WHAT ARE THE LESSONS THAT HUMAN MEDICINE CAN LEARN FROM VETERINARY PRACTICE?

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy at Charles Sturt University by Veronica Madigan MRural Health (Monash), BHlthSc (PHC) CSU Charles Sturt University January, 2014
“There was speech in their dumbness, language in their very gesture.”
(William Shakespeare, *The Winter's Tale*.)
Certificate of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University, or any other educational institution, except where due acknowledgment is made in the thesis. Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during my candidature is fully acknowledged.

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“GRATITUDE UNLOCKS THE FULLNESS OF LIFE. IT TURNS WHAT WE HAVE INTO ENOUGH, AND MORE. IT TURNS DENIAL INTO ACCEPTANCE, CHAOS TO ORDER, CONFUSION TO CLARITY. IT CAN TURN A MEAL INTO A FEAST, A HOUSE INTO A HOME, A STRANGER INTO A FRIEND. GRATITUDE MAKES SENSE OF OUR PAST, BRINGS PEACE FOR TODAY, AND CREATES A VISION FOR TOMORROW”.

(MELODY BEATTIE, AMERICAN WRITER, 1948-).

Undertaking a PhD is akin to embarking on a long journey. The only certainty is when the journey will commence and the final destination. Everything in between is an adventure filled with many opportunities, challenges and learning experiences. I am grateful for the many people who have been kind enough to help me with my adventure - unfortunately too many to mention here.

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Abstract

Lessons that Human Medicine can learn from Veterinary Practice

Human medicine normally relies on patient communication to assist with a medical diagnosis and the instigation of appropriate clinical treatment. Medical practice is typically driven by verbal communication embedded in an interrogative model where patients are expected to answer key questions concerning their illness, injury or disease, as well as furnish relevant information about their medical history.

In contrast, veterinary practitioners can never rely on verbal communication with their animal patients, yet they have well developed skills to effectively understand, diagnose and treat their patients. Currently in human medicine, there are many reported cases where effective verbal communication between the health care practitioner and patient is not possible. Therefore, one could ask, what lessons can be learnt from 'the lived experience' of people who have developed expertise in the examination of animals that can benefit human medicine? This is the research question that the thesis addresses.

This qualitative study used hermeneutic phenomenology to explore, through interview, this research question. Fifteen national and international participants currently working in human health care were interviewed. Participants either had an earlier background as a veterinary practitioner (veterinarians, veterinary nurses, zoo keeper or farriers) and were now working in human medicine (doctors, paramedics or registered nurses), or were human medical professionals (doctors, nurses or medical lecturers) with an interest in veterinary medicine (no veterinary practitioner background).

The study found that the participants who were working in human health care who had a veterinary practitioner background, believed that they were more successful in assessing and treating human patients who could not communicate or communicate effectively. In contrast, the health care practitioners without a veterinary practitioner background, continually reported ‘difficulty’, ‘frustration’ and 'lack of success' when dealing with non-communicative patients.
Participants with veterinary experience articulated the non-verbal communication and observational skills they had learnt in veterinary medicine and how these skills could assist the human health care practitioner improve patient care with non-communicative patients. Two heuristics (aide-memoires) were developed to assist health care practitioners to continuously assess their patients (OBERVE) and to assist in the assessment of the patient in pain (PAINFUL).

In addition, the study suggests that non-verbal communication and observational skills, at the veterinary level, are important for the education of many health professionals and could be easily embedded into human medical curricula to facilitate improved patient care.
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Journal Article


Conferences & Presentations

- Madigan, V. M. (2012) ‘How vets can assist paramedics in improving patient care’ - Non-verbal communication, the forgotten language of medicine, presentation to the Bachelor of Clinical Practice (Paramedic) & Bachelor of Nursing / Bachelor of Clinical Practice (Paramedic) students, Faculty of Science, School of Biomedical Science, Charles Sturt University, 28th September, 2012, Bathurst.


- Madigan, V. (2009). ‘Non-verbal communication – Louder than words. Linking the lessons learnt from veterinary medicine to clinical practice’. Australian College of Ambulance Professionals (Western Australian Branch), Professional Development Conference – Key Note Speaker, 22 June- 26th 2009, Perth, Western Australia.

- Madigan, V. (2009). ‘Practice with confidence; Lessons from veterinary medicine that every health care practitioner can utilise daily’. Australian College of Ambulance Professionals (Western Australian Branch), Regional Professional Development Conference. ‘A series of mass lectures and workshops for health care practitioners’, June 22nd – 26th, 2009, Perth, Western Australia.


- Madigan, V. (2006). ‘What are the lessons to be learnt from veterinary medicine that can assist human medicine?’ Post Graduate Health Research Conference, Charles Sturt University, November, 2006, Wagga, Wagga.
Posters

- Madigan, V. M. (2011). *What are the lessons that human medicine can learn from veterinary medicine?* Poster for the Post Graduate Research Conference, Faculty of Science, Charles Sturt University, 18th-19th October, 2011, Canberra (see Appendix G).

- Madigan, V. M. (2007). *Attention all paramedics! If a picture is worth a thousand words, then what is this patient trying to tell you?* Poster for the Post Graduate Research Conference, Faculty of Science, Charles Sturt University, 15-16th October, 2007, Wagga, Wagga (see Appendix F).
“The road of life twists and turns and no two directions are ever the same. Yet our lessons come from the journey, not the destination”.

Don Williams - American Novelist & Poet, 1968
1.0 Overview - How My Research Journey Began

As a Paramedic, I remember attending an elderly gentleman who was having difficulty breathing. When my paramedic partner and I entered the bedroom I could hear a foreign language being spoken to the gentleman. The patient was having trouble speaking in his native tongue because of his breathlessness. Looking at the patient’s chest, I could see the use of accessory muscles and the tripod posture indicating that he was struggling to breathe. From his pale, frail appearance I could tell that he had been unwell for some time. From the state of the bedroom, it also appeared that he had been bedridden for a long time. A home oxygen machine was also evident in the corner of the bedroom with an oxygen contents gauge showing empty. “Perhaps this is why we were called?” I thought.

I could see that my immediate task was the administration of oxygen to this patient and to obtain a set of vital signs. Surprisingly, my junior partner started asking this non-English speaking patient a series of questions about his medical history and current medications. He then became frustrated because the patient could not understand his questions nor provide him with the necessary answers, and neither could any of the bystanders.

After the patient had received the appropriate treatment and was transported to hospital, my partner and I debriefed the completed job. Listening to my partner recount the case, I realised that he was frustrated because he could not communicate with the patient and ascertain the essential medical history. He had missed, what were to me, the obvious non-verbal clues that this patient was displaying; physically unwell and bedridden for some time, some form of chronic airway limitations disease, the need for supplementary oxygen and clinically deteriorating because of the use of accessory muscles. My background as a veterinary nurse assisted me with the identification of these non-verbal clues and with providing optimum care to a non-communicative patient. This was because many of the assessments that were undertaken on animal patients occurred without the owner being present, so more often than not, there was no verbal medical history or answers to verbal questions. The main focus was on observing and clinically examining the animal patient from 'head to tail' to ascertain the reason behind their admission. As a result of my veterinary nurse experience, I began to wonder how these veterinary skills could assist other health care practitioners improve patient care, particularly in patients who could not communicate effectively.
For me, there were clearly practical applications that could emerge from such a study and this was the main purpose of the project. However, in addition I believed that there could be insights into what it means to be a health professional in today's world trying to understand patients and the role of a health professional. In the words of Todres (2008, p.1571) the study was also conducted because it was hoped that:

- “It would tell us something that connects with universal human qualities so that the reader can relate personally to the themes.
- It would tell a story which readers could imagine in a personal way.
- It would not attempt to exhaust the topic, but would attempt to allow it to be seen more clearly: like shining a light, which increases the reader's sense of contact with this phenomenon, without fully possessing it” (Todres, 2008, p.1571).

1.1 Statement of the Research Topic and Significance

This study explored the potential benefits that human medicine might derive from veterinary medicine. The particular focus was on non-verbal communication and patient assessment. Whilst human medicine is heavily dependent on patient verbal history taking, veterinary medicine lacks this verbal element. Despite the lack of verbal communication with their animal patients, veterinary practitioners must still develop the ability to have an effective understanding of their patients’ needs and requirements.

The current study was important for several reasons. Firstly, medical practice is typically driven by verbal communication embedded in an interrogatory model. Patients are expected to answer key questions concerning their illness, injury or disease as well as furnish relevant information about their medical history (Jahn, 2001; Lieberman, 2001; McMahon, 1999). This verbal information is then used to inform a preliminary diagnosis and provisional treatment.

The problem arising from the interrogatory model of human medicine is that it assumes that there will be effective communication with each health care practitioner - patient interaction. However, there are an increasing number of medical cases where effective verbal communication between patient and health care practitioner is not possible. Common examples include; patients and health professionals who do not speak a common language, paediatric patients, the mentally ill and stroke patients.
As a result of this lack of communication, health care practitioners can have difficulty deciding what the patient's problem is and the appropriate intervention or treatment.

Secondly, veterinary practitioners effectively deal with the lack of medical histories and patient non-verbal communication as part of their routine medical practice. To compensate for the lack of verbal communication with their animal patients, it seems that veterinary practitioners have highly developed skills in awareness and assessment that facilitate an effective diagnosis and understanding of an animal's needs and medical conditions (Trout, 2008; Ellwood et al., 2001; Brown, 2009; Gill, 2001).

The project is significant because it explores the possibility of veterinary medicine assisting human medicine in improving patient care. To date, the project has been unable to identify any published studies that address the communication and clinical assessment problems faced by human medicine, with patients who have communication difficulties, utilising a veterinary model of examination and treatment.

The study goal was therefore twofold. Firstly, to better understand how veterinary practitioners deal with the lack of verbal communication with their patients. Secondly, to better understand the non-verbal assessment methods used by veterinary staff that permit effective patient examination of their non-verbal patients.

In trying to understand how veterinary practitioners effectively manage communication and clinical assessment issues with their animal patients, this study hopes to explore the potential use of these veterinary skills and techniques in human medicine.

1.2 Research Question and Areas of Research Enquiry

The goal of this study was to identify lessons that human medicine can learn from veterinary medicine regarding non-verbal communication skills and patient assessment practices.

The primary research question for this study was:

What are the lessons that human medicine can learn from veterinary practice?
The two areas of research enquiry were:

1. To explore the communication challenges faced by veterinary practitioners with regard to non-verbal patient assessment and their potential use in human medicine.

2. To explore the clinical examination regimen undertaken by veterinary practitioners (observational skills, clinical signs, assessment findings etc.) and their potential use in human medicine.

1.3 Context and Boundaries of this Study

This study is situated in the context of clinical reasoning. Clinical reasoning broadly refers to the thinking and decision making processes associated with the health care practitioner’s examination and management of a patient (Jones, 1992; Higgs et al., 2008). Clinical reasoning is a process in which health care practitioners interacting with patients, caregivers, health care team members and the like, provide meaning to the medical encounter in order to identify goals and health management strategies. The identified goals and strategies are based on clinical data, patient choice and professional judgement and knowledge (Higgs & Jones, 2000).

Effective communication is therefore an important element of clinical reasoning. Patients have the right to be fully informed about every aspect of their assessment and treatment. This can only occur if there is honest, open and effective communication with their health care practitioner.

Effective communication is also necessary to facilitate collaboration between the patient and the health care practitioner with regard to appropriate goal setting and treatment compliance. However, it is not uncommon, as previously stated, for health care practitioners to report communication problems with their patients as a result of illness, injury, impairment (drugs, medical conditions), and language or age barriers.

The range of scholarship in clinical reasoning is wide. This study is not situated within formal evidence based medicine, medical decision making or cognitive theory. The theoretical framework of clinical reasoning for this study comes from the more interpretive traditions. These include narrative medicine which looks at patients as if they were complex and multilayered texts to be interpreted. Narrative medicine has therefore been selected because it allows for the construction of inner meaning, self-reflection and promotes understanding between the health care practitioner and the patient.
In Greenhalgh’s (1999) work on narrative medicine she describes how the doctor - patient encounter occurs in a highly structured order. The doctor is seeking the ‘text’ to understand the story of the ill patient. This ‘text’ story is integrated from four secondary texts as:

1. **The experiential text** – the meaning that the patient assigns to their problems and what has brought the patient to see the health care practitioner;

2. **The narrative text** – the patient’s traditional medical history as interpreted by the health care practitioner;

3. **The physical text** – what the health care practitioner learns from the physical examination of the patient;

4. **The instrumental text** – the results from special tests like x-rays and blood tests.

In my opinion, what is missing from the author’s text list is the *non-verbal text* – the observational information that the health care practitioner can gain from the patient by systematically looking at their non-verbal signs, clues and body language throughout the entire patient encounter. This observational process can commence whilst the patient is in the waiting room and continue throughout the initial consultation, examination and discussion phase and conclude when the patient leaves the facility.

**Non-verbal text** is an important addition to narrative medicine as described by Greenhalgh (1999) because there are inherent assumptions that verbal communication will be effective in this health care practitioner - patient encounter and this is not always the case. If communication is effective, the non-verbal text can be used to validate the findings throughout the entire patient consultation and physical examination process.

Non-verbal text is therefore quite distinct and different to the physical text. The physical text is the information that the doctor finds on the formal patient physical examination only. A range of different skills are utilised during the process of interpreting the non-verbal text as well as different forms of knowledge such as; propositional knowledge (knowing what), procedural knowledge (knowing how) and practical knowledge or reason (knowing why based on practical experience) (Griffiths & Mooney, 2012). Practical reason implies that given specific findings in the physical examination, the health care practitioner can deduce what is most likely wrong with the patient.
In contrast, non-verbal text is not confined to the physical examination phase. Non-verbal text takes into account the entire patient encounter (waiting room / consultation / examination / discussion / conclusion phases) and uses non-verbal signs, clues and body language to systematically inform the health care practitioner throughout the patient interaction.

**Delimitations**

This study did not investigate the lessons that human medicine could learn from veterinary medicine by utilising laboratory based experiments or mass surveys. These forms of research could have investigated the transference of information from veterinary medicine to human medicine. However, there is an assumption here that we already know exactly what needs to be transferred from veterinary practice to human medicine. This is not the case. Before we can discuss information transference, we need to have a better understanding of the similarities and differences between veterinary and human medicine. This qualitative study is focussed on coming to a deeper understanding of both veterinary and human medicine in order to build a foundation, so that information transference can then occur. In this study I assume that this foundation needs to be articulated through the participants’ lived experience.

Other forms of research that could have been selected included using cognitivism or medical decision theory. Cognitivism might have identified several ways that veterinarians' process information; how they perceive, think, remember and even problem solve. A limitation of cognitivism is that it assumes clinical reasoning is a form of information processing similar to computer processing and this is a very restricted view of reasoning. Alternatively, the theory of medical decision making may well have explored the theoretical basis for decision analysis. A limitation of medical decision theory making is that it assumes that people should calculate decisions using probability mathematics. While decision theory might be appropriate for working out the best decisions for populations of patients, it is limited when it comes to individual clinical encounters. Even though these types of research lenses are very informative, the aim of this study was to explore how the participants understood both veterinary and human medical practice.
1.4 Key Dimensions of the Theoretical Framework

In this study the main concern was to articulate the lessons that human medicine could learn from veterinary medicine in non-verbal communication and, to some extent, how veterinary experience can influence what it means to be a health professional. It therefore seemed appropriate to have a philosophical basis that embraced the nature of knowledge (epistemology) and the nature of what it means to be a health professional (ontology) (Crotty, 1998).

The study was seen as belonging within the interpretive paradigm of understanding human experiences. The philosophical position selected to underpin the theoretical perspective was the qualitative methodology known as hermeneutic phenomenology (see Appendix A: Qualitative Research Paradigm).

Hermeneutic phenomenology is the study of human experience. It is a form of qualitative research that describes people’s world views by seeking out their experiences and documenting these experiences by describing as richly as possible the participants’ thoughts, feelings, understanding or interpretations (Andrews et al, 2004). Using hermeneutic phenomenology in this study allowed me to understand what it was like to walk in the research participants’ shoes and to see the world through their eyes (Andrews et al., 2004). This phenomenological approach helped examine what was real and valid for the participants, which was largely born out of their experience in the world and life history. Narrative Inquiry also had a thematic role to play in the theoretical framework of this study. Narrative inquiry is the qualitative research process of gathering information from participants through the art of storytelling.

“Humans are storytelling organisms who, individually and collectively, lead storied lives. Thus the study of narrative is the study of the ways humans experience the world”. (Connolly & Clandinin, 1990, p. 2)

Narrative medicine is linked to hermeneutic phenomenology in two ways. Firstly, we wanted the participants to tell stories of their experiences and how they interpret this information. Secondly, we wanted to use the findings of this study to assist health practitioners assess patients better and so tell better clinical stories about their patients.
Since phenomenology has its disciplinary roots in philosophy, the three main contributing philosophers of phenomenology, which were relevant to this study, will be discussed; Edmund Husserl (phenomenology), Martin Heidegger (hermeneutic phenomenology) and Hans-Georg Gadamer (philosophical hermeneutic phenomenology).

Edmund Husserl was important to the theoretical perspective of this study because his journey into phenomenology led him to try and understand human consciousness by interviewing people about their life experiences (Crotty, 1998; Denscombe, 2003). Husserl's phenomenology has been described as research in the real world, that is “original, pre-reflective [the shaping of an experience] and having a pre-theoretical [speculative or a standpoint between true understanding] attitude for all to embrace” (Van Manen, 2007, p.7).

Martin Heidegger appreciated the epistemological stance that Husserl held on phenomenology. However, Heidegger held the view that the rich, lived experience of participants should be comprehensively explored particularly their sense of being (ontology), which was immersed in their background, culture, history and self (Bryne, 2001a; Cohen, 1987).

Heidegger extended the meaning of phenomenology and embedded hermeneutics (the study of interpretation and meaning) into phenomenology. By doing so, Heidegger brought to the study the principle that the researcher can share common practices and meanings with the participants, thereby assisting with authentic reflections and assumptions. In this study, I shared my common background of veterinary and human medicine with each of the research participants. They, in turn, shared their personal narratives, history and culture about their lived experiences of human and veterinary medicine with me.

The German philosopher Hans-Georg Gadamer, a phenomenologist himself, wanted to further explore the philosophical underpinnings of phenomenology and to appreciate the nature of human understanding. Gadamer’s work led him to acknowledge that people are deeply influenced by their history and culture and this shapes their being and their experience of life (Moran, 2000). Gadamer elaborated on this concept, making hermeneutics central to the practice of philosophy (philosophical hermeneutics). The hermeneutic, phenomenological influences of both Heidegger and Gadamer have provided a theoretical basis to explore the participants’ lived experiences and articulate their meaning.
In Gadamerian terms, this could be expressed as bringing these experiences into language. In this case, the particular experiences that need to be brought into language are those that enable health professionals to ‘read’ and use non-verbal communication. These experiences have not been articulated before.

1.5 Overview of the Research Approach

Using a qualitative, hermeneutic, phenomenological approach, the study examined whether human health care participants with veterinary experience, or an interest in veterinary medicine, utilised veterinary, non-verbal communication and patient assessment skills in their current role in human medicine. Once identified, participants were asked to describe how they utilised these veterinary skills in human medicine and to evaluate patient outcome.

The research sought to identify any veterinary methods that could assist the human health care practitioner to improve patient care, particularly when dealing with patients with communication problems.

In addition, the study wanted to further explore if these veterinary methods once identified, could be easily learnt in human medicine, readily embedded into the human medical curricula and were directly transferable to the human medical environment.

Definition: Throughout the thesis I will refer to those practitioners who have had experience dealing with the health and well-being or treatment of animals, particularly domestic animals or pets, as having veterinary experience. This should not be taken to mean that all of these participants are trained veterinary surgeons or veterinary nurses, although several participants would meet this definition.

1.6 Structure of the Thesis

Chapter 2 and 3 presents a review of both the human medicine and veterinary medicine literature in the two thematic areas of communication (chapter 2) and clinical examination (chapter 3). The review of the literature found a plethora of information on theories of communication, emotional intelligence, critical thinking abilities, reflection and reflective practice. Some key themes relevant to clinical examination included; intuition, tacit knowledge, empathy, evidence based practice, practice based evidence, professional practice and clinical judgement making.
However, there were no studies found in the literature review that directly linked veterinary practice or models of animal medicine with pre-hospital or hospital treatment of patients. As the chapters progressed, new topics emerged that informed the research question and the two sub-areas of research enquiry (communication and assessment).

**Chapter 4 Methodology:** discusses the hermeneutic, philosophical framework underpinning this qualitative research, and provides a detailed description and discussion of the semi-structured interview method adopted.

**Chapter 5 Introduction to Analysis / Findings:** introduces the key findings for the study: the existence and importance of *Observational Text* (Non-Verbal Information) as a logical extension of Greenhalgh's Narrative Based Medicine (1999). The chapter further provides an overview of the four higher order themes that emerged from a comprehensive thematic analysis of the participants' information.

**Chapter 6 & Chapter 7 Analysis / Findings Chapters - Part 1 & Part 2:** comprehensively discusses the key findings and higher order themes of the study arising from the interviews of fifteen international and national participants and their ‘lived experience’. Chapter 6 discusses the research enquiry area of communication, while chapter 7 discusses the research enquiry area of assessment.

**Chapter 8 Discussion Chapter:** discusses the lessons that human medicine can learn from veterinary practice and suggests recommendations and implications for clinical practice (see Figure 1: Thesis Chapter Overview).
Chapter 1: Introduction
- Human medicine is based upon an interrogative style of communication.
- Evidence suggests increased difficulty with patient care when patients are unable to communicate or communicate effectively.
- Veterinary medicine relies primarily on an observational model of medicine - perhaps this model could assist human medicine?
- Research project details.

Chapters 2 & 3: Literature Review
- No specific literature found on research area of interest.
- Two strong, independent topics emerged from a review of the national and international literature on animal and human medicine.
  (1) Non-Verbal Communication and
  (2) Clinical Assessment & Clinical Examination Regimen

Research Enquiry 1 (Chapter 2)
To explore the communication challenges faced by veterinary practitioners with regard to non-verbal patient assessment and its potential use in human medicine.

Research Enquiry 2 (Chapter 3)
To explore the clinical examination regimen undertaken by veterinary practitioners (observational skills, clinical signs, assessment findings etc.) and their potential use in human medicine.

Chapter 4: Methodology & Research Design
- An epistemological (theory of knowledge) and an ontological (theory of being) standpoint was utilised.
- Hermeneutic Phenomenology was chosen as the theoretical perspective because of the participants’ interpretation of their lived experience.
- Influential philosophies: Husserl (Phenomenology), Heidegger (Hermeneutic Phenomenology) & Gadamer (Philosophical Hermeneutics) were discussed.
- 15 semi-structured national & international interviews were undertaken.
- Participants had either an earlier background as a veterinary practitioner and were now working in human medicine, or were human medicine professionals with an interest in veterinary medicine.

Chapter 7: Discussion
- Participants with a veterinary practitioner background working in human health believed that they were more confident in assessing and treating human patients who could not communicate or communicate effectively.
- Participants with a non-veterinary background working in human health continually reported "difficulty", "frustration" and "lack of success" when dealing with patients with communication problems.
- The study identified several methods from veterinary medicine that could assist human health care practitioners improve patient care, particularly with patients who were unable to communicate or communicate effectively.
- The study suggests that non-verbal communication & observational skills at the veterinary level, are important for the education of many health professionals, and could be easily embedded into the human medical curricula to facilitate improved patient care.
- Three recommendations were made to address the perceived lack of understanding regarding the importance of education & training for health students / professionals in non-verbal communication.

What are the Lessons that Human Medicine can Learn from Veterinary Practice?

Figure 1: Thesis Chapter Overview
“This thesis is dedicated to health care practitioners who have good eye sight but who cannot see!”

(Adapted from Pease & Pease, 2006)
2.0 Introduction

Human medicine relies on patient communication to assist with a medical diagnosis and the instigation of appropriate clinical treatment protocols (Jahn, 2001; 1993; Kennedy, 2001; Lieberman, 2001; McMahon, 1999). Patients are normally asked a series of health related questions to ascertain their medical history, current health status and presenting clinical symptoms. Waitzkin (1991) argues that soliciting the chief complaint in the taking of a medical history is the most important skill in medicine (see also Holmes, 2007). Groopman (2007, p.x.) agrees with Waitzkin, further emphasising that “language is the bedrock of clinical practice”.

However, one can ask what happens if there is no effective verbal communication? What happens if the patient is a child, non-English speaking, autistic, deaf, mentally ill, semi-conscious, a severe asthmatic, frightened or even just stressed? In my experience health practitioners can often appear uncertain, even frustrated about the most appropriate medical steps to take with this type of patient, both in the pre-hospital and the hospital environment.

One might also ask at this point if all health professions struggle with problems dealing with effective communication with their patients. It is therefore instructive to compare and contrast human medicine with the practice of veterinary medicine. Veterinarians deal with the lack of medical histories and client non-verbal communication everyday (Trout, 2008; Trout, 2011; Brown, 2009; Gill, 2001; McCormack, 2006). Veterinary practice further provides a challenging environment for staff to clinically assess the health status of their clients. The difference is that animal clients are unable to communicate verbally with their health care providers. Animals are often dropped off at veterinary practices without appropriate medical histories, are accompanied by a neighbour or friend of the owner who is unaware of the animal’s complaints, found as a stray on the streets or local highways without identification, or presented by owners who are ill informed about their animal’s well-being. To compensate for the lack of verbal communication with their animal clients, veterinary staff have highly developed skills, awareness and assessment capabilities that facilitate an effective diagnosis and understanding of the animal’s needs and medical condition (Trout, 2008; Trout, 2011; Ellwood et al., 2001; Brown, 2009; Gill, 2001; Dhein, 2013; Burns et al., 2006; Rondeau & Hanie, 2014; Ettinger, 2010a; Ettinger, 2010b).
Veterinary practitioners have refined their ability to effectively read physical and non-verbal signs, clues and body language. This ability has also involved the development of clinical intuition which is applied before, during and after the clinical assessment interventions (Trout, 2008; Trout, 2011; Brown, 2009; McCormack, 2006; Brookes, 2009). Kahneman (2011, p.237) defines intuition as “nothing more and nothing less than recognition”. Kahneman (2011) argues that human health care professionals need to develop the ability to make clinical judgements with the use of intuition to assist their daily practice.

These intuitive skills can be perceived as being related to various factors with the main elements being empathy with the animal, real and embedded commitment to animal well-being; experience over time, embedded and developed observation and communication skills, aspects of reflection and reflective practice and deep critical thinking or critical analysis skills (Antelyes, 1988; Antelyes, 1991; Candlin, 2008; Trout, 2008; Trout, 2011). These factors are explored further in this chapter and the following chapter.

The existence of a learning relationship between veterinary medicine and human medicine has also been described by Ranta as early as 1945.

“…we meet one another not only at the crossroads of our respective professions, but also on the highways and byways of scientific endeavour”. (Ranta, 1945, p.325)

In the light of veterinary practice and patient assessment, a comprehensive review of the literature was conducted to ascertain if there were any studies that directly explored how human medicine could benefit from veterinary practice, or models of animal medicine, with regard to pre-hospital or hospital practice.

Data bases searched included ‘Proquest 5000 (1996-2013); ‘ABI’ (1993-2013), ‘PAR’ (1982-2013), ‘ERIC’ (1965-2013), ‘PsycINFO’ (1976-2013), ‘Medline’ (1996-2013); ‘Vet Science Direct’ (2000-2013), ‘Web of Science’ (2000-2013), ‘EbscoHost’ (2000-2013), ‘SciQuest’ (2000-2013), Animal, Vet & Agriculture Science databases (1980-2013), ‘PubMed’ (1980-2013) and ‘Informit Datasets’ (1997-2013). The date range for the database search was extensive in order to show both a command of the available data and provide evidence to demonstrate that there was a paucity of available literature on the selected topic area. See Figure 2: Search Strategy for Key Concepts and Relevant Terminology, below. It is important to note that the formal database searches were not the only strategy employed to find relevant literature.
I was aware of many papers and books on the relevant topics (e.g. clinical reasoning). I therefore used the references contained in this material to widen the search for relevant literature.
Figure 2: Search Strategy for Key Concepts and Relevant Terminology
Having said that, there were no studies found in the literature review that directly linked veterinary practice, or models of animal medicine, with pre-hospital or hospital treatment of patients. However, there were two strong, independent topics or themes that appeared several times in the review of the literature. These two themes related to verbal / non-verbal communication and the clinical assessment / clinical examination of the animal patient, citing potential benefits to human medicine. The thematic areas of communication and clinical examination will now be explored.

**Communication:** The review of the literature found a plethora of information on theories of communication; how humans communicate, emotional intelligence, critical thinking abilities, reflection and reflective practices (Beebe et al., 2011; Candlin, 2008; Higgs et al., 2008; Galvin & Wilkinson, 2006, McCabe & Timmins, 2006 and Schön, 1991). Both human medicine and veterinary medicine cited many sources on non-verbal communication, clues, body language, patient appearance, demeanour and so on (Beebe et al., 2008; Beebe et al., 2011; Silverman et al., 2007; Groopman, 2007; Platt & Gordon, 2004 and Novak, 2004). However, the two medical streams were researched independently, with no apparent cross fertilisation of research between human and veterinary medicine (Sechzer, 1998; Keefe et al., 1991; Rushen, 1986; Kawanmata & Melby, 1985; Ainslie & Ledbetter, 1980 & Davis, 1973).

**Clinical Examination:** Some of the key themes found under the clinical examination umbrella of both human and veterinary medicine included; intuition, ‘gut feeling’, tacit knowledge, empathy (Benner & Tanner, 1987; Benner et al., 2009; Rew, 1986; Rew & Barrow, 2007; Beck, 1998; Greenhalgh, 2002), evidence based practice (Sackett et al., 2000; Benner & Tanner, 1987), primary and secondary assessment practices and clinical judgement making (Trout, 2008; Brown, 2009; Gill, 2001; Godfrey, 2006; Bledsoe et al., 2009). However, not one author appeared to have any great sense of an overlap between the two fields of human and veterinary medicine.

As a result of these two thematic areas, four sub-groups emerged from the literature review that required further investigation. The four sub-groups included:
1. What is communication? Theories of communication and recommendations for effective health care practitioner / patient communication;

2. Non-verbal communication and medicine, identifying the common barriers to effective non-verbal / verbal communication and the benefits to human medicine;

3. Communication challenges associated with clinical examination and clinical assessment in medicine. How non-verbal tools like body language, pain indicators and physiological behavioural measures can assist in patient care;

4. One health, one medicine approach to both veterinary and human medicine. The gaining of professional expertise; experience, intuition and clinical decision making skills. Is it evidence based practice or practice based medicine?

In order to effectively manage the data emerging from these four sub-groups, the literature review chapter has been divided into two chapters. Chapter 2 will discuss the 'communication' findings in sub-group 1 and 2 (what is communication & non-verbal communication and medicine). Chapter 3 will discuss the 'clinical assessment' findings in sub-group 3 and 4 (communications challenges associated with clinical assessment and the one health, one medicine approach to both human and veterinary medicine).

The literature review process and the two thematic areas of communication and clinical assessment / examination have been depicted in Figure 3 – The Literature Review Process and Research Questions / Areas of Enquiry.

In order to assist with the overall understanding of the findings of the review of the literature, this figure has been extended to show the development of the specific research question and the two areas of research enquiry that arose from this research process. In order to assist with the overall understanding of the findings of the review of the literature, this Figure has been extended to show the development of the specific research question and the two areas of research enquiry that arose from this research process.
Figure 3: The Literature Review Process and Research Questions / Areas of Enquiry

Review of the literature & linkages with veterinary practice or models of animal medicine, with the health or medical treatment of human patients

No direct literature located (Gap in the literature)

Two strong independent topics emerged with linkages between animal & human medicine

1. Verbal / Non-Verbal communication & potential benefits to human medicine
   - What is communication?
   - Theories of Communication
   - Recommendations for effective health care practitioner - patient communication

2. Clinical assessment / clinical examination & potential benefits to human medicine
   - Communication challenges associated with clinical examination / assessment
   - How non-verbal tools like body language, pain indicators & physiological behaviour measures can assist in patient care

3. One health or one medicine approach (veterinary medicine & human medicine)
   - The gaining of professional expertise, experience, intuition & clinical decision making skills
   - Is it evidence based practice or practice based medicine?
Specific Research Question

WHAT ARE THE LESSONS THAT HUMAN MEDICINE CAN LEARN FROM VETERINARY PRACTICE?

Two Areas of Research Enquiry

- To explore the communication challenges faced by veterinary practitioners with regard to non-verbal patient assessment and its potential use in human medicine
- To explore the clinical examination regimen undertaken by veterinary practitioners (observational skills, clinical signs assessment findings etc.) and their potential use in human medicine

Chapter 2 - Literature Review – Part 1
2.1 What Is Communication?

As the process of communication is very complex and integral to the understanding of this study, this literature review commences with a comprehensive review of the key term communication in relation to the health care environment. The majority of work found on communication adopted a techno-rational or instrumental approach for the efficient and effective transmission of information. In contrast, several authors discuss what they believe to be the real significance of communication, which is the meaningful and interactive relationship between the health care practitioner and the patient. However, there are several potential barriers to a meaningful health care relationship which are also identified and addressed.

Communication: There are multiple, complex and highly technical definitions of the term communication (Galvin & Wilkinson, 2006). Broadly speaking, communication can be seen as “the symbolic process of sharing meanings” (Galvin & Wilkinson, 2006, p.5). Ajaw & Rees (2008) further define this concept by stating that communication in the health care environment is a two way process with the sole aim of information sharing between the health care practitioner and the patient. The information sharing can be made through speech, writing and / or by non-verbal means (Ajaw & Rees, 2008). However, Svenaeus (2010) defines communication as more than the organisation of information or knowledge sharing between these two parties. Svenaeus believes that effective communication should be understood as an “interpretative meeting between the health care practitioner and the patient, with the aim of healing the ill patient seeking help” (2010, p.2). This emphasis on shared interpretation is an important difference going beyond mere information sharing where it is assumed that the information and its understanding are all unproblematic. From the interpretive position of Svenaeus, it is clear that communication is complex.
2.2 Theories of Communication

There are several models of communication as described by McCabe & Timmins (2006). These models include; the Linear Model; the Circular Transactional Model; the Skill Model of Interpersonal Communication and the Comforting Interaction Relationship Model. Beebe et al., (2008) describe a further communication model called the 'Transactional Approach to Communication'. It is clear from the literature that some models of communication are simplistic in nature whilst others are complex, inflexible and not suited to the health care professions (Rosengren, 2006). The criticism for many of these common models of communication are that they are inadequate because they assume that communication is the simplistic, mechanical and instrumental transmission and reception of information between parties. The Linear Model of Communication is problematic because information is generated in one direction only. The Mutual Transaction Approach to Communication is more refined because the model has incorporated a bi-directional process. However, there appears to be little regard for the role of interpretation between parties and the concept of relationship building. In the review of the literature, there was limited information found on models of communication specifically focusing on the importance of relationship building between the health care practitioner and the patient.

**Simple Communication:** 'The Linear Model of Communication' (Miller & Nicholson, 1976) is an example of simple communication (see Figure 4 below). In this model, information is transmitted from the sender to the receiver in one direction only. The sender does not know if the message has been successful until feedback has been given from the receiver.

![Figure 4: The Linear Model of Communication (Source: Miller & Nicholson 1976, p.22)](image-url)

In the 'Linear Model of Communication', the sender is responsible for the accuracy of the content and the tone of the message. It is a one sided approach to communication as it assumes that the sender is clear about the message, its content and the intended receiver (McCabe & Timmins, 2006; Miller & Nicolson, 1976).
Ajjawi & Rees (2008) believe that the Linear Model is best suited to written communication and is generally inadequate for face to face communication.

In the health and social science professions, health care practitioners like nurses, doctors, physiotherapists and emergency care workers are involved in face to face communication on a daily basis (Ajjawi & Rees, 2008). The most realistic model for interpersonal communication for health care practitioners according to Beebe et al., (2008), is the 'Mutual Transaction Approach to Communication', see Figure 5 below.

![Figure 5: A Model of the Mutual Transaction Approach to Communication. (Source: Beebe et al., 2008, p.11)](image)

Even though this model is based on the linear concept, it is not a one directional process. Both the sender and the receiver are included in the model as source / receiver. This is because both the source and the receiver of the message experience communication concurrently. It is a two way feedback system, where both parties are interpreting verbal and non-verbal information given and received (Beebe et al., 2008).

As the name suggests, a mutual transaction of information is occurring. This model portrays communication as a very dynamic and evolving process (Ajjawi & Rees, 2008). The noise triangles represent anything that interferes with the message being clearly understood. This can occur at the source / receiver end, in the delivery of the message, or in the feedback stage (Ajjawi & Rees, 2008). However, the model does seem to imply that the main focus of communication should be in the efficient transmission of information between the parties. There is little exploration of the role of interpretation. This would suggest that the health care practitioner - patient relationship is not given the importance it deserves.
2.3 Understanding Communication in the Health Care Environment

Although the 'Mutual Transactional Approach to Communication Model' is recognised in the literature as an effective model / method for health care practitioners to communicate with their patients, the continued emphasis on information processing is a concern. The underlying assumption or metaphor is that health care practitioners are like computers, processing data individually and then sending this information back and forth to other human computers. These types of communication models portray a de-humanising instrumental assumption. Svenæus (2010), would argue what is missing from these models is the emphasis on joint negotiation of meaning between human beings, rather than information transmission.

For any health care communication model to be successful, it needs to acknowledge, prioritise and give meaning to the patient - health care practitioner encounter, effectively highlighting interpersonal negotiation of meaning. In order for effective interpersonal communication to occur, the socio-cultural, temporal, situational and historical contexts of the communication have to be taken into consideration (Ajjawi & Rees, 2008). The meaning of the information needs to be negotiated between the two parties and that is why continuous feedback is so important. Feelings, points of view and respective ideas all need to be taken into consideration to elicit the meaning of what is happening. As both the patient and the health care practitioner influence the way the message is constructed, transmitted and interpreted, both parties need to be committed to the process for effective communication to occur (Ajjawi & Rees, 2008). Beebe et al., (2008, p.12) suggests that the meaning of an interpersonal communication message will “evolve from the past, is influenced by the present, and is affected by visions of the future”. Gadamer (2004) also believed in an interpretative approach between the health care practitioner and patient in clinical practice, rather than a communication method or model as we have seen earlier. Gadamer (2004) aimed at facilitating understanding between the health care practitioner and the patient, thereby identifying and satisfying the needs of the patient. Following on from this, we can take a closer look at how the advantages of good communication between health care practitioners and patients can be achieved.
2.4 Recommendations for Effective Health Care Practitioner – Patient Communication

Platt & Gordon (2004) believe that good communication between the health care provider and patient has several advantages. Firstly, both the health care provider and patient will feel 'mutually satisfied' with the medical encounter. Secondly, improved communication will lead to more efficiency in the health care consultation in terms of time and money spent, including the clinical outcome and the treatment plan (if any). Good communication will therefore decrease the amount of misunderstanding, stress, non-compliance or ambivalence that the patient or health care provider may feel. Finally, good communication helps avoid disappointment or conflict by either party and diminishes the risk of complaints or malpractice suits (Platt & Gordon, 2004; see also Silverman et al., 2007; Larsen & Smith, 1981; Roter & Frankel, 1992).

Silverman et al., (2007) have described five (5) characteristics of effective communication between the health care provider and the patient. These characteristics of effective communication are:

1. **To ensure that there is an interaction between both parties and not just a direct transmission process.**

   Silverman et al., (2007) believe that just listening or just imparting information to the receiver or sender is not sufficient. Both parties must take ownership of the communication process and ensure that joint discussion is occurring and feedback is welcomed and appreciated.

2. **To reduce unnecessary uncertainty.**

   Uncertainty distracts the attention of both the health care provider and the patient. This can then interfere with relationship building (due to lack of confidence). Uncertainty can also adversely affect the accuracy of information shared and the efficiency of the medical consultation process. Unresolved uncertainties, whether general or specific, can block effective communication through lack of concentration or anxiety. It is important with this aspect of communication that both parties are comfortable with each other, with the environment and the topics that are raised. A meeting involving open conversation and honest discussion are essential for effective communication to occur (Silverman et al., 2007).
3. **To jointly plan and think about the clinical outcome.**

   Effectiveness can only be achieved with this aspect of communication if both parties are committed to working together for a common goal or clinical outcome. If either party is hostile, not engaged or ambivalent, then effective communication will fail (Silverman et al., 2007).

4. **To demonstrate dynamism.**

   Every clinical patient and situation is different. Therefore what is appropriate for one situation is inappropriate for another. Patients are individuals and therefore have different wants and needs. Indeed to take this concept one step further, the patient’s clinical understanding or context can change from consultation to consultation. What the patient understood clearly last week before treatment, might need further clarification this week on the follow up visit, particularly if further treatment is required. The characteristic of dynamism not only requires the health care practitioner to be flexible, but also to be responsive and involved professionally with the patient (Silverman et al., 2007). The attention to clinical context is one of the features that Della Fish and Linda de Cossart emphasise as being an important characteristic of the 'wise doctor' (Fish & de Cossart, 2007).

5. **To follow the 'Helical Model'.**

   There are two levels to the 'Helical Model' created by Dance in 1967. The first level is concerned with the gradual evolution of communication as the two parties interact. Essentially what one party says will influence in an upward spiral the way the other party communicates, and then what transpires is further effective communication. The second level is to ensure that the health care practitioner reiterates and repeats key points during the discussion with the patient. In this way, one can ensure that the patient has fully understood the salient points of the discussion (Silverman et al., 2007; Dance, 1967).

   The Helical model is not dissimilar to Gadamer’s hermeneutic circle. Gadamer (2004) believed that understanding can be achieved through a circular process.
If we consider the doctor-patient encounter as a hermeneutic process (the consultation process), then throughout the encounter we move from individual parts (the patient's story, the patient-doctor dialogue, the physical examination, further exploration/tests if relevant etc.) back to the whole encounter, and then back to the individual parts as more information is sought, acknowledged and interpreted. Gadamer (2004) described this approach as the hermeneutic circle because there is interpretation and reasoning between the parties (patient and doctor), not just information sharing. Transmission and reception of information is important, but ultimately dependent on this deeper hermeneutic understanding of how participants perceive what is taking place between them.

The interrelationship between the health care practitioner and the patient provides a positive opportunity to filter out unnecessary information and to gain new knowledge. The aim of the interrelationship process is to understand the patient in different ways, in an attempt to identify the patient's problems or concerns (Gadamer, 2004). Odman (1979) and Gilje & Grimen (1993) would argue that Gadamer's hermeneutic circle should in fact be a hermeneutic spiral. This is because the interrelationship between the parts and the whole grows and develops with the acquisition of new non-verbal and verbal knowledge, so much so, that one never remains in the same place. Figure 6 shows the hermeneutic spiral, illustrating the steps in the patient-health care practitioner encounter and portrays observational text (non-verbal information) as the backbone of the spiral.
Figure 6: The Hermeneutic Spiral - Illustrating the steps in the patient-health care practitioner encounter and portraying observational text (non-verbal information) as the backbone of the spiral.
2.5 What is Non-Verbal Communication?

Non-verbal communication is a different form of communication. It is not concerned with written or spoken words. It finds meaning with the use of movement or the lack of it, by eye contact, facial expression, posture, general appearance, by utilising personal space and a host of other non-verbal clues that will be discussed in due course (Beebe et al., 2008; Shaw et al., 2004a).

Generally speaking it can be defined as “behaviour without linguistic content” (Mast, 2007, p.315). Trout (2008) believes that it is the absence of words that leads to the gaining of wisdom. This statement seems to imply that verbal communication can sometimes lead to incorrect interpretation between parties. However, Trout suggests that non-verbal communication is raw information, untainted and less likely to be misinterpreted. This statement could raise the question then about the difference between raw data, information, knowledge and wisdom. All these terms can be seen as successive levels of interpretation. From a Gadamerian viewpoint, interpretation is involved at all levels. Even deciding what counts as raw data, and what is just background noise, requires interpretation.

Non-verbal communication is a form of human expression that appears to be always present in a face to face encounter. It is claimed that non-verbal communication is the primary way that humans convey feelings, attitudes and emotions (Beebe et al., 2008; Gabbott & Hogg, 2001). According to psychologist Mehrabian (1972), we can communicate approximately 93% of the emotional meaning of our messages non-verbally, with the face accounting for 55% of all emotional communication. Social psychologists Ekman and Friesen (1969) further identify the face, hands and feet as the key sources of non-verbal clues (see also Cohn et al., 2007). Trout (2008) believes that a common spoken language shared with human clients can be more hazardous and open to misinterpretation than the unspoken interactions with animal patients. It is Trout's opinion that non-verbal communication is generally free from confusion (2008). Shaw et al., (2004a & 2004b) further state that non-verbal communication can help bridge the gap between what is said and what is interpreted, thereby validating the communication experience.
The American Association of Medical Colleges (AAMC) - Medical School Objectives Studies stressed the need to teach an understanding of both verbal and non-verbal communication in medical school courses (Novak, 2004; American Association of Medical Colleges - AAMC, 2001; Hodgson et al., 2013). The US Liaison Committee on Medical Education (LCME), which is the agency that accredits American medical schools, as well as the National Board of Medical Education (NBME), have reinforced this decision. Both medical committees have stated that every graduating medical student in the US must demonstrate effective patient communication (both verbal and non-verbal) in patient exams (Novak, 2004; Chinthapalli, 2004; AAMC, 2001).

One could ask at this point in time, what does the Australian literature report in relation to the medical teaching of non-verbal communication at university for doctors? Despite a comprehensive search of the literature, no information was forthcoming regarding the teaching of non-verbal communication at Australian universities. However, there were numerous sources located discussing the importance of teaching verbal communication skills to students in the medical curriculum. Perhaps this finding could be viewed as further justification for this research?

2.6 Non-Verbal Communication and Medicine

Of the four sub-groups examined in this literature review, body language was studied the least in human medicine. Body language is often referred to as the unspoken language of medicine (Madigan & Smith, 2008). Several authors emphasised the fact that body language was easy to understand with some practice (Pease & Pease, 2006; Platt & Gordon, 2004). Despite the ease of comprehension, other authors concluded that body language was not well utilised in human medicine, nor is there an abundance of literature on non-verbal communication and physician - patient interaction (Groopman, 2007; Hamilton, 2007; Waitzkin 1991).

Patients want their physicians to acknowledge them, to care, to understand their concerns, to reassure them and to heal them. Hence, non-verbal communication is vital in meeting the needs of patients (Groopman, 2007; Montgomery, 2006; South, 2004; Charon, 2006; Baron, 1992). Svenaeus (2010, p.40) also acknowledged patients’ expectations of the family doctor and the “art of medicine".
Patients have grown accustomed to:

"... the practical skills and wisdom of the experienced family doctor, who keeps close contact with his patients and knows the history of their personal problems, as well as their somatic pathologies". (Svenaeus 2010, p.40)

Given the expectations of the patient-doctor relationship discussed above, it is interesting to note in Silverman’s characteristics of effective communication between physician and patient (see 2.4 Recommendations for Effective Health Care Practitioners - Patient Communication), there was no mention of using non-verbal communication, or terms like caring or reassurance to assist with the “medical meeting” of two interested parties as acknowledged by Svenaeus (2010, p. 11).

Groopman believes that the majority of doctors do not understand non-verbal communication (2007) (see also Beck et al., 2002; Mast, 2007; Waitzkin, 1991). However, it is interesting to note that people rely on verbal communication daily to achieve effective communication at home, work and play. Yet it is claimed that only 20-40% of daily communication is verbal, in contrast, 60-80% of daily communication is comprised of non-verbal communication (Knapp & Hall 1992; Mehrabian, 1972; Calero, 2005 & Pease, 1981; Friedman 1978).

Mehrabian was described as the pioneering researcher of body language in the 1950s. He found that:

"The total impact of a message is about 7% verbal (words only) with 38% vocal (including tone of voice, inflection and other sounds) and 55% was non-verbal". (Mehrabian 1972, p.15)

Knapp & Hall (1992) agree further stating that in one study, 60% of the meaning between two people was interpreted solely using non-verbal communication. The authors cited another study, confirming that 83% of the meaning of face to face meetings was interpreted using non-verbal communication. Indeed, a number of scholars advocate for the importance of non-verbal communication over verbal communication (e.g. Groopman, 2007; Platt & Gordon, 2004; Street & Buller, 1987; Teal & Street, 2009).

