

**Paediatric ketamine sedation:
Stories from healthcare professionals**

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KEY TO TRANSCRIPTS

In presenting the research findings, the following conventions have been adopted within this thesis:

- Italics* Identifies the interview data provided by participants.
- Names With the permission of the participants, their individual stories are identified through the use of pseudonyms and profession.
- ... Denotes material deleted from the original text.
- [] indicates insertion of additional material by the researcher to assist clarity.

ATTESTATION 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 of a university or other institution of higher learning, except where due acknowledgement is made.”

Signature:

A handwritten signature in cursive script that reads "Michael Neufeld".

M.T. Neufeld

Date: Nov 11, 2016

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ABSTRACT

Ketamine provides an efficient and economical way to perform painful procedures without the use of general anaesthesia. The physiological risk profile of ketamine has been thoroughly researched, but the non-physiological implications (specifically ‘emergence phenomena’) are less well understood. In adult practice these phenomena are acknowledged to be traumatic and, at times, associated with negative outcomes; however, they are often dismissed within paediatric practice. Anecdotally, paediatric emergence phenomena can be a source of worry and concern for healthcare professionals (HCPs). This study sought to explore the perspectives of HCPs on using ketamine sedation when working with children and families.

Seven HCPs from the disciplines of medicine, nursing, paramedicine, and play therapy told stories of their experiences with paediatric ketamine sedation. Each HCP had witnessed at least one emergence event from paediatric ketamine sedation. This study provides a narrative hermeneutic analysis of their stories, informed by the works of Frank, Riessman and Charon, with philosophical underpinnings deriving from Heideggerian hermeneutics.

The findings are presented in two main themes. The first theme, “seeking to control and protect,” reveals the chaos that is an endemic aspect of HCPs’ work in the paediatric emergency context. Ketamine is a tool that helps HCPs to gain control over the chaos associated with the physiological aspects of children’s responses to pain and fear. However, ketamine can also create chaos in the form of emergence phenomena. HCPs view children as vulnerable and warranting extra protection, and yet they acknowledge that they frequently use ketamine sedation as much for themselves as for the children they are treating, thus revealing an inherent moral tension.

The second theme, “working in the dark,” acknowledges that to truly ‘protect’ children, HCPS must understand risk and harm. HCPs measure the risks of paediatric ketamine sedation physiologically but also worry about potential non-physiological risks, having witnessed children’s fear and terror as they emerge from sedation. As HCPs work to balance benefit and harm, they acknowledge their limited ability to fully ‘know’ ketamine sedation. This is due, in part, to a lack of research into children’s lived experiences and the tendency to dismiss paediatric emergence phenomena. HCPs therefore defer to a collective knowledge to guide their practice and use dream-seeding, despite lack of research evidence, to try to protect children from negative emergence phenomena.

This study recommends further research into children’s experiences of ketamine sedation and emergence phenomena (inclusive of dream-seeding). It also proposes education of clinicians to increase awareness of non-physiological risk and harm.

CHAPTER ONE: INTRODUCTION

When I first met Ally in the paediatric emergency department, she appeared as any typical 12-year-old horse lover might—with the exception of her acutely bent arm. Her hair was pulled back in a slightly dishevelled braid, and mud covered her riding boots and was speckled across her chin. She wore plastic jewellery and a pink shirt emblazoned with sparkling fairies. As she grimaced and cried on the stretcher, she seemed incredibly small and utterly vulnerable. She told me her horse's name was Star and that she didn't know what had actually happened or why it had thrown her. She was tearful and upset, presumably from pain and fear, but perhaps also from anger and frustration—her birthday present, a new riding jacket, had been cut off by the paramedics. She was scared and held onto her broken arm with the other, shielding it from anyone who looked like they might try to touch it.

Ally's broken arm would require manipulation in order to realign the bones. In most cases a fracture of this nature would be repaired under a general anaesthetic with imaging (X-ray to ensure alignment during casting). On this afternoon, however, the hospital was running at capacity. With no free bed spaces or readily available space in the operating theatres, the team faced a choice to admit her for the night (for treatment in the operating theatre in the morning) or to proceed with ketamine sedation in the emergency department, after which she could be discharged home. The choices were discussed with Ally's family. With three more children at home and a farm to run, they expressed their desire to get home as soon as possible. Thus, the decision was made to employ ketamine sedation, the plan being to pull her arm into alignment, secure it with a cast, and discharge her home within a couple of hours.

From the healthcare team's perspective, the procedure itself went flawlessly, and the plaster cast was completed just prior to Ally emerging from the sedation. Everything was routine and as expected. However, as Ally began to wake, that changed.

Ally emerged from sedation screaming and lashing out. She slammed her arms against the bedrails and screamed “noooooo!” over and over. She flailed and moaned. She was clearly distressed. Very distressed. She was terrified, crying, and began asking repeatedly “am I dead?” Despite our quick and emphatic assurance that she was not dead, Ally was adamant that she had in fact died. She was utterly convinced that she was dead and that her grandmother had been there, speaking to her during the procedure. As Ally wept, through her tears and with a trembling lip, she explained that her grandmother had told her she was dead.

1.1 Ketamine in the treatment of children's physical trauma

Ketamine is a dissociative sedative frequently used in paediatric practice to relieve or mitigate physical pain and suffering. It has been in use for more than 40 years and was formally adopted into paediatric medical and paramedical practice in New Zealand in

2003 (Expert Advisory Committee on Drugs [EACD], 2004; Kurdi, Theerth, & Deva, 2014; Petrack, 2000; Sury, Bullock, Rabar, & DeMott, 2011).

The rationale for the use of ketamine is that it removes the pain and fear associated with physical trauma and the subsequent invasive treatment procedures. Perhaps most importantly, ketamine acts without substantially increasing physiological risk (Blagrove, Morgan, Curran, Bromley, & Brandner, 2009; Boyle, Dixon, Fenu, & Heinz, 2011; Cravero & Havidich, 2011; Green & Krauss, 2004a, 2011; Green, Roback, Kennedy, & Krauss, 2011; Green et al., 2009; Haley-Andrews, 2006; Kost & Roy, 2010; Krauss & Green, 2006; Kurdi et al., 2014; Loryman, Davies, Chavada, & Coats, 2006; McQueen, Wright, Kido, Kaye, & Krauss, 2009; Meyer, Grundmann, Gottschling, Kleinschmidt, & Gortner, 2007; Persson, 2010; Roelofse, 2010; Treston et al., 2009). It is also considered very efficacious in comparison with other sedative drugs because it can be administered without the support of anaesthetists or the wider operating theatre environment, effectively reducing the physical and human resources required to undertake invasive procedures (Boyle et al., 2011; Green et al., 2011).

In adult patients, a well-known adverse effect of ketamine is its elicitation of powerful hallucinatory emergence events that are capable of manifesting in fear and aggression, which can be traumatic and dangerous for patients and staff (Green et al., 2011; Strayer & Nelson, 2008). Commonly referred to as emergence phenomena, these events are a variety of psychotropic/psychological experiences that patients may experience during their waking from sedation. Research in adult patients has qualified and acknowledged these non-physiological (psychological) risks, resulting in less frequent use of ketamine in adult populations (Green & Krauss, 2011; Green & Li, 2000; Hudek, 2009).

The same cannot be claimed in paediatric practice, where emergence phenomena have not featured prominently in the literature and the use of ketamine has increased (Green

et al., 2009; Haley-Andrews, 2006; McQueen et al., 2009; Morton, 2008; Treston et al., 2009). Although ketamine is considered capable of mitigating children's physical pain and suffering during treatment, there is a growing dialogue within paediatric ketamine sedation practice suggesting that its effective use in children is controversial, particularly in regards to the variable reports of neuronal toxicity and potential impact on the developing brain (Cravero & Havidich, 2011; Green & Cote, 2009; Green & Krauss, 2011; Roelofse, 2010) and non-physiological risks such as emergence phenomena (Blagrove et al., 2009; Cravero & Havidich, 2011; Herd & Anderson, 2007; Hudek, 2009; McQueen et al., 2009; Persson, 2010; Roback, Wathen, & Bajaj, 2007; Strayer & Nelson, 2008). Within practice, there are anecdotal stories of children's emergence phenomena and the moral tensions that healthcare professionals (HCPs) experience in witnessing those phenomena. There is growing recognition that children may experience emergence phenomena at a rate similar to adults and that such emergence experiences could potentially hold negative long-term implications for these children (Craven, 2007; Gorelick et al., 2007; Green et al., 2011; McQueen et al., 2009; Roback et al., 2007).

1.2 Researcher position vis-à-vis topic

Through my work as a paediatric emergency nurse, my understanding and perspective on the potential risks of ketamine sedation changed after witnessing several children and their families' experience of emergence phenomena. In particular, it has increased my awareness of how I construct my own concepts of benefit and harm within practice and, perhaps more importantly, has led me to question how HCPs construct the principles of benefit and harm in paediatric ketamine sedation practice.

Returning to the opening story, the distress I felt seeing Ally so terrified was significant. While it is not unusual to observe distress, fear, and pain when working in an

emergency setting, Ally's reaction was something I had not seen or experienced before. I had neither expected it nor could rationalise it. I simply did not know what to do to help her or to ensure that the outcome would be a positive one. Equally, I did not know how to explain to her parents what was happening. I had no answers to their questions or their expectation that I should know.

Although Ally's experience would later be documented in her medical notes as "patient experienced brief, transient and self resolving agitation," I struggled with this declaration. It did not capture what I had observed.

It is my experience that most children who undergo ketamine sedation wake up with little or no evidence of distress. On the contrary, some appear overly joyful, loving, and playful. It is also my experience that some children, like Ally, wake up from ketamine sedation confused, frightened or crying. The reasons behind their reactions are understandably difficult to isolate or even separate from the expected behaviour of children who are hurt and frightened. However, some children seem to have significant reactions that are not easily explained. For example, some recall in detail the conversations and actions undertaken by family and medical staff during their procedures, while others are simply unable or unwilling to articulate what was actually happening for them.

In two particularly unsettling procedures that I witnessed, the teenage patients woke up screaming vile and aggressive threats towards their family and our team. One claimed to be the incarnation of Hannibal Lecter¹, saying he would "eat our livers with a nice Chianti," a notorious quotation from the horror film. This was very distressing for the child's family.

¹ The murderous cannibal psychiatrist from the movie *Silence of the Lambs* (http://en.wikipedia.org/wiki/Hannibal_Lecter).

After witnessing Ally wake up from sedation, I believed that she had experienced something terrifying. Whether we label it ‘emergence phenomena’, ‘emergence delirium’, ‘emergence agitation’, a ‘nightmare’, or any other form of psychosis is moot. What was tangible was that it had an immediate effect on her, her family, and all the HCPs in the room. I worried that such acute distress would impact her future life. Although I did not understand exactly what she had experienced, I was certain that our actions and choice of treatment had contributed.

As I began to explore the literature relating to paediatric ketamine emergence phenomena, I was surprised to find it being referred to as ‘insignificant’ or ‘non-existent’ (Green & Sherwin, 2005; Treston et al., 2009). In contrast, the literature surrounding adult ketamine sedation is full of examples of adverse emergence events and discussion of the potential psychological impact on patients who experience them (Blagrove et al., 2009; Green & Cote, 2009; Green & Krauss, 2004a; Green & Sherwin, 2005; Hudek, 2009; Muetzelfeldt et al., 2008). At the extreme end, patients’ reactions have been described as aggressive and at times violent. This has led to a reduction in the use of ketamine in adult populations, in part to avoid HCPs’ risk of injury and reduce the need for additional staff to maintain safety. Anecdotally, in my practice I was seeing similarities between the reported adverse reactions in adult studies and the experiences of some children (although given children’s smaller size, physical danger to staff was not a perceived risk).

The goal of this study is to better understand HCPs’ experience of paediatric ketamine sedation. I wanted to know how HCPs recognise physiological and non-physiological (psychological) risks. I wondered how they balance any unknown risks of ketamine sedation against its benefits. I was curious about their experiences with children and families when ketamine sedation was used. I wanted to hear their stories.

1.3 Philosophical approach and research aim

Based on my own clinical experience, stories are an integral part of healthcare practice. From formal clinical handovers to informal conversations in the tea room, stories have helped me develop my knowledge and learn from the experience of others. They have informed me of potential pitfalls and inspired me to change my practice. Bamberg (1997), Charon and Montello (2002), and Charon et al. (1995) explain that stories can allow us to develop shared understandings. By relating our own life experiences with others' stories, we help to position ourselves within the world. Philosophically, this study assumes that HCPs' perceptions are embedded in their stories and that, in the process of working with those stories, we may accept them and appropriate them into our own way of being, refute them to distance ourselves from them, or interpret them and use them to frame our own ways of thinking (Bamberg, 2011; Frank, 2000).

