommended that engaging the pet be considered for any type of client-centredness analysis of veterinary consultations.

Though the VR-COPE scores were generally high (ranging from 6-9 out of a potential ten across all elements, with a median of 76 out of a possible 100 points for total score), those components related to client emotions and the veterinary surgeon responding to them generally scored lower. Part of this may be due to the types of cases seen and, as noted above the ability to explore client emotions and the psychological impact of the disease states being limited. There were exceptions, such as in the case of an older client who presented with a dog who had long-standing congestive heart failure, and where a rescue dog had been inadvertently impregnated by another dog in the house, which led to the owner expressing feelings of guilt.

In most cases, however, the consultations were routine in nature. If there had been a wider range of severity of diseases evidenced in the study consultations, it may have been possible to gather more information about client emotions and the veterinary surgeon's response to them. Highest VR-COPE scores were related to the veterinary surgeon conducting, structuring, and providing information during the consultation, which is consistent with the Medical dominance found in the content analysis.

One notable outlier in the VR-COPE scores was "Vet offered client resources to help them cope." Median score for this item was 0, due to the fact that with the exception of 1 consultation, no resources were provided by the veterinary surgeon. Resources such as printed instructions for at-home care, administering medications, understanding diseases and treatments, or coping with the effects of medical problems

might be useful for extending client centredness beyond the consultation, and perhaps could be incorporated in more veterinary consultations. Further study would be needed to determine if this is true.

This was the first time the VR-COPE was used to measure client/relationship-centredness in veterinary consultations. It could be useful to re-run the analysis using RIAS and compare results to the VR-COPE results, as the RIAS has been validated and successfully employed in the study of veterinary communications (Shaw et al., 2008). The comparison could help in the further validation of the VR-COPE in veterinary communication research. It would also evidence whether assessment of client/relationship-centredness would be different using RIAS as well as how this might change the other observations made about client/relationship-centredness in the study.

5.6.11   Client Satisfaction Analysis

The Client Satisfaction tool used in the study had been validated previously by Coe et al. (2010). Components of the Client Satisfaction tool were developed in six focus groups with 32 clients, and the tool itself was tested with 129 consultations. To the researcher's knowledge, no other client satisfaction measurement tool has been used more extensively in veterinary consultations, so it was felt to be an appropriate tool to use in this study.

In the pilot, the "box" that was used to collect surveys in the USA pilot was deemed to be unnecessary for the full study. In reality, the "box trial" was limited, and not a complete assessment of the value of the box in increasing privacy and encouraging more honest answers. Because no clients were reticent to complete and return the study with or without the box, it was agreed that the box be eliminated for the full study.

Client satisfaction scores were high overall, with median scores between 5 and 6 (out of a potential 6) for all categories, and a median overall score of 94.00 out of 114 for all consultations. This is similar to the results seen in other studies (Coe et al., 2010, Kanji et al., 2012). It could be that in these studies and in the present study, the high scores were related to the fact that the quality of the practices and veterinary surgeons and the satisfaction of clients who agreed to participate in the study with their veterinary surgeons and practices were generally high (suggesting potential social acceptability bias). A wider range of veterinarians and clients might have yielded more variable results.

Given the narrow range in scores and the fact that scores were for the most part very high across the CSQ elements, it was difficult to discriminate between respondents or for the most part even within scores from a single respondent. While there were some differences in scores, the differences were not very big. The high scores and relative lack of discrimination made it challenging to use Client Satisfaction as a dependent variable against which to assess the influence of the other (independent) variables on Client Satisfaction. In discussions with the developer of the CSQ (Coe, J., 2017, personal communication), however, anything less than a perfect score of 6 in a CSQ element was described as being worth exploring.

Nevertheless, one way to potentially address the issue of non-discrimination in future satisfaction studies could be to evaluate different response formats. In a study in human medicine of response formats for satisfaction surveys with 2,450 elderly patients (whose scores often skew toward the high side of the scale), Castle et al. (2004) has participants evaluate five different response formats:

1. A 5-point Likert scale ranging from "strongly agree" to "strongly disagree,"

2. A 5-point satisfaction format with "very dissatisfied" and "very satisfied" at opposite ends of the scale,

3. A 5-point evaluation with scores ranging from 1 (poor) to 5 (excellent),

4. a format in which illustrations of faces ranging from unhappy to happy were labelled poor, fair, very good, and excellent, and

5. A visual analog format (VAF) ranging from 1 (very poor) to 10 (excellent) where demarcations along a line indicated each score and participants were asked to mark on the line the point that most accurately represented their experience.

The 10-point visual analog format was most preferred by participants in the study and they felt it was easiest to use. This format also had greater response variability than any of the other formats. It would be possible to evaluate client satisfaction with the CSQ, using the same questions (which were developed through extensive research (Coe et al., 2010)) but using different response formats including the VAF. Castle and Engberg (2004) proposed that the visual analog format might be less prone to a "ceiling effect" (characterised by scores concentrated at the high end of a scale) than the other methods they tested. It would be interesting to see if the same would result from using a visual analog format with the CSQ.

Even with the limitation of relatively non-discriminatory responses, it was possible to cite some variability within the Client Satisfaction Scores both within and between consultations. It was also possible to identify components of the other analyses that have been positively associated with Client Satisfaction (Coe et al., 2008, Coe et

al., 2010, Cornell and Kopcha, 2007, Shaw, 2006). The three questions receiving the lowest median score (5 out of 6) were how well the client understood the costs discussed, the veterinary surgeon's discussion of costs, and the interest the veterinary surgeon expressed in the client's opinion. Topics related to cost also had among the largest ranges in responses, suggesting a variety of impressions about the way discussion and explanation of cost is handled by veterinary surgeons. It is worth noting that, as noted above, with a scale of only 1-6 in possible score, even a small difference is important, therefore those questions scoring 5 may have more import than would a one-point difference in scores with a larger scale.

Other researchers have cited challenges presented by cost discussions (Alexander et al., 2003, Coe et al., 2007, Mellanby et al., 2011), as did we in the qualitative study of the Communication Skills Survey reported in Chapter 4 (McDermott et al., 2017). Our findings provide further evidence that cost discussions represent an opportunity for improvement, even when clients are otherwise very satisfied with a consultation. Likewise, expressing interest in the client's opinion has been cited previously as an important element of relationship-centred communication (Abood, 2007, Beach and Inui, 2006, Cornell and Kopcha, 2007, Shaw, 2006). This suggests a potential benefit of increasing competency around encouraging clients to express their opinions in communication training.

5.6.12   Evidence of correlation between elements studied

Though "correlation does not imply causation" (Beebe et al., 2009), it was notable that there were no significant correlations between the elements that, based on previous studies, could have had an influence on one or more of the others. Examples are

alignment with the Calgary-Cambridge Model and Client- centredness and Client Satisfaction. Similarly worth noting was the lack of apparent influence of Lifeworld versus Medical Dialogue (analogous to Psychosocial and Biomedical dialogue), or Preventive Medicine versus Specific Health Problem consultations, on either Client Satisfaction or Client-Centredness (Shaw, 2006, Shaw et al., 2008). It would stand to reason that high scores in client-centredness areas would correlate with high client satisfaction, but in this study, they did not. The findings could have been influenced by a number of factors, including the study sample, and the use of the VR-COPE and Complexity Analyses that have never been applied to veterinary communication study. It could also be that we should have measured different elements, or that these elements truly have no mathematical correlation but might still influence one another. Perhaps using other methods to measure Client-Centredness, such as RIAS, a more detailed study of Client Satisfaction, or as noted previously, a different response method for the client satisfaction survey, might have yielded different results. Absences of correlations notwithstanding, there were findings with similar implications across the different variables studied. An example is a lower prioritisation in the dialogue of the effects of the problem on the client in the Patient-centred Clinical Method analysis, lower VR-COPE scores for exploring and responding to client emotions, and somewhat lower client satisfaction scores for the interest the veterinary surgeon expressed in the owner's opinion. These elements do not directly correspond to one another and they are only observations of commonality. Future studies, however, could be planned in which measurements of common themes across variables were more purposefully planned for the investigation of links and the calculation of their statistical significance. This could

include carefully linking the wording and meaning of elements across measurement variables so that their relationships could be more clearly measured.

Also, across the variables measured, the findings of this study reflect what has become recognised as client-centred dialogue and the goal of effective veterinary communication. The client plays an active role in the discussion and decision-making. The veterinary surgeon acknowledges and encourages the client in playing that role, and the end result is a consultation where important information surfaces and each party's point of view is taken into account (Abood, 2007, Cornell and Kopcha, 2007, Hahn et al., 2010, Zandbelt et al., 2005). Though for some elements assessed in this study there was evidence that room for improvement remains, many things are being done well from a communication standpoint.

5.6.13   Differences between the UK and USA

As stated earlier, one aim of this study was to identify potential differences between the consultations in the UK and USA. In some ways, the consultations were similar in each country, for example the length of consultations, alignment with the communication models, client-centredness of the consultations, and client satisfaction scores. Results of previous studies suggested that length of consultations might have been longer in the USA than in the UK (Everitt et al., 2013, Robinson et al., 2014, Shaw et al., 2008). Owner feelings about cost discussions might have also been different, given the greater uptake in the UK of pet insurance (Ward, 2013). In neither case did our findings suggest a significant difference.

In other aspects, there were notable differences. One was the role of veterinary technicians in the USA consultations and the inclusion of veterinary technician dialogue in the consultation model, Mishler, and VR-COPE analyses. This study did not separate the veterinary technician dialogue in ways to determine what difference they made, but it could be useful to do so in any further analysis of the data. Other differences included the complexity of consultations (single versus multiple animals, the latter occurring only in the USA) and numbers of problems, tests, diagnoses and outcomes (all higher in the USA), though as noted previously, complexity was relatively high in both countries. In both the Calgary-Cambridge and Patient-centred Clinical Method analyses, there was significantly higher attention paid to interpersonal conversation and engaging the pet in USA consultations than in UK consultations. This may have been relative to the mix of veterinary surgeons and owners participating in the respective consultations, but it might also indicate a cultural difference between the way veterinary surgeons and clients interact with each other in the respective countries. More study would have to be done to determine whether the difference was coincidental.

In particular cases where there were apparent differences between the UK and USA, the elements with relatively low frequency and/or proportion (e.g. Expectations Proportion and Effects–C and Effects-V Frequency and Proportion in the Patient-centred Clinical Method analysis), the results should be interpreted with caution. In these cases, though the differences were statistically significant (<0.05) according to the Mann Whittney U tests, it is difficult to determine how much confidence can be placed in these measurements as a reflection of the true differences between the

countries for those elements. It is also important to note that in some cases there were statistical differences between the UK and USA for frequency of a particular element, but not for proportion (or vice versa). This may be explained by an element being represented with greater frequency in one country or the other, but the lengths of the dialogue segments in the country with lesser frequency were long enough that the difference in proportions was not significant. Likewise, the proportion of the consultation (percent time of the consultation) may have been longer for a dialogue element in one country but the number of instances of the dialogue element might have been more similar.

In the content (Mishler Discourse) analysis, Medical dialogue dominated in both countries, but to a lesser extent in the USA, resulting in significant differences between the proportions of Lifeworld versus Medical dialogue between the countries. This may be tied to the greater proportion of time spend in interpersonal communication in the USA consultations, which would add to the proportion of the consultation in the "Lifeworld" voice.

Understanding exactly how these differences reflect on the culture, communication training and approach to consultations in general between the two countries would require additional research. The fact that there are differences between consultations in countries with many commonalities, however suggests that it is difficult to generalise, when considering, studying, or teaching on topics related to communication with clients, across the globe.

5.6.14 Bringing it all together

The findings of the study, though diverse and wide-ranging, provide useful information about the structure of veterinary consultations, the types of dialogue that characterise consultations, as well as information regarding their scientific complexity, alignment to communication models, client-centredness and client satisfaction. Consultations in this study had evidence of being busy, complex and iterative. They were characterised by communication associated with clinical fact-finding and clinical activity but did not devote as much time to the owners' opinions and feelings, and the emotional context of the discussions were given lower priority. They reflected the components of the Calgary-Cambridge model and the Patient-centred Clinical Method, but, as previously demonstrated, have significant iteration and movement between elements in both consultation models. They were more biomedical in focus than psychosocial. Clients in this study expressed a high degree of satisfaction, but there were gaps identified in discussing costs and entertaining the client's opinions. It was not possible to draw significant correlations between elements such as client-centredness and client satisfaction, but the elements identified in previous work that help characterise client centredness and importance for client satisfaction were documented across the different analyses of this study (Coe et al., 2010, Cornell and Kopcha, 2007, Shaw, 2006). How these findings might inform future research and training are discussed in the conclusion (section 6.8).

5.6.15 Calgary-Cambridge – *Quo Vadis?*

Given the predominance of the Calgary Cambridge model in communication training and the findings of the current study, it is important to employ it in the most effective

ways possible to prepare students and practitioners for real-world consultations. In some regards the study results provide new information to support the strong alignment between the key elements of Calgary Cambridge and the activities and discussion topics of a veterinary consultation. Nothing should be done to interfere with that. On the other hand, the non-linear movement through topics and activities, as well as the constantly shifting emphasis between veterinary surgeon and client perspectives supports the teaching of the Calgary-Cambridge model as a guide for the development of communication skills, and not a prescriptive format to be followed in a linear fashion. This could be aided by a survey of veterinary schools to determine whether and to what extent training for iterative discussions is occurring already. Equipping students and practitioners for a dialogue flow that moves freely and constantly between veterinary surgeon and client perspectives and topics of discussion could have value in making communication training up to "real world" challenges, as described in the qualitative study of the communication survey in Chapter 4 (McDermott et al., 2017).

On the other hand, a combination of elements from several models from human and veterinary medicine, informed by research, might be the building blocks of an entirely new veterinary consultation model. This would of course have to be weighed against the significant amount of time and effort that has been put into learning, refining, studying and teaching the Calgary-Cambridge model and guide. This could argue for enhancing and increasing the adaptability of the Calgary-Cambridge model rather than replacing it entirely; even the founder of the Calgary-Cambridge model, Dr. Jonathan Silverman, has argued for flexibility in its application (Silverman, 2007).

5.7   Limitations of the study

This study was with a convenience sample of veterinary surgeons and clients in 10 veterinary practices that were either in the network of The University of Nottingham School of Veterinary Medicine and Science, personal acquaintances of one or more of the researchers, or participants in previous research and had indicated their willingness to take part in future studies. Convenience sampling can result in selection bias, and limitations in applying the results of the sample to the broader population (Braun and Clarke, 2013). Though relatively few clients refused to participate in the study, the fact that the clients who participated were willing to take part in research and others were not suggest the study sample was not completely representative of the clientele in each practice.

This is a study that examined things not widely researched heretofore in veterinary medicine. Though studies have been done on some of the components we assessed (such as the influence of client-centred communication on compliance (Abood, 2007)), other elements were studied to the best of our knowledge for the first time. Examples are the use of the Patient-centred Clinical Method, the Mishler Discourse Analysis and the VR-COPE tool for model alignment and/or client-centredness. The use of these tools, and what was investigated with them, had no precedent to follow or against which to compare. There could be more effective ways of employing the use of these tools in veterinary research that only further use, and perhaps adaptation, of them may uncover.

As noted above, in the measurement of client satisfaction, the relative lack of discrimination in the responses limited the ability to discern difference across individual responses or respondents, or to compare client satisfaction results to other elements measured in the study. A different sample, response format (as discussed previously), or different techniques (such as live interviews) might help encourage greater discrimination. Regarding technique, there was a risk that having the researcher and the veterinary surgeon in close proximity to the client as he or she completed the client satisfaction survey may have increased the likelihood of social acceptability bias in their responses (Dean, 2015).

Measurement of alignment of the consultation models with coded elements of the consultations was done as a basic calculation of elements represented as a percentage of potential elements. No analyses of relative strength of representation or the importance of represented elements versus those not represented were made. There was also no evaluation of the role the percent representation of the elements played in fulfilling key aims of the consultation such as providing structure to the consultation and building the relationship with the client (Radford et al., 2006). More detailed analysis of these and other aspects of the models might have made the assessment a more valid representation of alignment with the consultation models. Future studies could include more than the percentage of potential elements in the analysis of model alignment and could yield more relevant and actionable insights into how the models are applied in veterinary consultations.

One of the limitations of qualitative research is impact of the individual skills and interpretation of the researcher on the quality and rigor of the research (Anderson,

2010, Sutton and Austin, 2015). This limitation was certainly relevant in this study. Coding of consultation elements against the consultation models and discourse analysis, as well as scores given in the VR-COPE analysis, except for the pilot of the VR-COPE, were done by the researcher (MMcD). Any inconsistency or error in the scoring or coding could have impacted the validity or consistency of the results. One researcher-dependent factor was the characterisation of a dialogue segment (from the start to the finish of a discrete component of dialogue). It was the responsibility of the researcher to determine the beginning and end of these dialogue segments and care was taken to use a uniform approach across the consultations. Nevertheless, any inconsistency in applying the approach could have affected the frequency of dialogue sequences for a given code.

Another limitation was the possibility of coding a dialogue segment in more than one way. A segment, for instance, could be coded as either "Shared Decision Making" or "Planning." Another possibility for coding more than one way was when a segment expressed bits of more than one coded element (e.g. "I am worried about the dog's itching; (Concern-C); his itching really got bad when he had this before" (Gather-C)). It was up to the researcher to determine whether the main focus of the statement was the concern or the medical history. In these instances, careful consideration was given to the primary meaning of the segment and like instances across consultations were compared for consistency. Using verification strategies such as this during the conduct of qualitative inquiry is a recognised method for maintaining reliability and validity (Morse et al., 2002) but this does not eliminate the limitation of reliance on the researcher for maintaining validity and reliability.

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Inter-rater reliability (IRR) for the VR-COPE was not measured using a commonly employed IRR methodology but rather done using a subjective measurement of the similarity of the raters' high and low scores across the elements for two consultations. This is a limitation of the study and could have impacted the validity of using the model. Further development and validation of methods for coding and applying the codes to each of the measurements could be done with greater rigor. Examples of how to do this include the development and validation processes done for RIAS (Roter and Larson, 2002, Shaw et al., 2004b), the VR-COPE for medical research (Del Piccolo et al., 2008), the CSQ for client satisfaction (Coe et al., 2010) and the MITI for evaluation of motivational interviewing skill (Moyers et al., 2005, Pierson et al., 2007).

Additional limitations, mentioned earlier, were the apparent technical limitations of the Transana transcription program, and the skill of the researcher in using it. It was obvious that differences in the recording of time elapsed for all the components measured resulted in variation between the total length of consultation from the Calgary-Cambridge, Patient-centred Clinical Method, and Mishler Discourse analyses. It is likely that there were instances in capturing the individual dialogue segments by time-coding the Transana transcripts that resulted in some inaccuracies in matching dialogue with exact timing. The fact that the general variability in length of consultations was consistent across all three measurements however, makes it likely that the impact of any software or user limitations on the quality of the research was not great.

5.8   Conclusions

This was a comprehensive analysis of consultations in nine first opinion and one referral practice in the United Kingdom and United States. To the authors' knowledge, this is the first time that a single study of consultation dynamics has been done in both countries. It is also believed to be the first study of veterinary communication that looked at consultations from so many different angles. As a result, the findings of the study explored the use of new tools for veterinary communication research and raised new questions that our results cannot completely answer. The study findings helped reveal aspects of veterinary consultation and communicating during the consultation however that could be addressed by further research and/or communication skills training approaches, among them the use of other communication assessments, coding methods, and client satisfaction measurement tools or techniques. This study was not able to conclude definitively how to deal with the complexity of a consultation, particularly how to allow enough time for addressing both the biomedical and psychosocial considerations. The relatively low degree of expression of emotions and discussion of emotional parameters of the disease state suggests that this is an ongoing need in communication research and training. Further efforts could be made toward understanding and teaching proper approaches to engaging the animal. Client satisfaction was high in the study, but the results suggest that understanding and discussion of cost could potentially be improved as could encouraging and acknowledging the opinion of the owner.

5.9 Final thoughts

It is hoped that the findings of this study will support the efforts of those involved in communication skills training, whether as researchers, teachers or learners. Better understanding of the complex interactions and acknowledging the challenges of veterinary consultations could have multiple benefits. This and further research on these topics can positively contribute to the efficacy of communication training, the quality of care that veterinary patients receive, the relationships between veterinary surgeons and clients, and to the pleasure both parties gain by collaborating in the optimisation of animal wellness.

6   Summary

A prime objective of this project was to contribute to the knowledge in the field of veterinary surgeon-client-patient communication. In each phase of the programme, the researcher (MMcD) and his supervisors endeavoured to study topics that have not been studied and/or find new ways to look at, or new insights to add to, topics that have.

6.1   Current state of veterinary communication

The communication survey confirmed the perceived importance of communication skills to two groups of practitioners in the UK and USA. The survey allowed us to gain a current perspective on the state, importance, and relevance of communication skills from veterinary practitioners from a wide range of practice types, demographic groups, academic backgrounds, and geographic locations. The findings reinforced those of many previous studies that have documented the importance of veterinary communication skills (Adams and Kurtz, 2006, Adams and Frankel, 2007, Best, 2013, Cornell and Kopcha, 2007, Mossop et al., 2015, Shaw, 2006). They also provided context and depth in understanding why they are so important from a real-world standpoint. Communication skills have been acknowledged as a key limitation for new veterinary graduates (Haldane et al., 2017, McDermott et al., 2015). When weak, they can be a major stumbling block to positive client relationships, and when strong they can help enhance them (Hamood et al., 2014). They can ruin a client's trust or secure it in a difficult situation (Dale, 2013, Grand et al., 2013). They can also impact a veterinary surgeon's self- esteem (Shaw et al., 2012).

Despite the emphasis given to veterinary communication training in veterinary schools, even recent graduates felt they had not received adequate training to

communicate with clients in all situations. The fact that veterinary schools in the UK are now providing a continuum of training in communication skills suggests that training programmes may need to be reevaluated to determine what else could be done to equip new graduates such as those who participated in the survey. More senior practitioners had received little or no training in veterinary school and instead had been forced to learn by doing. Despite the abilities that experience had given them, even some senior practitioners felt their skills were not sufficient for all communication situations. While we cannot redo the training in undergraduate school for current practitioners, we identified the need to make communication training a more integral part of veterinary training, by emphasising communication skills in the application process, prioritising communication from the first year of veterinary school, and by integrating communicating training with all subject matter, including training in clinical topics. The extent to which these need to be done depends on how much integration of communication training is already being done in each veterinary school.

The fact that recent graduates had not learned enough in school and senior practitioners had little or no formal training would lead one to believe that continuing professional development in communication would be an ideal way to confront both needs. As we learned from our survey however, fewer than half of our participants said they would be interested in further communication training. They stated that time, money, learning preferences and relevance are all barriers to participating in postgraduate communication skills training. These are barriers and challenges we must address to ensure the widest possible access to communication skills training. The answers may lie in a) adapting communication programme content and formats to the learning styles and preferences of all participants, b) conducting research that

documents the qualitative and quantitative benefits for a practice of effective communication to convince employers that it is worth paying– and allowing time off for, and c) making sure that communication training equips participants for the real-world communication challenges they encounter. As an example, a simulated consultation, accessed online, could deal with a challenging topic like weight management, but instead of a single veterinary surgeon, client, and animal, the client could be accompanied by another barking pet and two children playing video games on their mobile devices. Another scenario could be a client strongly challenging the veterinary surgeon based on information he or she learned from the internet. "Engaging the pet," which was featured in the analysis of the veterinary consultation study, could also be a topic of training.

Perhaps equally important, the value of providing communication training during undergraduate school and post-graduation should should be considered in delivering a continuum of communication skills training that begins at application to veterinary school and continues through a career in practice. This may help ensure that lifelong learning for veterinary surgeons includes communication skills training along with training in clinical skills, for example by including how to communicate about clinical topics in training designed to improve medical competency in those topics. This could enhance the cumulative benefits of communication training throughout a veterinary surgeon's academic and professional life.

6.2   Collecting data in two different countries

One unique element of this thesis was the conducting of research in both the UK and USA. This was in part a convenience decision, as the researcher was a part-time PhD

student residing in the USA and pursuing the PhD through a UK University. Nevertheless, it allowed for the collection of information in two different countries for comparison and contrast. Though this did not make possible sweeping global conclusions from the findings, it at least made it possible to present findings gained from two different geographical settings, with unique characteristics in the way veterinary medicine is studied and practised.

Attitudes collected in the survey described in this thesis toward communication skills were similar in the UK and USA. It was stated that communication is considered vitally important, communication training in veterinary school is happening to an increasing extent, but students across all age groups, including recent graduates, felt there was room for improvement in equipping them for communicating with clients. Equally similar, and perplexing, was the low degree of interest in communication skills training. This is perhaps the key issue raised by the communication survey, and it appears to be a need worth addressing in both countries.

The consultations in the UK and USA documented here had similarities, for example in their length, their alignment with the consultation models, the iterative rather than linear flow of communication, and the degree of client-centredness and client satisfaction. There were also significant differences. The number of problems indexed, tests planned, diagnoses made, and outcomes documented was higher in USA consultations compared to UK consultations. The time spent in forward planning was higher in the UK, as was the attention paid to structuring the consultation. USA consultations were characterised by a greater degree of interpersonal communication, with more time spent in rapport-building, and greater attention paid to emotional

aspects of the consultation (e.g. feelings and effects of the disease on the client). Though percent medical discussion was higher than lifeworld discussion overall, in the UK and in the USA, the percent lifeworld was significantly higher in the USA.

A final difference worth noting, and previously discussed in Chapter 5, was that in the USA, consultations typically involved a veterinary technician doing the initial information-gathering and discussion of the problem, after which the veterinary surgeon would come in and resume the consultation. In the UK, none of the consultations in this study were begun by a veterinary nurse. If the UK sample had included consultations with a similar pattern (i.e. a vet nurse conducting a "pre-vet" consultation in which medical issues were discussed before the veterinary surgeon engaged the client and patient), then the consultations may have been more similar. This difference may have affected the ability of the findings of this study to inform recommendations for improving communication in the consultation setting. Future studies could be designed so that consultations with a more similar pattern were compared.