Although communication is taught in the medical curriculum, it is often referred to as a soft or innate skill and not a core, topical area (Platt & Gordon, 2004). Many medical students prioritise their study load and choose core clinical subjects over perceived soft subjects like non-verbal communication and patient body language.
Students are taught to see medicine more in terms of a scientific evidenced based model and do not see medicine in a practice based model setting (Groopman, 2007; Montgomery, 2006). It has been claimed that students lack the knowledge, experience and wisdom to detect the difference between the two models (Buckley, 2002; Montgomery, 2006). If medical students are reluctant to enrol into non-verbal communication subjects at university, it is likely that they will not have an awareness of, or experience in, the barriers to effective health care practitioner - patient communication in the health environment.

### 2.7 Barriers to Effective Health Care Practitioner – Patient Communication

Despite the progress with the American Association of Medical Colleges recognising the importance of non-verbal communication, Novak (2004) states that physician training also suffers from deficiencies in physician-patient communication material, methods and facilities (see also Cowan et al., 1997). Modelling and teaching these skills in today’s complex and busy practice is problematic. Graduates are encouraged to hone these skills by watching wiser and older colleagues. However, often health care practitioners, learners or teachers discourage communication demonstration, discussion and reflection in favour of other core clinical subject areas (Novak, 2004). A contention of this study is that the communication skills are important for building relationships between patients and practitioners.

There was a paucity of information found in the review of the literature on relationship building between the health care practitioner and the patient. However, there were numerous articles found referring to junior and senior doctors’ communication problems with their patients as a result of a lack of non-verbal and verbal education (Platt & Gordon, 2004; Lepper et al., 1995; Hamilton, 2007). The most common communication mistakes cited occurred when doctors answered the telephone when consulting with a patient, spoke with other medical staff and ignored their patient, flicked through charts, x-rays and other documentation when the patient was talking, popped in and out of the consultation room when the patient was present, or did not sit or make eye contact with the patient (Platt & Gordon, 2004; Robinson, 1998; Dawes et al., 2005). These are straightforward practical matters, but there can be more serious problems relating to the interpretive relationship that needs to develop.
For example, Beckman et al., (1994) reported that the four primary communication problems with patients included; devaluing the patient or family's views, failing to understand the patient's family's perspective, poor information delivery and deserting the patient. In addition, malpractice issues were often the result of poor communication skills with patients, with patients feeling uncared for, or inadequately informed (see also Frankel, 2006).

**Poor Communication Skills:** The Liaison Committee on Medical Education found that poor communication skills were related to a decrease in patient satisfaction, low patient treatment compliance rates and higher rates of malpractice cases (Novak, 2004, AAMC, 2001). Stewart et al., (1999) had similar findings stating that patient complaints in human medicine were usually the result of communication issues (both verbal and non-verbal) and not due to technical competency or quality of life issues. South (2004) made similar conclusions suggesting that perhaps the real reasons for patient complaints and malpractice problems are due, in part, to forgetting about the needs and feelings of patients and their families.

Groopman (2007) believes that the lack of verbal and non-verbal communication with patients has developed because of the increasing number of patients that doctors are asked to see over a short period of time. The average medical consultation in the USA is now less than 7 minutes (Chinthapalli, 2004; Groopman, 2007; Hamilton, 2007). As a result of these strict timelines, Groopman acknowledges that some doctors feel like they need to work in a strict framework of clinical algorithms to see all of their patients. The problem with this system is there is little or no time to relate to the patient or to ‘think outside the square’ should the patient symptoms be vague or test results non-specific (Groopman, 2007; Montgomery, 2006). It is estimated that physicians will conduct a mean average of between 120,000 to 160,000 patient interviews in a practice lifetime (Lipkin et al., 1995).

One might ask at this point, how do the number of consultation encounters and appointment times with US physicians compare with General Practitioner statistics in Australia? If you examine the NSW Government BEACH (Bettering the Evaluation And Care of Health) program figures, which is a continuous, national study of General Practitioners (GP) each year, the mean average of 120,000-160,000 patient interviews in a practice lifetime by physicians appears realistic (Britt et al., 2010).
The NSW Government BEACH program has been collecting data from 1000 different GP participants each year for the last 10 years (April 2000-March 2010). In annual subsamples measured in minutes, the median length of consultations was 13 minutes over the last ten years. However, the 13 minutes included registration time for the patient at the practice and the taking of vital signs / history / other testing by a health care practitioner (i.e. the practice nurse) (Britt et al, 2010). One could argue here, that the actual face to face time between the General Practitioner and the patient would be similar to the US physician figures of approximately 7 minutes.

Groopman (2007) claims that clinical algorithms discourage doctors from thinking independently and creatively. Algorithms can prevent the doctors from being actively involved in patient care and from communicating with each and every patient. As a direct result of this system, doctors are moving farther and farther away from their patients (Chinthapalli, 2004). Similar problems are also occurring in the USA with some hospitals insisting that only evidence based medicine approaches be used to treat their patients (Montgomery, 2006). Treatment decisions are therefore often based on common clinical algorithms and, therefore, individual patient needs and values that fall outside of these guidelines are not addressed (Groopman, 2007; Montgomery, 2006). This approach can be expected to discourage health professionals who begin by wanting to do their best for patients.

Hamilton (2007) describes medical students as idealistic and dedicated when they begin their studies. However, he feels that a gradual cynicism settles in by the end of medical school. By the time these students commence hospital rotation, they have learned to focus more on the technical aspects of medical practice. Some medical students can then become disgruntled and unfulfilled as doctors (see also Montgomery, 2006). Hamilton believes that the junior doctors need to get back to the satisfaction and the richness of attending to human patients, and remember why they entered this profession in the first place.

Hamilton states that:

“When non-verbal communication successfully enters into medical care, the patient and the doctor become engaged in a partnership that fulfils and benefits both of them”. (Cited in Buckley, 2002, p.108)
In the review of the literature, there seemed to be an emphasis on the appropriate *behaviour* between the health care practitioner and the patient. For example, information was found on how to relay a successful non-verbal message to a colleague or patient (Egan, 2010). Egan recommends using the ‘SOLER’ approach. Egan suggests that the speaker sits squarely (S), has an open posture (O), should lean forward (L), ensure eye contact (E) and have a relaxed manner (R). Beck, Daughtridge & Sloane (2002) also reported that there was strong research evidence that suggested head nodding, forward leaning, uncrossed legs and arms, symmetry and direct body orientation are positively associated with favourable patient outcomes (see also Philippot et al., 2003).

From a critical perspective the SOLER approach clearly demonstrates, yet again, that there is a focus on the technical, instrumental transmission and reception of information. This behaviourist approach can be a superficial way to convey the outward appearance of good communication. Therefore, one could ask how do you build solid health care practitioner relationships?

**Building Solid Relationships:** What is missing from the papers above is any appreciation of the importance of developing a real human relationship between the health care practitioner and the patient. Appropriate behaviour must be established on this foundation. However, work by Hamilton (2007) and Kane (2007) did suggest a novel way of trying to build a solid relationship between medical students and patients with the use of horses. Kane (2007) suggests that building a relationship between medical students and patients is difficult because the interactions need to encompass compassion, insight and respect. Further, junior staff need to show patients they are professional, sensitive, perceptive, confident and authentic. Unfortunately, because of the medical students' inexperience, they are unlikely to have developed the necessary skills to build successful relationships with patients, colleagues, superiors and other employees (Kane, 2007).

Both Hamilton (2007) and Kane (2007) have independently developed a similar type of ‘Medicine and Horse’ course. These courses are aimed at assisting medical students to work with horses, in order to develop an awareness of self-presentation and verbal and non-verbal communication skills. These important skills are necessary for an effective physician-patient relationship.
Although it must be stated that this work is not based on empirical evidence, it does provide further material for additional research in this field given the scant information available, and the importance of relationship building in the health care environment.

Hamilton (2007) and Kane (2007) state that they utilise horses because horsemanship requires an appreciation of similar skills and attributes to that of building a successful relationship between a patient and their physician. These skills and attributes include; non-verbal skills, patience, gentleness, self-confidence, perceptiveness, focus and awareness. Even though horses are large animals, the authors believe that they are very sensitive creatures and easily frightened. Hamilton (2007) justifies this statement by saying that horses are prey species and therefore have highly developed flight and fight responses which is an important behavioural consideration when training horses.

Kane (2007) & Hamilton (2007) state that horses are very sensitive to body language, emotional tone, and the position and movement of objects. Therefore, they appear to be suitable subjects for medical students to work with in order to learn about non-verbal communication and other skills. The authors’ intention with these courses is that the medical students can utilise these non-verbal communication skills in their future patient encounters.

In Hamilton’s ‘Medicine and Horsemanship Course’, medical students are enrolled into an 11 week program. Students work with horses on the ground for two hours per week (22 hours in total). The aim of the course, according to Hamilton (2007), was not to learn to ride or dominate the horse, but to observe the body language of the horse so that the medical students could effectively understand and communicate with the animal. Hamilton (2007) believed that partnering with a horse, in order to better understand its body language, was good training for the medical students. Medical students could then use these non-verbal skills with patients and be sensitive to human non-verbal signs (Hamilton, 2007; Buckley, 2002).

Medical students were also set tasks whilst working with the horses and they were video-taped and evaluated at the end of each session. For example, the students were asked to use a stethoscope, take a pulse and conduct a physical examination using the horse as their patient. Hamilton states that “patients will not successfully connect with a physician who has not taken the time to gain their trust” (cited in Buckley, 2002, p.107).
Hamilton (2007) believes that as the medical students work with the horses, they are learning to gain the animal's trust, and these learning skills can be further utilised with human patients.

According to Mistral (2007), some physicians who were aware of these horsemanship type programs, sought further supportive, empirical evidence to confirm the learning outcomes of the medical students who had completed such programs. As yet, such evidence has not emerged. However, it would be time-consuming and difficult to demonstrate, in a statistically valid manner, exactly how these students had benefited compared to a control group, who had not participated. Selecting variables to be operationalised in any meaningful way would be problematic. Further, Montgomery (2006) would argue that medicine is not a science and empirical evidence is not required for all health practitioner research. Medicine, Montgomery believes (2006), is an interpretative practice of caring for the patient. Therefore, one way of viewing Hamilton's work is that it is clearly an attempt to try and transform the health care practitioner into someone who can interpret the meaning of subtle non-verbal clues, establish a meaningful relationship and, therefore, become a "much better, caring and tuned in physician" (Buckley, 2002, p.109). One could also argue that qualitative studies that explore 'meaning making' and how people interpret the world around them, would provide more useful insights than quantitative studies.

Trout (2008) believes that patients can usually tell if the health care practitioner has these caring and professional attributes. Trout's own belief is that the first few minutes of a consultation are critical, because in this short time frame, we are using non-verbal communication to:

"... strive to set the right tone, to reassure, inspire confidence and demonstrate compassion using our body language and then verbally resolve to get to the crux of the problem". (Trout, 2008, p.136)

Therefore, it is clear that some form of attunement is needed in clinical practice.
Attunement: Hamilton (2007) and later South (2004) provide examples of the concept of attunement. Attunement occurs when the health care practitioner and the patient take the time to focus on their working relationship, in order to ensure the growth and development of an effective and harmonious connection. In attunement there is a subjective sense of harmonious connection.

Svenaeus (2010) likens this sense of attunement to his understanding of health. Svenaeus argues that when we are healthy, living in our world, we can best be described using the term “homelikeness” (Svenaeus, 2010, p.100). In other words, we have a general sense of wellbeing and a harmonious relationship with our body, so health is more than the absence of disease, it is a sense of bodily attunement.

With regards to ill health and disease, Svenaeus (2010, p.100) uses the opposite term “unhomelikeness”. Here the patient seeks the doctor to assist with the ill health state (unhomelikeness), and works through the ill health state in order to re-establish bodily attunement. It is important for the patient that an effective relationship is established with the doctor, (a form of professional togetherness,) to interpret and treat the clinical problem, so that the patient can move back to an attunement of homelikeness (good health) (Svenaeus, 2010). Hamilton (2007), Kane (2007) and later South (2004) provide examples of patients working ‘together’ with their health care practitioners, in relationships that appear to support the concept of attunement of unhomelikeness. It can also be argued that the therapeutic relationship between doctor and patient also needs its own attunement where each person is attuned to the nuances and subtleties of the relationship. For the doctor, in particular, this sense of attunement can be helped by a sensitivity to the non-verbal aspects.

One might ask here, what is the cost to the patient / health care practitioner for keeping health / medical practice in its current form and not changing to this attunement model of medicine? Indeed, if we are to ‘flesh’ out this question further, what is the financial cost to society for current practice in terms of increased litigation and increased insurance premiums?

According to the Australian Institute of Health and Welfare (AIHW, 2009), the total expenditure on medical services in Australia in 2007 - 2008 was $18 billion, which accounted for 18.7% of total recurrent health expenditure. From 2003 - 2008 payments to doctors through Medicare grew 4.2% in real terms per year (AIHW, 2009).
Generally, more health care practitioners were seeing more patients every year. Not surprisingly, there was an increase in medical litigation claims over this period of time.

"Of the public sector claims in 2010–11, 38% cost less than $10,000, 31% cost between $10,000 and $100,000, 22% cost between $100,000 and $500,000 and 9% cost $500,000 or more.

Including private sector claims in 2010–11, 53% of combined public and private sector claims cost less than $10,000, 25% cost between $10,000 and $100,000, 16% cost between $100,000 and $500,000 and 6% cost $500,000 or more.

This is a 16% rise in overall costs in the last 12 months and a 60% rise in costs since 1998". (AIHW, 2012, p.xi)

Morris (2002) argued that increased litigation claims was largely a result of a more educated patient with higher expectations, an increase in advertising by law firms stating no-win, no-fee policies for personal injury legal services and the increasing trend for the courts to look favourably on the side of the plaintiff.

As a result of increased litigation, the cost of medical indemnity insurance rose. The aim of medical indemnity insurance is to ensure that health care practitioners are covered against financial loss as a result of claims of breach of duty or alleged negligence during the provision of providing a health service (AIHW, 2012). Morris (2002) reported that the increased cost of medical insurance for medical practitioners was seen across the board, with ‘high-risk’ fields such as obstetrics and neurosurgery having annual insurance premiums of up to $100,000 per year. In short, some medical practitioners are weighing up the overall cost of their current medical practice and deciding to withdraw their services in favour of other, ‘less risky’ endeavours. (Morris, 2002)

### 2.8 Non-Verbal Communication and Veterinary Practice: The Benefits for Human Medicine

As mentioned in the introductory phase of this chapter, a review of the literature failed to find any empirical studies directly linking veterinary practice or models of animal medicine with the treatment of patients in the pre-hospital or hospital environment. This is clearly an area that warrants further quantitative research in the future.
However, the literature review found several non-empirical position papers that implored readers to examine animal practice, or veterinary practice, in order to learn lessons that could benefit human medicine. The papers of interest were titled: *Ask the animals and they will teach you* (Ellwood et al., 2001), *What physicians need to learn from veterinarians* (South, 2004) and *Intuition and the ill infant* (Gill, 2001).

It is important to note here the role the veterinary team (i.e. the veterinary nurses and veterinarians) have in dealing with clients and patients. There has been an enormous change over the last two decades regarding the training, education and expectations of these roles. Currently, we see staff that are highly trained, expert in their field of practice, working together to ensure that they meet the varied expectations of different types of clients (Radford et al., 2003; Aspinall, 2006).

**Ask the Animals and They Will Teach You**
This article written by a behavioural scientist (Ellwood), a family physician (Walker) and a veterinarian (Simmonds), makes use of animal stories to teach medical residents about end of life issues (Ellwood et al., 2001). It is a program requirement for residents in family practice in America to have clinical experience in managing the health aspects of death, dying, loss, divorce or separation. However, the majority of medical residents are young adults who have not had direct experience with death of a loved one. Ellwood et al., (2001) believe that animals and animal issues may assist in bridging the experience gap for these residents.

Ellwood (2001) recounts the story of a cat ‘Quinsie’, diagnosed with renal failure. As Quinsie had been a member of the family for eighteen years, the decision to euthanase was made by the family unit in consultation with their veterinarian. Issues of dignity without suffering were raised and compared with similar outcomes for human medicine (Ellwood et al., 2001). The body language of the cat, the family and indeed the vet staff were also described so residents could clearly see the connection between non-verbal communication and optimum patient care. This case was also a good example of relationship building between the health care practitioner and the patient’s family.
“I held my beloved cat in my arms with my daughter by my side. Quinsie was purring as we held her and stroked her head. Dr Park injected Pentobarbital into the catheter, Quinsie’s eyes dilated, and she was gone. It was done with dignity and grace. We kissed her furry head, being thankful for the years we had together and said goodbye”. (Ellwood et al., 2001, p.503)

Janet Walker, family physician describes the euthanasia of an old horse Ali. Ali had a “torn up joint and was on stall rest” (Ellwood et al., 2001, p.503). The veterinarian had commented that the horse would not get any better. Walker’s blacksmith had stated that Ali would tell her when he did not want to live any more. A few weeks later Ali’s front joint swelled again and the decision was made to euthanise. Walker stated that the night before the procedure Ali was “bright eyed and sweet, begging for apples and majestic as always” (Ellwood et al., 2001, p.503). The next day the medication had worn off and Ali was in pain. His eyes were dull, his coat had lost all of its sheen and his head was hanging down. Walker stated that she felt that she had made the right decision. The vet described the euthanasia as easy and gentle and Ali as accepting and compliant. After the procedure, the vet braided Ali’s forelock and gave it to the author as a lasting keepsake of a loved companion. These rich experiences, according to Ellwood, Simmonds and Walker (2001), were aimed at teaching medical residents about the care and compassion needed for end of human life issues, and participating in a shared understanding between the family and the health care team.

Richard Simmonds, a veterinarian, completed the article with his story of Penny, his trusted female collie. Simmonds left Penny with his family while he completed his veterinary training. On graduating, he found out that Penny had developed terminal renal failure and had to be euthanised. This was Simmond’s first job as a graduate vet. He described it as “a devastating experience” (Ellwood et al., 2001, p.504). Simmonds wrote:

“The experience coloured forever my approach to the issue of pet euthanasia in that it heightened my empathy and compassion level at least a thousand fold. To this day, I cannot perform euthanasia without getting teary eyed if the owners are present”. (Ellwood et al., 2001, p.504)

Because veterinarians treat companion animals in the context of the family, there are many lessons that medical residents can learn.
Simmonds introduced the importance of empathy and support to his family medicine program and as a result, these ideas have become learning objectives and are now included in the community medicine curriculum at the University of Nevada (Ellwood et al., 2001).

Medical residents experience an animal’s euthanasia with the family and veterinarian present. Resident evaluations have been very positive with advantages including; a better understanding of non-verbal communication, an appreciation of the value of the holistic approach (so-called bond-centered practice) to medicine (see also Roter, 2000 below), an enlightenment regarding euthanasia issues and residents being able to gain a different perspective on what is often a difficult situation. Simmonds summed up the inclusion of this veterinary experience in the medical curriculum by stating that it is “one more way that human medicine can learn from animals, and from veterinarians who care for them” (Ellwood et al., 2001, p.504).

It is important to acknowledge here that whilst human responses to animal loss can be observed, explored and verbalised, the interpretation from an animal perspective is more problematic and complex. This interpretation should be grounded in the observation of animal behaviour.

Several studies reviewing difference veterinary curricula have clearly shown the importance placed on learning non-verbal communication throughout the undergraduate courses for veterinary students (Iowa State University, 2004; University of Prince Edward Island, 2013; Dhein, 2013 – Washington State University). Non-verbal communication is a foundational aspect of these courses and can be mapped throughout the different years of the veterinary programs. Emphasis is placed on learning non-verbal communication in several areas. Firstly, from the behavioural aspect of animal treatment and management. Secondly, from the assessment of the body language of clients, veterinary staff and others to ensure that important messages are acknowledged and actioned if necessary. Finally, the learning of non-verbal communication is evidenced throughout experiential modules, learning objectives for clinical placement and assessment tasks.

The question then arises from this discussion on difference approaches to patient care, what might be considered a paternalistic approach?

Currently, the human medicine physician–patient relationship model is often described as paternalistic.
“In this model, the physician dominates the medical encounter, setting the agenda and goals for the visit, and the patient’s voice is diminished. The content of the discussion is predominantly biomedical, and the physician plays the role of guardian of the patient and acts in the patient’s best interest”. (Shaw et al., 2004a, p.677)

A paternalistic approach is different to the relationship centred or bond centred approach to the physician-patient encounter that has been identified by Roter (2000) as the optimal model of care (see also Cerda et al., 2010). Not unlike Ellwood and her colleagues above, the encounter between the patient and the physician is described as more of a partnership between the parties where caring, negotiation and shared decision making are common. The role of the physician is in an advisory capacity, to assist and inform the patient (see also Haskard et al., 2008).

The Royal College of Physicians and Surgeon of Canada in 2005 also adopted a competency model or framework, based on empirical research, called 'CanMEDS' to ensure better patient outcomes. The framework incorporates seven roles that all physicians need to be aware, with the overall aim of assisting the physician to become a better doctor and ensuring that the patient has a good clinical encounter. The seven roles describe the doctor as a: medical expert, communicator, collaborator, manager, health advocate, scholar and professional. The overall aim of this framework is to assist physicians to function effectively utilising all the CanMEDS roles to ensure that optimal, ethical and patient-centred medical care is provided to each and every patient (Cruess et al., 2004).

At this point in the discussion, apart from end of life issues and relationship centred approaches to the physician-patient encounter, could there be other lessons that physicians might learn from veterinarians? South (2004) believes that there are many lessons that could be learnt.

**What Physicians Need To Learn From Veterinarians**

Dwalla South stated that there are many lessons that physicians need to learn from veterinarians (South 2004). South tells of the empathy, courtesy and sensitivity shown to her family by veterinarians when the family silky terrier called 'Kristi' was ill. Kristi was diagnosed with a ruptured cervical disc which required complicated surgery and extensive follow up care. After ongoing medical care and interaction with the veterinarians, Kristi enjoyed two healthy years before developing chronic renal failure (South, 2004).
In this article, South describes the lessons that she learned as a physician from these professionals who “minister to all animals great and small” (South, 2004, p.317). South suggests teaching the young physicians about tuning into the needs and feelings of the patient and their families. A physical presence, a touch, a phone call can allay fears, reassure and prepare patients and their families for the future medical outcome. In South's opinion (2004), seasoned physicians like herself have forgotten these old lessons of yester year. Currently, South has concerns for the younger physicians who are not taught these 'soft skills' at university, nor from their mentoring physicians when they enter specialist training. South believes that it is important for physicians to care and to show patients that they care. South comments that perhaps our malpractice woes are due in part to forgetting to care about patients (South, 2004).

One could ask at this point in the discussion, how similar are veterinary and human medicine in relation to patient care? Dr Denis Gill believes that there are many similarities with regard to sick animals and sick children.

**Intuition and the Ill Infant – Veterinary Paediatrics**

Professor of Paediatrics Denis Gill describes his medical practice in Dublin, Ireland as “Veterinary Paediatrics” (Gill, 2001, p.98). Even though Gill has no formal training in veterinary medicine, and his article is based on non-empirical research, he argues that there are many similarities between sick animals and sick children. Both the sick animal and the sick child “refuses to eat, they lie down when they are sick, their language and communication skills are limited, they depend on others to sort out their problems and when ill, they prefer to be left alone” (Gill, 2001, p.98). Veterinarian Brown (2009, p.58) has also reported that there are similarities between a veterinarian and a paediatrician with the observation and management of their patient (see also Williams & Mills, 2000).

Gill believes that there is nowhere in medicine where the use of observation and instinct is more important than in trying to diagnose an acutely ill child (Gill, 2001). Gill teaches his medical students about the power of close observation because many students do not appreciate the importance of this skill. The author cites Sir William Osler stating that “there is no more difficult art to acquire than the art of observation” (Osler 1903, p.78). As the sick child is a poor communicator, obtaining a detailed history is not only difficult, but sometimes impossible. Gillis (2006) found similar findings with his review of the history of medical literature up to 1850.
Medical practitioners prior to the nineteenth century used to resist assessing and treating sick children because of the impossibility of a direct patient history. Now in the 21st century, Gill advises his medical students to follow Leonardo Da Vinci’s words of “learn to see” (Gill 2001, p.100). The author advises the medical students to sit in the resuscitation room in order to observe the paediatric patient, to visit the intensive care unit looking frequently at sick infants and to linger in the observation ward of the hospital and look and listen at children being admitted (Gill, 2001, p.100).

Gill (2001, p.98) encourages his medical students to examine the child patient with their eyes. In this way they can comment on the child’s “nutrition, hydration, respiration, haemoglobin level and circulation, with a modicum of accuracy, without laying a finger on the child”. This observational method is helpful because it is non-invasive and does not disturb or upset the child, particularly if asleep. Gill believes that the good clinician is also a good diagnostician; one that “has a good nose for trouble” (Gill 2001, p.100). The power of observation and intuition work hand in hand. “Intuition means immediate apprehension by the mind without reasoning” (Gill, 2001, p.100). Kahneman (2011) also defines intuition as a form of recognition. Therefore, Gill (2001) reports that a good doctor should possess good eyes and sharp wits and for his medical students to look, look and look again at their patients. One could argue that by observing the patient, you are looking for key signs in an attempt to form a recognised pattern for clinical interpretation. Pattern recognition is discussed further in Chapter Three.

In my opinion, the rich, descriptive, lived experiences of these health care practitioners, in both animal and human practice, further supports the justification for the use of phenomenology in this study.

2.9 Dr. Joseph Bell - Medicine & Non-Verbal Communication

While conducting the literature review, another astute medical doctor was linked with the search theme of medicine and non-verbal communication. The doctor was Joseph Bell (1837-1911) who was a Professor at the Edinburgh Royal Infirmary in Scotland and who started the first training courses for nurses in Scotland1.

1 Bell is best known for providing the inspiration for Arthur Conan Doyle's Sherlock Holmes. Conan Doyle worked for Dr Bell as a medical clerk at the University of Edinburgh Medical School in 1877 (Mackail & Kemp, 2007). Many of the quotes attributed to Sherlock Holmes were believed to be derived from the medical practice of Dr Bell.
Bell was described as a gifted teacher and taught his medical students about the ‘importance of observation’ and the need to appreciate the small points of how the diseased state differed from the healthy state in their patients. It was in this learnt state of observation (non-verbal communication) that his medical students could learn to distinguish if the patient was a soldier, sailor or from the gentry. Further, if the patient had any obvious injury, impairment or noted medical concerns, then many of these should be observable even though further investigation might be needed to substantiate the initial impressions (Mackaill & Kemp, 2007).

“From close observation and deduction, gentlemen [medical students], it is possible to make a diagnosis that will be correct in any and every way. However, you must not neglect to ratify your deductions, to substantiate your diagnosis with the stethoscope and by all other recognised and every-day methods”. (Mackaill & Kemp, 2007, p. 52)

Professor Bell achieved many professional successes in his medical career with his contributions as a medical doctor, surgeon and author (Manual of the Operations of Surgery in 1866 & Notes on Surgery for Nurses 1887). However, it was his teaching style and use of observation (non-verbal communication) in diagnosis for which he is best remembered. Bell believed that he could teach his medical students to do more than simply ‘see’. Bell wanted to teach his students to closely observe their patients and then make interpretations of the patients’ needs [1 & 2] (Mackaill & Kemp, 2007).

Montgomery (2006) concurs with Groopman when commenting on the experienced doctors who routinely use deduction in their medical practice to describe their way of thinking.

“Deduction is the label Sherlock Holmes uses for his rational skill, and physicians who find medicine’s investigative procedures mirrored in his practice, have adopted the term to describe their thinking”. (Montgomery, 2006, p. 84)

It is important to note that this observational style of medicine in the late 1880s was common before the advent of ultrasound, x-ray and other diagnostic clinical tests.
Professor Bell taught his medical students about clinical acumen and clinical observation because this was a crucial source of information in medical practice in the 18th and 19th Century (Redmond, 1993). Groopman (2007) believes that the young doctors of the 21st Century are trained to think using clinical algorithms and to rely much more on sophisticated medical tests to make the necessary diagnosis. The art of clinical observation has been categorized as a ‘soft skill’ and therefore deemed relatively unimportant in their training. Groopman (2007) believes that in the 21st Century, soft skills have been replaced by scientific reasoning, which are based on test results. This is because evidence based medicine has assumed a dominant position in clinical reasoning.

It can be argued that the skill of close observation has gradually atrophied in clinical practice as a result of several reasons; the introduction of more and more diagnostic tools and tests; the time constraints on health care practitioners both with patient encounters and teaching time with junior colleagues; and the content and curriculum overload in undergraduate and post graduate education. The present project is an attempt to revive this ‘lost art’.

Verghese (2008, p. 2748) discusses the decline in patient observation as a direct result of the insinuation of technology into medical practice. Doctors are replacing regular, bedside teaching ward-rounds, with the “chart-as-a-surrogate-for-the-patient-approach”. In this approach, junior doctors are seated in an office with house staff, clinical mentors and view computer screens, displaying medical images and laboratory tests, in order to discuss their “i-Patients” (ibid). Unfortunately, the critical element for teaching, observing, learning and interpreting - the patient - is missing.

These two examples provide a description of firstly Dr Bell's observational technique and secondly, how he applied that technique to his observation of patients.

1. “Observe with detachment; to open your senses; really listen, and let the sounds impact upon you. Notice any smells and to look with the eyes of a hawk. Be sharp, be precise and miss nothing. Be alert to every movement, every clue, particularly anything out of the ordinary” (Redmond, 2009, p.62).

2. “By a man’s fingernails, by his coat-sleeve, by his boots, by his trouser-knees, by the calluses of his forefinger and thumb, by his expression, by his shirt-cuffs, by his movements – by each of these things a man’s calling is plainly revealed. That all united should fail to enlighten the competent enquirer in any case is almost inconceivable” (Holmes, 1882, p.8). See also Doyle 1887; 1892; 2002.
Verghese worries that the physical examination of the patient is being viewed as redundant and the physician-patient relationship will suffer as a consequence (see also Dunnington, 1992).

Verghese (2008, p.2748) believes that “the bedside is hallowed ground, the place where fellow human beings allow us the privilege of looking at, touching, and listening to their bodies [for the purposes of reflection, interpretation, deduction and discovery]”. Dunnington et al., (1992, p. 110) used the term “clinical skills deficiency syndrome” to describe the deterioration of patient-physician interaction and such clinical skills as the physical examination. Dunnington (2000, p.71) provides a timely reminder that “the practice of medicine in its broadest sense, includes the whole relationship of a physician with his patients”.

It is prudent to mention at this point that the terms 'deduction' and 'induction' were used interchangeably in the literature. Deductive reasoning approaches usually commence with a general hypothesis and work down to a more specific hypothesis. This approach is often referred to as the 'top-down' approach (Trochim & Donnelly, 2006; Braude, 2012). For example, a patient presents with chest pain. There can be many reasons why a patient has a pain in their chest. A comprehensive patient examination will provide the necessary clues towards a preliminary diagnosis and follow-up test(s) will confirm the findings.

In contrast, the inductive reasoning approach works in reverse and commences with a specific hypothesis originating from direct observations / measurements and works towards more broader generalisations and theories. This method is referred to as the 'bottom-up' approach (Trochim & Donnelly, 2006; Braude, 2012). Given our earlier example with the patient with chest pain, it might be obvious from initial clinical observation that the patient is having an acute myocardial infarction (AMI) and an ECG confirms this diagnosis. A review of the patient medical records later reveals that he has previously been diagnosed with cardiovascular disease.

For completeness here, the term 'abduction' can also be used when discussing clinical reasoning. Abduction is a form of logical inference that utilises available information and hypothesises the best, plausible explanation, given the available evidence (Braude, 2012). For example, our chest pain patient was admitted 24 hours ago with an AMI, was treated successfully with anti-thrombolytic agents, fluids (for low blood pressure) and transferred to ICU.
However, he is now complaining of shortness of breath. Given the patient's history of a recent AMI with cardiac compromise and fluid administration, it is likely that the patient is suffering from acute pulmonary oedema.

In summarising this chapter thus far, it is timely to critically examine the claims and insights of authors such as Hamilton (Buckley, 2002 & Hamilton, 2007), Ellwood, et al., (2001), South (2004) and Gill (2001). What is the evidence to support their claims that non-verbal communication using animal models is important and can assist with human patient care? Is this evidence based practice or practice based evidence?

2.10 Discussion

Most health professionals view medicine as deeply entrenched in the culture of science, with evidence based practice as the central pillar of clinical practice (Montgomery, 2006). Evidence based practice is defined as “the standards of evidence and reasoning that prove a certain concept” (Saunders, 2008, p.1). However, Snow (1959) described two cultures of modern society; the sciences and the humanities (arts) stating that people have forgotten that there are two cultures, particularly in medicine, because science has become the dominant mode of explanation in the world today (see also Gaukroger, 2007; Grainger, 2006). Saunders (2000) agrees clarifying that the practice of modern medicine is not founded in pure science, but is rather, an applied science, where art is an integral part of clinical medicine. The main focus of medicine is the patient; a fellow human being seeking help with a health related problem. Doctors work with their patients utilising their scientific knowledge but also need to be caring, compassionate and empathic - in short, there is a need for personalised medicine. Therefore art and science are inseparable in the practice of medicine because they are part of a common culture (Saunders, 2000). “Knowing is an art; science requires personal participation in knowledge” (Saunders, 2000, p.18). Hundreds of universities around the world successfully teach medical students about the articulate contents of science, however the art of medicine - the summary of practical wisdom - is largely ignored (Polanyi, 1953; Saunders, 2000).

As a result of the conceptualisation of two, separate and different cultures, (science and humanities), a debate has now emerged between evidence based research (science) and practice based evidence (humanities / arts) (see also Montgomery, 2006).
In the 21st Century we often expect religion, art, human relationships and history all to be explained in scientific terms because science seems to encapsulate the basic canons of rationality (Gaukroger, 2007). As these scientific principles are embraced by quantitative medical researchers, any qualitative research, like non-verbal communication is likely to be questioned. However, Saunders (2000) points out that approximately 85% of medical procedures in clinical practice are unproven, poorly defined or at the very least, based on abysmal evidence. Interestingly, these medical procedures are regularly performed successfully in a practice based medical environment.

In contrast to quantitative researchers then, what would qualitative medical researchers think of the work of Hamilton (2007), Ellwood et al., (2001), South (2004) and Gill’s (2001) findings? It is likely that the qualitative researcher would encourage these authors to continue to use the lessons learnt from animal non-verbal communication, in order to benefit human medical practice. The qualitative researchers could argue that sciences and humanities should communicate with each other, and not be culturally exclusive, for the benefit of the world community.

These qualitative recommendations would have some advantages. For example, the young medical students of today will be the medical practitioners of tomorrow and one day be mentors themselves. Therefore, these medical students could be the future ambassadors and teachers of the short falls in non-verbal communication as highlighted by the American Association of Medical Colleges (Novak, 2004).

One could argue that we are touching on the so called ‘paradigm wars’ between the quantitative and qualitative research approaches. However, the paradigm wars have been frequently declared as being over as qualitative research has become more widely accepted in the world of research (Bryman, 2008). Although it has to be said that many people in the health professions still appear to talk and think in purely biomedical scientific terms. It does appear that the notion of scientism, the belief that only scientific measurements provides the only real meaning in research, is still active even today.

The main argument here is that humanities (arts) need to learn from the professions, and the professions need to learn from the humanities.
Sullivan & Rosin (2008, p.104) argue for “practical reason” to be the foundational concept in both the professions and in such academic disciplines as humanities and social sciences. The professions can benefit from the value of critical thinking, and the humanities can:

“Learn from the deep narrative case-based knowing of the professions, so that critical thinking is not a goal in itself, but a cognitive tool that can be used to aid human beings in making their way in the world”. (Sullivan & Rosin, 2008, p. 104)

This chapter reviewed literature on communication; theories of communication, effective health care practitioner / patient communication, non-verbal communication and the benefits to human medical practice. As a result of this literature review, it is obvious that there is a so called 'gap in the literature'. This project's intention is to open this gap and acknowledge the need for further research into the lessons that human medicine can learn from veterinary practice, particularly in the area of communication.

Chapter Three will now discuss the third and fourth sub-groups identified by the review of the literature namely; clinical assessment and clinical examination.
"What you are speaks so loudly that I cannot hear what you say".

(Ralph Waldo Emerson - American Poet & Lecturer, 1803-1882)
3.0 Introduction

This chapter will now discuss research issues in the following sub-groups:

3. Communication challenges associated with clinical examination / assessment in medicine. How non-verbal behaviour can assist in patient care;

4. One health, one medicine approach to both veterinary and human medicine. The gaining of professional expertise; experience, intuition and clinical decision making skills. Is it evidence based practice or practice based medicine?

COMMUNICATION CHALLENGES ASSOCIATED WITH CLINICAL ASSESSMENT IN MEDICINE. HOW NON-VERBAL BEHAVIOUR CAN ASSIST IN PATIENT CARE.

3.1 Clinical Assessment

Health care practitioners regard patient assessment as one of the most important aspects of patient care. Clinical assessment of a patient involves a variety of steps; ascertaining the patient’s chief complaint; obtaining a comprehensive medical history and conducting a physical examination of the patient (Smith, 2008; Sanders, 2011; Rondeau & Hanie, 2014; Ettinger 2010a; Ettinger, 2010b). When communicating with a patient, health care practitioners collect both subjective and objective data. Subjective data is the information that the patient, relatives, friends or bystanders relay to the health care practitioner. This information includes chief complaint, past and present medical history, medications and allergies (Curtis et al., 2007).

Patients communicate their current medical condition to the doctor by describing clinical symptoms. A clinical symptom is any change in bodily function or sensation that is experienced by the patient that is abnormal and generally associated with a particular disease (Trout, 2008). Holmes (2007) believed that the expert on the patient is the patient themselves. Most patients like to talk about themselves and assist the doctor. The majority of patients seem to be extremely informative. However, Holmes (2007) also added a word of caution about patient medical histories:

“Some patients are verbal fountains of useless, extraneous and inaccurate information. A patient may give you an actual diagnosis that he or she has concocted personally, or an inaccurate diagnosis made by another physician”. (Holmes, 207, p.157)
Objective data is the information that is gleaned from observing the patient, measuring vital signs and clinically examining the patient (Curtis et al., 2007). Health care practitioners look for clinical signs in their assessment of the patient. A clinical sign can be something that the health care practitioner touches, hears, sees, smells and occasionally, inadvertently tastes! (Trout, 2008; Rijnberk & van den Brom, 2009).

Numerous clinical studies have claimed that history taking (subjective data) contributes approximately 60-80% of the information used for a clinical diagnosis (Frankel, 2006; Hampton et al., 1975; Sander, 1980; Kassirer, 1983; Peterson et al., 1992). The literature suggests that this insight was ascertained from the opinion of health care practitioners. Whilst most health care practitioners would agree that the majority of information required to make a diagnosis usually does come from history taking, it is difficult to visualise how they could quantify this process. One could also argue that using a mathematical figure (60-80%) in this way, confers a spurious authority on the finding.

Many physicians state that the majority of hospital tests used to confirm a diagnosis are in fact chosen based on a comprehensive patient history (Smith, 2008). Although the cost involved in these hospital tests is expensive, it does not compare to the cost involved in the barrage of screening tests that might be needed in the absence of a comprehensive patient history. Smith (2008, p.12.8) provides a comprehensive list of helpful questions aimed at obtaining a useful patient history. Figure 7 provides a truncated version of this list.
If the patient is experiencing any type of pain, Smith (2008) suggested using a systematic approach to assessing the patient’s chief complaint and asking more questions. I have chosen to focus on pain assessment because later in the chapter, I discuss the assessment of pain using non-verbal methods to ascertain if there are any clinical problems.

This systematic assessment is discussed by Smith (2008, p.12.14) and is called the OPQRST approach (Onset, Provocation, Quality, Region / Radiation / Referral, Severity and Time). Figure 8 below lists the common questions asked of patients in order to analyse a chief complaint involving pain.

Figure 7: Questions to Obtain a Useful Patient History

- What prescription medicines are you currently taking? How much and how often?
- Do you take any over-the-counter medication like aspirin, herbs or vitamins?
- Are you allergic to any medicines or other substances?
- Do you smoke? How much? Do you drink beer, wine or cocktails? How often?
- Have you been smoking or taking drugs other than cigarettes?
- What did you have to eat yesterday and today?
- Have you had a chest x-ray lately?
- Are your immunizations up to date? How about a flu shot or pneumococcal vaccine?
- Have you been getting a good night’s sleep?
- Do you like exercise? How much?
- Do you have a history of any specific diseases in your family?
- Do you have anything in your religion that would prevent me from administering treatment?
3.2 Communication Challenges in Patient Assessment

It is evident that verbal communication normally plays an important role in patient assessment with regard to ascertaining the chief complaint, in history taking and in assessing the patient in pain (Hampton et al., 1975; Sander, 1980; Kassirer, 1983; Peterson et al., 1992; Smith, 2008).

One of the challenges of patient assessment is if the patient cannot verbally communicate. Common examples include an unconscious trauma patient, an intubated patient, an autistic patient, a hearing impaired patient, a paediatric patient, a stroke patient, a dementia patient, or even a mentally ill patient. However, these examples of non-verbal communication increase considerably if one includes a large medical sub-group of patients who could once communicate effectively, but now can no longer do so as a result of an Acute Confusional State.

Figure 8: Questions to Analyse a Chief Complain involving Pain
(Smith, 2008, p.12.14)

- **Onset** – When did you start to feel the pain?
- **Provocation** – What do you think brought on your pain?
  
  Did the pain start all of a sudden or come on over a period of time? Does anything make the pain go away or feel better or feel worse?
- **Quality** – If you were trying to make me feel the way you do, what would you do to me to give me that same feeling?
- **Region / Radiation / Referral** – Can you point to the place where it hurts with one finger?
  
  Does the pain stay there, or does it go somewhere else?
- **Severity** – On a scale of 1 to 10, with 1 being very minor and 10 the worst pain you’ve ever felt, how would you rank this?
- **Time** – How long have you felt this way?
McCance & Huether (2008) described an Acute Confusional State (also known as delirium) as a medical disorder characterised by deficits in attention, thoughts and actions. An Acute Confusional State is often associated with altered levels of consciousness (reduced awareness of environment), global cognitive dysfunction (disorientation, mental confusion, language disturbance, the inability to focus attention) and perceptual disturbances (the inability to distinguish what is real and what is not real) (Ely et al., 2004; Ely et al., 2001). Nervous system disease, drug intoxication, metabolic disorders, indeed any disease process outside the brain can cause Acute Confusional States (McCance & Huether, 2008). Common causes of Acute Confusional States include withdrawal from barbiturates, alcohol or sedative drug ingestion, any forms of infection such as Urinary Tract Infection, pneumonia, sepsis, septicaemia or indeed any forms of febrile illness.

Acute Confusional States can occur with systemic diseases such as heart failure, head injuries, traumatic brain injuries, cerebral lesions, after anaesthesia or even in the metabolic disordered patient (for example the hyperglycaemic or hypoglycaemic patient) (McCance & Huether, 2008).

In the absence of a comprehensive medical history, it is not uncommon for health care practitioners to appear uncertain, even frustrated about the next most appropriate medical steps to take both in the clinical environment (Groopman, 2007). This is because there is no shared understanding of the clinical situation between the health care provider and the patient (Groopman, 2007; Platt & Gordon, 2004; Bledsoe et al., 2009).

Trout (2008) explored the differences between human and veterinary medicine and suggested how veterinary medicine can assist in human patient assessment. Human medicine relies heavily on subjective information, while veterinary medicine relies much more on objective data obtained directly from the physical examination of the patient (Trout, 2008; Rijnberk & van Sluijs, 2009; Rondeau & Hanie, 2014; Ettinger, 2010a; Ettinger, 2010b).

Bledsoe et al., (2009) described four principles of physical examination; observation, palpation, percussion (the sound made by striking one object against another) and auscultation (listening for sounds produced by the body). The authors believed that observation and palpation are considered to be the main techniques of physical examination.
Observation is the process of inspection. It is a simple, non-invasive technique that has been described as a health care practitioner’s most valuable clinical tool (Bledsoe et al., 2009; Gill, 2001; Gill & O’Brien, 2007; Platt & Gordon, 2004).

However, it is a skill that needs to be practised and refined over time. It also requires a teacher or mentor to ensure that the skill is correctly performed and the data gathered are appropriately interpreted. When practised correctly, observation can be used to establish significant information about a patient’s neurological, musculoskeletal and respiratory systems. Effective observation generally depends on “good lighting, adequate time and, above all, a curiosity for looking beyond the obvious” (Bledsoe et al., 2009, p.32; see also Gill, 2001; Gill & O’Brien, 2007; Platt & Gordon, 2004).

Palpation has been described as using the health care practitioner’s sense of touch to gather information. The health care practitioner’s hands and fingers are used to gently palpate different areas of the patient’s body to find any abnormalities. Abnormalities for example can be described as detecting an enlarged liver, distended bladder, a laterally pulsing abdominal aorta. A health care practitioner skilled in the art of palpation can locate rib fractures, discover crepitus or fluid filled masses (Bledsoe et al., 2009).

“Veterinarians spend their professional lives interpreting the language of animal signs because they are denied the luxury of verbal communication”. (Trout, 2008, p.72)

Brown (2009) states that at university he was taught about animal behaviour and body language. They became part of his professional life. Veterinarians work with animals closely every day and need to become expert at observing body language and behaviour.

“You see them when they're healthy and when they're sick. You are in much more intensive situations dealing with them, so you are able to recognise when they're in pain and stressed”. (Brown, 2009, p.129)

Hence the veterinary profession claim to use the physical examination process as the foundation of their clinical assessment. The physical examination is a logical and methodical process which uses a deductive approach to problem solving. It is designed to develop skills to effectively understand, diagnose and treat animal patients.
Not surprisingly, non-verbal communication features prominently in this model (Rijnberk & van Sluijs, 2009; Ettinger, 2010a; Ettinger, 2010b; Rondeau & Hanie, 2014; Dhein, 2013).

3.3 The Veterinary Physical Examination

Rijnberk & van Sluijs (2009) provided an example of a model of the veterinary physical examination and history process (see below). The authors agree that there may be slight variations amongst veterinary practitioners and different start points, but the underpinning process of observation, general impression, inspection and specific examination remains the same. Similar veterinary models of clinical examinations have been discussed in Ettinger, (2010a, 2010b), Rondeau & Hanie, (2014) and Dhein, (2013).
Figure 9: A Model of the Veterinary Physical Examination & History Process (Rijnberk & van Sluijs, 2009, p.5)
Box 1 relates to the owner’s statement which may or may not be applicable. The owner may not be present or may not be able to provide any reliable information concerning the animal. If the owner is present, then valuable information can be ascertained regarding the animal’s health and well-being as well as establishing the relationship between the client and the animal. Issues of ownership will affect matters of consent, and if the client is not the owner, then questions about the reliability of any health information will need to be considered. During this process, the animal is free to roam the examination room where it is further observed and assessed (Rijnberk & van Sluijs, 2009; Radford et al., 2003).

Good non-verbal and verbal communication is also important at this stage between the veterinary practitioner and the owner, as well as clear expectations about the examination process and other necessary tests. For example, consider the differences between discussing lameness associated with a champion greyhound versus a household pet (Radford et al., 2003).

Box 2 relates to whether the animal needs emergency treatment. If this is the case, then the animal is treated under the specific emergency protocol for the presenting condition (Rijnberk & van Sluijs, 2009).

Box 3 focuses the veterinary practitioner on the overall general impression of the animal, noting signalment (specific breed, age and sex) and whether there are any obvious injuries or abnormalities. The history of the animal may or may not be available. The priority here is the observation of the overall health impression of the animal in order to see if there is a specific problem (Box 4) (Rijnberk & van Sluijs, 2009).

If the problem has become clear (Box 5) then a specific examination is required (Box 6). If the problem is not clear, then a general examination is required to further identify the health issue (Box 7). Once the problem has been identified (Box 8 Focusing Problem Formulation) then a specific examination is required (Box 9) to further clarify the presenting problem (Box 10) prior to treatment (if any) (Rijnberk & van Sluijs, 2009).

Even though this clinical algorithm appears simplistic, each box represents a clinical step along the clinical thinking pathway towards a clinical decision / solution. Each box or step forms part of the whole physical examination process. One could say that this process can be seen in hermeneutic terms because there is an interrelationship between the parts / steps and the whole process.
The individual parts have the ability to influence the whole process, and the whole process can in-turn influence the parts (Gadamer, 2004).

Some cases may be simplistic in nature where the clinical parts / steps are uncomplicated and medical decisions can be made quickly. According to Fish & de Cossart (2011), such clinical cases in which simple medical decisions are made, do not fall into the true clinical thinking pathway because the medical decision lacks complexity and clinical intricacy. These authors reserved the term clinical thinking / reasoning for complex cases that are a trigger for deeper thought. Although these cases can be considered via a structured pathway, they also draw upon the doctor's values, beliefs and experience to reach a clinical solution or conclusion.