In this study, I used hermeneutic narrative analysis to answer the research question "what are the stories that HCPs tell about paediatric ketamine sedation?" My goal was to gain insight into why and how they use ketamine to treat paediatric patients and what impact that delivery of care has on the HCPs. I hoped to reveal any tensions associated with paediatric ketamine sedation and present pragmatic recommendations for practice. A narrative hermeneutic methodology values stories and recognises that there are truths to be found within the text and subtext constructed in the language of stories. This approach is capable of allowing potentially unknown aspects of experience (in this case clinical practice) to become visible (Charon & Montello, 2002; Frank, 2002, 2010a, 2012; Riessman, 2001; Wiklund-Gustin, 2010).

The hermeneutic approach enables analysis of the individual detail within HCPs' stories while also considering them as a collective whole, to make "what seems to be far and alienated, [the unknowns of paediatric ketamine sedation practice] speak" (Risser, 1997, p. 212). This study is informed by the works of Charon and Montello (2002), Charon et

al. (1995), Frank (2005, 2010b, 2012), Polkinghorne (1988), and Riessman (1993, 2001) with additional philosophical hermeneutic underpinnings from Heidegger (1962, 1971) and Gadamer (2006). I interviewed seven HCPs from the disciplines of nursing, medicine, paramedicine, and play therapy regarding their experiences of paediatric ketamine sedation. I then analysed the data using a narrative hermeneutic approach to identify common themes.

The themes are intertwined and the interplay between them an important aspect of my analysis. I consider the individual stories and perspectives in relation to the whole (broader understandings of paediatric ketamine sedation) and this whole in relation to each individual story. Gadamer (1993, 2006) identifies how an individual's perspective of the world continually changes with time and according to context. He describes this metaphorically as the horizon of understanding. To understand more requires that one looks beyond or over his/her current horizon. The original horizon does not simply disappear with each new understanding but rather moves just as a physical horizon does when walking. From new vantage points, new horizons form. The ability to shift and expand horizons thus comes from the capacity for movement, wherein exposure to other points of view or perspectives (horizons) can lead to assimilation and adoption of these understandings into one's own in a "fusion of horizons" (Gadamer, 1993). This relates temporally to past, present, and future understanding as well as to interpersonal expansion of understanding. The act of interpretation itself represents a convergence of insight as the back and forth nature of a circular hermeneutic analysis facilitates a merging or 'fusion' of two or more horizons (Bontekoe, 1996).

Bringing together the participants' individual experiences and perspectives of delivering paediatric ketamine sedation through a circular hermeneutic analysis illuminates how their views and my views as the researcher meet. Van Manen (1990) suggests that a true reflection on a lived experience, or phenomenon, is essentially a "thoughtful grasping"

of what provides any experience its own unique meaning. More specifically, it is “a distinction between appearance and essence, between the things of our experience” (van Manen, 1990, p. 31). The resulting themes presented in this thesis bring to light the phenomenon of paediatric ketamine sedation practice.

1.4 Significance of the study

Nursing and medicine are practical and moral endeavours (Bandman, 2003; Bishop & Scudder, 2001; Hudle, 2005; K. V. Smith & Godfrey, 2002; Tauber, 2000). They are practical in terms of their application of scientific understandings and they are moral because the application of knowledge brings with it both intended and unintended consequences. Some unintended consequences may be undesirable and, balancing beneficence and non-maleficence in the face of intended and unintended aspects of care, can create tension for HCPs. Achieving such balance is a fundamental aspect of healthcare because there is a moral and ethical foundation embedded into practice (Seedhouse, 1998).

It is difficult to understand the full impact of paediatric ketamine sedation when not all aspects are fully explored in the literature and particularly when patients, families, and the agencies responsible for funding and delivering care compete for primacy. The significance of this study is not in determining what is best but rather in contributing to the discussion surrounding paediatric ketamine practice and its inherent uncertainties. It will provide insight into what occurs in practice through the perspectives of HCPs. Furthermore, it will seek to make visible the underlying tensions within practice, laying foundations for future research that includes other perspectives, such as those of children and families.

Understanding gained from this study may assist in developing recommendations and education to advance practice and improve health outcomes for children and their

families. This may also reduce tensions experienced during the delivery of paediatric ketamine sedation.

1.5 Structure of the thesis

The remainder of this thesis is divided into five chapters:

- **Chapter two – Exploring the literature**

Chapter two presents a critical review of the literature surrounding paediatric ketamine sedation. This chapter also explains how literature was used in developing and presenting the findings and discussion chapters.

- **Chapter three – The research process**

Chapter three provides the rationale for using a hermeneutic narrative approach to answer the research question, “what are the stories that HCPs tell about paediatric ketamine sedation?” It discusses the philosophical and methodological underpinnings of the study, along with the specific methods used to collect and analyse the data. This chapter includes information regarding the ethical considerations undertaken to ensure safe research practice and the criteria for judging the achievement and maintenance of rigour.

- **Chapters four and five – Findings**

Chapters four and five present my interpretations of participants’ experiences of paediatric ketamine sedation practice. To help make the interpretations visible, I share excerpts from the participants’ stories to identify and explore the main themes of their experiences. In chapter four, I explore the theme of ‘seeking to control and protect’ through the subthemes ‘working within chaos’, ‘controlling the chaos’, ‘for us or for them?’, and ‘children are different’. In chapter five, I present the second preeminent theme, ‘working in the dark’, through the

subthemes ‘uncertainty and partial knowing’, ‘worrying about emergence phenomena’, ‘being brought into the fold’, and ‘dream-seeding’.

- **Chapter six – Discussion and recommendations**

Chapter six summarises and discusses the key findings and considers how they relate to the established literature on the topic. It discusses the implications of the study and outlines the limitations. Finally, it proposes recommendations for research and practice.

CHAPTER TWO: EXPLORING THE LITERATURE

2.1 Introduction

This chapter reviews the literature relating to current paediatric ketamine sedation practice, with the purpose of making clear what is currently known and how that knowledge was acquired. It is presented as a critical review and aims to highlight current and existing theories and demonstrate where gaps in the research or understanding may exist, making the subtleties within the identified research more visible (Creswell, 2009; Polkinghorne, 1988). Smythe and Spence (2012) suggest that a literature review “acts as a dialogical partner to provoke thinking” (p. 23), thereby informing and guiding the interpretive hermeneutic process.

I have structured the literature review according to nine predominant themes found within the literature:

1. Cost efficiency and resource allocation
2. Chemical restraint
3. Paternalism
4. Focus on physiological risk
5. Invisibility of paediatric emergence phenomena
6. Dismissal and exclusion of children’s experiences
7. Observational nature of the research
8. Increased threshold of concern
9. Dream-seeding

The keywords used to establish the boundaries of the initial literature search were: ketamine, paediatric, pediatric, sedation, conscious sedation, emergence, phenomena, agitation, dissociative, hallucination, delirium, and chemical restraint. The databases

searched were: Cinahl, Medline, Scopus, Ovid, Evidence Based Medicine Review, and the Cochrane Library.

I completed an initial review of identified articles to establish relevance to the research question. This process included confirming that the articles contained references to paediatric practice, the presence or absence of emergence events, or the benefits and potential risks of ketamine sedation. The focus on emergence phenomena was necessary because one of the inclusion criteria for participants in this study was having witnessed paediatric ketamine emergence phenomena. I included articles referencing benefits and potential risks of ketamine sedation as I had expectations that participant stories might contain constructs of benefit and harm (see the methodological rigour section in chapter three for more about my preunderstandings). I also included some findings related to adult ketamine sedation to provide further context. In addition to this critical literature review, I drew upon other literature in two ways to support this study (this is congruent with Smythe and Spence [2012], who argue that the key purpose of exploring the literature in hermeneutic research is to encourage readers to share the thinking experience and thus have their thinking challenged and/or extended):

1. Throughout the course of my analysis, I reviewed literature relating to the themes and subthemes as they emerged. This is consistent with the interpretive and constructivist ontological orientation of a hermeneutic narrative inquiry (D. E. Gray, 2014). I also sought philosophical literature to develop and work with the themes.
2. To inform the discussion chapter, I explored the fit of the findings within the context of paediatric ketamine sedation and health research. This phase sought both corroborating and refuting evidence to determine “fittingness” and the extent to which my study’s findings were congruent with other research.

2.2 Background

Ketamine is a dissociative sedative that has been in use in general populations for more than 40 years (Center for Substance Abuse Research [CESAR], 2014; EACD, 2004; Petrack, 2000). It was developed to replace the anaesthetic drug phencyclidine (PCP) when PCP proved to have devastatingly destructive neurotoxic effects. In 2003 ketamine was widely adopted into paediatric practice within New Zealand. It quickly gained popularity within emergency medicine as a means for allowing HCPs to undertake procedures such as orthopaedic manipulation and wound suturing without the use of more resource-intensive general anaesthetics.

Producing a dissociative or, more specifically, conscious sedation, ketamine effectively isolates the central nervous system while maintaining basic cardiopulmonary function, reducing the risks of airway compromise that are prevalent with general anaesthetics. It induces a trance-like state, providing immobilisation, amnesia, and retention of the protective airway reflexes and respiratory drive. Proponents claim that it is an ideal method for immobilising children who require a painful procedure (Aiken, Liley, & McGowan, 2012; Green & Krauss, 2004a; Green & Li, 2000; Harvey, Cave, & Betham, 2011; Jansen, 2000, 2004).

2.3 Cost efficiency and resource allocation

There is continual tension within healthcare practice between the need to provide cost-effective care to make the best use of available healthcare resources and the desire to do the most good for society (or patient population) (Melia, 2014). A New Zealand study by Harvey et al. (2011) identified clear financial benefits from the use of ketamine in paediatrics: only 9.1 per cent of children who undergo ketamine sedation are hospitalised post-procedure. As a result, the cost benefits of ketamine sedation are

substantial when compared with a general anaesthetic; savings equivalent to \$1,241 NZD per patient have been reported in the United Kingdom (Boyle et al., 2011).

The studies identified in this review were almost unanimous in their findings from a cost efficiency perspective. Ketamine is a valuable tool in the delivery of timely care because fewer staff and resources are required than with alternatives such as physical restraint or general anaesthetics (Boyle et al., 2011; Duda, 1996; J. Gray, 2002; Haley-Andrews, 2006; Hall & Collyer, 2007; Hudek, 2009; Priestley, Taylor, McAdam, & Francis, 2001). These articles promote the use of ketamine on the basis of more efficient use of available resources. However, the full picture of risk, inclusive of both non-physiological and physiological, is not well documented in paediatric populations (see section 2.6). Applying a utilitarian-based argument for the increased use of ketamine requires a more complete understanding of potential positive and negative consequences than currently exists (Rachels, 2003; Seedhouse, 1998).

2.4 Chemical restraint

Numerous studies suggest that paediatric ketamine sedation absolves HCPs from the need to employ physical force when treating children (Craven, 2007; Green & Krauss, 2004a; Haley-Andrews, 2006; Howes, 2004; Karapinar, Yilmaz, Demirag, & Kantar, 2006; Krauss & Green, 2006; Lin & Durieux, 2005; Loryman et al., 2006; Meredith, O'Keefe, & Galwanker, 2011; Morton, 2008). Loryman et al. (2006) state that with the advent of pharmacological techniques such as ketamine sedation, we are “consigning ‘brutacaine’ [physical brute force] to history” (p. 28). The fact that the colloquialism “brutacaine” even exists within paediatric care demonstrates that HCPs acknowledge the sometimes aggressive nature of care provision. Meredith et al. (2011) describe ketamine as an “elegant approach to restraint” (p. 88). The predominant narrative in these articles appears to be that chemical restraint in acute paediatric care is a viable

alternative to physical restraint that is both preferential and equivalent in its ability to improve process and control outcomes.

Loryman et al.'s (2006) opinion that brute force is no longer required in the face of such excellent pharmacological solutions makes what could be a flawed assumption: that chemical restraint does not apply an equally brutal force and restraint from within.

Whose needs are primarily being served? How are risk, harm, and benefit ultimately determined? Dissociative sedation does much more than simply restrain children. In essence, it forcibly removes a child from his/her body and delivers a compliant physical body to the control of HCPs (Craven, 2007; Green & Krauss, 2004b, 2011; Green et al., 1998; Krauss & Green, 2006; Loryman et al., 2006; Treston et al., 2009).

2.5 Paternalism

In healthcare, as in many aspects of their lives, children do not always have the capacity to act autonomously. Intrinsic factors such as physical, mental, and emotional development are often seen as contributing to a lack of autonomy, but they should not be considered in isolation. Extrinsic factors, including a societal belief that children are incapable of achieving understandings that rely on rationalisation and forward projection of benefit and harm, are also at play. Within the literature are specific references to children's naïve mind or lack of life experience from which to build rationale (Green & Sherwin, 2005; Treston et al., 2009).

These factors undoubtedly contribute to the sense of paternalistic responsibility (an approach that essentially chooses not to give personal choice primacy under the guise of making decisions on an individual's behalf for his or her own good) that exists within the articles identified in this study. As Bauman (1996) explains, despite being perceived as being done for the sake of the other, a paternalistic or pastoral position that is ingrained within a bureaucratic routine is a "gentle touch of love that becomes an iron

grip of power” (p. 103). A paternalistic viewpoint supports the use of ketamine sedation that is not always undertaken in partnership with children. It has the potential to silence children’s voices, suppress their narratives about receiving care, and remove their autonomy. A virtual absence of children’s voices in the literature (see section 2.9) could be a result of these power differentials and may, in turn, make some aspects of paediatric ketamine sedation invisible.