6.3 Implications of the consultation research

Next, we come to the topic of "For what then do we train?" This was the purpose of our consultation research, which looked at fifty-five veterinary consultations from the perspectives of complexity, alignment with consultation models, content, client-centredness, and client satisfaction. Our aim was to better understand the dynamics of a companion animal veterinary consultation and how they relate to one another. This, in turn, we hoped would inform both the understanding and teaching of veterinary communication skills.

Complexity is a reality of veterinary consultations (Robinson et al., 2015) but has not been studied as an influencer of the communication dynamic. The complexity of consultations may be one reason why medical dialogue dominates and why less time is devoted to lifeworld dialogue. This may be due to the importance of medical exploration and discussion or it may suggest a need to allow more time for lifeworld exploration (perhaps requiring an increase in consultation time). While complexity did not have a significant correlation with client-centredness or client satisfaction, it is clear that the consultations we studied are complex in nature and involve multiple problems, diagnoses, and management recommendations. Future studies could investigate complex consultations and the role of the veterinary surgeon in exploring the client's ideas, expectations, concerns, and issues to help define how complexity could be effectively addressed in communication training.

As noted in Chapter 5, there was a relatively high degree of alignment suggested by the data from the consultations studied with the Calgary-Cambridge and Patient-centred Clinical Method consultation models in terms of the components represented

during the average consultation. The flow of the conversation in the measured consultations varied constantly and quite randomly among the components of each model, as was previously documented by Everitt et al. (2013). The findings of this study support the importance of Calgary-Cambridge Model, or any model for that matter, being taught as a plan that can be adaptable according to the conditions in the exam room.

The Calgary-Cambridge model contains nearly all the essential elements of an effective consultation. As long as the student of the model realises that those elements are likely to be confronted in a random, linear, and often repetitive manner, rather than the linear manner suggested by schematics in the Calgary-Cambridge model Guide (Kurtz and Silverman, 1996), it is an appropriate model with which to structure a consultation. Practicing scenarios in which the conversation flows back and forth between information gathering, planning, shared decision making, and investigations in a somewhat random fashion would be one way to address this issue. Another way would be to include aspects of the Patient-centred Communication Method, which we also studied, into the Calgary-Cambridge model, or at least to how it's taught. The Keyword Maps we generated for the Patient-centered Communication Method-coded transcripts indicate that conversation seems to shift back and forth between the client–and patient perspectives suggested by the model, but in an even more dynamic and random fashion than the model suggests. Considering the model alignment analysis and the state of current communication training, it may be more practical to complement the Calgary-Cambridge model (or the way it is taught) with elements of the Patient-centred Communication Method model or others that better depict the random nature of dialogue during a consultation than to replace Calgary-Cambridge with a new model.

Ultimately, efforts should be made to align teaching with the realities of communication during a consultation and making the model more "real world" would be one way to do that. This could mean a significant evolution in the Calgary-Cambridge model and/or the way it is taught.

Client-Centredness has become the standard by which effective veterinary communication is judged (Abood, 2007, Cornell and Kopcha, 2007). VR-COPE, the Client-Centredness tool developed at the University of Verona (Del Piccolo et al., 2008), which previously had not been used in veterinary communication research, was used to evaluate the client-centredness of the studied consultations. Overall it proved an effective means through which to measure the structuring and content of a veterinary consultation that define the attributes of client/relationship centredness. In general, the consultations in this study were fairly client/relationship-centred according to the VR-COPE measurement tool and its application (76 points median score out of a possible 100).

As noted earlier, though overall scores were high across the client centredness criteria, they tended to be slightly higher in the more practical aspects of a consultation and lower in aspects related to client emotions, empathy, and understanding. This, combined with the medical-dominant nature of the consultations according to the Mishler Discourse Analysis, suggests that even relatively client-centred communication could be made more client-centred by addressing topics that support understanding, empathy and acknowledgement of client interests and concerns. This could be addressed by giving appropriate attention in training to the elements of the Calgary-Cambridge Model that focus on these topics (Radford et al., 2006), and by

teaching techniques such as motivational interviewing (Bard et al., 2017, Blaxter et al., 2017) that may help to prompt their discussion.

6.4 Client satisfaction

The client satisfaction assessment was done in high quality practices with skilled veterinary surgeons and clients who reacted positively to their interaction with them and their pets. Not surprisingly, this was consistent with the high scores given the consultation in the post-consultation client satisfaction surveys. Nevertheless, lowest scores were given to questions related to cost and the client's understanding of cost, and to the veterinary surgeon's expressed interest in the client's opinion. In light of the generally high scores across the client satisfaction results, any score below 5 could be significant, as suggested in Chapter 5.

Cost concerns were identified as a key challenge identified in the communication– and client satisfaction surveys and have been reported by other authors to be barriers to effective communication (Alexander et al., 2003, Mellanby et al., 2011, Coe et al., 2007). The other category that relatively speaking, scored lower in the client satisfaction survey, was related to the veterinary surgeon's interest in the client's opinions, again a significant finding in the context of the overall high scores. This is a key contributor to shared decision-making and has been cited as a key aspect of relationship-centred communication in both human and animal medicine (Cornell and Kopcha, 2007, Epstein et al., 2005). Though a median score of five out of six for these attributes is not low, the fact that these scored lower may be a signal that communication around cost and client opinions could be improved further. Doing so could help improve the overall impressions of a client about a consultation, which could

have significant impact on the veterinary surgeon-client relationship, and the client's willingness to partner with the veterinary surgeon in ensuring the best possible care for the animal, overall.

6.5   Final thoughts

As one hopes with all research, it was possible to identify insights and opportunities that we trust will add to the body of knowledge in this field of study. At the same time, our findings prompt questions that could be served by further research. Among these are:

a) ways to demonstrate the value of communication training during and after veterinary school,

b) how to ensure that communication training is both aligned with real world needs and accessible to the largest number of students and practitioners,

c) additional ways to measure alignment with consultation models and client satisfaction,

d) how to adapt the consultation model and they ways in which it is taught to fit what actually happens in practice, and

e) how to address the still unmet needs in fostering client/relationship-centred communication.

The researcher is proud to have been able to join the ranks of researchers in pursuit of answers that will contribute to the understanding of the vital role of communication in veterinary medicine and hopes that the information presented in this thesis will help encourage further question-asking and profitable answers that benefit the veterinary profession and the owners and animals it serves.

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8   Appendices

Appendix 8.1   Veterinary Communication Skills Survey

CENTRE FOR EVIDENCE-BASED
VETERINARY MEDICINE
Putting research into practice

The University of
Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

The Importance of Veterinarian Communication Skills
What Are Your Views?

Dear Colleague,

We would like to invite you to take part in a study co-ordinated by the Centre for Evidenced-based Veterinary Medicine (CEVM), at the School of Veterinary Medicine and Science, The University of Nottingham, United Kingdom.

We are conducting a survey of veterinarians in the United States and in the United Kingdom to find out more about veterinarian communication skills training and the importance of communication with the owner about the care of their animals.

Please complete this questionnaire and return it to Mickey McDermott at the Centre for Evidence-based Veterinary Medicine in the postage paid envelope provided.

Your help is very important to the success of this study so we greatly appreciate your time and co-operation. Further information about this study may be found on the following page.

Many thanks in anticipation of your help.

Kind Regards,

Mickey McDermott
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Project Supervisors:
Dr. Rachel Dean, Director of CEVM, School of Veterinary Medicine and Science
Dr. Victoria Tischler, Lecturer in Behavioural Sciences, School of Community Health Sciences

Commonly asked questions

What is the purpose of this study?
This study will assess the communication skills training practicing veterinarians have received and the perceived importance of communication skills to practitioners.

Why have I been chosen?
This survey is being sent to a random sample of veterinarians from the memberships of the Royal College of Veterinary Surgeons (RCVS) in the UK and the American Animal Hospital Association (AAHA) in the US.

What does the research involve?
You are asked to complete the questionnaire and send it back to Mickey McDermott, Centre for Evidence-based Veterinary Medicine (CEVM), School of Veterinary Medicine and Science, The University of Nottingham, in the enclosed pre-paid envelope. Complete address is on the envelope.

Do I have to take part?
Your participation in the survey is entirely voluntary.

Will I be paid to take part?
There is no payment for taking part in this study.

What happens if I don't want to take part?
Simply disregard the questionnaire and any reminders which are sent to you.

Who has funded this research?
The research is supported by the CEVM.

Has this study received ethical approval?
This research has received ethical approval from the School of Veterinary Medicine and Science Ethics Committee, The University of Nottingham.

When will this study be completed?
Our hope is to receive all responses by the end of December, 2012, at which point the results will be tallied and analysed. Publication and/or presentation of the study results should begin in early- to mid-2013.
.
What will happen to the results of the research study?
All information collected will be stored safely, treated in strictest confidence, and fully anonymized; no individual will be identifiable in any publication. The findings of this research will be published in peer reviewed scientific journals and presented at conferences. Summary findings will be available to participants upon request.

Will there be any follow up to this study?
At the end of the questionnaire you are invited to provide your name and contact details if you would like to take part in future, confidential studies by this research team on other aspects of work conducted by the Centre. These details will be held in strict confidentiality. If you do not wish to be involved in subsequent studies in relation to this one, simply leave this section blank. You may withdraw your consent at any time by contacting Mickey McDermott at CEVM (svxmm@nottingham.ac.uk).

Where can I get more information?
If you would like to know more about the study, the Centre for Evidence-based Veterinary Medicine, or have any other questions, please contact Mickey McDermott on +1 336 686 1343 or via email at svxmm@nottingham.ac.uk. You may also visit our website at www.nottingham.ac.uk/CEVM, or email the Centre at CEVM@nottingham.ac.uk.

To begin the questionnaire, please go to the next page.

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PLEASE COMPLETE THIS QUESTIONNAIRE IN BLACK INK

Each question requires only one answer unless otherwise stated.   **EXAMPLE:**
Depending on the question, please use a cross ("X") to indicate your answer to
each question, and/or type in the text box.   ☒

Part 1: Information about you

Q1: What gender are you?

☐ Male

☐ Female

Q2: How old are you?

[ ][ ] (Years)

Q3: What year did you graduate with your veterinary degree?

[ ][ ][ ][ ]

Q4: Please enter the veterinary school (university) and country from which you received your veterinary degree:

University:

[ ]

[ ]

Country:

[ ]

Q5: Do you currently do any clinical work?
(Clinical work = working for a veterinary organization or practice, seeing animals either in a clinic, or by visiting clients at their premises or home)

Yes ☐

No ☐ *(Please go to Part 2 of this questionnaire on page 5.)*

Q6: How many hours a week do you spend consulting with clients?

[ ][ ][ ] Number of hours a week

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Identification Number: [ ][ ][ ]

Q7: Please provide the first five characters of the postal code (ZIP Code) where you do your clinical work. (If you do clinical work at more than one place of employment, please state the postal code where you do the majority of your work.)

[ ][ ][ ][ ][ ]   First five characters of postal (ZIP) code

Q8: In the practice where you spend most of your working time, what percentage of your clinical time is spent with the following?

[ ][ ][ ]   % small animal (e.g. dogs, cats, rabbits)

[ ][ ][ ]   % farm animal (e.g. cattle, sheep, pigs, poultry)

[ ][ ][ ]   % equine

[ ][ ][ ]   % other (please explain)   [   ]

Q9: What is your caseload? **(Please cross one box only)**

Primary care only	[ ]	*(Please go to Section 2 on page 5)*
Specialty/Referral only	[ ]	*(Please go to Section 2 on page 5)*
Mix of Primary care and Specialty/Referral	[ ]	*(Please go to Question 9a)*
Other	[ ]	*(Please describe in box below then go to Section 2 on page 5)*

[   ]

Q9a: If you answered "mix of Primary care and Specialty/Referral" for Question 9, please indicate what percentage of your work is Primary care and Specialty/Referral, respectively.

[ ][ ]   % Primary care

[ ][ ]   % Specialty/Referral

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Identification Number: [ ][ ][ ]

Part 2: Your communication skills training.

We would like to know about the communication skills training you have received.
By comunication skills training, we mean **dedicated teaching in skills to equip you to effectively speak to clients about the care of their animals**.

Communication skills training during veterinary school

Q10: Did you have any training in communication skills as part of your veterinary school curriculum?

[ ] Yes   *(Please go to Question 11)*

[ ] No   *(Please go to Question 13)*

[ ] Don't Remember   *(Please go to Question 13)*

Q11: What type(s) of communication skills training did you have in veterinary school?

[ ] Lectures

[ ] Simulated consultations

[ ] Online training

[ ] Other (please explain below)

```
[                                                  ]
```

Q12: In your opinion, how well did your veterinary school communication skills training prepare you for communicating with clients about the care of their animals?

[ ] Very poorly

[ ] Poorly

[ ] Neutral

[ ] Well

[ ] Very Well

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Communication skills training after graduating from veterinary school

Q13: Have you had any training in communication skills since graduating from veterinary school?

☐ Yes **(Please go to Question 14)**

☐ No **(Please go to Question 16)**

☐ Don't Remember **(Please go to Question 16)**

Q14: If you answered "Yes" to Question 13, what type(s) of postgraduate communication training did you have?

☐ Lectures

☐ Simulated consultations

☐ Online training

☐ Other (please explain below)

```
[                                              ]
[                                              ]
[                                              ]
```

Q15: In your opinion, how well did your postgraduate communication training further enable you when communicating with clients about the care of their animals?

☐ Very poorly

☐ Poorly

☐ Neutral

☐ Well

☐ Very Well

Q16: Would you like to receive additional communication skills training?

☐ Yes   *(Please go to Question 17)*

☐ No   *(Please go to Question 19)*

Q17: If you answered "Yes" to Question 16, what type(s) of additional communication skills training would you like to receive (i.e. lectures, simulated consultations, online training, etc.)?

Q18: Why would you select this type of communication skills training?

Q19: Further to the information above, do you have any additional comments about communication skills training?

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Identification Number: [ ][ ][ ][ ]

Part 3: Importance of communication skills in practice

Q20: Compared to clinical knowledge, how important are communication skills to the successful outcome of a client consultation (i.e. the client understands and is willing to pursue the recommend course of action)?

[ ] Less

[ ] The same

[ ] More

Please provide any further comments on the above question.

[   ]

Q21: How important do you believe good communication skills are to the following?
(1 = Not at all important and 5 = Extremely important)

Personal	Not at all important				Extremely important	
Self confidence	[ ]1	[ ]2	[ ]3	[ ]4	[ ]5	[ ] Don't know
Job satisfaction	[ ]1	[ ]2	[ ]3	[ ]4	[ ]5	[ ] Don't know
Time management	[ ]1	[ ]2	[ ]3	[ ]4	[ ]5	[ ] Don't know
Income/profitability	[ ]1	[ ]2	[ ]3	[ ]4	[ ]5	[ ] Don't know
Relationships						
Client relationships	[ ]1	[ ]2	[ ]3	[ ]4	[ ]5	[ ] Don't know
Colleague relationships	[ ]1	[ ]2	[ ]3	[ ]4	[ ]5	[ ] Don't know
Other (please describe below)	[ ]1	[ ]2	[ ]3	[ ]4	[ ]5	[ ] Don't know

[   ]

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Q22: How important do you believe good communication skills are to the following?
(1 = Not at all important and 5 = Extremely important)

	Not at all important				Extremely important	
Obtaining a medical history	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Diagnosing a condition	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Explaining diagnoses	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Discussing treatment/ management options	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Gaining client agreement on treatment/management options	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Discussing prognoses	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Managing client expectations	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Optimising client compliance	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Prompting follow-up visits	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Talking about costs	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Other (please describe below)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know

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Q23: How difficult do you find communicating about the following?
(1 = Very easy and 5 = Very difficult)

Degree of difficulty

	Very easy				Very difficult		
Life-threatening conditions	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Difficult to diagnose conditions	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Difficult to treat conditions	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Euthanasia	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Expensive treatments	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know
Time-consuming treatments	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Don't Know

Q24: What else, it anything, do you find challenging about communicating with clients?

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Q25: How do you think the challenges you mentioned, if any, in Questions 23 and 24, could be overcome?

Q26: Is there anything else you would like to share about veterinary communication skills?

Thank you for completing the questionnaire. Please continue to the next page for final instructions.

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This page has been
intentionally left blank

Identification Number: ☐☐☐

Thank you for your time and effort in completing this survey.
Please return the survey in the envelope provided to:

Mickey McDermott, Bsc, MSc, Postgraduate Student
Centre for Evidence-based Veterinary Medicine
School of Veterinary Medicine and Science
The University of Nottingham, c/o:
PO Box 4713
Trenton, NJ. 08650

If you have any further questions or feedback about the questionnaire, or would like further information about the Centre for Evidence-based Veterinary Medicine, please visit our website at **www.nottingham.ac.uk/cevm**, email us at **cevm@nottingham.ac.uk**, contact Mickey McDermott on +1 336 686 1343 or via email directly at **svxmm@nottingham.ac.uk**, or write to us at the above address.

Optional: Contact Information

If you would like to take part in future studies conducted by the Centre, or are interested in finding out more about taking part in clinically-based research in practice, please put your name and details in the boxes below. This information will be detached immediately upon receipt of the questionnaire to preserve the anonymity of your responses.

Surname

Forename

E-Mail Address

Contact Telephone Number:

Area Code   **Exchange**

Appendix 8.2 Transana Transcript Example

¤
Vet: ¤ There sweetheart. Fine, how's he been doing?¤
Owner: Fine.
Vet: Yeah? Good.¤
Owner: Bill/s been talking to him, and keeping him calm.¤
Vet: Okay, how's his heart rate been at home? Have you had a chance to check it?¤
Owner: Alright come on (soon as you get down), he knows what you're going to do!¤
Vet: Alright, let's have a listen then darling, we'll do that first.¤
Okay and then you can calm down a little bit.¤
Owner: Shhhh- alright.¤
Vet: Just take the pulse as well.¤
Owner: Shhhhh.¤
(Dog panting)
Vet: Okayheart rate's 200! (laughs)¤
WHich is always what happens when he comes here, isn't it?¤
Owner: I know, I know.¤
Vet: He's still got that slightly irregular rythym, which he's had pretty much all the way through, whcih is why he's on the treatment.¤
Okay, I'm just going to check the rest of him over, we'll just see, although he's has this cone on his head (?) his heart fraction has actually come through amazingly well (and I'm absolutely convinced that when we get home, his heart rate'll just drop, because he's not so excited.¤
Silly, silly , sily. His circulation is really good too¤ (dog sneeses), Oh did I make you sneeze?¤ You've not seen any sweating on his tummy like we had originally?¤
Those years ago?¤
Owner: That's right.¤
Vet: It feels Okay down there.¤
You can stand up for me.¤
That's it; come on. You can do it.¤
Good boy, well done. Good lad.¤
Vet: Can you be so nice and let me try and do your pulse while you're standing there?¤
It is slowing down. It's one hundred and eighty. And I know pretty much how he is, that.¤
Owner: That's why I dare not bring him to any other vet. Because they'll

Appendix 8.3 Keyword Report Examples

Appendix 8.3a Example of Keyword-coded dialogue segments

Example of coded dialogue segments:

```
                    Transana Collection Report
          Collection: Quick Quotes and Clips > UK1 Consult 1 Calgary
                               Cambridge

    Collection: Quick Quotes and Clips > UK1 Consult 1 Calgary
    Cambridge


       Clip: UK1 Consult 1 Quick Clip 1
          Collection:  Quick Quotes and Clips > UK1 Consult 1 Calgary
          Cambridge
          File:  /Volumes/TOSHIBA EXT/UK Hospital Videos_OCT 25/UK1 Camera 1/
          UK1 Camera 1 Cons 1.mp4
          Time:  0:04:02.5 - 0:04:07.6   (Length:  0:00:05.1)
          Library:  UK Vet Hospital Videos
          Episode:  UK1 Consult 1
          Episode Transcript:  UK1 consult 1
          Clip Transcript:
             That's for you, yea.
          Clip Keywords:
             Calgary-Cambridge Model : Providing

       Clip: UK1 Consult 1 Quick Clip 2
          Collection:  Quick Quotes and Clips > UK1 Consult 1 Calgary
          Cambridge
          File:  /Volumes/TOSHIBA EXT/UK Hospital Videos_OCT 25/UK1 Camera 1/
          UK1 Camera 1 Cons 1.mp4
          Time:  0:04:07.6 - 0:04:59.2   (Length:  0:00:51.6)
          Library:  UK Vet Hospital Videos
          Episode:  UK1 Consult 1
          Episode Transcript:  UK1 consult 1
          Clip Transcript:
             Okay. So, you've got.....You're using the export so we don't
             need to do any paper work.  I think they were doing all the
             paper work aren't they?
             Owner: Yeah.
          Clip Keywords:
             Calgary-Cambridge Model : Identifying_V

       Clip: UK1 Consult 1 Quick Clip 3
          Collection:  Quick Quotes and Clips > UK1 Consult 1 Calgary
          Cambridge
          File:  /Volumes/TOSHIBA EXT/UK Hospital Videos_OCT 25/UK1 Camera 1/
          UK1 Camera 1 Cons 1.mp4
          Time:  0:04:59.2 - 0:05:20.9   (Length:  0:00:21.7)
          Library:  UK Vet Hospital Videos
          Episode:  UK1 Consult 1
          Episode Transcript:  UK1 consult 1
          Clip Transcript:
             t's really a request about the body and the blood tests.
             Specimend, anthelmentic, no fees, we'l have to confirm.
             Lovely, yeah they're very organised; this is very helpful.
          Clip Keywords:
             Calgary-Cambridge Model : Identifying_V
```

Appendix 8.3b Example of Keyword Report Summary
(with frequency plus hours:minutes:seconds per Keyword Code)

```
        Thank you.

        VEt: And we'll be done in a minite.
    Clip Keywords:
        Calgary-Cambridge Model : Summarise

Summary

 Calgary-Cambridge Model : Achieving              7         0
 0:01:20.9
 Calgary-Cambridge Model : Exam                   5         0
 0:00:39.8
 Calgary-Cambridge Model : Exploration_C         12         0
 0:01:07.3
 Calgary-Cambridge Model : Exploration_V          9         0
 0:01:05.2
 Calgary-Cambridge Model : Forward                9         0
 0:01:41.2
 Calgary-Cambridge Model : Identifying_C          1         0
 0:00:03.1
 Calgary-Cambridge Model : Identifying_V          3         0
 0:01:20.3
 Calgary-Cambridge Model : Interpersonal          8         0
 0:00:18.4
 Calgary-Cambridge Model : Pet                    6         0
 0:00:47.8
 Calgary-Cambridge Model : Planning               1         0
 0:01:23.5
 Calgary-Cambridge Model : Providing             27         0
 0:20:19.8
 Calgary-Cambridge Model : Summarise              1         0
 0:00:02.3

 Items:                                          89
   Clips:                                        89
 0:30:09.7
```

Appendix 8.4 Complexity Categorical Data						
Element	**N**	**%**	**Element**	**N**	**%**	**Comparison UK/USA**
Reason for consultation: Preventive Medicine			**Reason for consultation: Specific Health Problem**			
All	29	53.7%	**All**	25	46.3%	Not significantly different (p=0.172)
UK	12	44.4%	**UK**	15	55.6%	
UK1	2	25.0%	UK1	4	66.7%	
UK2	3	50%	UK2	3	50%	
UK3	3	60.0%	UK3	2	40.0%	
UK4	0	0%	UK4	4	100%	
UK5	4	66.7%	UK5	2	33.3%	
USA	17	63.0%	**USA**	10	37.0%	
USA1	3	60.0%	USA1	2	40.0%	
USA2	4	80.0%	USA2	1	20.0%	
USA3	3	60.0%	USA3	2	40.0%	
USA4	5	83.3%	USA4	1	16.7%	
USA5	2	33.3%	USA5	4	66.7%	

Appendix 8.4 (continued) Complexity Categorical Data						
Element	N	%	Element	N	%	Comparison UK/USA
Number of animals: Single			Number of animals: Multiple			
All	48	87.0%	All	7	13.0%	Significantly different (p=0.043)
UK	26	95.3%	UK	1	3.7%	
UK1	6	100%	UK1	0	0%	
UK2	6	100%	UK2	0	0%	
UK3	4	80.0%	UK3	1	20.0%	
UK4	4	100%	UK4	0	0%	
UK5	6	100%	UK5	0	0%	
USA	21	77.8%	USA	6	22.2%	
USA1	5	100%	USA1	0	0%	
USA2	5	100%	USA2	0	0%	
USA3	3	60.0%	USA3	2	40.0%	
USA4	4	66.7%	USA4	2	33.3%	
USA5	4	66.7%	USA5	2	33.3%	

Appendix 8.4 (continued) Complexity Categorical Data						
Element	**N**	**%**	**Element**	**N**	**%**	**Comparison UK/USA**
Type of case: First Consult			**Type of case: Recheck**			
All	10	18.5%	**All**	7	13.0%	Not significantly different (p=0.227)
UK	5	18.5%	**UK**	5	18.5%	
UK1	0	0%	UK1	1	12.5%	
UK2	1	16.7%	UK2	1	16.7%	
UK3	2	40.0%	UK3	0	0%	
UK4	1	25.0%	UK4	2	50.0%	
UK5	1	16.7%	UK5	1	14.3%	
USA	5	18.5%	**USA**	2	7.4%	
USA1	1	20.0%	USA1	0	0%	
USA2	1	20.0%	USA2	0	0%	
USA3	1	20.0%	USA3	1	20.0%	
USA4	0	0%	USA4	1	16.7%	
USA5	2	33.3%	USA5	0	0%	