Lorenz (1993) believed that a comprehensive physical examination can be completed in five to eight minutes, but an experienced health care practitioner can usually make a correct diagnosis within minutes. Brown (2009) recounted the story of a sick penguin brought into his practice and the use of the physical examination process.

"After examining the bird it is clear that he is very weak. Penguins normally have a good covering of fat, but as I feel around his sternum (breast bone) I can immediately feel it is not as plump as it should be. ... my initial diagnosis is malnourishment which is a very dangerous state for an animal who needs to have a large layer of fat to keep him warm in the depths of the ocean". (Brown, 2009, p.21)

In routine veterinary practice, the physical examination usually commences with a no touch approach to the animal, then a physical inspection and palpation of the animal. If the animal is in the examination / consultation room (i.e. a dog or cat) then the animal is largely free to roam the room with the veterinary practitioner looking at the animal patient, observing the appearance of the animal, noting features such as whether it is bright eyed, interactive and alert to its surroundings (well orientated). The practitioner also observes whether the animal is well nourished, has a healthy glossy coat and further assesses whether the patient has a happy demeanour and is not displaying signs of being withdrawn or afraid (Trout, 2008; Rijnberk & van Sluijs, 2009).

This approach is similar to Gill's 'veterinary' paediatric assessment of his patients (2001) (see Chapter 2). Gill was a paediatrician and had no formal training in veterinary medicine. However, as a result of many discussions with his veterinary colleagues, he came to realise that there were many similarities between sick animals and sick children.
Both sick animals and sick children refused to eat, laid down when they were sick; their language and communication skills were limited and they relied on others to sort out their problems and they preferred to be left alone. Gill began teaching his medical students about the importance of observation when assessing children, hence coining the phrase “veterinary paediatrics” (Gill, 2001, p. 98; see also Church, 2000).

While the dog or cat explores the consultation room, the animal is further observed for any obvious injury, pain or unnatural movement. The vet staff are alert for any sound; a hiss, growl, moan, grunt and so on that further enhances their observational findings (Godfrey, 2006; Trout, 2008). A similar approach can be adopted with a large animal patient (i.e. horse or cow) in an open paddock.

The next section describes an authentic case of a dog unwell and the veterinary physical examination process.

3.4 Labrador Sick - The Veterinary Examination

This real case study provides a good example of an accurate physical examination of a patient without a comprehensive medical history. Trout (2008) described the presentation of a black, geriatric Labrador named 'Woody' who had been unwell for a few weeks. The family presented the dog for a veterinary consultation with no real medical history. Trout (2008) immediately observed Woody to be well cared for (glossy coat), over-nourished (obese) male dog, with no obvious injuries, but instead of being energetic and interactive, the animal appeared tired, lethargic and weak.

A physical palpation of Woody’s body found a very relaxed dog but with a large, softball sized mass on the right side of his belly. An examination of the dog’s gums found the mucous membranes to be pale, poorly perfused and anaemic. Trout (2008) noted that Woody’s pulse was also slow and weak. Further palpation of the abdomen found the origin of the mass to be in the dog’s spleen. In the absence of physical signs of trauma and because this breed of dog was susceptible to an aggressive form of cancerous tumour in the spleen, the most likely diagnosis was made of hemangiosarcoma. This diagnosis needed to be confirmed by CT scan.

Trout (2008) also found that there was swelling and tenderness around the spleen which was suggestive of the mass rupturing and bleeding into the patient’s belly. This physical finding thus explained why Woody had a pale, anaemic appearance and why he had a slow and weak pulse.
Trout explained that this was a true surgical emergency which required the urgent removal of the spleen and associated tumours or else the dog would die of hypovolaemia (loss of circulating blood volume) (Trout, 2008). This veterinary consultation took approximately 10 minutes with the absence of a comprehensive medical history. The diagnosis was proven correct on CT scan. However, the average survival time of dogs with hemangiosarcoma, even after surgery and chemotherapy, was only a few months. Hence, the decision was made to euthanase Woody. This is an example of a typical veterinary assessment relying almost totally on careful observation and physical examination.

One could argue here that Dr Trout was an experienced veterinarian who had probably seen this type of presentation before. Hence he could complete this type of examination, with little history in under ten minutes and be proved correct. However, the case provides a further example of the need for mentorship in close observation and pattern recognition for junior medical staff, so they too, can attain this clinical level in the future.

It is timely then to ask whether careful observation and physical examination is also useful in the non-verbal assessment of the patient in pain?

3.5 Assessment of Pain in Human and Veterinary Medicine - Lessons to Assist Non-Verbal Patients in Pain

This section will discuss how non-verbal assessment can be utilised with patients who present in pain. Therefore, any discussion on pain assessment should commence with a simple definition. However, pain is very difficult to define because it is a subjective experience and no objective tests currently exist to measure pain accurately (American Pain Society, 2003). According to McCaffery & Pasero, (1999, p.95) “Pain is whatever the experiencing person says it is, existing whenever he / she says it does”.

In human medicine, several validated scales can be used to rate the intensity of pain in conscious, cognitively intact, communicative adult and paediatric patients. The most common method of pain assessment involves the patient describing their pain.
A range of pain scales can be used to assist pain assessment. In one, the patient is asked to select a picture that expresses their pain level (Wong-Baker FACES Scale), in another to use words like mild, moderate or severe to describe their pain (VDS – Verbal Descriptor Scale) or in yet another version, to indicate from a numerically rated scale (1-10) the intensity of their pain. On the numerically rated scale, patients with no pain would indicate a ‘zero’ and patients with severe pain would indicate a ‘ten’ (Kabes et al., 2009; D’Arcy, 2009; Topolovec-Vranic et al., 2010; Jensen & Karoly, 2011). The most utilised self-reporting pain scale in medicine appears to be the numerically rated scale (Strong et al., 2007).

Strong et al., (2007, p.126) claimed that self-reporting of pain by patients can be regarded as “the gold standard of pain management”. The authors believed that patients that could rate their pain on a scale of one to ten, are likely to give a more accurate assessment of their pain because they are the only one to appreciate the true intensity of their pain.

A point of critique here could be the use of the term “gold standard” in relation to the reporting of pain. This term implies a very reductionist and technical rational approach to pain assessment. A gold standard implies that there is a fundamental rock-solid and objectively measurable reality that health care practitioners can depend on. In reality, the patient’s assessment of their pain is very individual, subjective and above all, it is interpretive. Health care practitioners may want a quantitative and objective measurement of a patient’s pain but, it can be argued, this is simply not possible. The use of a pain scale means that the patient must interpret their pain, interpret the pain scale and combine the two interpretations. There is little that is objective about such an exercise. Because pain is an interpretation, there can be no objective gold standard foundation for judging its intensity.

D’Arcy (2004) reported that problems exist with some health care professionals using the standard verbal pain scales for assessing pain or discomfort in dementia patients who cannot communicate. D’Arcy stated that this practice was invalid because patients with Alzheimer’s-type dementia lose their short term memory and have difficulty identifying the source of recent painful stimuli (see also Reynolds et al., 2008; Hadjistavropoulos, Breau & Craig, 2011).
Further, the paediatric verbal pain scale is also invalid if used in the cognitively impaired adult as these tools have no validity or demonstrated reliability with this impaired patient group (D'Arcy, 2004, Bruckenthal & D'Arcy, 2007; D'Arcy, 2009).

Odhner et al., (2003) also discovered that current methods used for the assessment of pain in non-verbal adults or patients who are cognitively impaired, were not only inadequate, but potentially dangerous for the patient. This was because the patient might be assessed as having minimal or no pain. The reality might be that the patient was experiencing significantly more pain and the cause of their pain would not be investigated leading to potentially dangerous consequences (see also Lord, 2009 & Herr et al, 2006a & b). These methods referred to by Odhner et al., (2003) involved the self-reporting attempts by patients with communication issues and methods used by nurses to assess pain in critically ill patients.

The International Pain Guidelines require that:

“Pain be assessed in all patients and that tools to evaluate pain should be specific to the age and disease state of the patient and the site of pain”. (British Pain Journal, 2007, p.4)

It is interesting to note here again, the underlying desire for objectivity and the 'hard' measurement of pain using some useful tool to evaluate the patient's pain. The problems with these guidelines are that there are no widely accepted assessment tools currently utilised to assess cognitively impaired or non-verbal patients (Topolovec-Vranic et al., 2010).

In veterinary medicine, the self-reporting of pain is not possible with non-verbal patients. Therefore veterinary staff use the observation of non-verbal behavioural responses to assess if the animal is in pain. Non-verbal behavioural techniques are also used in human medicine especially in the elderly, infants and non-verbal children because they lack the necessary cognitive skills to report the experience and intensity of pain (Herr et al., 2006a & b; Odhner et al., 2003). However, a principal argument of my study is that far more use of these techniques could be made in human medicine with more health care practitioners being aware of these techniques, not just those health care practitioners who specialise in the pain management of these particular populations.

Godfrey (2006) provided a list of eight behavioural responses that may indicate if the animal patient is in pain.
Most veterinary practitioners believe that they can adequately assess pain in animals using these behavioural techniques.

1. **Vocalisation** – here the patient may cry, grunt, hiss, tooth-grind, groan or squeal;
2. **Change in facial expression** – the patient may grimace or bare their teeth;
3. **Change in personality** – the patient already known to the vet staff may become aggressive, anxious, fearful, depressed or prefer isolation;
4. **Altered posture** – the animal may crouch, appear with his / her head down, may hunch over, posture with the abdominal area tucked in or lie in the recumbent position;
5. **Restlessness** – there may be frequent changes to the position of this patient because they cannot become comfortable, or they may be constantly pacing in the cage or enclosure;
6. **Protective response** – the animal may attempt to guard the painful area when touched, limp in order to avoid weight bearing, show restrictions in movement and / or avoid contact with vet staff;
7. **Self-mutilation** – the animal patient may lick, bite or scratch the affected area constantly;
8. **Decreased activity** – a normally active animal may rest or sleep for long periods of time (Godfrey, 2006; Church, 2000).

Godfrey (2006) believed that there are several advantages in the observational assessment of animal patients. Firstly, observation can help assess functionality of the animal and establish range of movement without fear of further damage, or cause unnecessary pain. Secondly, observation can establish if the animal is suffering from mental stress.

Animals that perform repetitive actions, that serve no obvious purpose, are of concern and said to suffer from mental stress or stereotypies (Godfrey, 2006). Stereotypies are abnormal behaviours commonly seen in zoo animals, companion animals and horses. The familiar pacing backwards and forwards in front of an exhibition window is seen in some zoo animals. Canine companion animals can excessively bark or chase their tails if not stimulated in their own environment.
Abnormal horse behaviour manifests when the bored horse weaves from side to side, paws at the ground, wind sucks (sucks and gulps air), crib bites (repeatedly bites fixed objects with their incisor teeth) or bobs their head excessively up and down (Godfrey, 2006). Stereotypies can also be observed in the domestic feline population with cats twitching or rippling their skin (feline hyperaesthesia) in an unstimulating environment. Parrots can also be seen to excessively pluck their feathers and small rodents gnaw at the bars of cages or perform repetitive back-flips (Godfrey, 2006). All of these behaviours are readily identifiable if the health care professional merely observes their animal patient.

Interestingly D’Arcy (2004) recommended using several of the behavioural criteria utilised by veterinary medicine above to assess the pain scale of cognitively impaired patients. The author suggested monitoring certain behaviours like vocalisation, agitation, grimacing, bracing, rubbing and restlessness (D’Arcy, 2004; Church, 2000). This checklist of non-verbal pain indicators has proved to be very effective in accurately assessing pain in patients who cannot self-report (D’Arcy, 2004; D’Arcy, 2009; Bruckenthal & D’Arcy, 2007; Church, 2000; Feldt, 2000; Dosa, 2010).

Keefe et al., (1991) also found that non-verbal behaviours such as guarding, bracing, rubbing, grimacing and sighing were noted to be good predictors of pain in their observational measurement of patients with lower back pain. These patients were observed during their physical examination by a medical practitioner. Grimacing was the most common non-verbal behaviour seen in elderly patients hospitalised with hip fractures (Odhner et al., 2003). Odhner et al., (2003) claimed that cognitively and non-cognitively impaired patients were accurately assessed by health care practitioners using the non-verbal behaviours of grimacing, sighing, gasping and bracing.

Puntillo et al., (1990) in earlier studies reported similar findings in their postoperative pain patients. In Puntillo’s study, his patients underwent major abdominal surgery and were unable to report pain. The patients were observed closely by hospital staff. If the patients portrayed signs of grimacing, frowning, wincing or had significant muscle tension, they were medicated with immediate results. The study found that the post-operative patients that showed any of these non-verbal signs settled after pain medication and their vital signs stabilised.
A review of the study's data found that these non-verbal behaviours were proven to be a valid and accurate assessment of patients in pain (Puntillo et al., 1990).

Odhner et al., (2003) therefore recommended several non-verbal indicators of pain that were well supported in a comprehensive review of the literature. The authors called these indicators the 'Adult Non-Verbal Pain Scale' (see Figure 10). It is important to note that the majority of these human, non-verbal indicators originated from pain studies conducted in laboratory animals over several decades (Keefe et al., 1991; Church, 2000). To understand how these non-verbal indicators are utilised in human medicine, a clinical practice example is discussed in section 3.6 A Clinical Need - A 'Non-Verbal Pain Scale' Practice Example.

3.6 Clinical Need – A 'Non-Verbal Pain Scale' Practice Example

Nursing staff of a burns trauma unit reported that they were dissatisfied with the pain assessment method they were expected to use because it did not meet the needs of their patients. Patients were frequently critically ill and/or intubated and therefore could not self-report pain (Odhner et al., 2003).

The unit developed a pain assessment tool that they considered to be the 'gold standard' for assessment of non-verbal pain. (Again it is interesting to note that staff were still hoping to try and assess pain in a scientific and objective manner). The non-verbal pain assessment tool was developed from a review of the literature (both animal and human research) (see Figure 10). Category O demonstrates the behaviour of patients with no pain. Category 1 shows the behaviour of patients with mild or intermittent pain. Category 2 portrays the behaviour of patients in severe pain (Odhner et al., 2003).

The study found the non-verbal pain scale was accurate, valid, easy to use and had numerous patient benefits (see also Kabes et al., 2009). Unfortunately, despite its publication in the Dimensions of Critical Care Nursing in 2003 and its use as a pilot program in the Strong Memorial Hospital Burns Unit, USA, the non-verbal pain scale has not disseminated widely to other critical care facilities. There was an indication in the article that dissemination to other critical care facilities did not occur because of strong clinical advocates of the verbal pain management scales.
Topolovec-Vranic et al., (2010) also utilised the “Non-Verbal Pain Scale” (NVPS) in their critical care setting (ICU) in St Michael’s Hospital in Toronto, Canada. The study claimed that ICU staff found the NVPS was easy to use, improved pain management, improved documentation by nurses and increased their confidence in assessing pain in non-verbal patients.

However, after the completion of the successful study, nurses were reluctant to adopt a new pain assessment tool in the ICU. Topolovec-Vranic et al., (2010) speculated that perhaps this was a result of several factors including; the perception of increased workloads or the resistance to change from common, verbal pain assessment practices.
Figure 10: The Adult Non-Verbal Pain Scale

<table>
<thead>
<tr>
<th>Categories</th>
<th>Activity (Movement)</th>
<th>Guarding</th>
<th>Physiologic 1 (Vital Signs)</th>
<th>Physiologic 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No particular expression or smile</td>
<td>Lying quietly, normal position</td>
<td>Lying quietly, no repositioning or hands over areas of body</td>
<td>Stable vital signs, (no change in past 4 hours)</td>
</tr>
<tr>
<td>1</td>
<td>Occasional grimace, tearing, frowning, wrinkled forehead</td>
<td>Seeking attention through movement or slow, cautious movement</td>
<td>Splinting areas of the body, tense</td>
<td>Change over past 4 hours in any of the following: SBP &gt; 20mm HG, HR &gt; 20/min, RR &gt; 10/min</td>
</tr>
<tr>
<td>2</td>
<td>Frequent grimace, tearing, frowning, wrinkled forehead</td>
<td>Restlessness, excessive activity and/or withdrawal reflexes</td>
<td>Rigid, stiff</td>
<td>Change over past 4 hours in any of the following: SBP &gt; 30mm HG, HR &gt; 25/min, RR &gt; 20/min</td>
</tr>
</tbody>
</table>

(Odhner et al., 2003, p.261)
Herr et al., (2006a & b) found similar results in their systematic review of ten pain assessment, behavioural tools used with non-verbal adults (dementia). The review found that there was no standardised tool based on non-verbal behavioural pain indicators that could be recognised for broad adoption in clinical practice. As a result, many health care organisations use inadequate (verbal pain scale) or non-validated methods of pain assessment. These methods progressed to inaccurate assessment findings and resulted in many patients having under-diagnosed or under-treated pain in the health care community, particularly the nursing home environment (Herr et al., 2006a & b; Herr, 2011).

Abbey et al., (2004) reported similar findings with the development of their Abbey Pain Scale, a pain measurement tool for people with dementia who cannot verbalise. This one dimensional, one minute scale, uses six behavioural categories to assess pain; vocalisation, facial expression, changes in body language, behavioural changes, physiological change and physical change (Abbey et al., 2004; Abbey, 2007). The Abbey Pain Scale (see Figure 11) was so consistently validated in clinical trials in aged care facilities with severely demented patients, that it has been recommended for use for pain management in patients with severe cognitive impairment in aged care facilities by the Australian Pain Society (Australian Pain Society, 2005). However Abbey et al., (2007) reported that despite the availability of non-verbal pain indicators in clinical practice, most health facilities were still adopting the self-reporting method of pain assessment.

It does seem that the self-reporting pain method still appears popular despite its unreliability in patients who cannot verbally communicate or verbally communicate effectively. The research of Godfrey (2006), Church (2000) and Keefe et al., (1991) has shown how behavioural indicators of pain are effective in veterinary medicine. It does appear that veterinary practitioners are not concerned with the formal measurement of any form of pain scale. Instead, they seem more interested in the observation of the animal patient to assess pain behaviour.

Puntillo et al., (1990), Odhner et al., (2003), D'Arcy (2004, 2009) and Bruckenthal & D'Arcy (2007) have successfully used some of these behavioural indicators of pain in human medicine in non-verbal patients.
Odhner et al. (2003) postulate that perhaps the reason why the verbal pain scale is still utilised in non-verbal patients (despite its unreliability) is that many of these clinical facilities either do not cater for non-verbal patients on a regular basis, or mistakenly believe that this method of pain reporting is valid and accurate for all patients. It is therefore clear more research is needed on behavioural indicators of pain in human medicine (Odhner et al., 2003).

In my opinion, based on a review of the pain literature, it does seem that many researchers are still trying to create some form of ‘pain thermometer’ that can accurately quantify pain. A patient’s temperature can still be objectively measured independently from the subjective experience of having a temperature. However, when a patient has pain, the interpretation of that pain experience is very subjective by nature and therefore not easily quantifiable. The utilisation of non-verbal behavioural responses, as a proxy for pain, may be the answer, as signs of stress typically accompany pain.
Figure 11: Abbey Pain Scale – A one minute numerical indicator for people with end-stage dementia (Abbey et al., 2004, p.9).

### Abbey Pain Scale

For measurement of pain in people with dementia who cannot verbalise.

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>Absent</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.1</td>
<td>Vocalisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eg. whimpering, groaning, crying</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absent:</strong> 0, <strong>Mild:</strong> 1, <strong>Moderate:</strong> 2, <strong>Severe:</strong> 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q.2</td>
<td>Facial expression</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eg. looking tense, frowning, grimacing, looking frightened</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absent:</strong> 0, <strong>Mild:</strong> 1, <strong>Moderate:</strong> 2, <strong>Severe:</strong> 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Q.3</td>
<td>Change in body language</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eg. fidgeting, rocking, guarding part of body, withdrawn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absent:</strong> 0, <strong>Mild:</strong> 1, <strong>Moderate:</strong> 2, <strong>Severe:</strong> 3</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Q.4</td>
<td>Behavioural change</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eg. increased confusion, refusing to eat, alteration in usual patterns</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absent:</strong> 0, <strong>Mild:</strong> 1, <strong>Moderate:</strong> 2, <strong>Severe:</strong> 3</td>
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<td></td>
<td></td>
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<tr>
<td>Q.5</td>
<td>Physiological change</td>
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</tr>
<tr>
<td></td>
<td>Eg. temperature, pulse or blood pressure outside normal limits, perspiring</td>
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<td></td>
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<tr>
<td></td>
<td>flushing or pallor</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absent:</strong> 0, <strong>Mild:</strong> 1, <strong>Moderate:</strong> 2, <strong>Severe:</strong> 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q.6</td>
<td>Physical changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eg. skin tears, pressure areas, arthritis, contractures, previous injuries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Absent:</strong> 0, <strong>Mild:</strong> 1, <strong>Moderate:</strong> 2, <strong>Severe:</strong> 3</td>
<td></td>
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</table>

Add scores for 1 – 6 and record here

<table>
<thead>
<tr>
<th>Total Pain Score</th>
<th>0 – 2 No pain</th>
<th>3 – 7 Mild</th>
<th>8 – 13 Moderate</th>
<th>14+ Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
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<tr>
<td>3.</td>
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<td>4.</td>
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<td>5.</td>
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<tr>
<td>6.</td>
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</tr>
</tbody>
</table>

Finally, tick the box which matches the type of pain

- **Chronic**
- **Acute**
- **Acute on Chronic**

---

Dementia Care Australia Pty Ltd
Website: www.dementiacareaustralia.com

Abbey, J.; De Bella, A.; Pillar, N.; Estermann, A.; Gilles, L.; Parker, D. and Lawcay, B.
Funded by the JH & JD Dunn Medical Research Foundation 1998 – 2002
(This document may be reproduced with the acknowledgment retained)
In summary for sub-group 3, it is apparent from the literature that observation and physical examination are two of the most important tools in the clinical assessment of the animal patient (see Rijnberk & van Sluijs, 2009; Ettinger, 2010a; Ettinger, 2010b; Rondeau & Hanie, 2014; Dhein, 2013 above). However, human medicine has only developed these skills in limited and highly specialised forms of practice. Therefore, there appears to be a need for further research into the clinical examination regimen undertaken by veterinary practitioners (non-verbal pain assessment, observation & physical examination) to see if there is further, potential use within human medicine. The preoccupation with quantitative pain scales appears to have distracted health care practitioners from the core business of developing keen observational skills. A tool like the Abbey Scale may be adequate for beginners who require an effective pain assessment tool for non-verbal patients. However, health care practitioners need to develop both their observational skills and their clinical judgement abilities when assessing patients, in order to improve the care of their patients.

ONE HEALTH, ONE MEDICINE APPROACH TO BOTH VETERINARY AND HUMAN MEDICINE. THE GAINING OF PROFESSIONAL EXPERTISE; EXPERIENCE, INTUITION AND CLINICAL DECISION MAKING. IS IT EVIDENCE BASED PRACTICE OR PRACTICE BASED MEDICINE?

3.7 One Health, One Medicine Approach to both Veterinary & Human Medicine

The history of veterinary medicine and the development of human medicine are closely linked (Mantovani, 2008). Evidence of rudimentary medical skills amongst Middle Eastern shepherding cultures has been found as far back as 9000BC. Egyptian medical textbooks describing the diseases of fish, cattle, dogs and birds have been located dating back to 1850 BC. Other ancient civilisations such as the Greeks, Arabs, Hebrews, Romans and Babylonians are also known to have evidence of animal medicine (Wilkinson, 1992; Hunter, 2004).

The earliest known human surgery was first described in Egypt in 2750 BC and the Edwin Smith papyrus detailed cures, ailments and anatomical observations as early as 1600 BC (Wilkins, 2009). Mantovani (2008, p. 577) describes the concept of “one health or one medicine” when explaining the similarities between veterinary and human medicine (see also Shaw et al, 2004a). Mantovani visualises the “one medicine tree” approach (see Figure 12).
The tree itself represents medicine. The fertile soil in which it is growing depicts the basic sciences and the main branches of the tree are divided into two, portraying veterinary and human medicine equally. These two main branches are connected to each other by another branch presenting common pathways or public health.

This picture depicts the strong similarities between the two professions, veterinary and medical. I have amended the diagram slightly to clearly emphasise the shared commonalities in most streams of anatomy, physiology, pathophysiology, pharmacology and treatment protocols. Further, both veterinary and human medicine share the same desire to alleviate pain and suffering and to help cure injury and disease (Shaw et al., 2004a).

In some countries, veterinary and medical practitioners take similar Hippocratic Oaths to ensure the rite of passage for practitioners of medicine. The spirit of the Hippocratic Oath pledges the ethical practice of medicine, to help all patients and above all to do no harm (Pfeiffer, 1994; Shaw et al., 2004a; Holmes, 2007).
Figure 12: One Medicine Tree Approach for Veterinary & Human Medicine
(After Mantovani, 2008, p. 578)
Ranta (1945, p. 321) states that:

“There is a lot of common ground between veterinarians and physicians with the objectives of both practitioners the same – to improve the health of man, and the animals upon which he depends wherever possible”.

Medical practitioners complete twelve years of structured training from undergraduate level to appointment as a senior doctor, or consultant, in a specialised field of medicine. Veterinarians complete four years of undergraduate veterinary medicine. However, post graduate education is much less structured than in human medicine. Many veterinarians complete between 5-6 years of formal training depending on when they have completed their undergraduate degree. Veterinarians can thus complete between 10-12 years of undergraduate and post graduate training.

However, given the veterinary profession's ongoing challenge of solving problems with their animal clients with the absence of shared speech, it does appear that most veterinarians need to be proficient in nearly all areas of their profession for routine practice (Trout, 2008; McCormack, 2006 & Brown, 2009). Trout (2008) summarized the reality of his veterinarian role by saying that he believed that it is a:

“... kind of one-man show where the performer in the spotlight gets to play all the characters in a complicated play. I try my best to be a social worker, a psychologist, a grief counsellor, mentor, carpenter, plumber, cosmetologist, athletic coach, magician, grim reaper and occasionally, guardian angel. Sometimes I worry that I am going to run out of hats!” (Trout, 2008, p.270)

McCormack (2006), a country veterinarian, had similar insights to Trout (2008). McCormack stated that he understood both the human and animal heart and the need to fulfil numerous additional roles because that was what the job of a veterinarian demanded (2006).

To compensate for the lack of verbal communication with their animal clients, it is clear that veterinary staff need to have highly developed skills, awareness and assessment capabilities that facilitate an effective diagnosis and understanding of the animal’s needs and medical condition (Trout, 2007; Ellwood et al., 2001; Brown, 2009; Gill, 2001). Veterinary practitioners have thus refined their ability to effectively read physical and non-verbal signs, clues and body language in the formal physical examination.
However, one could ask, how do practitioners make clinical decisions and what role, if any, does intuition play? This question is discussed further in the next section and in chapter 7.

3.8 Intuition & Clinical Judgement Making

The earlier sections of this review have dealt with the advantages of formal observation, clinical examination and communication skills. What has not been discussed so far, is the ability for veterinary practitioners to assess their animal patients using intuitive, or "gut feeling" capabilities which are applied before, during and after the clinical assessment interventions (Radostits et al., 2000). Certainly, human health care practitioners read physical and non-verbal signs, clues and body language as well. However, it can be argued that veterinary practitioners are better at these skills because of their practice involving non-verbal patients.

It is interesting to note that the initial aim of this study was to identify a 'gap' in the literature and then research the lessons that human medicine could learn from veterinary medicine in the areas of communication and assessment. However, as the research has continued to grow and develop, it does appear that rather than identifying a 'gap' in the literature, which can be simply closed, this study is 'opening up' the issues of non-verbal communication and assessment. The idea of 'opening up' invites consideration of the deeper meaning of what is occurring in clinical encounters in veterinary and human medicine, which then allows for further development of these ideas in the future.

When continuing the review of the literature then, the terms intuition, gut feeling, sixth sense and critical analysis / thinking appeared interchangeably in the literature when exploring how human medicine could benefit from veterinary medicine (Benner & Tanner, 1987; Easen & Wilcockson, 1996). Further, there were many and varied definitions of so called 'intuition' in the literature to be considered.

Definitions: Intuition in clinical practice has been described by Benner & Tanner (1987, p.23) as “understanding without rationale”. Other authors have stated that intuition is “the perceived knowing of events ... without the conscious use of logical, analytical processes” (Dossey et al., 2005, p.34), “a skilled pattern of recognition” (Benner & Tanner, 1987, p.24), “sudden insight” (Dossey et al., 2005, p.34), and a “hunch or a gut feeling” (Atwater, 2000, p.18).
Given the varied definitions cited above, it is not surprising that the term ‘intuition’ is poorly understood particularly in its application to the clinical decision making process (Rew, 1986; Gerrity, 1987; Greenhalgh, 2002). However, before we continue with this discussion on the use of intuition in both veterinary and human medicine, it is first necessary to broadly understand how clinical decision making or clinical reasoning occurs in medicine. To advance this discussion, the term clinical reasoning refers to “the cognitive process that is necessary to evaluate and manage a patient’s medical problem” (Barrow & Tamblyn, 1980, p. 19).

**Dual Process Theory:** Although many researchers still have diverging opinions on how doctors think whilst making clinical diagnoses and decisions, the ‘dual process theory’ has been well described and accepted in the cognitive psychology literature for the last fifteen years (Pelaccia et al., 2011). However, it is prudent to mention early in this discussion that there are several so called ‘grey’ areas that still remain, which require further comprehensive research in to the area of clinical decision making. Generally researchers believe that there are two systems that are jointly involved in our cognitive activities. The two systems are the analytical and non-analytical processes (Epstein, 1994; Hogarth, 2001; Hammond, 1996). The analytical system has been described as a system that is ‘logical’, ‘rational’ and ‘deliberate’ (Epstein, 1994; Hogarth, 2001). It is a ‘rule-governed’ system that is conscious, slow, methodical, information dependent and very demanding with regard to cognitive function (Kahneman, 2003; Croskerry, 2009a).

The basis for the analytical system is logical hypothetico-deduction. In this system, diagnostic hypotheses are tested in an analytical fashion by questioning the patient, checking test results and reviewing patient notes, medical records and so on (Elstein & Schwartz, 2002). Researchers summarise the analytical system by stating that it is a conscious process of rational and deliberate decision making, using additional empirical information, assisted with the application of rules, acquired through learning (Kahneman, 2003; Croskerry, 2009b; Croskerry, 2008). The logical hypothetico-deduction method of the analytical system is firmly situated in the scientific model, and deeply entrenched as ‘the way of knowing’ in human medicine (English, 1993).
The non-analytical system in contrast, has been described as ‘intuitive’, ‘tacit’ and ‘experiential’, and a system that is triggered automatically (Epstein, 1994; Hogarth, 2001). The non-analytical system has also been referred to as a ‘gut feeling’ by some researchers (Stolper et al., 2009a; Stolper et al., 2009b). It is a system that is generated without effort and falls below the threshold of perceptible consciousness (Hogarth, 2005).

The non-analytical system is therefore both rapid and approximate, where the clinician will make a holistic assessment of the clinical situation using all available information. Situational awareness forms part of the holistic assessment of the patient. It is here that the clinician will gain a better understanding of the patient by what he/she observes (Foster, 2006). Observation of visual, non-verbal clues and signs will provide further information (Hogarth, 2001). Lloyd (2007, p.189) describes this as “embodied knowledge”:

“The body plays a central role in the generation of meaning, by providing visual clues about roles and practices, which lead to the establishment of shared vocabularies and meaning, that facilitate embodied knowledge”. (Lloyd, 2007, p.189)

The non-analytical system “operates on the principle of recognition of a typical configuration of signs, or of similarities with previously encountered situations” (Pelaccia et al., 2011, p. 2). Therefore, the foundation for the non-analytical system of intuition is pattern recognition. Pattern recognition has been described by Elstein & Schwartz (2002) and Gruppen & Frohna (2002) as unconscious recognition of a given clinical situation from patterns and cues stored in the long term memory. This automated process links these information patterns / cues to the identification and treatment of clinical and contextual information (Elstein & Schwartz, 2002; Gruppen & Frohna, 2002). The more experienced or expert the health care practitioner, that is, the more routine and non-routine cases that they have seen over the years, the larger the ‘memory bank’ of pattern recognition and cues. This then allows some health care practitioners (generally experts), to formulate a diagnostic hypothesis quickly when assessing a patient for the first time (Elstein & Schwartz, 2002; Gruppen & Frohna, 2002).

The determining factor concerning which process will be used, will depend upon the type of clinical situation. Generally, with routine medical cases for example, which have a higher level of certainty, and where time is lacking, it is believed that the clinician is more likely to use his / her non-analytical processes, governed by the intuitive system.
In contrast, when time permits (the patient is relatively stable), the clinical case is complex (septicaemia - systemic blood poisoning), the situation is non-routine (involving several body systems) and the stakes are high (high death rate), the clinician will tend to select the analytical system (Croskerry, 2008; Moulton et al., 2007). Schön (1991, p.18) defines these situations where the analytical system is more suitable for the clinical decision making process as occurring with “unstructured and indeterminate zones of practice”.

From a purely functional point of view, Hogarth (2001, 2005) believes that both systems are 'jointly' involved in our clinical decision making process. Typically, clinical reasoning always commences intuitively. By this the author meant that the intuitive system (non-analytical), is activated both unconsciously and automatically. The prompting of the working memory should give rise to several possible solutions. The analytical system is then automatically activated to confirm or invalidate the solutions (Hogarth, 2001; Hogarth 2005; Bargh & Chartrand, 1999). The analytical system is explained by Kahneman (2003) as having a monitoring role over the intuitive process, to ensure the believability or validity of the posed solution.

**Problems with the Dual-Process Theory - Functionality:** Several problems relating to functionality can occur with the dual process theory. Firstly, if the clinician attempting to make an analytical decision has a lower level of vigilance, then a logical and rational decision cannot be guaranteed. Common examples include; when the clinician has lack of time with which to make an analytical decision, if the clinician is fatigued or sleep deprived, is inattentive for a period of time, lacks the necessary information to make the decision, or if the clinician is attempting to complete several cognitive tasks at once (Kahneman, 2003; Croskerry, 2008; Croskerry, 2009b).

**Lack of Training / Education:** Secondly, and most importantly, the dual process theory assumes that the health care practitioner has some intuitive knowledge / understanding of the presenting patient, so that several possible diagnostic solutions can be generated, considered and a clinical decision made using the non-analytical system. However, if the health care practitioner is a novice for example, and he / she has not seen this type of routine / non-routine case before, then the non-analytical system is not helpful. The novice health care practitioner will automatically use the analytical system to try and problem solve the case.
What usually occurs in this situation is a slow, methodical, textbook approach to the case, which is governed by rules, devoid of any intuitive thought processes (Fish, 2010). The novice will appear detached from the case, will not be situated holistically within the context of the case (patient / environment), and will not have a non-analytical perspective to offer on the case (see Table 1 - Five Stages of Skill Acquisition - Novice vs. Expert). See further discussion later in 3.9 - Intuitive Clinical Judgement Making: Novice vs. Expert Practitioner in Clinical Practice.

The review of the literature demonstrated that there was a lack of appropriate education in non-analytical decision making in human medicine. Kassirer (2010) agrees with this statement further stating “that despite substantial advances in our understanding of human cognition during the last few decades, our teaching methods are still based largely on expert empirical [analytical] opinion” (2010, p. 1119).

According to Hogarth (2001, p. 78), “What we learn is a function of the opportunities offered by the environments in which we live and act and we cannot learn from something that we cannot see”. Therefore Hogarth (2001) and other researchers (Vanpee et al., 2010; Sanson-Fisher et al., 2005) believe that medical students should learn about the non-analytical system of clinical reasoning at medical school, at the bedside, indeed, any learning opportunity that presents itself is an ideal time. Medical students should be taught, mentored and encouraged to learn about intuition and intuitive practices by expert practitioners. In this way, novice practitioners will commit to long term memory relevant clinical patterns and important cues available for intuitive recall when required (Nendaz et al., 2005; Bowen, 2006). (See further discussion later in 3.11 - Intuition in Human Medicine).

It can be argued that we all learn to recognise and interpret our visual experiences from birth. This is when we commence processing both visual and sensory information into perceptions. However, as we mature as health care practitioners, we will need the mentoring of an expert practitioner to show us how to holistically interpret this information in a meaningful way (Ingham, 2009).

Fish (2010) discusses the differences between training (analytical skills) and education (analytical & non-analytical skills) when exploring medical students learning how to perform a colonoscopy.
Appropriate training is essential to allow the students to become proficient in the skill of endoscopy and ensure that the procedure is performed correctly, therefore the teaching emphasis is on 'how to do it' (analytical skills).

In the training of any clinical skill, the “body of the patient (rather than the whole patient) is at the centre of the procedure …” (Fish, 2010, p. 198). Medical students then learn how to copy the teacher and repeat the procedure whenever requested. The problem with this training scenario is that there is no education about endoscopy and preparing the student to adapt and problem shoot for the different contexts of the patient and the procedure (non-analytical skills).

In an educational session, the training of the skill understandably forms the basic component of the student learning. However, the essential framework for learning is structured around knowing why, when and where the procedure should and should not be performed. By problem shooting and reflecting on the different contexts of the endoscopy patient, the medical student will see the patient as a holistic entity, with many potential, problematic layers to be acknowledged and treatment options considered. Fish (2010) believes that medical student engaging in educational practice should be interpretative, reflective, and developing their own sense of professional practice. These educational characteristics are important to the medical student because when difficult, non-routine cases arise, they can be independent, successful and safe practitioners who have learned to utilise both analytical and non-analytical skills (Fish, 2010).

In human medicine therefore there appears to be many learning opportunities to further develop non-analytical education in the medical curriculum. Interestingly, a review of the literature found that intuition (non-analytical skills) in veterinary practice was highly regarded, actively encouraged and a foundational part of the clinical assessment process actively linking both analytical and non-analytical skills to practitioner training (see 3.10 Intuition in Veterinary Practice).

I think that the salient point to reiterate here is that all forms of clinical reasoning / clinical decision making are important (both analytical and non-analytical systems). Both systems need to be utilised and both need to be developed to reach their maximum benefit in veterinary and human medicine, whenever teaching opportunities arise.
Given our recent discussion on the dual process theory then, further insight into intuitive clinical judgement making in clinical practice is warranted regarding novice and expert practitioners.

### 3.9 Intuitive Clinical Judgement Making: Novice Vs. Expert Practitioner in Clinical Practice

**Novice / Expert Practitioner:** A novice practitioner can therefore be described as one that has read the ‘textbook’, but one that is unable to read the patient. Lloyd-Zantiotis (2004, p.84) describes the ‘textbook’, amongst other information resources as “deposits of information that relate to the technical, operational and administrative procedures”. Expert practitioners are acknowledged as those people who not only know the ‘textbook’ and the rules, but have the ability to bend the rules because they can see more options than the novice (Lloyd, 2007). The expert practitioner has reshaped the rules, through experience so they “morph into forms that are dynamic, rather than rigid, organic rather than mechanistic and complex rather than simple” (Taylor, 2001, p.41). Experts use all of their senses to judge and act (embodiment), and never rely solely on rigid rules or protocols to guide their decision making (Ingham, 2009). Expert practitioners have a good, working balance of both analytical and non-analytical educational skills.

The term intuitive clinical judgement making was used in the review of the literature to distinguish between expert human judgement compared to that of a machine or novice (Benner & Tanner, 1987). Benner describes five levels of nursing proficiency from beginner or novice through to expert nurse practitioner using the “Dreyfus Model of Skill Acquisition” (see Table 1).

Benner & Tanner (1987) believe the major difference between a novice and an expert practitioner in clinical practice is the latter's ability to have an intuitive grasp of the situation and be able to pinpoint the presenting problem without wasting time on extraneous matters. As the expert practitioner has an enormous background experience and has learnt clinical pattern appreciation with a vast number of patients, he/she has the ability to have a more holistic view of the patient without the linear, and often, simplistic thinking typical in clinical algorithms and practice guidelines.
This means that the expert practitioner is more likely to have an immediate understanding of the patient’s needs because of their intuitive, clinical judgement making abilities (i.e. well-developed non-analytical processes) (Benner & Tanner, 1987; Dreyfus & Dreyfus, 1985; Johns, 2009; Zsambok & Klein, 1997; Correnti, 1990; Contrell, 2011,). When an expert practitioner uses all of their senses to evaluate a patient and act accordingly, the literature describes this as embodiment. However, it is interesting to note that embodiment is often omitted as an important factor of decision making theory (Ingham, 2009).
Table 1: Five Stages of Skill Acquisition  
(Dreyfus & Dreyfus, 1985, p.50)

<table>
<thead>
<tr>
<th>Skill Level</th>
<th>Components</th>
<th>Perspective</th>
<th>Commitment</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Novice</td>
<td>Context-Free</td>
<td>None</td>
<td>Detached</td>
<td>Analytical</td>
</tr>
<tr>
<td>2. Advanced Beginner</td>
<td>Context-Free</td>
<td>None</td>
<td>Detached</td>
<td>Analytical</td>
</tr>
<tr>
<td>3. Competent</td>
<td>Context-Free &amp; Situational</td>
<td>Chosen</td>
<td>Detached</td>
<td>Analytical</td>
</tr>
<tr>
<td>4. Proficient</td>
<td>Context-Free &amp; Situational</td>
<td>EXPERIENCED</td>
<td>Involved</td>
<td>Intuitive</td>
</tr>
<tr>
<td>5. Expert</td>
<td>Context-Free &amp; Situational</td>
<td>EXPERIENCED</td>
<td>INVOLVED</td>
<td>INTUITIVE</td>
</tr>
</tbody>
</table>
The review of the literature also found that the discipline of Narrative Inquiry also offers further insights into clinical judgement. From a narrative perspective, practitioners can be seen as having direct experience of many stories from their clinical experience and can therefore appreciate subtle, but important, differences between cases and their meaning for patient care. Expert practitioners have more narrative knowledge, or narrative knowing, which is a special form of reasoning taught through story-telling. This narrative story-telling is an essential component of learning in medical communities of practice where colleagues share experiences to gain further insight and practice wisdom (Wenger, 1998; Carroll, 2001).

However, it could be argued that with difficult and unfamiliar cases, experts can revert back to first principles and may proceed much like the novice practitioner. The novice practitioner on the other hand, does not have the tacit knowledge born out of years of accumulated experience (narrative knowing). They frequently have problems with their clinical perspective and often do not see the patient as a whole person, with many different facets informing the clinical outcome (under-developed non-analytical processes). Instead, they tend to see the patient in a fractionated or procedurally based way - the analytical approach (Benner & Tanner, 1987; Johns, 2009; Fish, 2010; Rew & Barrow, 2007).

Expert practitioners have learnt over time certain 'heuristics' that can assist in problem solving and shorten decision making time. Heuristics are mental shortcuts that might involve 'aide memoires' or rules of thumb that can assist with solving problems and making judgements quickly and effectively, particularly in an emergency situation (Gilovich, Griffin & Kahneman, 2002). Tversky and Kahneman (1974) believed that decisions that need to be made rapidly, in an uncertain environment, are commonly heuristic in nature and the decision makers are essentially basing their decisions on intuition. King and Appleton (1997) and Cioffi (1997) further endorse the fact that the majority of decisions that experienced health care practitioners make are based on intuition.

"The heuristics intend to improve the probability of getting intuition right by linking the current situation to past experience, being able to see the salient points, without any situation, and having a baseline position to judge against!" (Johns, 2009, p.6)
3.10 Intuition in Veterinary Practice: Practice Based Evidence & Evidence Based Practice

Trout (2008) had similar insights to Benner & Tanner (1987) about the expert practitioner’s ability to have a holistic view of the patient and focus on the real patient issues. In this vignette, Trout (2008, p. 269) is discussing a case with his junior intern about the meaning of being an expert practitioner in veterinary practice.

“You took a dog with a mysterious set of clinical signs and achieved the Holy Grail of any medical investigation, not just a diagnosis, but the definitive diagnosis … You know these are the kinds of cases you really remember, not the ones that come with a bouquet of flowers. These are the cases that stay with you your entire career. They are the real challenges, the tough ones, the ones that carve deep through the bark and leave their mark in the trunk … These cases are built on experience and knowledge” (Trout, 2008, p.269).

Intuitive skills can be perceived as being a result of various factors with the important elements being; empathy with the animal, real and embedded commitment to animal well-being, experience over time, embedded and developed observation and communication skills, aspects of reflection and reflective practice and deep critical thinking or critical analysis skills (Antelyes, 1988; Candlin, 2008).

Radostits et al., (2000) described traditional veterinarians’ decision making as being based on their personal experience over time, anecdotal evidence, intuition and reflection. Pfeiffer (1994) and Radostits et al., (2000) conclude that veterinarians use intuition, experience, factual knowledge (observation and clinical examination) and diagnostic tests as tools to make a diagnosis. It seems that intuition here is seen as a combination of well-developed observation, combined with extensive experience and the ability to deeply reflect on the meaning of that experience (see Figure 13: Factors in the Process of Diagnostic Reasoning).

Clark (1986) believes that the accumulation of experience, on its own, does not contribute to true learning or understanding. The author states that what is required for true learning and understanding of a given situation is reflection. If one takes the time to reflect on one’s actions and the clinical decisions made, this will ensure that if a similar situation should arise in the future, the patient will have the best treatment and care. “Intuitive knowledge can only be obtained through reflection on the performance of the action every time it is carried out, in order to build up a theory of predicted responses” (Clark, 1986, p.3).
Donald Schön (1983;1987) has discussed the aspects of reflection and reflective practice in terms of professional judgement making in daily practice. The terms “reflection in practice” and “reflection on practice” were first coined by the author in 1983. These terms have become a central component to reflective learning in the health care environment.

Reflection is described by Candlin (2008) as the art of thinking carefully about what has occurred. Schön (1991, p.50) brings the concept of reflection into daily clinical practice with component practitioners asked to regularly think about their cases during the event rather than after the completion of the case ("reflection in practice" or "reflection-in-action").

For example, in a health setting then, expert practitioners recognise phenomena or families of symptoms associated with particular diseases. They make quality judgements based on tacit recognition, skilled performance and experience. A particular routine case may surprise the practitioner because of its non-conformity to known practice. This will then lead to reflection(s) on the current case to better understand the situation and make sense of what is occurring. Making sense of what is occurring is the essence of hermeneutics and a foundation for our study.

After "reflection-in-action" has occurred, Schön (1991, p.50) describes the phase of "reflection-on-action". Here the practitioner reflects after the case on the holistic encounter. It is common here for the practitioner to research the case, speak to colleagues, write notes on what has occurred and so on. The sharing of stories with other practitioners to obtain feedback, so that all might learn, is one of the key insights from Wenger's work on communities of practice (Wenger, 1998). Reflection-on-action is an important exploration stage where the practitioner reflects on what has occurred, the actions that were taken and seeks clarification and clearer focus about the activities and practices that have transpired.

To better understand both “reflection-in-action” and “reflection-on-action” we can draw on the work of Aristotle, describing the technical (productive - how to do things) and practical (experience - learning everyday) nature of being (Smith, 2011). In other words being a reflective practitioner then is concerned with using one's expertise, or way of looking at something, or doing something, and then being ready to deconstruct it to explore new meaning for the benefit of the practitioner, the patient and the learning environment (Schön 1991).
To 'make meaning' is a foundational hermeneutic approach as we have seen earlier. A hermeneutic view is that these health care practitioners are learning their craft by constantly interpreting many valuable and valid lessons, in order to seek new understandings in their profession, even if they cannot articulate those understandings.
Figure 13: Factors in the Process of Diagnostic Reasoning (Pfeiffer 1994, p.54)
As mentioned, in contemporary veterinary practice, veterinary practitioners still make decisions based on personal experience, anecdotal evidence and intuition. However, the modern veterinarian is also well aware of the significance of analysed, self-critical experience and brings these aspects of reflection and reflective practice into the decision making arena (Radostits et al., 2000).

Trout (2008) claims to provide an example of his expert, reflective practices when he discusses the case of a 10 year old German Shepherd called “Sage” that he has had to take back to surgery following a marked deterioration in this patient’s medical condition.