This theme of paternalism points to the fact that ketamine sedation allows HCPs to control patients and their environment to meet the health system’s requirements to deliver care (Craven, 2007; J. Gray, 2002; V. J. Holloway, Husain, Saetta, & Gautam, 2000; Petrack, 2000). The need for tools to assist HCPs in achieving particularly difficult objectives is appreciable, and a strong thread within the literature is that ketamine facilitates the delivery of care by controlling the unpredictable behaviours of an injured child (Craven, 2007). It controls the child by separating their mind from the signals of pain, and immobilising them.

Craven (2007) illustrates the utility of ketamine in achieving such control in his account of a procedure performed on a 2-year-old patient. Describing the limited resources within a rural hospital, he reveals the “lack [of] facilities for an inhalation induction” (Craven, 2007, p. 52). Craven’s (2007) solution is to employ intramuscular ketamine, and he concludes that “after 5 minutes you will have a docile child who can co-operate with either cannulation or inhalation induction” (p. 52). Although it is easy to imagine how important it may be to induce a child to “co-operate,” this approach is arguably one that may not facilitate a true co-operation. Co-operation cannot exist in a dissociative state, nor in a situation where one is physically or pharmacologically forced into docility and compliance.

Craven's (2007) focus on the need to force compliance (in order to facilitate the delivery of care) is an example of an assumption often made by HCPs that a resource allocation argument overrides the rights² of children and families to make choices regarding their choice of treatment. At a high level, this is the foundation for a utilitarian position, i.e. delivering the most collective benefit versus individual benefit (Rachels, 2003; Seedhouse, 1998).

2.6 Focus on physiological risk

A distinctly physiological risk profile has created the framework for virtually all of the studies associated with paediatric ketamine sedation identified in this review. The predominant physiological risks include airway compromise caused by laryngospasm, airway misalignment, and respiratory depression. These are typically transient, occur in 3 to 4.8 per cent of children, and rarely require dramatic clinical intervention (Boyle et al., 2011; CESAR, 2014; J. Gray, 2002; Green & Krauss, 2004a, 2004b, 2011; Green, Kuppermann, Rothrock, Hummel, & Ho, 2000; Green & Li, 2000; Green et al., 2011; Green et al., 2009; Green et al., 1998; Green & Sherwin, 2005; Hall & Collyer, 2007; Karapinar, et al., 2006; Krauss & Green, 2006; Kurdi et al., 2014; Mace, 2007).

Failure to maintain an airway is, of course, catastrophic for the patient and represents an easily measurable event. However, the focus on physiological risk means that there is the potential for only those events that can be measured by physical expression and that require increased resource deployment to be identified as adverse. While physiological risk is clearly important, a singular risk focus has the potential to overlook less obvious

² The importance of children's autonomy and self-governance in New Zealand law is defined in the Health & Disability Commissioner "Code of Health and Disability Services Consumers' Rights" (1996). The Code specifies that all consumers (patients) are entitled to all the necessary information to be able to give informed consent. Furthermore, Right 7(3) states that "where a consumer has diminished competence, that consumer retains the right to make informed choices and give informed consent to the extent appropriate to his or her level of competence" (Health & Disability Commissioner, 1996, "Right 7," para. 3).

adverse events, including those that are psychological or psychotropic in nature, which sit outside of easily measurable physical responses.

The negative psychological effects of ketamine use are not well documented in literature on paediatric ketamine sedation (Boyle et al., 2011; Craven, 2007; Peña & Krauss, 1999; Priestley et al., 2001). The non-physiological adverse effect that has received the most emphasis is emergence phenomena, although any discussion from a paediatric perspective is limited; see section 2.7 for a more detailed overview. Few studies have attempted to ascertain the potential for long-term negative non-physiological sequelae. Blagrove et al. (2009) identify that ketamine sedation in young adults is associated with a threefold increase in the incidence of unpleasant dreams in the three weeks post-sedation, but no studies looking beyond these weeks could be located. Other occurrences of non-physiological adverse events post-discharge have been identified, including hallucinations, behavioural changes, and nightmares (McQueen et al., 2009; Meredith et al., 2011; Wathen, Roback, Mackenzie, & Bothner, 2000). Furthermore, one study found that children under 3 years of age who undergo sedation are more likely to develop future learning difficulties (Dimaggio, Sun, Kakavouli, Byrne, & Li, 2009). In a climate of increasing usage, all of these potential non-physiological adverse effects of ketamine sedation warrant further consideration; however, to date the focus remains on physiological risk.

2.7 Invisibility of paediatric emergence phenomena

The lack of focus on psychological adverse events leads to a key theme revealed (by omission) in the literature review: the limited coverage of the potential for, and the consequences of, emergence phenomena associated with paediatric ketamine sedation. In contrast, within adult practice non-physiological risks (in particular emergence

phenomena) represent a significant concern (Green & Li, 2000; Green & Sherwin, 2005; Mace, 2007; Strayer & Nelson, 2008).

No universal definition of emergence phenomena was identified in the literature search. Emergence phenomena are also frequently referred to as emergence delirium or emergence agitation. These phenomena are generally defined as psychotropic events that occur during emergence or re-association (waking) from sedation (Wong & Bailey, 2015). Essentially, this is the point in time when the mind is reconnecting with the body and the signals provided by the central nervous system can once again be processed by the mind, allowing for consciousness to return (Boyle et al., 2011; Jansen, 2004; Johnstone, 1973; Wong & Bailey, 2015).

Virtually all of the studies make reference to the non-physiological risk in adult ketamine sedation. It is considered a cause for concern or reason for non-use because the emergence phenomena associated with ketamine in adults can be traumatic for patients, family members, and staff (Anghelescu, Rakes, Shearer, & Bikhazi, 2011; Corazza & Schifano, 2010; Duda, 1996; Gorelick et al., 2007; Green & Krauss, 2011; Green & Sherwin, 2005; Kost & Roy, 2010). Adult patients have described their emergence experiences from ketamine sedation in both positive and negative ways, ranging from joy through to terror. The negative reports have been predominantly described as an out-of-body sensation; looking down on their body and watching the procedure being carried out; reliving past trauma; communicating with the dead; or communing with aliens (Green & Li, 2000; Jansen, 1997; Muetzelfeldt et al., 2008). For some, ketamine sedation was equated with a near death or religious experience. Many have described strong and uncontrollable emotional responses of pure joy or absolute terror, some of which manifested in destructive behaviours and thoughts, at times leading to acts of physical violence (Anghelescu et al., 2011; Boyle et al., 2011; Green & Li, 2000; Jansen, 1997, 2004; Johnstone, 1973; Muetzelfeldt et al., 2008). One

anaesthetist initially dismissed the idea that patients were experiencing negative and life-changing emotions during ketamine sedation (Johnstone, 1973). However, after his own hallucinatory reaction to the drug during a voluntary trial, Johnstone (1973) admitted “I am afraid of ketamine and will not take it again nor will I give ketamine to a patient as [his] sole anaesthetic agent” (p. 461).

Similarly, parents whose children have shown fear while waking from ketamine sedation have expressed that they would not allow such a procedure to be repeated (V. J. Holloway et al., 2000). Despite this, the incidence and significance of emergence phenomena following ketamine sedation in children have not been recognised to the same extent as in adults.

More recently, there is recognition within the literature that the early studies on paediatric ketamine sedation, which suggested that children do not experience emergence phenomena at the same rates as adults, may be inaccurate. The reported rates of paediatric emergence phenomena and adverse non-physiological events now appear likely to be similar to those of adults (Blagrove et al., 2009; Hudek, 2009; McQueen et al., 2009; Roelofse, 2010; Treston et al., 2009). For example, Green et al. (2009) undertook a meta-analysis of 8,282 paediatric ketamine sedations and revealed an almost twofold increase in non-physiological adverse event occurrences when compared with previous studies conducted with smaller cohorts. Higher rates of emergence reactions have also been identified by Roback et al. (2007) and Lee et al. (2010), who report that emergence reactions occur in up to 30 per cent of children, a far more frequent incidence than previously believed and in line with occurrence rates in adults (Craven, 2007).³

³ Studies on the psychological impact of ketamine sedation in adult populations have identified that 17 to 30 per cent experience emergence phenomena (Craven, 2007).

2.8 Dismissal and exclusion of children's experiences

Although recognition of the occurrence of emergence phenomena post-ketamine in children is on the increase, this does not necessarily correlate to the level of significance attributed to children's psychological experiences of the sedation. Indeed, a sense of dismissal was evident in much of the literature identified.

The dramatic and adverse psychological events identified and reported in adult practice have led to a reduction of ketamine use in many adult practice environments because the non-physiological or psychological risks to patients were deemed significant (Angelescu et al., 2011; Corazza & Schifano, 2010; Duda, 1996; Gorelick et al., 2007; Green & Krauss, 2011; Green & Sherwin, 2005; Johnstone, 1973; Kost & Roy, 2010). This has not been mirrored in paediatric practice, where the frequency of ketamine sedation is on the rise (Orlewicz et al., 2011). As discussed in section 2.7, despite the significance of the adult experience, concerns regarding emergence phenomena have not been given prominence in paediatric practice.

Treston et al. (2009) acknowledge that many children experience emergence phenomena following ketamine sedation but argue that, as often as not, the children recall or make comments indicative of pleasant experiences. The authors conclude that any presumption that ketamine frequently causes emergence phenomena (delirium) in children is flawed. Because of the quantitative methodology employed in their study, no qualitative analysis was provided; however, a review of their observations shows that in addition to the positive comments of love and happiness, the children also described fear, confusion, anxiety, and the presence of aliens and robots. The researchers dismissed these descriptions as 'normal' behaviours for children and therefore acceptable.

Despite the many indications that some children do experience emergence phenomena, paediatric emergence phenomena post-ketamine has been described as "so what

phenomena” (Treston et al., 2009, p. 320). The justification is framed in terms of resource allocation required to treat emergence reactions; that is, because emergence phenomena may not require additional clinical treatment, it is deemed insignificant (for example, unlike an adult, children do not have the physical size or strength to cause real damage should they lash out and can be physically overpowered easily). Green and Li (2000) similarly conclude that “although sympathomimetic effects and so called ‘emergence reactions’ are both of minimal concern in children, they should not be casually overlooked in adults” (p. 278). The rationale for this conclusion is that adult patients have the physical capacity, the voice, and the political power to effect change, whereas children may not (Bricher, 2000). The dismissal of emergence reactions in paediatric practice illuminates the lack of certainty about what constitutes a negative outcome for children and the limited understanding of children’s experience of ketamine sedation.

2.9 Observational nature of the research

One of the reasons for the potentially limited understanding of children’s experience of ketamine is that children’s voices are not often visible in the literature. Virtually all of the identified studies involving paediatric ketamine sedation documented observational categorisation of children’s behaviour, most commonly collected retrospectively through HCPs’ documentation. Children’s accounts of their experiences with ketamine sedation are distinctly absent. The limitations of these studies lie in both the singular perspective of what is adverse and the discrepancy between reported events and actual occurrences. That is, what is observed and documented by an HCP as an adverse reaction and the child’s or their family’s perspectives may not be congruent. As a result, the reported frequency and impact of emergence phenomena in paediatric patients is inconsistent and contradictory (Anghelescu et al., 2011; Corazza, 2008; Corazza &

Schifano, 2010; Duda, 1996; Gorelick et al., 2007; Green & Krauss, 2011; Green & Sherwin, 2005; Kost & Roy, 2010).

Effectively determining normal behaviour for a child is particularly difficult given the complex nature of an acute hospital environment and other factors such as pain, fear, anxiety, and developmental stage (Przybylo et al., 2003). It is made even more difficult by complexities of individual reactions to these factors and the very nature of a dissociative analgesia, which separates mind from body. This raises questions as to whether non-physiological events can ever be measured through observation of physical expression alone, in particular if the physical ability to express the experience is removed by the very process under examination. There is a gap within the research literature as to how to measure non-physiological experiences and to subsequently balance physiological and psychological risk.

2.10 Increased threshold of concern

Another common theme in the literature reveals the potential for HCP bias and increased threshold of concern when it comes to identifying and reporting adverse events. HCPs have a tendency to normalise abnormal yet expected behaviour (A. F. Smith, Goodwin, Mort, & Pope, 2006). As practitioners gain experience and can better control the physiological outcomes of a clinical procedure, their threshold of concern rises and they are less likely to perceive (and document) an event as adverse, regardless of whether it is a physiological or psychological risk (A. F. Smith et al., 2006). One implication of such a shift is that it changes the very nature of the paediatric ketamine sedation narrative. The HCP's perspective is what is documented and has the potential to displace the voices of those for whom the events are not expected (such as patients and families).