Appendix 8.4 (continued) Complexity Categorical Data						
Element	N	%	Element	N	%	Comparison UK/USA
Type of case: Recurrent			Type of case: On-going/acute			
All	3	5.6%	All	2	3.7%	Not significantly different (p=0.227)
UK	3	11.1%	UK	0	0%	
UK1	2	33.3%	UK1	0	0%	
UK2	1	16.7%	UK2	0	0%	
UK3	0	0%	UK3	0	0%	
UK4	0	0%	UK4	0	0%	
UK5	0	0%	UK5	0	0%	
USA	0	0%	USA	2	7.4%	
USA1	0	0%	USA1	1	20.0%	
USA2	0	0%	USA2	0	0%	
USA3	0	0%	USA3	0	0%	
USA4	0	0%	USA4	0	0%	
USA5	0	0%	USA5	1	16.7%	

Element	N	%	Element	N	%	Comparison UK/USA
Appendix 8.4 (continued) Complexity Categorical Data						
Type of case: Monitoring			**Type of case: Preventive Medicine**			
All	2	3.7%	**All**	29	53.7%	(Same as above) Not significantly different (p=0.227)
UK	1	3.7%	**UK**	12	44.4%	
UK1	1	16.7%	UK1	2	33.3%	
UK2	0	0%	UK2	3	50.0%	
UK3	0	0%	UK3	3	60.0%	
UK4	0	0%	UK4	0	0%	
UK5	0	0%	UK5	4	66.7%	
USA	1	3.7%	**USA**	17	63.0%	
USA1	0	0%	USA1	3	60.0%	
USA2	0	0%	USA2	4	80.0%	
USA3	0	0%	USA3	3	60.0%	
USA4	0	0%	USA4	5	83.3%	
USA5	1	16.7%	USA5	2	33.3%	

Appendix 8.4 (continued) Complexity Categorical Data							
Element	N	%	Element	N	%	Comparison UK/USA	
Type of case: Admit/Discharge				Species: Dog			
All	1	1.9%		All	41	75.9%	
UK	1	3.7%	Not significantly different (p=0.227)	UK	20	74.1%	Not significantly different (p=0.599)
UK1	0	0%		UK1	4	66.7%	
UK2	0	0%		UK2	5	83.3%	
UK3	1	20.0%		UK3	4	80.0%	
UK4	0	0%		UK4	3	75.0%	
UK5	0	0%		UK5	4	66.7%	
USA	0	0%		USA	21	77.8%	
USA1	0	0%		USA1	5	100%	
USA2	0	0%		USA2	4	80.0%	
USA3	0	0%		USA3	4	80.0%	
USA4	0	0%		USA4	5	83.3%	
USA5	0	0%		USA5	3	50.0%	

Appendix 8.4 (continued) Complexity Categorical Data						
Element	**N**	**%**	**Element**	**N**	**%**	**Comparison UK/USA**
Species: Cat			**Species: Rabbit**			
All	12	22.2%	**All**	1	1.9%	
UK	6	22.2%	**UK**	1	3.7%	Not significantly different (p=0.599)
UK1	1	16.7%	UK1	0	0%	
UK2	1	16.7%	UK2	0	0%	
UK3	2	20.0%	UK3	0	0%	
UK4	1	25.0%	UK4	0	0%	
UK5	2	33.3%	UK5	0	0%	
USA	6	22.2%	**USA**	0	0%	
USA1	0	0%	USA1	0	0%	
USA2	1	20.0%	USA2	0	0%	
USA3	1	20.0%	USA3	0	0%	
USA4	1	16.7%	USA4	0	0%	
USA5	3	50.0%	USA5	0	0%	

Appendix 8.5				Complexity Continuous Data					
Element	**Median**	**Range**	**IQR**	**Comparison UK/USA**	**Element**	**Median**	**Range**	**IQR**	**Comparison UK/USA**
Number of problems					**Number of body systems**				
All	5	1-13	3,7		All	3	1-7	2,4	
UK	3	1-7	3,5	**Significantly different (p=0.001)**	**UK**	3	1-5	2,4	**Significantly different (p=0.034)**
UK1	2.5	1-5	1.75,3.5		UK1	3	1-5	1.75,3.5	
UK2	3	3-7	3,4.75		UK2	3	1-5	2.5,4.25	
UK3	5	1-7	2.5,7		UK3	3	1-4	2,4	
UK4	4	3-5	3,5		UK4	3	1-5	1.25,4.75	
UK5	4.5	1-6	1.75,6		UK5	3	1-4	1.75,4	
USA	6	2-13	4,9		**USA**	3	2-7	3,5	
USA1	5	2-10	2.5,9.5		USA1	4	2-7	2,6.5	
USA2	4	2-8	3,7		USA2	3	2-4	2.5,4	
USA3	7	4-10	4.5,9.5		USA3	5	3-7	3,6.5	
USA4	6.5	2-13	4.2,12.25		USA4	3.5	2-5	2,5	
USA5	6	4-9	4.75,7.5		USA5	3.5	2-6	2.75,5.25	

Appendix 8.5 (continued) Complexity Continuous Data									
Element	**Median**	**Range**	**IQR**	**Comparison UK/USA**	**Element**	**Median**	**Range**	**IQR**	**Comparison UK/USA**
Number of tests					**Number of diagnoses**				
All	4	1-11	3,6		All	4.5	1-12	3,6	
UK	3	1-8	2,5	**Significantly different (p=0.001)**	**UK**	3	1-7	3,5	**Significantly different (p<0.000)**
UK1	2.5	1-7	1.75,5.5		UK1	3	1-7	2,5	
UK2	3	3-4	3,4		UK2	3	3-4	3,4	
UK3	4	1-8	2,6.5		UK3	4	1-6	2,5.5	
UK4	3.5	2-5	2.25,4.75		UK4	3	2-5	2.25,4.5	
UK5	4	1-6	2,6		UK5	5	1-6	2,6	
USA	6	2-11	4,8		**USA**	6	2-12	4,9	
USA1	8	3-9	4.5,9		USA1	8	2-10	4,9.5	
USA2	4	2-10	2.5,7		USA2	4	2-10	3,7	
USA3	6	5-11	5,10		USA3	7	5-12	5,10.5	
USA4	6	2-9	5,7.5		USA4	6.5	2-12	5,8.25	
USA5	4	1-8	1,6.5		USA5	4.5	1-9	1,6.75	

Appendix 8.5 (continued) Complexity Continuous Data				
Element	**Median**	**Range**	**IQR**	**Comparison UK/USA**
Number of outcomes				
All	5	1-14	3,7	
UK	4	1-7	3,5	**Significantly different (p<0.000)**
UK1	4	1-7	2.5,5.5	
UK2	4	3-4	3,4	
UK3	4	2-7	2.5,6	
UK4	4	3-7	3.25,6.25	
UK5	5	2-6	2,6	
USA	6	2-14	5,9	
USA1	8	3-12	4.5,11	
USA2	5	3-9	3.5,7.5	
USA3	7	5-14	5,12	
USA4	6.5	3-12	5.25,9	
USA5	7	4-9	4.75,9	

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Appendix 8.6 Calgary-Cambridge Model Analysis Data				
Variable				**Comparison**
Consultation Length (min)	Median	Range	IQR	
All	16.06	4.42-44.25	11.04,20.33	
UK	14.96	4.42-44.25	9.55,18.94	Not significantly different
UK1	10.09	8.08-30.26	8.76,18.79	(p=0.341)
UK2	16.38	9.47-18.65	12.09,18.25	
UK3	12.75	8.48-17.18	9.76,15.08	
UK4	20.93	6.38-23.57	9.52,23.41	
UK5	17.18	4.42-44.25	14.32,22.00	
USA	16.06	7.91-30.06	11.90,21.31	
USA1	18.62	14.92-26.20	15.49,23.27	
USA2	15.18	7.91-21.95	11.25,21.63	
USA3	18.98	9.00-30.06	12.38,26.82	
USA4	16.44	8.11-29.67	10.59,29.04	
USA5	13.96	8.99-18.58	9.77,17.70	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison	
	Median	Range	IQR		Median	Range	IQR		
Rapport-C									
All	2	0-17	1,5		0.44%	0%-0.78%	0.11%,1.36%		
UK	2	0-14	0,3	Not significantly different (p=0.193)	0.73%	0%-7.81%	0%, 1.72%	Not significantly different (p=0.262)	
UK1	1	0-4	0,2.5		0.46%	0%-2.92%	0%,1.36%		
UK2	1	0-12	1,5.25		0.37%	0%-7.81%	0%,3.49%		
UK3	4	2-8	2.5,7		1.70%	1.25%-4.71%	1.28%,3.44%		
UK4	1.5	0-2	0.25,2%		0.90%	0%-2.75%	0.21%,2.49%		
UK5	2	0-14	1,8		0.36%	0%-3.44%	0.12%,0.36%		
USA	3	0-17	1,5		0.27%	0%-3.99%	0.13%, 1.06%		
USA1	2	0-6	1,5.5		0.30%	0%-1.06%	0.57%,0.96%		
USA2	8	1-17	2.5,14		1.23%	0.13%-3.99%	0.33%,2.72%		
USA3	3	1-5	1,4		0.22%	0.13%-0.27%	0.14%,0.26%		
USA4	1.5	1-8	1,5.75		0.34%	0.03%-2.55%	0.45%,1.52%		
USA5	3	0-7	0.75,5.5		0.41%	0%-1.34%	0.47%,0.85%		

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Rapport-V								
All	2	0-14	1,5		0.62%	0%-11.51%	0.25%, 2.16%	
UK	2	0-14	1,4	**Significantly different (p=0.036)**	0.37%	0%-11.51%	0.20%, 2.89%	Not significantly different (p=0.469)
UK1	1	0-3	0.75,2.25		0.52%	0%-3.25%	0.15%,1.65%	
UK2	0.5	0-14	0,6.5		0.15%	0%-11.51%	0%,3.83%	
UK3	5	2-8	3,7		3.22%	1.23%-9.79%	2.10%,7.16%	
UK4	1	0-2	0.25,1.75		0.26%	0%-0.31%	0.05%,0.31%	
UK5	2	1-14	2,7		0.49%	0.18%-3.78%	0.25%,2.89%	
USA	4	1-14	2,5		1.06%	0.11%-5.00%	0.34%, 1.84%	
USA1	4	2-8	2.5,6.5		1.08%	0.34%-4.92%	0.41%,3.33%	
USA2	10	1-14	3.5,12.5		2.16%	0.25%-3.22%	1.05%,2.96%	
USA3	2	1-5	1.5,3.5		0.33%	0.11%-1.52%	0.14%,1.48%	
USA4	2.5	1-5	1,5		0.42%	0.14%-2.63%	0.14%,1.12%	
USA5	4	1-7	2.5,4.75		1.12%	0.50%-5.00%	0.54%,2.14%	

Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Identifying-C								
All	1	0-12	1,3		0.57%	0%-11.44%	0.13%, 1.75%	
UK	1	0-5	1,2	Not significantly different (p=0.749)	0.60%	0%-11.44%	0.17%, 2.51%	Not significantly different (p=0.199)
UK1	1.5	0-2	0.75,2		0.58%	0%-2.56%	0.12%,1.27%	
UK2	2	1-4	1,4		1.84%	0.21%-5.56%	0.33%,5.23%	
UK3	2	1-4	1.5,4		1.75%	0.54%-6.61%	0.56%,4.56%	
UK4	1	0-5	0.25,4		1.26%	0%-11.44%	0.01%,9.20%	
UK5	1	0-3	0,2		0.23%	0%-1.55%	0%,0.95%	
USA	2	0-12	1,3		0.33%	0%-6.57%	0.07%, 1.19%	
USA1	8	3-12	3,10		4.19%	0.57%-6.57%	0.60%,5.74%	
USA2	2	1-3	1.5,2.5		0.41%	0.07%-0.63%	0.19%,0.62%	
USA3	2	0-7	0.5,4.5		0.25%	0%-4.26%	0.80%,2.72%	
USA4	1	0-3	0,1.5		0.14%	0%-0.44%	0%,0.22%	
USA5	0.5	0-10	0,3.25		0.17%	0%-5.23%	0%,2.20%	

Appendix 8.6 (continued)   Calgary-Cambridge Model Analysis Data

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Identifying-V								
All	2	0-8	1,3		0.64%	0%-4.65%	0.18%, 1.75%	
UK	1	0-5	1,2	Not significantly different (p=0.085)	0.56%	0%-4.65%	0.14%, 1.18%	Not significantly different (p=0.258)
UK1	1	0-3	0.75,1.5		0.33%	0%-4.43%	0%,1.60%	
UK2	2.5	1-4	1,3.25		1.05%	0.18%-4.65%	1.00%,3.49%	
UK3	2	1-8	1.5,5.5		0.55%	0.36%-1.75%	0.45%,1.46%	
UK4	1.5	0-5	0.25,4.25		0.70%	0%-2.35%	0.16%,1.95%	
UK5	1	0-2	0,2		0.42%	0%-3.17%	0%,0.56%	
USA	3	0-8	1,4		0.97%	0%-3.39%	0.27%, 2.11%	
USA1	4	3-8	3.5,7		1.27%	0.62%-2.44%	0.79%,2.11%	
USA2	3	1-4	2,3.5		0.94%	0.27%-2.40%	0.60%,2.04%	
USA3	3	1-7	1,5.5		1.11%	0.17%-2.11%	0.34%,1.75%	
USA4	1	0-3	0,3		0.31%	0%-2.28%	0%,1.62%	
USA5	1.5	0-8	0,4.25		1.49%	0%-3.39%	0%,2.70%	

Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Exploration-C								
All	27	6-121	19,43		14.55%	3.45%-45.76%	10.51%, 22.29%	
UK	22	6-121	17,43	Not significantly different (p=0.099)	16.28%	3.96%-35.16%	10.51%, 22.63%	Not significantly different (p=0.522)
UK1	15.5	6-22	7.5,19.75		7.83%	3.96%-13.01%	3.99%,12.68%	
UK2	22.5	17-25	17.75,25		16.17%	10.51%-22.29%	11.10%,18.06%	
UK3	37	11-45	16,42		11.82%	4.26%-35.16%	6.09%,27.60%	
UK4	27.5	9-44	11.5,42		22.54%	5.47%-31.29%	8.53%,30.31%	
UK5	43	10-121	30,54		22.63%	14.55%-32.42%	16.29%,30.00%	
USA	30	12-70	23,43		12.18%	3.45%-45.76%	9.58%, 22.29%	
USA1	34	30-57	30,52		10.90%	5.21%-45.76%	7.40%,28.37%	
USA2	36	27-57	29,56.5		18.27%	9.35%-25.79%	13.32%,24.04%	
USA3	39	19-70	19.5,61.5		15.61%	9.48%-27.87%	10.55%,22.16%	
USA4	21.5	12-28	12,25.75		11.31%	8.63%-15.16%	8.94%,12.93%	
USA5	27.5	20-43	22.25,33.25		17.77%	3.45%-24.87%	9.30%,23.03%	

Appendix 8.6 (continued)   Calgary-Cambridge Model Analysis Data

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Exploration-V								
All	22	5-122	15,34		7.89%	1.23%-22.00%	4.46%, 11.59%	
UK	19	5-122	15,34	Not significantly different (p=0.162)	7.89%	2.08%-18.02%	4.46%, 12.03%	Not significantly different (p=0.567)
UK1	14	6-18	8.25,18		5.31%	3.59%-18.02%	3.60%,10.71%	
UK2	18.5	12-24	14.25,21.75		7.03%	2.08%-15.59%	3.66%,11.18%	
UK3	31	15-41	16.5,37.5		8.10%	4.39%-13.92%	4.82%,11.88%	
UK4	23	5-41	8.5,37.5		6.53%	4.58%-16.94%	4.73%,14.68%	
UK5	39	10-122	21,44		11.76%	2.95%-15.29%	4.46%,14.44%	
USA	30	12-70	23,43		7.68%	1.23%-22.00%	4.21%, 10.67%	
USA1	34	31-43	32,42		11.87%	8.16%-13.47%	9.42%,13.18%	
USA2	34	24-50	27,48.5		7.93%	4.55%-22.00%	6.11%,15.33%	
USA3	45	13-60	13,57.5		8,86%	1.23%-11.61%	3.23%,11.60%	
USA4	14.5	12-20	12.75,17.75		3.30%	1.69%-6.54%	1.78%,5.70%	
USA5	22.5	14-33	19.25,27		6.63%	2.26%-8.90%	3.06%,8.65%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison	
	Median	Range	IQR		Median	Range	IQR		
Exam									
All	4	0-16	2,7		4.70%	0%-26.76%	2.18%,12.43%		
UK	5	0-15	2,6	Not significantly different (p=0.832)	6.71%	0%-26.76%	2.18%,13.20%	Not significantly different (p=0.259)	
UK1	5.5	2-7	3.5,6.25		14.20%	2.18%-19.96%	9.08%,18.58%		
UK2	3.5	0-7	0,6.25		2.29%	0%-14.89%	0%,13.62%		
UK3	5	1-7	1.5,6		7.39%	1.72%-15.57%	3.21%,13.55%		
UK4	5	3-10	3.25,9		9.04%	1.72%-26.76%	2.70%,23.18%		
UK5	5	0-15	0,7		4.18%	0%-7.45%	0%,7.26%		
USA	4	0-16	2,8		3.50%	0%-23.28%	2.06%,6.45%		
USA1	3	0-12	0.5,9.5		2.69%	0%-13.36%	0.17%,9.38%		
USA2	4	3-10	3,9.5		4.05%	2.06%-13.57%	2.85%,9.93%		
USA3	8	5-16	6.5,12.5		13.01%	6.45%-23.28%	9.25%,21.14%		
USA4	2	1-3	1,3		1.61%	0.54%-5.92%	0.71%,3.82%		
USA5	4	1-4	2.5,4		3.21%	1.02%-5.71%	2.11%,4.05%		

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Providing								
All	6	0-27	4,9		6.79%	0%-67.18%	3.06%, 9.99%	
UK	6	1-27	4,8	Not significantly different (p=0.577)	8.90%	1.81%-67.18%	5.81%, 12.82%	**Significantly different (p=0.001)**
UK1	4	2-27	3.5,11.25		7.89%	6.35%-67.18%	6.61%,27.56%	
UK2	5.5	4-20	4.75,15.5		9.67%	3.01%-18.39%	4.15%,14.42%	
UK3	8	7-14	7,11		10.82%	6.78%-14.04%	8.05%,12.90%	
UK4	6.5	4-9	4.25,8.75		11.11%	5.81%-14.81%	6.71%,14.31%	
UK5	7	1-10	1,9		4.37%	1.81%-11.33%	2.86%,9.08%	
USA	5	0-16	2,10		5.72%	0%-10.43%	1.06%, 8.24%	
USA1	13	8-16	9.5,15.5		9.53%	3.06%-10.43%	5.82%,10.21%	
USA2	3	0-10	1,7.5		1.41%	0%-7.96%	0.31%,7.01%	
USA3	4	2-15	3,11.5		3.31%	1.06%-6/79%	1.53%,6.71%	
USA4	1	0-10	0,6.25		0.25%	0%-5.72%	0%,4.80%	
USA5	6.5	3-10	4.5,9.25		7.85%	2.49%-10.34%	5.15%,9.49%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Aiding								
All	2.50	0-22	1,5		2.88%	0%-21.00%	0.67%, 6.58%	
UK	3.50	0-13	1.75,5	Not significantly different (p=0.631)	4.25%	0%-20.27%	1.76%, 7.32%	Not significantly different (p=0.345)
UK1	4	0-5	1.5,5		4.48%	0%-9.63%	1.62%,8.63%	
UK2	1	1-3	1,2.5		0.80%	0%-7.29%	0.09%,3.91%	
UK3	2	0-5	0,3.5		4.08%	0%-7.32%	0%,6.11%	
UK4	3.5	2-11	2.25,9.25		4.72%	2.75%-12.98%	2.77%,11.38%	
UK5	5	1-13	4,12		5.31%	1.76%-20.27%	2.04%,15.79%	
USA	2	0-22	1,6		2.31%	0%-21.00%	0.63%, 5.60%	
USA1	15	8-22	9,21		10.04%	5.80%-21.00%	6.79%,19.37%	
USA2	1	0-4	0.5,4		0.96%	0%-5.60%	0.32%,5.03%	
USA3	2	0-6	0.5,5		4.12%	0%-7.01%	0.63%,5.86%	
USA4	1.5	0-12	0.75,5.25		1.98%	0%-5.22%	0.54%,3.80%	
USA5	2	0-3	0.75,2.25		0.62%	0%-2.31%	0.12%,1.40%	

	Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data							
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Achieving								
All	5	0-22	3,11		9.25%	0%-32.02%	3.49%, 18.58%	
UK	4	0-16	3,6	**Significantly different (p=0.048)**	7.75%	0%-30.82%	4.46%, 14.08%	Not significantly different (p=0.743)
UK1	4	0-7	0.75,5.5		5.57%	0%-30.82%	0.70%,13.52%	
UK2	4	1-12	1,7.5		7.78%	1.88%-25.27%	2.21%,16.88%	
UK3	4	2-8	2.5,6.5		5.82%	1.99%-29.10%	3.77%,18.37%	
UK4	5	3-16	3,13.75		11.73%	9.25%-22.27%	9.39%,20.12%	
UK5	4	2-13	3,6		10.90%	2.80%-23.11%	7.24%,19.32%	
USA	7	0-22	3,13		9.37%	0%-32.02%	2.95%, 19.72%	
USA1	7	2-13	4,12		7.97%	2.14%-19.72%	3.76%,15.85%	
USA2	1	0-4	0,3		0.40%	0%-14.81%	0%,8.06%	
USA3	6	3-15	4,11		8.65%	2.95%-27.35%	3.22%,18.39%	
USA4	10.5	0-20	3.75,14.75		10.89%	0%-32.02%	6.24%,21.94%	
USA5	13.5	6-22	9.75,16		21.36%	9.37%-22.36%	13.37%,21.98%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data								
Variable	**Frequency**			Comparison	**Proportion**			Comparison
	Median	Range	IQR		Median	Range	IQR	
Planning								
All	9	1-36	6,14		17.25%	2.53%-39.00%	10.98%, 22.28%	
UK	7	1-36	5,9	**Significantly different (p=0.004)**	15.13%	2.53%-33.56%	10.86%, 20.38%	Not significantly different (p=0.162)
UK1	6.5	1-8	3.25,8		23.15%	4.59%-33.56%	12.49%,30.92%	
UK2	6.5	5-14	5.75,12.5		12.66%	10.26%-27.99%	10.80%,22.65%	
UK3	10	7-24	8,17.5		13.35%	15.68%-28.23%	16.47%,24.31%	
UK4	6	3-9	3.5,8.5		10.64%	2.53%-17.86%	4.28%,16.34%	
UK5	6	4-36	4,9		12.02%	7.50%-19.44%	8,95%,15.85%	
USA	12	3-27	8,19		21.12%	4.13%-39.00%	11.33%, 23.36%	
USA1	10	5-23	6,18		5.29%	4.13%-25.53%	4.24%,18.43%	
USA2	16	4-22	8,21.5		21.21%	8.09%-32.99%	12.16%,27.63%	
USA3	10	5-24	6.5,18.5		14.29%	10.00%-34.73%	11.64%,27.74%	
USA4	14.5	3-27	7.5,24		22.18%	8.88%-39.00%	18.06%,30.88%	
USA5	12.5	5-19	7.25,16		22.10%	14.71%-33.66%	18.86%,25.93%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Summarising								
All	1	0-3	1,1		1.26%	0%-31.22%	0.71%, 2.09%	
UK	1	0-2	1,1	Not significantly different (p=0.974)	1.38%	0%, 31.22%	0.80%, 2.88%	Not significantly different (p=0.143)
UK1	1	0-1	0.75,1		0.90%	0%-1.73%	0.10%,1.30%	
UK2	1	1-1	1,1		1.63%	0.55%-3.27%	0.60%,2.98%	
UK3	1	1-1	1,1		1.31%	0.71%-2.48%	0.76%,2.20%	
UK4	1	1-1	1,1		1.71%	0.85%-8.31%	1.03%,6.69%	
UK5	1	1-2	1,1		3.03%	0.45%-31.22%	1.00%,4.39%	
USA	1	0-3	1,1		1.15%	0%-4.68%	0.30%, 1.84%	
USA1	1	1-3	1,3		1.21%	0.48%-1.64%	0.81%,1.57%	
USA2	1	0-1	0,1		0.89%	0%-4.68%	0%,3.09%	
USA3	1	0-2	0.5,2		0.82%	0%-2.89%	0.15%,2.37%	
USA4	1	0-1	0,1		1.57%	0%-2.59%	0%,2.42%	
USA5	1	0-3	0.75,2.25		1.19%	0%-2.09%	0.73%,1.69%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Forward								
All	1	0-9	0,2		1.65%	0%-15.31%	0%, 4.23%	
UK	1	0-9	0,2	Not significantly different (p=0.085)	2.47%	0%-15.31%	0%, 5.39%	**Significantly different (p=0.010)**
UK1	3.5	0-9	0.75,8.25		8.24%	0%-15.31%	2.97%,12.23%	
UK2	1.5	0-5	0.75,3.5		2.06%	0%-5.39%	1.19%,4.60%	
UK3	1	0-4	0.5,3		2.47%	0%-4.47%	1.09%,3.95%	
UK4	0.5	0-2	0,1.75		0.84%	0%-4.23%	0%,3.60%	
UK5	2	0-2	0,2		3.73%	0%-10.86%	0%,5.45%	
USA	1	0-7	0,2		0.59%	0%-8.28%	0%, 1.67%	
USA1	1	0-7	1,5.5		0.87%	0%-4.39%	0%,3.03%	
USA2	0	0-1	0,1		0%	0%-1.65%	0%,1.12%	
USA3	0	0-2	0,1.5		0%	0%-1.48%	0%,0.96%	
USA4	0.5	0-3	0,1.5		0.57%	0%-5.18%	0%,2.34%	
USA5	1.5	0-4	0.75,3.25		3.80%	0%-8.28%	0.65%,6.57%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Interpersonal								
All	3	0-97	0,8		2.31%	0%-27.91%	0%, 6.79%	
UK	0	0-12	0,3	**Significantly different (p<0.000)**	0%	0%-27.91%	0%, 2.91%	**Significantly different (p<0.000)**
UK1	0.5	0-8	0,4.25		0.42%	0%-2.92%	0%,1.50%	
UK2	2.5	0-12	0.75,6		3.33%	0%-27.91%	1.03%,11.77%	
UK3	0	0-3	0,3		0%	0%-2.33%	0%,2.05%	
UK4	0	0-0	0,0		0%	0%-0%	0%,0%	
UK5	0	0-9	0,4		0%	0%-11.58%	0%,6.71%	
USA	8	0-97	3,12		5.78%	0%-23.85%	1.74%, 16.42%	
USA1	32	11-97	11.5,76.5		6.79%	1.07%-23.66%	3.06%,20.04%	
USA2	7	4-8	4,8		8.47%	2.13%-17.95%	2.48%,13.36%	
USA3	8	2-18	3.5,13		14.97%	1.74%-19.73%	4.23%,18.98%	
USA4	1	0-24	1,12		1.39%	0%-23.85%	0%,14.73%	
USA5	4	0-13	2.25,10.75		4.80%	0%-18.30%	1.73%,8.91%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Pet								
All	12	0-45	8,19		8.38%	0%-42.68%	4.96%, 17.53%	
UK	9	0-45	5,12	**Significantly different (p<0.000)**	5.93%	0%-30.80%	2.64%, 12.59%	**Significantly different (p=0.017)**
UK1	5.5	0-7	3,7		4.29%	0%-11.12%	1.20%,9.06%	
UK2	15.5	1-22	9.25,21.25		17.09%	0.55%-26.19%	4.31%,21.41%	
UK3	7	4-18	4.5,14		5.17%	2.20%-30.80%	2.51%,18.54%	
UK4	9	3-11	4.5,10.5		7.48%	1.42%-14.38%	2.30%,13.29%	
UK5	11	3-45	8,13		5.97%	1.81%-12.59%	4.96%,10.73%	
USA	17	7-44	12,22		12.54%	2.43%-42.68%	5.76%, 18.71%	
USA1	14	10-19	11,17.5		5.76%	2.43%-18.16%	3.05%,12.17%	
USA2	17	11-41	14,34		18.71%	13.94%-32.81%	14.38%,29.43%	
USA3	14	7-22	8,18.5		7.17%	2.47%-12.56%	3.82%,12.55%	
USA4	25	16-44	17.5,43.25		32.42%	12.28%-42.68%	16.22%,39.97%	
USA5	18	8-25	8.75,22		9.06%	4.31%-18.24%	4.92%,13.38%	