“I revisit the stomach stable line, ran the intestines one more time, and once again come up empty. I have been logical, methodical and conscientious - everything that my training has taught me to be”. (Trout, 2008, p.282)

However, for Trout there still is no answer to this situation. He deduces that:

“What is left is simple deduction and the “leak” if it can be labelled as such, must be minor, tenuous, and of equivocal significance, but this has to be the cause”. (Trout, 2008, p.282)

Trout concludes that it can be nothing else, experience and knowledge he reasons, are his guide. This raises an interesting point about Trout’s reasoning. Trout talks of deduction which is very logical and technically rational (analytical processes). However, whilst there is rational thinking involved in his decision making, Trout is also using a deep narrative knowing in addition to any logico-deductive reasoning that he acknowledges. As an expert, he has probably seen similar cases in the past that have enabled him to have a deep narrative knowledge of this type of problem (non-analytical processes). This narrative knowledge, together with scientific knowledge and deductive reasoning, allows him to reason through the case. But combining the different ways of knowing (analytical & non-analytical) is also a hermeneutic exercise, because there is a fusion of horizons between the scientific facts, the story of this case and similar cases. This is essentially what makes Trout an expert practitioner. Whether Trout realises it or not, he is hermeneutically combining scientific evidence with practice-based evidence to solve his medical problem.
There is no doubt that evidence based practice, (based largely on quantitative research evidence), is part of the foundation of veterinary practice as it provides the science behind diagnostic tests, treatment options and regimens, medications and educational information (see next section). However, one could argue because clinical practice, knowledge and experience (intuition, observations and perceptions) are highly regarded in veterinary practice, and also form a foundational part of the clinical assessment and examination of the animal patient, (McIsaac & Butler, 2000; Radostits et al., 2000), that practice based evidence is also an important foundational partner in veterinary medicine (note previous case example).

Veterinary medicine can be described as a practice that focuses on the client and systematically collects relevant data during consultation and treatment with a focus on enhancing the quality and outcome of care. According to Girard (2008), this is the definition of practice based evidence. Further, practice based evidence has a deeper connection with real practice and creates unique treatment algorithms for the client, which are continuously reviewed and evaluated (Krakau, 2000). Practitioners are given a primary voice in practice based evidence because they are recognised as having first-hand experience and knowledge which is invaluable to their profession (Morgan & Juriansz, 2002).

It is interesting to note here that Krakau (2000) defines practice based evidence utilising the language of scientific practice when he talks of creating “unique treatment algorithms”. Perhaps this is an attempt to bridge the gap between the scientific worldview and the more interpretative worldview.

Therefore veterinary medicine is influenced by practice based evidence which focuses on clinical practice, knowledge and experience. Veterinary medicine also utilises evidence based practice, in order to support the research evidence of the science of medical practice.
3.11 Intuition in Human Medicine: Evidence Based Practice - Issues & Problems

While veterinary medicine may have foundations in both practice based evidence and evidence based practice (although some might argue against this statement), many human medical practitioners, in contrast, work in an environment where evidence based practice is seen as being the only solid foundation. It seems that many people in the health profession see professional practice, in simplistic terms, as the straightforward application of science. This section will discuss the scientific model and evidence based practice within the framework of narrative based medicine.

Sackett et al., (1996) defines evidence based practice as practice where the best clinical evidence to inform patient care decisions is sought. That evidence is the direct result of systematic research, preferably randomised controlled trials. Meta-analysis or integrated research reviews are the drivers for systematic research (Sackett, 1996). However, Sackett et al., also stated that the best evidence must be integrated with individual expertise, effectively linking practice based evidence with evidence based practice. This latter injunction is frequently ignored.

Modern western medicine is dominated by the scientific model. Practitioners who think primarily in biomedical terms may view their patients as a collection of physical parts that can be assembled, reassembled, or disassembled to fix the presenting problem (Marcum, 2008). Patients can be assessed and treated using diagnostic 'tools' which are available as algorithms, computer programs, decision trees and statistical – decision theories (analytical processes). These methods or programs can then be linked to treatment protocols to treat the majority of patients falling under a given clinical condition or category (Marum, 2008; Benner & Tanner, 1987; Gerrity, 1987). As Svenaeus observed (2010, p. 49) “The body becomes a hierarchical structure - an organism framed in a special language”, meaning the special language of biomedicine. Svenaeus then goes on to argue that practitioners become acculturated to paying attention only to this special language and are in danger of ignoring the individual voice of the patient. Generic treatment protocols based on biomedicine then subsume the individuality and identity of patients. This attitude then oversimplifies clinical decision making.
Drummond (2001, p.69) argues that the scientific approach to clinical decision making is seen only in black and white.

“In this view, a given entity is either one thing or another. Something is either an act of resistance or of compliance. It cannot be both. In contrast, the art of decision making involves recognising that compliance can also involve resistance”. (Drummond, 2001, p.69)

The scientific model and evidence based practice are terms that are frequently cited together. The work of Sackett et al., (2000) in evidence based medicine rose to prominence in the late 1990s. Sackett described five principles of evidence based medicine in order to raise standards of clinical care in the medical community;

- Clinical decisions should be based on the results of high-quality epidemiological studies, clinical intervention trials, and other robust research designs on human subjects.
- The prognosis of disease, and the benefits and harms of different management options, should be expressed as mathematical estimates of probability and risk.
- Randomised controlled trials are more valid and generalisable than 'anecdotal' evidence when assessing interventions.
- Secondary sources of research, especially systematic reviews and the guidelines derived from them, can summarise the relevant research evidence on a topic and provide the busy health care practitioner with a useful short cut to the 'clinical bottom line'.
- The recommended approach to clinical problems is as follows: formulate a focused question, search the literature for relevant research evidence, appraise the evidence for its validity and usefulness, and apply the results (Sackett et al., 2000).

Greenhalgh (2002) provides a critique, claiming that the founding fathers of evidence based medicine (EBM) never reported that the evidence from clinical trials should be applied in a vacuum. Indeed Greenhalgh explains that if we are to be true to the founding fathers of EBM, we need to pay attention to the entire quote which was:

“The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence … By individual clinical expertise, we mean the proficiency and judgement that individual clinicians acquire through clinical experience and [emphasis added] clinical practice”. (Sackett et al., 1996, p.71)
Greenhalgh (2002) then goes on to argue that narrative approaches to understanding medical practice provide a means for the integration of evidence-based practice with the individual expertise and experience of practitioners. Problems in patient care occur, according to Benner & Tanner, (1987) when the information received does not correlate with the well-structured quantitative theories cited above. Benner & Tanner (1987) believed that the Western world is proposing to discard intuitive clinical judgement and replace it with rational calculations. This is because clinical judgement making has been viewed as using unfounded knowledge, and guesswork, and is seen as the basis for irrational acts and even as supernatural inspiration (Benner & Tanner, 1987; Easen & Wilcockson, 1996).

English (1993) asserts that the practice of medicine is deeply entrenched in the scientific method. English believed that intuition should be empirically and unequivocally validated before it has legitimacy in the nursing profession (or other health professions), particularly when entrenched in an evidence based medical model. Unfortunately there are relatively few studies that have assessed the validity of claims for intuitive diagnosis (Benor, 2001). Further, research has been limited because of the “lack of valid and reliable scales to measure the constructs of acknowledging intuition as an aspect of clinical decision making” (Rew, 2000, p. 95). This statement assumes that intuition must be seen in terms of what can be quantified and that this is the only way it can be accepted. Einstein himself critiqued this point of view by stating that:

“The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honours the servant and has forgotten the gift”. (1931, p.97)

As a result, intuitive knowledge in nursing, and other health professions, has not been ‘validated’ in America and other parts of the Western world and nurses are discouraged from using intuition or even discussing their views (Rew, 1986). Gerrity (1987) believes that intuition is seen as an immature process and worries that the more Western society devalues this skill, and discourages its use, the less chance it has for development. Western medicine must therefore encourage the use of intuitive knowledge in daily practice. In my opinion there is too much insistence in the literature that only scientific ways are acceptable in practice (scientism). However, it must be remembered that intuition cannot be used as an excuse for poor thinking.
There is still a real need for accountability and rigour, but there can be a key problem in defining the word ‘rigour’. The solution may lay in the writings on qualitative research that claim that we can use other ideas like credibility, transferability, dependability and confirmability to establish and defend rigour in our research (Lincoln & Guba, 1985; Guba & Lincoln, 2000; Creswell, 2003) (see Chapter 4 Methodology).

Rew (1986) believed that health care practitioners in human medicine often appear anxious and apprehensive about using their intuitive skills. Often they discount these skills while looking for concrete data that will explain a given situation. The ‘evidence burden’ approach is well documented by protocol driven, inexperienced health care practitioners (Greenhalgh, 2002). Beck (1998, p.171) detailed a graduate student’s written description of intuition and how her thoughts on a clinical patient were discounted because they were not based on fact (hypothetico-deduction).

“Walking onto the unit at 7am, I was able to discern a certain tension and disruption of the busy equilibrium that usually prevailed. A strict isolation sign hung from the door of room 433, which was located near the nursing station. As the day nursing coordinator, I had the “need to know” everything that occurred in 4 South, a bustling 38-bed medical-surgical unit. My gut instinct had a warning light that was flashing brightly. Over the past 6 years as a registered nurse, I had learned to respond to my frequent bursts of intuition. My staff and other co-workers had also learned to trust and seek my impressions of situations and patient conditions.

Today, something was definitely amiss, and I sought to quickly appraise myself of the presenting issues. The woman in room 443 was 44-years old with a long history of asthma with frequent exacerbations of her condition. Her present medical diagnosis was staph pneumonia. She was receiving the usual respiratory therapy and medical treatment deemed necessary, albeit very conservatively. I had a strong need to personally assess her prior to receiving the oral report from the night nurse coordinator. I intuitively knew even before I set foot in the room this patient was in trouble, and today was going to live on in my memory, as indeed it has.

After doing a complete assessment of her, I thoroughly familiarized myself with her chart and obtained all her lab work and other pertinent data. The night nurse informed me that the patient’s attending physician had been in at approximately 6 a.m., felt that she was stable, and said to continue as prescribed. My first thought was that he’s out of his mind. My second thought was: How am I going to convince this physician that she belongs in ICU and requires much more aggressive treatment and therapy?
I followed the usual protocol: re-called the physician; reviewed the lab work, pertinent data, vital signs and my assessment; and expressed my personal concerns; He adamantly refused to come in to reassess her condition and definitely did not want her transferred to ICU. Feeling frustrated but with a strong sense of purpose, I followed the next proper protocol and the normal chain of command. I sought the advice of the nursing administrator, and she contacted the chief of medicine. The consensus was to leave her on the regular unit for further observation. At this point, my intuition was screaming at me to take some kind of action. I knew with complete clarity that she was going to crash, and it would be in the next few hours.

As a nurse, my patient’s life came first. But as a hired professional, under the auspices of an institution, I also had a legal obligation to follow the orders of my superiors. I had always felt that where there is a will, there is a way. I decided that if this patient was not going to be transferred to ICU, I would somehow bring ICU to the patient. The Fates were with me. The ICU was very light that day, with only two patients that were on the verge of being transferred to the step-down unit. The unit could hold up to eight patients.

I called the ICU coordinator, and reviewed the patient’s condition along with my dilemma. She came down and examined the patient and agreed that she indeed belonged in ICU. She also concurred that without a change in treatment, the patient would code. She brought ICU to me. She floated an ICU nurse. We put another more effective IV line in, placed the patient on all the usual intensive care monitoring and observation, and when she crashed, we were prepared. We had even transferred her to the ICU stretcher bed. Respiratory therapists were standing by. Within seconds of respiratory arrest, she was intubated. The emergency room physician was impressed with our work. She was quickly and easily transferred to ICU. Three weeks later she was discharged. Our response to intuition made a difficult and dangerous situation turn into a timely save. The physician’s response was a sheepish laugh, “I guess you were right”.

When it was all over, I still felt a strong sense of frustration and anger. I was emotionally drained. It was difficult to be powerless when action was needed”. (Beck, 1998, p.171)

Einstein (1931, p.97) summarised the graduate nurse’s plight by stating: “I believe in intuition and inspiration. At times I feel certain I am right, while not knowing the reason ... It is strictly speaking a real factor in scientific research”. Indeed this nurse's experience provides an excellent example of intuition according to Rew (2000, p. 95) as “it is the act of synthesizing empirical, ethical, aesthetic and personal knowledge”. This nurse acted on her medical knowledge related to her previous training and could appreciate the patient’s situation holistically.
Unfortunately, the nurse could not articulate why she felt the need to act (intuition) and satisfactorily relate this information to the treating physician because of the lack of specific, scientific information (Rew, 2000).

Intuition therefore is not clairvoyance or some magical way of knowing. It can be seen in Gadamerian terms as what we know, but has not yet been brought into language. Gadamer (2004, p.464) was of the opinion that with any phenomenon, there is always the “said and the unsaid”. Indeed, we can never say everything about a phenomenon because there is always more to say. One of our tasks as researchers (and practitioners) is to find ways of saying some of what is “unsaid”. One of the essential elements of this study then is to say some of the “unsaid” or unarticulated issues relating to clinical assessment. Highlighting and discussing the idea of the observational text or non-verbal information is an important step towards articulating the “unsaid”.

Rew & Barrow (2007) believed that intuition is an important component of clinical practice and should be taught to students and novice nurses to improve their nursing skills. Intuition is part of what we know, but students and novice nurses have not yet learnt how to articulate intuition. Kahneman (2011) believes that intuition is essentially recognition and we can teach intuition by regularity, practice and by appropriate feedback by mentors. The ultimate aim is to teach students to learn, acknowledge and trust their intuition particularly in clinical practice (see also Lajoie, 2003; Ryan & Higgs 2008).

However, as the shift towards evidence based medicine continues, it is feared that intuitive clinical judgement making will not be granted legitimacy in human medicine. “The person who cannot provide a logical basis for their decisions is likely to be referred to as irrational or uninformed ...This is the dominance of the positivist perspective ...” (Vahabi & Gastaldo, 2003, p. 245).

The discussion of legitimacy with intuitive clinical judgment making in human medicine is therefore timely given the graduate nurse’s situation previously described. Bonner’s term “boundary rider” (2001, p.47) can also be used to explain this graduate nurse’s situation. The nurse is well aware of the standard operating rules and procedures for this patient in her ward. However, the nurse makes the decision to break the rules / not follow the given procedures because she trusted her own clinical judgment more and was concerned with the well-being of the patient.
Certainly, in this case the nurse’s actions were warranted and the doctor would have signed off on her decision after the event. A satisfactory outcome for all concerned.

However, many expert nurses would not have crossed the ‘scientific boundary line’ and traversed into non-scientific waters even though they believed that their intuition was correct. Bonner (2001) believes that this is largely because the expert nurse would have been found to be culpable if something went wrong with the patient, or the doctor refused to sign off on their intuitive clinical decision making.

The truth of the matter, as previously stated, is that both analytical reasoning and intuitive clinical judgement making often work together to solve patients clinical problems and concerns (Greenhalgh, 2002; Benner & Tanner, 1987). Schraeder & Fischer (1987) stated that the practice of medicine involves multiple ways of knowing their patients, and all ways have legitimacy. For example, the nurse might know the patient as a person, or know the patient's normal pattern of responses. These ways of knowing then assist with patient assessment and caring for the patient. Bevis & Watson (1989, p. 92) claimed:

“Nursing and education are based on human science and require theories that allow multiple realities and intuitive and constructive knowledge as well as procedural knowledge”.

Poincaré, a French mathematician in the 19th century found that intuition is basic to discovery. He stated that “discovery is a consequence of intuition, while logic is the means by which its existence is proven” (Rew, 1986, p.24). Greenhalgh (2002) reaches the same conclusion stating that intuition is a highly creative process that is fundamental to the generation of a hypothesis in science. The experienced practitioner should follow clinical hunches as well as, not instead of, applying the principles of evidence based medicine. In this way, the practitioner is being hermeneutic and bring both the clinical hunches and evidence based medicine together, in a fusion of horizons, with the ultimate aim of deeper understanding.

Radostits et al., (2000) have also found that although medical science is invaluable and statistical tests provide the best conclusive evidence, health care practitioners live in an uncertain world. Expert nursing care, the ability to predict behaviour given incomplete or ambiguous information and ethical dilemmas all require intuitive practice (Rew & Barrow, 1987).
Radostits et al., (2000) claimed that patients do not always fall neatly into statistical categories and conclusions always fall short of mathematical certainty. Pfeiffer (1994, p.55) went further claiming that the only mathematical certainty in clinical practice came with death:

“... Test evaluations require the comparison of test results with a gold standard. Post-mortem examination can be considered the ultimate gold standard ... However, the ultimate gold standard is unachievable in most cases”.

Paolini (2009, p.10) summarises the practice of medicine by stating:

“The calling of those involved in the practice of medicine is to strive to combine the best of the science with the best of the art, to produce the most optimal outcomes”.

3.12 Utilising both Science & Art in Human Medicine

The power of observation and deductive reasoning were used in the medical model of the 1800s and 1900s. Intuition has been described as part of nursing's oral history and practice tradition as far back as Florence Nightingale in 1860. Here, observations and their interpretations were established as the hallmarks of trained nursing practice (Tanner, 2010). These principles were well regarded and validated by the medical profession and community of the era. The current medical curriculum generally encompasses the same key areas of anatomy, physiology, pathophysiology and pharmacology as veterinary medicine. However, human medicine is now firmly situated mostly in the scientific model with evidence based practice as the driving force (Greenhalgh, 2002; English, 1993; Baron, 1992). Perhaps as South suggests (2004), it is time to revisit the lessons learnt from yesteryear for the betterment of patient care.

Greenhalgh (2002) believes that the science of medicine is taught at undergraduate level. The art of medicine is taught at post graduate level. She postulates that the time has come to combine the two worlds and ensure that health care practitioners are holistically educated. Evidence based medicine is already in the medical curriculum (see also Blackwell, 2001).

“It is now time to raise the status of intuition as a component of expert decision-making, and begin to integrate both groups discussion methods and individual reflective writing alongside the teaching (and validation) of these skills”. (Greenhalgh, 2002, p.399)
The advantage of models like Benner’s is that it treats the patient holistically and includes as much information as is available, in order to make an informed decision (Benner & Tanner, 1987; English, 1993). Stephenson, a veterinarian, reached similar conclusions in an interview with Brookes (2009) and articulates how she combines analytical and non-analytical information when making a diagnosis.

“Tests don’t tell you all the answers. You can get the numbers but then you need to stand back from the diagnostics and have a little intuition to get real meaning into the clinical situation. If you don’t engage yourself and only do tests then you are just dealing with numbers and that could be anything”. (Brookes, 2009, p.1)

“Sometimes I have had animals come in and if you palpate the abdomen really well you can find that one kidney is irregular or the liver feels enlarged. I think between your hands, your knowledge and your gut [gut feeling], if you follow your gut you can get a hunch and then you do what we typically do and think of the diagnostics. However, it is the hands on examination and the gut feeling that has led us to the diagnostics!” (Brookes, 2009, pp.1-2)

Perhaps it is timely if human medicine learns from veterinary medicine and combines both the science of evidence based practice (research evidence) and the art of practice based medicine, to bridge the gap between research and clinical practice for the benefit of patient care. Duggal & Menkes (2011, p.643) have encouraged health care practitioners to do just that and “balance the tensions between research evidence and practice based evidence”. In reality, the authors are suggesting that health care practitioners should recognise the importance of evidence based medicine to human practice, and the significant contributions that practice based evidence can make to clinical practice, which can, in turn, guide clinical decision making. Duggal & Menkes (2011, p.639) have coined the term “evidence based medicine in practice” for serious consideration and inclusion into the medical curriculum.

3.13 Ways of Teaching - The Art of Story-Telling in Medicine

This chapter has already discussed how the novice practitioner learns rules, protocols, treatment and outcomes. The novice is also mentored by experienced practitioners who function at a higher level than the novices, thus demonstrating greater competence in practice (Benner & Tanner, 1987).
As the novice becomes comfortable with this information, they convert these guidelines and lessons to stories of cases they have seen. As more atypical knowledge presents, they refine their stories via experience such as grand rounds, patient case studies and so on (Greenhalgh, 2002). The novices further commit these experiences to the memory bank of their non-analytical system.

Greenhalgh (2002) believed that the art of story-telling can combine with the science of medicine to assist in the learning process. We are reminded by Calman (2006, p.vi) that the learning process is after all about “the acquisition of knowledge, skills and attitudes which help to shape practice and it raises awareness of particular patient problems”. A growing number of scholars are of the opinion that much professional knowledge is remembered in the form of narrative, rather than a collection of abstract facts (Greenhalgh, 2002; Greenhalgh & Hurwitz, 1999; Sullivan & Rosin, 2008). “Stories are powerful tools for teaching and learning and a universal form of communication” (Greenhalgh, 2006, p.46).

Day (2009) believes that health care practitioners can and should use these experiential stories to promote health education to their patients and colleagues. Story-telling is mankind’s oldest form of teaching. Story-telling is a teaching style that has the ability to effectively communicate important health messages (treatment compliance, follow-up care, wellness approach, oral viva topics etc.) to the patient or colleague in an easily understood format that is both embracing and motivational (Day, 2009). Indeed it would seem that everyone “loves a good story” (Day, 2009. p.3).

An excellent “teaching story” by Trout (2008) summarising this section of the literature review is found below. The teaching story highlights the importance of experience, knowledge, intuition and reflection in clinical practice.

“I’ve got a ten year old cat with a foreign body in his trachea and I think he needs emergency surgery right away” stated the breathless intern. “When I observed the cat’s breathing, you could see that it was breathing through its nose ... its gums were nice and pink ... but it had pale yellow teeth ... that was the first clue. It apparently was a white obstruction ... the second clue”.

“The answer was that it had swallowed its own tooth”. “How did you know that it has inhaled its own teeth” asked the amazed intern? “I could have stated that it was a lucky guess. I could have casually shrugged my shoulders and left the intern to think that I had amazing clinical acumen. Instead I confessed to seeing an identical case one week earlier”. (Trout, 2008, pp.264-265)
Trout (2008) stated that the yellow teeth and the poor condition of the gums were all clinical clues to the experienced practitioner. Here Trout (2008) is using his experience of direct observation, knowledge and intuition to make a diagnosis. He is using all of his senses to reflect, find meaning and a diagnosis for the cat. He is also using a shared, meaningful vocabulary to impart embodied knowledge to his intern, so that he to, can learn from the case (Lloyd, 2007).
3.14 Chapter Summary

The areas of veterinary interest that were explored in this chapter involved non-verbal communication, clinical assessment and examination, the one health or one medicine approach to both human and veterinary medicine, clinical decision making and evidence based practice / practice based medicine approaches to clinical practice.

The review of the literature has demonstrated that there could be real and valid lessons that the veterinary profession can share with human medicine because of the commonality between the two clinical disciplines. However, it does appear that there is little cross fertilisation between the two health professions. Clearly then, there is a need for research into the potential benefits that human medicine might derive from veterinary medicine.

The next chapter (Chapter 4) is therefore timely because it discusses the study's methodology using a qualitative research framework, which is focussed on exploring the lessons that human medicine can learn from veterinary practice.
“Life is a succession of lessons which must be lived to be understood”.  
(Ralph Waldo Emerson - American Poet & Lecturer, 1803-1882)
4.0 Overview of Chapter

The overall aim of this chapter is to describe and discuss the qualitative research paradigm used for this study and to provide details of how the data was gathered and analysed. Therefore the study's underpinning epistemology, theoretical perspective, methodology and methods, which collectively form the framework of the study, will be discussed. Working within a recognised framework ensures that the study has consistency between the different stages and provides intellectual rigour to the project (Crotty, 1998).

This study has utilised both an epistemological (theory of knowledge) and an ontological (theory of being) standpoint. Hermeneutic phenomenology was chosen as the particular philosophical position which is based on the philosophical influences of Husserl, Heidegger and Gadamer (discussed later). The overall strategy for conducting the research embraced hermeneutic phenomenological research methodology and the actual methods for conducting the research involved semi-structured interviews (Crotty 1998). The central theme overarching the entire study is one born out of the interpretive paradigm – to understand and explain human experiences (see Appendix A - Qualitative Research Paradigm).

This chapter will firstly provide an overview of the qualitative research approach known as hermeneutic phenomenology, followed by a discussion on the theoretical perspective of the study with respect to this form of phenomenology. Phenomenology has its disciplinary roots in philosophy and therefore three of the main contributing philosophers of phenomenology will be discussed; Edmund Husserl (phenomenology), Martin Heidegger (hermeneutic phenomenology) and Hans-Georg Gadamer (philosophical hermeneutics).

Secondly, the detailed descriptive procedure (semi-structured interviews) undertaken in the research process will then be described. Thirdly, the methodological justification for hermeneutic phenomenology will be discussed. Finally, a discussion on methodological triangulation, limitations of the study and data analysis will conclude the chapter.
4.1 Theoretical Perspective – Qualitative Interpretation

Hermeneutic phenomenology is the study of human experience (Andrews et al., 2004). It is appropriate in this study when exploring participants’ views and beliefs with regard to the lessons that human medicine can learn from veterinary medicine. This is because the research method aims to “construct an animating, evocative description (text) of human actions, behaviours, intentions and experiences as we meet them in the life world” (Van Manen, 2007, p.19), so that we can learn from these experiences. Hermeneutic phenomenology is helpful because it “helps us understand better what is most common, most taken for granted and what concerns us most ordinarily and directly in life” (Van Manen, 2007, p.19).

The purpose of this study is to articulate as richly as possible, for other health professions, some of the practices that veterinary staff find common and ordinary and take for granted, but which may offer useful ways for improving practice in human healthcare. Qualitative methods of inquiry have advanced over the last two decades with hundreds of texts now available justifying and discussing qualitative methodology in social and health sciences (Padgett, 2004).

Phenomenology has been defined as a theoretical perspective that has a history in qualitative research since the late 19th Century (Farganis, 1999; Crotty, 1996). It is one approach to social research that has been described by Newell & Burnard (2006) as an alternative to positivism. Positivism in this literature was defined as a philosophy that promoted empirical sciences as the only source of true data or knowledge. Positivism was modelled on empirical sciences and thus rejected any form of philosophical study aimed at developing ideas, concepts, research or even in solving scientific problems (Newell & Burnard, 2006; Vahabi & Gastaldo, 2003).

The aim of a hermeneutic phenomenological study is to “understand what it is like to walk in another person’s shoes” or “see the world through their eyes” (Andrews et al., 2004, p.63). Phenomenologists therefore describe people’s worldviews by seeking out their experiences and documenting these experiences, by describing as richly as possible, the participants’ thoughts, feelings, understanding or interpretations (Andrews et al., 2004).
Van Manen (2007, p.7) describes hermeneutic phenomenology as:

“The theory of uniqueness which is solely interested in the experiences of others”.

The hermeneutic phenomenological approach therefore examines what people perceive as real and valid. It does not rely on statistical analysis, measurements or the scientific method. Phenomenologists do not believe that experiential knowledge should be quantified or reduced to numbers in order to be understood (Newell & Burnard, 2006; Denscombe, 2003; Byrne, 2001a). It is a theoretical approach that is different from other approaches because it focuses on gaining insight from life’s experiences without abstracting, classifying or taxonomising the information collected (Van Manen, 2007).

Hermeneutic phenomenology is known as the human science for the very reason that the empirical subject matter is subjective lived experience and not numerical data needing statistical analysis. In contrast, a study based on the natural sciences looks at natural objects which do not have the ability to consciously think and relate meaning to their experiences (Van Manen, 2007).

Phenomenology as a human science does not see theory informing practice because practice or life experience always comes first. The concept of theory then comes later as a result of reflection and reflective practice (Schleiermacher, 1964).

“The integrity of praxis does not depend on theory ... but praxis can become more aware of itself by means of theory”. (Schleiermacher, 1964, p.40)

There can be many definitions of praxis from; established practice, a custom or the performance or application of a skill or the experience of life. Schleiermacher’s statement above implies that praxis relates to the experience of life. This is supported by the phenomenological work of the philosopher Hannah Arendt. Arendt (1906-1975) believed that active praxis was the most important part of one’s life. Praxis explained simply is our capacity to experience life, to analyse ideas, to work through problems and to learn from them. Praxis is what makes us uniquely human (Arendt cited in Fry, 2009). Hence, the integrity of life’s experiences does not depend on the theory of science or education. “Theory can make room for itself once praxis [life experience] has settled” (Schleiermacher, 1964, p. 41).
Van Manen (1990, p.15) concurs with Schleiermacher stating that: “It is phenomenologically plausible that in practical situations [life experiences] theory always arrives late ... then in the daily practice [life experience] of living, we are forever at a loss for theory”.

The earlier words of Schleiermacher were probably influenced by Aristotle (4th century BC). It is thought that Aristotle was the first to use the word praxis and although there are many definitions of the word, its modern incarnation is used in discussions about the theory / practice gap. Kemmis and Smith (2008) define praxis as morally committed and morally informed practice. In other words, praxis is an attempt to ensure that ethical considerations are always present in theory / practice discussions. There is a moral imperative that health professionals should be as well informed about their daily practice as they can be. With regard to this study then, health care professionals should be aware of the lessons that their veterinary colleagues have learnt that can assist human practice and benefit patient care.

Aristotle not only spoke of praxis in terms of life experiences, he also spoke of practical wisdom or prudence (phronesis). Practical wisdom was a wisdom that was more than theoretical knowledge; a wisdom that was learned through the practical experience of one’s life (Spiegelberg, 1994).

In Aristotelian ethics, sophia and phronesis form two intellectual virtues. A virtue is a positive trait or quality that is deemed by society as morally good and has the potential to promote individual or collective good for mankind (Moran, 2000). Sophia is translated as wisdom; that is the ability to think and reason within the world. Sophia is equated today with the scientific world. Sophia is often linked with the Aristotelian term episteme, referring to the learning of theoretical knowledge. It is a term that is also used in relation to the learning of wisdom. The term phronesis is concerned with how to act in certain situations as a result of experiencing life and the gaining of wisdom. Phronesis (prudence) requires some maturity in order to be able to reflect upon life and achieve a certain end (Spiegelberg, 1994; Moran, 2000).
Aristotle explains *sophia* and *phronesis* in Nicomachean Ethics 1142a:

“Whereas young people become accomplished in geometry and mathematics, and wise within these limits, prudent young people do not seem to be found. The reason is that prudence is concerned with particulars as well as universals, and particulars become known from experience, but a young person lacks experience, since some length of time is needed to produce it” (Moran, 2000).

Husserl (the father of phenomenology - see 4.2 below) also believed that experience is the source of all knowledge. Phenomenology has therefore been described as an approach, a method and a philosophy (Omery 1983). The phenomenological movement, as a philosophy, developed in the late 19th and 20th centuries because of the foundational work of Edward Husserl. Martin Heidegger and Hans-Georg Gadamer further contributed to phenomenology by linking the concepts of hermeneutics to phenomenology (Heidegger) and ensuring hermeneutic phenomenology (Gadamer) was central to the practice of philosophy (Gadamer, 1989; Van Manen, 2007; Cohen, 1987; Reeder, 1987). These philosophers will be discussed in further detail shortly.

Phenomenology itself has further developed and branched off into many different directions. Examples include; Arendt and her work with phenomenology of the public sphere (1906-1975), Levinas and the phenomenology of alterity (1906-1995), Sartre and his passionate description of phenomenology (1905-1980), Merleau-Ponty and the phenomenology of perception (1908-1961) and Derrida describing the deconstruction of phenomenology and the question of “being” (1930 - 2004). Indeed, phenomenology has been a major influence in many other methodologies like ethnomethodology and phenomenography (Diekelmann, 1993; Spiegelberg & Schuhmann, 1982; Moran, 2000).

### 4.2 Father of Phenomenology - Edward Husserl

Edmund Husserl (1859 – 1938) is frequently cited as the father of phenomenology. He was a German philosopher and mathematician. Even though his passion involved statistics, he was influenced by the studies of Franz Brentano, a fellow psychologist and philosopher of the late 19th century who encouraged Husserl to study consciousness from a first person point of view (Crotty, 1998; Denscombe, 2003). Husserl subsequently shifted his focus on philosophy from large scale theorisations towards a more precise study of discrete phenomena, simple events and ideas.
With this change began Husserl’s journey of attempting to understand human consciousness by interviewing people about their life experiences. Husserl described phenomenology as research composed in the real world that is pre-reflective, original and having a pre-theoretical attitude for all to embrace (Van Manen, 2007). Investigating the lessons that human medicine can learn from veterinary practice, using phenomenology and the so called lived experience, can be seen as falling within the broad framework of this theoretical perspective.

Whilst interviewing people, Husserl believed that he could gain an understanding of human consciousness and the valuable lessons that researchers can learn. The philosopher hoped to identify and understand the meanings that people attach to their experiences and day to day existence (Creswell, 1998; Cohen, 1987; Omery, 1983). Van Manen (2007, p.1) agreed with this stating “The questions themselves are the important starting points, not the method as such”. Phenomenology therefore provides the tool to explore the lived experience and a way to give “active shape” to the statements provided by the participants (Van Manen, 2007, p.204).

Husserl used his mathematical background to develop a technique called bracketing when interviewing people. He believed that you could be objective and unbiased when dialoguing with people and bracket, or put aside, your own life experiences in favour of isolating the participant’s experiences, beliefs and interpretations. Husserl discussed this technique in his book Logical Investigations (Bryne, 2001a; Bryne, 2001b; Todres cited in Holloway, 2005; Reeder, 1987; Cohen, 1987).

Husserl (1975) spoke of his method of ‘phenomenological reduction’ in which a subject could completely understand the essence of a phenomenon. By this statement Husserl meant that pure consciousness, pure phenomena and pure ego were the result of the phenomenological reduction method. Husserl believed that experience was the source of all knowledge but one needed to validate the phenomenological analysis by comparing it again to the original data. This method of comparison with the original information was referred by Husserl as “bringing the things back to themselves” (Husserl, 1975, p.252).

Husserl’s version of phenomenology had a strong focus on scientific knowledge. This is understandable given his background in mathematics.
One could say that Husserl’s phenomenology was essentially epistemological. Epistemology is the theory of knowledge and a way of viewing the world in which one lives (Crotty, 1998).

Having said that, Husserl’s original interpretation of phenomenology has been extended and adapted by many other philosophers of the twentieth century; Jean-Paul Sartre, Paul Ricoeur, Alfred Schutz, Martin Heidegger and Hans-Georg Gadamer are but a few examples. The development of the theoretical perspective of phenomenology in this research paradigm is more closely aligned with the works of the Heideggerian and Gadamerian phenomenology which will now be explored.

4.3 Martin Heidegger - Hermeneutic Phenomenology

Martin Heidegger (1889-1976), a junior colleague of Husserl built on the principles of Husserl’s phenomenology. Heidegger (1962, p.10) spoke of phenomenology using one word “thoughtfulness” further stating that it is a method or study about the “wonderings of life” and what it really means to live and love life and “being in the world” (dasein).

However, Heidegger differed from Husserl in his understanding of phenomenology. Heidegger was opposed to Husserl’s technique of bracketing. Heidegger held the view that we, as human beings, could not isolate (bracket) our life experiences (gender, background, culture, history and self) when dialoguing with others. Heidegger argued that even though these issues prohibited a totally objective point of view, it enabled the researcher to share common practices and meanings with the participant, thereby producing authentic reflections and assumptions (Heidegger, 1962).

In this study, the researcher identified with Heidegger’s ideas as she shared a common background of both veterinary and human medicine with each of the research participants. In turn, the research participants continued to share their personal narratives, history and culture concerning their lived experience of human and veterinary medicine.

In Heidegger’s pursuit of the question of being, he grounds his work in ontology – the understanding of ‘what is’ which is situated in a world that is already there, thereby bringing together examples of the past, present and future.
What it means to know (epistemology) and understanding ‘what is’ (ontology) complement each other in Heidegger’s world because each perspective seeks to gain an understanding of people in the real world (Crotty, 1998).

Heidegger appreciated the epistemological stance that Husserl held on phenomenology. However, Heidegger believed that the rich, lived experience of participants immersed in history, culture and self, deserved to be comprehensively understood in order to make sense of their lived experiences and share these life lessons. Therefore Heidegger is attributed as the philosopher that embedded hermeneutics (the study of interpretation or meaning) into phenomenology.

Van Manen (2007) used Heidegger’s understanding of phenomenology stating that as researchers, world experiences are already present in daily life. Phenomenology presents us with possibilities of both individual and collective self-understanding and thoughtful praxis in order to better understand the world that we share.

Heidegger’s hermeneutic approach to phenomenology was applicable to this study as I sought to identify and truly understand the lessons that human medicine could learn from veterinary medicine from the research participants’ perspective.

Utilising hermeneutic phenomenology as the theoretical perspective, within the interpretive paradigm in this qualitative study, meant that we could encompass not only the written text (interview transcriptions), but all forms of communication such as verbal and non-verbal communication to fully appreciate and make sense of the participants’ lived experiences (Palmer, 1969; White, 2005).

Other researchers in nursing, medicine, psychiatry, education, law, counselling and business have continued to embrace Heideggerian phenomenology. Nowadays, it is a widely embraced qualitative methodology used as the way to interpret experiences of shared meaning and practices (Van Manen, 2007; Byrne, 2001a; Koch, 1995; Borbasi, 1996; Jasper, 1994; Benner, 1984; Paterson & Zderad, 1995).

The German philosopher Gadamer, a phenomenologist himself, felt that there were limitations to Heidegger’s understanding of phenomenology. Gadamer’s insights are also relevant to this study.
4.4 Hans-Georg Gadamer - Philosophical Hermeneutics

Hans-Georg Gadamer (1867-1928) respected Heidegger as a colleague and embraced the philosophy of phenomenology. Gadamer was interested in the phenomenological approaches of both Husserl and Heidegger. However, he believed that Heidegger had not fully explored the philosophical underpinnings of phenomenology from an ontological perspective. Gadamer therefore believed that it was his role to try and understand the true nature of human understanding (Moran, 2000).

Gadamer saw himself as a phenomenologist but realised the central importance of language to the lived experience. He was interested in the essence of the lived experience and used language as the pathway to discover true meaning (Gadamer, 1989).

Gadamer’s work led him to appreciate that people are deeply influenced by their history and culture which then shapes their being and their experience of life. Gadamer explained this concept in his seminal work *Truth and Method* (1960) of which the first edition was published in 1960. While Heidegger is attributed with linking the concept of hermeneutics to phenomenology (hermeneutic phenomenology), Gadamer elaborated on this concept, making hermeneutics central to the practice of philosophy (philosophical hermeneutics) (Moran, 2000).

“My real concern was and is philosophic: not what we do or what we ought to do, but what happens to us over and above our wanting and doing”. (Gadamer 1989, p.xxviii)

There were numerous contributions that Gadamer made to the theory of phenomenology. However, Moran (2000, p. 248) believes that one of his most important contributions was in seeing that: “... understanding is the central manner of human being-in-the-world”. Gadamer in *Truth and Method* (2004, p. 384) stated that:

“Humans are essentially involved in the historically situated and finite tasks of understanding the world, a world encountered and inhabited in and through language. ... language is the medium of the hermeneutic experience”.

In this study, using the phenomenological influences of Heidegger and Gadamer meant that I could utilise a methodology where I focus on the participants’ lived experience and seek to understand its meaning and relevance to human medicine by articulating it and ‘bringing it into language’.
The evolution of the theoretical perspective of phenomenology with respect to the three philosophers of Husserl, Heidegger and Gadamer provides insights that are applicable to the lived experiences of the participants in this study.

Like the philosophers, the research participants commenced the semi-structured interviews with a technical rational approach (not unlike Husserl's text on 'Logical Investigations') to standard questions aimed at situating their occupation and practice. Participants' responses began by being short, factual and given in isolation from other life experiences.

As the questions continued, participants started to link their experiences and share insights of what it was like to be in the world of both veterinary and human medicine.

As the interviews progressed, participants continued to share their life experiences and relate more about how their personal history and culture shaped their real understanding of the lived experience with regard to human and veterinary medicine. Using Gadamer (2004, p.452) as an inspiration, these insights were then "brought into language" by the data analysis. The overall intention is that other health professionals might benefit from the participants' lived experiences.

4.5 Methodology Procedure

This study received Ethics in Human Research Committee approval from Charles Sturt University (2006/216) (see Appendix B).

The application conformed to established ethical monitoring and control guidelines as stated by the Declaration of Helsinki of 1964 (Baumgartner & Hensley, 2006). This study employed semi-structured interviews appropriate for the hermeneutic phenomenological approach. Semi-structured interviews were selected because they provide topical direction for the researcher and participant, yet were flexible enough to allow both parties freedom of expression and room to explore ideas and experiences (Kvale, 1996; Morse, 1991; McDade, 1999).
4.6  Pilot Study

Prior to data collection, a pilot study was conducted with the researcher’s veterinary supervisor to practise the technique. This process was invaluable because it assisted in refining the interview questions, gave a sense of likely timeframes for each question, trialled the audiotape equipment to ensure high quality performance and highlighted the needs of the participant during the interview and transcript verification process.

Following the pilot study, the researcher interviewed fifteen (15) national and international participants for approximately 40-60 minutes each (see 4.8 Semi-Structured Interviews & 4.9 Participants below). After preliminary analysis of the data and the field notes from the interviews, it became clear that no new insights were forthcoming, and data collection was therefore discontinued. This point is called data saturation.

4.7  Information & Consent Forms

Several days prior to each interview, participants received an information sheet concerning the study (see Appendix C – Information Statement) and were asked to read and complete a consent form (see Appendix D – Consent Form). Participants were further given an opportunity to ask questions about the interview process or raise any concerns prior to the interview.

4.8  Fifteen Semi-Structured Interviews

Research participants were asked a total of twelve open ended research questions in the semi-structured interviews (see Appendix E - Interview Questions for Participants). During the interviews there was flexibility in the topic order and participants were encouraged to have freedom of expression and to explore their own ideas and experiences. To further facilitate this process, the interview questions were given to the participants several days prior to the interview. This gave participants time to reflect upon the issues that were to be raised at interview. The intention was to elicit responses that were the result of participants being free to reflect upon their experience and interpret what their experience meant to them (see Raynovich, 2010, Wengraf, 2001). Thus, the semi-structured interviews allowed for a free flow of information between the researcher and the participant with the aim of discovery and free topic expression (Denscombe, 2003; Depoy & Gitlin, 1998; McDade, 1999).
The researcher interviewed seven veterinary practitioners who now worked in human medicine and eight expert human health care practitioners who had an interest in veterinary medicine. Thirteen of the interviews were conducted via telephone (UK, USA, New Zealand & Australia) and two interviews were face to face (Australia). One of the telephone participants was further interviewed face to face when available at an overseas workshop (USA). All the interviews were audio-taped to allow for accuracy of transcriptions. The audio tapes were transcribed with the aid of appropriately experienced personnel who were independent of this study. This is important according to Patton (1990) in order to validate and honestly report your findings (i.e. providing an audit trail). Participants were given an opportunity to comment on the accuracy of their interview and make additional comments prior to de-identification (this is called member checking). Further additional comments made by participants, after the interview processes were complete, were included in the Discussion Chapter under the heading 'Post Scripts'.

4.9 Participants

“Hermeneutics must start from the position that a person seeking to understand something, has a bond to the subject matter”. (Gadamer, 1989, p.299)

The majority of the participants contacted the researcher after informally hearing about the study and expressed interest in becoming participants. Other interviewees were identified and approached as a result of utilising passive snowballing techniques from existing participants.

Passive snowballing occurred when the first participants, who were already personally acquainted with the researcher, were asked to pass on the researcher’s contact details to other potential interview participants who then contacted the researcher (Merkens, 2004; Polgar & Thomas, 2008). As the criteria for inclusion were very limiting, that is, participants must be veterinary practitioners now working in human medicine or expert human medicine practitioners with an interest in veterinary medicine, the snowballing technique was very successful. The first participants invited several potential interviewees from a closed circle of professional acquaintances that would have otherwise been difficult, if not impossible, to locate. As a result of this passive snowballing technique, potential participants were contacted from Australia and from overseas to participate in this study.
The seven veterinary practitioners who were working in human medicine included; one veterinarian who was also a registered pharmacist (Australia), one veterinarian who is now a medical lecturer (Australia), four veterinary nurses who were also paramedics (Australia) and one veterinary nurse who was training to be a Registered Nurse (Australia) (see Overview of Veterinary Practitioners now working in Human Medicine – Table 2).

The eight expert human medical practitioners with an interest in veterinary medicine included: one anaesthetist with an interest in veterinary medicine (Australia), one general (medical) practitioner who was a former veterinarian (Australia), one professor of neurosurgery and animal/horse behaviourist (USA), one medical paediatrician with strong links to veterinary medicine (UK), one paramedic who is also a horse farrier (New Zealand), one lecturer in human biomechanics who is also an animal (horse) behaviourist (Australia), one paramedic who is also a zoo keeper (UK) and one critical care flight paramedic with a background in canine behaviour (Canada) (see Table 3: Overview of Human Medical Practitioners with an Interest in Veterinary Medicine).

It is appropriate to mention in this methodological discussion that Atkinson & Flint (2004) state that there are two main disadvantages of the snowballing method. The first disadvantage is that the researcher has little control over the sampling method. The second disadvantage is that the results of the study may only apply to a small subgroup of the population.

I accept Atkinson & Flints comments but believe it is also an advantage to not personally select potential participants for this study. In this way, researcher bias with regard to the participant selection can be avoided. With regard to the non-generalisability of study findings because of the small sample group, this is a fair statement with further extensive research warranted in this research area before any findings can be applied to general populations.
# Table 2: Overview of Veterinary Practitioners now working in Human Medicine

<table>
<thead>
<tr>
<th>Participants</th>
<th>Background</th>
<th>Experience</th>
<th>Vet Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Did Certificate III Vet Nursing Certificate then Vet Nurse (7 years). Completed Bachelor of Nursing at X University. Now an RN for 4 years.</td>
<td>Veterinary practitioner with links to human health care</td>
<td>Veterinary Nurse now RN</td>
</tr>
<tr>
<td>2</td>
<td>Worked for 20 years in a mixed rural veterinary practice and then began working for X in rural occupational health and safety. Still involved in the animal health-related industry. Working last 5 years at X University lecturing medical students.</td>
<td>Veterinary practitioner with links to human health care</td>
<td>Veterinarian now Medical Lecturer</td>
</tr>
<tr>
<td>3</td>
<td>Did veterinary science at X University and worked for 8 years as veterinary surgical nurse. Felt that there wasn't any further avenues for me so transferred to paramedics 4 years ago.</td>
<td>Veterinary practitioner with links to human health care</td>
<td>Veterinary Nurse now Paramedic</td>
</tr>
<tr>
<td>7</td>
<td>Obtained an Animal Technology Certificate from TAFE, worked my way up from junior Vet Nurse to Practice Manager over a nine-year period. Completed a paramedic degree at X, now a Paramedic for last 3 years.</td>
<td>Veterinary practitioner with links to human health care</td>
<td>Veterinary Nurse now Paramedic</td>
</tr>
<tr>
<td>8</td>
<td>Worked as a vet nurse for five years, then as a paramedic for 19 years.</td>
<td>Veterinary practitioner with links to human health care</td>
<td>Veterinary Nurse now Paramedic</td>
</tr>
<tr>
<td>11</td>
<td>4 years of vet nursing before working at a GP's office, now I have been a paramedic for 12 months.</td>
<td>Veterinary practitioner with links to human health care</td>
<td>Veterinary Nurse now Paramedic</td>
</tr>
<tr>
<td>13</td>
<td>Qualified in pharmacy and vet science in 1981. Been practicing both simultaneously since then. Veterinarian and Pharmacist for 30 years.</td>
<td>Veterinary practitioner with links to human health care</td>
<td>Veterinarian now Pharmacist</td>
</tr>
</tbody>
</table>
## Overview of Human Medical Practitioners with an Interest in Veterinary Medicine

<table>
<thead>
<tr>
<th>Participants</th>
<th>Background</th>
<th>Vet Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>I have been a Doctor of Medicine for 30 years but have maintained an interest in veterinary medicine.</td>
<td>No Vet background – Medical Doctor – Anaesthetist / ICU Consultant</td>
</tr>
<tr>
<td>5</td>
<td>Did 19 years training as a veterinarian but wanted a new challenge. Transferred to medicine and I have been practicing medicine now for 20 years.</td>
<td>Veterinarian now General Practitioner</td>
</tr>
<tr>
<td>6</td>
<td>Volunteers as an ambulance officer and has been a farrier for 40 years.</td>
<td>Farrier and Paramedic</td>
</tr>
<tr>
<td>9</td>
<td>Been a GP for 40 years with a strong interest in veterinary medicine.</td>
<td>No Vet background – Medical Doctor – Paediatrician</td>
</tr>
<tr>
<td>10</td>
<td>Undergraduate in sport science and a PhD in mechanical engineering. Interested in the biomechanics of human and animal athletes (e.g. horses).</td>
<td>No Vet background – Sports Medicine</td>
</tr>
<tr>
<td>12</td>
<td>Worked as an animal keeper at a safari park, working mostly with elephants, before becoming head warden over a 12-year period. Changed tack to become an ambulance technician, then paramedic, which he's done for several years.</td>
<td>Zoo Keeper – Head Warden - Now Paramedic</td>
</tr>
<tr>
<td>14</td>
<td>I was a primary care, critical care and flight care paramedic for 32 years. I have been an EMS Educator for 27 years. Again both at the primary, advanced and critical care levels. I have a Bachelor of Health Science Degree, and a Masters in Health Services Management. I train German Shepherd dogs and I am knowledgeable in canine behaviour.</td>
<td>No Vet background – Paramedic</td>
</tr>
<tr>
<td>15</td>
<td>Vet interest, surgery then human medicine – MD at X Medical School, 8 years Neurosurgery, Professor of Neurosurgery, Undergraduate in Psychology, Computer &amp; Electrical Engineering. Just loves horses, grow up with horses, they are truly a gift to the human race.</td>
<td>No Vet background – Medical Doctor – Neurosurgeon</td>
</tr>
</tbody>
</table>

**Table 3: Overview of Human Medical Practitioners with an Interest in Veterinary Medicine**
4.10 Methodology Justification: Adding Strength and Rigour to the Thesis

In this study, the hermeneutic phenomenological approach was selected because it is an appropriate methodology to answer the particular research questions being asked. Broadly, these questions seek to understand what is involved when veterinary experience influences the ability of health professionals to assess non-verbal human patients. This research study assumes that such abilities, like those involved in patient assessment, are more than a purely instrumental means of achieving the goal of diagnosis; they are ontological, a part of one’s being-in-the-world. Further, Gadamer’s emphasis on “bringing things into language” (2004, p. 452) resonated with the aim of the study to articulate the diagnostic skills that veterinary experience can confer on those who work in such environments. Van Manen (2007) claimed that methodological choice should reflect a certain harmony with the research with a deep interest that is relevant to the task at hand. Methodological choice should not occur as a result of a researcher’s whim, taste, fashion or preference.