Threshold of concern and HCP bias can impact on data collection and play a role in current understandings of paediatric ketamine sedation. For example, one study investigated the predictors of adverse events during paediatric ketamine sedation and “assumed complications to be absent if not recorded” (Green et al., 2000, p. 36). The authors compared patient medical notes with the lead physicians’ procedure reports and identified a higher occurrence of adverse events than initially reported. Some children described by physicians as not having experienced any adverse events had in fact required bag mask ventilation (assisted breathing) or had been given oxygen pre-emptively to avoid potential respiratory suppression. Some emergence reactions that were documented in the patient medical notes had been dismissed as only transient agitation or crying in the lead physicians’ reports. Thus the study’s reporting of complications did not provide a wholly accurate representation of the frequency of adverse event occurrence. Despite this, its conclusions (that physiological risks are minimal and emergence phenomena in children are rare and inconsequential) have been cited by other studies that have formed the rationale for the use of ketamine in paediatric populations (Aiken et al., 2012).

With primacy given to a physiological paradigm, there is a risk that medical voices dominate the narrative relating to paediatric ketamine sedation. How might perceptions of risk change if additional perspectives were added to the narrative? How do variations in practice and reporting affect perceptions of risk?

2.11 Dream-seeding

In 2007, perhaps the most published author on paediatric ketamine sedation, Dr Stephen Green, described techniques for ‘dream preparation’ or ‘dream seeding’ that reportedly reduce emergence phenomena during ketamine sedation (Gorelick et al., 2007). This method of anxiolysis is purported to plant positive thoughts in patients’ minds to seed

hallucinations that are positive rather than negative. Proponents of this method argue that adverse psychotropic events can be mitigated or entirely abolished with dream-seeding (Anghelescu et al., 2011; Sklar, Zukin, & Reilly, 1981). Green (Gorelick et al., 2007), who has employed this technique for every ketamine sedation he has undertaken since 1996, reports a significantly lower occurrence of paediatric emergence phenomena than in other studies (Green & Krauss, 2004a, 2004b; Green et al., 2000; Green & Li, 2000; Green et al., 1998; Green & Sherwin, 2005). His work has provided the rationale for the increased use of paediatric ketamine sedation, yet the practice of dream-seeding was not described, included in the study designs, or mentioned in any findings until 2007. This left the practice of dream-seeding invisible. In turn, it may have contributed to the absence of dream preparation as standard practice in paediatric ketamine sedation guidelines, many of which have been based on Green's studies. Despite the reported value of dream-seeding or dream preparation in ketamine sedation practices, its efficacy has not been established. No literature relating specifically to its efficacy could be found.

2.12 Conclusion

The literature proposes that ketamine sedation provides a safe, efficient, and economical way to undertake painful procedures in paediatric practice. There is, however, a disparity between the study of the physiological and economical efficacy of ketamine and children's non-physiological experiences of it (including competing assumptions of risk and harm). Most researchers who argue the efficacy of ketamine also acknowledge that the non-physiological phenomena and risks are difficult to study and assess. Despite this recognition, little appears to have been done to further the understanding of paediatric emergence phenomena, children's experiences of it, and the potential for non-physiological harm. The variable research findings and variations in clinical practice evident in this review reveal that little is known about children's non-physiological

experiences and the associated potential for risk and harm. Would a better understanding of HCPs' experiences with paediatric ketamine sedation provide insight into the moral tensions in practice? Could a better understanding of HCPs' practice help to mitigate any of the potential risks from paediatric emergence phenomena? And might a better understanding of HCPs' experiences with paediatric ketamine sedation provide insight into children's experiences?

CHAPTER THREE: THE RESEARCH PROCESS

3.1 Introduction

This chapter provides the rationale for the use of a hermeneutic narrative approach to answer the research question, “what are the stories that HCPs tell about paediatric ketamine sedation?” Furthermore, it explores the broader philosophical and methodological underpinnings that have informed this study and outlines the study design and methods undertaken.

3.2 Methodology

Narrative hermeneutic inquiry

Narrative hermeneutic research focuses on life and living and holds a basic assumption that to study another’s experience through stories, one must first acknowledge that ontologically, it is the lived experience itself, mediated through stories and understood through language, that is ultimately being studied (Clandinin et al., 2015; Clandinin & Huber, 2010; Clandinin & Murphy, 2009). A cohesive thread of insight can be established by exploring the language and etymological variations used within participants’ stories (Riessman, 2001). The process of examining HCPs’ stories of paediatric ketamine sedation and restorying them as part of a larger narrative to make common themes visible can bring insight into various aspects of practice, inclusive of broader contextual constructs such as moral and ethical implications.

Hermeneutics derives from the Greek word *hermeneia*, which means to interpret or translate (Gadamer, 2006; Heidegger, 1962, 1971). Gadamer explains that *hermeneia* refers to Hermes, the messenger of the gods: Hermes was an intermediary between gods and man who delivered cryptic messages full of contradictory and hidden meanings that required tremendous skill to decipher and interpret if any understanding or truths were to be found within them.

Hermeneutics, in its modern form, is based in the deciphering, interpreting, and translating of ideas. Hermeneutic analysis examines language as a text in any form, be it human behaviour, acted, spoken, or written; it considers multiple perspectives yet is based in the interpreter's own perspective. The moving back and forth between perspectives in order to find meanings within the language is termed the 'hermeneutic circle' (Hatab, 2000; Lafont, 2005). It is important to acknowledge that an interpretation of language and text is successful when it allows for unknown or hidden understandings to surface and come clearly to light, thereby making the world, or at least a version of it, more visible (van Manen, 1997).

Using hermeneutics to analyse HCPs' stories of paediatric ketamine sedation facilitates interpretation by the researcher of how things are experienced by the study participants. Through a series of representative explanations and interpretations, it is possible to give a voice to the experiences of others and to promote an expansion of understandings relating to a particular clinical practice (Orange, 2012). In this way, hermeneutic narrative inquiry is potentially capable of informing clinical practice by showing alternative interpretations and understandings that may lead to a re-examination of what has been taken for granted or hidden in the practice world. The hermeneutic narrative process presents newly interpreted and constructed understandings that can prompt further reflection, critique of evidence, and consideration of options. New understandings may, therefore, act as a catalyst for change and inform future interpretations, in essence changing people's way of being in the world and thus their way of practice (Charon & Montello, 2002; Charon et al., 1995; Frank, 2010a).

Key assumptions of hermeneutic narrative inquiry

Risser (1997) states that hermeneutics "lets what seems to be far and alienated speak" (p. 212). By encouraging what Farraris (1996) identifies as the "art of interpretation" (p. 1) to guide the articulation of understandings, the hermeneutic theory that underpins

this research focuses on making visible what is currently alien or unknown within paediatric ketamine sedation practice. Supporting this concept, van Manen (1990) adds that “text succeeds when it lets us see that which shines through, that which tends to hide itself” (p. 130).

There are several key assumptions of a hermeneutic narrative approach:

1. Preunderstandings influence both the interpretation and acceptance of interpretations.
2. Verbal and written language are themselves symbolic systems, and storytelling provides a means of linking patterns.
3. There is no singular truth but rather only understandings established from interpretations that are based on a particular perspective and moment in time.

Heidegger (1971) suggests that our very being or self is a culmination of all that we have experienced. This means that we listen with our own preunderstandings: a background of experience that influences how we make sense of, or interpret, the stories presented to us. This background influences our expectations of what could, should, might, or must be said and, equally, be left unsaid. (I discuss my own preunderstandings for this study in section 3.3, in the methodological rigour section.)

It is a primary assumption of narrative hermeneutic inquiry that verbal and written storytelling are valid ways of sharing perspectives on patterns. While hermeneutics originated in the interpretation of religious texts, philosophers such as Heidegger, Gadamer, and van Manen have provided a means, and guidance, to interpret other texts through cyclical or iterative analysis (Hatab, 2000; Mootz & Taylor, 2011; van Manen, 1997). Recognising that all experiences and understandings are partial and ongoing requires that parts of stories are considered in relation to the broader whole and vice versa. This cyclical analysis, called the ‘hermeneutic circle’, is based on the idea that as

interpretations and partial understandings are formed, they go on to inform the next, in an ever-widening circle of understanding. According to van Manen (1997), the hermeneutic engagement with data is essentially a dialogue between seemingly meaningful words, phrases, and concepts, suggesting that the dialogue asks questions that reveal what is really being said.

Accepting that no singular truth exists within a human experience is thus a fundamental epistemological position within this study. Rather than searching for a finite truth, the goal is to interpret perceived truths and meanings while identifying that a reality exists for the participants as perceived by the researcher, in a particular context and moment in time. Interpretation can and will change as the reader/listener's context changes. Even the act of telling can change the understanding of the teller because any reality is temporal and relies on both pre-telling/listening and post-telling/listening interpretations (Wiklund, Lindholm, & Lindstrom, 2002).

Why stories and narratives matter

This study brings together stories of ketamine sedation from HCPs with multiple perspectives and from multiple professions to identify similarities and differences. It seeks to make the positions of these HCPs visible through a hermeneutic approach that is informed by the philosophical underpinnings of Heidegger (Hatab, 2000), Gadamer (1993), and van Manen (1990, 1997). Achieving a shift in initial understanding by responding to stories is imperative for the success of hermeneutic narrative expression and therefore this research.

Stories are a means of knowing and of following and demonstrating social practice (Richardson & St. Pierre, 2005). They do not guarantee a precise explanation or accurate depiction of the past or even what may currently be; on the contrary, stories and their telling are wholly interpretational (Riessman, 1993, 2008). Frank (2000)

explains that stories are often told to reaffirm, create, or even redirect the relationship in which they are being told. This implies that a story can be a means of establishing or denying connectedness and cooperation with others by committing to, or purposefully separating from, particular communities, concepts, or values.

Stories have the potential to reveal our way of being by demonstrating how and why we choose to react to any given event. They can make visible what lies behind our actions or inactions by providing insight into the very thoughts and feelings that determine those actions or inactions.

Frank (2010b) also suggests that the moral and ethical nuances of experience become visible through stories. We are in control of stories because we can choose when and how to present them, but we are also uncontrollably drawn into them, connected to them, and moved by them. Whether or not they are explicitly ours to tell, we listen to them, interpret them, and consider how they relate to our own life experience and views, refuting them, adopting them as our own, or using them to frame our way of thinking. This may contribute to a shared understanding where there is a fusion of horizons (Gadamer, 1993).

Stories can persuade us to act or move in directions that would not or could not have been considered before experiencing them. They allow us to consider our partial understandings (horizons) and further develop them by incorporating other's understandings (Mootz & Taylor, 2011). This suggests that looking at paediatric ketamine sedation practice through a hermeneutic analysis of HCPs' stories can allow a furthering of current understandings and potentially alter or reinforce current practice.

One of the challenges in analysing HCPs' stories of paediatric ketamine sedation is that those stories are not necessarily sequential and some of the data that they provide cannot be removed from the context of the story to become ordered and measurable as a

singular piece of information in its own right. The strength of a hermeneutic narrative analysis (and thus this study) is that it helps to explicate meaning within these stories (Polkinghorne, 1988, 2004). In other words, through a hermeneutic circling, the parts (details) of stories contribute to a dialogue with the broader situation or ‘whole’, enabling a greater understanding of the experience in question (Schon, 1983; van Manen, 1997).

Although the terms story and narrative are frequently used interchangeably, there is an important and notable difference. A story is perhaps best defined as the series of events that have occurred. It has a beginning and an end, and it is most commonly a linear description of what has occurred, being descriptive in nature. In contrast, a narrative includes both a story (and commonly multiple stories) and all that surrounds the story(ies) in the context of the telling: the thoughts, reflections, and judgements that are occurring within the experience of the story itself. In other words, a narrative includes a contexture that is much more than just an account of what happened in the voice of the teller.

Although many short stories are shared by participants in this study, it is the congruence of the stories that ultimately allows broader narratives to resonate, drawing us closer to an understanding of the implications of, and tensions surrounding, paediatric ketamine sedation. Using the hermeneutic circle to enter into a dialogue with the data allows the stories to intertwine as an amalgamation of voices and reveal a contextual landscape of clinical experience. This provides a more comprehensive understanding than any individual account could on its own.

Morality and ethos of stories and health research

All practice is embedded in ethical and moral foundations. Charon et al. (1995) argue that a principles-based analytical approach to ethical practice may simply reduce human

conflicts to rational problems to be solved. A narrative approach, on the other hand, can “present the individual events in all their contradictions and meaningfulness, for interpretation and understanding” (Charon et al., 1995, p. 602).

In many cases we, as listeners/readers, identify with the teller of a story and are encouraged to consider “what if it were me or those I love? What would it then mean to me and what would or should I do or be capable of doing?” (Charon & Montello, 2002; Coles, 1989; Etherington, 2009; Tauber, 2000). These questions reveal powerful motives. After witnessing Ally’s distress when she awoke from the ketamine sedation, I asked these types of questions of myself and wondered if other HCPs asked similar questions of themselves. What would their answers be? These considerations have driven this research. This study aims to contribute to conversations about paediatric ketamine sedation and make visible the how, what, and why of its use. It is hoped that it will help to prepare those working with paediatric ketamine sedation to undertake practice with the benefit of a shared understanding.