Appendix 8.6 (continued) Calgary-Cambridge Model Analysis Data				
Variable	Percentage			Comparison
Alignment	Median	Range	IQR	
All	86.67%	73.33%-100%	86.67%, 93.33%	
UK	86.67%	73.33%-93.33%	80.00%, 93.33%	Not significantly different (p=0.359)
UK1	83.33%	73.33%-93.33%	78.33%,88.33%	
UK2	90.00%	80.00%-93.33%	80.00%,93.33%	
UK3	93.33%	86.67%-93.33%	90.00%,93.33%	
UK4	83.33%	73.33%-93.33%	75.00%,91.67%	
UK5	86.67%	73.33%-93.33%	86.67%,93.33%	
USA	86.67%	73.33%-100%	86.67%, 93.33%	
USA1	93.33%	86.67%-100%	90.00%,100%	
USA2	86.67%	80.00%-93.33%	83.33%,93.33%	
USA3	93.33%	86.67%-93.33%	90.00%,93.33%	
USA4	80.00%	73.33%-93.33%	78.33%,93.33%	
USA5	86.67%	86.67%-93.33%	86.67%,93.33%	

Appendix 8.7 Patient-centred Clinical Method Analysis Data				
Variable	Frequency			Comparison
Consultation Length (min)	Median	Range	IQR	
All	16.08	4.81-45.75	10.79,20.42	
UK	14.96	4.81-45.75	10.13,19.46	Not significantly different (p=0.363)
UK1	9.91	8.38-30.92	8.83,18.95	
UK2	16.61	10.24-19.46	12.09,18.63	
UK3	13.13	7.88-17.30	9.01,15.48	
UK4	20.66	5.71-25.49	9.08,24.66	
UK5	17.81	4.81-45.75	14.83,24.20	
USA	16.34	8.08-30.36	11.95,22.76	
USA1	20.15	12.81-25.32	14.45,22.87	
USA2	15.61	8.30-23.37	11.61,23.07	
USA3	19.11	9.47,30.36	12.73,27.01	
USA4	16.48	8.08-29.70	10.77,29.11	
USA5	14.16	8.85-19.12	9.83,17.46	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Presentation								
All	1	0-7	1,3		1.96%	0%-13.55%	0.53%,3.09%	
UK	1	0-3	1,2	**Significantly different (p=0.002)**	1.70%	0%-8.84%	0.35%,2.64%	Not significantly different (p=0.337)
UK1	1	1-2	1,1.25		3.33%	1.69%-6.66%	2.01%,5.02%	
UK2	1	0-3	0.75,2.25		1.42%	0%-8.84%	0.36%,6.46%	
UK3	2	1-4	1,3		1.96%	0.83%-2.73%	1.26%,2.58%	
UK4	0.5	0-2	0,1.75		0.18%	0%-3.22%	0%,2.50%	
UK5	1	0-3	0,2		0.56%	0%-2.17%	0%,2.03%	
USA	2	0-7	1,5		2.16%	0%-13.55%	0.71%,3.18%	
USA1	5	2-5	2.5,5		3.18%	1.59%-13.55%	2.23%,9.91%	
USA2	3	1-5	1.5,4.5		1.59%	0.28%-3.09%	0.89%,2.80%	
USA3	2	1-5	1,4.5		2.16%	0.52%-4.96%	0.62%,4.08%	
USA4	1	0-3	0.75,2.25		0.62%	0%-2.73%	0.11%,1.65%	
USA5	2	1-7	1,7		2.53%	0.59%-5.37%	1.18%,3.99%	

Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Gather-C								
All	24	3-104	18,31		12.22%	2.04%-25.99%	7.75%,17.58%	
UK	18	3-104	11,30	**Significantly different (p=0.024)**	12.68%	2.04%-24.72%	7.53%,18.40%	Not significantly different (p=0.662)
UK1	9	3-21	4.5,18.75		4.94%	2.04%-13.94%	3.10%,10.69%	
UK2	17	7-18	13,18		11.37%	8.40%-15.64%	8.46%,13.84%	
UK3	25	13-33	18.5,31.5		9.97%	5.47%-19.64%	6.50%,19.42%	
UK4	21	7-30	9.25,29		13.78%	3.90%-21.21%	4.96%,20.77%	
UK5	31	9-104	27,44		17.58%	8.19%-24.72%	12.68%,23.00%	
USA	25	12-66	20,31		12.22%	3.31%-25.99%	7.75%,17.41%	
USA1	26	24-31	24,31		7.20%	4.08%-19.78%	5.35%,14.07%	
USA2	29	19-48	21.5,45.5		15.81%	6.16%-18.66%	9.19%,17.24%	
USA3	25	20-66	21.5,61		12.13%	7.75%-25.99%	9.50%,24.13%	
USA4	24	12-37	13.5,32.5		13.31%	6.81%-17.41%	10.39%,16.63%	
USA5	21	18-44	18.75,32		12.88%	3.31%-22.49%	8.08%,19.21%	

Appendix 8.7 (continued)   Patient-centred Clinical Method Analysis Data

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Gather-V								
All	18	4-98	12,27		5.29%	0.83%-18.51%	3.20%,8.24%	
UK	18	4-98	10,22	Not significantly different (p=0.102)	4.67%	1.64%-18.51%	3.11%,8.08%	Not significantly different (p=0.578)
UK1	9	4-18	4.75,18		3.90%	1.64%-18.51%	2.30%,10.80%	
UK2	14	5-20	9.5,17.75		3.75%	1.72%-10.36%	2.37%,7.32%	
UK3	22	14-27	17,25.5		4.67%	3.50%-11.52%	3.95%,8.85%	
UK4	17.5	4-24	7,22.75		6.14%	2.48%-8.06%	3.01%,7.96%	
UK5	23	7-98	20,33		7.15%	2.13%-12.09%	4.95%,10.09%	
USA	23	7-52	13,33		5.45%	0.83%-16.53%	4.05%,8.75%	
USA1	27	24-35	24,31.5		10.50%	4.91%-13.33%	5.92%,12.60%	
USA2	27	14-35	18.5,31		5.29%	2.70%-16.53%	3.81%,11.56%	
USA3	33	12-52	14.5,51		8.75%	3.14%-8.96%	4.30%,8.91%	
USA4	12.5	11-36	11.75,20.25		4.22%	1.20%-8.62%	1.71%,5.68%	
USA5	14.5	7-34	10.75,21.25		5.47%	0.83%-7.40%	2.38%,7.14%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison	
	Median	Range	IQR		Median	Range	IQR		
Ideas-C									
All	7	0-26	4,10		2.01%	0%-9.15%	1.38%,4.04%		
UK	6	1-22	4,10	Not significantly different (p=0.532)	2.53%	0.20%-9.15%	1.19%,4.27%	Not significantly different (p=0.533)	
UK1	2	1-9	1,5.25		0.41%	0.20%-5.07%	0.22%,2.06%		
UK2	6	1-10	3.25,9.25		2.50%	0.76%-7.77%	1.53%,4.43%		
UK3	6	2-10	3,10		2.31%	1.45%-4.27%	1.47%,3.40%		
UK4	6.5	5-18	5,15.5		2.68%	1.19%-8.71%	1.30%,7.47%		
UK5	12	6-22	7,22		4.07%	2.01%-9.15%	2.97%,7.81%		
USA	7	0-26	5,11		1.69%	0%-8.82%	1.38%,3.40%		
USA1	6	5-18	5.5,15.5		1.66%	1.23%-8.03%	1.31%,5.27%		
USA2	8	7-26	7.5,25		4.04%	1.63%-8.82%	2.52%,6.71%		
USA3	8	4-10	5,9		1.04%	0.51%-4.55%	0.77%,3.01%		
USA4	6	1-11	2.5,8.75		1.70%	0.7%-2.55%	1.46%,2.06%		
USA5	5	0-14	3,12.5		2.21%	0%-5.70%	1.07%,3.68%		

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison	
	Median	Range	IQR		Median	Range	IQR		
Ideas-V									
All	9	0-42	6,13		3.98%	0%-16.48%	2.59%,5.82%		
UK	8	1-42	6,12	Not significantly different (p=0.532)	4.57%	0.12%-16.48%	3.13%,6.69%	Not significantly different (p=0.062)	
UK1	3.5	1-12	1,8.25		1.85%	0.12%-10.03%	0.49%,7.70%		
UK2	7	5-13	5.75,10.75		4.96%	3.03%-10.08%	3.31%,9.74%		
UK3	12	6-14	6,13		4.67%	4.05%-6.16%	4.11%,5.81%		
UK4	8	6-19	6,16.75		5.39%	1.70%-6.55%	2.61%,6.28%		
UK5	12	5-42	8,32		4.57%	3.13%-16.48%	3.55%,7.76%		
USA	10	0-26	5,15		3.36%	0%-7.31%	2.01%,5.58%		
USA1	10	6-17	6.5,17		3.66%	1.23%-5.80%	2.15%,5.45%		
USA2	11	5-26	5,24.5		4.95%	0.83%-7.13%	1.42%,6.36%		
USA3	9	5-20	6,18		3.98%	2.27%-6.41%	2.43%,6.11%		
USA4	9	0-15	3,11.25		2.28%	0%-5.11%	1.00%,4.05%		
USA5	11.5	2-14	3.5,12.5		3.21%	1.01%-7.31%	1.83%,6.03%		

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Concerns-C								
All	0	0-14	0,2		0%	0%-6.97%	0%,0.88%	
UK	1	0-5	0,3	Not significantly different (p=0.579)	0.21%	0%-5.42%	0%,0.80%	Not significantly different (p=0.821)
UK1	1	0-1	0,1		0.25%	0%-0.58%	0%,0.50%	
UK2	0.5	0-4	0,3.25		0.16%	0%-5.42%	0%,1.90%	
UK3	0	0-3	0,2		0%	0%-0.75%	0%,0.46%	
UK4	0	0-1	0,0.75		0%	0%-0.80%	0%,0.60%	
UK5	4	0-5	0,4		1.51%	0%-3.35%	0%,2.09%	
USA	0	0-14	0,2		0%	0-6.97%	0%,1.01%	
USA1	0	0-7	0,4.5		0%	0%-2.65%	0%,2.14%	
USA2	1	0-7	0,4.5		0.09%	0%-4.28%	0%,3.47%	
USA3	0	0-3	0,2.5		0%	0%-2.21%	0%,1.31%	
USA4	0	0-1	0,1		0%	0%-0.76%	0%,0.41%	
USA5	0.5	0-14	0,4.25		0.44%	0%-6.97%	0%,2.50%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Concerns-V								
All	0	0-9	0,1		0%	0%-3.44%	0%,0.09%	
UK	0	0-3	0,1	Not significantly different (p=0.484)	0%	0%-2.42%	0%,0.14%	Not significantly different (p=0.541)
UK1	0	0-2	0,0.5		0%	0%-0.85%	0%,0.21%	
UK2	0	0-3	0,1.5		0%	0%-2.42%	0%,1.77%	
UK3	0	0-2	0,1.5		0%	0%-0.50%	0%,0.29%	
UK4	0	0-1	0.0.75		0%	0%-0.50%	0%,0.38%	
UK5	0	0-2	0,1		0%	0%-0.17%	0%,0.14%	
USA	0	0-9	0,0		0%	0%-3.44%	0%,0%	
USA1	0	0-2	0,1		0%	0%-0.15%	0%,0.07%	
USA2	1	0-5	0,3		0.18%	0%-2.14%	0%,1.20%	
USA3	0	0-0	0,0		0%	0%-0%	0%,0%	
USA4	0	0-0	0,0		0%	0%-0%	0%,0%	
USA5	0	0-9	0,3		0%	0%-3.44%	0%,2.25%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Expectations								
All	0	0-5	0,1		0%	0%-4.18%	0%,0.26%	
UK	0	0-5	0,0	**Significantly different (p=0.002)**	0%	0%-4.18%	0%,0%	**Significantly different (p=0.002)**
UK1	0	0-0	0,0		0%	0%-0%	0%,0%	
UK2	0	0-0	0,0		0%	0%-0%	0%,0%	
UK3	0	0-5	0,2.5		0%	0%-1.99%	0%,1.00%	
UK4	0	0-3	0,2.25		0%	0%-4.18%	0%,3.14%	
UK5	0	0-0	0,0		0%	0%-0%	0%,0%	
USA	0	0-5	0,1		0%	0%-2.64%	0%,0.76%	
USA1	1	0-2	0,2		0.35%	0%-2.64%	0%,1.61%	
USA2	0	0-1	0,0.5		0%	0%-0.69%	0%,0.34%	
USA3	0	0-3	0,2.5		0%	0%-1.99%	0%,1.76%	
USA4	0.5	0-2	0,1.25		0.12%	0%-1.44%	0%,0.56%	
USA5	1	0-5	0,2		0.65%	0%-1.50%	0%,0.98%	

Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Feelings-C								
All	2	0-15	1,4		0.42%	0%-3.75%	0.16%,0.98%	
UK	1	0-7	0,2	**Significantly different (p<0.000)**	0.25%	0%-3.75%	0%,0.74%	**Significantly different (p=0.029)**
UK1	0.5	0-3	0,2.25		0.26%	0%-3.75%	0%,1.84%	
UK2	1.5	1-7	1,4		0.41%	0.16%-2.92%	0.28%,1.28%	
UK3	1	0-3	0,2.5		0.25%	0%-0.73%	0%,0.70%	
UK4	0.5	0-5	0,4		0.10%	0%-1.95%	0%,1.51%	
UK5	1	0-5	0,2		0.19%	0%-1.45%	0%,0.86%	
USA	3	1-15	2,6		0.60%	0.07%-3.18%	0.26%,1.41%	
USA1	3	2-7	2,6.5		0.21%	0.15%-2.91%	0.17%,2.77%	
USA2	3	1-9	2,7		0.31%	0.24%-1.87%	0.25%,1.37%	
USA3	4	1-9	2,7.5		0.89%	0.07%-3.18%	0.19%,2.08%	
USA4	4	1-15	1,6.75		0.64%	0.15%-2.60%	0.23%,1.71%	
USA5	3	1-7	1,4.75		0.72%	0.31%-1.66%	0.44%,1.42%	

Appendix 8.7 (continued)   Patient-centred Clinical Method Analysis Data

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Feelings-V								
All	2	0-21	1,6		0.57%	0%-5.57%	0.10%,1.16%	
UK	1	0-10	0,3	**Significantly different (p<0.000)**	0.33%	0%-5.57%	0%,0.74%	**Significantly different (p=0.007)**
UK1	0	0-2	0,1.25		0%	0%-1.06%	0%,0.51%	
UK2	2.5	1-10	1.75,5.5		0.65%	0.28%-5.57%	0.40%,2.05%	
UK3	1	0-6	0.5,5.5		0.47%	0%-1.94%	0.09%,1.31%	
UK4	0.5	0-1	0,1		0.01%	0%-0.35%	0%,0.27%	
UK5	2	0-5	0,3		0.42%	0%-2.08%	0%,1.16%	
USA	5	0-21	2,9		0.81%	0%-4.55%	0.32%,1.51%	
USA1	4	2-6	2,5		0.64%	0.39%-1.51%	0.49%,1.16%	
USA2	8	1-21	1.5,15		0.73%	0.06%-2.97%	0.09%,2.63%	
USA3	6	1-15	2,13.5		1.27%	0.18%-4.55%	0.59%,3.47%	
USA4	2	0-11	0.75,11		0.20%	0%-1.35%	0.07%,0.87%	
USA5	7	3-12	4.5,9		1.18%	0.60%-2.76%	0.78%,2.65%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data									
Variable	Frequency			Comparison	Proportion				Comparison
	Median	Range	IQR		Median	Range	IQR		
Effects-C									
All	0	0-4	0,0		0%	0%-2.6%	0%,0%		
UK	0	0-0	0,0	**Significantly different (p=0.036)**	0%	0%-0%	0%,0%		**Significantly different (p=0.036)**
UK1	0	0-0	0,0		0%	0%-0%	0%,0%		
UK2	0	0-0	0,0		0%	0%-0%	0%,0%		
UK3	0	0-0	0,0		0%	0%-0%	0%,0%		
UK4	0	0-0	0,0		0%	0%-0%	0%,0%		
UK5	0	0-0	0,0		0%	0%-0%	0%,0%		
USA	0	0-4	0,0		0%	0%-2.60%	0%,0%		
USA1	1	0-4	0,2.5		0.25%	0%-2.60%	0%,2.24%		
USA2	0	0-0	0,0		0%	0%-0%	0%,0%		
USA3	0	0-0	0,0		0%	0%-0%	0%,0%		
USA4	0	0-0	0,0		0%	0%-0%	0%,0%		
USA5	0	0-1	0,0.25		0%	0%-0.42%	0%,0.10%		

Appendix 8.7 (continued)					Patient-centred Clinical Method Analysis Data				
Variable	Frequency			Comparison	Proportion				Comparison
	Median	Range	IQR		Median	Range	IQR		
Effects-V									
All	0	0-3	0,0		0%	0%-0.32%	0%,0%		
UK	0	0-0	0,0	Not significantly different (p=0.146)	0%	0%-0%	0%,0%		Not significantly different (p=0.146)
UK1	0	0-0	0,0		0%	0%-0%	0%,0%		
UK2	0	0-0	0,0		0%	0%-0%	0%,0%		
UK3	0	0-0	0,0		0%	0%-0%	0%,0%		
UK4	0	0-0	0,0		0%	0%-0%	0%,0%		
UK5	0	0-0	0,0		0%	0%-0%	0%,0%		
USA	0	0-3	0,0		0%	0%-0.32%	0%,0%		
USA1	0	0-3	0,1.5		0%	0%-0.32%	0%,0.16%		
USA2	0	0-0	0,0		0%	0%-0%	0%,0%		
USA3	0	0-0	0,0		0%	0%-0%	0%,0%		
USA4	0	0-0	0,0		0%	0%-0%	0%,0%		
USA5	0	0-1	0,0.25		0%	0%-0.18%	0%,0.04%		

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data									
Variable	Frequency			Comparison	Proportion			Comparison	
	Median	Range	IQR		Median	Range	IQR		
Understanding									
All	0	0-7	0,0		0%	0%-4.79%	0%,0%		
UK	0	0-4	0,0	Not significantly different (p=0.395)	0%	0%-2.15%	0%,0%	Not significantly different (p=0.403)	
UK1	0	0-0	0,0		0%	0%-0%	0%,0%		
UK2	0	0-4	0,1.75		0%	0%-2.15%	0%,0.72%		
UK3	0	0-1	0,0.5		0%	0%-0.44%	0%,0.22%		
UK4	0	0-0	0,0		0%	0%-0%	0%,0%		
UK5	0	0-2	0,1		0%	0%-0.28%	0%,0.07%		
USA	0	0-7	0,0		0%	0%-4.79%	0%,0%		
USA1	0	0-2	0,1		0%	0%-0.69%	0%,0.35%		
USA2	0	0-7	0,3.5		0%	0%-4.79%	0%,2.39%		
USA3	0	0-0	0,0		0%	0%-0%	0%,0%		
USA4	0	0-0	0,0		0%	0%-0%	0%,0%		
USA5	0	0-3	0,0.75		0%	0%-1.37%	0%,0.34%		

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Symptoms-C								
All	2	0-14	0,4		0.56%	0%-12.02%	0%,2.31%	
UK	2	0-10	0,3	Not significantly different (p=0.452)	0.74%	0%-10.80%	0%,2.72%	Not significantly different (p=0.536)
UK1	1	0-3	0,2.25		0.62%	0%-1.36%	0%,0.89%	
UK2	1	0-4	0.75,2.5		0.24%	0%-2.47%	0.08%,1.98%	
UK3	1	0-3	0.5,3		0.50%	0%-3.73%	0.08%,2.29%	
UK4	2	0-10	0.5,8		4.64%	0%-10.80%	0.68%,9.74%	
UK5	5	0-7	0,7		2.29%	0%-5.12%	0%,4.70%	
USA	2	0-14	0,5		0.28%	0%-12.02%	0%,2.19%	
USA1	2	0-14	0.5,13		0.39%	0%-12.02%	0.05%,7.99%	
USA2	2	1-3	1,2.5		0.28%	0.04%-1.95%	0.07%,1.51%	
USA3	8	0-14	0,12.5		1.77%	0%-6.41%	0%,4.61%	
USA4	0.5	0-5	0,2.75		0.03%	0%-2.19%	0%,0.68%	
USA5	3.5	0-8	1.5,5.75		1.58%	0%-2.81%	0.17%,2.44%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Symptoms-V								
All	1	0-11	0,4		0.33%	0%-5.71%	0%,0.90%	
UK	1	0-11	0,3	Not significantly different (p=0.142)	0.33%	0%-5.71%	0%,0.90%	Not significantly different (p=0.332)
UK1	0.5	0-4	0,1.75		0.16%	0%-1.905	0%,1.89%	
UK2	1	0-3	0.75,3		0.61%	0%-0.94%	0.25%,0.91%	
UK3	1	0-3	0.5,2		0.12%	0%-0.50%	0.05%,0.43%	
UK4	0.5	0-11	0,8.5		0.02%	0%-5.71%	0%,4.29%	
UK5	4	0-7	0,6		0.20%	0%-1.95%	0%,1.27%	
USA	2	0-11	1,5		0.38%	0%-3.67%	0.05%,0.94%	
USA1	2	0-9	0.5,7		0.48%	0%-2.32%	0.02%,1.57%	
USA2	1	1-4	1,3.5		0.30%	0.18%-0.94%	0.21%,0.82%	
USA3	7	0-11	0,11		0.72%	0%-3.67%	0%,2.90%	
USA4	1	0-5	0,2.75		0.21%	0%-2.70%	0%,0.96%	
USA5	4	0-7	0.75,6.25		0.74%	0%-2.43%	0.08%,1.59%	

Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Signs-C								
All	0	0-8	0,1		0%	0%-3.13%	0%,0.23%	
UK	0	0-5	0,1	Not significantly different (p=0.396)	0%	0%-1.90%	0%,0.36%	Not significantly different (p=0.408)
UK1	0	0-0	0,0		0%	0%-0%	0%,0%	
UK2	0	0-1	0,0.25		0%	0%-0.16%	0%,0.04%	
UK3	0	0-2	0,1.5		0%	0%-0.36%	0%,0.27%	
UK4	1.5	0-4	0.25,3.5		1.35%	0%-1.90%	0.23%,1.87%	
UK5	1	0-5	0,4		0.17%	0%-1.37%	0%,1.28%	
USA	0	0-8	0,1		0%	0%-3.13%	0%,0.23%	
USA1	0	0-8	0,4.5		0%	0%-3.13%	0%,1.68%	
USA2	0	0-2	0,1		0%	0%-0.34%	0%,0.17%	
USA3	2	0-4	0,4		1.06%	0%-1.54%	0%,1.52%	
USA4	0	0-0	0,0		0%	0%-0%	0%,0%	
USA5	0	0-1	0,0.25		0%	0%-0.33%	0%,0.08%	