The domain of phenomenology demands that we closely examine phenomena or ‘things’; their structures, their appearance, and see how the ‘things’ present themselves (Nightingale & Cromby, 1999). The research questions seek to identify and explore how human medicine can benefit from an investigation of veterinary practice with respect to the clinical streams of communication and clinical examination. The phenomenological approach allows the researcher the opportunity to understand the life experiences of the participants from the perspective of both human and veterinary medicine and gives meaning to the study. It can also provide rich information not found in quantitative methodology (Kvale, 1996; Morse, 1991). The hermeneutic aspect seeks to explore how participants understood their experience.

Even though Heidegger and Gadamer never intended their work on phenomenology to become the basis for a qualitative research approach, this has occurred in many research studies over the years and in this study. The Heideggerian and Gadamerian hermeneutic phenomenology provided the study with an organised, systematic approach to the research which was explicit and self-critical in addressing the research questions and in capturing relevant information.
The opportunity to incorporate narratives from participants enriched the study by exploring their views, thoughts and feelings and gave the researcher a deeper understanding of the participants’ world (Creswell, 2003).

The researcher was also afforded the opportunity to reflect on the participants’ experiences and include her own interpretations which is the foundation of the analysis. The use of direct quotes was a way of establishing that the researcher’s interpretation of the participants’ comments were firmly grounded in the data provided. The use of direct quotes from participants has the additional benefit of enhancing the credibility of this study in relation to the findings and conclusions (Van Manen, 2007; Kvale, 1996; Morse, 1991).

In addition, some of the literature supports the use of hermeneutic phenomenology as a research approach that can produce findings that are both more interesting to read, and more relevant than quantitative research results, with the reader more likely to embrace the experience and learn something much more useful from the process (Denscombe, 2003; Bryne, 2001a; Bryne, 2001b; Creswell, 1998; Crotty, 1998). Hermeneutic phenomenology is a research approach that is thoughtful, reflective and worthwhile. It encourages attention to detail.

“It makes us thoughtfully aware of the consequential in the inconsequential, the significant in the taken-for-granted”.
(Van Manen, 2007, p.8)

Van Manen (2007, p.4) summarises why hermeneutic phenomenology is appropriate for this study:

“It is the textual reflection on the lived experiences of the participants and documents the practical actions of everyday life with the intent to increase one’s thoughtfulness and practical resourcefulness or tact”.

4.11 Strength: Reliability & Validity Gained through Trustworthiness

Qualitative research is sometimes criticised for failing to pass quantitative standards of methodological rigour. Such quantitative standards include reliability, validity and objectivity (Sandelowski, 1993). This is unfair according to Morse et al., (2002, p.2) because “qualitative research lacks hard, statistical numbers, p values, etc. and is not amenable to statistical analysis”.
Guba & Lincoln (2000) proposed that qualitative methodology should not be judged by using quantitative tests of rigour. Instead, qualitative research should be judged according to the concept of ‘trustworthiness’ (Creswell, 2003). There are four criteria that make up ‘trustworthiness’; credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985; Guba & Lincoln, 2000; Creswell, 2003).

A qualitative study is said to meet the **credibility** criteria if other readers and researchers can immediately relate to the faithful description or interpretation of the human experience whilst reading the study (Sandelowski, 1993). With regard to phenomenological writing, if the reader has experienced the phenomenon in question, it is not uncommon for these readers to “nod in agreement” (the phenomenological nod) as the description resonates with their own experience (Van Manen, 1990, p.27). In addition, if participants trust the researcher and are willing to share full and rich descriptions of their experiences, this can enable the researcher to interpret the meaning structure of these experiences in ways that are credible.

**Transferability** is comparable to external validity; it is determined by the decision trails in the qualitative research. In quantitative research there are claims to generalisability of research findings based on tests performed on statistically representative samples where the research can then be said to be externally valid (Sandelowski, 1993; Creswell, 2003). In contrast, qualitative research seeks to come to a deeper understanding of the particular. There are no claims to generalisability. However, in qualitative reports there is an attempt to be as transparent as possible so that readers can see clearly how conclusions were reached. Such transparency often makes it clear that findings are likely to apply to many similar situations.

**Dependability** and **reliability** according to Sandelowski (1993, p.31) are “concepts that are said to be interchangeable and should be evident throughout the qualitative research process”. It is noteworthy to mention that qualitative research (particularly hermeneutic phenomenology) emphasises the uniqueness of the human situation and experience and therefore this situation is not amenable to repeatability or statistical validation (Guba & Lincoln, 1985).

**Confirmability** in qualitative research is “the criterion of neutrality where it can be shown that the findings originated from the data and were not the result of the subjective stance of the researcher” (Sandelowski, 1993, p.34).
Having a hermeneutic phenomenology stance in this study, however, means that subjective interpretation is accepted as unavoidable (and is unavoidable in most research). A hermeneutic phenomenological position means that the researcher consciously and openly acknowledges subjectivity in the study so that the reader is fully aware how interpretations were made.

Padgett (1998, p.92) states that any qualitative research must “manage the threats of trustworthiness and ensure that defined procedures are in place to ensure 'rigorous scholarship' of the methodology”. Therefore, this study has employed strategies such as methodological triangulation, reflexivity, member checking and audit trails to manage the threats to trustworthiness.

**4.12 Methodological Trustworthiness**

The term triangulation is taken from navigation and land surveying where a number of landmarks must be used to pinpoint a geographical position (Angen, 2000; Sands & Roer-Strier, 2006; Padgett, 2004). In research, *methodological triangulation* is therefore a method of cross-checking data from multiple sources (such as literature reviews, interviews, observations) to ensure accuracy and regularities in the research data (O'Donoghue & Punch, 2003; Creswell, 2003). According to Carpenter and Suto (2008, p.152) “methodological triangulation is the most powerful means for strengthening credibility in qualitative research”.

In this study, a comprehensive review of the relevant literature was performed at the same time the fifteen participants were being interviewed. The interviews were transcribed with the use of independent personnel and sent to the participants for feedback. The participants acknowledged that the transcripts were a true reflection of their thoughts and experiences. Some participants chose to expand on statements given and provided further detailed case-based examples of their 'lived experience' (see analysis chapter).

A research analyst independent of this study, the research supervisors and the research candidate all assisted with the data analysis.

The researcher conducted two of the interviews face to face (the other thirteen interviews were via telephone) and observed a workshop facilitated by one of the participants in the USA.
The observations of the researcher’s own lived experiences (both as a paramedic and veterinary nurse) as well as the research process assisted with the methodological triangulation (see Figure 14: Methodological Triangulation, below).

The researcher was a paramedic for thirteen years before transferring across to a rural university to teach Paramedicine. During my time ‘on road’ I was involved in many cases where patients were unable to communicate with the ambulance paramedics or the health care teams at the hospital. Common examples leading to the lack of communication included: the patient presenting in an unconscious state; affected by alcohol or drugs; having suffered a stroke or other debilitating illness or simply, the patient being non-English speaking. I found these situations clinically challenging because I was unable to work through a list of set medical questions with the patient to ascertain the true nature of the injury or illness.

Throughout my paramedic career I had always been interested in veterinary medicine. An opportunity arose midway through my paramedic career to work firstly as a volunteer, and then later as a veterinary nurse, in several veterinary clinics. Whilst working in these dual roles, I became aware of how veterinary staff dealt with the lack of verbal communication with their patients. This was a defining moment for me because the lack of verbal communication was a 'real' and 'challenging' issue in human medicine. Transitioning across to the academic environment, I often wondered how human medicine could learn from these valuable lessons in veterinary medicine. The thesis process has assisted me in finding answers to these questions by articulating the participants’ voice and their lived experiences.
Reflexivity occurred within the study with the researcher acknowledging that her “lived experiences would impact on the meaning and context of the experiences under investigation in the study” (Horsburgh, 2003, p.308). According to Horsburgh (2003) and Koch (1995) reflexivity is encouraged in authentic phenomenological research.

Validation and Transparency: The individual participants' audio tapes were transcribed by a researcher independent of this study, member checking occurred when the individual transcriptions were sent to each participant to ensure accuracy of content and authentic understanding of the interview questions. An independent analyst and research supervisors assisted with data interpretation to ensure external validation. Audit trails were transparent and evident throughout the development of this study (see The Research Phases in Figure 15).

Audit trails in this qualitative research were primarily methodological and analytic documentation. The methodological documentation referred to design decisions made throughout this study, for example, what data sources, studies, participants, processes etc. were included in the thesis. Analytic documentation referred to decisions made in relation to categorizing, coding and reporting of key themes (Sandelowski & Barroso, 2003, Sandelowski, 1998).
The transparency of the audit trail process is one way that trustworthiness can be assured in the presenting of findings in this thesis. Sandelowski & Barroso (2003) would argue that the thesis itself is, in essence, one big audit trail. This is because the reader embarks on a qualitative journey with the presentation of several chapters, which comprehensively and transparently explains the work undertaken. Issues, problems and biases are also identified, discussed and justified so that the reader can be assured that rigorous, qualitative research has occurred.

4.13 Limitations

Hermeneutic phenomenology is the study of the individual, human lived experience in a given situation and how people make sense of that experience. Qualitative studies of this kind usually involve low participant numbers but result in a greater depth and breadth of research information. Critics of qualitative research would argue lack of credibility because of small sample size (de Laine, 1997) and lack of replicability because of the uniqueness of the individual’s experience. However, Munhall (1994) would argue that this is the true meaning of phenomenology; research which allows for detailed consideration and understanding of the individual experience, which is authentic, transparent and documented so that all may share in the qualitative journey.

Purists of qualitative research, indeed of phenomenology, may ask why all the research participants in this study were not interviewed face to face, in their natural setting, given that it is a study examining non-verbal communication. Ideally, it would have been desirable to interview all the participants face to face and videotape the experience to add another level of richness to the study findings and assist with the methodological triangulation.

However, in the 'real world', participants were geographically scattered throughout Australia with some participants being overseas in the USA, England and Ireland. Indeed, not all participants were available to attend face to face interviews, nor felt comfortable with the videotaping process.

4.14 Data Analysis

Initially, it was decided to explore key themes and relevant concepts using the Microsoft software tool 'NVIVO 7' (2006). This software package assists researchers by organising text based information, specifically
conversational data, into sub-groups and helps explore relevant thematic trends and nodes (Bryne, 2001a). However, whilst working with an independent data analyst it was discovered that the semi-structured interview questions had already provided a framework for analysis. Therefore, common themes and concepts were carefully placed into categories and sub categories to ensure valid interpretation of the participants’ voice. This information was then entered into an Excel spreadsheet to explore relevant trends. The category analysis proved useful in weighing individual participant’s responses and identifying how importantly they rated key themes (Patton, 1990; Creswell, 2003).

The individual and group analysis of the posed twelve interview questions are presented in the following Introduction to Analysis Chapter (Chapter 5) and Analysis / Findings Chapters (Chapter 6 & 7). Key themes and concepts have been included as well as additional responses from participants that were not strictly related to the twelve posed questions. Both formal and informal responses have been summarised in these chapters to crystallise key issues for discussion (Chapter 8). A summary of the methodology process is depicted in The Research Process Figure 15 below.
Figure 15: The Research Phases
4. 15 Summary

This qualitative study utilised an epistemological and ontological approach, embracing hermeneutic phenomenology as the particular philosophical, theoretical perspective. The philosophical influences of Husserl, Heidegger and Gadamer were discussed as well as their important relationship to the underpinning interpretative paradigm of this study. Semi-structured interviews were conducted with participants who had links to both human and veterinary medicine.

The research data emerged as a result of individually interviewing fifteen participants. The research process was reflective and involved multiple methods of collection (triangulation – literature review, interviews, transcriptions and the researcher’s own lived experience).

The research design incorporated member checking, audit trails, reflexivity and external validation (independent transcriber, independent research analyst and active research supervision) to ensure trustworthiness. The methodological process clearly defined the role of the researcher, the inclusion of the researcher’s experiences and interpretations in the methodological process. The study’s findings are presented in the subsequent analysis and discussion chapters.
“The most important thing in communication is hearing what isn’t said”.

(Peter Drucker - Italian Author, Teacher & Theorist, 1909-2005)
5.0 Overview of my Research Journey

Working as a paramedic for several years, I was taught to use the standard interrogatory style of medicine when assessing my patients. As a student paramedic I remember rote learning long lists of questions to ask of patients presenting with a variety of different illnesses and injuries. I relied heavily on the verbal dialogue with the patient to try and determine a chief complaint and subsequent preliminary diagnosis so that I could instigate the appropriate medical treatment.

Over the years, I found that professional practice was not as straightforward as trying to learn the theory and simplistically applying the appropriate knowledge to my patients. In my professional experience, I found the encounter between the health care practitioner and patient to be very complex, with perhaps my biggest challenge, the over reliance on verbal communication to achieve the medical goals stated above. Many times my medical colleagues and I struggled with patients who were unable to communicate because of a variety of different reasons; they were semi-conscious, drug or alcohol affected, could not speak English or our presenting patient was simply a child without parental supervision. Further, we were asked to attend patients who could no longer communicate effectively because of their recent stroke, surgery or medical condition. It soon became apparent that my medical education and training did not always prepare me to deal with patients who had communication issues.

Arriving one day for my casual shift as a veterinary nurse, I had an experience which is sometimes described in terms of ‘defining moments’. The small animal clinic was busy that morning and two owners had opted to leave their cats for medical attention because they were running late for work. The staff did not have an opportunity to speak to the owners, yet were unconcerned about the lack of verbal history or the fact that the owners would not be present in the patient consultation. It was then that I really became aware that my veterinary colleagues did not rely on verbal communication with their animal patients to develop an effective understanding of their medical needs and requirements. Veterinary practice made me realise that there are other ways of effectively assessing patients that did not involve the spoken word. In my experience, non-verbal assessment was highly valued in veterinary medicine but not well utilised or understood in human medicine. Therefore, the main reason for undertaking this study was to explore the potential benefits that human medicine might derive from veterinary medicine with regard to non-verbal communication and patient assessment.
5.1 Overview of Key Finding

THE EXISTENCE AND IMPORTANCE OF OBSERVATIONAL TEXT (NON-VERBAL INFORMATION) AS A LOGICAL EXTENSION OF GREENHALGH'S NARRATIVE BASED MEDICINE MODEL

Greenhalgh (1999) was an advocate of using narrative based medicine in an evidence based world. The author believes that narrative based medicine is important in the patient - health care practitioner encounter because it validates the experience of the patient and also encourages creativity and self-reflection in the health care practitioner. Charon (2006, p.3) reinforces the work of Greenhalgh (1999), stating that:

“Medicine has grown significantly in its ability to diagnose and treat biological disease ... However, doctors still need to learn to listen to their patients, to understand as best they can the ordeals of illness and to honour the meaning of their patients' narratives of illness ...”

Greenhalgh (1999) explains how the health care practitioner - patient encounter occurs in a highly structured, methodical order. The health care practitioner is seeking the information or text to understand the story of the ill patient. The author describes four secondary texts that are aimed at assisting the health care practitioners to understand the patient’s story.

1. **Experiential Text** – the meaning that the patient assigns to their problems and what has brought the patient to see the health care practitioner;
2. **Narrative Text** – the patient’s traditional medical history as interpreted by the health care practitioner;
3. **Physical Text** – What the health care practitioner learns from the formal physical examination of the patient;
4. **Instrumental Text** – the results of laboratory and other appropriate tests.

Our study argues that what is missing from this patient - health care practitioner encounter is the **Observational Text or Non-Verbal Information**. A health care practitioner can gather information from the observational text throughout the clinical encounter. The observational text is distinct from (but related to) the physical text which is the formal physical assessment usually occurring after the verbal history is taken. The physical text is read via formal protocols at a specific time in the assessment. However, the information from the observational text is available throughout the entire assessment.
There is an assumption in Greenhalgh's work (1999) that there is usually effective verbal communication occurring between the health care practitioner and the patient in the medical encounter. Unfortunately this is not always the case. The observational text then becomes especially important. There is a need to carefully observe the patient's body language, behavioural clues and non-verbal messages in order to understand the patient holistically. The observational text can help the health care practitioner to identify presenting problems, to appreciate the magnitude of the problem from the patient's perspective and validate other verbal information shared with the health care practitioner. If effective communication is already occurring between the health care practitioner and the patient, the observational text can also be used to authenticate the findings of the entire patient consultation and physical examination process.

Our study acknowledges the fact that health care practitioners currently do read non-verbal information from their patients. However, human health care practitioners 'see' but they do not often closely 'observe' their patients. This study claims that veterinary practitioners are better skilled in the art of observing and interpreting non-verbal information from their patients. It is this non-verbal information that the study is “bringing into language”; the language of human medicine, in order to better understand our patients, thereby improving patient care (Gadamer, 2004, p. 452).

Observational text (non-verbal information) is therefore sufficiently distinct and important enough to be recognised as equal in status to Greenhalgh's other four texts in the health care practitioner - patient encounter (1999).

5.2 Four Higher Order Themes

Fifteen participants were interviewed for this study and all were practising human health care practitioners at the time of this study. When analysing the data and participant backgrounds, it became apparent that ten health care practitioner participants had some type of veterinary background (veterinary nurses, veterinarians, farriers or zoo keepers) and five health care practitioners did not have a veterinary background but did have an interest in veterinary medicine. This re-ordering of the participant groups proved useful in analysing participant responses.

The analysis chapter will discuss the detailed findings of this study and clearly show how the four higher order themes were derived from the raw data provided by the participants.
However, the aim of this chapter is to discuss the four higher order themes that emerged from the thematic analysis of the data (see Figure 16: Higher Order Themes).
KEY FINDING / HIGHER ORDER THEMES FROM ANALYSIS CHAPTER

KEY FINDING: The Existence & Importance of Observational Text - (Non-Verbal Information) as a Logical Extension to Greenhalgh’s Narrative Based Medicine (1999)

GREENHALGH’S FOUR STEP PATIENT - HEALTH CARE PRACTITIONER ENCOUNTER:

<table>
<thead>
<tr>
<th>Existing Framework</th>
<th>Additional (New) Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiential Text</td>
<td>(Patient’s Experience / Reason for their Presentation)</td>
</tr>
<tr>
<td>Narrative Text</td>
<td>(History / Story)</td>
</tr>
<tr>
<td>Physical Text</td>
<td>(Physical Examination)</td>
</tr>
<tr>
<td>Instrumental Text</td>
<td>(Investigations)</td>
</tr>
<tr>
<td></td>
<td>OBSERVATIONAL TEXT</td>
</tr>
<tr>
<td></td>
<td>(Non-Verbal Information)</td>
</tr>
</tbody>
</table>

HIGHER ORDER THEMES

1. Health Care Practitioners who have veterinary education / experience in non-verbal communication see themselves as being more skilled at the hermeneutic (interpretive) tasks of assessing patients.

2. The belief by participants that there is a need / opportunity to improve the communicative skills of students, in all health professions, by including more non-verbal communication and assessment in the formal, human medicine academic curricula.

3. Non-verbal assessment should commence as soon as the patient is identified and be a continuous process throughout the entire patient – health care practitioner encounter. Health practitioners should commit fully to the continuous, non-verbal assessment process in order to assist with a positive patient - health care practitioner experience.

4. The belief by participants that Practical Wisdom (Phronesis), Knowledge (Episteme) and Non-Verbal Communication / Patient Assessment Skills (Techné) could be easily transferred from one field (veterinary medicine) to benefit another field (human medicine). These veterinary skills appear to be easily learnt and translatable to the human health care environment. To assist health care practitioners become more attuned to non-verbal information (Observational Text) two acronyms (heuristics) were developed to assist in the clinical assessment of the patient (OBSERVE) and the patient in pain (PAINFUL).

Figure 16 Higher Order Themes
1. **Health care practitioners who have education / experience in 'Non-Verbal Communication' see themselves as being more skilled at the hermeneutic (interpretive) tasks of assessing patients**

The health care practitioners with a veterinary background (10) all described themselves as having a high level of confidence and ability when dealing with human patients who were unable to communicate or communicate effectively. This confidence and ability was directly attributed to their formal and informal veterinary education / experience in non-verbal communication. Non-verbal communication was reported as a central theme of their veterinary curriculum and reinforced throughout their veterinary practice.

“My background as a vet really does help [with patients that are unable to communicate] because I sometimes think like a veterinarian. In vet medicine, you observe, make a provisional diagnosis, do a physical [examination] and then confirm with tests if necessary”. (Participant 5, Veterinarian / Medical doctor)

The participant in this quote is effectively saying that there are two distinct texts (phases) with regard to patient assessment. In this participant's practice, the observational text is quite clearly distinct from the physical examination text. Hence, there is foundation here in the study's data to acknowledge this finding.
In contrast to the health care practitioners (veterinary background) above, all five health care practitioners without a veterinary background did not undertake any education in non-verbal communication in their medical training. As a result, when they encountered patients who could not communicate or communicate effectively and were unable to ascertain a verbal history, they reported feeling “lost at sea” (Participant 4), “it is very difficult” (Participant 9), “it can be misleading … the examination is fragmented” (Participant 15), and “it is frustrating to commence an assessment without the use of words” (Participant 5 speaking as a GP).

This study’s findings support the work of Montgomery (2006) believing that medicine is not itself a science, but rather an interpretative practice of caring for patients and preventing or managing disease. Indeed, Montgomery (2006) states that good physicians when assessing patients will often combine scientific information, clinical skill and practical wisdom (based on years of collective experience) in the health care practitioner - patient encounter.

2. **The belief by participants that there is a need / opportunity to improve the communicative skills of students, in all health professions, by including non-verbal communication and assessment in the formal, human medicine academic curricula**

Several of the health care practitioners (non-veterinary background) discussed what appears to be commonly held beliefs by medical mentors and health care practitioners regarding graduate student health education. One commonly held belief was that students should concentrate on medical science subjects like anatomy, physiology, pathophysiology and pharmacology while at university / college and not on perceived soft skill areas like communication. The participants (non-veterinary background) claimed that there was simply not the space in the curriculum to teach non-verbal communication subjects well at university / college. Participants further reported many academics reinforcing the priority areas of medical science in the health curriculum with students responding by preferring topics related to medical science over topics related to communication skills.

“Students don’t take their communication training seriously because they don’t see the relevance in this elective subject to their practice”. (Participant 10, Sports Medicine / Equine Behaviourist)
Several of the participants believed that there was definitely a need to holistically and comprehensively include non-verbal communication and assessment in the formal, human medicine academic curricula for health students.

3. The 'Non-Verbal Assessment' of the patient should commence as soon as the patient is identified, and be a 'Continuous Process' throughout the entire patient – health care practitioner encounter

Human health care participants (veterinary background / self-taught veterinary skills background) in the study stressed the importance of continuous non-verbal assessment of the patient throughout the patient – health care practitioner encounter. These participants believed that the non-verbal assessment process should commence with the initial identification of the patient and continue throughout the consultation, treatment and re-evaluation of the patient. Several of the participants spoke of the important lessons that can be learnt about the patient throughout their clinical journey.

“When I first see my patient I ask myself questions about why the patient walks that way? Why do they look a little pale? Why do they look a bit harassed? Why can’t they sit still? I wonder what could be wrong with this patient?” “Could they be in pain?” (Participant 7, Veterinary Nurse / Paramedic)

“After treatment, if the patient comes in, moves smoothly, sits on the chair comfortably and naturally, it is a pretty safe bet that their back pain has improved [and treatment has been successful].” (Participant 4, Medical Doctor / self-taught Veterinary Skills)

‡‡ There were five health care practitioners in our study without a veterinary background but who were interested in veterinary medicine. As a result of their interest in veterinary medicine, and ongoing challenges with patients with communication problems, they had adopted some of the veterinary practices concerning non-verbal communication and clinical assessment skills into their human health care practice. These health care practitioners described themselves as being ‘self-taught’ in the field of veterinary non-verbal communication and assessment.
4. **Practical Wisdom (Phronesis), Episteme (Knowledge) and Techne (Skills) are some lessons being transferred from one 'Field' (Veterinary Medicine) to benefit another 'Field' (Human Medicine)**

In this study, health care participants spoke of gaining wisdom, knowledge and skills from their veterinary medicine background (veterinarians, veterinary nurses, zoo keepers & farriers) which they then applied to their human practice (doctors, paramedics & registered nurses) in order to improve patient care.

In trying to understand and make sense of what the participants were saying, I believed that the Aristotelian terms of *phronesis, episteme* and *techne* resonated well with the health care participants’ experiences of gaining wisdom (phronesis), knowledge (episteme) and skills (techne) from veterinary medicine and utilising this information in human medicine.

The terms phronesis, episteme and techne have their origins in Aristotelian ethics and are known as intellectual virtues. A virtue is a positive trait or quality that is deemed morally good and has the potential to promote individual or collective good (Moran, 2000). This definition is interesting given that the human health care participants are using their veterinary experience for ‘good’, that is, to try and improve patient care.

Some health care practitioners reported that they were aware of mentally transferring experience / knowledge / skills in their current human health practice when they were dealing with patients with communication problems.

“When I get confused by my patient’s verbal history on road or the patient provides conflicting information, I like to go back to basics. My basics are in veterinary medicine which is my background. By observing the patient and their body language it soon becomes apparent which pieces don’t fit”. (Participant 11 Veterinary Nurse / Paramedic)

Other health care practitioners (veterinary background) were not aware that they utilised veterinary experience / knowledge / skills in their current human health practice until asked during the interview process. It was only when asked to reflect on how they might have transferred veterinary attributes to human practice, that they became aware that they had done so. As a researcher, being part of this *defining* moment for these participants during the interview process was indeed special!
“I probably do bring my observational skills with animals to patients … I’ve never even thought about that. Well, well, [vet skills] in my paramedic training, well, well …” (Participant 12, Zoo Keeper now Paramedic)

“Yes, I guess that I do bring my vet skills across [to my human patients]. Yeh, I guess I do. [Pause, pause] I think a lot of what I do, I actually do without consciously thinking about it, how about that?” (Participant 3, Veterinary Nurse now Paramedic)

In addition, human health care practitioners (without a veterinary background but were self-taught), provided clear examples of how veterinary skills and abilities can be easily learnt and be readily transferrable to the human medicine environment. These participants described how their veterinary experience had developed:

“Over the years, I have largely taught myself to observe things like body language and non-verbal communication clues, behavioural clues and the like … I still have a strong interest in veterinary medicine so it made sense to me to learn about non-verbal communication … In my particular job in the Intensive Care Unit, we have patients who may have an endotracheal tube in their trachea. They may have a tracheostomy. They can’t talk … non-verbal communication is very important”. (Participant 4, Medical Doctor)

“[There is] much common ground between sick animals and sick children as they share many attributes; they lie down when sick, they want to be left alone, they don’t feed, they sleep a lot and they both share the common thing – they can’t tell you that they are sick”. (Participant 9, Paediatrician)

Participant 9 describes his clinical speciality now not as a paediatrician, but has coined the phrase “Veterinary Paediatrics”. His self-taught methods of veterinary non-verbal communication and patient assessment arose out of ongoing discussion with veterinary colleagues, which now, in turn, provide the foundation for his teaching of medical students and junior doctors about sick children.

5.3 Development of the “OBSERVE” & “PAINFUL” Acronyms

In our study participants with a veterinary background shared insights about their veterinary education / experience and how they had transferred these lessons over to their human medical practice. Similarly, the health care practitioners who were self-taught in veterinary, non-verbal communication and assessment skills shared their new veterinary insights into medical practice and patient care.
After re-reading these participant insights many times and reflecting on their meaning, I began to map out these participants' views in order to construct meaning and make sense of the world that they lived in. The mapping process uncovered that the collective, veterinary, non-verbal clinical assessment information that participants described when assessing their human patients, could form the acronym “OBSERVE”! By summarising this important information in this way, “OBSERVE” could be utilised as a non-verbal patient assessment tool for the continuous, clinical evaluation of the patient. Human health care practitioners could employ these veterinary skills to holistically assess fourteen (14) non-verbal and behavioural clues throughout the entire patient encounter. In reviewing the acronym “OBSERVE” below, note that there can be one, two or three relevant, non-verbal or behavioural clues for each letter (see Table 4: Non-Verbal Patient Assessment Tool for Clinical Evaluation and Analysis Chapter 7 for comprehensive discussion).

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>Observation / Overall Physical Appearance</td>
</tr>
<tr>
<td>B</td>
<td>Body Language / Behaviour</td>
</tr>
<tr>
<td>S</td>
<td>Safety / Surroundings</td>
</tr>
<tr>
<td>E</td>
<td>Emotions / Mood / Demeanour</td>
</tr>
<tr>
<td>R</td>
<td>Relationship with others</td>
</tr>
<tr>
<td>V</td>
<td>Vocalisation</td>
</tr>
<tr>
<td>E</td>
<td>Eyes for the Clinical Examination / to Re-Examine / to Evaluate</td>
</tr>
</tbody>
</table>

Similarly, when I was reviewing health care participants (veterinary background / self-taught veterinary skills) responses to two questions about how non-verbal communication and behavioural clues were used in the evaluation of patients in pain and the responsiveness to treatment of these patients, another suitable acronym emerged from the data mapping process. The acronym “PAINFUL” could be used to summarise the participants' information concerning non-verbal and behavioural indicators of pain.
Drilling down further into the participants' responses, they described **eighteen**, non-verbal and behavioural pain indicators to non-verbally and non-invasively assess patients in pain (see Analysis Chapter 7 for comprehensive discussion and Table 5: Non-Verbal & Behavioural Pain Indicators).

Health care practitioners could use this veterinary knowledge and experience with the acronym “**PAINFUL**” to benefit their human patients.

- **P** – Posture abnormal / Pupils dilated / Pale skin
- **A** – Appearance / Agitation / Alone
- **I** – Increased heart rate / respirations / BP / muscle tone
- **N** – Nausea & vomiting / Noise – vocalisations
- **F** – Facial grimacing / Frowning / Favouring gestures
- **U** – Unstable mobility / gait impairment
- **L** – Lassitude / Loss of appetite

In reviewing the acronym “**PAINFUL**”, note that there can be two, three or four non-verbal or behavioural clues for each letter.

While much of this information has been known in the pain management literature for some time (Turk & Melzack, 2011), I would argue that these observational features have not received the emphasis they deserve. “**PAINFUL**” is offered as an acronym or heuristic, an easy way for health care practitioners to pay more attention to these observational features (non-verbal and behavioural clues) in their assessment of the patient in pain and in the assessment and evaluation of the patient post treatment.

The acronyms “**OBSERVE**” and “**PAINFUL**” are attempts to crystallise the lessons that can be learnt from veterinary medicine for all human health care practitioners.

### 5.4 A Doctor’s Story of how Veterinary Lessons can Assist Human Medicine in Accident & Emergency

Health care practitioners might wonder how veterinary non-verbal communication skills and assessment practices could assist in their human medical practice. Participant 4 (Medical Doctor / self-taught Veterinary Skills) provided a realistic example from his medical practice.
“I was always taught in human medicine that the role of the clinical examination was to confirm what you already knew from the verbal history. However, they skipped the part about what to do when your patient can not communicate! ... From my interest in veterinary medicine, I have taught myself some veterinary skills and therefore have become more observant when assessing my patients for clues about what might be wrong with them.

I was recently asked to see a non-English speaking patient in the emergency department by one of my colleagues because they were unable to elicit any history from the patient. When I arrived I saw a physically fit, well-muscled man, 40-50 years of age sitting up on an ED gurney.

It was obvious that he was a labourer from his callused hands, his build, the dirt on his work clothes and from his boots under the bed. He was right handed from both his muscle definition and the nicotine stains on the fingers of his right hand. He had a flushed appearance, looked anxious, grey and sweaty. A nurse was preparing to do an ECG.

I am always interested in the physical gestures that the patient makes because they can actually give you a great deal of information about both the patient and the area of concern. I could see that he was moving his hands over his chest. I wanted to see if he was using a clenched fist over his sternum because I have found that this is a typical finding in acute myocardial infarction.

Placing both hands on either side of the chest and squeezing is typical of angina, but sometimes happens with pleurisy as well. In this case I think “have a quick listen to the chest and think about a chest X-ray”. Running the fingertips of the dominant hand up and down the sternum is typical of oesophagitis. In this case I tend to think of trying a simple antacid. If they use the clenched fist over the sternum then I tend to think “Quick! ECG first, get a troponin level, and get this guy seen by the cardiologists ASAP!

Even before the nurse had started the ECG, I could see the clenched fist over the sternum and the look of anxiety in his eyes. I knew that this was a myocardial infarction long before I saw the results of his blood tests or ECG. The cardiologist got to see him just as the results came back from the lab – no doubt about it, it was a heart attack and we had picked it maybe 20 minutes earlier than the lab test did. With heart attacks, time saved is everything. “How did you pick him” I was asked by my colleague. “Easy – you just have to ‘look’ at him!”

An analysis of the participants insights of the interview questions as well as key concepts and themes are presented in chapters 6 & 7 - Analysis / Findings Chapters Part 1 & 2.
“... I learnt a lot by observing, assessing and looking after sick animals in the specialist veterinary centre where I worked. The skills that I have learnt in veterinary, I’ve well and truly used in paramedics particularly with paediatric patients”.

(Participant 11 - Vet Nurse now Paramedic)
6.0 Overview

The aim of this study has been to establish the lessons that human medicine could learn from veterinary practice. To address this aim, fifteen national and international participants were interviewed. The participants either had a background as a veterinary practitioner and were now working in human medicine, or were human medical professionals with an interest in veterinary medicine. Participants’ “lived experience” of both veterinary and human medicine, and their interpretations of that experience, were used to explore the research question.

The participants’ insights of the interview questions were individually and collectively analysed and placed into categories reflecting key concepts and themes with the assistance of an independent analyst and the research supervisors. As a result of this analysis, it became clear that participants had actually placed themselves into two sub-groups. The first group analysed reflected insights from five (5) participants who were human health care participants without a veterinary background (were not veterinary nurses, veterinarians, farriers or zoo keepers). The second subgroup referred to ten (10) human health care participants with a veterinary background (veterinary nurses, veterinarians, farriers or zoo keepers). The themes emerging from both groups were also compared to the existing bodies of knowledge presented in the literature review chapters. In this chapter, the emergent themes are discussed in relation to this literature. Plausible reasons as to why some of the themes were supported by the literature and why some themes were not will also be considered. Part of this interpretation phase was engaging in exploratory writing to merge the author’s horizon of understanding with that of the participants. The outcome of the whole analytical process seeks the creation of new knowledge and new understanding.

The Analysis / Findings of this study are discussed in this Chapter (6) and Chapter 7. The two research enquiry areas of communication (Chapter 6) and assessment (Chapter 7) provide the framework for the Analysis / Findings. These two areas originally emerged from a review of the literature when searching for possible benefits to human medicine from veterinary medicine and were also used to structure the general interview questions. However, it must be acknowledged that there was some overlap between the ideas of communication and assessment when exploring the participants’ insights.
For the purposes of analysis, it is convenient to distinguish between both communication and assessment. Research enquiry 1 (Chapter 6) explores verbal and non-verbal communication challenges in general, while research enquiry 2 (Chapter 7) focuses more on formal clinical assessment. The interview questions that share the common theme of communication include:

1. Effective non-verbal communication skills, the participant’s background and scope of practice and training;
2. Approaches to clinical assessment and emphasis / reliance on verbal history;
3. Initial evaluation of patients using non-verbal communication; and,
4. Difficulties with the absence of verbal communication.

Research enquiry 2 (Chapter 7) explores the formal clinical examination regimen particularly in regard to observation, clinical skills and assessment findings. The interview questions that share this common theme include:

1. Objectives of the clinical examination;
2. Use of non-verbal communication (NVC) in the evaluation of pain;
3. Evaluation of non-verbal communication (NVC) in response to treatment; and,
Figure 17: Analysis Chapter Structure
6.1 Research Enquiry 1 - Communication Challenges

To explore the communication challenges faced by veterinary practitioners with regard to non-verbal patient assessment and its potential use in human medicine.

Effective Non-Verbal Communication Skills, Participants’ Background, Scope of Practice & Formal / Informal Training

In the review of the literature (Chapter Two) there was a plethora of information found on effective verbal communication between the health care practitioner and the patient (e.g. Platt & Gordon, 2004; Silverman et al., 2007; Larsen & Smith, 1981; Conigliaro, 2007). Platt & Gordon (2004) discussed many advantages of ensuring effective communication skills between health care practitioners and their patients (mutual satisfaction, clear clinical outcome or treatment plan, decreased misunderstandings, avoidance of conflict and disappointment). However, there was limited information in the body of the literature regarding non-verbal communication and its use in physician - patient interaction. Indeed Groopman (2007), Hamilton (2007) and Waitzkin (1998) stated that non-verbal communication was not well utilised or understood in human medicine.

The study findings supported this view with results showing that none of the participants, who were human health practitioners without a veterinary background, undertook formal studies in the human health sector on non-verbal communication skills or behavioural skills. However, these health care practitioners were also aware that they needed better understanding of non-verbal communication and its application to patient care.

Participant 4 who had been working as a doctor in human medicine for over 30 years stated:

“I certainly never received any formal training [in non-verbal communication] in medicine and I think very little formal training is ever done in conventional medicine. It is a major omission in medicine that non-verbal communication was not taught and this should have been corrected many years ago”. (Participant 4 - Medical Doctor)

Participant 15 another medical doctor, did not have any formal training in non-verbal communication in human medicine. He described the moment that he knew that he needed more education and training on body language (non-verbal communication skills) with his patients:
“Everyone was in a hurry at the clinic, we are always in a tremendous hurry … no time for either the patients or the junior staff … and so we were really not thinking. I had a bunch of residents with me and we came rushing through the door of the exam room where the patient was sitting and she was so frightened that she jumped up and shrieked because everyone came in so fast. It was then that I realised that we needed to do this differently”. (Participant 15 - Medical Doctor)

Participant 10 (Sports Medicine) suggested that the problems medical students have with the lack of education in non-verbal communication commenced at university. This participant believed there were few universities that offered subjects in non-verbal communication. However, even those universities that did offer subjects in any communication skills had problems.

“Students don’t take their communication training seriously because they don’t see the relevance in this elective subject to their practice. If you give them a choice between studying extra classes on anatomy & physiology or doing a communication subject [verbal and / or non-verbal communication], they will select the A & P [anatomy and physiology] subject every time”. (Participant 10 - Sports Medicine)

Participant 14 (Paramedic) described a similar view with his training in health care and his current medical students. He believed that the course was:

“… so fixated on teaching the clinical side of medicine; the signs, symptoms and treatment that everyone forgets that our patients are human beings and effective communication is important … The lecturers reinforce the priority areas of the curriculum [anatomy, physiology & pathophysiology] and students acknowledge these priority areas by enrolment [in those priority areas]”. (Participant 14 - Paramedic)

Participant 15 (Medical Doctor) stated that there were no formal courses for his medical students in non-verbal communication in his university or sister universities. He therefore developed a series of non-verbal workshops for his medical students.

Students “preferred to do physiology classes”. However, the “good students are probably the ones who sign up for my non-verbal communication courses. They are the ones that will make better doctors” (Participant 15). Participant 15 believed that the students that completed his non-verbal communication course would make better doctors because they had an awareness of their patient’s body language, they were more observant and patient focussed.
In short, the course had taught the students how to interpret patient’s non-verbal communication, thereby improving their patient care skills. It was the participant's hope that similar courses would be developed both nationally and internationally to teach medical students about non-verbal communication utilising horses. Presently, there are no empirically studies that have been published which provide evidence that medical students who undertake these courses would make better doctors, but only time will tell.

Platt & Gordon (2004) confirmed that non-verbal communication was not identified as a 'core' or 'key' subject in the medical curriculum. Indeed, many medical students selected more conventional clinical subjects over options such as non-verbal communication and body language. The latter were perceived as 'soft' skills.

In contrast, Hamilton (2007) disagreed with the view that non-verbal communication education and training was a 'soft' skill. Hamilton described non-verbal communication as an essential, powerful skill for medical students and “one that stays with the doctor for life” (Chinthapalli, 2004, p.238).

Novak (2004) and Chinthapalli (2004) confirmed the American Association of Medical Colleges (AAMC) position of ensuring that non-verbal communication should be an integral part of the National Board of Medical Education either in university (elective subject) or whilst undertaking postgraduate medical training. In reality, it does appear that there are difficulties in teaching medical students or graduates the art of non-verbal communication.

The study’s findings found that several human medical participants (non-veterinary background) described difficulties in professional practice with the teaching of medical students such skills as non-verbal communication. These difficulties included the busy pace of medical practice, the lack of time with the patient and in teaching junior staff about clinical assessments. Further, it did appear that some senior staff were reluctant to teach junior staff at all.

“We get two or three hundred children coming into our Accident & Emergency Department every day. Doctors are all very busy … and junior doctors need to acquire skills … and it all takes time … and proper training. … Junior doctors are not good at body language … it is partly our fault. Senior doctors don’t spend enough time with them [juniors] on a one on one basis – at best it is a one in four basis.
Some juniors never receive the training they need and they are not good at observing patients”. (Participant 9 - Paediatrician)

“There is certainly one thing that I know from our clinic here in the hospital, it’s extremely busy, and they run a tight ship for all staff. It is routine to spend ten minutes with each patient. … Those ten minutes include looking at x-rays & speaking with colleagues”. (Participant 10 – Sports Medicine)

“We have relatively short periods of time with the patient … we need to get to the crux of the matter fairly promptly and the clinical examination occurs very quickly … trainees often get left behind”. (Participant 14 - Paramedic)

The teaching difficulties identified in the study findings above were also substantiated in the literature (Novak, 2004; Platt & Gordon, 2004; Beck, 1998; Lepper et al., 1995; Robinson, 1998 and Hamilton, 2007).

In contrast to the lack of non-verbal education in both the human medical curriculum and practice, it appears that non-verbal communication is central to the veterinary curriculum (see Bristol, 2002; Burns et al 2006; Iowa State University, 2004; University of Prince Edward Island, 2013). In this study, the human medicine participants with a veterinary background had all undergone formal or informal studies in non-verbal communication or had practice experience in non-verbal communication in their veterinary staff role.

The formal or informal studies cited by the participants included attending animal behavioural classes, aggressive dog seminars, a communication course and various horse workshops. The practical experience involving non-verbal communication included working in veterinary practice and working with horses. Two human health participants 11 & 6 (with veterinary background) spoke of “on the job training” learning non-verbal communication skills by observing their animal patient, facilitated by a veterinary mentor, who would explicitly draw attention to features of non-verbal communication.

Participant 11 cited an example of “honoring her non-verbal communication skills” by observing a variety of sick animals. These non-verbal communication skills then made the transition to paramedic practice as the participant changed careers from veterinary nurse to paramedic.
"... I learnt a lot by observing, assessing and looking after sick animals in the specialist veterinary centre where I worked. The skills that I have learnt in veterinary I’ve well and truly used in paramedics particularly with paediatric patients". (Participant 11 - Veterinary Nurse now Paramedic)

Participant 6 spoke of his horse apprenticeship:

"I did a farrier apprenticeship in 1968 and I have been shoeing and looking after horses for the last thirty years. I was one of the last dudes to really do a full three year, six thousand hour farrier apprenticeship". (Participant 6 - Farrier / Paramedic)

As a farrier he was taught the skills of observation and detailed his “first great lesson” in non-verbal communication as the horse he was shoeing was “lining up to kick” and his mentor pointed out the physical changes in the horse’s posture for this to occur. The farrier was shown how to observe the horse’s body language and be aware of the potential consequences if no action was taken. This participant carried these non-verbal lessons that he had learnt as a farrier to his volunteer role as a Paramedic.

“We were trimming feet on brood mares on this big stud, and my boss said, “You watch this old bitch of a horse”. And when he put his hand on her foot, she would drop one ear, and she would turn her head to the side which brought her hind leg a few inches closer to the boss. The old mare was lining up to kick my boss! That was the first time I had experienced body language; it was a great lesson. In fact my boss taught me many lessons about horses that I use with my [human] patients today [in paramedic practice]". (Participant 6 - Farrier / Paramedic)

Participant 5 (Medical Doctor) stated that he had no formal training in non-verbal communication in human medicine.

“Verbal history taking is very, very important to [human] medicine, yet there is no training in non-verbal skills. Therefore if you are trying to take a history and the patient is not from an English background, then it is very difficult". (Participant 5 - Medical Doctor)

However, this participant was also a veterinarian for 20 years and as such was:

"trained to observe my patients and give a systematic examination [without a verbal history]. I still utilise these skills in my current medical practice". (Participant 5 - Veterinarian now Medical Doctor)

These participants (11, 6 & 5) believed that they were more confident in identifying and understanding patient non-verbal communication and behavioural clues in their current roles as paramedics, registered nurses or medical doctors as a result of their veterinary background.
The literature confirmed the study findings that veterinary staff are practised in the observational model of clinical assessment in veterinary medicine. Non-verbal communication features prominently in this model of medicine. Trout stated that his world as a veterinarian is "situated between the words and the barks" (2008, p.276). Brown (2009), Trout (2008) & McCormack (2006) as practising veterinarians “are denied the luxury of verbal communication and so spend their professional lives interpreting the language of animal signs” (Trout, 2008, p.72).

As veterinary students they were trained using the observational model of medicine to develop skills to effectively understand, diagnose and treat animal patients (see Brown, 2009; Trout, 2008; McCormack, 2006; Rijnberk & van Sluijs, 2009; Radford et al. 2003; Rondeau & Hanie, 2014; Dhein, 2013).

6.2 Approaches to Clinical Assessment / Patient Evaluation / Emphasis on Verbal History / Difficulties with Patient Management because of Lack of Verbal Communication

The review of the literature gave a detailed account of patient clinical assessment and its importance in ascertaining an appropriate clinical diagnosis. Several authors (Smith, 2008; Sanders, 2005; Curtis et al., 2007 & Trout, 2008) explained that patient clinical assessment comprised of three ordered components:

1. Communicating with the patient and identifying the chief complaint;
2. Discovering or eliciting the patient’s medical history; and
3. Conducting a physical examination on the patient.

Health care practitioners therefore needed to collect both subjective (verbal information received) and objective (observing, measuring, examining) data in an attempt to work out the clinical diagnosis of the presenting patient.

The literature review found numerous clinical studies which confirmed that 60-80% of the information used for a clinical diagnosis was derived strictly from verbal history taking and had its origins in the interrogative communication style of human medicine (Hampton et al., 1975; Sandler, 1980; Kassirer, 1983; Peterson et al., 1992).
In comparison to the literature, there was great diversity amongst the participants’ responses when asked about their individual approach to patient clinical assessment and their reliance on verbal history taking.

It appeared that the sequential order of the clinical assessment process (verbal communication chief complaint / verbal history / physical examination) differed according to the participant’s background. All of the human health care participants with a non-veterinary background emphasised the importance of verbal history as the initial phase of the assessment of the patient. For these participants, non-verbal and behavioural clues were discussed later (if at all) in the assessment process. In contrast, human health care participants with a veterinary background commenced their discussion of this question with non-verbal communication and behavioural clues being paramount in their initial assessment of any patient, animal or human.