Thinking and understanding with narrative

Narrative hermeneutic inquiry provides a means of seeking understanding and context through collaboration with participants. When thinking in a narrative way or, as Frank (1995) suggests, “thinking with stories, rather than about them” (p. 76), a reader/listener inevitably becomes part of the narrative itself, experiencing the emotions and wrestling with any dilemmas and contradictions that are inherent in the stories. I was drawn to this research because of the moral tensions I experienced while delivering paediatric ketamine sedation. Considering my story of Ally’s distress and how it led to my own (chapter one), I wanted to find out more, to learn what other HCPs experienced. The process of analysing the participants’ stories and creating a narrative that encompassed multiple voices helped to uncover hidden experiences and perspectives. In answering the research question, “what are the stories that HCPs tell about paediatric ketamine

sedation?”, the process helped make visible HCPs’ perspectives on current practice and how they believe things should be.

Visible and invisible language

In the telling of any story, whether it is a story meant simply to entertain or one meant to share experiential knowledge, the choice of language is paramount in achieving the purpose of the telling. Language is the crux of being able to share an experience with others or to interpret others’ stories to gain understandings.

Regardless of the specific nature of the language used to construct ideas, language exists within and all around us. It allows for the organisation and sharing of our being (Heidegger, 1971). Furthermore, we are bound to interpret what lies between the lines of extrinsic language, adding meaning that may not be inherent in the actual words themselves. In this way, we interpret the multitude of narratives that surround us, using contextual and colloquial knowledge to find meaning. We construct our own narratives using language in ways that extend beyond physical and audible speech.

These narratives are more than the sum total of the individual and literal words in play and they go on to contribute to yet more narratives that may be well beyond individual awareness and understanding. Within narrative research it is, therefore, important that researchers are cognisant of the powerful influence that preunderstandings have on the process of interpretation and applying meaning.

Shared language and understanding

Recognising the complexity of language and its subtleties is vital to finding meaning from stories. Without a shared understanding of language or contextual background, interpretations are at risk of not accurately illuminating a perspective or of holding a bias towards a particular perspective. The ability to develop a shared contextual language and understanding may only be possible by engaging in an ongoing cycle of (1) reciprocal questioning; (2) putting forth perspectives; (3) listening to, considering,

and adopting others' perspectives; and (4) putting forth new perspectives and generating yet more questions and perspectives.

Gadamer (1989) explains that it is through language that we can attempt and potentially attain an understanding of others. Language makes understanding possible because we join into a conversation. We share a discourse and engage in both visible extrinsic conversations and invisible intrinsic ones: we converse with others, verbalising our story, but also “speak” internally to ourselves, without verbalising anything. These internal conversations occur as we consider what we hear, read, or intend to say, so that we can understand and make sense of the context and meaning of the words, actions, or even subtext being used. It is only when an internal dialogue is told in story that it can emerge from the invisible.

Any research is arguably subject to the challenges of finding shared understandings. Finding meanings within stories relating to lived experiences, and in particular experiences relating to the emotions and feelings elicited by moral or ethical tension, is challenging. Using a hermeneutic narrative approach requires interpreting meaning by considering the nuances and subtexts of participants' stories, not just the literal words being used.

Gadamer, as cited in Davey (2015), points out that language is often inadequate to express what is felt. Yet, despite this potential inadequacy, Gadamer suggests that by engaging with language, “an individual is located within a substantive horizon of meanings which transcends subjective consciousness” (Davey, 2015, p. 27). Finding meaning within the hermeneutic analysis and subsequently articulating it thus relies on considering as many of the inherent aspects of cultural and historical context as possible.

The challenge of finding shared understanding is heightened by the differing language and perspectives presented by tellers and listeners. For example, within healthcare, country of origin, location of practice, clinical focus, and competing professional interests all combine to make a shared understanding challenging to achieve. There exist an infinite number of perspectives within which people are located. In this study, for example, the participants had recent experience with paediatric ketamine sedation within the same district health boards, yet they also represented a range of professional disciplines and international backgrounds (in terms of countries of origin and professional practice experience). These diverse practice and cultural backgrounds included the United States of America, England, Ireland, Australia, South Africa, and New Zealand.

3.3 Methods

Ethics approval

Ethics approval was sought from the Auckland University of Technology Ethics Committee (AUTEK) through a submission for the 25 June 2012 sitting. AUTEK approval for the application number 12/147 was granted on 12 July 2012 (see Appendix A).

Although recruitment commenced immediately, I initially struggled to find participants, perhaps because it was perceived as a sensitive topic. After four months 2 participants were identified, and I commenced the interviewing process in December 2012.

Subsequently, the snowballing technique (participant referral) of recruitment was successful.

During recruitment in early 2013, two play specialists self-identified as wishing to participate. However, no registration body governs play specialists, and the original recruitment criteria requiring that participants be registered HCPs effectively excluded

any possibility of their participation. Play specialists have a significant and pivotal role within paediatric ketamine sedation practice, and I believed that their inclusion would enhance the study. Therefore, an amendment request seeking permission to include play specialists was submitted to AUTEK on 25 April 2013 and approval was granted on 2 May 2013.

Research participants

How participants were recruited

To be eligible to participate, individuals were required to have been involved in paediatric ketamine sedation procedures and have witnessed emergence phenomena. Participants were also required to be registered HCPs or play specialists working in paediatric practice within New Zealand.

I initially recruited participants through a purposive sampling strategy. Through our professional networks, my supervisor and I identified potential participants who had been involved in paediatric ketamine sedation procedures. These networks included the disciplines of paramedicine, nursing, and medicine and represented individuals working in two large district health boards and at AUT University. A participant information sheet (Appendix B) and consent form (Appendix C) were provided. To avoid any potential for coercion, individuals that I knew personally were approached by my supervisor. After initial contact, a snowballing technique was used as HCPs aware of the study passed the details on to others.

Inclusions, exclusions, and withdrawals

Fourteen people responded and were sent information sheets and consent forms. Of these 14 participants:

- Seven agreed to take part.
- Three indicated, after receiving the information sheets, that they were not confident they had adequate experience to provide a “story” and so chose not to participate.
- Three withdrew, citing personal reasons and concern about being seen as speaking out against medical practice in their area of work. Although they were offered an opportunity to meet to discuss any concerns, all three chose not to, preferring instead not to participate. They were thanked for their consideration and no further communications or contact was sought.
- One did not hold a current New Zealand registration and, although experienced in ketamine sedation, had not been involved in its use within New Zealand. This participant was thanked for the offer to participate but was excluded on the grounds of not meeting the criteria set out in the sampling strategy and ethics approval.

Seven participants, consisting of two emergency physicians, two registered nurses, two paramedics and one play specialist, were interviewed. Upon completion of the seventh interview, my supervisor and I agreed that I had gathered sufficient data to complete analysis for the purposes of master’s level research and that no further interviews would be required. Although including more HCPs may have brought more detail to light, according to Liamputtong and Ezzy (2005), this sample size should allow for sufficiency and the depth of interpretation desired while maintaining consistency with research expected of a master’s level project.

In summary, all participants were HCPs who are currently practising and/or hold New Zealand registration in the disciplines of nursing, paramedicine, medicine, and play therapy. Each self-identified as having participated in paediatric ketamine sedation and witnessing some form of paediatric emergence phenomena.

Protection of participants

This study involved participants sharing personal stories of their professional practice. It was made clear that participants were free to have any or all of their story withdrawn from the study prior to the completion of data analysis with no adverse consequences.

A particular risk faced in this research is the relatively small community of paediatric nurses and healthcare practitioners within New Zealand. This increases the chance of participants and other practitioners being recognised through their stories. To maintain confidentiality, specific names and locations have not been used, and stories where particular details were clearly identifiable have been withheld or altered during the restorying/interpretive process. I have attempted to do this in a manner that maintains the essence of the original telling. Each participant was asked if they had a pseudonym they would prefer to be used in the study; when one was not suggested, with permission I have created one on their behalf.

Lieblich, Tuval-Mashiach, and Zilber (1998) suggest that exploring people's stories can elicit strong emotional responses, both positive and negative. In this study, the participants told emotional stories of caring for children during traumatic events. I found some of the stories difficult to listen to, especially when the care was potentially questionable or where the child experienced a poor outcome or did not survive. I could feel myself forming moral judgements upon hearing these stories. I had to consciously acknowledge to myself these personal responses so that I could ensure that I did not show judgement of participants' practice during the interviewing process; this conscious effort also helped heighten my awareness of the influence of my own prejudices during the later interpretive process. It was clear that many of these stories were difficult to recount as the participants were distressed or agitated at times during the telling. I acknowledged this difficulty and, after the interviews, offered participants further support through counselling referrals.

To reduce the risk of the interview process being a negative experience for the participants, I reviewed Turner's (2010) interviewing techniques (see the interviewing section that follows) and discussed a strategy with my supervisor prior to data gathering. The open-ended question design of the interviews meant that participants chose which aspects of their stories they shared. To further provide a safe environment for participants, I attempted to remain reflexive during the interviews, a process that helped me to be aware of my impact on the participants' stories (Jootun & McGhee, 2009). I encouraged an environment of mutual respect, and participants were advised that they could choose not to answer any question posed to them without consequence. Participants were also offered the opportunity to review the interview transcript (giving them the opportunity to confirm, clarify, or remove elements) before agreeing to the inclusion of their stories in the study; no participants requested to review their transcripts. Finally, prior to ethics approval I arranged for counselling support to be available; I advised participants during the interviews of how to access these services and encouraged their use should any issues or concerns arise. No participants took up the offer for counselling support.

Interviewing

Narrative inquiry relies on participants sharing their stories of experience, which then become data for analysis. When preparing the participants for the interview process, I explained that they would be asked to share their stories and insights into paediatric ketamine sedation and emergence phenomena. I provided this information in writing on the participant information sheet at the time of recruitment, again in the days prior to the interview meeting, and a third time just before the interview commenced.

In keeping with the hermeneutic research method, I kept the face-to-face interviews as open and unstructured as possible. However, as Mayall (1996) points out, "even the most open and free data collection is structured by the researcher" (p. 14). All

participants were aware that I am a nurse, with five of the seven having worked with me in a clinical context. Two participants had also delivered paediatric ketamine sedations with me within the last 5 years. I asked the participants to talk about their experiences of paediatric ketamine sedation and what they had observed, thought, and done. I asked them to share and describe what they perceived to be significant events. The challenge for me was to allow the interview to develop from the participant's contribution and to explore any challenges and dilemmas faced by the individual.

My goal was to allow the participants to tell their stories without undue guidance, direction, or restriction. I aimed to gently question or prompt only to help the telling occur or to keep the participants focused on the topic and to ensure that they felt safe and supported in their telling. I used open-ended questions such as "tell me about your experiences with paediatric ketamine sedation" so that the participants could tell their stories in their own way. This form of facilitation promotes participation and helps form a partnership that values the participants' knowledge and experience. I avoided interrupting the stories as much as possible, demonstrating my interest with verbal and nonverbal cues to indicate that I was actively listening. On occasion I would ask delving questions such as "what were you thinking when that was happening?" This approach seeks what Riessman (2008) describes as an extended account that will allow for the exploration of the diversity and variable nature of overarching themes and plots.

I. Holloway and Freshwater (2007) further suggest that this approach ensures genuineness and an atmosphere of unconditional positive regard.

During the interviews, participants had the right to choose whether or not to answer questions or remain in the study, essentially requiring their willing and voluntary participation. The inclusion of participant stories was a negotiated process, as demonstrated in two instances when participants retrospectively recognised aspects of their stories that they did not wish to be made public. These parts of their stories were

not included in the data analysis. Clandinin (2007) and Polkinghorne (1988) suggest that stories change as context changes, so during the interviews I recognised that through the telling of their stories, participants might gain insights into their own practice and the practice of others that they had not previously considered. The decision by the two participants to withdraw portions of their stories perhaps stemmed from new insights that they gained in the telling of their stories during the interviews.

Transcription

Each interview was digitally recorded. Despite my original intention of personally transcribing the interviews, I was not as efficient as a professional transcriptionist, and the process was not bringing me closer to the data but rather separating it into a task to be done. I therefore engaged a professional transcriptionist and then checked each transcript carefully against the recording for accuracy. This process allowed me to engage with the data and resolve any errors in the data transcription. Throughout the data analysis, I frequently returned to the recorded audio to clarify the tone of the text and verify that the meanings I was finding in the written transcripts were contextually supported within the telling of the story.

Data analysis

Intentions and tensions

In the original methodological design for this study, I had intended to search for meaning in the stories told by the participants, in both the content they contained and the structure of how they were told, before then exploring potential risks, benefits, and harm. To do this, I was to examine each participant's story using a series of analytical lenses to determine both thematic content and the structural makeup of the story. I believed that with these aspects identified, I could then overlay another lens of analysis focused on the ethical concepts of benefit and harm to create an interpretive story, thereby making any ethical implications within paediatric ketamine sedation practice

visible. I developed an analytical framework, underpinned by hermeneutic philosophy. This framework combined McCormack's (2000, 2004) analytic lenses, Riessman's (1993, 2008) concepts of thematic narrative analysis, and Lawrence-Lightfoot (2005) and Lawrence-Lightfoot and Davis's (1997) techniques of narrative portraiture.