Appendix 8.7 (continued)   Patient-centred Clinical Method Analysis Data

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Signs-V								
All	0	0-5	0,2		0%	0%-2.83%	0%,0.34%	
UK	0	0-4	0,2	Not significantly different (p=0.091)	0%	0%-2.83%	0%,0.95%	**Significantly different (p=0.035)**
UK1	0	0-1	0,0.25		0%	0%-0.86%	0%,0.22%	
UK2	0	0-3	0,0.75		0%	0%-0.32%	0%,0.08%	
UK3	0	0-2	0,2		0%	0%-1.45%	0%,0.96%	
UK4	2.5	1-4	1.25,3.75		2.01%	1.27%-2.83%	1.38%,2.70%	
UK5	2	0-4	0,3		0.29%	0%-0.98%	0%,0.95%	
USA	0	0-5	0,0		0%	0%-1.20%	0%,0%	
USA1	0	0-4	0,2		0%	0%-0.65%	0%,0.32%	
USA2	0	0-1	0,0.5		0%	0%-0.04%	0%,0.02%	
USA3	2	0-5	0,4.5		0.33%	0%-1.20%	0%,1.00%	
USA4	0	0-0	0,0		0%	0%-0%	0%,0%	
USA5	0	0-1	0,0.25		0%	0%-0.34%	0%,0.08%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Investigations								
All	5	0-23	3,7		5.99%	0%-30.82%	2.64%,9.33%	
UK	5	0-15	3,7	Not significantly different (p=0.959)	6.55%	0%-30.82%	3.69%,11.92%	Not significantly different (p=0.092)
UK1	4	2-7	2,5.5		9.28%	2.01%-17.81%	3.48%.14.32%	
UK2	3.5	0-9	0.75,6.75		4.47%	0%-8.11%	0.62%,7.71%	
UK3	5	5-13	5,10		8.50%	5.69%-16.24%	6.07%,14.38%	
UK4	9.5	4-13	4.75,12.75		15.55%	6.11%-30.82%	6.22%,29.26%	
UK5	5	0-15	3,6		5.99%	0%-11.92%	1.31%,9.33%	
USA	5	0-23	2,8		4.31%	0%-23.18%	2.64%,8.09%	
USA1	2	1-11	1.5,6.5		2.86%	1.17%-7.28%	1.98%,6.15%	
USA2	5	3-10	3,10		6.50%	1.92%-9.99%	2.28%,9.04%	
USA3	8	7-23	7.5,18		14.96%	5.32%-23.18%	7.48%,20.41%	
USA4	3.5	0-6	2.25,6		2.55%	0%-8.24%	1.01%,4.73%	
USA5	5	0-9	1.5,6.75		3.87%	0%-5.72%	2.57%,4.69%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Pathology								
All	1	0-7	0,2		0.95%	0%-22.72%	0%,3.07%	
UK	1	0-6	0,2	Not significantly different (p=0.742)	0.95%	0%-22.72%	0%,3.06%	Not significantly different (p=0.804)
UK1	1.5	0-3	0.75,2.25		2.00%	0%-22.72%	0.71%,7.98%	
UK2	0	0-1	0,1		0%	0%-5.66%	0%,1.97%	
UK3	1	0-4	0,3		2.55%	0%-7.85%	0%,7.51%	
UK4	1.5	0-4	0.25,3.5		0.96%	0%-5.01%	0.13%,4.10%	
UK5	0	0-6	0,1		0%	0%-7.16%	0%,2.63%	
USA	1	0-7	0,3		0.97%	0%-7.40%	0%,3.22%	
USA1	3	0-7	1,5		3.07%	0%-4.72%	0.69%,4.39%	
USA2	1	0-2	0,2		0.97%	0%-2.74%	0%.2.47%	
USA3	3	0-4	1,3.5		2.43%	0%-4.27%	1.02%,4.14%	
USA4	0	0-1	0,0.25		0%	0%-3.22%	0%,0.80%	
USA5	0	0-3	0,2.25		0%	0%-7.40%	0%,6.16%	

	Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data							
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Diagnosis								
All	0	0-10	0,2		0%	0%-12.20%	0%,1.83%	
UK	0	0-7	0,1	Not significantly different (p=0.368)	0%	0%-12.20%	0%,1.90%	Not significantly different (p=0.757)
UK1	2	1-7	1,4		3.29%	0.23%-12.20%	1.49%,8.37%	
UK2	0	0-0	0,0		0%	0%-0%	0%,0%	
UK3	0	0-1	0,0.5		0%	0%-0.68%	0%,0.34%	
UK4	0.5	0-2	0,1.75		0.86%	0%-6.19%	0%,5.08%	
UK5	0	0-2	0,1		0%	0%-2,.08%	0%,1.51%	
USA	1	0-10	0,2		0.23%	0%-5.65%	0%,1.83%	
USA1	3	0-10	1,6.5		2.28%	0%-5.65%	0.81%,4.04%	
USA2	0	0-1	0,0.5		0%	0%-0.69%	0%,0.35%	
USA3	2	1-5	1,3.5		1.35%	0.23%-3.96%	0.65%,3.19%	
USA4	0	0-2	0,1.25		0%	0%-0.97%	0%,0.50%	
USA5	0	0-2	0,1.25		0%	0%-2.19%	0%,1.92%	

	Frequency			Comparison	Proportion			Comparison
Variable	Median	Range	IQR		Median	Range	IQR	
Planning								
All	10	2-35	7,13		13.72%	1.59%-73.70%	9.96%,23.13%	
UK	9	3-35	7,11	Not significantly different (p=0.723)	16.89%	8.89%-73.70%	13.41%,27.96%	**Significantly different (p<0.000)**
UK1	9	5-11	5,10.25		29.64%	20.79%-73.70%	22.54%,62,48%	
UK2	11	5-18	7.25,15		20.26%	9.96%-29.61%	15.55%,27.65%	
UK3	11	10-21	10.5,16.5		16.85%	11.14%-30.34%	12.73%,24.72%	
UK4	8.5	3-9	4.25,9		12.24%	8.89%-27.96%	9.41%,24.35%	
UK5	8	5-35	7,17		13.97%	11.57%-39.62%	21.04%,31.28%	
USA	10	2-26	7,13		11.00%	1.59%-30.31%	6.89%,15.39%	
USA1	10	9-26	9.5,18.5		13.17%	8.14%-29.35%	8.87%,21.86%	
USA2	14	4-16	6,15.5		11.29%	5.23%-30.31%	6.38%,26.55%	
USA3	9	2-20	5,15		5.63%	1.59%-17.95%	2.75%,15.49%	
USA4	11	2-21	3.5,15		8.85%	1.97%-13.12%	5.66%,11.53%	
USA5	8.5	5-13	5.75,12.25		13.75%	3.69%-16.53%	9.13%,15.94%	

Appendix 8.7 (continued)   Patient-centred Clinical Method Analysis Data

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Shared								
All	6	0-26	3,8		13.52%	0%-49.70%	7.27%,21.49%	
UK	5	0-23	3,6	Not significantly different (p=.089)	13.05%	0%-36.42%	6.13%,19.13%	Not significantly different (p=0.130)
UK1	4.5	0-6	0.75,6		9.11%	0%-36.42%	0.20%,20.06%	
UK2	6	1-8	1.75,7.25		18.01%	3.99%-28.61%	7.04%,27.37%	
UK3	5	3-23	3.5,15		12.91%	4.98%,16.00%	6.13%,14.61%	
UK4	4.5	0-9	1,8		13.28%	0%-21.46%	2.39%,20.35%	
UK5	5	3-9	4,6		13.05%	4.23%-28.38%	6.13%,24.88%	
USA	7	1-26	3,14		15.75%	0.78%-49.70%	7.82%,29.28%	
USA1	8	2-11	4.5,9.5		13.24%	4.74%-35.45%	8.36%,25.60%	
USA2	3	1-5	1,4.5		3.58%	0.78%-18.24%	1.99%,15.57%	
USA3	4	3-20	3.5,12		7.82%	6.25%-34.15%	6.99%,24.52%	
USA4	9.5	3-23	3,16.25		19.36%	8.32%,49.70%	12.38%,39.89%	
USA5	15	7-26	7,18.5		27.00%	19.13%,38.80%	20.90%,31.99%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Interpersonal								
All	3	0-107	2,9		3.52%	0%-26.13%	1.35%,8.99%	
UK	2	0-18	0,3	**Significantly different (p<0.000)**	1.62%	0%-26.13%	0%,3.21%	**Significantly different (p<0.000)**
UK1	1	0-5	0,2.75		0.42%	0%-1.63%	0%,1.10%	
UK2	0	0-3	0,1.5		0%	0%-26.13%	0%,6.89%	
UK3	2	2-7	2,5.5		2.86%	1.62%-5.35%	1.79%,5.28%	
UK4	3	3-3	3,3		2.20%	1.23%-5.13%	1.39%,4.48%	
UK5	3	0-18	1,7		3.21%	0%-13.26%	0.11%,13.26%	
USA	8	2-107	5,13		6.63%	1.35%-24.74%	4.00%,13.78%	
USA1	26	5-107	14.5,72.5		6.46%	1.56%-24.50%	2.21%,19.14%	
USA2	9	2-13	4,11.5		5.71%	4.71%-16.70%	5.03%,13.67%	
USA3	8	3-19	4,15.5		12.73%	3.33%-24.55%	6.16%,19.08%	
USA4	4	2-18	2.75,11.25		3.19%	1.35%-24.74%	1.50%,13.25%	
USA5	7.5	4-11	6.25,10.25		6.74%	4.00%-17.46%	4.70%,9.59%	

Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data								
Pet								
All	12	0-45	7,20		9.59%	0%-42.02%	4.09%,17.55%	
UK	9	0-41	4,13	**Significantly different (p<0.000)**	6.98%	0%-27.31%	2.16%,12.92%	**Significantly different (p=0.034)**
UK1	3	0-8	0.75,4.25		3.46%	0%-11.71%	0.62%,9.58%	
UK2	14	12-23	12.75,22.50		18.02%	2.16%-27.31%	13.70%,22.18%	
UK3	7	5-16	5,5.12		3.50%	1.49%-20.82%	2.26%,12.46%	
UK4	9.5	3-10	4.5,10		8.91%	1.35%-12.92%	2.87%,12.28%	
UK5	10	4-41	5,13		5.92%	2.16%-12.69%	4.95%,9.57%	
USA	18	6-45	11,25		11.48%	2.01%-42.02%	4.87%,18.05%	
USA1	11	8-22	9.5,20		4.57%	2.01%-6.79%	2.25%,6.63%	
USA2	19	10-45	12.5,39		17.72%	12.21%-29.84%	13.18%,28.25%	
USA3	14	7-26	7.5,23		10.56%	3.67%-14.79%	3.87%,13.13%	
USA4	26	12-41	14.25,38		32.68%	11.39%-42.02%	16.38%,39.22%	
USA5	17.5	6-25	6.75,24.25		9.69%	4.18%-16.24%	4.70%,14.40%	

Appendix 8.7 (continued) Patient-centred Clinical Method Analysis Data				
Variable	Percentage			Comparison
	Median	Range	IQR	
Patient-centred clinical method alignment				
All	62.50%	33.33%-87.50%	58.33%,75.00%	
UK	62.50%	33.33%-83.33%	54.17%,70.83%	Not significantly different (p=0.091)
UK1	58.33%	50%-70.83%	50.00%,64.58%	
UK2	58.33%	50%-79.17%	53.13%,66.67%	
UK3	66.67%	54.17%-83.33%	56.25%,75.00%	
UK4	62.50%	54.17%-75.00%	55.21%,72.92%	
UK5	66.67%	33.33%-79.17%	62.50%,79.17%	
USA	66.67%	54.17%-87.50%	62.50%,75.00%	
USA1	75.00%	58.33%-87.50%	64.58%,85.42%	
USA2	66.67%	66.67%-75.00%	66.67%,75.00%	
USA3	75.00%	54.17%-79.17%	60.42%,79.17%	
USA4	56.25%	54.17%-62.50%	54.17%,62.50%	
USA5	66.67%	62.50%-79.17%	62.50%,72.92%	

Appendix 8.8 Mishler Discourse Analysis Data				
Variable				**Comparison**
Consultation Length (min)	Median	Range	IQR	
All	16.79	4.94-43.77	11.16,20.15	
UK	16.29	4.94-43.77	9.70,18.71	Not significantly different (p=0.316)
UK1	10.42	8.75-27.67	9.30,19.61	
UK2	16.89	9.49-18.96	11.76,18.25	
UK3	12.80	7.66-16.79	8.72,14.86	
UK4	20.88	5.65-23.57	8.94,23.41	
UK5	17.40	4.94-43.77	14.42,22.05	
USA	16.81	8.02-30.04	11.91,21.82	
USA1	18.70	13.81-25.97	14.90,23.06	
USA2	16.89	9.03-22.13	12.66,21.98	
USA3	18.99	3.00-30.04	12.36,26.81	
USA4	16.43	8.02-29.44	10.56,28.68	
USA5	13.97	9.00-18.56	9.66,17.25	

Appendix 8.8 (continued) Mishler Discourse Analysis Data							
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Lifeworld								
All	20	4-48	14,27		34.48%	7.14%-85.07%	25.46%,50.90%	
UK	14	4-48	10,20	**Significantly different (p<0.000)**	28.17%	7.14%71.97%	21.24%,38.92%	**Significantly different (p=0.004)**
UK1	14	4-48	10,20		28.17%	7.14%-71.97%	21.24%,38.92%	
UK2	6	4-10	4.75,9.25		16.37%	7.14%-71.97%	11.47%,35.74%	
UK3	16.5	14-27	15.5,21		36.65%	28.35%-55.32%	31.92%,51.38%	
UK4	20	11-22	12.5,22		33.57%	12.19%-52.10%	17.91%,51.30%	
UK5	11.5	10-20	10.25,18		22.10%	111.92%-28.17%	14.25%,26.87%	
USA	26	14-44	20,29		40.99%	12.44%-85.07%	33.08%,57.33%	
USA1	20	14-27	17,24.5		26.90%	12.44%-60.66%	15.10%,49.48%	
USA2	27	15-39	16,33		57.33%	31.78%-76.42%	32.71%,71.58%	
USA3	27	22-32	24,30.5		38.06%	24.73%-55.89%	29.61%,47.19%	
USA4	32.5	15-44	21,42.5		62.65%	42.14%-85.07%	44.91%,82.56%	
USA5	25.5	19-37	21.25,31		39.88%	26.67%-52.91%	31.47%,44.20%	

Appendix 8.8 (continued) Mishler Discourse Analysis Data								
Variable	Frequency			Comparison	Proportion			Comparison
	Median	Range	IQR		Median	Range	IQR	
Medical								
All	22	6-76	16,29		65.52%	14.93%-92.86%	49.10%,74.54%	
UK	20	6-62	13,25	**Significantly different (p=0.010)**	71.83%	28.03%92.86%	61.08%,78.76%	**Significantly different (p=0.004)**
UK1	7.5	6-16	6,10.75		83.63%	28.03%-92.86%	64.26%,88.53%	
UK2	20	17-29	17.75,24.5		63.35%	44.68%-71.65%	48.62%,68.08%	
UK3	24	13-27	16.5,26		66.43%	47.90%-87.81%	48.70%,82.09%	
UK4	21.5	13-25	14.5,24.75		77.90%	71.83%-88.08%	73.13%,85.75%	
UK5	25	13-62	21,29		71.71%	49.10%-74.54%	57.80%,74.41%	
USA	29	10-76	19,37		59.01%	14.93%87.56%	42.67%,66.92%	
USA1	37	13-76	13.5,65.5		73.10%	39.34%-87.56%	50.52%,84.90%	
USA2	22	20-31	20.5,28.5		42.67%	23.58%-68.22%	28.42%,67.29%	
USA3	37	19-48	27.5,42.5		61.94%	44.11%-75.27%	52.81%,70.39%	
USA4	16	10-37	13.75,31		37.35%	14.93%-57.86%	17.44%,55.09%	
USA5	29.5	19-34	22,33.25		60.11%	47.09%-73.33%	55.80%,68.53%	

Appendix 8.9 VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison						Comparison
	Median	Range	IQR				Median	Range	IQR	
1. Client Agenda – combined score						**1a. Lists client problems**				
All	8	3-9	7,8			**All**	8	3-10	8,9	
UK	8	5-9	7,9	Not significantly different (p=0.242)		**UK**	8	5-10	8,9	Not significantly different (p=0.111)
UK1	7	5-8	5.75,8			UK1	8	6-8	6.75,8	
UK2	7	5-8	6.5,7.25			UK2	8	5-9	6.5,8.25	
UK3	8	7-9	7.5,8.5			UK3	8	8-9	8,8.5	
UK4	8.5	8-9	8,9			UK4	9	8-9	8.25,9	
UK5	9	8-9	8.9			UK5	9	8-10	9,9	
USA	8	3-9	6,8			**USA**	8	3-9	7,8	
USA1	6	4-8	4.5,7.5			USA1	7	5-8	5,8	
USA2	7	5-8	6,8			USA2	8	7-9	7.5,8.5	
USA3	8	3-9	4.5,8.5			USA3	8	3-9	5,8.5	
USA4	8	6-9	6.75,8.25			USA4	8	6-8	7.5,8	
USA5	8	8-9	8,9			USA5	9	8-9	8,9	

Variable	Median	Range	IQR	Comparison		Median	Range	IQR	Comparison
Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
1b. Vet checks list					**1c. Vet clarifies new information**				
All	7	3-9	6,8		**All**	8	3-10	7,8	
UK	7	5-9	6,9	Not significantly different (p=0.450)	**UK**	8	5-10	7,9	Not significantly different (p=0.162)
UK1	6	5-8	5,7.25		UK1	7	5-8	5,8	
UK2	6	5-8	5.75,6.5		UK2	6.5	5-8	5.75,7.25	
UK3	8	7-9	7,9		UK3	8	7-9	7.5,9	
UK4	8	6-9	6.25,9		UK4	9	8-10	8.25,9.75	
UK5	9	7-9	8,9		UK5	9	7-9	8,9	
USA	7	3-9	5,8		**USA**	8	3-9	6,8	
USA1	5	4-7	4,6.5		USA1	6	4-8	5,7.5	
USA2	6	4-8	4.5,7.5		USA2	7	4-8	5.5,8	
USA3	8	3-9	4,9		USA3	8	3-9	4.5,8.5	
USA4	8	6-9	6.75,8.25		USA4	8	6-9	6.75,8.25	
USA5	8	7-9	7.75,9		USA5	8	7-9	7.75,8.25	

Variable				Comparison					Comparison
	Median	Range	IQR			Median	Range	IQR	
2. Client Worries – combined score					**2a. Client's psychological state is evident**				
All	7	5-9	6,7		**All**	8	6-10	7,9	
UK	7	5-9	6,8	Not significantly different (p=0.463)	**UK**	8	6-10	7,9	Not significantly different (p=0.323)
UK1	6.5	5-8	5.75,7.25		UK1	7	7-10	7,7.75	
UK2	6	6-7	6,6.25		UK2	8	6-9	6,8.25	
UK3	7	6-8	6.5,7.5		UK3	7	7-10	7,9.5	
UK4	7.5	7-9	7,8.75		UK4	9	7-10	7.5,9.75	
UK5	7	6-8	7,8		UK5	8	7-9	8,9	
USA	7	5-9	6,7		**USA**	7	6-10	7,9	
USA1	6	6-7	6,7		USA1	8	6-9	6.5,8.5	
USA2	6	5-9	5,7.5		USA2	7	6-9	6,8.5	
USA3	6	5-8	5.5,8		USA3	7	7-9	7,8.5	
USA4	7	6-7	6.75,7		USA4	7	7-10	7,9.25	
USA5	7	6-9	6.75,9		USA5	7.5	6-10	6.75,10	

Appendix 8.9 (continued)	VR-COPE (Client/relationship-centredness) Data									
Variable				Comparison						Comparison
	Median	Range	IQR				Median	Range	IQR	
2b. Vet responds to client emotions						**2c. Vet explores client emotions**				
All	6	5-10	6,7			**All**	6	4-9	5,7	
UK	7	5-9	6,7	Not significantly different (p=0.841)		**UK**	6	5-9	5,7	Not significantly different (p=0.428)
UK1	6.5	5-8	5,7.25			UK1	6	5-7	5,7	
UK2	6	5-7	5.75,6.25			UK2	5.5	5-7	5,6.25	
UK3	7	6-8	6,7.5			UK3	6	5-7	5.5,7	
UK4	6.5	6-7	6,7			UK4	8.5	6-9	6.5,9	
UK5	7	5-9	6,9			UK5	7	5-8	6,7	
USA	6	5-10	6,7			**USA**	6	4-9	5,7	
USA1	6	5-7	5.5,7			USA1	5	5-7	5,6.5	
USA2	6	5-10	5,8			USA2	5	4-9	4.5,7.5	
USA3	6	5-8	5,8			USA3	6	4-7	4.5,7	
USA4	7	6-7	6.75,7			USA4	6	6-7	6,7	
USA5	7	5-9	5.75,8.25			USA5	7	6-9	6,8.25	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison						Comparison
	Median	Range	IQR				Median	Range	IQR	
3. Psychological impact – combined score						3a. Psychological information emerges				
All	7	4-10	6,8			**All**	7	4-10	6,8	
UK	7	4-9	6,8	Not significantly different (p=0.822)		**UK**	7	4-9	6,8	Not significantly different (p=0.870)
UK1	6.5	5-8	5.75,7.25			UK1	7	5-7	5.75,7	
UK2	6.5	5-7	5,7			UK2	7	5-8	5.75,8	
UK3	7	4-9	5,8			UK3	7	4-9	5.5,8.5	
UK4	7	6-9	6.25,8.5			UK4	7.5	6-9	6.25,8.75	
UK5	8	6-9	7,9			UK5	8	6-9	7,9	
USA	7	4-10	6,8			**USA**	7	4-10	6,8	
USA1	5	4-8	4.5,8			USA1	5	4-10	4,9	
USA2	7	5-9	5.5,8.5			USA2	7	5-9	5.5,8.5	
USA3	7	5-9	5,8			USA3	6	5-9	5.5,8.5	
USA4	7	6-10	6,7.75			USA4	7	6-10	6,8.5	
USA5	7	6-10	6,9.25			USA5	7.5	6-10	6.75,10	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison			Median	Range	IQR	Comparison
	Median	Range	IQR				Median	Range	IQR	
3b. Client has opportunity to describe impact on life						**3c. Vet offers client resources to help them cope**				
All	7	4-10	6,8			**All**	0	0-4	0,0	
UK	7	4-10	6,9	Not significantly different (p=0.932)		**UK**	0	0-4	0,0	Not significantly different (p=0.326)
UK1	7	5-9	5,8.25			UK1	0	0-0	0,0	
UK2	6	5-7	5,7			UK2	0	0-0	0,0	
UK3	6	4-9	4.5,8			UK3	0	0-4	0,2	
UK4	7	6-9	6.25,8.5			UK4	0	0-0	0,0	
UK5	9	6-10	7,9			UK5	0	0-0	0,0	
USA	7	4-10	6,8			**USA**	0	0-0	0,0	
USA1	7	4-8	4.5,7.5			USA1	0	0-0	0,0	
USA2	7	5-9	6,9			USA2	0	0-0	0,0	
USA3	7	5-9	5,8.5			USA3	0	0-0	0,0	
USA4	7	6-10	6,8.5			USA4	0	0-0	0,0	
USA5	6.5	6-10	6,8.5			USA5	0	0-0	0,0	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison			Median	Range	IQR	Comparison
	Median	Range	IQR				Median	Range	IQR	
4. Active listening – combined score					**4a. Reflective comments – active listening**					
All	8	6-10	8,9		**All**	8	5-10	7,9		
UK	8	7-9	7,9	Not significantly different (p=0.101)	**UK**	8	5-9	7,8		Not significantly different (p=0.331)
UK1	7.5	7-8	7,8		UK1	6.5	6-7	6,7		
UK2	7.5	7-9	7,9		UK2	6.5	5-8	5.75,8		
UK3	9	8-9	8.5,9		UK3	8	7-9	7.5,9		
UK4	8	7-8	7.25,8		UK4	8	8-8	8,8		
UK5	8	8-9	8,9		UK5	8	8-9	8,9		
USA	9	6-10	8,9		**USA**	8	5-10	7,9		
USA1	7	6-9	6.5,8.5		USA1	6	5-7	5.5,6.5		
USA2	8	7-9	7.5,9		USA2	7	6-8	6.5,7.5		
USA3	9	8-10	8.5,9.5		USA3	9	8-10	8.5,9.5		
USA4	9	8-10	8.75,10		USA4	9	8-9	8,9		
USA5	8.5	7-9	7,9		USA5	8	8-9	8,8.25		

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Variable	Median	Range	IQR	Comparison		Median	Range	IQR	Comparison
Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
4b. No abrupt changes					**4c. Good eye contact**				
All	9	8-10	8,9		**All**	8	6-10	7,9	
UK	9	8-10	8,9	**Significantly different (p=0.024)**	**UK**	8	6-10	7,9	Not significantly different (p=0.782)
UK1	8	8-9	8,9		UK1	7.5	7-9	7,8.25	
UK2	8	8-9	8,8.25		UK2	8.5	8-10	8,9.25	
UK3	9	9-9	9,9		UK3	9	8-10	8.5,9.5	
UK4	9	8-9	8.25,9		UK4	6.5	6-8	6,7.75	
UK5	9	9-10	9,9		UK5	8	7-10	7,9	
USA	9	8-10	9,10		**USA**	9	6-10	7,9	
USA1	9	8-9	8,9		USA1	6	6-9	6,9	
USA2	9	8-9	8,9		USA2	8	7-9	7.5,9	
USA3	10	9-10	9,10		USA3	9	6-10	7.5,9.5	
USA4	10	9-10	9,10		USA4	9.5	7-10	7.75,10	
USA5	9	8-10	8,10		USA5	7.5	6-9	6,9	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison			Median	Range	IQR	Comparison
	Median	Range	IQR				Median	Range	IQR	
5. Empathy – combined score						**5a. Reflective comments – empathy**				
All	7	5-9	6,8			**All**	8	5-10	7,9	
UK	7	6-9	6,8	Not significantly different (p=0.359)		**UK**	8	5-9	6,8	Not significantly different (p=0.077)
UK1	6.5	6-8	6,7.25			UK1	6	5-9	5.75,8.25	
UK2	6.5	6-7	6,7			UK2	6	6-8	6,7.25	
UK3	7	7-8	7,8			UK3	8	7-8	7.5,8	
UK4	7	6-7	6.25,7			UK4	8	8-8	8,8	
UK5	8	7-9	7,9			UK5	8	8-9	8,9	
USA	8	5-9	6,8			**USA**	8	5-10	7,9	
USA1	6	5-9	5.5,8			USA1	7	5-9	5.5,8	
USA2	6	5-9	5.5,7.5			USA2	8	6-8	6.5,8	
USA3	8	7-9	7.5,8.5			USA3	9	8-10	8.5,9.5	
USA4	8	7-8	7,8			USA4	9	8-9	8,9	
USA5	8	6-9	6.75,9			USA5	8	7-9	7.75,8.25	