6.3 Human Health Participants (Non-Veterinary Background) Insights into Clinical Assessment / Evaluation and Verbal History

This study found that one paramedic (14), three medical doctors (4, 9 & 15) and one human biomechanics – sports medicine (10) participants were all trained in and followed the medical model of clinical assessment. They described their model of clinical assessment as verbally eliciting the patient’s chief complaint followed by a verbal history and then a physical examination (secondary survey) of the patient. The paramedic practitioner (14) did qualify his response by stating that he would include the DRABC approach (Danger, Response, Airway, Breathing & Circulation) to all patients because of the unstable and dynamic nature of the Pre-Hospital Care (PHC) working environment.

These medical participants with a non-veterinary background (4, 9, 10, 14 & 15) relied on the stated order of clinical assessment because without a verbal history or an incomplete verbal history, they felt “lost at sea”, (Participant 4), “it can be misleading... the examination is fragmented” (Participant 15), and “it’s very difficult” (Participant 9).

“I think all Doctors feel lost at sea to some degree when there is no history available, very limited history or even when they can’t ask certain questions to their patients. We tend to feel anxious and lost”. (Participant 4 – Medical Doctor)
“Verbal communication is something that you take for granted, you use it every day and do not realise its importance in your daily life. Then when you encounter patients who are unable to communicate, you realise that you do not have the necessary skills to effectively manage the situation”. (Participant 15 – Medical Doctor)

These participants (4, 9, 10, 14 & 15) felt that obtaining a patient verbal history was very important to their clinical assessment approach.

The verbal information was vital in order to have a clear understanding of the patient’s medical background, to assist with the potential medical diagnosis and to give clear direction and focus to the patient consultation.

The following quotes summarised the medical participants’ position (non-veterinary background) and emphasised the importance of verbal communication / verbal history taking with their patients.

“The [medical] books tell you to rely on a verbal history … that the verbal history is very, very important and our education and training reinforces this position”. (Participant 5 – speaking about his GP training)

“Sick children can't tell you that they are sick … so when junior doctors see sick children [without a verbal history] their training is lacking … and they can miss important things”. (Participant 9 - Paediatrician)

Participant 4 was asked why he relied so much on verbal communication with his patients. He believed that his response summarised the position of human health care practitioners working in medicine:

“Doctors are interested in patient symptoms. Patients tell their doctors all the time how they are feeling or what they believe is the problem. Verbal communication is very important for the diagnostic phase of the consultation. … I spend some of my time on the phone with other medical colleagues discussing patients so I am primarily interested in the patient history and their symptoms”. (Participant 4 – Medical Doctor)

**Frustration**

There was an increasing sense of frustration that the human health participants, with no veterinary medicine background, expressed when they were unable to communicate with their patients. One medical doctor (Participant 4) summarised his feeling about the lack of a patient verbal history by stating:
"It’s very difficult for the doctor to say that it is my fault that I cannot make this diagnosis here. So what he tends to do, is blame everybody else … and it comes out as aggression born out of frustration. Sometimes this aggression is directed towards staff. Frequently it is directed towards the patient, which is appalling. But the Doctor feels impotent to a degree". (Participant 4 – Medical Doctor)

Participant 3 (Paramedic) further described the feeling of frustration attending an ill patient who could not speak English. This account was given whilst discussing his paramedic training:

“I had no idea if the patient was a diabetic; whether he had heart problems … when he was last seen okay … trying to get an interpreter on the phone … they take forever. It was just a hopeless, frustrating situation to be in”. (Participant 3 - Paramedic)

Participant 5 (Medical Doctor) stated that “it was frustrating to commence an assessment without the use of words”.

Similar patient–physician problems of communication were also found in the review of the literature according to authors Platt & Gordon (2004), Lepper et al., (1995) and Hamilton (2007). Common communication problems included; shouting at the non-English speaking patient in an attempt to increase patient communication; episodes of frustration for the health care professional or the patient; not making eye contact with the patient with communication difficulties and ignoring or avoiding the patient altogether.

Participant 1, a former Veterinary Nurse, felt a sense of frustration when she was training to become a Registered Nurse. The participant spoke of the inability to obtain consent from a patient who could not communicate verbally.

“They teach you in nursing everything you do to a patient you have to get consent for. You need to explain the whole procedure to the patients and then ask them if that was okay. Some of the patients that didn’t speak would nod their heads [and that implied consent], and other patients would just stare at you. It was really hard for me when the patients just stared at you because you felt lost and you did not know if you could go ahead with the procedures or not. It appeared that the patients did not want you to do the procedures, so I was frustrated and unsure whether I should go ahead or not". (Participant 1 - Registered Nurse)

This participant further questioned whether this practice [of not gaining consent] was legal or indeed ethical. She concluded that it was “really horrible".
“We had a couple of situations where we had a list of practical skills to get signed off. … We had to do a couple of suppositories on patients that didn’t speak … You knew that they didn’t want you to do it and they were moaning in pain when you rolled them over because their bodies were so sore. I felt like I was violating the patients”. (Participant 1 - Registered Nurse)

**Expert Vs. Novice Approach:** Participant 14 added further insight into the problems of non-verbal patient assessment by junior staff. His discussion of the expert versus novice approach to patient care (Benner & Tanner, 1987) was very insightful. The experienced paramedic participant (14) likened his abilities to that of Benner’s expert practitioner where both had developed the ability to observe and holistically assess the patient (Benner 1984). The novice practitioner or new recruit in contrast, tended to follow a disjointed or procedural based view and often became “bogged down” in unnecessary detail. Because of their lack of experience, novices lacked the ability to see the patient holistically (environment, patient & incident) and therefore lacked the ability to make comprehensive treatment decisions.

“I think this is where the experts’ ability to use pattern recognition when looking at a patient can really eliminate a lot of the exhaustive questioning that the novice tends to use. Students or novices tend to go through a more formalised approach when assessing their patients and what I find is they are so focused on asking all these questions … they miss the non-verbal assessment of the patient and all the clues”. (Participant 14 - Paramedic)

Participant 15 (Medical Doctor, non-veterinary background) also discussed novice and expert practitioners. This participant felt that the novice practitioner had a “scatter gun” approach and “asked too many questions and did not focus on the answers”. The experienced practitioner on the other hand “asks a few specific questions [based on clinical observation] and the answers are confirmed in their physical examination of the patient”. This participant believed that the expert practitioner has a more tailored approach based on years of experience in clinical medicine.

Participant 4 (Medical Doctor, non-veterinary background) gave an insight into the further difficulties that he faced in his medical practice on a regular basis with patients “that can't communicate in a normal way”. This insight brought an interesting dimension into the study and another clear difference between the study’s findings and the literature.
Participant 4 widened the focus of what he was saying to not only include non-English Speaking Patients (NESP) and patients who cannot communicate (paediatrics, mentally ill, autistic etc.), but included **ALL** patients that are not able to **communicate effectively**. Participant 4 was referring to any patient who could normally communicate, but now had difficulty as a result of an acute confusional state such as patients presenting with pneumonia, urinary tract infection (UTI), any febrile state, cerebrovascular accidents (CVA), transient ischaemic attacks (TIA), head injuries, septicaemia, metabolic disorders, brain injuries, heart failure and so on. It is clear that there are a great number of patients who have difficulty in communicating.

Participant four’s comments below highlight how widespread the issue of effective non-verbal communication really is in human medical practice:

> “We have already mentioned foreign patients, but consider senile patients, patients who are confused, which is a common symptom in illness (pneumonia, febrile, septic, head injuries, heart failure patients and so on). My colleagues and I in A & E, ICU [Accident and Emergency, Intensive Care Unit] and theatre will see delirious patients, young children, psychiatric patients and autistic patients. Even drunks can be difficult to communicate with, but they are still ill, and we have still got to help them and treat them”. (Participant 4 – Medical Doctor)

The Liaison Committee on Medical Education for the USA found that unsatisfactory communication skills between health care practitioners and patients had several poor outcomes; a decrease in patient satisfaction, low patient treatment compliance rates and higher malpractice cases (Novak, 2004; AAMC, 2001).

South (2004) postulated that perhaps the real reasons for malpractice problems are due, in part, to forgetting about the needs and feelings of patients and their families. South believed that it was time to address communication problems between the doctor and the patient.

It is clear from this study that observational skills (body language) are not only poorly utilised in human medicine, but few medical students are ever taught about the importance of highly skilled observation in clinical medicine. This substantiates earlier findings in the literature (e.g. Groopman, 2007; Hamilton, 2007; Platt & Gordon, 2004; Novak, 2004; Cowan et al., 1997).
6.4 Human Health Care Practitioners (with Veterinary Background) Insights into Clinical Assessment / Evaluation / Verbal History Taking / Difficulties with Patient Management

In contrast to the participants with a non-veterinary background (4, 9, 10, 14 & 15), those with a veterinary background were less interested in patient verbal communication or verbal history taking and more focussed on observation of the patient in response to this question.

There were ten participants in the study who were practitioners with a background in veterinary medicine. All participants were practising in human health care at the time of this study (veterinarian / medical doctor; veterinarian / pharmacist; veterinarian / medical lecturer; four veterinary nurses / paramedics; veterinary nurse / registered nurse; head keeper safari park / paramedic; farrier / paramedic).

When asked about their clinical assessment regimen and verbal history taking, most participants gave an example of their assessment practices in veterinary medicine. Participants then commented on their practices now in human medicine. It does appear from the participants’ insights that they transferred the same non-verbal, observational model focus from their veterinary background to their current patients in human health care. The themes that are described below do not seem to appear in the literature.

Participant 1 (Veterinary Nurse) commenced her veterinary consultation with a discussion with the owner but was more visually involved in assessing the animal, inspecting for abnormalities and collecting objective data for the veterinarian.

Participant 1 now works as a Registered Nurse and uses observation as her primary focus to commence a human patient clinical assessment. In the statement below, this participant is describing her process of observation:

“I assess their facial expressions, the way they looked you in the eye, their body posture and the like. These are the things that I noticed first about my patient, not what they are saying.”

(Participant 1 - Registered Nurse)

Another participant (2 - Veterinarian) explained that he would assess both the owner and the animal non-verbally in order to pick up any obvious clues as to the condition of the animal. He was also an advocate of initially observing the animal in both the waiting room and walking into the consultation room.
Eliciting verbal information from the owner was *never* a priority in the first instance. This participant felt that verbal information could often be misleading or inaccurate and preferred to work with observational data because he could concentrate on what he felt was the “reality” of the situation and avoid unnecessary distractions.

“A lot of what we do in examining animals is about feeling the normal, knowing what the normal feels like or looks like or smells like. If you know what normal is, then finding the abnormal is easy. I like to concentrate on the physical examination, try to be systematic as possible and not be distracted by the owner’s comments”. (Participant 2 - Veterinarian / Medical Lecturer)

I must say from a personal perspective, I have worked with many colleagues, both in human and veterinary medicine, who would concentrate on the patient examination first, and then seek additional sources of information if required. From a hermeneutic point of view, this participant is describing his reality, his theoretical (observational) lens by which he interprets his world and his lived experience. The following words from Gergen (1999, p.86) apply to the study’s participants:

“I think we gain most if we appreciate these analyses not as reports on objective truth, but as “frames” or “lenses” on our world – to shake us up, reconstruct, give further dimension, and open new vistas of action. There is always more to say – for which we should be thankful”. (Gergen, 1999, p.86)

It therefore appeared that those participants with veterinary experience assessed patients with different “frames” and “lenses” to those without the same experience. Even though the same sensory information was available to all, the veterinary participants had learned to ‘see’ patients in a different way. Introducing veterinary insights into human medicine can serve to “shake us up” and “open new vistas of action” as Gergen (1999, p.86) suggests. Participant 2 also lectured medical students at an Australian university. He taught his students that:

“There is an enormous amount to be gained [in patient consultation] by stepping back and thinking about the patient … Ask yourself, Why is the patient here? … Use all your powers of observation and intellect … and note the behavioural aspects, not the verbal aspects. Don’t short circuit the consultation by only utilising verbal communication. It is ideal to have a solid observational framework as your primary foundation”. (Participant 2 - Veterinarian / Medical Lecturer)
Participant 12 (Head Warden Safari Park – Zoo Keeper) preferred to establish a relationship with the animal first and then observe their overall presentation or behaviour before the formal physical examination and discussion with the trainer / keeper.

First thing in the morning participant 12 liked to inspect the elephants.

“I would have a quick glance around the pen to see if there is anything out of the ordinary, that glance can tell you everything. … We inspect the elephants all over for any fresh injury … They can fight in the pens overnight … so if one of the elephants was still standing in the corner or at the back of the pen … he might have an injury or be unwell so that would be the focus of my attention”. (Participant 12 – Zoo Keeper / Paramedic)

Participant 12 now works as a Paramedic and uses the same observational skills with his human patients.

“I try not to stare at patients. I try to make it [my observation] as informal as possible … but really you have to have a good look at medical or trauma patients … I feel if you’re not observant, you will miss quite a lot”. (Participant 12 – Zoo Keeper / Paramedic)

For one paramedic participant (3) who was also a Veterinary Nurse, she preferred to “observe the scene, observe the patient and then conduct the ‘DRABC’ approach for patient assessment”. In this way this participant felt that she did not “miss any key non-verbal clues” with the patient. She also described her clinical assessment abilities as being more confident and refined as a result of her veterinary background.

“When I was a vet nurse I was more interested in looking at the animal than speaking to the owner. I would have a look over the animal and I’ll be doing a visual check at the same time I was palpating all over the animal … I wanted to do this [non-verbal examination] because when the Vet came in you could discuss several points based on your observations and hands on physical examination of the animal … I use this non-verbal examination technique now with my patients on road and discuss my finding with my paramedic partner”. (Participant 3 – Veterinary Nurse / Paramedic)

Another Paramedic who was also a horse farrier (6) used his keen sense of smell in conjunction with the “DRABC approach” to fully appreciate and pick up on any non-verbal clues that could assist with the clinical situation. This participant developed these non-verbal skills as a result of working for over 40 years with sick or injured horses.
“A horse that is in pain, I can smell them, and if a horse gets laminitis or founder, they have got a definite smell. … If I go to a bad car accident, the first thing I do is I put my head in the window and I sniff and I can smell people that have serious injuries”. (Participant 6 – Farrier / Paramedic)

Participant 7 (Veterinary Nurse now Paramedic) agreed that it was very difficult if the patient could not speak. However, she believed that you could still interpret the patient’s body language to assist with the clinical assessment as all the non-verbal information was available, literally in front of the health care practitioner.

“If they can’t speak, it’s difficult. Someone with abdominal pain, they may be clutching their stomach with both their arms and leaning forward, and be wincing - this information is literally right in front of you”. (Participant 7 – Veterinary Nurse / Paramedic)

The only potential difficulty for participant 7 was the health care practitioner’s ability to identify and interpret the non-verbal signs of the presenting patient. Participant 7 felt that interpretation of non-verbal signs was difficult if you had not been taught the necessary skills.

Participant 7 also provided a caution that non-verbal communication needs to be interpreted in the context of the environment that it is observed in. When observing a patient she advises, always keep in mind:

“Somebody who is autistic or mental disabled, that might be their normal behaviour that you are observing. You need to ascertain [if possible] whether this is truly their normal behaviour or whether they are indeed in pain or there is a problem with the patient”. (Veterinary Nurse / Paramedic)

Participant 7 above draws out the importance of context and how context can change the meaning of the situation for both the health care practitioner and the patient. The significance of context and how the health care practitioner’s beliefs and assumptions contribute to context is described by Fish & De Cossart (2007) as one of the seven ‘invisibles’ that junior health professionals must learn in their clinical practice. The authors use the name ‘invisibles’ to describe elements of clinical practice that are not readily visible to the junior health professional, and are issues that were probably not explored or explained in their medical curriculum.

Participant 5 (Veterinarian now Medical Doctor) summarised his successful integration between Veterinary and Human Medicine:
"My background as a vet [knowing about non-verbal communication] really does help. ... I sometimes think like a veterinarian. In vet medicine, you observe, make a provisional diagnosis, do a physical [examination] and then confirm with tests if necessary...for me observation is the primary factor here". (Veterinarian / Medical Doctor)

This participant did not feel that he would miss a primary diagnosis with his human patient if the patient could not communicate. Further, this data reinforces our contention that the observational text is distinct from the physical text. Indeed, this participant clearly separates the two texts in his mind.

6.5 Human Medical Participants, Non-Veterinary Background – However were “Self-Taught” with regard to Non-Verbal Patient Assessment / Communication / Patient Management

The study further differed from the literature when analysing the responses from the five human medicine participants without a veterinary background (4, 9, 10, 14 & 15). These participants recognised that they lacked education in non-verbal communication in their medical practices (see earlier). As a result of their interest and observation of veterinary medicine, these participants described how they had learned to tailor their human clinical assessment approach based on their observation of animal medicine in order to enhance their medical skills.

Participant 9 is a paediatrician and commented that he had no formal medical training in non-verbal communication. However, having friends as veterinarians and after many discussions about animal medicine, he stated:

“I've no particular connection with farms at all. I'm a city, urban person, but we have always had dogs. I have one or two friends who are Vets, and I've asked them, how do you diagnose animals with the lack of verbal communication? And they just said, by looking at the dog, observing his behaviour, and we clearly had common grounds that sick children and sick animals share attributes; they lie down, they want to be left alone, they don't feed, and they sleep a lot, and they both share the common thing, that they can't tell you, I'm sick.

The Vets stated that they have to pick up the signals that the animals are sick by a different route, namely acute observation, and clinical examination - that sort of where I came to understand vet medicine from". (Participant 9 - Paediatrician)
As a result of the above observation and articulation of veterinary skills into his medical practice, this participant described his clinical speciality not as a paediatrician, but had coined the phrase “Veterinary Paediatrics”. His self-taught methods of non-verbal clinical assessment:

“arose out his discussion with veterinary colleagues and then informed his teaching of medical students and junior doctors about sick children. ... Junior doctors don’t spend enough time looking, listening and picking up the signals. My role is to change that”. (Participant 9 – Paediatrician)

Participant 9 described his non-verbal method of clinical assessment as strongly incorporating the “veterinary power of observation” and encouraging his medical students to “look, look and look again at the patient”. This was followed by the DRABC approach to clinical assessment.

Participant 9 describes his method of teaching non-verbal assessment to the junior doctors:

“The safety valve of our hospital is really ... the observation area where babies can lie down and the [junior] doctors are encouraged to look at them carefully ... We get them [junior doctors] to use their eyes and ears to initially see what is happening with the babies”. (Participant 9 - Paediatrician)

Participant 15 (Medical Doctor) also realised that there were problems with verbal communication in his medical practice because of his neurosurgical patients. His love of horses taught him many lessons about non-verbal communication that he now incorporates both in his patient practice and in teaching his medical students. This participant stated that he teaches his medical students to assess patients with their eyes as the first priority and then ask relevant questions based on their observation of the patient.

“Non-verbal communication does not lie, I deal with so many patients that have difficulty communicating because of the field that I am in [neurosurgery] ... there should be no surprises in the verbal history because you have already discovered them in your physical examination of the patient”. (Participant 15 - Medical Doctor)

While this participant spoke of the “physical examination” it is clear that he meant the observation that began as soon as he encountered the patient. He mentioned having “no surprises” in the verbal history as he had already gathered this information from his observation. He would conduct a formal physical examination after obtaining a verbal history - if it was possible to get one. It is clear that the observation is ongoing throughout the clinical encounter and separate from the physical examination.
Participant 15 conducts workshops with junior doctors to teach them about non-verbal communication [body language]. This doctor uses the body language of horses to teach non-verbal skills to his “juniors” so they can be “tuned into their non-verbal human patients”.

“Now I teach my medical students to observe the patient first. The non-verbal patient history that they collect through observation … will tell them whether the situation is acute or chronic, whether there is anything clinically that is life threatening … Patience, gentleness and non-verbal communication skills are needed for a good doctor-patient relationship. Horses have taught me about effective non-verbal communication and now I am teaching my students these skills. I wish someone had taught me these essential skills when I was doing my medical training”. (Participant 15 – Medical Doctor)

Participant 4 (Medical Doctor) predominantly deals with patients who are unconscious, intubated or are non-responsive in his role as anaesthetist or ICU consultant. For this participant, more often than not, there is no opportunity [initially] to have a verbal discussion with the patient or obtain a verbal history. This participant describes himself as self-taught in the field of non-verbal communication because he received no formal training on non-verbal communication in his human medicine training.

This participant’s method of clinical assessment [after DRABC] was based on his understanding of veterinary medicine and the skills of observation and physical examination.

“Over the years, I have largely taught myself to observe things like body language and non-verbal communication clues, behavioural clues and the like”.

“… I still have a strong interest in veterinary medicine so it made sense to me to learn about non-verbal communication”.

“In my particular job in Intensive Care, we have patients who may have an endotracheal tube in their trachea. They may have had a tracheostomy. They can’t talk. Very often because they can’t talk they get frustrated and they become aggressive and lash out at the nurses and scratch and bite … Our job is to try and communicate with them and since verbal communication is not possible, the good staff don’t give up, they use non-verbal communication”. (Participant 4 – Medical Doctor / self-taught veterinary skills)

When Participant 4 was asked how his nursing staff learned non-verbal communication skills, he mentioned that they were also “self-taught” in the unit. The experienced staff taught the junior staff about non-verbal communication and participant 4 informally passed on his knowledge of non-verbal communication based on his interest in veterinary medicine.
This study supports the findings of Groopman (2007) who stated that patients want their physicians to acknowledge them, to care for them, to understand their concerns, to reassure them and to heal them (see also Conigliaro, 2007). Yet there is limited formal education and training on non-verbal communication between health care practitioners and patients in human medicine (see also South, 2004; Montgomery, 2006).

Another health care participant (14) with a non-veterinary background realised that there was no formal training in paramedics on non-verbal communication and patient care. This participant used his non-verbal skills developed training dogs [Schutzhund] to assist with his patient assessment.

“Dogs are so perceptive about non-verbal clues it is amazing to watch them react to them. … raising an eyebrow, the position of your shoulders, your stance … all are important non-verbal clues. … I instil in my paramedic students [the requirement] to watch the patient for non-verbal clues”. (Participant 14 – Paramedic)

Participant 14 used his understanding of canine body language and integrated it into his human patient assessment approach.

“By using the pattern recognition format and by standing there and just watching somebody for thirty seconds … I gain so much information from that it really aids me [and my students] in the direction in which I want to go in non-verbally assessing the patient”. (Participant 14 - Paramedic)

“When I walk in [to see a patient] … I’m looking at their overall appearance, their posture, expressions on their face, any kind of gestures they are making, tone of voice, if they are speaking to me; all of that can be extremely informative even before I have tried to take a formalised verbal history”. (Participant 14 - Paramedic)

Participant 10 had a sports medicine background and initially worked with patients with orthopaedic injuries. Because of her interest in horses, she now works with both human and animal athletes (thoroughbred race horses) focussing on the prevention of knee injuries.

Participant 10 received no formal training in non-verbal communication in her medical career. However, as a result of working with horses, she has learned their non-verbal body language and regularly incorporates this knowledge into her human practice. The comments below clearly show the integration of non-verbal communication throughout her medical practice.
“By observing horses I learned a lot about body language. ... if the horse is relaxed and interested in you, he will have at least one eye and one ear turned towards you. If he starts to lick and chew that is the sign that the horse is relaxed ... if they are defensive, they won't look you in the eye ... they can clamp their jaws, bare their teeth or chew aggressively”.

“As a Sports Scientist, we would often have a meeting between the athlete, the coach and myself if the athlete was performing poorly. You would often see the athlete start to get a bit defensive in these sorts of meetings. ... they would sit with their legs crossed, fold their arms, they might look down at the desk, they might be chewing quite defensively on a piece of gum, drumming on the table with their fingers, not looking you in the eye. All these sort of things certainly indicated defensiveness ... My job was to recognise these non-verbal signs and to reassure him that we were there to help and support him”.

“If you are so busy with a person's fractured leg, it may be difficult to take note of the fact that they are not making eye contact with you, and just sitting there with their arms folded ... you really need to recognise these signs and do something about that. Not everybody does notice these signs or attempts to reassure the patient, but I have found, based on my background with horses, that it is really important for patient care”. (Participant 10 – Sports Medicine)

6.6 Summary Clinical Assessment / Evaluation / Verbal History / Difficulties with Patient Management

The study's findings in relation to Research Enquiry 1 described how human health practitioners (doctors, paramedics, registered nurses) with a veterinary background (veterinary nurses, veterinarians, farriers, zoo keeper) believed that they have a distinct advantage when dealing with human patients who either cannot communicate or communicate effectively. These practitioners described being very flexible and adaptable with regard to the non-verbal clinical assessment of their human patients. Their ability to reorder the human medicine clinical assessment process (verbal communication – chief complaint / verbal history / physical examination) to suit their presenting patient is very creative and adaptable in human medicine. It does appear that these non-verbal skills have applicability in other areas of human medicine and allied health care.

These practitioners (veterinary background) further described having a high level of confidence and ability over their human health participant colleagues with no veterinary medicine background when dealing with patients who are unable to communicate.
Their ability to tailor their veterinary non-verbal skills, their formal & informal education / training and transfer this knowledge into their human health specialty, to further enhance and benefit patient care, is very intuitive (see Discussion Chapter 8). The perceived health care benefits for staff, patients and students could be enormous given the earlier discussion regarding problems with non-communicative patients, busy medical consultation schedules, lack of teaching time for junior medical staff and lack of appropriate senior mentoring. Further, these skills appear useful with both verbal and non-verbal patients in improving patient care.

In contrast to the veterinary background participants, the study's findings showed that human health participants (doctors, paramedics, sports medicine and biomechanics) who did not have a background in veterinary medicine, did have difficulty communicating, clinically assessing and treating patients who could not communicate. These participants described a sense of “being lost at sea”, “being frustrated”, and finding the patient assessment “very difficult” and “impossible” without effective communication.

The observational model of veterinary medicine appears, therefore, to offer a solution to the lack of understanding of human, non-verbal patients or patients who could not communicate effectively. This was evident with the ten human health participants, with a veterinary background, who described their ease and effective transition of their veterinary non-verbal skills and knowledge across into their human medicine environment. Participant 11 summarises the responses from other participants in this group by using her background working with sick animals, and her well-developed non-verbal skills and senses, in describing an ill patient as a paramedic:

“There was one guy that we recently went to who was conscious. Just walking up to him [and observing him] I didn’t need to ask him many questions. I could see that he was very grey, he was extremely sweaty, he was vomiting and his English was very poor. It was a very challenging job because the verbal communication wasn’t very substantial. The people he was with didn’t know him very well, they didn’t know his name, his past medical background, if he was taking any medication, or if he had allergies or any of those sorts of things that are important.

I just relied on the physiological parameters: looking at his heart rate, the ECG monitor, his blood pressure. Just that initial first glance at him you could tell that he was a very sick man. Even before we even lay a hand on him or even put the ECG monitor on him, you could tell that he was in complete heart block”. (Participant 11 – Veterinary Nurse / Paramedic)
The veterinary non-verbal skills and knowledge appear to be easily learnt as demonstrated not only by the human health participants describing their previous veterinary training but, more importantly, by the five human health participants with no veterinary background, who were “self-taught,” based on their interest in veterinary medicine.

**These participants recognised the need for effective non-verbal communication skills in their clinical speciality areas (intensive care, anaesthetics, paediatrics, neurosurgery, sports medicine and pre-hospital care / paramedics) and the deficit in their human medicine curriculum education. These five participants then “tailored” their clinical assessment approach to incorporate the skills of veterinary non-verbal communication to improve their human patient care.**

*Figure 18* below represents a summary of the communication problems associated with patient assessment in human medicine, that were identified and discussed in this study for Research Inquiry 1. The flow chart details the salient points raised by all participants in this study.

This chapter discussed the study’s analysis / findings in relation to Research Enquiry 1. This stream explored verbal and non-verbal communication challenges in medicine using the sub headings of; non-verbal communication skills; approaches to clinical assessment; initial evaluation of patients using non-verbal communication; and, difficulties with the absence of verbal communication. Research Enquiry 2, the clinical examination regimen will be discussed in the following chapter.
Figure 18: Communication Problems Associated with Patient Assessment in Human Medicine
“For me, the role of the clinical examination is to confirm what you already know from observing the patient.

I observe their dress, their posture, their body language, their facial expressions, their demeanour, if they have had a shave this morning and so on.

Certainly, the clinical history taking is important, but I am now more focused on observation of the patient thanks, in part, to my veterinary colleagues”.

(PARTICIPANT 4 - MEDICAL DOCTOR / SELF-TAUGHT VETERINARY SKILLS)
7.0 Research Enquiry 2 - Clinical Examination Regimen

The second area of research enquiry for this study was: To explore the formal clinical examination regimen undertaken by veterinary practitioners (observations skills, clinical signs, assessment findings etc.) and their potential use in human medicine.

Participants’ responses that related to this research enquiry will be discussed using the themed interview question headings of:

1. Objectives from the clinical examination;
2. Use of non-verbal communication in the evaluation of pain;
3. Evaluation of non-verbal communication in response to treatment; and,
4. Usefulness of experience, intuition and evidence based practice.

7.1 Objectives of the Clinical Examination

The ten human health care participants with a veterinary background spoke extensively about the objectives from the clinical examination process. Many participants based their discussion on their previous veterinary training and made comments stating how these veterinary skills had been transferred to their human medical practice. The five human health care participants, without a veterinary background, but who were self-taught because of their interest in veterinary medicine (4, 9, 10, 14 & 15), also discussed how they used their self-taught skills of veterinary medicine in their clinical examination process.

Collectively, these participants described fourteen veterinary, non-verbal clinical signs and behavioural clues that were used to assist in their clinical examination of the human patient. I therefore utilised this information and developed the acronym “OBSERVE”. Therefore the foundations of the “OBSERVE” information was the participants’ transcripts and came to light as a result of reading and re-reading their experiences and insights. I found the experience of immersing myself into the participants’ data very enjoyable, and I am very thankful for their honest, reflective accounts of their personal journeys and experiences. I have detailed some of their experiences in sections 7.2 - 7.20 below.
Each letter of the “OBSERVE” acronym can stand for one, two or even three non-verbal or behavioural clues that can assist in the clinical examination of the patient. By developing the acronym, the study is bringing into language insights from veterinary practice that can be used by health care professionals. “OBSERVE” can be described as a non-verbal patient assessment tool for the clinical evaluation of the patient.

**O** – Observation of the patient / Overall physical appearance

**B** – Body language / Behaviour

**S** – Safety / Surroundings

**E** – Emotions / Mood / Demeanour

**R** – Relationship with others

**V** – Vocalisation

**E** – Eyes for the Clinical Examination / to Re-Examine / to Evaluate

“OBSERVE” is a continuous process, where the human health care provider uses veterinary skills to assess non-verbal and behavioural clues in the pre-diagnostic (initial assessment), diagnostic (confirmation of clinical examination) and post treatment phase (monitoring) of the patient encounter (see Table 4 below). Non-verbal and behavioural clues are only meaningful when they can be integrated in a meaningful way. Developing and utilising the “OBSERVE” clinical assessment tool can be one such way.
### Table 4: Non-Verbal Patient Assessment Tool for Clinical Evaluation

<table>
<thead>
<tr>
<th>Non-Verbal Signs &amp; Behavioural Clues</th>
<th>Interpretation</th>
<th>Lessons Learnt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observation of Patient</strong></td>
<td>Is the patient:</td>
<td>• Safety first in clinical practice.</td>
</tr>
<tr>
<td><strong>Overall Physical Appearance</strong></td>
<td>• In a safe environment?</td>
<td>• Physical appearance is a strong indicator of overall health in the patient.</td>
</tr>
<tr>
<td></td>
<td>• Standing with a crowd or is alone?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Conscious / alert / pale / cyanotic / jaundiced?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Young / mature / overweight / underweight?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Displaying obvious injuries or abnormalities?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Well groomed / kempt / unshaven / unshaven?</td>
<td></td>
</tr>
<tr>
<td><strong>Body Language</strong></td>
<td>• Observe patient walking / standing / sitting.</td>
<td>• Look, Look &amp; Look again at the patient.</td>
</tr>
<tr>
<td></td>
<td>• Observe their posture, their body movements.</td>
<td>• Pay attention to abnormalities – they are obvious if you observe the patient carefully.</td>
</tr>
<tr>
<td></td>
<td>• Are their movements stiff or un-coordinated?</td>
<td>• The patient’s body language should fit with the stated problem. Ensure that the body language is appropriate / not overstated.</td>
</tr>
<tr>
<td></td>
<td>• If you find any abnormalities, ask yourself why is this so?</td>
<td>• Loss of eye contact or the loss of focus between parties could mean loss of concentration &amp; connection. If this has occurred, take a break or commence another activity.</td>
</tr>
<tr>
<td></td>
<td>• In general does the patient appear happy / sad / distressed / anxious?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Are they interested in the surroundings?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is the patient losing eye contact, has a glazed appearance, not focused, or is the patient rubbing their eyes / face / neck?</td>
<td></td>
</tr>
<tr>
<td><strong>Behaviour</strong></td>
<td>• Is the patient displaying normal / assertive or submissive behaviour?</td>
<td>• Observing both body language &amp; behaviour can identify the type of situation that you are attending.</td>
</tr>
<tr>
<td></td>
<td>• Is the patient increasingly agitated / moving / unable to keep still?</td>
<td>• Is the patient in pain or affected by alcohol / drugs / autism / mentally ill?</td>
</tr>
<tr>
<td><strong>Safety / Surroundings</strong></td>
<td>• Is the environment / patient still safe?</td>
<td>• Safety is linked with your initial observation of the patient AND continuous care of the patient.</td>
</tr>
<tr>
<td></td>
<td>• What do the behavioural signals from the patient or HCP communicate?</td>
<td>• Non-verbal communication is a bi-directional process.</td>
</tr>
<tr>
<td></td>
<td>• What could I does pose a threat and how can this be managed?</td>
<td>• Situational awareness can often assist with the clinical findings.</td>
</tr>
<tr>
<td></td>
<td>• Look beyond the patient, what can you see?</td>
<td></td>
</tr>
<tr>
<td><strong>Emotions / Mood / Demeanour</strong></td>
<td>• Does the patient have widely dilated pupils? Are they crouching, trying to minimise their posture or hide away?</td>
<td>• Mood is a good clue of the severity of the patient illness.</td>
</tr>
<tr>
<td></td>
<td>• Does the patient constantly fidget, move fingers, hands or feet?</td>
<td>• The patient could be anxious, frightened or scared.</td>
</tr>
<tr>
<td></td>
<td>• Does the patient appear withdrawn, makes little movement or does not engage in verbal or non-verbal communication?</td>
<td>• The patient could be depressed.</td>
</tr>
<tr>
<td></td>
<td>• Does the partner mirror the body language of the patient? The partner appears interested, maintains eye contact, has a supportive posture and leans towards the patient when appropriate?</td>
<td>• Supportive partners are highly suggestive of an ally in the treatment of the patient.</td>
</tr>
<tr>
<td><strong>Relationship with others</strong></td>
<td>• Does the partner portray dismissive behaviour towards the patient? The partner appears disinterested, does not maintain eye contact, crossed legs away from patient or folds arms across chest?</td>
<td>• Dismissive partners may be suggestive of lack of support for both the patient and the treatment regimen.</td>
</tr>
<tr>
<td><strong>Vocalisation</strong></td>
<td>• Is the patient making a noise? Is it high or low pitched?</td>
<td>• High / low pitched noises can indicate pain, discomfort or anxiety levels.</td>
</tr>
<tr>
<td></td>
<td>• Why is it occurring? Observe patient posture &amp; body language.</td>
<td>• Conversation is a good indicator of mental thought patterns.</td>
</tr>
<tr>
<td></td>
<td>• If the noise is conversational, is it logical?</td>
<td></td>
</tr>
<tr>
<td><strong>Eyes / Re-Examine Evaluate</strong></td>
<td>• Use your eyes to clinically look, look &amp; look again at the patient.</td>
<td>• Re-Examine your patient often.</td>
</tr>
<tr>
<td></td>
<td>• What did you discover that was abnormal / unusual?</td>
<td>• Look for clinical trends.</td>
</tr>
<tr>
<td></td>
<td>• Is the situation still the same or different?</td>
<td>• Evaluate – is the situation better or worse? Consider action.</td>
</tr>
</tbody>
</table>
7.2 **OBSERVE – Patient Observation & Overall Physical Appearance**

Many of the participants described the overall observation of both the animal and human patient as the first part of the assessment process. For these participants it was the first contact with the patient and one that offered the most valuable clinical information about the patient. Participants were also interested in assessing the environment at the same time they were observing their patients in order to ascertain if there was any danger present.

"From my experience in Veterinary practice, both at the farm level and in the consulting room, the ability to gather information from a distance, by **observing** a herd, flock or the environment is the **first** and **most** important part of the exam process". (Participant 2 - Veterinarian / Medical Lecturer)

"I **observe** and make a provisional diagnosis and verify with tests if necessary, but observation is the primary thing". "A patient may present a certain way and not give you the genuine picture and sometimes observation - for example, watching a patient with an injured leg walking when he or she does not know he or she is being observed - can provide very useful information". Participant 5 - Veterinarian / Medical Doctor)

Participant 4 described how he was “indoctrinated” into the interrogatory model of human medicine. However, thanks to his veterinary colleagues, he had discovered a more efficient way to assess both his verbal and non-verbal patients.

"For me, the role of the clinical examination is to confirm what you already know from **observing** the patient. “I **observe** their dress, their posture, their body language, their facial expressions, their demeanour, if they have had a shave this morning and so on. Certainly, the clinical history taking is important, but I am now more focussed on **observation** of the patient thanks, in part, to my veterinary colleagues”. (Participant 4 - Medical Doctor / self-taught veterinary skills)

"I believe that my powers of **observation** have been honed as a result of my vet nurse training and so most times I don't actually have to obtain a verbal history from the patient ... body positioning, body language ... facial expressions, my senses, they all help me to obtain much more than the traditional medical assessment of the patient". (Participant 8 - Veterinary Nurse / Paramedic)

The process of observation did lead the participants to discuss their clinical thought processes. By observing the patient, they subconsciously began questioning their findings and providing answers.
The participants felt that the observation process assisted with patient examination because they became more focussed about the likely clinical outcome.

“My approach has always been to ask yourself questions about the patient that you are observing.” “Why are they walking with a limp? Why are they slumped in the chair? Why can't they lift their arm? If you can answer your own questions, the patient will benefit from your observations”. (Participant 14 - Paramedic)

Many of the participants stated that physical appearance was an important part of the assessment process because it gave them a strong indication of the patient’s overall health. For these participants, they commenced their initial observation of the patient from a distance, and then homed in on the physical appearance of the patient. The human health participants with a veterinary background were all experienced health care practitioners and hence were very familiar with the normal clinical parameters of health. This experience assisted participants in identifying what was abnormal about their patient.

“When sheep are crook they hang their head; the ears are down, they are not interested in eating [weight loss], interacting with others or grooming themselves. If you look in their eyes – the gloss goes out of the eyes ... So with your initial examination you then go looking for an explanation; I see the same things in humans, observation and self-inquiry is the key here”. (Participant 13 - Veterinarian / Medical Doctor)

"I like to stand back [from my patient] for a little bit and observe ... just being able to walk in, just slowly walk in and assess the scene, and assess the patient, even before you say hello ... just to sus them out, and then you might take a few steps closer to them ... " "Scene assessment and observation are the important things here". (Participant 11 - Veterinary Nurse and Paramedic)

7.3 OBSERVE – Body Language

Participants reported that assessing a patient’s body language was an integral part of the clinical examination process. Observation of the body language commenced when the patient was first identified and continued throughout the clinical encounter. Participants described having a holistic view of the patient subconsciously inquiring whether they looked happy or sad; whether they appeared interested in the current situation. Attention was then directed at any body movement made by patients in order to provide further information for clinical assessment.
Many participants spoke of their veterinary background and how their observational model of medicine was the foundation for their clinical practice, a foundation that had been readily transferred to human clinical practice.

“I like to assess the body language of the patient even before I speak to them. When we are walking up the driveway with the patient in sight or walking over to the car accident that is the ideal time. I can take it all in then. The stiffness of the body posture, the angle of the head, whether they are leaning over because they can’t breathe; any abnormality can be observed … I used the same veterinary skills trying to identify sick horses in a paddock”. (Participant 6 - Farrier / Paramedic)

"I like to assess the body language of the patient to see if they are happy and not in pain". "You can get an idea about how difficult a patient is going to be by their body language". "I used to cast a vet nurse eye on the animals as they walked in and be watching for certain things to see if they were ok." "Now I do the same things but my patients are human beings". (Participant 11, Veterinary Nurse / Paramedic).

“When I worked in the Specialist Clinic, I was looking at sicker animals that had a wider variety of illness, so I really had to hone in and use my non-verbal skills, not just observing patients, but assessing them and their body language, in the initial consultation and beyond with oncology patients.” "... I watched their stance, their gait, the overall quality of their muscular frame, their weight, coat quality and posture". "These skills have never left me". (Participant 11 Veterinary Nurse / Paramedic)

Participant 15 (medical doctor) used the lessons that he had learnt working with horses to teach his medical students about optimal patient care. This participant taught his students the skills of observing the patient’s body language during the consultation process to ensure that they understood the information presented. He described several points to assess the patient’s attentiveness.

“The key body language clues that the patient is becoming distracted is movement of any part of the body on the chair or bed, losing eye contact, having a glazed appearance, or rubbing the eyes, ears, face or neck with their hand. When this happens, it is time to take a break or perform another activity". (Participant 15 - Medical Doctor / Equine Expert)
7.4 **O**B**S**ERVE – **P**atient **B**ehaviour

Patient behaviour was raised several times by participants in the context of informing clinical outcome.

Participants wanted to firstly identify if the patient was experiencing normal or socially acceptable behaviour as evidenced by conversation, movement, and/or the ability to perform tasks. Participants spoke of assessing patient behaviour as a way of discounting the use of alcohol or drugs and to further eliminate mental illness or autistic behaviour.

"In veterinary, you have to understand basic animal behaviour and it is the same with humans as well, you have got to understand submissive and dominant positions ..." "Someone who is mentally ill might be quite domineering, they could be quite threatening in many ways, so you have to be careful ..." Participant 11 Veterinary Nurse / Paramedic

Reference was also made to patients who are experiencing pain because they do not exhibit normal behaviour; they will frequently move, be unable to settle or lie still and can become agitated.

"I did a call out recently to a fifty one year old with chest pain ... It was clear from our tests that he was having an AMI ... He declined any analgesia. My paramedic partner said that he was not in pain, but from my vet experience [I knew] he was. He was moving all over the stretcher, he could not keep still, he was agitated, clearly he was in pain, it was that sort of behaviour". (Participant 8 - Veterinary Nurse / Paramedic)

The observation of patient behaviour was also used to validate the severity or otherwise of the patient’s clinical condition. Several participants spoke of observing the patient to ensure that the patient’s behaviour was consistent with the stated problem and to discount “a big show of their problem such as in high anxiety states” (Participant 4, Medical Doctor / self-taught veterinary skills).

7.5 **O**B**S**ERVE – **S**afety / **S**urroundings

Both the veterinary and paramedic participants specifically spoke of the need to ensure that staff were in a safe environment whilst performing their duties. This environment applied equally to the ambulance on road environment and the veterinary farm / clinic environment. These participants reinforced the need for safety and as stated earlier, safety formed part of the first category of Patient Observation.
Safety is mentioned again here in this category as several participants spoke of the need to ensure the continuous safety of staff throughout the entire patient encounter.

Participant 2 (Veterinarian / Medical Lecturer) spoke to his medical students “not only about the physical aspects of farm safety and dangers on the farm [when attending house calls], but I cut right into mental health issues and all of the things that caused mental health issues in the farming environment”. This participant did this to ensure that his medical students were well prepared for any threats when they attended rural house calls.

Participant 10 (Sports Medicine / Equine Behaviourist) added another dimension to the whole concept of safety in the practice environment. This participant focussed on an assessment of the non-verbal behavioural signals given not only by the animals/patients to the practitioner, but also the non-verbal behavioural signals given by the practitioners to the patient. In my opinion, this discussion reinforced the concept that non-verbal communication is a two way process, and like crossing the street, practitioners need to look both ways.

“We have had a lot of discussion about looking at the patient but I also think that you have to be very conscious of the non-verbal cues that you unconsciously give off and the type of attitude that you project, particularly when you first encounter the patient. This is because your non-verbal cues really sets up how the patient is going to respond instantaneously to you and this can be either a positive experience or a negative experience”.

“I am very conscious of my body language, my eye contact, the position of my hands even before I open my mouth. I approach all my patients (horses and humans) slowly and with sensitively ...” (Participant 10 - Sports Medicine / Equine Behaviourist)

Veterinary participants felt that the observation of the patient’s surroundings could give the health provider a better understanding of the patient’s overall clinical situation and assist with identification and management of the clinical outcome. The general message here was to look beyond the patient, in order to see what you could see. This message was illustrated well by participant 6 (Farrier / Paramedic) who spoke of attending a farm, to assess a single horse, by the front gate, which was thought to be lame. He arrived before the owner and observed the surroundings of the horse.
The first thing that struck me as odd was that the horse was about a mile from the front gate. I thought that if he was lame, how did he manage to get that far away from the gate? I also noticed there were fresh hoof prints in the grass by the gate. They were a distance apart suggesting that the horse had been galloping. When I did get to examine the horse, it was not lame at all ... I should also tell you that I have used my observational skills many times as a paramedic". (Participant 6 - Farrier / Paramedic)

7.6 OBSERVE – Emotions / Mood / Demeanour

Participants had a common voice when trying to ascertain the severity of a patient's illness. From experience, they had identified that a patient's mood or demeanour was a good indicator of the seriousness of the clinical situation. This non-verbal clue was based on observation of the patient; their pupils, posture and body movements.

"The patient who is wide eyed, fidgety, wringing their hands and moving their feet, is clearly a patient who is anxious. Alternatively, a patient who does not move could be withdrawn or depressed. The absence of a mood or demeanour could mean that they have a kinetic disorder". (Participant 4 - Medical Doctor / self-taught veterinary skills)

"I like to assess their general mood. I ask myself do they look depressed, or are they quite excited? A well cat will sit up and take notice of you and come up and meow and want to have pats. However if someone or an animal is really quite sick, their mood is quite depressed and they will want to keep away from everybody ..." " When you are feeling really crook, you want to be by yourself, be in a quiet area and be left alone". (Participant 11 Veterinary Nurse / Paramedic)

7.7 OBSERVE – Relationship with Others

It was common for participants to meet a patient's family, friends or bystanders in the medical encounter. It therefore appeared logical for these participants to observe the relationship, if any, between the parties in order to ascertain more information about the patient. The veterinary participants spoke of observing the relationship between the animal and owner to gauge the level of support and commitment, particularly if long term care was needed. This observation was again mentioned when the veterinary participants began working in human practice. It was suggested that observation of the relationship between the patient / partner / family members could demonstrate the lack of, or amount of, support between the parties.
Participants felt that this information could give the health care practitioner insight into any significant problem or tension in the relationship.

Participants spoke specifically of observing the body language of the patient and partner. They believed that if the relationship was supportive the partner would be interested in the communication process, maintain eye contact with the patient / health care practitioner and display a supportive posture by leaning towards the patient at appropriate times. Participants believed that supportive partners mirrored a similar body language to the patient and this was highly suggestive of an ally in the treatment of the patient.

Alternatively, if the partner was dismissive towards the patient, they would turn away from the patient and appear disinterested in the communication process. Further dismissive postures could also include leg crossing away from the patient, folding arms signifying a barrier between the patient and partner and not maintaining eye contact. Generally speaking, the dismissive partner displayed the opposite body language to that of the patient. The participants felt that it was important that health care practitioners identified dismissive partners because the body language was suggestive of a lack of support for not only the patient, but for the treatment regimen. Indeed, the participants believed that once dismissive partners were identified, they really had two patients with which to ensure effective communication and treatment.

“You can tell if there are tensions in the marriage just by observing the interaction between the two partners. This observation can be very meaningful because it can identify if there are significant problems, which can then give you an indication of the scale of the problem and the urgency with which to treat the problem ... If the relational body language is empathetic, then I have an ally in the treatment of the patient. If the body language is dismissive, that is the partner appears disinterested, then essentially I have two patients to treat”. (Participant 4 – Medical Doctor / self-taught veterinary skills)

"I like to observe the relationship between the animal and the owner particularly if I have not met them before and I am contemplating whether to proceed with major surgery on the animal". "I like to see if there is a strong bond between the owner and the animal". "I try and see if there is non-verbal buy-in from both parties, to me, that shows commitment. Participant 2 Veterinarian / Medical Lecturer"
7.8 **OBSERVE – Vocalisation**

It was apparent in this study that veterinary participants learnt to use all of their five senses (sight, touch, taste, smell and hearing) when assessing their animal patients. Listening to the patient was mentioned several times in the context of identifying the type of noise the animal patient was making and then in interpreting the meaning given the current clinical situation. Participants believed that high or low pitched noises associated with injury or illness could indicate the level of pain, discomfort or anxiety levels of the animal. **Vocalisation** was also linked to posture and body language.