As the first layer of my analysis began, I used (1) McCormack's analytical lenses (Dibley, 2011; McCormack, 2000) of language, narrative process, context and moments to assess the stories' structural makeup and (2) Riessman's (2008) concepts of thematic narrative analysis to determine the thematic content. However, the stories seemed to lack the linear narrative processes that I had anticipated and instead were clearly stories that brought multiple experiences into a narrative that the tellers considered representative of their professional construct and conduct as a whole. Although these structural lenses were facilitating an analysis and the narrative construct itself could be explored, it was the shared thematic elements that stood out to me as most significant. These thematic elements communicated the essence of what I sought to understand about paediatric ketamine sedation practice. The themes were highlighting the ethical and moral dilemmas of sedation practice of their own volition and it became evident that the two-part framework I had originally planned for analysis was unwieldy and not suited to the stories that the participants had shared nor the constraints of a master's level project.

Change: unforeseen turns and movement of thought

To stay true to my original intention, to understand the meanings within HCPs' stories, and to remain within the scope of research for a master's level project, I changed my original plan for analysis. I chose instead to use a narrative hermeneutic analysis to illuminate the dominant themes from the stories. This ensured that the stories, rather than the ethical and moral interpretation, drove the analysis. After reviewing and reflecting on the emerging themes, I sought advice from my supervisor. We agreed that

to enable the analysis to move forward, I would use narrative hermeneutic methods as a heuristic guide rather than as a prescriptive procedural one. This was in keeping with Riessman's (1993) perspective that there need not be a particular method or approach to narrative analysis. Riessman is of the opinion that to require one, would give researchers a false sense that their findings would arrive at a specific time, and at particular points in their research, while simultaneously meeting standards of academic rigour.

The narrative hermeneutic approach I have engaged did not follow a rigid analytical process but rather was guided by the metaphorical concept of the hermeneutic circle (Gadamer, 1989; van Manen, 1997). This was a process that employed reciprocal questioning and consideration and adoption of others' perspectives in order to put forth new perspectives. This dialogical conversation with the stories asked questions and moved between the parts of stories and the wider whole (the understanding that is evolving from them) until the interpretations could be articulated. Frank (2005, 2010b, 2012) acknowledges that although an unstructured approach to narrative analysis such as this may seem more ad hoc, it can actually incorporate multiple ways of interpreting a story to bring meaning and insight into view, allowing for interpretation without restrictions. When interpretation occurs alongside the story being told there is a movement of thought that Frank (2010b) suggests allows a story to breathe and reveals meaning.

As I worked with the data, I would read, listen, write, re-listen, re-read, and re-write interpretations of it, an approach in line with the hermeneutic underpinnings of my study. The stories began to 'breathe', and my interpretations changed in response to the context of the moment being analysed. The process of writing, thinking, and re-writing was integral to developing themes and interpretations, and this ebb and flow of analysis

allowed me to consider the contradictions and complexities inherent in the individual stories.

Developing themes

Riessman (1993, 2008) suggests that a thematic approach is useful when theorising across a number of cases and events. Because my interest lay in the content of these stories, I focused on finding the meaning within the shared language. The language was, therefore, a resource for investigation, rather than a topic of investigation in its own right.

I asked myself questions such as “what is the most important aspect here?” and “what matters most?” I then attempted to identify what was similar, different, shared, and countered. This required stepping away from the analysis of individual parts towards the development of the broader whole in a back and forth movement of the researcher and text (van Manen, 1997). Both are circular processes of continual dialogue between seemingly meaningful words, concepts, and phrases in order to ask what is really being said. This is the dialogue that comprises the hermeneutic circle of analysis and reveals the ontological structure of hermeneutic understandings: understandings that are interdependent and exist in ever-widening circles of influence (Gadamer, 1993). The hermeneutic circle of analysis enables the developing text to represent a broader perspective as it becomes more than simply a sum total of all the parts (van Manen, 1997). Gadamer (1993, 2006) refers to an individual’s perspective as his/her horizon of understanding. In the analysis of participants’ stories, where multiple perspectives or horizons exist, it is through the circular and ‘back and forth’ questioning that a ‘fusion’ of horizons occurs. This includes my own understandings coming together with participants’ to articulate a more in-depth understanding of the experience of paediatric ketamine sedation.

The key points documented from the stories grew to contain pages of excerpts and possible themes. In a process of continual review, I filtered and catalogued these into broader overarching themes and subthemes. This process relies on continual reflection of the transcripts and identified themes. To bring stronger reliability and credibility to the analysis, and as a way of maintaining awareness of the influence of my preunderstandings, I shared the thematic elements with my supervisor and used mind mapping to confirm how they had developed. I focused on the essential meanings within clinical practice, identifying two main themes with associated subthemes, which are now presented as the research findings.

Methodological rigour

Establishing rigour in hermeneutic/interpretive research is vital to establish the trustworthiness and legitimacy of its findings (de Witt & Ploeg, 2006; Streubert & Carpenter, 2011). Sandelowski (1998) suggests that rigour in hermeneutic/interpretive work comes not from strict adherence to rules or procedures, but rather from “fidelity to the spirit of qualitative work” (p. 2). Because the researcher is embedded in the interpretations of data, the subsequent findings are not free of potential biases and judgments so may be at odds with a positivist quantitative approach to achieving rigour (Morse, Barrett, Mayan, Olson, & Spiers, 2002). Qualitative findings are instead situated in a context of understandings or, specifically in this research, at the ‘fusion’ or coming together of participant and researcher understandings. This is consistent with the epistemological position that a narrative hermeneutic approach does not seek to validate or confirm a singular truth but rather present versions of truth that arise from the collective perspectives of a moment in time. To demonstrate how this study has maintained methodological rigour, I purposed to use Lincoln and Guba’s (1985) framework for establishing qualitative rigour. The framework consists of four guiding concepts: credibility, dependability, confirmability and transferability.

Credibility

Credibility refers to the value and believability of findings (Lincoln & Guba, 1985). To be credible, a study should present faithful descriptions that resonate with those familiar with the phenomena in question (Streubert & Carpenter, 2011). The study should also include activities designed to increase the possibility that credible findings will be obtained (Polit & Beck, 2006; Streubert & Carpenter, 2011). In this study, the most notable methods employed to establish credibility were a sustained engagement in data collection and analysis, reflexivity throughout the research process, and peer debriefing with my supervisors.

In terms of sustained engagement, I planned for at least four hours per interview. The seven interviews were conducted over three months, and each interview took between 1.5 and 3 hours. Because I was not working to a restricted timeframe, I was able to build rapport with the participants and enable them to tell their stories without censure due to time.

Liamputtong and Ezzy (2005) suggest that to achieve credibility, a researcher must recognise and document reflexivity in relation to actions and influence during the research process itself. It is the interpretive lens that I apply as the researcher that influences the findings. The process of data analysis is effectively a dialogue with the data that is informed by my preunderstandings and interpretation of the topic. However, this is balanced by the reader's own interpretation. When the interpretation resonates with the reader, it is credible.

To establish a reflexive process, I participated in a preunderstandings interview with my supervisor. The interview explored the preconceived ideas and beliefs that I might hold about the study matter so that these could be documented and considered prior to data gathering and during data analysis. These included:

- A perception that current ketamine sedation practice is inadequate.
- A belief that paediatric ketamine sedation creates tension in balancing risk and harm.
- A belief that some children experience negative outcomes during ketamine sedation as a result of non-physiological risk and harm.
- A belief that HCPs have a responsibility to keep children safe from avoidable harm.
- A sense that not enough has been done to determine whether or not concerns regarding paediatric emergence phenomena are warranted.

This exploration of my preunderstandings increased my awareness of how my own experiences with paediatric ketamine sedation might influence my analysis of the participant stories.

As is consistent with a hermeneutic approach, during the data analysis I continually asked reflexive questions such as “what does this mean?” followed by “what else could this mean?” or “why might that be?” until the multiple stories and participant voices could be represented through thematic findings. These reflective questions form the ‘hermeneutic circle’: the back and forth movement of understandings between the various parts of stories and the whole of the data.

Lastly, to ensure that credibility would not be undermined by my limited experience as a researcher, I had ongoing supervision from experienced researchers Dr Tineke Water and Dr Deb Spence, as well as an advisor (Professor Bernie Carter). During regular supervisory meetings we compared transcript analyses. Through peer debriefing and investigator triangulation of data, we analysed whether the developing themes and subthemes were visible from multiple perspectives.

Dependability

The dependability of this study hinges to a great extent upon the strength of its credibility. Streubert and Carpenter (2011) identify that without credibility, dependability remains elusive; however, once credibility is achieved, dependability can be established and strengthened. There are three components of a study that can significantly add to its dependability: a clear description of the research design and implementation; detailed information on the data gathering process; and “reflective appraisal” that evaluates the study’s processes (Sandelowski, 1998). In this study, I have addressed these three components within this chapter on the research methods and in the study limitations section in chapter six.

Confirmability

Confirmability is closely associated with credibility and dependability. Confirmability relates to the neutrality and accuracy of the data and is the extent to which a study’s findings are derived from the participants collectively alongside the researcher’s interpretation (Houghton, Casey, Shaw, & Murphy, 2012). The concept of confirmability implies that given similar circumstances, study results would be replicable. However, Sandelowski (1998) argues that reality is multiple and constructed and thus it should not be expected that even expert researchers or respondents will arrive at the same themes and categories as the researcher. While this may be true, an effectively presented description and interpretation of lived experiences should resonate with a reader. If found by the reader to be plausible and representative of or supported by their own life experiences, it will elicit a confirming ‘nod’ (van Manen, 1997). Van Manen (1997) argues that this ‘phenomenological nod’ is itself adequate confirmation of the validity of findings.

Additionally, the confirmability of a study can be greatly increased by clear documentation of the methodology and methods undertaken (Houghton et al., 2012;

Sandelowski, 1998). This provides an increased awareness of the context from which findings are determined. I established an audit trail as a means of contributing to confirmability. This included notes/minutes of supervisory meetings and the retention of all iterations of the analysis that resulted from the writing and rewriting process.

Transferability

Transferability refers to the likelihood that the study findings will have meaning to other individuals in similar circumstances. It establishes the expectation that the findings can span multiple contexts and be relevant to a context if there is a degree of similarity. The potential for transferability can be demonstrated through detailed descriptions of participants, contexts and settings in which the research occurs (Meyrick, 2006). Described by Creswell (2009) as ‘thick description’, the detailed description may allow a reader to find shared characteristics and apply findings into another context.

An additional and important aspect of transferability is an acknowledgement of the ontological and epistemological assumptions inherent in the methodology and methods of data analysis (Streubert & Carpenter, 2011). This is important in this study because the hermeneutic process assumes that no singular truth exists. Transferability relies on context, and so while transferability may be achieved within a narrative hermeneutic study, it would not be automatic or guaranteed in another time, place, or sociality. By establishing the aforementioned assumptions, a reader can consider the findings in relation to their own context and may find fittingness. To provide the greatest likelihood of transferability, this study has included participant detail (while maintaining participant anonymity), ontological and epistemological assumptions, and details of the research process in this chapter.

3.4 Conclusion

This chapter has explored the philosophical underpinnings of this study and supporting rationale for adopting a hermeneutic thematic analysis. It has also described the research design and explored the ethical considerations and methodological rigour that have guided this study.

The next two chapters present the findings of the data analysis. The discussion chapter then relates the findings to previous literature and the research methodology, culminating in the presentation of recommendations for further research, education, and practice.

CHAPTER FOUR: SEEKING TO CONTROL AND PROTECT

4.1 Introduction

Hospitals are places of extreme contradiction. On one hand they can be perceived as places of safety and solace from illness and trauma, places of order and hierarchy, of efficiency, knowledge, hope, and certainty. On the other hand, they may be experienced as unpredictable places, full of concern about uncertain outcomes and unknown timelines. They often feel chaotic and out of control. For HCPs, this contradiction forms the everyday working environment and brings with it tensions. While trying to find balance, HCPs are in essence continually seeking to control the environment and outcomes and to protect the children they care for. In this chapter, I will explore the theme of ‘seeking to control and protect’ through the associated subthemes: (1) working within chaos, (2) controlling the chaos, (3) for us or for them? and (4) children are different.

4.2 Working within chaos

Hospitals may and may not be hospitable places. This appears to be true for both patients and practitioners. For those working in the context of emergency care, the environment includes aspects of both disarray and control, with a constant need to balance the tension between the two.

The sense of experiencing “chaos” within the emergency environment is evident in the words used by the participants. For example, Ken, a paramedic, describes the environment in which he uses ketamine sedation as “crazy chaotic.” Daniel, a doctor, uses the words “inherently chaotic,” and Rebecca, a play specialist, refers to the environment as “a big muddle or a big mess that we’re working right in the middle of.”