Variable				Comparison		Median	Range	IQR	Comparison
Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
	Median	Range	IQR	Comparison		Median	Range	IQR	Comparison
5b. Vet sees problem from client perspective					**5c. Vet offers emotional support**				
All	7	5-10	6,8		**All**	6	5-9	6,7	
UK	7	6-9	6,8	Not significantly different (p=0.690)	**UK**	6	5-9	6,7	Not significantly different (p=0.426)
UK1	7	6-8	6,8		UK1	6	6-7	6,7	
UK2	6	6-7	6,7		UK2	6.5	6-7	6,7	
UK3	7	7-8	7,8		UK3	6	6-7	6,7	
UK4	7.5	6-9	6.25,8.75		UK4	5.5	5-6	5,6	
UK5	8	6-9	7,9		UK5	7	6-9	6,9	
USA	7	5-10	6,8		**USA**	7	5-9	6,8	
USA1	6	5-9	5,7.5		USA1	6	5-9	5.5,8	
USA2	6	5-9	5.5,8		USA2	5	5-9	5,7	
USA3	7	6-9	6,9		USA3	7	6-9	6.5,8	
USA4	7.5	6-8	6.75,8		USA4	7	6-8	6,7.25	
USA5	8	6-10	6.75,9.25		USA5	7.5	6-9	6,9	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison			Median	Range	IQR	Comparison
	Median	Range	IQR							
6. Client point of view – combined score						**6a. Vet asks client point of view**				
All	8	5-10	7,8			**All**	7	5-10	7,9	
UK	8	5-9	6,8	Not significantly different (p=0.170)		**UK**	7	5-9	6,8	Not significantly different (p=0.063)
UK1	6.5	6-8	6,7.25			UK1	6.5	5-8	5,7.25	
UK2	6.5	5-8	5.75,7.25			UK2	6	5-8	5.75,7.25	
UK3	8	6-8	7,8			UK3	8	6-8	6.5,8	
UK4	7.5	7-9	7,8.75			UK4	7.5	7-9	7,8.75	
UK5	9	8-9	8,9			UK5	9	7-9	7,9	
USA	8	6-10	7,9			**USA**	8	6-10	7,9	
USA1	7	7-8	7,7.5			USA1	7	7-8	7,7.5	
USA2	7	6-8	6,8			USA2	7	6-7	6.5,7	
USA3	9	7-9	7.5,9			USA3	9	6-10	7,9.5	
USA4	8	7-8	7.75,8.25			USA4	8	7-10	7.75,9.25	
USA5	9	7-10	7.75,9.25			USA5	9	7-10	7.75,9.25	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
Variable				Comparison					Comparison
	Median	Range	IQR			Median	Range	IQR	
6b. Vet tries to understand client					**6c. Client is free to communicate**				
All	8	5-10	7,8		**All**	8	5-10	7,9	
UK	8	5-9	6,8	Not significantly different (p=0.198)	**UK**	8	5-10	7,9	Not significantly different (p=0.223)
UK1	7	5-8	5.75,8		UK1	7	6-8	6.75,7.25	
UK2	6	5-7	5.75,6.25		UK2	7	5-8	5.75,8	
UK3	8	6-8	6.5,8		UK3	8	7-9	7.5,9	
UK4	8	6-8	6.5,8		UK4	8.5	7-10	7.25,9.75	
UK5	8	8-9	8,9		UK5	9	8-9	9,9	
USA	8	5-10	7,9		**USA**	8	6-10	8,9	
USA1	7	6-7	6,7		USA1	7	7-8	7,8	
USA2	7	5-8	5.5,8		USA2	8	6-9	6.5,8.5	
USA3	9	8-9	8,9		USA3	9	8-9	8,9	
USA4	8	7-9	7,8.25		USA4	9	7-9	7.75,9	
USA5	9	7-10	7,9.25		USA5	9	8-10	8,10	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
Variable				Comparison					Comparison
	Median	Range	IQR			Median	Range	IQR	
7. Client expectations – combined score					**7a. Client expectations are evident**				
All	8	6-9	7,8		**All**	8	5-10	7,9	
UK	7	6-9	7,8	Not significantly different (p=0.610)	**UK**	8	5-10	7,9	Not significantly different (p=0.979)
UK1	6.5	6-8	6,8		UK1	7.5	6-10	6.75,8.5	
UK2	7	6-8	6,7.25		UK2	7.5	5-8	5.75,8	
UK3	7	6-8	6.5,8		UK3	8	6-9	6.5,8.5	
UK4	8	7-9	7,9		UK4	9	7-10	7.5,9.75	
UK5	8	7-9	8,9		UK5	9	7-10	8,9	
USA	8	6-9	7,8		**USA**	8	6-10	7,9	
USA1	7	6-8	6.5,8		USA1	8	6-9	7,8.5	
USA2	6	6-9	6,8		USA2	7	7-10	7,9	
USA3	8	7-8	7.5,8		USA3	8	7-10	7,9	
USA4	7.5	6-9	6.75,8.25		USA4	7.5	6-10	6.75,8.5	
USA5	8	7-9	7.75,9		USA5	8.5	7-10	7.75,10	

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Variable				Comparison					Comparison
Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
	Median	Range	IQR			Median	Range	IQR	
7b. Vet asks client expectations					**7c. Vet tries to understand client's expectations**				
All	7	5-9	6,8		**All**	7	5-9	6,8	
UK	7	5-9	6,7	Not significantly different (p=0.338)	**UK**	7	6-9	6,8	Not significantly different (p=0.228)
UK1	5.5	5-8	5,7.25		UK1	6	6-8	6,7.25	
UK2	6.5	6-8	6,7.25		UK2	6	6-8	6,8	
UK3	7	6-8	6.5,7.5		UK3	7	6-8	6,8	
UK4	7	6-8	6.25,7.75		UK4	7	7-8	7,7.75	
UK5	7	6-9	7,8		UK5	7	7-9	7,8	
USA	7	5-9	6,8		**USA**	8	5-9	6,8	
USA1	7	6-9	6,8		USA1	7	5-8	5.5,7.5	
USA2	5	5-7	5,7		USA2	6	5-8	5,7.5	
USA3	7	6-8	6,8		USA3	8	7-9	7.5,8.5	
USA4	7.5	6-9	6.75,9		USA4	8	6-9	6,8.25	
USA5	7.5	7-9	7,9		USA5	8	7-9	7,9	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
Variable				Comparison					Comparison
	Median	Range	IQR			Median	Range	IQR	
7d. Client is free to report expectations					**8. Structuring – combined score**				
All	8	6-10	7,9		**All**	9	6-10	8,9	
UK	8	6-10	7,9	Not significantly different (p=0.560)	**UK**	9	8-10	8,9	**Significantly different (p=0.041)**
UK1	7	6-9	6.5,9		UK1	8.5	8-9	8,9	
UK2	7	6-8	6,7.25		UK2	9	8-10	8,9.25	
UK3	7	7-8	7,8		UK3	9	8-10	8,9.5	
UK4	9	7-10	7.5,9.75		UK4	9	8-9	8.25,9	
UK5	9	8-9	8,9		UK5	9	8-10	8,9	
USA	8	6-10	7,9		**USA**	8	6-10	8,9	
USA1	7	6-9	6,8.5		USA1	8	6-9	7,9	
USA2	8	7-8	7,8		USA2	8	8-9	8,8.5	
USA3	8	8-9	8,9		USA3	9	8-10	8.5,9.5	
USA4	8	6-10	6.75,8.5		USA4	7.5	7-9	7,8.25	
USA5	8.5	8-10	8,10		USA5	8.5	7-10	7.75,9.25	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
Variable				Comparison					Comparison
	Median	Range	IQR			Median	Range	IQR	
8a. Vet uses explicit structure					**8b. Vet uses transitions**				
All	9	7-10	8,9		**All**	8	6-10	8,9	
UK	9	8-10	8,9	Not significantly different (p=0.344)	**UK**	9	7-10	8,9	Not significantly different (p=0.136)
UK1	9	8-9	8,9		UK1	8.5	7-9	7.75,9	
UK2	9	8-10	8,9.25		UK2	8.5	8-10	8,9.25	
UK3	8	8-10	8,9.5		UK3	9	8-9	8,9	
UK4	9	9-10	9,9.75		UK4	8.5	8-9	8,9	
UK5	9	8-10	8,9		UK5	9	7-9	8,9	
USA	9	7-10	8,9		**USA**	8	6-10	7,9	
USA1	9	7-9	7.5,9		USA1	8	6-9	7,9	
USA2	8	8-9	8,9		USA2	8	8-9	8,8.5	
USA3	9	8-10	8.5,9.5		USA3	9	8-10	8.5,9.5	
USA4	8.5	7-10	7.75,10		USA4	7	6-9	6.75,7.5	
USA5	8.5	7-10	7.75,9.25		USA5	8	7-10	7.75,9.25	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison			Comparison			
	Median	Range	IQR				Median	Range	IQR	
9. Shared understanding – combined score						**9a. Vet provides appropriate information**				
All	8	6-9	7,8			**All**	9	7-10	9,10	
UK	8	7-9	8,9	Not significantly different (p=0.293)		**UK**	9	8-10	9,10	Not significantly different (p=0.791)
UK1	7.5	7-9	7,8.25			UK1	10	8-10	8.75,10	
UK2	7.5	7-9	7,8.25			UK2	9	8-9	8.75,9	
UK3	8	8-8	8,8			UK3	9	9-10	9,9.5	
UK4	8	8-9	8,8.75			UK4	9.5	9-10	9,10	
UK5	9	8-9	8,9			UK5	10	8-10	9,10	
USA	8	6-9	7,8			**USA**	9	7-10	9,10	
USA1	8	6-9	6.5,8.5			USA1	9	7-10	8,10	
USA2	8	7-9	7,8.5			USA2	9	9-9	9,9	
USA3	8	7-9	7.5,8.5			USA3	9	9-10	9,10	
USA4	8	7-8	7.75,8			USA4	9	8-10	8.75,10	
USA5	8	7-9	7,8.25			USA5	9.5	9-10	9,10	

Variable				Comparison					Comparison
Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
	Median	Range	IQR			Median	Range	IQR	
9b. Vet checks understanding					**9c. Client is encouraged to ask questions**				
All	7	5-10	6,7		**All**	7	5-10	6,8	
UK	7	6-10	7,8	**Significantly different (p=0.010)**	**UK**	7	5-9	6,8	Not significantly different (p=0.945)
UK1	7	7-10	7,7.75		UK1	7.5	5-8	5,8	
UK2	6.5	6-9	6,7.5		UK2	6	6-8	6,7.25	
UK3	7	7-9	7,8		UK3	7	6-8	6.5,7.5	
UK4	7	6-8	6.25,7.75		UK4	8.5	8-9	8,9	
UK5	8	7-10	7,9		UK5	8	7-9	7,9	
USA	7	5-9	6,7		**USA**	7	5-10	6,8	
USA1	7	5-7	5.5,7		USA1	8	5-8	5.5,8	
USA2	6	6-9	6,7.5		USA2	8	5-9	5.5,9	
USA3	7	6-9	6.5,8.5		USA3	7	6-9	6.5,8	
USA4	6.5	6-7	6,7		USA4	8	7-9	7,8.25	
USA5	7	6-7	6,7		USA5	7	6-10	6,8.5	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data									
Variable				Comparison			Median	Range	IQR	Comparison
	Median	Range	IQR				Median	Range	IQR	
10. Vet-pet interaction – combined score					**10a. Vet talks to pet**					
All	8	5-10	7,9		**All**	9	5-10	8,10	
UK	8	5-10	6,9	**Significantly different (p=0.028)**	**UK**	8	5-10	7,9	**Significantly different (p=0.015)**
UK1	8	5-10	5,9.25		UK1	8.5	5-9	7.25,9	
UK2	8	6-10	6,9.25		UK2	8.5	7-10	7.75,10	
UK3	6	6-9	6,8.5		UK3	7	6-9	6,8.5	
UK4	6.5	5-9	5.25,8.5		UK4	7	5-8	5.5,7.75	
UK5	8	7-9	8,9		UK5	9	7-10	8,9	
USA	9	6-10	7,10		**USA**	9	6-10	8,10	
USA1	8	7-10	7,9.5		USA1	8	7-10	7.5,10	
USA2	9	8-10	8,10		USA2	10	9-10	9,10	
USA3	7	6-7	6.5,7		USA3	8	6-8	6.5,8	
USA4	10	7-10	8.5,10		USA4	10	8-10	8.75,10	
USA5	9	7-10	7.75,10		USA5	9	7-10	8.5,10	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data										
Variable				Comparison						Comparison
	Median	Range	IQR				Median	Range	IQR	
10b. Vet physically engages pet (petting, scratching, hugging, etc.)						**10c. Pet responds positively to vet's words and/or actions**				
All	8	5-10	7,9			**All**	7	2-10	6,9	
UK	8	5-10	6,9	**Significantly different (p=0.017)**		**UK**	7	2-10	5,9	Not significantly different (p=0.072)
UK1	8.5	5-10	5,9.25			UK1	7.5	2-10	4.25,9.25	
UK2	8	6-10	6,9.25			UK2	7	5-10	5,9.25	
UK3	6	6-9	6,8.5			UK3	6	5-9	5.5,8.5	
UK4	7	6-9	6,8.75			UK4	5.5	4-10	4.25,9	
UK5	8	7-10	7,9			UK5	7	6-9	7,8	
USA	9	6-10	7,10			**USA**	8	5-10	7,9	
USA1	8	7-10	7.5,10			USA1	7	5-10	6,9	
USA2	9	7-10	7.5,9.5			USA2	9	7-10	7.5,10	
USA3	7	6-8	6.5,7.5			USA3	6	6-7	6,7	
USA4	10	8-10	8.75,10			USA4	9	6-10	7.5,10	
USA5	9	7-10	8.5,10			USA5	8.5	6-10	6.75,9.25	

Appendix 8.9 (continued) VR-COPE (Client/relationship-centredness) Data				
Variable				Comparison
	Median	Range	IQR	
VR-COPE Total Score				
All	76.00	62.00-92.00	72.00,79.00	
UK	76.00	62.00-86.00	72.00,79.00	Not significantly different (p=0.780)
UK1	71.50	68.00-75.00	68.00,73.50	
UK2	72.50	62.00-76.00	68.75,73.75	
UK3	77.00	71.00-79.00	73.50,79.00	
UK4	78.00	73.00-81.00	74.00,80.50	
UK5	84.00	78.00-86.00	79.00,85.00	
USA	76.00	66.00-92.00	72.00,79.00	
USA1	72.00	66.00-75.00	66.50,74.00	
USA2	72.00	66.00-85.00	69.00,79.00	
USA3	77.00	74.00-79.00	75.00,79.00	
USA4	78.50	76.00-83.00	76.00,81.50	
USA5	80.00	72.00-92.00	75.75,88.25	

Variable	Median	Range	IQR	Comparison		Median	Range	IQR	Comparison
Appendix 8.10 Client Satisfaction Survey Data									
1a. Amount of time vet gave your pet					**1b. How well vet understood reason for visit**				
All	6	3-6	5,6		**All**	6	3-6	5,6	
UK	6	3-6	5,6	Not significantly different (p=0.769)	**UK**	6	3-6	5,6	Not significantly different (p=0.712)
UK1	6	3-6	5,6		UK1	6	3-6	4,6	
UK2	5	4-6	4.75,6		UK2	5	5-6	5,6	
UK3	6	4-6	5,6		UK3	6	5-6	5.5,6	
UK4	6	4-6	4.5,6		UK4	6	4-6	4.5,6	
UK5	6	4-6	4,6		UK5	6	4-6	5,6	
USA	6	3-6	5,6		**USA**	6	4-6	5,6	
USA1	5	3-6	3.5,5.5		USA1	5	4-6	4.5,5.5	
USA2	6	5-6	5.5,6		USA2	6	5-6	5.5,6	
USA3	6	3-6	4.5,6		USA3	6	5-6	5,6	
USA4	6	5-6	5,6		USA4	6	5-6	5,6	
USA5	5.5	4-6	4.75,6		USA5	5.5	5-6	5,6	

Appendix 8.10 (continued) Client Satisfaction Survey Data										
Variable				Comparison						Comparison
	Median	Range	IQR				Median	Range	IQR	
1c. Vet's confidence interacting with you and your pet						**1d. How well vet involved you in the appointment**				
All	6	4-6	5,6			**All**	6	3-6	5,6	
UK	6	4-6	5,6	Not significantly different (p=0.718)		**UK**	6	4-6	5,6	Not significantly different (p=0.821)
UK1	6	4-6	5,6			UK1	6	4-6	5,6	
UK2	5.5	5-6	5,6			UK2	5.5	5-6	5,6	
UK3	6	6-6	6,6			UK3	6	6-6	6,6	
UK4	6	4-6	4.5,6			UK4	6	4-6	4.5,6	
UK5	6	4-6	5,6			UK5	6	4-6	5,6	
USA	6	5-6	5,6			**USA**	6	3-6	5,6	
USA1	5	5-6	5,5.5			USA1	5	3-6	4,5.5	
USA2	6	5-6	5.5,6			USA2	6	5-6	5.5,6	
USA3	6	6-6	6,6			USA3	6	5-6	5.5,6	
USA4	6	5-6	5.75,6			USA4	6	5-6	5.75,6	
USA5	6	5-6	5.75,6			USA5	6	5-6	5,6	

Variable				Comparison			Median	Range	IQR	Comparison
	Median	Range	IQR							
1e. Veterinary surgeon's examination						**1f. How well vet explained diagnostic process**				
All	6	4-6	5,6			**All**	6	4-6	5,6	
UK	6	4-6	5,6	Not significantly different (p=0.389)		**UK**	6	4-6	5,6	Not significantly different (p=0.846)
UK1	6	4-6	5,6			UK1	6	4-6	5,6	
UK2	5	5-6	5,5.25			UK2	5.5	5-6	5,6	
UK3	6	5-6	5.5,6			UK3	6	5-6	5.5,6	
UK4	6	5-6	5.25,6			UK4	5.5	5-6	5,6	
UK5	6	4-6	6,6			UK5	6	4-6	5,6	
USA	6	4-6	5,6			**USA**	6	4-6	5,6	
USA1	5	5-6	5,5.5			USA1	5	4-6	4,5.5	
USA2	6	5-6	5,6			USA2	6	5-6	5.5,6	
USA3	6	5-6	5.5,6			USA3	6	5-6	5.5,6	
USA4	6	5-6	5,6			USA4	6	5-6	5,6	
USA5	5	4-6	4.75,6			USA5	6	5-6	5,6	

Appendix 8.10 (continued)   Client Satisfaction Survey Data

Variable	Median	Range	IQR	Comparison		Median	Range	IQR	Comparison
Appendix 8.10 (continued) Client Satisfaction Survey Data									
1g. How well vet explained treatments and procedures					**1h. How well you understood the costs today**				
All	6	4-6	5,6		**All**	5	1-6	5,6	
UK	6	4-6	5,6	Not significantly different (p=0.730)	**UK**	5	1-6	4,6	Not significantly different (p=0.697)
UK1	6	4-6	5,6		UK1	6	1-6	3,6	
UK2	5.5	5-6	5,6		UK2	5	2-6	3.5,5.5	
UK3	6	5-6	5.5,6		UK3	5	1-6	2.5,6	
UK4	5.5	4-6	4.25,6		UK4	5.5	4-6	4.25,6	
UK5	6	4-6	5,6		UK5	6	2-6	3,6	
USA	6	4-6	5,6		**USA**	5	3-6	5,6	
USA1	5	4-6	4,5.5		USA1	5	4-6	4.5,5.5	
USA2	6	5-6	5.5,6		USA2	6	5-6	5.25,6	
USA3	6	5-6	5.5,6		USA3	6	3-6	4,6	
USA4	6	5-6	5,6		USA4	5	3-6	4.5,6	
USA5	5.5	5,6	5,6		USA5	5	3-6	4.5,6	

Variable				Comparison			Median	Range	IQR	Comparison
	Median	Range	IQR				Median	Range	IQR	
1i. The vet's discussion of options with you					**1j. The vet's discussion of costs with you**					
All	6	4-6	5,6		**All**	5	1-6	4,6		
UK	6	4-6	5,6	Not significantly different (p=0.944)	**UK**	5	1-6	3,6		Not significantly different (p=0.157)
UK1	6	4-6	5,6		UK1	6	1-6	3,6		
UK2	5	4-6	4.75,6		UK2	5	2-5	2,5		
UK3	6	6-6	6,6		UK3	4	1-6	1,4		
UK4	5.5	5-6	5,6		UK4	5.5	4-6	4.25,6		
UK5	6	4-6	5,6		UK5	4	1-6	2,6		
USA	6	4-6	5,6		**USA**	5	3-6	5,6		
USA1	5	4-6	4,5.5		USA1	5	3-6	3.5,5.5		
USA2	6	5-6	5,6		USA2	6	5-6	5,6		
USA3	6	6-6	6,6		USA3	6	6-6	6,6		
USA4	6	5-6	5,6		USA4	5	5-6	5,6		
USA5	6	5-6	5,6		USA5	5	3-6	4.5,6		

The title row: Appendix 8.10 (continued)   Client Satisfaction Survey Data

Variable				Comparison					Comparison
	Median	Range	IQR			Median	Range	IQR	
1k. Interest the vet expressed in your opinion					**1l. Amount of information you received from the vet**				
All	5.5	3-6	5,6		**All**	6	4-6	5,6	
UK	5.5	3-6	4.25,6	Not significantly different (p=0.769)	**UK**	6	4-6	5,6	Not significantly different (p=0.810)
UK1	6	4-6	5,6		UK1	6	4-6	5,6	
UK2	5	4-6	4,6		UK2	5	5-6	5,6	
UK3	6	5-6	5.5,6		UK3	6	6-6	6,6	
UK4	5.5	4,6	4.25,6		UK4	5.5	5-6	5,6	
UK5	5	3-6	4,6		UK5	5	4-6	5,6	
USA	5	3-6	5,6		**USA**	6	4-6	5,6	
USA1	5	3-6	3.5,5		USA1	5	4-6	4,5.5	
USA2	5.5	5-6	5,6		USA2	6	5-6	5,6	
USA3	6	6-6	6,6		USA3	6	5-6	5.5,6	
USA4	6	5-6	5,6		USA4	6	5-6	5,6	
USA5	5	5-6	5,6		USA5	5	5-6	5,6	

Appendix 8.10 (continued)   Client Satisfaction Survey Data

Appendix 8.10 (continued)				Client Satisfaction Survey Data						
Variable				Comparison						Comparison
	Median	Range	IQR			Median	Range	IQR		
1m. How well the veterinary surgeon addressed all your concerns					**1n. The vet's recognition of the role this pet has in your life**					
All	6	4-6	5,6		**All**	6	3-6	5,6		
UK	6	4-6	5,6	Not significantly different (p=0.818)	**UK**	5	3-6	5,6		Not significantly different (p=0.474)
UK1	6	4-6	5,6		UK1	6	3-6	5,6		
UK2	5	4-6	4.75,6		UK2	5	4-6	4.75,6		
UK3	6	6-6	6,6		UK3	6	5-6	5.25,6		
UK4	5.5	4-6	4.25,6		UK4	5.5	4-6	4.25,6		
UK5	5	4-6	4,6		UK5	5	4-6	5,6		
USA	6	4-6	5,6		**USA**	6	4-6	5,6		
USA1	5	4-6	4,5.5		USA1	5	4-6	4.5,5.5		
USA2	6	5-6	5.5,6		USA2	5.5	5-6	5,6		
USA3	6	5-6	5.25,6		USA3	6	4-6	4.5,6		
USA4	6	5-6	5,6		USA4	6	5-6	5.75,6		
USA5	5.5	5-6	5,6		USA5	6	5-6	5,6		

Variable	Median	Range	IQR	Comparison		Median	Range	IQR	Comparison
				Appendix 8.10 (continued) Client Satisfaction Survey Data					
1o. The amount of time the vet spent with you and your pet					**2a. Willingness to pursue further diagnostic tests**				
All	6	2-6	5,6		**All**	6	1-6	5,6	
UK	6	3-6	5,6	Not significantly different (p=0.746)	**UK**	6	1-6	4,6	Not significantly different (p=0.389)
UK1	6	3--6	5,6		UK1	6	3-6	4,6	
UK2	5	4-6	4,6		UK2	4	1-6	1,5.5	
UK3	6	5-6	5,6		UK3	6	6-6	6,6	
UK4	6	5-6	5.25,6		UK4	5.5	5-6	5,5.5	
UK5	5	4-6	5,6		UK5	6	6-6	6,6	
USA	6	2-6	5,6		**USA**	6	4-6	5,6	
USA1	5	4-6	4.6,5.5		USA1	5	4-6	4.25,5.75	
USA2	6	5-6	5.5,6		USA2	6	6-6	6,6	
USA3	6	2-6	4,6		USA3	6	6-6	6,6	
USA4	6	5-6	5.75,6		USA4	5	4-6	4,5	
USA5	5	4-6	4.75,6		USA5	6	6-6	6,6	

Appendix 8.10 (continued) Client Satisfaction Survey Data										
Variable				Comparison						Comparison
	Median	Range	IQR				Median	Range	IQR	
2b. Willingness to pursue recommended treatments						**2c. Willingness to schedule follow-up visits**				
All	6	1-6	5,6			**All**	6	3-6	6,6	
UK	6	1-6	5,6	Not significantly different (p=0.666)		**UK**	6	3-6	6,6	Not significantly different (p=0.819)
UK1	6	5-6	5,6			UK1	6	4-6	5.5,6	
UK2	5.5	1-6	2,6			UK2	6	3-6	3.5,6	
UK3	6	6-6	6,6			UK3	6	6-6	6,6	
UK4	6	5-6	5.25,6			UK4	6	6-6	6,6	
UK5	6	5-6	5.25,6			UK5	6	6-6	6,6	
USA	6	4-6	5.75,6			**USA**	6	4-6	6,6	
USA1	5	4-6	4.25,5.75			USA1	5.5	5-6	5,6	
USA2	6	6-6	6,6			USA2	6	4-6	4.5,6	
USA3	6	5-6	5.25,6			USA3	6	6-6	6,6	
USA4	6	5-6	5.5,6			USA4	6	5-6	5.25,6	
USA5	6	6-6	6,6			USA5	6	6-6	6,6	

Variable				Comparison		Median	Range	IQR	Comparison
	Median	Range	IQR						
2d. Other (follow-up actions)					**Client Satisfaction Total Score (x/114)**				
All	6	6-6	6,6		**All**	94.00	54.00-108.00	81.75, 102.00	
UK	6	6-6	6,6	Not significantly different (p=1.000)	**UK**	92.50	59.00-108.00	81.25, 102.00	Not significantly different (p=0.780)
UK1	6	6-6	6,6		UK1	102.00	66.00-108.00	90.00, 108.00	
UK2	N/A	N/A	N/A		UK2	85.50	69.00-96.00	73.50, 95.25	
UK3	N/A	N/A	N/A		UK3	88.00	79.00-108.00	82.50, 98.00	
UK4	N/A	N/A	N/A		UK4	98.00	86.00-102.00	88.00, 102.00	
UK5	6	6-6	6,6		UK5	91.00	59.00-108.00	77.00, 102.00	
USA	6	6-6	6,6		**USA**	94.00	54.00-108.00	83.50, 101.50	
USA1	N/A	N/A	N/A		USA1	87.00	79.00-92.00	79.50, 90.00	
USA2	N/A	N/A	N/A		USA2	94.00	71.00-108.00	71.50, 104.50	
USA3	N/A	N/A	N/A		USA3	102.00	54.00-104.00	74.50, 103.00	
USA4	N/A	N/A	N/A		USA4	92.50	71.00-97.00	75.75, 96.50	
USA5	6	6-6	6,6		USA5	99.00	88.00-108.00	92.50, 108.00	

Appendix 8.10 (continued)   Client Satisfaction Survey Data

Appendix 8.11   Published Articles Cited in Thesis

Appendix 8.11a Communication survey quantitative study published article (McDermott et al., 2015)

Veterinarian–Client Communication Skills: Current State, Relevance, and Opportunities for Improvement

Michael P. McDermott ■ Victoria A. Tischler ■ Malcolm A. Cobb ■ Iain J. Robbé ■ Rachel S. Dean

ABSTRACT

Communication is increasingly recognized as a core skill for veterinary practitioners, and in recent years, attention to communication competency and skills training has increased. To gain an up-to-date assessment of the current state of veterinary communication skills and training, we conducted a survey among veterinary practitioners in the United Kingdom and United States in 2012/2013. The questionnaire was used to assess the current state, relevance, and adequacy of veterinary communication skills among veterinary practitioners, to assess interest in further training, and to understand perceived challenges in communicating with clients. There was an overall response rate of 29.6% (1,774 of 6,000 recipients), with a higher response rate for UK-based practitioners (39.7%) than practitioners in the US (19.5%). Ninety-eight percent of respondents agreed that communication skills were as important as or more important than clinical knowledge. Forty-one percent of respondents had received formal veterinary communication skills training during veterinary school, and 47% had received training post-graduation. Thirty-five percent said their veterinary communication skills training during veterinary school prepared them well or very well for communicating with clients about the health of their pets, compared to 61% of those receiving post-graduate training. Forty percent said they would be interested in further veterinary communication skills training, with the preferred methods being simulated consultations and online training. While there has been increased emphasis on communication skills training during and after veterinary school, there is a need for more relevant and accessible training.