“Dogs and cats that are experiencing pain can be withdrawn, curled up in a ball and hiding at the back of their cage. If the pain is intense or anxiety levels are high, they will **vocalise** with high pitched barking, howling or hissing”. (Participant 1 - Veterinary Nurse / Registered Nurse)

"I would think that the animal was in pain after a leg operation if it woke up and was vocalising". "It could also be chewing or licking aggressively at the site”. Participant 7 Veterinary Nurse / Paramedic

When participants transferred these veterinary skills over to human medicine, conversation was also incorporated into this category. Participants were interested to note if the patient's dialogue was logical and if they had consistent thought patterns. Participants felt that if a patient demonstrated the ability to have a logical conversation, generally this meant that there were no serious neurological problems. Further, the inference was made that the patient probably did not have severe pain because of their ability to focus on the questions asked and provide logical answers.

"Even though I am looking at non-verbal responses [from the patient in pain], I am also listening for structured conversation in the way that they are expressing themselves". (Participant 14 Paramedic)

7.9 **OBSERVE – Eyes / Re-Examine / Evaluate**

Veterinary participants continually reinforced the need to use your **eyes** to clinically look at the patient and identify what was unusual or abnormal about their presentation (if any). As their animal patients were non-verbal, this observational technique was **paramount** to their clinical examination process. Veterinary participants believed that human health care practitioners should **look, look and look again** at their patients for any non-verbal clues of injury or illness.
This statement was also made in the context of reinforcing the message of re-examining the patient and looking for clinical trends to ascertain if the patient was clinically stable or unstable. The clinical information received from this process could then assist health care practitioners to evaluate the patient and consider further action.

Participant 2 (Veterinarian / Medical Lecturer) provides a good example of utilising non-verbal and behavioural signs for a dog with suspected lameness.

"Why don’t we use the example of lameness … so I guess the things that I would be thinking as the animal came into the consult room is that you would be observing acutely what was happening. Was the owner carrying the dog into the consult room because it couldn’t walk? Or was the dog able to easily stand up and even with a limp, walk into the consult room” [Eyes for Examination]. “All those things about your pre-examination assessment would be helpful …”"

“After the dog had roamed around the consultation room, I would be watching to see if the limp was still present. My observations or suspicions would be largely confirmed in the clinical examination of the animal” [Re-Examination]. “If the lameness was as a result of a bruising type of injury, it would probably settle on its own … I might ask to see the dog in 7-10 days if the lameness was still present”. [Re- Evaluation] (Participant 2 - Veterinarian / Medical Lecturer)

Participant 14 was a paramedic and had a strong interest in animal behaviour. When clinically examining a human patient he also spoke of similarities with veterinary medicine.

"There is a lot of similarity between veterinary medicine and paediatric patients for example. You must rely on your observational skills … you shouldn’t rush a conclusion because you don’t have the verbal component that you are looking for …" "You need to try and actually see what they are saying non-verbally. What are they expressing? Look at the skin colour, facial expression, grimace, and any other kind of gesture. What are they telling you?"

7.10 Use of Non-Verbal Communication in the Evaluation of Pain / Evaluation of Non-Verbal Communication in Response to Treatment

All participants addressed the two questions about how non-verbal communication and behavioural clues were used in the evaluation of pain and the responsiveness to treatment of their patients.

I had anticipated that participants would commence their discussion focusing on key aspects of pain assessment and then progress to patient treatment.
What transpired was a discussion with a logical and systematic approach to patient assessment, using the key non-verbal and behavioural categories described above in the acronym “OBSERVE”. The fourteen categories (where relevant) were featured in the overall “patient with pain” story-telling process (observation of the patient, overall physical appearance / body language, behaviour / safety, surroundings / emotions, mood, demeanour / relationship with others / vocalisations & using eyes for re-examination / re-evaluation). This illustrated how greatly influenced health care participants were by their veterinary background or self-taught veterinary skills AND their continuous use of non-verbal and behavioural skills throughout the clinical encounter (from initial assessment through to the follow up consultation phases).

Participants that addressed the pain evaluation and treatment questions had a background or self interest in veterinary medicine and regularly assessed non-verbal patients in pain. When participants mentioned key behavioural terms to describe patients in pain they included; lack of responsiveness, withdrawn nature and loss of appetite. Key body language terms to describe patients in pain by participants included; facial grimacing, abnormal facial expressions, vocalisation, restlessness, holding body parts, postural guarding, and their abnormal body posture.

This information above was derived from participants' transcripts and was discovered after I immersed myself in the data and read their insights several times. As a consequence of this immersion, key themes came to light as several of the participants shared similar insights and experiences. As a result of this process of discovery, I constructed an acronym called “PAINFUL” which provides a summary of the eighteen non-verbal and behaviour pain indicators described by these participants. The Table also provides common examples, clinical interpretation and response to pain treatment of these non-verbal and behavioural indicators (see Table 5: Non-Verbal & Pain Indicators below).

While much of this information has been known in the pain management literature for some time (Turk & Melzack, 2011), I argue in this study that these observational features have not received the emphasis they deserve. The following acronym “PAINFUL” is offered as an easy way for health care practitioners to pay more attention to these observational features in their assessments of pain.
Each letter of the “PAINFUL” acronym can stand for one, two or even three non-verbal or behavioural clues that can assist in the clinical examination of the patient in pain.

- **Posture abnormal / Pupils dilated / Pale skin**
- **Appearance / Agitation / Alone**
- **Increased heart rate / respirations / BP / muscle tone**
- **Nausea & vomiting / Noise – vocalisations**
- **Facial Grimacing / Frowning / Favouring gestures**
- **Unstable mobility / gait impairment**
- **Lassitude / Loss of appetite**

It is interesting to note that all of these non-verbal and behavioural indicators are non-invasive and can be ascertained from observation of the patient in any medical environment.
<table>
<thead>
<tr>
<th>Observations</th>
<th>Examples</th>
<th>Clinical Interpretation</th>
<th>Response to Pain Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture abnormal</td>
<td>Awkward, hunched or tense posturing, Pupils larger than normal diameter</td>
<td>Temporary postural relief of pain, Sympathetic activity</td>
<td>More smooth and fluid body movements, Normal &amp; reactive pupils</td>
</tr>
<tr>
<td>Pupils dilated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Face / skin Pale / diaphoretic, Agitation - restlessness, shifting weight from side to side, Irritability, Alone – patient seeks isolation</td>
<td>Increased catecholamine release, Increased sympathetic response, Possible protective mechanism, Antisocial behaviour</td>
<td>Normal skin colour / perfusion, Patient will remain in one area, Calm demeanour, Increased engagement / herd / family</td>
</tr>
<tr>
<td>Increased heart rate</td>
<td>Above normal values for patient</td>
<td>Sympathetic nervous system response</td>
<td>Vital signs within normal limits</td>
</tr>
<tr>
<td>respiration / blood pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased muscle tone</td>
<td>Involuntary contraction of muscles in a specific area(s)</td>
<td>Muscle spasm</td>
<td>Decreased or absent muscle spasm</td>
</tr>
<tr>
<td>Nausea &amp; vomiting</td>
<td>Retching / Emesis</td>
<td>Reduced visceral perfusion</td>
<td>Decrease / elimination of nausea &amp; vomiting</td>
</tr>
<tr>
<td>Noise – vocalisations</td>
<td>Crying, wincing, high pitch tone with pleading nature, Abnormal respiratory pattern</td>
<td>Expression of pain, Sympathetic response</td>
<td>No vocalisations, lower voice, tone &amp; pitch, Normal breathing pattern</td>
</tr>
<tr>
<td>Facial grimacing</td>
<td>Abnormal facial expressions / Frowning</td>
<td>Expression of pain</td>
<td>More relaxed expressions – less frowning</td>
</tr>
<tr>
<td>Favouring gestures</td>
<td>Guarding, Rubbing gestures, Holding body parts, reluctance to move</td>
<td>Protective mechanism, Increased physiological relief, decreased pain, Prevents pain of movement</td>
<td>No guarding or tenderness, Patient moving freely, Patient moving without restriction</td>
</tr>
<tr>
<td>Unstable mobility / gait</td>
<td>Abnormal walk or stance</td>
<td>Specific injury / pain distraction</td>
<td>Normal mobility</td>
</tr>
<tr>
<td>impairment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lassitude</td>
<td>No interest in others / environment</td>
<td>Nonverbal behavioural signalling</td>
<td>Patient interacting with others / environment</td>
</tr>
<tr>
<td>Loss of appetite</td>
<td>Abnormal eating patterns</td>
<td>Reduction of alimentary perfusion, CNS response</td>
<td>Eating normally when fed</td>
</tr>
</tbody>
</table>

Table 5: Non-Verbal & Behavioural Pain Indicators
7.11 PAINFUL

By utilising the participants' quotes in this section to describe the non-verbal and behavioural indicators of patients in pain (PAINFUL), it will become clear that there is some overlap with the OBSERVE categories above. This is because the participants used the OBSERVE categories as a foundation to firstly describe the clinical assessment of their patient and then progressed to discuss the 'story' of their patient in pain.

7.12 PAINFUL – Posture Abnormal / Pupils Dilated / Pale Skin

Several of the participants spoke about holistically observing the patient in pain from a distance before commencing the initial, formal consultation or examination. This patient overview made identification of abnormal signs and behaviours very obvious and led some participants to subconsciously question their findings.

“When I first see my patient I ask myself questions about why the patient walks that way? Why do they look a little pale? Why do they look a bit harassed? Why can't they sit still? I wonder what could be wrong with this patient?” “Could they be in pain?” (Participant 7, Veterinary Nurse / Paramedic)

This participant (4) was very skilled at observing the different types of abnormal postures associated with the patient in pain and linking these postures to a possible diagnosis. This is a good example of observing, reflecting and interpreting the patient's signs, and then 'bringing them into language' with the articulation of a diagnosis.

“In abdominal pain, colic is usually described with the fist being clenched and unclenched, whereas a patient with peritonitis will lay the flat open hand very gently on the painful area. Colicky patients tend to roll about or squirm but patients with peritonitis on the hand, will lie very still. I once heard it described as the patient with a perforated bowel will lie to attention. They lie very still with their arms by their side. The patient with colic again will show facial grimacing and may be pale in appearance. They may show pupil dilation and sweating”. Participant 4 - Medical Doctor / self-taught veterinary skills
7.13 PAINFUL – Appearance / Agitation / Alone

One participant (13) spoke of initially assessing the patient in pain with an imaginary wide angled lens of a camera, before zeroing in on a specific problem area(s). This participant's 'wide angle lens' commenced with the patient's appearance:

“With animals and people you can work things out by assessing the big picture before zeroing in on the specific problem. I like to start with their appearance. If they have hunched shouldered, appear tense or stressed, and look like they have a big, dark cloud hanging over their head, I wonder whether they are in pain or depressed”. Participant 13, Veterinarian / Medical Doctor

Patient appearance was also discussed by participant 4 (Medical Doctor / self-taught veterinary skills) when he worked in a back pain clinic. This participant further mentioned behavioural indicators such as being agitated and the patient wanting to be alone.

“I have found through my experience with the back pain clinic that patients in pain don't bother about their appearance, they tend to come in for their appointment looking a little dishevelled”.

“Usually a family member brings them in for the appointment and they can get quite agitated with their loved one because of the pain. ... When I ask them a few questions it is common for the patient to give very short, often 'clipped' replies because they have difficulty focussing on the questions because of the pain”.

“It is understandable that the patient in pain, particularly chronic pain, feels miserable and wants to be left alone”. (Participant 4, Medical Doctor / self-taught veterinary skills)

7.14 PAINFUL – Increased Heart Rate / Increased Respirations / Increased Blood Pressure / Increased Muscle Tone

Several of the participants spoke of the reliability of physiological signs to determine if the patient was in pain.

“You can certainly tell someone that is in pain because they're tachycardic, their BP [blood pressure] is usually higher than normal, and also their RR [respiratory rate] is up a little bit as well. I know that some patients try to fake that they are in pain because they just want the pain relief. However, you can't fake the vital signs or the sweating ...” (Participant 3 - Veterinary nurse now Paramedic)
"During the course of an anaesthetic, the patient can still feel pain. The patient is clearly not capable of verbal communication. Therefore in this situation, I must rely on non-verbal clues to indicate the need for analgesia [sweating, increase in heart rate, RR and or BP]. If analgesia abolishes these signs, then my observations must have been correct". (Participant 4 - Medical Doctor / self-taught veterinary skills)

One of the participants (11 - Veterinary Nurse and Paramedic) preferred to use physiological signs as an indicator of pain rather than a verbal pain scale. Participant 11 did not find the verbal pain scale to be a reliable indicator of stress.

“You can ask people to rate their pain … I don’t find that to be ideal though, everyone’s threshold is different and some ethnic backgrounds are quite stoic as well. I usually rely on their heart rate, their blood pressure, their respirations … I also observe the patient to see if they can walk okay … I can generally assess if the patient is in pain or not using my vet methods”. (Participant 11 - Veterinary Nurse / Paramedic)

In the review of the literature, several authors (D’Arcy, 2004; Reynolds et al., 2008; Lord, 2009; Herr et al., 2006 a & b) discussed the unreliability of self-reporting pain scales because of the subjective nature of pain. Participant 14 (Paramedic) also agreed with this statement given his many years of experience 'on road':

“I think that the use of that one to ten pain scale approach [self-reporting of pain] is too subjective. I think we can probably tell as much, if not more, just by looking at the patient and observing those non-verbal clues [complexion, posture, vital signs] than we can by what the patient tells us. This is because the pain scale is subjective and it is all based on their own experience, but I think those non-verbal clues can be as important, if not more important, in their patient assessment". (Participant 14 - Paramedic)

7.15 **PAINFUL** – Nausea & Vomiting / Noise - Vocalisations

All of the participants made comments about the indicators of nausea / vomiting and noise vocalisations in relation to their patient in pain. Participants 2, 1 & 7 related these indicators in a 'story' concerning their patient in pain. Often this 'story' incorporated other indicators mentioned in the “PAINFUL” acronym.

“If the dog had a big feed from the BBQ over the weekend, and it has been vomiting then I would be suspicious of pancreatitis - which is very painful. If I further palpated the dog's abdomen and found it to be tense [increased muscle tone] and the dog yelped, then I would want to continue my investigation of pancreatitis ...” (Participant 2 - Veterinarian now Medical Lecturer)
Participant 2 also acknowledged above that aside from observational information gleaned from the patient, there was also historical data utilised as well as pattern recognition from being an experienced veterinary practitioner.

“We had a dog that fell off the back of a Ute that was in a lot of pain when he came in. He just howled and howled. Thankfully he did not break any bones, but he couldn't sit down in the cage because he was so sore, so he just howled because of the pain. We gave him some pain relief and the howling stopped and he was able to curl up in the cage ...” (Participant 1 - Veterinary Nurse now Registered Nurse)

“We had a patient where I used to work that was bedridden and frail. We were so concerned about bed sores we were turning her all the time. The last time we turned her she moaned because she was in pain and I felt so sorry for her ...” (Participant 7 - Veterinary Nurse now Paramedic)

7.16 PAINFUL – Facial Grimacing / Frowning / Favouring Gestures

Participant 3 (Veterinary Nurse now Paramedic) summed up the many comments by other participants in relation to their patient in pain. Specifically that there can be several factors that lead the health care practitioner to believe that their patient is in pain. Facial grimacing, frowning or favouring / guarding gestures are some of these indicators.

“For me there are several factors that tell me that the patient is in pain. I have found that some patients frown, some patients hold body parts [favouring gestures] when walking and others suck in their breath as if wincing because moving is painful”. (Participant 3 - Veterinary nurse now Paramedic)

Participant 14 describes how he teaches his students about non-verbal indicators of pain and what these indicators mean in clinical practice.

“I ask my students to watch for non-verbal clues that the patient might be in pain. For example, the patient might grimace in pain [facial grimacing], or you might ask the patient to point to where the pain is. If they use one finger, the pain is localised to a specific place. If they use their entire hand and drag it across their chest, the pain is widespread. Similarly, if they protect or guard an area with their hand, that is an area of concern as well” [guarding or favouring gestures]. (Participant 14 – Paramedic)

Participant 4 (Medical Doctor / Self-Taught Veterinary Skills) spoke about teaching his medical students about the concept of guarding.
"The patient with peritonitis will display the so called 'guarding gesture' when they are in pain. The moment you make a movement towards their abdomen as if you were going to examine it, their hands come up from their side in an almost defensive manner. They are wary of you touching them knowing that it could hurt".

7.17 **PAINFUL** – Unsteady Mobility / Gait Impairment

Observing the patient's mobility as an indicator of pain was mentioned by both veterinary medicine and human medicine practitioners.

“If I get called to a patient in pain and he / she is standing or walking, then I like to observe their stance and their gait. This gives me a general impression of the likely injuries and the amount of pain that they might be in". (Participant 11 - Veterinary Nurse now Paramedic)

“I certainly watch people when they walk into the consultation room with injuries to see if they are in pain, particularly with work related injuries. To be fair, many patients are genuine, but some people want you to see that they have a limp or can't walk properly [gait impairment]. I watch these people to see if they change their limp, and if I have any doubts, I will watch them walk out [of the consult room], and then peek through the window when they walk outside of the surgery”. (Participant 5 - Medical Doctor)

7.18 **PAINFUL** – Lassitude / Loss of Appetite

One participant (1) who was a Veterinary Nurse and a Registered Nurse described using non-verbal and behavioural pain indicators to assess her elderly patients in the nursing home. It is interesting to note here again that the patient in pain has a ‘story’ and there are other indicators of pain mentioned. This extract provides an excellent summary of the “PAINFUL” acronym.

“You could see [observation] a dramatic difference in these patients with pain; they do not want to interact [alone] or respond to anything that you said [lassitude], they did not want to eat [loss of appetite], they would stay in bed and when you were moving them around on the bed they were stiff, [posture] and some would just make noises [vocalisation], they didn’t actually form words … it was obvious that they were in pain”. (Participant 1 - Veterinary Nurse / Registered Nurse)

Participant 1 (Veterinary Nurse / Paramedic) spoke about how she knows that her animal patients were in pain.
"For me it was the loss of appetite, and the loss in response when you walked into the kennel room. They don't even look at you, they just look away ..." "They just hide in a corner and try and pretend that everything is not happening and they don't want to engage with you".

7.19 Summary of “PAINFUL” and a Review of the Literature

The “PAINFUL” acronym provides a summary of eighteen non-verbal and behavioural pain indicators, discussed by our participants, that can be used to assess the patient in pain. Six of these non-verbal and behavioural indicators are well-documented in the literature and validated in human studies (increased heart rate, respirations, blood pressure, and muscle tone; facial grimacing & favouring gestures). Keefe et al., (1991) found non-verbal indicators like guarding, bracing, rubbing, grimacing and sighing were good observational measurements of their patients with lower back pain.

In Puntillo et al., (1990) the authors found that the non-verbal signs of grimacing, frowning, wincing or muscle tension in post-operative, major abdominal surgery patients were valid and accurate signs of patients experiencing pain. In Odhner et al., (2003) at the Strong Memorial Hospital Burns Unit in the USA, the authors found that the non-verbal signs of face, activity, guarding and vital signs were accurate indicators of the patient in pain. Further research is therefore warranted on all of the eighteen pain indicators mentioned by participants in this study. Additional, comprehensive research may show that these valid and reliable animal based pain indicators can be utilised in human medicine for the successful identification and evaluation of both non-verbal and verbal patients.

The final section of this chapter discusses the participants' responses to the posed question: “To what degree do you find experience, intuition and evidence based knowledge helpful in the clinical examination of the patient?”
7.20 Usefulness of Experience / Intuition / Evidence Based Medicine in Clinical Practice

Eight participants answered the interview question concerning the usefulness of experience, intuition and evidence based knowledge in the clinical examination of their patient. The majority of participants (veterinary background) described intuition as clinical practice that is honed after years of experience. It was explained by these participants as a feeling about a particular complaint or diagnosis before a clinical examination was undertaken. When the clinical examination was undertaken, it was then that the non-verbal and behavioural clues were assimilated, and this formed the participants’ definition of intuition. Evidence based medicine was generally discussed after the initial diagnosis with regard to treatment options.

Three participants (1, 6, & 7 - veterinary background) explained that intuition was really a “gut feeling” that was incorporated into veterinary practice every day. These participants felt that intuition for them was more focused because there was generally no verbal history available and so veterinary practitioners used all of their senses to absorb any non-verbal or behavioural information to make an informed diagnosis.

One Veterinary Nurse / Paramedic participant (11) commented:

“I think one of the major things that I have taken with me [from vet medicine] is to trust your gut instinct. If your gut instinct feels right and somebody looks sick or things just aren’t right, then you treat for the worst case scenario [on road]. My gut instinct has never let me down”. (Participant 11 - Veterinary Nurse / Paramedic)

Participant 8 (Veterinary Nurse / Paramedic) described intuition for her as “a summary of all her working senses”. This participant wondered if intuition was ultimately “the sixth sense” because it was “developed to a higher level than the other senses [as a result of her vet background experience] … and now utilised in her paramedic clinical practice every day”. This participant was a good example of how she assessed her patient first with her well-developed non-analytical skills and then utilised analytical skills for the treatment regimen.

The participants with a veterinary background all commented how intuition was not only used every day in veterinary practice, but was encouraged and valued.
“Everybody respects and listens to what you have to say in my vet clinic. I can say that I am concerned about this animal because of a gut feeling, and the vets will listen to you. They appreciate our input and everyone values our opinion”. (Participant 1 - Veterinary Nurse / Registered Nurse)

Three participants (11, 6 & 2 – veterinary background) believed that there was a wealth of knowledge to be gained working with experienced veterinary staff. This was because veterinary staff practised at “high levels of clinical expertise everyday” without verbal communication or verbal histories from their patients or owners. Participants felt that to be continuously exposed to this clinical level developed their own clinical skills and abilities. Participants 11, 6 & 2 further believed that having a strong foundational background in veterinary medicine was certainly an advantage when working in human medicine.

However, even though intuition was valued and encouraged in veterinary practice, one participant (4 – Medical Doctor) stated that intuition was discouraged in human practice.

“I do ask my ICU nurses to keep a separate page for their observations. In many ways it is a sad reflection on the current state of litigation in medicine, that the clinical record of the patient is a legal document, and people are reluctant to write in the patient’s notes comments or gut feelings that they can’t positively prove because they could be called upon one day by a barrister to explain those remarks”. (Participant 4 - Medical Doctor / self-taught veterinary skills)

These veterinary participants provide a good illustration of Feinstein's (1967) position that craftsmanship (intuition) and practical wisdom (phronesis) are integrated in the clinical judgement making and reasoning process of medicine. For Feinstein (and our participants), the clinical journey is not only concerned with reasoning and the goal to achieve better health for the patient. The clinical journey is concerned with ongoing reasoning, intuition, phronesis and deliberation about the defining ends of medicine (health), to ensure that it is a person-orientated medicine, where patients and staff are all part of the integrated health process (Thorgard et al., 2010).
7.21 Overview of Chapter

When participants from a veterinary and non-veterinary background (self-taught veterinary medicine) were asked about how they used non-verbal communication and behavioural clues in the initial assessment of their patient, they described fourteen categories derived from veterinary medicine that I developed into the acronym “OBSERVE” (observation, overall physical appearance; body language; behaviour; safety / surroundings; emotions / mood / demeanour; relationship with others; vocalisation; & using eyes for re-examination / re-evaluate).

Interestingly when these participants were asked how they used these veterinary non-verbal communication and behavioural clues in the evaluation of patients in pain, and in the effectiveness of their treatment, these participants used the same categories listed above to commence the discussion of patients with pain.

It therefore appears that these participants used veterinary non-verbal communication and behavioural clues in the holistic treatment of their patient – that is in the pre-diagnostic (initial assessment), diagnostic (confirmation of clinical examination), and post treatment phase (monitoring) of patient care.

When participants from a veterinary background and non-veterinary background (self-taught veterinary medicine) elaborated on their experiences using non-verbal and behavioural clues for the identification and evaluation of patients in pain, many examples and scenarios were mentioned. I have used the participants’ information and constructed the acronym “PAINFUL” to highlight these indicators. “PAINFUL” describes eighteen categories where the human health care participants’ use non-verbal and behavioural pain indicators to identify and evaluate patients in pain. This information was derived by participants who had a background or self interest in veterinary medicine and regularly assessed non-verbal patients in pain.

**Posture abnormal / Pupils dilated / Pale skin**

**Appearance / Agitation / Alone**

**Increased heart rate / respirations / BP / muscle tone**

**Nausea & vomiting / Noise – vocalisations**

**Facial Grimacing / Frowning / Favours gesturing**

**Unstable mobility / gait impairment**

**Lassitude / Loss of appetite**
The acronym “PAINFUL” was presented in the chapter to not only identify these non-verbal and behaviour pain indictors, but to cite examples of these indicators, their clinical interpretation and the patient’s response to pain treatment.

7.22 Summary of Findings

Participants (veterinary background / self-taught veterinary medicine) in this study have provided clear examples of how non-verbal communication and behavioural clues can be utilised in the clinical assessment of both verbal and non-verbal patients. A non-verbal patient assessment tool, for the continuous clinical evaluation of the patient (OBSERVE) has been developed. In addition, these participants have shown how non-verbal and behavioural pain indicators can be used to identify patients in pain and evaluate their treatment regimen. This information was used to construct a non-verbal assessment tool for the identification and evaluation of the patient in pain (PAINFUL). It is hoped that both of these new, non-verbal clinical assessment tools, derived by participants from the lessons learnt in veterinary medicine, have the potential to improve patient care in human medicine.

Participant 8 (Veterinary Nurse / Paramedic) summarises the advantages of transferring her veterinary knowledge and skills across to human practice.

“Even people I work with [paramedics] say to me, you can see things that we can’t see, and it’s not that they can’t see it, it’s just that they rely more on speech [verbal communication]. With Veterinary practice, you have more acute senses so that you see more, smell more, palpate more, hear more - you are more tuned into these senses and my vet background certainly benefits my human patients”. (Participant 8 - Veterinary Nurse / Paramedic)

The assessment tools of “OBSERVE” and “PAINFUL” have not been formally validated as this is beyond the scope of the present study. However, these mnemonics are offered to the clinical community as heuristic tools that might be used to improve the non-verbal assessment of patients.

The aim of the following discussion chapter, (Chapter 8), is to bring together all the study's findings and answer the research question regarding what are the lessons that can be learnt from veterinary practice to benefit human medicine?
“I THINK THAT WE GAIN MOST IF WE APPRECIATE THESE ANALYSES NOT AS REPORTS ON OBJECTIVE TRUTH, BUT AS “FRAMES” OR “LENSES” ON OUR WORLD - TO SHAKE US UP, RECONSTRUCT, GIVE FURTHER DIMENSIONS, AND OPEN NEW VISTAS OF ACTION. THERE IS ALWAYS MORE TO SAY - FOR WHICH WE SHOULD BE THANKFUL”.

(GERGEN, 1999, P.86)
8.0 Introduction

The study's aim was to explore the potential benefits that human medicine might derive from veterinary practice with respect to the streams of non-verbal communication and patient assessment. The intention of this chapter is to bring all the study's findings together and to summarise these findings in the context of the literature. This chapter will also summarise the key findings and themes (Chapters 5, 6 & 7) emphasising the contribution to new knowledge made by this research, so that it is apparent what is being added to the sum of knowledge that was not previously there. In essence, the new knowledge is the importance of observational text or non-verbal communication as an extension of Greenhalgh's Narrative Medicine Model.

The contribution of hermeneutics to the theoretical basis of this study will also be highlighted, in particular the work of the philosopher Gadamer and his emphasis on the use of language as the pathway to discover or construct deeper meaning (Chapter 4). A diagram incorporating the key findings of the study showing the Gadamerian influences and application of findings to human medicine will also be presented (see Figure 19). This diagram can be seen in hermeneutic terms as another text constructed as part of the overall study. The interview transcripts are texts that I have constructed (with my participants) and these texts were the basis of my own hermeneutic work. My participants gave me their interpretations of the relationships between veterinary science and the human health profession. Their insights became the transcript texts. My analysis of the transcripts is a further level of interpretation. The heuristics ('OBSERVE' & 'PAINFUL') then become another level of text construction. By understanding this process, it is clear that the study is grounded in a hermeneutic approach.

A discussion on the limitations and transferability of these findings will follow, acknowledging that this was a qualitative study, with small participant numbers but with implications for professional practice (Chapter 4). It can be argued that the findings are plausibly transferable because the participants seemed to be typical health care professionals. However, the important of context should be considered in the interpretation and application of the study findings in relation to whether the health care practitioner is a doctor, nurse, paramedic or other health care professional. Although, one could argue, that there is a lot of similar, clinical, observational information presented in these health care cases.
Further, it needs to be made clear that the study is not claiming generalisability with the research participants because there was no attempt at obtaining a random sample that was statistically representative.

As a result of engaging with the participants (Chapters 5, 6 & 7), interpreting the meaning of their experiences in relation to the literature (Chapters 2 & 3), the conclusions and recommendations section will summarise the lessons that human medicine can learn from veterinary medicine, highlighting implications for professional practice, teaching and future research.

8.1 Overview of Study and Findings

Human medicine normally relies on patient communication to assist with a medical diagnosis and the instigation of appropriate clinical treatment. Medical practice is typically driven by verbal communication embedded in an interrogative model where patients are expected to answer key questions concerning their illness, injury or disease, as well as furnish relevant information about their medical history.

However, there are many cases where effective verbal communication between the patient and health care practitioner is not possible or is extremely limited. Health care practitioners can then be uncertain of the appropriate medical intervention or treatment of these patients due to the lack of vital information.

In contrast, veterinary practitioners can never rely on verbal communication with their animal patients, yet they have well developed skills to effectively assess, diagnose and treat their patients. Therefore, the overall aim of this study was to explore the potential benefits that human medicine might derive from veterinary medicine in order to improve patient care. Specifically, two clinical streams were explored. Firstly, to better understand how veterinary practitioners dealt with the lack of verbal communication with their animal patients. Secondly, to better understand the assessment methods used by veterinary staff that permitted effective patient examination of their non-verbal patients.

The key finding of the study and the contribution of new knowledge was recognition of the existence, and importance of the Observational Text or Non-Verbal Information as a logical extension of the range of texts included in Greenhalgh's version of Narrative Based Medicine.
Greenhalgh (1999) used the highly structured order of experiential, narrative, physical and instrumental texts as a means of understanding the health care practitioner - patient clinical encounter. This study argues that an Observational Text can be added to Greenhalgh's clinical model because, as both the review of the literature and the interview data confirmed, there can often be communication problems or interpretation issues in the clinical encounter. The study's findings helped confirm that the interpretation of an Observational Text could help the health care practitioner identify presenting problems, appreciate the magnitude of the problem from the patient's perspective and validate other verbal information shared with the practitioner. The Observational Text can also be used to strengthen the findings of the entire patient consultation. The observational text is distinct from the physical text which emerges as a result of a formal physical examination. The observational text is available throughout the clinical encounter.

A more detailed interpretation of the participants' data led to the identification of four higher order themes:

1. Health care practitioners who have veterinary education / experience in 'Non-Verbal Communication' see themselves as being more skilled at the hermeneutic (interpretive) task of assessing patients.

2. The belief by participants that there is a need / opportunity to improve the communicative skills of students, in all health professions, by including non-verbal communication and assessment in the formal, human medicine academic curricula.

3. The 'Non-Verbal Assessment' of the patient should commence as soon as the patient is identified, and be a 'Continuous Process' throughout the entire patient - health care practitioner encounter.

4. Practical Wisdom (Phronesis), Episteme (Knowledge) and Techne (Skills) are some lessons being transferred from one 'Field' (Veterinary Medicine) to benefit another 'Field' (Human Medicine).
These themes demonstrated the important contribution that veterinary non-verbal communication and assessment skills could make to human medicine. The themes further highlighted the need for non-verbal communication and assessment to be taught in human medicine (see Recommendations).

**Veterinary Lessons for Human Medicine:** It is acknowledged that health care practitioners do see and read patient non-verbal information. However, an implication of the findings is that many health care practitioners do not appear to closely observe their patients as well as they could. This study claims that veterinary practitioners often see themselves as being better skilled at the art of observing and interpreting non-verbal information from their patients.

It is these veterinary lessons on non-verbal communication and assessment that this study has developed into the form of two heuristic tools (**OBSERVE** & **PAINFUL**).

The two heuristic tools can be seen as growing out of the interrelationship between the participants' lived experience and the research process. If we consider the development of the heuristic tools of “**OBSERVE**” and “**PAINFUL**” as a whole process, then throughout the research interview encounter, participants shared their knowledge and experience in relation to individual questions or parts. With several questions asked of the participants, there was continual movement from individual parts (questions) back to the whole process (interview encounter) to seek further interpretation and reasoning, not just information sharing. Gadamer (2004) described this approach as the hermeneutic circle as it is an encounter where parts and wholes are related with the aim of coming to a deeper understanding of the shared experiences. Odman (1979) and Gilje & Grim (1993) would argue that the hermeneutic circle should in fact be a hermeneutic spiral, because with the acquisition of new knowledge, the interrelationship between the parts and the whole grows and develops so much so, that one never remains in the same place for very long (see Figure 6, The Hermeneutic Spiral).

The aim of developing these tools was to assist human medicine in improving patient care. The acronym **“OBSERVE”** described a continuous assessment tool, for the clinical evaluation of the patient.
Health care practitioners could use this tool to assess non-verbal and behavioural clues in the pre-diagnostic (initial assessment), diagnostic (confirmation of clinical examination) and post treatment phase (monitoring) of the patient encounter. (see Table 4: Non-Verbal Assessment Tool for Clinical Evaluation).

The second veterinary heuristic tool used the acronym “PAINFUL” to describe a table of non-verbal and behavioural pain indicators to assist in the assessment of the patient in pain. The table further provided common non-verbal and behavioural examples of the pain, the clinical interpretation of each example and the response to pain treatment of these indicators. (See Table 5). Both tools are offered as an easy way for health care practitioners to pay more attention to the non-verbal and behavioural indicators in the assessment of their patient. These heuristic tools can be seen as assisting in the hermeneutic task of interpreting the clinical presentation of patients. The lived experience of the participants presented us with possibilities of both individual and collective self-understanding and thoughtful praxis, in order to better understand the world of human and veterinary medicine (see Recommendations).

Aristotle defined praxis as acting for the good of others by utilising practical wisdom (or practical reasoning) (Lawn, 2006). The terms practical wisdom or practical reasoning is sometimes referred to as phronesis (Lawn, 2006).

I see the definition of praxis reflected in the study’s findings. I believe that the health care practitioners involved in this study do not see health as merely an object, or health assessment as simply a skill. They are skilled practitioners who are not only technically adept, but also have an ethical attitude in which they develop a relationship with their patients with the aim of assisting with the healing process. The development of the heuristic tools (above) is an example of texts constructed to assist health professionals to better understand their patients. The emerging understandings of the constructed texts come from a fusion of understandings between the health care practitioners and the researcher, to better understand the patient and further facilitate ethical practice.

**Veterinary Skills Transfer:** Another important implication of the study is that veterinary non-verbal communication and assessment skills are transferable in some ways to human medicine. The health care practitioners with a veterinary background were encouraged to reflect on their practice.
As a result of this process, they acknowledged that they did use their veterinary skills and knowledge in human medicine and believed that the care of their patients improved, particularly when patients were unable to communicate or communicate effectively. This transfer of skill can be seen in terms of *phronesis*. The practical wisdom developed in one setting with animals was also used in other settings with humans. *Phronesis* is acknowledged as being strongly context-bound. However, it would seem that the contexts of clinical assessment of both animals and humans have sufficient similarity to allow for such transfer.

Further Aristotelian ideas like *episteme* (knowledge) and *techne* (craft) are also relevant to this discussion. This study found that participants believed that non-verbal communication and patient assessment could be formally taught as a distinct clinical subject in human medicine. This recommendation could be seen as an acknowledgement of the Aristotelian idea of *episteme* (knowledge). As this new clinical subject can be seen as both a teachable and examinable skill, it can also be classified as *techne* or craft. However, even though the ideas of *episteme* and *techne* are very relevant to this study, I believe that there is still no substitute for the personal experience of reading the observational text in clinical practice and developing one's own practical wisdom (*phronesis*).

The study raised the question of whether these veterinary skills and knowledge, when identified, could be easily learnt in human medicine specifically with health care practitioners without a veterinary background. It appeared that those participants who were health care practitioners without a veterinary background, but with an interest in veterinary skills and knowledge, believed that they had successfully taught themselves these skills and effectively utilised them in the care of their human patients. The health care practitioner group that were "self-taught veterinary skills" acknowledged that the veterinary non-verbal and assessment skills seemed to be particularly useful with patients with communication problems. All of the health care practitioners in the study (with and without a veterinary background) believed that they did not have to discard their current communication and assessment practices to utilise these new veterinary skills. They simply used these non-verbal communication and assessment skills to enrich their previously established methods, to help inform their care of the patient.
Health Students Lack Non-Verbal Communication Skills: The health care practitioners (self-taught veterinary skills) believed that health students were generally lacking in education and training in non-verbal communication and assessment skills. It is hoped that the veterinary non-verbal communication and assessment skills previously identified, might be explicitly embedded into the human medicine curriculum, both at undergraduate and postgraduate level, to assist junior medical staff to learn and understand the importance of these skills to patient care.

The question then needs to be raised that if we want students to learn these skills, do we train them or educate them, or do we use a combination of both training and education (see Chapter 3). One might speculate that a combined or blended approach to training and education appeared reasonable given the nature of clinical practice and I would argue for this position.

The differences between education and training are not always as obvious as they seem. Could a precise definition of education and training assist us at this point in time? The word education is derived from the Latin meaning to train or educate (Karmel, 2011) so one can see the use of these overlapping terms leading to confusion. Education is developing the abilities of the mind with the aim of learning to know. Training is essentially a practical education, with the aim of learning to do or practice under supervision some trade or profession (Collins English Dictionary, 2009).

Karmel (2011) suggests defining education and training with regard to their pedagogic tradition and funding arrangements for better clarification. Universities basically deliver higher education with self-accredited courses or individual state based accreditation. The funding arrangement is dominated by the Commonwealth Government.

The Vocational, Education and Training sector (VET) are providers of registered training organisations whom aim is to deliver certain competency based qualifications. These providers are registered under the Australian Qualifications Training Framework (AQTF), and public funds are sent to the state training authorities programs for ongoing financial support (Karmel, 2011).

The borders and requirements of education and training are often dovetailed because most professionals need a combination of both roles. The medical profession is no different.
Combining education and training gives the student the ability to understand the professional world of medicine, it clearly shows the student how to utilise their knowledge and skills and when to apply critical thinking abilities. Problems occur when the education and training needs of the student are not suitably aligned with the requirements of their profession. The ability to understand both theory / practice AND make a caring health care practitioner belongs to the domain of practice based education. For this study and this context, practice-based education needs to be a sophisticated blend of education and training.

The study further reported on some health care practitioners (non-veterinary background) who had no training or experience in non-verbal communication skills despite their extensive medical education at university and in the hospital environment. It is hoped that current health care practitioners might also receive in-service education and training in non-verbal communication to not only assist their patients, but assist in the mentoring of health students and junior practitioners (see Recommendations).

8.2 The Influence of Hermeneutics and Gadamer in this Study

Hermeneutics, the art and study of interpretation, provided the foundational structure or paradigm for this study. By using hermeneutics as our lens, and realising that language is the medium of the hermeneutic experience, we can see that health care practitioners need interpretive skills throughout the clinical encounter, to listen to their patient stories when these are available, appreciate the findings of the physical examination and to understand what diagnostic tests to order. The addition of non-verbal communication and assessment skills to their clinical practice can assist the health care practitioner to improve patient care by having a more holistic understanding of the patient throughout the clinical encounter and further assisting with a diagnosis (where appropriate). The health care practitioner can have a more holistic view of the patient if the different interpretations of the various texts (experiential, narrative, physical, instrumental and non-verbal) are integrated into their practice. The holistic view can also include the health care practitioner's past experience. This integration process is more closely aligned with the original goal of Sackett's work (1996) with evidence based medicine and his requirement that the best evidence has to be integrated with personal expertise.
Whilst it can be acknowledged that there has been a great deal of work accomplished researching how to establish the best evidence, the other part of the requirement of understanding expertise and integrating expertise with best evidence, has largely been ignored by researchers. One reason for this situation is the fact that conventional research approaches in the health sciences do not lend themselves easily to researching expertise and its integration, leaving these areas mostly to cognitive psychology, which is itself, a reductionist approach. It can be argued that disciplines, such as cognitive psychology, have a limited vocabulary when it comes to engaging deeply with the ideas of personal expertise. They are unable to ‘bring into language’ the ideas that need to be integrated with evidence based practice. Other approaches, such as hermeneutics (and narrative inquiry for example) can offer a vocabulary and a discourse that permits this field of interpretation and integration to be explored in more depth. Perhaps then, once could argue that integration is another word for interpretation?

Gergen’s words from the introductory epigraph resonate well here, as the study has adopted a hermeneutic approach as a theoretical lens to shed new light on the clinical encounter.

“I think that we gain most if we appreciate these analyses not as reports on objective truth, but as “frames” or “lenses” on our world - to shake us up, reconstruct, give further dimensions, and open new vistas of action. There is always more to say - for which we should be thankful”. (Gergen, 1999, p.86)

It must be acknowledged that this study is not the first to use the hermeneutic approach to appreciate the clinical experience. Svenaeus (2010) also provided new insights into clinical practice with his work on hermeneutics and medicine. Svenaeus believed that patients lived within a life world with a horizon of meaning and that each patient must be understood in their own context within the clinical encounter. Our study builds on this emerging tradition.

Figure 19 provides an illustration of how Non-Verbal Text (Active Observation) fits into the health care practitioner-patient encounter using Greenhalgh’s Model of Narrative Based Medicine. The health care practitioner utilises active observation or non-verbal text throughout the entire patient encounter from initial presentation, to listening to the history or story as told by the patient (if available), during the physical examination phase and even while organising further investigations for the patient.
The overall aim is to reach a diagnosis (if relevant), or identification of the patient's issue(s). For this step to be reached, the health care practitioners will also utilise their decision making skills derived from their educational knowledge (Episteme), expert skills / craft (Techne) and practical wisdom (Phronesis) developed from years of experience.

The acronyms “OBSERVE” and “PAINFUL” illustrate how non-verbal and behavioural clues can practically and meaningfully assist the health care practitioner as a patient assessment tool and as a pain indicator tool respectively. The overall goal of this diagram is to show how human medicine can use veterinary, non-verbal communication skills to improve patient care.

The diagram therefore provides a visual summary of the study's findings, highlighting the influence of Gadamer in the research and clearly shows how these findings might fit into human medicine practice. Therefore, the diagram is reflective of epistemology - the theory of knowledge from this study and ontology - the theory of being and understanding the study participants’ lived experience.
Figure 19: Inclusion of Active Observation (Non-Verbal Text) into Greenhalgh’s Narrative Based Medicine Model and Articulation of how the Study’s Findings can Assist in Human Medicine
Davey (2006) reminds us that the discipline of hermeneutics is shaped by a philosophical practice in which there is a certain reflective tension present. This tension reflects a state of consciousness between the past and the future. This can be seen with the veterinary participants' background and current health care practitioner role. This situation resonates well with Sackett's requirements of integrating best evidence with personal experience to develop authentic evidence based practice (Sackett, et al., 1996). Gadamer (2004) speaks of this 'in betweenness' where we cannot return to the past because our new level of understanding has transformed our relationship with the old understanding. However, we cannot comprehensively move forward into the future as yet, because the yet-to-be realised understandings or transformations of our present situation have not been fully realised and appreciated. Gadamer's hermeneutics has therefore given us the vocabulary to think of ideas like 'in-betweenness' in connection with clinical expertise.

The assessment tools of “OBSERVE” and “PAINFUL” also provide an example of how hermeneutics is more than an interpretive tool, but one that shapes human being(s) in particular, ontological ways. Participant 4, a medical doctor in our study (self-taught veterinary skills), recounts the story of being called to Accident and Emergency to see a 65 year old female patient with acute onset of abdominal pain. He is accompanied by two medical students.

“As I walked towards the patient in A & E I observed that she was pale, of average height and weight, slightly anxious and was lying supine with her knees flexed. I reasoned that the posture was to ease the abdominal pain. The monitor was indicating her blood pressure was low (85/40) yet she was not tachycardic (only 70 beats per minute).

When I introduced myself and shook her hand, it was warm to the touch and I knew instantly that we were in trouble. My experience and the clinical picture were telling me that she was suffering from septic shock and we did not have a moment to lose. This whole process took under 2 minutes. I had taught myself to observe patients more closely as a result of my interest in veterinary medicine. The medical students accompanying me had not shared my observations; one could say they were clueless. My job was to teach these students about the importance of observation in clinical medicine”.

It is apparent from this authentic clinical case, that this medical doctor is now incapable of NOT noticing glaring clinical signs as a result of his knowledge of veterinary medicine.
Being able to recognise these clinical signs was now a part of who and what this medical doctor was. For this doctor, this ability is now embodied as he uses all of his senses to evaluate and act. Interesting, the medical students shared the same clinical encounter, but did not share the same observations. Ingham, (2009, p.162) described the reason why:

“How do you know what to look for if you have never seen it before? The untrained eyes will often pass over indicators that stand out like a glaring beacon to someone with previous experience in a similar situation”.

The medical doctor was correct, there is much that he can teach these students. The clinical case therefore is not only epistemological, it is ontological. Gadamer (2004) had a great interest in what made us human. One of his great insights was that being interpretive is a large part of what it is to be human. The embodied ability to read the observational text is an example of how this interpretive ability becomes intuitive and a part of our being. Gadamer’s hermeneutics opens up a distinctive way for us to articulate and see such key aspects of medical practice.

In this research, one could argue that veterinary practitioners saw their human patients in hermeneutic terms as living texts or text analogues. They listened to the spoken words when these were available and read the observational text and test results, but were ultimately more interested in the meaning behind the words, the physical signs and the test results (twofoldness - see next page). The unspoken language which is the language of the body, can tell a similar story or a different story to any spoken words. Gadamer (2004) believed that anything meaningful had to already be within the world of language, even if it was not yet articulated in words. It is clear, therefore, that this understanding of language includes whatever is meaningful, even though that meaning may never be completely articulated in spoken (or written) words.

Davey (2006) helps us understand more about the spoken word when he states that it is not what is uttered per se, but what is left unsaid that can really matter. Davey is of course commenting on the work of Gadamer (2004) and argues that the 'unsaid' can be more persuasive than the spoken word or 'said' and lead to a greater understanding of the lived experience (Davey, 2006). In the opening epigraph, Gergen reminds us that in the hermeneutic experience, “there is always more to say” (1999, p. 86).
Even though one may settle on a given interpretation, this process of interpretation then opens up more horizons of understanding, and with that, further ways to interpret the lived experience evolve into consciousness (Gadamer, 2004). However, the hermeneutic view is not restricted to scholars such as Gadamer or Heidegger. Renewed interested in the science of Goethe reveals that he adopted a very hermeneutic view of scientific inquiry.

Goethe (1749-1832), better known as a poet and playwright, wrote a significant body of scientific work pertaining to the wholeness of the natural world. His work is sometimes referred to as a phenomenology of nature with its emphasis on the encounter between the observing scientist and the natural phenomenon being studied (Seamon 2005). Bortoft (1996, p. 307) spoke of understanding Goethe's Way of Science and used the term “twofoldness”. In describing “twofoldness” Bortoft was also explaining how strongly hermeneutic Goethe's science was. “Twofoldness” is explained by the concept that letters make words, words make sentences, sentences ultimately lead to pages and then chapters. The reader reads the words or marks on the page. They also read the meaning behind the words. The interpretation of individual words, as well as the interpretation of the whole text, is called “twofoldness” (Bortoft, 1996, p. 307). Twofoldness was certainly identifiable with the veterinary participants in this study as they related to the research interview encounter as a whole process, and then to each part (the individual questions / text / their lived experience), and then back to the interview encounter again. The renewed interest in Goethe’s Way of Science and the hermeneutic approach of scholars such as Gadamer, promises to open up our understanding of how scholarly inquiry and scientific research can be conceptualised.