The common descriptor, ‘chaos’, derives from the Greek word *khaos*, which translates as a “vast chasm or void”. Any chasm or void brings a sense of unknown, of hidden contents, and dark places. Perhaps most significantly, a void represents an absolute absence or emptiness, and from a hermeneutic position, such voids and chasms are spaces to be explored and probed for meaning.

Notwithstanding that trauma and illness themselves may be chaotic to the physical body, the infinite permutations of both physiological and psychological responses to trauma, medications and pain, compound and contribute to the unpredictable nature of emergent care. They add to the uncertainty and ‘chaos’ of the context within which HCPs deliver paediatric ketamine sedation.

Jenny, an experienced registered nurse (RN), is passionate about her role in the emergency department. She tries to explain what it is like responding to children’s needs in the first moments of their arrival at the hospital:

Resus is like the centre of everything. Right? You know, it’s swirling...like a washing machine. Where it is all swirling around you and you try to make sense of the bigger picture...you know? (Jenny, RN)

Jenny describes the “swirling” nature of a resus room (where the sickest or most injured children are first treated). Her description of the environment as a “washing machine” captures the sense of agitation and confusion within which HCPs work.

Even when the participants are not specifically using the word chaos, the chaotic nature of the environment is revealed in their descriptions of the everyday working experience. Patients’ responses to treatment are repeatedly referenced as contributing to the turbulent, overwhelming nature of the environment. Ken describes feelings of stress and trepidation when confronted by the chaos of a patient responding to the fear and pain of the pre-hospital environment:

I don’t have a doctor in Resus 4 when I’m at the end of a 200 metre winch, you know, down a valley somewhere picking up a family out of a car or something....

I'm making rapid decisions and judgments.... So you know, there's always variables that people don't take into account...and do you really want people flipping out on a stretcher while you're winching them up or do you want them [gesture made indicating unconscious]? (Ken, paramedic)

For Ken, responding to emergency calls often takes him into remote, isolated and, at times, chaotic places. He needs to manage the chaos of the environment to be able to deliver care and ensure his own safety and that of the patient. If a patient presents as 'out of control' physically and/or emotionally, this directly affects his ability to do his job and achieve the best outcome for the patient. Hanging on the end of a winch 200 metres below a helicopter while making life or death decisions, for example, might be specific to paramedicine (or at least first responder care), but it may also be a metaphor for the inherent nature of emergency care practice itself. Isolation, task saturation, fear, and risk can also occur within the confines of a hospital room.

Flo, an RN, describes how patients can bring uncertainty and unpredictability to practice, thus contributing directly to the chaos.

Nobody enjoys holding a child down who is screaming and thrashing...and we've all had to do it because it needed to be done for their best interest.... You can't say to a child who has no concept of the internal anatomy, with no experience of things, that 'you really need this drip because it's going to help us to give you a drug that is going to keep you alive.' They don't and can't get it. They're like, 'Yeah, whatever. Needle in my skin? Piss off!' One of the problems we have in children, is that it's all very well saying we're going to give this or do that, but if you can't get the little bugger to take it, then you're not giving anything. Although we've been known to use physical force sometimes, it's hardly ideal—it just shifts the problem. (Flo, RN)

While they may not be solely responsible for the chaos, patients certainly contribute to it and much of an HCP's efforts are focused on helping to relieve the patient's fear and anxiety. As Flo highlights, children often react to the emergency care environment with resistance and disruption because of their more limited life experience and understanding, which complicates the treatment options.

When a child resists the treatment process, HCPs' options become limited in terms of what they can actually deliver. They must decide whether or not to use a degree of force

to enable the delivery of care. However, by Flo's own admission, there is a tension between adding to a child's distress by using overpowering physical force and introducing a chemically mediated force such as ketamine. This tension brings with it a sense of dilemma for Flo. Physically forcing compliance could add to the overall sense of chaos if it increases the child's fear and pain. Yet using ketamine, while potentially facilitating the delivery of care, may simply delay a child's experience of terror and therefore comes with its own psychological risks. These layers of risk and concern expose a sense of conflict and tension between the competing interests of the child and the HCPs.

Rebecca further describes the environment in a way that highlights the child's viewpoint and her own sense of discomfort stemming from the uncertainty and confusion of a child's reaction to trauma.

Physical pain [is part of the child's experience] but also pretty much everything else too. You know, when hurt, or in the hospital, what is normal routine for them is just gone. So they don't understand, or know how to react. They've had a huge disruption to their life, and with all the commotion around them, you know, all the things being done to them are so alien and sometimes very painful. The hospital is so confusing for kids because it seems so disorganised at times. One minute we are saying we'll do this or that, the next something else is being done. Kids get distressed and then we get distressed if we can't sort that quickly. If it isn't easily fixed, it becomes a big muddle, basically sometimes it becomes a big mess and we're working right in the middle of it. (Rebecca, play specialist)

Rebecca does not refer specifically to the clinical environment as being in chaos, but the words "disorder", "confusion", a "muddle" or "mess" and disruption of "normal" exemplify the experience of chaos. As a play specialist, Rebecca seems to accept that chaos is part of her everyday environment.

Flo also acknowledges the contextual nature of chaos in her practice, exploring the inherent tensions.

...part of it is that we're empathising. We know that we are doing something noxious to a child and they're defenceless. You know it's in their best interest because they need to have it done from a medical perspective, but you also know

from their perspective they don't get that. All they're experiencing is the noxiousness and the pain of it all. (Flo, RN)

Despite knowing that her own actions potentially contribute to the “noxiousness” of the environment, Flo appears to be suggesting that, for the benefit of the child, HCPs must live with this discomfort and work through the chaos. Acknowledging empathy as a motivation to act indicates that discomfort is felt both by the child and herself. She seems to accept this discomfort regardless of the potential negative implications because it is the lesser of two evils, and because it represents one means of gaining control.

4.3 Controlling the chaos

In Flo's comments, there is a sense of ‘being cruel to be kind’ and/or of making paternalistic decisions on behalf of the child. Her dilemma is knowing what she wants or needs to do to help a child but being unable to do so if the child will not comply. This means that HCPs need to control both the child and the broader environment to manage the chaos and get the job done.

Seeking control directly implies wanting to gain power, specifically the power to influence or direct people's behaviour or the course of events.

We can't always control everything we want to, but if we can control the variables we can do some good. If we stop the crazies, then good...you know? Trying to control everything so that we steer the outcome away from bad is what we do. If we could control the chaotic environment, if we could make that less chaotic, we would probably have better outcomes. (Jenny, RN)

Jenny directly links control and positive outcomes. Several factors assist HCPs to achieve control, including the trust that society places in them, their possession of knowledge, and access to resources. As Jenny explains, this desire to gain control (of the situation generally and of a child's responses to injury and treatment specifically) is linked directly to a practitioner's ability to keep the patient safe and meet societal expectations of providing help. Achieving control is important because it allows HCPs to reduce risk through planning and execution of their actions. Although she does not

state this explicitly, the inference is that a less chaotic environment would make it easier or even possible to deliver the care that the patient requires to achieve the best health outcome.

Other participants also see ketamine as a means for achieving control. Ken describes ketamine as almost the ultimate panacea in times of chaos:

I'm making rapid decisions and judgments.... So you know, there's always variables that people don't take into account. Ketamine provides resolution...absolute resolution. (Ken, paramedic)

Of all the variables that affect the paramedical environment, patient response is perhaps the most significant and the most unpredictable. Ken's recognition of unknown variables aligns with the notion of a chasm, abyss, and clinical chaos. He infers that by gaining control of the patient's physiological response, the situation becomes more manageable and more predictable.

Being able to remove somebody's pain means that you can assess, you can plan and treat. It means that the whole scene becomes quiet, it stills. (Roger, paramedic)

Jason similarly uses ketamine to gain control:

Over the tens of ketamine sedations [I have undertaken] I'd be confident that I know what's going to happen. I can predict really what's going to happen. Gain control. (Jason, doctor)

Ketamine delivers predictability, and with that predictability comes control because outcomes can be planned and communicated to patients, family, and colleagues so that everyone knows what to expect. Control means reducing unpredictability, avoiding potential pitfalls and staying within the known, thereby maintaining credibility and trust in the eyes of patients and families. Control means that HCPs can deliver what they promise. Jason sums this up succinctly:

Knowing...means you can tell a story about what is going to happen...and it happens. (Jason, doctor)

Numerous terms are synonymous with predictability, but in particular, 'certainty' seems to capture the meaning to which Jason is referring. It is the antithesis of chaos.

The desire for ‘certainty’ within practice means being able to say what will come from the decisions and actions taken.

...ketamine is just perfect you know? It gets me exactly what I want, which is usually enough analgesia, enough lack of awareness, as far as I can tell, and good kind of behavioural and movement control etc. to allow whatever the procedure is. (Daniel, doctor)

Ketamine delivers the control that Daniel needs to undertake whatever procedure he has determined the patient needs. It generally enables this in an unvaried and predictable way.

The consistent inference within these excerpts is that ketamine enables control by ensuring compliance of the patient: control of their physical responses while simultaneously removing their awareness of the pain and their associated treatments. Inherent in the definition of compliance is the notion of submitting to another’s will. Synonyms of compliance include acquiesce, adherence, give up, give in, adhere to and obey, all of which support the overall sense of power and control at the centre of ketamine practice. HCPs have a job to do, but without an ability to manage the patient’s responses, that job becomes exceedingly difficult, even impossible, to accomplish.

The idea that ketamine is ‘perfect’ or the right thing to use in order to construct an outcome, seems to be the reason that Daniel and others describe ketamine as an “ideal tool” when working in chaos:

A [drug] is a tool. It’s there to do a job...[Ketamine is] an ideal tool. (Daniel, doctor)

Tools are implements that help to manipulate, move, or manufacture something towards a desired end. Ketamine helps HCPs implement care, regardless of the chaos they find themselves in, as Daniel explains:

I guess ketamine gets a lot of the job done that I need to do where there are few alternatives. Ketamine is better suited to a needy environment [emergency departments, ICUs, first responders etc.] because they are inherently chaotic

and it puts that on hold. In my mind, ketamine gets the job done and without adding more uncertainty, complexity, mixing medications up, or the need for more equipment, the need for more if you like. (Daniel, doctor)

Daniel's use of the adjective "needy" in relation to the clinical environment implies both a sense of lacking resources and a sense of high needs or demands. It has negative connotations, being synonymous with deprivation and disadvantage. In this context, finding that ketamine "puts this [chaos] on hold" is a relief for Daniel. He becomes capable of easing the tensions of chaos. Daniel takes the tool analogy further:

[Ketamine has] got a broad range of application. If you are going to use a tool analogy, a Swiss army knife maybe. I guess maybe it's the fact that it's a multi tool that has a number of different capabilities and could be used for a number of different end points. (Daniel, doctor)

Daniel likes the simplicity, versatility and reliability of ketamine. As a "multi tool," it helps him control a number of variables and deliver treatments that would otherwise not be possible. There is a sense of relief that he has an option to turn to when he feels things are out of control.

Jenny also describes ketamine as a means to an end, suggesting it is a tool that enables HCPs to deliver the best care possible:

Well [ketamine] is a really, really useful tool to enable treatment to occur...it works so magically really. It enables you to fix stuff.... It's a tool that enables you to ensure that the best possible treatment gets given and the least distressful treatment. (Jenny, RN)

"Magically" is a powerful word. Magic is something that has supernatural power over natural forces or that, in its attributive form, is very effective at producing desired results. The 'magic' of ketamine for HCPs, therefore, is that it effectively eliminates the challenges and distress associated with injury and treatment. However, Jenny's statement that it ensures that the "best possible treatment gets given and the least distressful treatment" raises the question: least distressful for whom? The patient or the practitioner?

4.4 For us or for them?

Nuanced with the need to gain control of the chaos is the idea that ketamine sedation is as much about protecting the practitioner as it is about treating the patient. Daniel states this succinctly:

In some ways we're a bit selfish...like we use it as much for ourselves as for the kid. (Daniel, doctor)

His acknowledgement that choosing to use ketamine may at times be self-serving raises another question: what are the factors that drive the choice to use ketamine?

As Flo points out, there are different reasons for choosing to use sedation with children versus adults:

You know, the goal of sedation is different from what it is in adults.... [In paediatrics] we're sedating so that we're less distressed by the situation. (Flo, RN)

As discussed in section 4.3, ketamine provides control to HCPs and, with control, a lessening of uncertainty. Repeating a quotation from Jason, ketamine can provide predictability in an environment that is highly unpredictable:

[With ketamine sedation] I'd be confident that I know what's going to happen. I can predict really what's going to happen. (Jason, doctor)

Jason's comments suggest that predictability helps keep him safe and in control. It alleviates some of the stress of the situation and enables him to work confidently.

While this is a benefit to Jason, as a practitioner, it may also help children and families to 'trust' that the care being provided is the best care. Confidence provides a degree of certainty.