Key words: veterinarian–client communication, veterinary communication skills training, importance of communication skills, sensitive topics, core clinical skills, client satisfaction

INTRODUCTION

It has become increasingly recognized that communication can play an important role in the success of a veterinary practice and the satisfaction of clients.[1-4] Substantial evidence from both human and veterinary medicine identifies the importance of optimized veterinarian–client communication.[5-8] Communication can influence veterinarian and client satisfaction and practice success, and it can result in improved adherence to therapeutic and management regimens, among other positive results.[9-11]

Good communication skills are expected of veterinary graduates,[12] and proficiency in interpersonal skills is considered to be desirable for veterinarians.[12-14] This was identified by Mellanby et al. in a survey of 243 small-animal veterinarians, 61 large-animal or mixed-practice veterinarians, and 407 veterinary clients of 5 hospitals in the UK.[5]

Two studies surveyed veterinarians and pet owners, respectively, about skills needed to be successful in the profession, and each confirmed the importance of communication skills.[15,16] Recent graduates and final-year veterinary students in the UK have ranked communicating with clients and the public highest among attributes that help further the client–veterinarian relationship.[17]

Increasing awareness of the importance of communication skills has led to the development of communication curricula at veterinary schools. The American Veterinary Medical Association (AVMA), the accrediting organization for veterinary colleges in the United States, requires communication training to be in the curriculum of all veterinary schools.[18] The Royal College of Veterinary Surgeons (RCVS), the accrediting organization for UK veterinary schools, includes communication skills in their Day One Competencies.[12]

The Argus Institute at Colorado State University was established specifically to strengthen veterinarian–client communication and to provide consumer-friendly information to pet owners about a wide range of topics, including sensitive issues such as end-of-life considerations.[19] Communication education in veterinary medicine in the UK and Ireland has been facilitated by the formation of the National Unit for the Advancement of Veterinary Communication Skills (NUVACS),[20] which was sponsored

by the Veterinary Defense Society (VDS).[21] Communication breakdown is often cited by the VDS as a chief contributor to client complaints and litigation.[20] The concept of NUVACS was to create a coordinated national body to encourage and support the training of veterinary undergraduates in communication skills.[22]

In 2015, Mossop et al. assessed the current state of communication training at seven veterinary colleges in the UK.[23] Each of the schools offers communication training, including seminars, lectures, videotaped consultation, workshops, and peer observation, during all five years of the veterinary course. Topics include scene setting, history taking, consultation structure, dealing with difficult clients and situations, and clinical reasoning and communication.

Several different communication models or frameworks have been developed for structuring physician–patient communication,[24] and some of these have been adapted for communication skills training and evaluation in veterinary medicine. Among these are the Seque Model,[25] the Patient-Centred Care Model,[26] the Model of the Macy Initiative in Health Communication,[27] and the Calgary–Cambridge Process Guide (CCPG) and accompanying Calgary–Cambridge Content Guide (CCCG).[28,29] Each model is used flexibly to encourage an interactive dialogue between the healthcare provider and patient or caregiver that ensures a complete and collaborative exchange of information about the patient's (or client's) health concerns.

The Calgary–Cambridge Guides, which incorporate 71 process steps through all phases of a medical consultation, have been used as the framework for skills-based communication training courses at several universities.[30–32] Adams and Kurtz[33] have suggested the Calgary–Cambridge Guides be used to teach veterinary communication skills in the practice setting and that development of communication skills should be a career-long endeavor for practitioners. The VDS has also launched an initiative to enhance communication skills in veterinary practices.[34] Everitt et al.,[35] in a study of 48 veterinary consultations, demonstrated that most consultations incorporate process elements of the Calgary–Cambridge Model but not necessarily in the order in which they appear in the Calgary–Cambridge Guides. This reflects an observation of Silverman, one of the original developers of the guides, who stressed that they should be considered a flexible toolkit drawn from as needed to fit the dynamics of a conversation rather than a dictated set and order of tasks to achieve.[36]

The increased emphasis in recent years on veterinary communication skills training is definitely having a positive impact.[37] Nevertheless, the topic is constantly evolving,[23] and a current assessment can help ensure that both practitioners and veterinary communication educators have the latest and most useful information. The aim of this study was to assess the degree to which veterinary practitioners in the US and UK have had veterinary communication skills training, to understand the relative importance of communication skills to personal and practice success, and to identify new opportunities to inform the teaching and practice of communication skills for veterinarians.

MATERIALS AND METHODS

Study Design

A cross-sectional survey of veterinarians in the UK and US was undertaken in 2012/2013 (see Appendix 1, available online at http://dx.doi.org/10.3138/jvme.0115-006R). The objective was to seek the views of a representative sample of practitioners in each country. Questions were designed to assess the level of communication skills training, determine the degree to which communication skills training prepares practitioners for communicating with clients, identify the relative importance of communication skills in typical practice situations, and determine peoples' interest in and need for further communication training.

The membership lists of the American Animal Hospital Association (AAHA) in the US and the RCVS in the UK were used to identify participants. The AAHA is a professional organization in the US responsible for accrediting companion-animal hospitals and is focused primarily on companion-animal practitioners.[38] Members have access to continuing education (CE), continuing professional development (CPD), and practice management training. Membership in the AAHA is voluntary. The RCVS is responsible for keeping the register of all veterinary surgeons eligible to practice in the UK and for setting the standards for veterinary education and professional conduct. Membership in the RCVS is compulsory for veterinary surgeons wishing to practice in the UK.[39]

A power calculation for the first question of the survey indicated that 1,000 people from each country were needed, or 2,000 in total. This would indicate 95% confidence in the validity of the findings ($p = .05$) with a random sample of 3,000 from each list (assuming a response rate of 33% based on previous surveys of veterinary practitioners).[40–42]

Instruments

We devised a questionnaire titled, "The Importance of Veterinary Communication Skills: What Are Your Views?" The content was based on literature about veterinary communication and on existing questionnaires involving healthcare professionals and veterinarians or veterinary students on the topic of communicating with patients and clients.[15,43,44]

The questionnaire contained 26 open, closed, and Likert-scale type questions and was divided into three sections: (1) demographics, (2) communication skills training, and (3) importance of communication in practice. The Centre for Evidence-based Veterinary Medicine (CEVM) at the University of Nottingham School of Veterinary Medicine and Science piloted the questionnaire with five veterinary practitioners in each country. The University of Nottingham's Ethics Committee at the School of Veterinary and Science approved the study.

Distribution

The questionnaire was distributed by post in each country and accompanied by a postage-paid (freepost) return envelope. Two mailings were sent to recipients, an initial mailing of 3,000 to each country in December 2012, and a follow-up mailing to non-responders in February 2013.

We set a cut-off date of October 31, 2013, after which no additional responses were included in data analysis.

Data Extraction and Preparation

All questionnaires were electronically scanned and verified using Teleform® software V10.2 (a program that classifies, captures, and indexes data from forms). Twenty per cent of the returned questionnaires were manually checked for accuracy against the data recorded by Teleform. The data were exported into an Excel spreadsheet, cleaned, and coded for subsequent analysis.

Statistical Methods

Data were analyzed using SPSS Version 21.0. Statistical analyses included descriptive and inferential statistics. Categorical data, including Likert Scales, were presented as absolute numbers and percentages. Continuous data were presented as ranges and medians. Inferential statistics for categorical data (e.g., US practitioners vs. UK practitioners, males vs. females, and age vs. interest in receiving additional communication training) were analyzed using Pearson's Chi-square tests. Statistical significance was set at $p \leq .05$.

RESULTS

Response Rates

A total of 1,190/3,000 responses were received from the UK (39.7% response rate), 882 (74.1%) from the initial mailing and 308 (25.9%) from the reminder mailing. A total of 584/3,000 responses were received from the US (19.5% response rate), 398 (68.2%) from the initial mailing and 186 (31.8%) from the reminder mailing. Total response rate for all of the veterinarians was 29.6% (1,774/6,000).

Demographics

The demographics of the respondents are shown in Figures 1–3. There were more females than males (57.3% to 42.7%), a range in age of 23 years to 79 years, and a range in year of graduation from veterinary school from 1944 to 2012.

Veterinary Education

Respondents did their undergraduate/veterinary school studies at 105 different institutions in 36 different countries. UK-based practitioners had graduated from 74 schools in 30 countries, and practitioners based in the US had graduated from 49 schools in 15 countries.

Type of Practice

Of the 1,486 respondents, 1,070 (72.0%) indicated they were exclusively involved in small-animal practices, 44 (3.0%) worked exclusively with farm animals, 81 (5.5%) identified themselves as full-time equine practitioners, and 291 (19.6%) were involved in mixed or "other" practices. The majority of respondents (1,243/1,637, 75.9%), described their caseload as "First Opinion/Primary
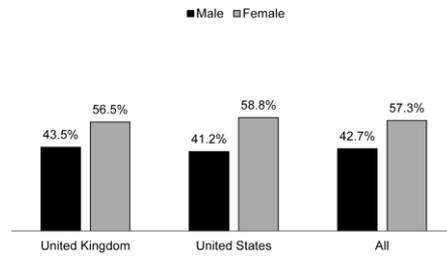
Figure 1: Gender of participants by country
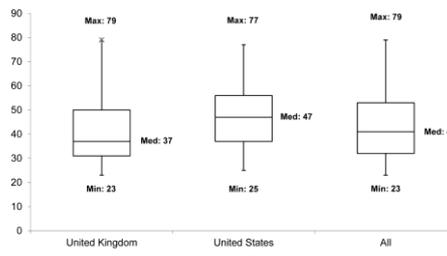
Figure 2: Age of participants by country (minimum, median, and maximum)
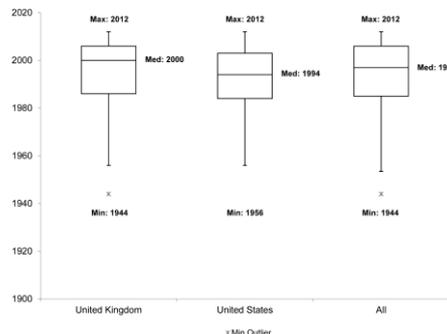
Figure 3: Median year/range of participants' years of graduation by country

Care." Among the remainder, 144 (8.8%) identified their case load as "Referral/Specialty," 204 (12.5%) as "Mix of First Opinion/Primary Care and Referral/Specialty," and 46 (2.8%) as "Other."

Table I: Communication skills training during veterinary school among practitioners graduating before and after 2000 (N = 1,751)

Year graduated	Communication skills training received?			Total
	Yes	No	Don't remember	
2000 or later	549 (68.4%)	210 (26.3%)	41 (5.1%)	800
1999 or earlier	166 (17.5%)	710 (74.7%)	75 (7.9%)	951
Total	715 (40.8%)	920 (52.5%)	116 (9.5%)	1,751
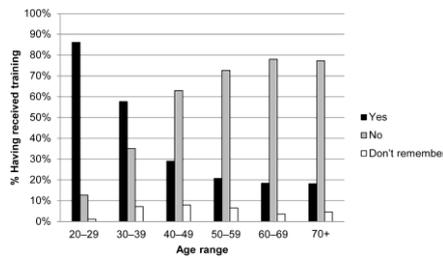
Figure 4: Communication skills training received during veterinary school by veterinarians in different age groups (N = 1,755)

Figure 5: Communication skills training received after veterinary school by veterinarians in different age groups (N = 1,757)

Communication Skills Training during Veterinary (Undergraduate) School

Of the respondents, 40.9% (720/1,761) had received communication skills training (defined as "dedicated teaching in skills to equip you to effectively speak to clients about the care of their animals") during veterinary school, 52.5% (925/1,761) had not, and 6.6% (116/1,761) could not remember. The predominant types of training received were simulated consultations—scenarios in which actors play the role of owners of pets with common health issues and students play the role of attending veterinarians (562/755, 74.4%)—and lectures (508/755, 67.3%).

UK practitioners (527/1,185, 44.5%) received training more frequently than US practitioners (247/581, 42.5%), although the difference was not statistically significant ($\chi^2 = 1.380, df = 2, p = .501$). Respondents who graduated in 2000 or later were significantly more likely to have received communication skills training during veterinary school than earlier graduates ($\chi^2 = 415.989, df = 2, p < .001$; see Table 1). Across age ranges, younger veterinarians (< 40 years of age) were significantly more likely to have received communication skills training in veterinary school ($\chi^2 = 343.77, df = 2, p < .001$; see Figure 4). Those graduating before 2000 were also more likely to have cited less formal communication training such as rounds, having a senior colleague observe consultations, and "learning by doing" in a practice.

Post-graduate Communication Skills Training

Slightly fewer than half of respondents (833/1,768, 47.1%) had received communication skills training after graduating from veterinary school. The most commonly received types of post-graduate training included lectures (605/830, 72.9%), simulated consultations (314/830, 37.8%), and "Other" (258/830, 31.1%). Other types of training mentioned included industry-sponsored programs such as the Bayer Animal Health Communication Project[45] (3/52, 5.8%), "Frank" communication training from Pfizer Animal Health/Zoetis[46] (7/52, 13.5%), association-sponsored training from the VDS (32/52, 61.5%)[21] or the AAHA[38] (3/52, 5.8%), and Dale Carnegie Courses[47] (7/52, 13.5%). Again, many respondents had received multiple types of training.

US practitioners were significantly more likely to have received post-graduation communication skills training (316/582, 54.3%) compared to UK practitioners (517/1,186; 43.6%) ($\chi^2 = 19.826, df = 2, p < .001$). A Pierson's Chi-squared analysis also showed a significant difference in the likelihood of having received post-graduate communication skills training across age ranges (see Figure 5), older veterinarians (>40 years of age) being most likely to have received post-graduate training ($\chi^2 = 13.692; df = 2; p = .001$).

Utility of Communication Skills Training

When asked how well their communication skills training during veterinary school prepared them for communicating

Table 2: Perceived benefit of communication skills training received during and after veterinary school ($N = 1,744$)

When	Very poorly	Poorly	Neutral	Well	Very well	Total
During veterinary school	70 (8.0%)	189 (21.6%)	312 (35.7%)	252 (28.8%)	51 (5.8%)	874
Post-graduation	13 (1.5%)	42 (4.8%)	288 (33.1%)	408 (46.9%)	119 (13.7%)	870

Responses to the question "How well did your communication skills training during veterinary school prepare you for communicating with clients about the health of their animals?"

Table 3: Perceived importance of communication skills to aspects of personal and practice success

Variable	1	2	3	4	5	Don't know	Total
Self-confidence	9 (0.5%)	21 (1.2%)	133 (7.5%)	736 (41.7%)	861 (48.8%)	4 (0.2%)	1,764
Job satisfaction	3 (0.2%)	30 (1.7%)	199 (11.3%)	816 (46.3%)	709 (40.2%)	6 (0.3%)	1,763
Time management	18 (1.0%)	89 (5.0%)	349 (19.8%)	696 (39.4%)	602 (34.1%)	12 (0.7%)	1,766
Income/profitability	11 (0.6%)	23 (1.3%)	156 (8.9%)	661 (37.5%)	885 (50.2%)	12 (1.5%)	1,748
Client relationships	1 (0.1%)	6 (0.3%)	11 (0.6%)	189 (10.7%)	1,558 (88.2%)	1 (0.1%)	1,766
Colleague relationships	4 (0.2%)	11 (0.6%)	84 (4.8%)	528 (29.9%)	1,134 (64.3%)	3 (0.2%)	1,764
Other	0 (0.0%)	0 (0.0%)	3 (1.1%)	20 (7.6%)	125 (47.7%)	114 (43.5%)	262
Total	46 (0.4%)	180 (1.7%)	935 (8.6%)	3,646 (33.7%)	5,874 (54.2%)	152 (1.4%)	10,833

1 = Not at all important; 5 = Extremely important

with clients about the health of their animals, 303 of the 874 respondents to the question (34.7%) answered "well" or "very well." A significantly higher proportion of respondents who graduated in or after 2000 (239/581, 41.1%) answered "well" or "very well" compared to those graduating before 2000 (62/287, 21.6%; $\chi^2 = 48.058$, $df = 4$, $p < .001$). In response to a similar question about post-graduate training, the majority of respondents (527/870, 60.6%) indicated that post-graduate communication skills training prepared practitioners "well" or "very well" for communicating with clients about their animals' health (Table 2).

Interest in Further Communication Skills Training

Regarding willingness to receive further communication skills training, 60% (1,054/1,759) said they were not willing and 40% (705/1,759) said they were. Of those expressing interest in receiving further communication skills training, the main training types in which they were interested were simulated consultations (134/689, 19.4%), online training (130/689, 18.9%), lectures (70/689, 10.2%), a combination of two or more of the above (304/689, 44.1%), and other types of training (51/689, 7.4%). These "other types" included workshops, training on specific topics such as cost discussions, and training for veterinary communication skills educators.

Significantly more females (441/1,008, 43.8%) wished to receive further communication skills training than males (260/745, 34.9%; $\chi^2 = 13.984$, $df = 1$, $p < .001$). US respondents (258/577, 44.7%) were also significantly more likely than UK-based respondents (447/1,182, 37.8%)

to be interested in receiving further training ($\chi^2 = 7.679$, $df = 1$, $p = .006$). Practitioners aged 39 or younger (389/817, 47.6%) were significantly more interested in further training than those over age 40 (312/932, 33.5%; $\chi^2 = 36.229$, $df = 1$, $p < .001$).

Perceived Importance of Communication Skills versus Clinical Knowledge

Nearly all respondents (1,708/1,748, 97.7%) said that communication skills were equal to or more important than clinical knowledge to the successful outcome of a client consultation.

Importance of Communication Skills in Specific Situations

Regarding the importance of communication skills to aspects of personal and practice success, the most frequent rating was either 4/5 or 5/5 (1 = *not at all important* and 5 = *extremely important*) for all aspects. For client and colleague relationships, 88.5% of respondents assigned a score of 5 to the former and 64.3% to the latter (see Table 3). Scores were also high for the perceived importance of communication in different components of a consultation, such as discussing treatment options or gaining client agreement (Table 4). For communicating about potentially sensitive topics with clients, the difficulty of communication was rated either 2/5 or 3/5 for most topics (1 = *very easy* and 5 = *very difficult*). Difficult-to-diagnose conditions and expensive treatments were considered the most difficult topics to discuss, and euthanasia the least difficult (Table 5).

Table 4: Perceived importance of communication skills in different components of a consultation

Variable	1	2	3	4	5	Don't know	Total
Obtaining a medical history	3 (0.2%)	9 (0.5%)	64 (3.6%)	394 (22.3%)	1,293 (73.2%)	3 (0.2%)	1,766
Diagnosing a condition	25 (1.4%)	120 (6.8%)	475 (26.9%)	730 (41.4%)	410 (23.3%)	3 (0.2%)	1,763
Explaining diagnoses	2 (0.1%)	4 (0.2%)	16 (0.9%)	313 (17.7%)	1,429 (80.9%)	2 (0.1%)	1,766
Discussing treatment/management options	4 (0.2%)	5 (0.3%)	11 (0.6%)	270 (15.3%)	1,475 (83.5%)	1 (0.1%)	1,766
Gaining client agreement on treatment/management options	7 (0.4%)	4 (0.2%)	31 (1.8%)	295 (16.7%)	1,426 (80.8%)	2 (0.1%)	1,765
Discussing prognoses	2 (0.1%)	3 (0.2%)	50 (2.8%)	451 (25.6%)	1,255 (71.2%)	2 (0.1%)	1,763
Managing client expectations	4 (0.2%)	5 (0.3%)	31 (1.8%)	363 (20.6%)	1,358 (77.0%)	3 (0.2%)	1,764
Optimizing client compliance	4 (0.2%)	5 (0.3%)	72 (4.1%)	398 (22.6%)	1,280 (72.6%)	5 (0.3%)	1,764
Prompting follow-up visits	1 (0.1%)	16 (0.9%)	143 (8.1%)	618 (35.0%)	979 (55.5%)	8 (0.5%)	1,765
Talking about costs	4 (0.2%)	16 (0.9%)	81 (4.6%)	485 (27.6%)	1,167 (66.3%)	6 (0.3%)	1,759
Other aspects of a consultation	0 (0.0%)	0 (0.0%)	8 (3.1%)	25 (9.6%)	120 (46.2%)	107 (41.2%)	260
Total	56 (0.3%)	187 (1.0%)	982 (5.5%)	4,343 (24.3%)	12,191 (68.1%)	142 (0.7%)	17,901

1 = Not at all important; 5 = Extremely important

Table 5: Perceived difficulty of communicating about potentially sensitive topics with clients

Variable	1	2	3	4	5	Don't know	Total
Life-threatening conditions	218 (12.5%)	680 (39.0%)	507 (29.1%)	290 (16.6%)	41 (2.4%)	8 (0.5%)	1,744
Difficult-to-diagnose conditions	107 (6.1%)	450 (25.8%)	547 (31.3%)	493 (28.3%)	141 (8.1%)	7 (0.4%)	1,745
Difficult-to-treat conditions	130 (7.5%)	574 (33.1%)	546 (31.5%)	397 (22.9%)	78 (4.5%)	10 (0.6%)	1,735
Euthanasia	284 (16.3%)	801 (45.9%)	440 (25.2%)	158 (9.1%)	48 (2.8%)	13 (0.7%)	1,744
Expensive treatments	141 (8.1%)	456 (26.2%)	511 (29.3%)	469 (26.9%)	145 (8.3%)	20 (1.1%)	1,742
Time-consuming treatments	149 (8.5%)	538 (30.9%)	608 (34.9%)	356 (20.4%)	74 (4.2%)	18 (1.0%)	1,743
Total	1,029 (9.8%)	3,499 (33.5%)	3,159 (30.2%)	2,163 (20.7%)	527 (5.0%)	76 (0.7%)	10,453

1 = Very easy; 5 = Very difficult

DISCUSSION

These new findings support previous research on the importance of communication as a core clinical skill.[1,17,33,48] They also confirm the impact of increased attention being given to the importance of communication skills in the literature and in veterinary school curricula and post-graduate education. Nevertheless, the fact that more than half of even the most recent (post-2000) graduates felt that veterinary communication skills training did not prepare them well for communicating with clients suggests there is room for improvement. If adding additional communication courses is difficult because of the amount of clinical training required, perhaps communication skill development could be incorporated more fully into overall veterinary school curricula. This could be done through adding communication-specific courses or by ensuring that communicating about clinical topics is an integral part of the clinically focused courses.