8.3 Limitations and Transferability of Findings

As this was a qualitative study examining non-verbal communication, some qualitative researchers might ask why the participants were not interviewed face to face and videotaped in their natural setting to add another level of richness to the study's findings. The process of videotaping could have also assisted with the study's methodological triangulation.
This level of participant engagement was considered in the original draft of the research proposal. However, when the practicalities of the research were considered, this was not possible as the majority of the participants were geographically scattered throughout Australia with some participants located in the USA, England and Ireland. Further, it was also discovered that not all participants were available for face to face interviews, nor felt comfortable with the idea of videotaping. However, with the reality of interviewing, I felt that a relaxed atmosphere was established, and I believed that the participants felt at ease and were able to open up and contribute in their own way to the interview process.

Phenomenology is the study of the individual, human lived experience in a given situation. Qualitative studies of this kind usually involve low participant numbers and some research critics would argue that because of the small sample size, it lacks replicability because of the uniqueness of the participant's experience (de Laine, 1997). From a quantitative point of view, this study is limited because of its qualitative nature as there was no attempt to select a statistically representative sample. Therefore, it is not possible to generalise findings across the entire medical community. I acknowledge that this study only involved fifteen participants, but I believe that it did generate a greater depth and breadth of research information into an area of the scholarship of clinical reasoning that appeared to be poorly served. I believe that the participants were typical and representative as far as this was possible. The participants were selected because they fulfilled the purposes of the research question. They were part of a purposive sample. My interpretations of what emerged in the interviews were transparent. Readers can therefore visualise the process and follow the research journey. What was found was plausible given this process and it is likely that the findings would be replicated in another setting. It was my intention to explore the area of veterinary and human medicine by conducting research and sharing the findings with the wider academic community. I would therefore like to invite other researchers to continue exploring further lessons that human medicine can learn from veterinary practice (see Implications for Professional Practice / Teaching / Research).
8.4 Personal Journey

Reflecting on my career as a paramedic and a veterinary nurse, I do remember the 'light bulb' moments when the skills I learned in veterinary practice did inform my paramedic practice and assist patient care.

For example, the elderly gentleman in chapter 4 (Methodology) who was non-English speaking, had severe chronic airway limitations and his home oxygen had run out. His non-verbal clues were obvious to the trained eye, but other members of the health care team did not recognise them.

I also remember my paramedic colleagues telling me of a case where they were frustrated because their paediatric patient (5 years old) was found alone and the team struggled with very limited communication and no available medical history. Interestingly, I arrived the following day for a casual shift as a veterinary nurse (Chapter 5 - Introduction to Analysis Chapter) where two owners had dropped off their sick cats and then had to leave immediately because they were running late for work. In this situation, the veterinary staff were not concerned that there was no verbal history available or that the owners would not be present during the consultations. This was a very different clinical situation to the one that had occurred the previous day in human medicine. I can recall feeling the need to pay close attention to my veterinary colleagues to see what lessons I could learn for my paramedic practice!

Now several years on, how has the research journey affected me? The Sherlock Holmes quote springs rapidly to mind: “You see but you do not observe” (Redmond, 1993, p.53) and my impression is that this is also true of human clinical practice. Most practitioners that I have worked with had 20/20 vision, yet most did not really appear to observe their patients. Dr Pieter Merkelbach, a veterinarian and colleague was kind enough to mentor me in the early days of my veterinary nursing career. Before he would answer my numerous medical questions about the animal patient, he would ask me what I observed about the patient, and then gently steer me in the correct direction. I quickly learned that the priority was not in asking questions, but in observing the patient and answering your own questions. In my experience, the answers to most questions were staring back at you.

I currently teach these hermeneutic skills to final year university paramedic, nursing and medical students as I believe that a sensitivity to the 'unsaid' is probably more important than recording what is actually 'said'.
I have developed a series of PowerPoints on non-verbal communication clearly showing how human medicine can learn from veterinary medicine. The participants' voice in this study have greatly assisted with this educational material particularly the use of the ‘OBSERVE’ and ‘PAINFUL’ mnemonics. The medical students can clearly see how to use non-verbal and behavioural clues to assess their verbal and non-verbal patients as well as accurately assess a patient in pain. I am sure that the late Dr Pieter Merkelbach would be proud to know that his beloved veterinary medicine was continuing to contribute to improving the care of human patients!

8.5 Conclusion

This study has shown that there are lessons that human medicine might learn from veterinary medicine. The key findings of the study and the contribution of new knowledge was the existence and importance of the Observational Text or Non-Verbal Information as a logical extension of Greenhalgh’s Narrative Based Medicine model (1999). Currently this model describes the health care practitioner - patient clinical encounter but assumes there is effective communication occurring between both parties at all times. A review of the literature confirmed that often there were communication problems between the health care practitioners and their patients. This study has therefore recommended the inclusion of Observational Text (Non-Verbal Information) as an explicit and necessary part of Greenhalgh’s version of Narrative Medicine with its multiple texts.

Our study found that health care practitioners (with veterinary background) practising in human medicine, routinely appeared to use the Observational Text as an integral part of their patient clinical encounter, particularly when the patient had communication problems. These participants believed that close observation as a routine and continuous part of the patient encounter, assisted with the preliminary diagnosis, treatment and care of their patients.

The veterinary lessons that were ‘brought into the language of human medicine’ were further developed into two non-verbal and behavioural clinical assessment tools. The first clinical assessment tool (OBSERVE) was aimed at assisting the health care practitioner with the clinical evaluation of the patient during the entire health encounter, from initial patient assessment, through to the diagnostic and post treatment phases.
The second assessment tool (PAINFUL) was a table of eighteen non-verbal and behavioural pain indicators aimed at assisting in the assessment of the patient in pain. The table further provided common non-verbal and behavioural examples of the patient in pain, the clinical interpretation of each example and the response to pain treatment of these indicators.

The two heuristic tools can be seen as a hermeneutic attempt to ‘bring into language’ the insights (reflections and interpretations) of the participants in a form that can be of practical use. However, formal validation and testing of the tools is a task for future research.

The study found that health care practitioners who had education / experience in non-verbal communication perceived themselves as being more skilled at the hermeneutic tasks of assessing patients. Further, participants believed that these veterinary skills and knowledge were readily transferred to human medicine because of the perceived similarities between both veterinary and human medicine. However, it must be stated that establishing whether these participants are more skilled at assessing patients, and the belief that these skills and knowledge are transferrable from veterinary medicine to human medicine, is a hypothesis for further research.

The study also found that participants believed that the veterinary non-verbal communication and assessment skills appeared to be easily learnt as evidenced by the health care practitioners working in human medicine who were 'self-taught' in veterinary skills. All participants in the study believed that they could utilise these veterinary skills, in tandem with their existing medical skills and knowledge, to improve the care of their patient particularly when the patient was unable to communicate or communicate effectively.

There was also a belief amongst the human health care practitioners (non-veterinary background) that health students lacked education and training in non-verbal communication. These participants felt strongly that non-verbal communication and assessment skills should be incorporated in the education and training of health students both at university level and in the post graduate medical environment. Further, these health care practitioners (non-veterinary background) also stated that they themselves had received no education or training in non-verbal communication at any stage in their medical career.
Therefore, extending non-verbal communication to the existing health care practitioner in-service education and training model appears logical. These health care practitioners could then use this training to assist with the further care of their patients and with mentoring other junior health staff. Ewing & Smith (2001, p.16) describe this concept of professional practice as “doing, knowing, being and becoming”.

O’Meara (2011, p.57) advanced this concept by stating that by using this theoretical framework, it can:

“help gather our thoughts and develop our own professional philosophy. If we can understand what we do, develop a robust knowledge base, be true to ourselves and have a sense of the future, we can truly become a profession ...”.

8.6 Recommendations

It does appear from the study’s findings and the review of the literature that there are lessons that human medicine can learn from veterinary medicine with regard to non-verbal communication. The practice of veterinary medicine is less reliant on verbal communication and more reliant on non-verbal communication regarding its animal patients. The veterinary curriculum, medical training, education and experiential modules are all integrated in the non-verbal communication / observational model of medicine. This statement was verified after undertaking a review of the learning outcomes for veterinary medicine in several US / Canadian universities that offered the degree of veterinary medicine. Such universities included: The Iowa State University, The North Carolina State University, The College of Veterinary Medicine at Washington State University and The University of Prince Edward Island, Canada.

In contrast, the practice of human medicine is heavily reliant on verbal communication, has limited education and training in non-verbal communication at university or in the postgraduate medical environment. There also appears to be an increasing number of patient - health care practitioner encounters with communication problems.

Therefore, three recommendations are made to address the perceived lack of understanding of the importance of education and training in non-verbal communication in the human medicine curriculum.
The three recommendations address three different learning environments to ensure a sound integration of non-verbal communication within the human medicine curriculum; (1) for health students at university level and (2) whilst training in the medical environment, and (3) for existing health care practitioners at an in-service educational level.

The three recommendations are a way that this qualitative research can facilitate embodied (holistic), relational (patient-centred) understanding and development of the health care practitioner engaged in caring practices (Todres, 2008).

**RECOMMENDATION 1: At University**

- To include a non-verbal communication subject in the human medical curriculum at university as a core subject.

  **OR**

- To reclassify the existing, elective non-verbal communication subject to a core subject in the human medical curriculum at university.

It is apparent from the study's findings that health care practitioners with a background in veterinary medicine or who had been 'self-taught' veterinary skills, believed that having education / experience in non-verbal communication helped in assessing their patients and thereby improved patient care. Further, these participants believed that non-verbal assessment should be a continuous process throughout the entire health care practitioner - patient encounter.

It is clear from the study's findings and the review of the literature that health care practitioners believed there was very limited, if any, education and training in non-verbal communication in human medicine. In addition, participants’ believed that there was a lack of education and training throughout the students’ formal education.
The participants’ attributed this to an increasing number of health students, that they were aware of, that were either not taught about non-verbal communication at university, or, if the subject was available, it was offered as an elective subject and students preferred other ‘core’ clinical subjects over non-verbal communication.

Therefore it is logical to recommend the insertion of a non-verbal communication subject at university, or at least, the reclassification of non-verbal communication as a core subject rather than an elective subject at university. This would provide a solid foundation for health students and assist them in identifying and addressing communication issues in the medical environment.

**RECOMMENDATION 2: Health Students whilst Training**

- To incorporate and integrate veterinary knowledge regarding *Observational Text or Non-Verbal Information* into the human medicine education & training curriculum for all health professionals (medicine / nursing / allied health).

**RECOMMENDATION 3: Health Care Practitioners**

- To incorporate and integrate veterinary knowledge regarding *Observational Text or Non-Verbal Communication* into the human medicine in-service education and training programs for all health professionals.

- To ensure that relevant health care practitioners have access to educational / training programs on non-verbal communication.
Recommendations 2 & 3 present an integrated approach to non-verbal communication education and training in the medical environment for all health professionals. The study's findings and the review of the literature confirmed that health students lacked education in non-verbal communication whilst training in the medical environment. Similarly, it was found that health care practitioners in our study (non-veterinary background) did not undergo any training in non-verbal communication either whilst at university or during any part of their medical training when asked.

If we are to interpret the study's findings in a meaningful way, then improving health students’ and health care practitioners’ knowledge and understanding of non-verbal communication will also improve their care of the patients. With an earlier discussion on praxis (morally committed and morally informed practice) in chapter 4, there is a moral imperative that health care practitioners should be as well informed about their daily practice as they can be. With regard to this study then, health care professionals should be aware of the lessons that their veterinary colleagues have learnt to assist human practice and benefit patient care.

8.7 Implications for Professional Practice / Teaching

Since “man is considered a symbol making animal, with language his master system of symbols” (Palmer, 1969, p.225), I was not surprised by the study's findings or the review of the literature which discussed the lack of education and training in non-verbal communication in human medicine and the associated problems between health care practitioners and patients (i.e. lack of understanding between the parties, stress, perceived lack of caring or concern, non-treatment compliance etc.).

The three recommendations of this study are strongly linked to implications for professional practice and teaching in the human medicine curriculum and might address some of the stated problems between health care practitioners and their patients (Novak 2004; Cowan et al., 1997).

Recommending non-verbal communication as a core subject at university for health students would ensure that they have a solid academic foundation in which to understand and appreciate the needs of their future patients. Students could participate in role playing, problem based learning tutorials / clinical simulations involving non-English speaking patients, paediatrics, mentally ill patients and so on.
This would then encourage students to be more confident in dealing with patients who are unable to communicate, communicate effectively or to provide more non-verbal evidence to validate their findings or concerns in the patient encounter.

Incorporating and integrating veterinary knowledge regarding Observational Text (Non-Verbal Communication) in the human medicine education and training curriculum for health students, whilst studying in the medical environment, is a means of bringing together theory with practice (knowledge and skills). Barnett & Coates (2005) share similar views about integration and interweaving of knowledge and skills.

The authors believe that an interactive curriculum should be enriched with knowledge, skill, engagement, reflection and be an active process for the student. Barnett & Coates (2005) describe three domains of student learning: knowing, acting and being. These three domains are important in an educational curriculum to allow spaces for learning to occur. The authors argue that the current curriculum based model fills spaces with individual subjects and modules that do not allow for active learning to occur and there is no interweaving of the student domains of learning. As a result, students are often not ready to become professionals when they graduate from university because, one could argue, that they often have no insight into the real world. The heuristics of “OBSERVE” and “PAINFUL” developed from this study are good example of helping students to develop along the three learning domains. Students can know more, they can do more and they can become better practitioners.

By integrating theory with practice, students can learn how to become ‘full professionals’. Full professionals are defined as professionals who are able to stand apart from their profession as well as live within the profession. This distinction is necessary for full professionals to critique their profession and assist it to move forward and advance to the next level of understanding (Barnett & Coates, 2005).

A similar view about being a full professional is held by Kemmis & Smith (2008). These authors believe that professionals should have a sense of moral imperative to be as well informed about their daily practice as they can be. In other words, to work in a community of professionals, who are morally informed and morally committed through their actions to ensure optimum patient care (see also Reynolds, 2004).
Incorporating the findings of this study into professional practice and obvious teaching opportunities provides a way that health care professionals can keep informed about new research / innovations / ideas concerning human medicine.

The work of Daniel Kahneman (2011) is also relevant to this discussion on implications for professional practice. Kahneman believed that it is very important for students to learn and develop intuition (which he claimed was recognition). In order to do this, students need both plenty of regular practice and immediate feedback on their performance with appropriate mentors. This study provides some evidence to support Kahneman's claim because a strong message of this study is that medical students should learn and be mentored in the skills of intuition.

The embodied ability to read the observational text that veterinary staff develop can therefore, be seen as a form of intuitive reasoning. Medical students should learn about this intuitive reasoning to assist in their medical practice.

One could argue here that it is indeed an ambitious statement to make that medical students should be learning about veterinary non-verbal communication and assessment skills and further linking theory with practice in a busy hospital environment. One could question how this could be achieved. Section 8.8 'Post Script' answers this very question.

Participant 4 is a medical doctor, who had self-taught veterinary skills because of the need for these skills in his medical practice (ICU & Anaesthesia) and the lack of medical education and training in this area. This personal communication was received many years after the interview process was completed and described not only the progress that participant 4 has made utilising these veterinary skills in human medicine, but how his students have benefited as well.

One might describe participant 4 as a 'full professional'. The following section, Section 8.9 is a short transcript showing how this participant teaches 'Active Observation' or 'Non-Verbal Information' to his medical students. This is an actual case that presented in Accident & Emergency involving a Non-English speaking patient. Participant 4 is clearly showing his final year medical student (pseudonym Andrew) how to use 'Active Observation' to learn more about this patient's medical condition in the absence of any medical history or family members.
The teaching session lasted approximately 10 minutes, and had a strong focus on looking at the patient holistically, with an open, enquiring mind.

It is interesting to note that all of the information that the medical student needed to know was right in front of him. However, on this occasion it was not 'written in the notes', but available by simply observing the patient.

8.8 Post Script

Recently, I received a communication from one of my research participants (4). The participant was a medical doctor who had taught himself some veterinary assessment skills so that he could improve the care of his patients. For me, his story summarises the lessons that human medicine can learn from veterinary medicine.

"Hello Veronica, I guess it must be approaching five years or so now since you first interviewed me for your PhD thesis. If you recall, back then I had been working with a local vet to learn some of the tips and tricks of assessment that I just knew would help me with my non-verbal patients. Given that many of my patients are anaesthetised, unconscious or intubated this was a matter of some magnitude! What has really surprised me is that once I consciously made myself observe the details of patient surroundings and clinical signs, it rapidly became easier, more accurate, faster, and above all, absolutely fascinating!

It has reached the stage now where I often don’t realise I’m doing it, and I just get this “gut feeling” that I then have to consciously reverse-analyse to work out how I got to some particular conclusion.

I thought that I would drop you a line because I have been teaching medical students all day and can attest to the fact that they use their eyes to read the patient’s notes and not the patient! This makes me think how easy active observation is to teach the medical students and junior doctors, and how much they enjoy it! I now have these little interludes on the ward rounds or in ICU where we pretend that the patient is Hungarian and can speak no English. I then challenge the students to tell me as much as they can about the lifestyle and health of the patient just using non-verbal clues. I get looks ranging from absolute terror to concerned pity when we first do it, but once I start to take them through it and show them how it's done they quickly catch on, and it is always great fun.
Some take to it remarkably quickly, and this seems to be those who have greater ability to observe and then reason and deduce using their theoretical knowledge.

However, I also get the distinct impression that those who have children or younger siblings seem to get the hang of this more quickly as well, and I have often thought about your comments about people who have animals to look after being good at non-verbal assessment.

I have been meaning to write you many times to thank you for giving me what seems at times like the keys to the car, or even a whole new insight in to how to practice medicine and interact with all my patients, even those who can communicate verbally. The richness it adds to the patient interactions is quite staggering. Perhaps I will leave the last word though to one of my final year medical students who witnessed his first example of what I call “observational diagnosis” yesterday.

Having laid out the life history, medical history and medication history of one of our “Hungarian” patients with remarkable accuracy, without a single word being spoken by the patient, he said “A few hundred years ago you would have been burned at the stake for that!” I answered that it is not magic, it is simply active observation, that anyone can learn, in order to enhance their patient care.

As you might not be familiar with my teaching methods, I have attached a short transcript concerning a recent authentic case in Accident & Emergency involving a Non-English speaking patient, a final year medical student (Andrew) and myself. For me, it was amazing to see how quickly Andrew embraced the ‘Active Observation Method’ and the positive outcome“.

8.9 Short Transcript of an 'Active Observation' Clinical Teaching Session between Participant 4 (Medical Doctor) and Andrew (Final Year Medical Student)

Prof: Andrew (final year medical student), I got a call about this guy a couple of minutes ago. He’s been brought in from the airport. All we know is that he was standing waiting for his baggage when he collapsed. According to the Ambos, eyewitnesses said that he just slumped to the ground but he was definitely unconscious for a couple of minutes. There was no sign of fitting and he doesn’t seem to have bitten his tongue or been incontinent. His face looked a bit ashen apparently, but then his colour returned and he woke up, just before the Ambos arrived.

4 Permission was obtained from ‘Andrew’, the de-identified medical student, to use this transcript in the thesis.
Unfortunately, he’s Hungarian according to his passport, there’s nobody with him who speaks Hungarian and he doesn’t speak any English worth mentioning. That’s about all I know about him, but no worries. What can you tell me about him?

Andrew: Well do we have an interpreter available or any family members?

Prof: No I’m afraid not.

Andrew: Well how can we find out anything about him then?

Prof: Well, just look at him and tell me what you see.

Andrew: I’m sorry, what do you mean?

Prof: Well, how old do you think he is just looking at him?

Andrew: Well I guess he’s in his late 60s maybe early 70s, so what?

Prof: Okay, is he well-nourished or malnourished, tidy, unkempt, clean, smelly?

Andrew: He’s well nourished, clean, reasonably well dressed in a casual way, like a tradie I guess.

Prof: Think he’s short of money, homeless?

Andrew: No, his gear’s good stuff — not bad, and his shoes look good.

Prof: What about his muscular development?

Andrew: He seems quite fit, and now you mention it, I guess he looks too muscular to be a pen-pusher in an office. I guess he should have retired by now given his age.

Prof: Okay so he’s probably a retired former manual worker. What else can you tell me?

Andrew: He seems more muscular on the right arm than the left, so he’s probably right handed.

Prof: Excellent now you’re getting the idea. What about his hands?

Andrew: The skin is definitely thickened, in fact it’s tough as leather, and there’s lots of little scratches and marks. This seems to suggest that he’s still doing some kind of manual work, maybe working with metal or sheeting or something sharp like that because he has lots of little tiny nicks and scratches in the skin.

Prof: Are they clean or are they dirty looking?

Andrew: They look to have dirt in the scratches. Ah, maybe he does mechanical or farming work or he’s a gardener or something like that!

Prof: Okay, so what do his hands smell like?

Andrew: What? Well, they actually smell weird — quite sweet really — sort of fragrant or earthy.

Prof: So not oily then?

Andrew: No. So you’re saying he’s not a mechanic?
Prof: That’s right. I’m just working this out same as you are, but he doesn’t look like a mechanic.

Andrew: So he’s probably not here for the race then! *(The V8 Supercar Race)*

Prof: Good, now what else can you see - just keep looking and tell me what comes to mind.

Andrew: Well he’s got fairly obvious tanning of his face, hands and arms so I would guess he’s an outdoor worker. That would fit with him being a farmer or something like that.

Prof: Can you see anything else from his hands?

Andrew: No, not really. Oh, he’s got nicotine staining of his first two fingers so he’s obviously a smoker.

Prof: Excellent and…?

Andrew: From the degree of nicotine staining I’d say he’s probably a fairly heavy smoker.

Prof: Right, okay, so if he’s an outdoor worker, a heavy smoker, and from Eastern Europe, what else is his lifestyle likely to be like?

Andrew: He probably drinks like a fish, and probably has more starch and stodge in his diet than he should!

Prof: I tend to agree. If that were the case then would you expect him to be overweight or obese?

Andrew: Well yes, but he’s certainly overweight.

Prof: And is that fat uniformly distributed or is it unusual in any way?

Andrew: Now I see what you mean - he’s obviously got more marked central adiposity rather than peripheral.

Prof: And if you look at his eyes is there anything that strikes you as interesting?

Andrew: Ah yes, he’s got arcus around the iris *(a grey arc sometimes visible around the cornea of the eye)*.

Prof: Brilliant, now what do you think of when you see that?

Andrew: Well it’s said to be associated with hypercholesterolaemia and maybe it’s related to hypertension.

Prof: Good. Now put all that together; what do you think of somebody who is an outdoor worker, a smoker, probably drinks a bit, has central adiposity, arcus & a suboptimal diet. What kind of conditions does that suggest to you?

Andrew: Well, the first one that springs to mind is diabetes.

Prof: So diabetics collapse sometimes, yeah?

Andrew: Yes, it could be hypoglycaemia.

Prof: Good, so if he were an insulin-dependent diabetic how could we tell?

Andrew: Well he’d have needle marks, probably on his abdomen from his insulin injections.
Prof: That's right. Well let's look if he has ... Okay, so there are no needle marks but does that mean he's not diabetic?

Andrew: No, he could be a type II diabetic just on tablets.

Prof: Excellent. Do type II diabetics generally have hypoglycaemic episodes which could explain why he collapsed?

Andrew: Well they can do, but it's not very common.

Prof: Absolutely, in fact it's quite rare isn't it? So let's follow this a little bit further. If he were a type II diabetic, a manual worker, a smoker, has arcus, comes from Eastern Europe, probably likes a drop of vodka, then what other conditions would he be prone to?

Andrew: Well he might have peripheral vascular disease.

Prof: And?

Andrew: Oh, of course, he could have coronary artery disease as well.

Prof: Excellent; now you're thinking like a proper doctor! Only kidding, you're doing really well. Go with it a little bit more. Tell me how you could confirm that?

Andrew: Ehmm ..., well he might have had coronary artery bypass grafting!

Prof: Yeah, so how would you know whether he had or not?

Andrew: Well he'd have a sternotomy scar.

Prof: Well let's get him to open his shirt and show us. Well has he?

Andrew: Yes he's got a midline sternotomy!

Prof: Great! When was that done?

Andrew: Don't know for sure but it looks old.

Prof: How do you know that was a bypass and not, say, a valve replacement or something?

Andrew: Well, we could look at his legs and see if they took the veins out to use for the grafting.

Prof: Okay let's look. Well, well, what do you know! He's had his saphenous veins stripped but he doesn't have varicose veins, so it looks like your hunch was right that he's had coronary artery bypass grafting. So if he needed coronary artery bypass grafting and if he lives around here, then where would that surgery have been done?

Andrew: I guess he would have gone to RPA (Royal Prince Alfred Hospital, Sydney).

Prof: But if that's true then what else could we do?

Andrew: Sorry, you lost me there ...

Prof: So if we were to contact Medical Records at RPA they might well have a file on him, yes?

Andrew: Of course, yes, and if not RPA then somewhere in Sydney, yes.
Prof: Okay, so he’s probably had coronary artery bypass grafting some years ago in Sydney, so can we assume his coronary arteries are OK now?

Andrew: Well no, we can’t, he’s probably blocking up his arteries again so he could have had another myocardial infarct.

Prof: Excellent, but just looking at him, does he look to be in any discomfort? Does he look like a man in the throes of a heart attack?

Andrew: No he doesn’t, but he could have had a silent infarct.

Prof: Bang on! Yes he most certainly couldn’t he, especially if he’s diabetic? So is there anything you want to see before we go on?

Andrew: Yes, I’d like to see his 12 Lead ECG.

Prof: So there’s his ECG, what do you think about it?

Andrew: Well there doesn’t look to be anything very acute here. Possibly some old inferior changes which might be an old infarct from some time ago. Maybe that’s what led to his coronary artery surgery?

Prof: Great, now let’s move on a little more. If we know from his ECG that there are no acute changes does this change your thinking?

Andrew: Not necessarily because he could have a non-STEMI. (A type of heart attack without ECG changes.)

Prof: That’s right he could, and how would you confirm that?

Andrew: Well I’d send off blood to look for cardiac enzymes, particularly troponin to see if there’s an acute rise.

Prof: Okay, the nurses have sent that off to the lab, but it’s going to take a little while before we get an answer back. Could he have had anything else?

Andrew: How do you mean?

Prof: Well what else could a guy like this be prone to develop, if he did have coronary artery disease, that could cause him to lose consciousness for a few minutes?

Andrew: Ah! He could have had a cardiac arrhythmia.

Prof: Such as?

Andrew: He could have had ventricular tachycardia (VT) or ventricular fibrillation (VF).

Prof: But would VT or VF have corrected itself spontaneously and allowed him to wake up a couple of minutes later?

Andrew: No, that was dumb, of course not, he probably would have just died.

Prof: Okay, so let’s think of spontaneously reversible conditions.

Andrew: Complete heart block?

Prof: That’s right! Now then, let’s think about what medication he might be on and whether this could relate to our problem.
Given what you know about it all now, what do you think he’s likely to be taking?

Andrew: Well, he’s probably taking something for his diabetes - an oral agent - possibly Metformin and something else like maybe Glucophage or Diabenese.

Prof: Yeah, and do diabetics who have coronary artery disease tend to have other related conditions?

Andrew: Oh, yes, they have hypertension quite often, and of course he could have angina and renal problems.

Prof: Excellent, so what else might he be taking?

Andrew: Well he could be taking GTN and also might be on an antihypertensive.

Prof: So what do you think he’s likely to be taking?

Andrew: Well he could be on a vasodilator, an ACE inhibitor or Clonidine or ...

Prof: If he’s diabetic what is the most likely one he’d be on?

Andrew: An ACE inhibitor.

Prof: Great, and if he also had angina ...

Andrew: Oh, in that case he might be on a beta-blocker as well.

Prof: Is there anything that might give you a clue as to whether he was on a beta-blocker?

Andrew: We could check his pulse for a slow heart rate.

Prof: Okay, well what is his pulse rate?

Andrew: Ah yeah, it’s quite slow, maybe only 50 a minute.

Prof: So a beta-blocker looks like a good possibility?

Andrew: Yes I would say, so yes, it’s very likely!

Prof: So would I. Now could he be taking anything else given his diabetes, his hypertension, his coronary artery disease and arcus?

Andrew: Yes. He might have dyslipidaemia so he could be on a statin like Lipitor.

Prof: Okay, so considering what you now know about this guy, why do you think he might have lost consciousness?

Andrew: Well I guess the possibilities are that he could’ve had a hypoglycaemic episode but that doesn’t seem very likely, and I guess they would have done a BM stix? *(A finger-prick blood test for glucose levels)*

Prof: Yes, it was 7 point something. *(Normal).* Does he show any kind of problem now?

Andrew: Well he looks a little stunned maybe, but he’s conscious and knows where he is, so he’s probably not hypoglycaemic, so he could have had some kind of cardiac arrhythmia, possibly complete heart block which caused his BP to drop acutely. I suspect this may be a cardiac arrhythmia. Complete heart block or type 2 heart block would be a chance as well, especially if he’s on a beta-blocker.
Prof: So what if I told you that one of the bystanders said to the Ambos that they thought his pulse kept missing beats?

Andrew: Then I would strongly suspect this was complete heart block or perhaps a type II heart block with bradycardia from excessive beta-blocker use.

Prof: Excellent Andrew, you’ve absolutely nailed it! That’s exactly what we’ve got here. Now how are you going to treat it?

Andrew: Well, I guess in the first instance we monitor him, but we could give him some glucagon to antagonise the beta-blocker and that should put things more or less back to normal.

Prof: Spot on! I thought you couldn’t tell me anything about this patient without his medical notes!! Now let’s write up some glucagon, get him through to ICU for monitoring and go get a cup of coffee while we wait for the blood tests. Then we can talk about clinical diagnosis using your eyes and wits instead of you blokes using up the hospital's budget on numerous lab tests and the CT scanner!

(P.S. Professor X - Participant 4 had never met the patient before either.

The patient turned out to be 68 years old, a former farmer from Serbia who now looked after people’s gardens as a part-time job / hobby. He was indeed hypertensive taking Karvea, which is an ACE inhibitor, and also Atenolol, a beta-blocker. He had suffered an inferior myocardial infarction some eight years earlier for which he had undergone coronary artery bypass grafting at RPA. At that time he was found to be a type II diabetic and was commenced on Metformin and Diabenese. He was also taking Lipitor for his raised cholesterol, and Omeprazole for indigestion. He had mild chronic renal failure.

Contact details for a family member were found in his RPA notes and the family informed of his admission. Subsequent monitoring showed that he had developed an intermittent complete heart block with periods of cardiac standstill of 10 to 20 seconds during which he became very light-headed and dizzy. The patient later informed us, through his daughter, that he had experienced “a few funny turns” in the week before admission. There was no evidence of heart attack or blood sugar problems, and transient heart block was confirmed as the cause of his collapse. He was treated with an implanted pacemaker which solved his problem. He was discharged without further complication).
The medical student 'Andrew' reminds us of the significance of doctors observing patients; strengthening the patient-physician relationship by touching and listening to the non-verbal clues (text) of the patient's body; and learning good bedside observational skills, which can be improved with regular practice with appropriate clinical mentors. Our study therefore highlights the importance of these non-verbal lessons like reflection and interpretation and 'brings these lessons into language' in order to benefit patient care.

Verghese (2008, p. 2748) spoke of the growing trend in America of ward rounds being viewed as redundant because of the evolution of technology. Therefore ward rounds were being replaced by the "i-Patient", that is, snug bunkers filled with house staff, medical students and glowing monitors displaying medical images and laboratory results. Unfortunately, the most crucial element of the learning experience was missing - the real patient.

"When residents don't witness the bedside-sleuth aspect of our discipline - the underlying romance and passion - they may come to view internal medicine as a trade practiced before a computer screen". "... and medical students' skills deteriorate as a result of the i-Patient". (Verghese, 2008, p.2748)

8.10 Implications for Future Research

This study involved the academic richness and depth associated with qualitative research. Although the findings were very encouraging, clearly more research needs to be undertaken in this area. I believe that this study has showed that utilising the experience of health care practitioners, working in the real world, with non-text book problems (as above), may assist, guide and develop health students into reflective and caring practitioners, who are interested in building professional relationships with their patients and understanding their needs. However, it was obvious from the review of the literature that there was very little research published in the discipline of veterinary medical practice and how it might assist human medical practice.

As this study only involved small participant numbers, it is not possible to generalise the findings to the whole population of medical students / health care practitioners without further significant research. I believe that this study has commenced, what should be, an ongoing research agenda for many years into the future. Clearly more formal research needs to be achieved in the areas of health care practitioner - patient non-verbal communication and assessment.
Two examples of further research come to mind. One example of such research might be to continue the 'Active Observation Teaching Method' of participant 4 above. Researchers could design, teach and evaluate these types of educational sessions for inclusion into a more formalised medical environment. Participant 4 advises me that he has recently completed his second year teaching final year medical students from a major metropolitan university, with excellent student learning outcomes and evaluation results.

Another example of research that could be continued is the work of Dr Alan Hamilton (Arizona, USA) and how medical students understand patient - doctor non-verbal communication better with the use of horses. Kane (2007, p.1) refers to this style of learning as “transforming the doctor-patient relationship with equine-assisted learning” and further documents this process in her 'Manual of Medicine and Horsemanship'.

Medical students work with horses on the ground and learn about non-verbal communication and assessment skills. The students observe and learn from the body language of horses and translate this non-verbal information across to the care of their human patients.

Currently ten other universities in the USA, Ireland, England and Australia have introduced courses into the medical curriculum that utilise horses to improve the non-verbal communication skills of medical students to benefit patient care. Many of these courses will not be fully implemented or have their first graduation until 2014 or beyond. The course from Stanford University, School of Medicine, Stanford, USA is aptly named 'Medicine and Horses: A Communication Model for the Doctor - Patient Relationship'.

I believe that both of these research suggestions would be a welcome addition to the scant body of literature that deals with the lessons that human medicine can learn from veterinary practice in order to improve patient care.
Final Word:

As I have learnt so much from the lived experience and interpretation of the real world from participants in this study, it seems appropriate that the final word should come from one of the participants:

“How do I use non-verbal communication in patient care? I teach all my medical students to assess the patients with their eyes (body language), make them feel comfortable and at ease (touch their hand), and use the tone of their voice to show that they are respectful and committed to the patient encounter. It makes no difference if they can communicate verbally or not.

For medical students that are not aware of non-verbal communication, the wonder is not that we communicate so well, the wonder is that we communicate at all!”

(Participant 15 - Medical Doctor / self-taught veterinary skills)


Ainslie, T., & Ledbetter, B. (1980). *The body language of horses: revealing the nature of equine needs, wishes, and emotions, and how horses communicate them: For owners, breeders, trainers, riders, and all other horse lovers, including handicappers*. New York: Morrow Publishing.


References


Appendix A – Qualitative Research Paradigm

The quilted background represents qualitative researchers who are quiltmakers. They piece together small related items to build a bigger picture that represents a particular situation (Denzin & Lincoln, 2003).

An Interpretive Inquiry situated in the Qualitative Research Paradigm

PhD Question: What are the Lessons that Human Medicine can learn from Veterinary Practice?

Epistemology
- The theory of knowledge
- A way of viewing the world in which one lives.

Ontology
- Seeking an understanding of the meaning of ‘being’
- How knowledge relates to other beings.

Theoretical Perspective
- Hermeneutic phenomenology
- Disciplinary roots in philosophy
- Three main philosophers discussed.

Methodology
- Hermeneutic phenomenological research
- What is the meaning, structure and sense of the lived experience?

Method
- Semi-structured interviews.

Research Question
- Can we interpret the lived experience of participants, with a veterinary background, in order to better understand how to assess/communicate with non-verbal patients?

Hermeneutic Phenomenology
- Phenomenology that places more emphasis on the interpretations that people make of their lived experience.

○ (1) Edmund Husserl (Logical Investigation)
  - Description of the lived experience studied in isolation
  - Bracketing technique
  - Father of Phenomenology

○ (2) Martin Heidegger (Being & Time)
  - Description of the lived experience through being, language & meaning, situated in the participant’s world, (no bracketing).
  - Hermeneutic Phenomenology

○ (3) Hans-Georg Gadamer (Truth & Method)
  - Belief about the individual nature of human, experiential understanding. People are embedded in their history & culture which has shaped their being and their experiences.
  - Philosophical Hermeneutics.
Appendix B – Research Project Approval

Please note that Dr Phillip Towers was the candidate’s initial supervisor for this study. Dr Stephen Loftus and Professor Peter O’Meara joined the supervisory team after this time.
Appendix C – Information Statement

PhD Title:
What are the lessons that human medicine can learn from veterinary practice?

Principal Investigator & Interviewer:
Ms Veronica Madigan
Senior Lecturer, School of Biomedical Science
Charles Sturt University
BATHURST
Ph: 02 6338 4757 (work)

Principal Supervisor:
Dr Stephen Loftus BDS MSc PhD
Deputy Director
The Education for Practice Institute
Charles Sturt University - Sydney
Tel +61 (0)2 9752 9002
Fax +61 (0)2 9752 9012

Co Supervisor:
Dr Peter O'Meara
Professor, Paramedic Practice
School of Biomedical Science
Charles Sturt University
BATHURST
Ph: 02 6338 4090 (work)

Dear Participant,

The aim of this document is to provide you with further information about this research study. After reading this statement, please do not hesitate to ask the researcher additional questions if necessary.

The study recognises that human medicine relies on patient communication to assist with medical diagnosis and the instigation of appropriate clinical treatment protocols. However, one questions what happens if there is no effective verbal communication between the health care practitioner and the patient? When this situation occurs, health care practitioners can often appear uncertain of the appropriate medical steps to take both in the prehospital and hospital environment.

Veterinary practitioners are faced with this situation every day. They do not rely on verbal communication with their animal patients, yet they have well developed skills to effectively understand, diagnose and treat their patients. This study will focus on two main areas of enquiry in relation to animal medicine:

1. To explore the communication challenges faced by veterinary practitioners with regard to non-verbal patient assessment and its potential use in human medicine;
2. To explore the clinical examination regimen undertaken by veterinary practitioners (observational skills, clinical signs, assessment findings etc.) and their potential use in human medicine.

If you agree to be involved in this study, you will be asked to participate in an interview (approximately 40-60 minutes) with the principal investigator and the above themes will be explored by semi-structured interview. The session will be audio-taped to ensure accuracy of the interview transcriptions. You will have an opportunity to comment on the transcription. As a participant, any information or personal details gathered in the course of this research about yourself will remain confidential and neither your name nor any other identifying information (i.e. workplace) will be used. The de-identified data will then be analysed utilising key themes, and exploring relevant concepts and issues.

As a participant you are free to withdraw from this research at any time, and if you do so will not be subjected to any penalty or discriminatory treatment.

Charles Sturt University’s Ethics in Human Research Committee has approved this study. If you, as a participant, have any complaints or concerns about the ethical conduct of this study, you may contact the Committee through the Executive Officer:

The Executive Officer
Ethics in Human Research Committee
Academic Secretariat
Charles Sturt University
Private Mail Bag 29
BATHURST NSW 2795
Tel: (02) 63384628, Fax: (02) 63384194
Appendix D - Consent Form

**PhD Title:**
What are the lessons that human medicine can learn from veterinary practice?

**Principal Investigator & Interviewer:**
Ms Veronica Madigan  
Senior Lecturer, School of Biomedical Science  
Charles Sturt University  
BATHURST NSW 2795  
Ph: 02 6338 4757 (work)

**Principal Supervisor:**
Dr Stephen Loftus BDS MSc PhD  
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**Co Supervisor:**
Dr Peter O'Meara  
Professor, Paramedic Practice  
School of Biomedical Science  
Charles Sturt University  
BATHURST NSW 2795  
Ph: 02 6338 4090 (work)

Dear Participant,

Thank you for agreeing to partake in this study.  
The study will focus on two main areas of enquiry in relation to animal medicine:

1. To explore the communication challenges faced by veterinary practitioners with regard to non-verbal patient assessment and its potential use in human medicine;
2. To explore the clinical examination regimen undertaken by veterinary practitioners (observational skills, clinical signs, assessment findings etc.) and their potential use in human medicine.

The study will use a semi-structured interview approach to address the research topic. You will be interviewed for approximately 40-60 minutes and the sessions will be audio-taped to assist with the factual transcription of information. You will have an opportunity to comment on your transcriptions.

The data will be de-identified and the collated data will then be analysed utilising key themes, and exploring relevant concepts and issues.
As a participant it has been explained to you that any information or personal details gathered in the course of this research about yourself will remain confidential and that neither your name nor any other identifying information (i.e. workplace) will be used.

As a participant, you are free to withdraw from the research at any time, and if you do so will not be subjected to any penalty or discriminatory treatment.

You will be asked to sign this consent form and state that the purpose of this research has been explained to you. You have been given the opportunity to ask questions about the research and received satisfactory answers. I do not believe that the questions will be of an upsetting nature and hope that you will enjoy your participation.

Charles Sturt University’s Ethics in Human Research Committee has approved this study. If the participant has any complaints or concerns about this research they can contact:

The Executive Officer
Ethics in Human Research Committee
Academic Secretariat
Charles Sturt University
Private Mail Bag 29
BATHURST NSW 2795
Tel: (02) 63384628, Fax: (02) 63384194
Appendix E – Interview Questions for Participants

1. Could you outline your professional background for me in order to help me orientate your perspective and scope of practice?

2. What formal or informal cross-specialty links do you have between animal and human practice?

3. Could you comment on any formal or informal training you have undergone to enhance your abilities to employ non-verbal communication and behavioural clues in your practice (body language, appearance, demeanor, alertness etc.)?

4. Could you comment on how you use non-verbal communication and behavioural clues to help you in the initial evaluation of your patient?

5. Can you comment on how you use non-verbal communication and behavioural clues in the evaluation of pain in your patients?

6. Can you outline, in broad terms, your approach to clinical examination of a patient? (The following terms might be useful in your explanation; observational skills, clinical signs & symptoms, primary and secondary surveys etc.).

7. What do you expect to learn from your clinical examination of the patient?

8. How much emphasis do you place on the verbal clinical history as opposed to the non-verbal, clinical examination of your patient in reaching your diagnosis?

9. To what degree do you find experience, intuition, empathy and evidence based knowledge helpful in the clinical examination of your patient?

10. Can you comment on how you use non-verbal communication and behavioural clues in the evaluation of the response to treatment of your patient?

11. Could you comment on any difficulties that you have experienced in patient management when verbal communication was not possible?

12. What lessons do you feel that human medicine can learn from your experience with animals?
Appendix F: Contributions to Journals / Conferences / Presentations / Posters Relevant to the Thesis
### Appendix F

#### Contributions to Journals / Conferences / Presentations / Posters Relevant to the Thesis

- Human Medicine is based on the interpretative style of communication.
- Evidence suggests increased difficulty with patient care when patients are unable to communicate or communicate effectively.
- For example, non-English speaking, paediatric, autistic or mentally ill patients.

#### Alternative Medicine

**Problem:**

- Veterinary Medicine relies primarily on an observational (non-verbal) model of medicine.
- Health Care Practitioner: *"If I can't communicate with my patient, I sometimes think like a veterinarian [my previous background] and use my vet skills to overcome the communication problems."*

**Aims:**

- To explore the Communication Challenges faced by Veterinary Practitioners with regard to Non Verbal Patient Assessment and Clinical Examinations.
- To understand its potential use in Human Medicine.

### "OBSERVE" Acronym for the Non Verbal Patient Assessment Tool for Clinical Evaluation

<table>
<thead>
<tr>
<th>Non Verbal Ages &amp; Behavioral Clue</th>
<th>Interpretation</th>
<th>Lessons Learnt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical - Overall Appearance</td>
<td>- Is the patient in a safe environment? &lt;br&gt; - Is the environment &quot;jammed&quot;? &lt;br&gt; - Does the patient appear relaxed or anxious?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Safety first in clinical practice &lt;br&gt; Physical appearance is a strong indicator of patient's ability to concentrate &lt;br&gt; Patient's ability to concentrate can affect their performance &lt;br&gt; Patient's ability to concentrate can affect their ability to respond to treatment</td>
<td></td>
</tr>
<tr>
<td>Body Language</td>
<td>- Observe their posture, their body movements &lt;br&gt; - Are they hunched over? &lt;br&gt; - Are they looking at the examiner?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Lick, Look &amp; Sit again at the patient &lt;br&gt; - Are they okay? &lt;br&gt; - Are they safe? &lt;br&gt; - Are they comfortable?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- If yes, observe the patient carefully &lt;br&gt; - If no, take a break or change the environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- If this has occurred, take a break or change the environment</td>
<td></td>
</tr>
<tr>
<td>Behavior</td>
<td>- Is the patient displaying normal, appropriate behavior? &lt;br&gt; - Is the patient exhibiting unusual, uncharacteristic behavior?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Observing both body language &amp; behavior can be a key to the patient's level of comfort</td>
<td></td>
</tr>
<tr>
<td>Safety/Surroundings</td>
<td>- Is the environment &quot;jammed&quot;? &lt;br&gt; - What can/done; does the patient feel safe?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-looking back at the patient, what can one see?</td>
<td></td>
</tr>
<tr>
<td>Emotions/Arousal/Body Temperance</td>
<td>- Does the patient have a normal, relaxed stillness? &lt;br&gt; - Are they shrugging, trying to maintain total postures or hide away?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Are they relaxed, comfortable? &lt;br&gt; - Does the patient appear shrunken, hunched over, not comfortable?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Are the patient's muscles tensed, or active and voluntary?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Is the patient's tone of voice normal? &lt;br&gt; - Are they coughing, sneezing, etc.?</td>
<td></td>
</tr>
<tr>
<td>Relationship With Others</td>
<td>- Does the patient mimic the body language of the person? &lt;br&gt; - Does the patient mimic the body language of the person? &lt;br&gt; - Does the patient mimic the body language of the person?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Supportive posture is suggestive of an ally in the treatment of the patient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Within and outside the human relationship, these statements suggest that the patient is in the position to receive treatment support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- If the patient is relaxed, they may indicate a positive outlook on life</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- If the patient is tense, they may indicate a negative outlook on life</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The patient's ability to respond to treatment is dependent on the patient's body language</td>
<td></td>
</tr>
<tr>
<td>Eyes/Eyes Exam/Evaluate</td>
<td>- Use your eyes to clinically look, look &amp; ask again at the patient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does the patient look directly at the examiner? &lt;br&gt; - Does the patient avoid eye contact?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The examiner is what matters first, then the examiner, finally the examiner</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does the patient make eye contact? &lt;br&gt; - Is the patient's gaze fixed and steady?</td>
<td></td>
</tr>
</tbody>
</table>

#### "PAINFUL" Acronym for the Non Verbal Behavioural Patterns

<table>
<thead>
<tr>
<th>Observations</th>
<th>Example</th>
<th>Clinical Interpretation</th>
<th>Responses to Pain Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stare</td>
<td>Avellana, pricked or tense posture</td>
<td>Temporary physical relief</td>
<td>Medication and body movements</td>
</tr>
<tr>
<td>Pains diated</td>
<td>Rapic pain, long duration pain</td>
<td>Symptomatic activity</td>
<td>Normal &amp; receive pain</td>
</tr>
<tr>
<td>Apperance</td>
<td>Local pain/edema, edema, redness, swelling, warmth</td>
<td>Increased caloric release</td>
<td>Increased energy levels &amp; body system</td>
</tr>
<tr>
<td>Numbness</td>
<td>No pain, no swelling</td>
<td>Intestinal or other symptoms</td>
<td>Increased energy levels &amp; body system</td>
</tr>
<tr>
<td>Increased heart rate</td>
<td>Increased respiration</td>
<td>Increased pulvinar or pain</td>
<td>Vital signs within normal limits</td>
</tr>
<tr>
<td>Respiration</td>
<td>Increased respiration</td>
<td>Respiratory difficulty</td>
<td>Vital signs within normal limits</td>
</tr>
<tr>
<td>Loss of appetite</td>
<td>Decrease appetite</td>
<td>Decrease appetite</td>
<td>Vital signs within normal limits</td>
</tr>
</tbody>
</table>

#### Study

- Qualitative Research Paradigm.
- Using Interpretive Inquiry and Semi Structured Interviews.
- Philosophical Hermeneutics and Phenomenology - "Understanding the Lived Experience".
- Influenced by Philosophers' Hans Gadaner & Martin Heidegger.

#### Participants

- Veterinary Practitioners who have links to Human Medicine.
- Human Care Practitioners who have links to Veterinary Medicine.

#### Findings

- Development of the:
  - Non Verbal Patient Assessment Tool for Continuous Clinical Evaluation ("OBSERVE")
  - Non Verbal Patient Assessment Tool for the Identification & Evaluation of Patients in Pain ("PAINFUL")

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