Nearly half of respondents in this study had received communication skills training either in veterinary school or post-graduation, and nearly all respondents believed that communication skills were equal in importance to or more important than clinical knowledge. Nevertheless, more than half were not willing to make additional communication skills training a priority, which suggests a barrier to improving an important skill that practitioners need to optimize client relationships as well as the health of the animals they treat.

The relative lack of interest among the majority of practitioners in further communication skills training may be influenced by different factors including time, distance, and financial limitations, all of which were identified by Moore et al.[49] in focus group interviews. A survey by Dale et al. revealed that graduates since the year 2000 perceived CPD/CE to be more valuable than earlier graduates and that women believed more strongly than

men that CPD would benefit their own development.[50] These findings are consistent with the current study.

Evidence in the literature[49–52] suggests that practitioners are motivated to participate in CPD/CE by the perceived benefits and the type of training offered, as well as by their preferred learning style. Veterinarians recognize benefits from CPD/CE in interacting and socializing with colleagues, honing their skills, identifying weaknesses, and reaffirming their current practice approaches.[49] Neel and Grindem[53] found veterinary students prefer learning approaches that are active, sensing, sequential, and visual, which could describe live workshops. Dale and others[52] in a further study found that a preference for complexity increases both motivation to participate in CPD/CE and the value of the learning itself. Sadler-Smith et al.[54] concluded from a study of human resource professionals that learners are more likely to prefer modes of professional development that best fit their preferred choice for information processing and that both gender and cognitive style affect preference for methods of learning; similar preferences were found in a survey of postgraduates in occupational medicine.[55]

It is not clear to what degree these observations about CPD/CE in general would apply to communication-specific training. Nevertheless, further study is needed into how to make communication training more appealing, encouraging lifelong participation of veterinarians by tailoring the training to different career stages, genders, cognitive styles, and practice contexts within the available time and financial constraints.

In a commentary about barriers to success in veterinary practice, Burge[56] identified that communication skills are important for personal and practice success, affecting self-confidence, time management, job satisfaction, financial success, and client relationships—all ingredients for a satisfying and sustainable career in the profession.[56] One of the important aspects of communication is demonstrating empathy, or stepping into the shoes of the client or patient, as described by Hojat and others.[57] The authors found physicians' empathy to be a measurable attribute of relationship building that varies by medical specialty and gender. It would be useful to delve further into the topic of empathy in veterinary medicine to see if similar observations could be made.

In our study, high scores were also given to common aspects of a veterinary consultation that correspond to the elements of the Calgary–Cambridge Model. This result lends support to the view that the optimal consultation has effective communication at its core.

An unexpected finding was the relatively low level of difficulty ascribed to communicating about euthanasia, life-threatening conditions, and other topics considered sensitive. While it may be that many veterinarians are relatively comfortable speaking with clients about these topics, it might also be that exploring them in greater detail would reveal more about the difficulties that certain individuals face when communicating about sensitive issues in certain situations.

The demographics of the respondents were fairly similar to the practicing veterinary populations of the UK and US, with regard to diversity in age, gender, and practice types.[58,59] This suggests that observations about the study sample may be applicable to the veterinary practitioner communities in these countries.

Limitations of the Study

While this study gathered information from a large sample of veterinarians in two countries and yielded novel findings, there were limitations. The response rate for the survey was consistent with those of previous surveys targeting veterinarians,[40–42] but the US response rate was lower than that suggested necessary by the power calculation. This may make observations about US veterinarians less reliable. It is difficult to tell whether this is a function of the survey coming from a UK institution, of the relative willingness of practitioners in each country to participate in surveys, or of some other reason. A minor but perhaps significant difference in mailings sent to UK versus US audiences, discovered after the mailings, was that the UK envelopes had "Not a solicitation" stamped on them. It is uncertain whether this could have made such a difference in participants' willingness to open the mailings, but it could be part of the explanation.

Although the survey audience was randomly sampled from the membership lists of the RCVS and AAHA, in the case of the AAHA, the membership is not completely representative of the US veterinarian population, being primarily composed of companion-animal practitioners. The AAHA also has relatively strong CE requirements, another factor that could influence the responses to our survey. We chose the AAHA for our US sample because of the ready availability of mailing addresses from their membership. The RCVS can only pass on the details of members that have agreed to let their details be used for projects such as this and other initiatives. This means that a random sample of the RCVS register given for this study may not completely represent the whole profession in the UK.

Likert scales provide a simple and efficient way to collect data, but there are limitations in using them, including the inability to assume that intervals between values are equal (and therefore apply statistical methods such as measurement of mean or standard deviation), and social acceptability bias, which might have been a factor in the greater interest of females and US respondents in further communication training. Other issues include the inability to probe for more information in some cases, and the tendency for answers to have a skewed or polarized distribution.[60] There are also inherent limitations in the use of surveys themselves, such as the challenges posed by making generalizations about surveys with low response rates and analytical errors associated with missing data.[61] In addition, self-assessment is an inaccurate indicator of performance.[62] Nevertheless, it is possible to build on the findings in ways that address these limitations and strengthen the base of evidence for this important topic.

CONCLUSIONS

This is the first survey on veterinary communication skills including UK- and US-based practitioners. The findings

underscore the importance of communication as a core skill, potentially even more important than clinical knowledge. This validates the efforts of so many who have taken up the mantle to improve the core clinical skill of communicating effectively with clients.

At the same time, most veterinarians feel their undergraduate communication training did not prepare them adequately for communicating with clients. This, combined with the lack of interest in continuing communication training, suggests further work could be done to make training during veterinary school and post-graduation more valuable, applicable, and accessible to all veterinarians.

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Paper

Evaluating veterinary practitioner perceptions of communication skills and training

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A survey was conducted among veterinary practitioners in the UK and the USA in 2012/2013. Thematic analysis was used to identify underlying reasons behind answers to questions about the importance of communication skills and the desire to participate in postgraduate communication skills training. Lack of training among more experienced veterinary surgeons, incomplete preparation of younger practitioners and differences in ability to communicate all contribute to gaps in communication competency. Barriers to participating in further communication training include time, cost and doubts in the ability of training to provide value. To help enhance communication ability, communication skills should be assessed in veterinary school applicants, and communication skills training should be more thoroughly integrated into veterinary curricula. Continuing education/professional development in communication should be part of all postgraduate education and should be targeted to learning style preferences and communication needs and challenges through an entire career in practice.

Communication is believed to be a core skill for veterinary practitioners (Shaw and others 2004, Cornell and Kopcha 2007, Royal College of Veterinary Surgeons 2014). Effective communication contributes positively to client experience, understanding and trust (Mellanby and others 2011; Shaw and others 2012, Grand and others 2013). It also impacts compliance with recommended treatments and enhances patient outcomes (Kurtz 2006, Abood 2007, Gates and Nolan 2010). In a recent article (Cake and others 2016), communication skills were the professional, non-technical competency best supported by evidence in the literature as contributing to practitioner success.

As a result of the increased appreciation of the importance of communication ability for veterinary surgeons, there has been increased attention to communication skills training in veterinary school curricula and in continuing professional development (CPD)/continuing education (CE) (Radford and others 2003, Kogan and others 2004, Shaw and Ihle 2006, Mossop and others 2015), and recent evidence suggests this emphasis has had a positive impact (Latham and Morris 2007, Mossop and others 2015, Kedrowicz 2016). CPD/CE in communication is now widely available through veterinary associations (Gray and others 2006, Veterinary Defence Society 2016), from industry (Institute for Healthcare Communication 2016), and from independent consultants (Communication Solutions for Veterinarians 2016).

Despite this increased emphasis and the positive impact it has made (Mossop and others 2015, Kedrowicz 2016), the majority of participants in a survey of practitioners in the UK and the USA (McDermott and others 2015) reported that, even among recent graduates, communication skills training during veterinary school and postgraduation did not prepare them sufficiently for communicating with clients. Also, when asked whether they would be interested in receiving further communication skills training, more than half of the respondents replied that they would not be interested (McDermott and others 2015). Furthermore, other studies have reported that important elements of veterinary communication such as expressing empathy and soliciting concerns were missing from veterinary consultations (Dysart and others 2011, McArthur and Fitzgerald 2013).

In summary, this complex situation shows there is scope for improvement in communication competence training and in the performance of communication skills among veterinary practitioners. With this complexity in mind, the aim of this study was to investigate communication gaps and challenges as well as motivations for, and barriers to, participating in further communication training.

Materials and methods
Instrument
A survey on veterinary communication skills and training was conducted during 2012 and 2013. The cross-sectional study

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included a sample of veterinary practitioners in the UK and the USA, allowing for comparison between the two groups. The study gathered information on communication training during and after veterinary school, the degree to which training helped practitioners communicate with clients, the need for additional training, the importance of communication skills relative to clinical knowledge and in specific practice scenarios, and the challenges encountered by veterinary surgeons regarding communication with clients. A combination of closed, open and Likert scale-type questions were used. Further details on the survey and previous data are reported elsewhere (McDermott and others 2015).

Data analysis

Thematic analysis was used to analyse the responses to the open questions in the survey that related to veterinary communication gaps and needs as well as the motivation (or lack thereof) for participating in postgraduate communication skills training. Qualitative methods are particularly well suited to analysing open questions in surveys, facilitating the exploration of perceptions and experiences, and understanding a wide range of topics (Braun and Clarke 2006, 2013). Thematic analysis is one of the most commonly employed qualitative methods as it is useful for exploring and identifying patterns and themes across a data set. It can also be used to develop descriptions of phenomena explored in the research (Braun and Clarke 2006, 2013).

Data were collected from the survey responses and imported into a spreadsheet and reviewed by the authors. The data were transferred to nVivo 10.0 and organised for thematic analysis. To help ensure reliability of the data (Barbour 2001), the responses were co-coded by two authors (MPMcD and IJR) using an iterative process to generate themes (broad patterns that capture important elements of the data) and subthemes (specific aspects of the themes) (Braun and Clarke 2006). Collaboration in the coding process has been cited as a means to promote clarity, transparency and integrity of the data interpretation (Hall and others 2005, Cornish and others 2013).

Results

Response rates and demographics

A total of 1190/3000 responses were received from the UK (39.7 per cent response rate) and 584/3000 responses were received from the USA (19.5 per cent response rate). The overall response rate was 29.6 per cent (1774/6000). Mix of respondents was 57.3 per cent female (1013/1768) and 42.7 per cent male (755/1768), with similar gender mix in the UK and the USA. Range in age was 23–79 years (median age 41 years), with a higher median age in the USA (47 years) than in the UK (37 years).

Themes and subthemes

The themes identified from the free-text responses and reported in this study were (1) room for improvement, (2) why the lack of interest in further training? and (3) implications for communication training. These and emergent subthemes are presented in Fig 1, and details are presented below. Two additional themes were identified around the importance of communication skills and the hallmarks of effective communication but they were not included in this study. They concurred with a wealth of previous research but they did not add any significant new insights. Nevertheless, the fact that the respondents in this study supported the importance and elements of effective communication adds value to the learnings from the other three themes.

Theme 1: room for improvement

As mentioned in the previous study (McDermott and others 2015), only 35 per cent of respondents felt the communication training they received in veterinary school prepared them 'well' or 'very well' for communicating with clients. Results from the current study suggest this is may be due to a combination of the amount and type of training received, experience in practice (which can be summarised by the comment 'it's difficult to know what one needs to do until one has had to do it') and individual ability.

Training gap for senior practitioners: Many veterinary surgeons who graduated before 2000 described communication training as being primarily 'on the job' and very limited as part of the veterinary curriculum:

> Some communication [related] helpful tips were passed along by individual teachers. No formal separate class was given as I recall. (Female practitioner, age 52, USA)

> I learned [communication] by observing vets speaking to clients … (Male practitioner, age 54, UK)

> The only real communication skills training I had at college was obtained during time I spent during vacations at RVC field station on a one-to-one basis with staff seeing referral cases. (Male practitioner, age 71, UK)

Skills gap for junior practitioners: Several respondents felt that recent graduates, despite being more likely to have had communication training in veterinary school, were deficient in communication skills.

> We have had 12–15 vets in our practice over the last 30 years. We have hired veterinarians from most of the US universities and the biggest problem all new graduates have is communicating with the clients and building their trust. (Male practitioner, age 69, USA)
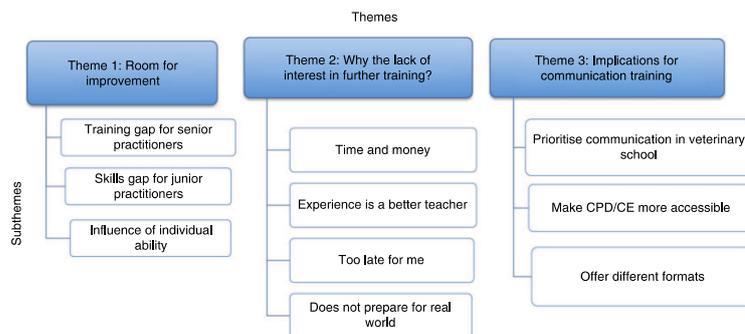

FIG 1: Themes and subthemes

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I'm always surprised at the variation in communication skills in young graduates – from excellent to woeful. (Male practitioner, age 68, UK)

I am concerned that the Y Generation [is] too technological, not able to communicate face to face. (Male practitioner, age 60, USA)

Influence of individual ability: Other respondents suggested that communication is a skill that may be developed more easily in some than others, depending on individual ability:

Communication skills can be learned to some degree, but it's been my experience through the years that certain people are naturally better with communication than others and with some, training doesn't improve skills that much. (Female practitioner, age 68, USA)

[Communication is] a learned skill, one difficult to actually teach. You must inherently ENJOY talking with people. (Female practitioner, age 61, USA; emphasis in the original)

Theme 2: why the lack of interest in further training?
While no specific question asked why a respondent was not interested in further postgraduate communication training, free-text comments revealed some of the possible reasons.

Time and money: Among the factors standing in the way of participation in postgraduate communication training are time and financial limitations and support of employers.

[My] boss is unlikely to see need for communication skills training and therefore unlikely to pay for it or allow time off. (Female practitioner, age 45, UK)

Communication training takes time, which is very limited. (Male practitioner, age 56, UK)

Experience is a better teacher: Many suggested that communication skills training was not a substitute for the practical experience gained in practice.

In my opinion the best way of improving communication skills is by experience. (Female practitioner, age 25, UK)

Training is not as effective as actually talking to clients and dealing with problems. (Male practitioner, age 26, USA)

Too late for me: Several of the more senior and experienced respondents supported the concept of training students and younger practitioners, but felt the opportunity to learn themselves may have passed.

At my age communication skills training is probably too little too late! It is essential for new graduates. I learnt my own style from my own mistakes. (Male practitioner, age 61, UK)

It is certainly important for new graduates but too late for me now. (Female practitioner, age 61, UK)

I think you learn a lot on the job and for someone who like me [who has] been working for 25 years; we probably wouldn't gain much from it. (Female practitioner, age 49, UK)

Does not prepare for real world: Some comments suggested that communication training does not prepare veterinary surgeons for 'real life' practice.

There needs to be more about how to deal with different types of clients and less emphasis on situation … (Female practitioner, age 30, UK)

Training doesn't prepare you for the angry/offensive client, those who you have to have difficult money conversations with, and those who will not control their children – these are the

more common problems in our area. (Male practitioner, age 28, UK)

Theme 3: implications for communication training
Respondents shared recommendations for undergraduate and postgraduate curriculum planning and delivery.

Prioritise communication in veterinary school: Many respondents suggested that greater effort be devoted to communication training during veterinary school, beginning with the screening of applicants:

[Introduce] preselection for communication skills when considering vet school applicants. (Male practitioner, age 65, USA)

Communication skills should be incorporated into clinical years at university. (Male practitioner, age 62, UK)

I wish that we had such training when at university – I have had to learn the hard way and have felt very unprepared for many situations especially early in my career. (Male practitioner, age 52, UK)

Make CPD/CE more accessible: In order to make training more beneficial to all practitioners (and perhaps address the contention that some can be taught better than others), some suggested it should be tailored to participants' personalities and inherent communication ability, as well as to the most significant needs and challenges:

It has been said that 75% of veterinarians are introverts. Learning how we process information and what our strengths are, helps more to develop communication needs than anything else. (Male practitioner, age 68, USA)

As it doesn't come naturally to me, ongoing effort and training is necessary to maintain and improve communication skills. (Male practitioner, age 42, UK)

Offer different formats: People learn in different ways, and there was variety in preference for training format. Some preferred lectures, both because of the familiarity of the format and the benefit of hearing from and seeing experts:

You see what the speaker is talking about, as body language is as important as the words themselves. (Male practitioner, age 60, USA)

Online training was preferred for its convenience and flexibility:

Very hard to fit CPD around current family/work commitments; [I] find that online training allows me to fit it around the rest of my life. (Female practitioner, age 34, UK)

Simulated consultations were felt to be most similar to actual practice:

It is the most effective way of identifying pitfalls in communication which occur in real-life situations and analysing how to avoid them/deal with them. (Female practitioner, age 25, UK)

The majority of respondents indicated a preference for a combination of communication formats, as one noted:

[You] need a combination of theory of how to deal with clients and practical to see how you perform. (Male practitioner, age 35, UK)

Discussion
In pursuing the study aims of investigating communication training gaps and challenges, motivations for further training and barriers to further training, the authors were able to identify a need for improvement in communication ability among practitioners at all levels of experience. This room for improvement has been referenced by others (Severidt 2010, Bachynsky and others 2013, McArthur and Fitzgerald 2013) and this is despite

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the increased emphasis on communication training in veterinary medicine. In this study, likely reasons for this result include the lack of formal training in senior practitioners, the relative inexperience in practice for more junior veterinary surgeons and individual ability in communicating.

The training gap for senior practitioners could be addressed in part by making CPD/CE more relevant to veterinary surgeons of all levels of experience.

The results of this study demonstrate how the perceived value of communication skills training, and participation in this training, could be improved by developing and promoting programme content that addresses 'real-world' communication challenges, such as cost discussions, dealing with distractions in the exam room and responding to difficult clients. The skills gap for junior practitioners could be addressed through a combination of increased emphasis on communication during veterinary school and increasing the appeal of, and support for, CPD/CE for younger practitioners. Each of these is covered in further detail in the discussion of Theme 3.

The authors' findings indicate that the lack of interest in further training (Theme 2) was due in part to lack of time and money. Since some practitioners would apparently welcome further communication training but feel their employers do not support it, we need to find ways to demonstrate and convince practice owners that time and money invested in building this crucial skill are well spent. One way to do this would be conducting studies to demonstrate the financial benefits of effective communication to a practice (eg, in client retention and improved compliance). Encouraging practices to include communication in client satisfaction surveys and promoting the benefits of effective communication to client relationships as well as to personal and job satisfaction for veterinary team members are additional ways to illuminate the value of communication training.

Bringing the training to the practice is an alternative to off-site courses that might facilitate the provision of communication skills for practice owners. After 12 months of one day per month training sessions onsite in one practice, client-centredness of consultations improved significantly for veterinary surgeons who went through the training (Shaw and others 2010).

Another barrier to participation in training was the feeling that experience was a better teacher. Though it is likely that the best communication training cannot prepare a practitioner for every communication experience she or he will encounter, it is also likely that learning by experience alone will not support the most complete development of communication competence (Kurtz 2006). An improved approach would be to combine experience with training during and after veterinary school that encompasses as many of the communication situations encountered in practice as possible (Hamood and others 2014); this also addresses another source of reluctance; a feeling that training does not adequately prepare one for the 'real world' of client communication.

Communication in veterinary practice is closely intertwined with clinical activities such as diagnostic procedures, physical examinations and treatments (Everitt and others 2013). Conversations also include topics that are unique to veterinary medicine with different topics (eg, euthanasia and cost) presenting particular challenges (Shaw and Lagoni 2007, Hamood and others 2014). Communicating with a dog or cat owner is also different from communicating with a horse owner or dairy farmer (Kleen and others 2011, Moreau 2012). Educators should ensure that training considers the various topics and audiences likely to be encountered by practitioners and the variety of challenges they represent.

The third theme identified was 'Implications for communication training'. The results of this study suggest that communication skills development be addressed in a comprehensive manner. This should begin with the selection of students for veterinary school and the prioritisation of communication throughout the undergraduate curriculum. It should continue with accessible and relevant CPD/CE offerings, so that every practitioner, regardless of personality, learning preference, level of experience or specific communication need, is equipped to communicate with clients through a career in practice (see Fig 2). This could also be achieved by incorporating communication skills content into traditional CPD/CE courses, for example, a course on heart failure, to make sure the veterinary surgeon is properly equipped to deliver important messages the owner needs to hear.

During the veterinary school recruitment process, interviews could include questions designed to gauge the communication ability of the applicant. Role-plays or other exploration of communication skills in the interview might be employed. This is
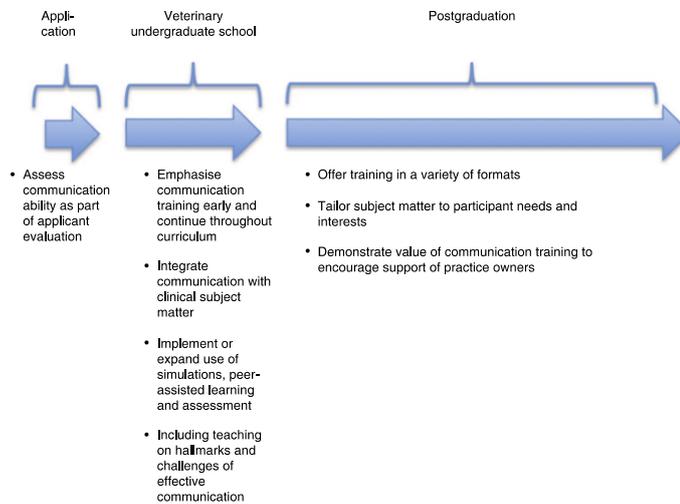

FIG 2: Communication training as a lifelong learning pursuit. CE, continuing education; CPD, continuing professional development

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already done in some veterinary and medical schools (Hecker and others 2009, Hudson and others 2009, Conlon and others 2012).

Once accepted into veterinary school, students should receive early reinforcement of the importance of communication skills (Chun and others 2009, Burns and others 2015). This emphasis should be maintained throughout the undergraduate curriculum, and this study suggests some specific ways in which this could be done.

Communication training should be interwoven with the teaching of clinical skills in the veterinary curriculum. This was done recently at Texas A&M University by combining physiological concepts, clinical application and communication with clients about the concepts in a physiology course assignment (Washburn and others 2016). Communication skills assessment might also be incorporated more completely with Objective Structured Clinical Examination stations (Bark and Shahar 2006, Davis and others 2006), including stations designed to test clinical skills. An online module about conducting a surgical procedure could include instruction on how to communicate with the client about the procedure and postsurgical follow-up (Mossop and others 2015). Implementing or expanding the use of simulated consultations (Radford and others 2003, Adams and Ladner 2004, Chun and others 2009), and peer-assisted learning including peer and/or instructor assessment, could also improve preparation for communication situations students will encounter in practice (Epstein 2007, Strand and others 2013).

The authors' findings and recommendations are consistent with and build on those of other researchers who have studied learning preferences and motivations and barriers to participating in CPD/CE (Moore and others 2000, Dale and others 2010, Neel and Grindem 2010). CPD/CE may be made more accessible in part by accommodating the learning styles and preferences of practitioners (eg, by offering training in varied formats or by incorporating it into other more traditional courses), and by addressing the most pertinent topics at each stage in a veterinary surgeon's career (Lloyd and Walsh 2002, Dale and others 2013).

Digital technologies have greatly expanded the number of ways in which to receive information. Broadening the range of training formats available to practitioners, including, in addition to live offsite and practice-based training, web-accessed training modules (de Almeida and Agnoletti 2015), online professional communities (Baillie and others 2011), digital games and simulators (de Bie and Lipman 2012), training apps (Frankel 2014) and recorded programming (eg, podcasts) (Sandars 2009), could also make communication CPD/CE more practical, affordable and relevant.

Limitations of the study

While this study helped further define what good communication can offer the practice of veterinary medicine and how it may be more completely incorporated into veterinary learning, there were some limitations. The lower response rate from US compared with UK practitioners makes drawing conclusions from this audience less reliable as a representation of the practitioner community in the USA. There are also limitations in using surveys for research of this nature. Survey data usually provide less detail than interviews, which are the most common data collection method for qualitative research (Braun and Clarke 2006, 2013). Unlike interviews, surveys do not permit the research to develop rapport and to ask follow-up questions, which can enhance the understanding of a topic and questions may be misunderstood or misinterpreted (Braun and Clarke 2006, 2013). Finally, though the authors used a collaborative coding method to increase rigour in interpreting the themes from the data, intercoder/inter-rater reliability calculation is being employed increasingly to ensure the reliability of qualitative analysis (Vaismoradi and others 2013).

In this study, most free-text comments were made by more senior practitioners. This might have skewed the overall results, particularly regarding the state of communication skills and

communication challenges faced by younger practitioners. Finally, in the words of some respondents, asking about the importance of communication in communication situations could be viewed as somewhat circular. It may be that asking the questions in other ways (eg, by asking practitioners what specific communication skills were most important when dealing with difficult topics rather than whether communication is important) could have better identified and illuminated some of the key issues and topics in the study.

Conclusions

Communication training is a valuable pursuit that should begin from the earliest days of veterinary school and continue through a lifetime in practice. While this is widely recognised, it has not been fully reflected by the emphasis on communication in undergraduate curricula or the willingness of practitioners to participate in postgraduate communication training. The authors' findings indicate that further work should be done to align communication training with individual needs and abilities, and to build on the communication training framework that has been developed in recent years. Making communication an integral part of all undergraduate and postgraduate training will help ensure that more practitioners have the opportunity to improve this essential clinical skill. Future studies should address equipping veterinary practitioners for the variety of communication situations and challenges they face. Ongoing dedication to this aspect of veterinary decision-making/practice however will yield significant and lasting benefits to the veterinary profession and the clients and patients it serves.

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