Jason's focus is on the specific benefit of being able to "know what's going to happen". While he may perceive this benefit to be for himself, it may also result in some advantage for those he treats. The weighting of these advantages will always be difficult to establish. Arguably, the earlier references to ketamine as a tool suggests it is equally suited to benefit both the HCP and the child, and the extent of relief

depends upon the context of its administration. In other words, benefit to one is not exclusive of the other; on the contrary, they may in fact be interdependent. Jenny explains how ketamine can provide relief for the child, which then leads to relief for HCPs from the distress of having to witness a child's suffering:

I can remember one time we used ketamine for a child with burns and the reason that we did that was to give them time out...to give them time to sleep while we managed to examine the whole of the burns, because this was extensive burns. This was a child that had been screaming and screaming before we gave the ketamine.... So we used the ketamine as an opportunity to give him some relief from the pain and chaos, but also for us too, to give us some space you know, some peace...relief...and to enable us to look at the burns because we couldn't even lift up his arms because he had a big splash burn all over him from boiling water, from a kettle. [With ketamine] we protect children from the pain we inflict in order to effect the fixing. If we can control that chaos, that chaotic environment and make it a more pleasant thing for them, we win. (Jenny, RN)

As Jenny explains, the use of ketamine in this example is two-fold. First, it creates a safe place for the child, a space without pain and away from the commotion of treatment. Second, it gives the healthcare team space, both existentially, as a break from witnessing the child's distress, and practically, by facilitating decision making. HCPs can formulate care plans with a clear head, without the patient's emotional and potentially physical reaction to pain interrupting decision-making processes. Jenny's concluding statement directly ties the ability to control the chaos to benefit for HCPs: "WE win" [emphasis added]. This implies a battle or struggle that HCPs overcome. It is not at the expense of the child, but rather a triumph by making the environment more pleasant for everyone.

For Ken, controlling chaos and stopping suffering is fundamental. In the face of incurable or irreducible pain, he sees ketamine as the most appropriate drug to resolve the situation. It provides physical relief to the patient but also relief for himself from witnessing suffering:

With the intractable pain you get from multi-trauma or burns, you need a drug like ketamine and that's the only humane thing to do. You do not want the mind or the body to be touching the other.

I had a patient that lit herself on fire, 99% burns. She'd burnt inside herself. It was disgusting, never going to survive, you know. Could not. The most bizarre thing you've ever seen in your life. It's ghastly, disgusting. So what are you meant to do?

You give her a lot of drugs. Ketamine is that drug. You know straight away it's going to work.... I think there are times and a good place for it. (Ken, paramedic)

Ketamine dissociates the patient, ends the suffering, calms the situation, and thus reduces the moral tension of witnessing something ghastly and not being able to respond. In the face of such overwhelming trauma, Ken's horror at the extensive injuries this patient had sustained comes across as a feeling of helplessness. He asks aloud what HCPs are meant to do in the face of such things. His sense of dilemma is clear, and he did not wait for an answer, instead answering the question himself. 'Knowing' that the patient would not survive yet having a duty to remove or reduce her suffering means that the only humane thing to do is to sedate her with the most powerful tool available. For Ken, ketamine is the only possible solution. It solves the problem by separating the patient's mind and body.

It seems that achieving a calmer environment is often important for both HCPs and the family members present:

Families need to see that we are in control and that we are quite happy with what we are doing and that we are quite relaxed about what we are doing.... You know, everyone has got the time to think about things. Personally the [physical] procedure itself is really hurried but the rest of the time you have got time to think about stuff you know? So [ketamine sedation] is a really calming atmosphere to be in because it's not a loud atmosphere, it's not a busy atmosphere. It's not like being in the chaos of a resus room where everything is happening.

It's so far removed from that chaos, it's very calming you know, and keeping it calm for parents is really important. With ketamine you don't separate the family. We haven't separated that parent and child; they're there the whole time...from that point of view it's a really good drug. It removes chaos because it provides a way to ensure that treatment occurs really well. Once they've experienced that kind of calm approach, it means that they have confidence that things have gone right too. (Jenny, RN)

Jenny had previously described the "swirling" nature of the resus room. Now she is intimating that the "calming atmosphere" that ketamine sedation creates is the antithesis of that chaos. Specifically, it is an antidote for it. Not only does this help

her gain control but also, just as importantly, it enables her to be seen as in control. She is suggesting that trust is a fundamental aspect of the relationship between practitioner, patients, and families. HCPs need the patients' and families' trust so that they will freely give the physical access necessary for invasive procedures. Because ketamine transforms the environment in a way that allows families to remain involved, everyone benefits. The family can witness a tangible resolution of pain and discomfort, which makes it more likely that HCPs will be seen to be 'doing the right thing'.

Rebecca highlights the moral tensions associated with choosing ketamine sedation for children:

There is always a moral question with sedation. Whether we are giving sedation to make the experience better for them or us...sometimes when people have got busy I feel like the family is sort of...like have been a little bit down that path because this is what we do in this ward and this is the best outcome that we can offer your child at the moment, but not always letting them know what the other outcomes or the other things [that could be done] might be so this is the only treatment path. You know? This is the only treatment path when in actual fact, it's not. They could be going to theatre, but going to theatre costs money. You know, and it means a whole lot of people having to be involved. So personally sometimes I think it's a little bit...misleading...because you know they're only given the one option...ketamine. They are not given... 'well there is this way or there's this other way'. Most of the time it's great and that's fabulous but sometimes I just wonder is it being done because it's convenient and quick and less costly as opposed to the best care for that child. (Rebecca, play specialist)

Rebecca feels strongly about how decisions are currently made. She suggests that the decision-making processes are not always transparent and that children's needs are not always given primacy. The tension that Rebecca describes is reflective of the push/pull nature of utilitarian ethics (Beauchamp & Childress, 2009; Seedhouse, 1998; Singer, 2000). She is aware of the need to protect resources but feels that informed consent may suffer as a result. She is uncomfortable with the fact that families are not informed of treatment options and particularly with the notion that power lies squarely in the hands of HCPs, her own included.

Rebecca's analogy of families being "bulldozed" down a particular treatment path suggests coercion. Bulldozers are large and powerful. They move obstacles and rearrange landscapes. To be "bulldozed" is to be overwhelmed, driven, crushed, or forced in a particular direction. Rebecca's claim that the reason for using ketamine is sometimes kept secret from children and families suggests that there are other options that may achieve the same or better outcomes for children. The representation of this as "misleading" contradicts the importance that Jenny places on engendering trust. It is a strong indication that there are times when the health system focuses on convenience and resource protection rather than on the needs of an individual child or family. In this case, the choice to use ketamine seems to be first for HCPs, not for the patient.

That HCPs might misrepresent 'truth' in order to serve their own needs brings with it a moral tension and draws into question the obligations that HCPs have with regard to providing information and choice of treatment options. Ken addresses this obligation clearly;

What would I do if it was my child? You know, what would I want for them in this situation? ...What is best for them. Not best for me just because I want compliance, that doesn't worry me, but what's best for the child and I think that is probably where we're lost a wee bit in the medical industry. We think about us first rather than the patient. (Ken, paramedic)

In hypothetically placing his own children at the centre of his clinical decision-making, Ken asks questions about what is "best for the child." In placing children's needs before his own, he implies that gaining compliance should not solely determine the choice to use ketamine sedation. Yet he also acknowledges that this is not always the case because there are competing interests at play. Those interests can include the need to treat another child or make resources available so that more children can be treated.

Ken goes on to clarify his thoughts with reference to the reality of practice, suggesting that sometimes the rationale to use ketamine sedation may not be obvious or universally shared.

What I'm saying is...everyone has their own hidden end goal. You know, whatever they're trying to achieve. Are they doing it for the right reasons? Don't know. Are they doing it for the child or are they doing it for them? (Ken, paramedic)

According to Ken, the “right” reasons should benefit the child rather than HCPs.

There is, however, a degree of personal discomfort in his explanation. He recognises that not all HCPs share the same motivations and that this contributes to a moral tension within practice. While ketamine is used to stop children’s experience of pain and distress, its use may, in part, be driven by HCPs’ need to remove children’s outward expression of pain and suffering, in order to release themselves from the moral strain of witnessing that suffering. The “don’t know” answer to his own question suggests awareness that measuring benefit is difficult. It is also worth remembering that many actions, despite being chosen because they benefit the HCP, also bring benefits to the child and his/her family. There is consensus across the participants’ stories that HCPs are driven to achieve positive outcomes for children and protect them from harm.

4.5 Children are different

The notion of protection is synonymous with keeping safe, shielding, preserving, defending, or standing guard. One of the reasons that HCPs are driven to protect children from harm is that they perceive them as different and vulnerable.

Thing is, we don't give ketamine to adults because of the emergence phenomena. Whatever that is...and therefore we don't do it, you know? But now we're increasingly saying, 'Well for kids actually, maybe we can do this? Children are different. It's just different. (Daniel, doctor)

According to Daniel, children are treated differently because they are perceived and understood to be different. While Daniel acknowledges that using ketamine in adult

practice is fraught with risk relating to psychological experience of emergence phenomena, he does not see this as an equal risk in paediatric practice. There is no expectation that children will be capable of comprehending what has happened or will happen to them as a result of their injuries or that they will have negative experiences of emergence phenomena in the same way that adults do. In fact, emergence phenomena are simply dismissed as “whatever that is”.

...in adults there's a little bit of 'bite on a stick and suck it up, this is going to hurt a wee bit...just suck it up'. Whereas people are generally less inclined to do that with children...[laughing] ...hence the use of ketamine. (Daniel, doctor)

Daniel infers that children deserve something more than adults and that their care should be kinder and more representative of their needs and vulnerability. He laughs as he reports that people are less likely to willingly subject children to pain. There is a sense that it should be completely obvious that children must not be harmed. Perhaps equally important, Daniel contends that ketamine facilitates the protection of children by removing them from the discomfort of treatment, from the need to endure pain and fear that would willingly be placed upon an adult.

Roger highlights the notion of tension within practice when trying to work with children, claiming that HCPs cannot always gain consent from the child. Choices are therefore made on the child's behalf, with the belief that ketamine can protect them from suffering that would otherwise damage them.

[Ketamine] makes them so disconnected from what's happening around them, you know, so they don't actually feel like an in body experience. I'm assuming, children don't understand it. You know, how do you explain the [ketamine sedation] process to a child? The science, or anything else? All we say to them is we are going to take your pain away and we're going to make this better. They are bawling their eyes out normally because they are in so much pain, fear, screaming or whatever. So it's traumatic for them and then you link that in with you know, applied consent? ...The thing is, children will only react to things based on their previous experiences. The brain's not fully developed, so if they don't have a whole bunch of life to draw on, then how can they make an appropriate and rational response? Hard to blame them. Lots of adults can't do that let alone young kids. To be honest...you're assuming consent for them because they're like under the age of 15 or 16 or 12 or whatever age you want to use. You just make the decisions for them. (Roger, paramedic)

Roger suggests that children react to pain, trauma and care based on whatever viewpoint or rationalisation they can construct. He suggests that children's consciousness is incomplete because their collection of understandings is from a smaller pool of experience. In light of this, he says "you just make decisions for them," assuming consent to enable delivery of care to protect them from the pain and fear of the situation.

Children transition from childhood to adulthood in two distinct but intertwined ways: time and experience. These concepts are interdependent, and labels of 'child' and 'childhood' are merely temporal constructs within a social structure in which children are framed (Saevi & Husevaag, 2009). Roger's loose and wide-ranging reference to the age at which consent is 'assumed' on behalf of children is an important consideration because it is unclear; in effect, the qualification is unmeasurable. Perhaps Roger's inability to choose an age is also an indication that time alone is not enough to grant people understanding; rather, it is the experiences of an adult world (albeit brought about by time within it) that force children from childhood (Hatab, 2000).

In some cases, using ketamine to protect children from pain may also protect them from their actual experience of care. Children's understanding of their experience of trauma and its subsequent treatment is different from adults and is an additional source of tension, as Rebecca explains:

We had a little boy the other day who didn't want to be put to sleep because the week before they'd put the cat to sleep, you know? He thought he would die, be killed or whatever, you know? It's a double entendre that happens with the language in hospitals, because, you know that this sometimes sets kids up to be in a potentially stressful situation and their reactions are based on their previous experience, on a different understanding.... Kids all have a different perspective than us, we need to understand theirs, but can't always. Ours are formed by our own experiences, theirs by theirs. (Rebecca, play specialist)

A particular challenge within practice when trying to protect children is to understand and consider their perspectives. Rebecca presents a sense of regret that a child had a different understanding of what "going to sleep" meant and that as a result had

experienced the fear of impending death. This suggests that protection requires both a minimisation of pain and suffering and careful consideration of different perspectives of the same situation, to avoid compounding children's trauma with additional fear or confusion. At the same time, Rebecca is aware that understanding a child's perspective of events can be elusive, because all understandings are ultimately based on previous experiences. Children's experiences in the world are different from each other and from adults who have experienced more examples of cause and effect.

Like Rebecca, Flo raises the point that children's perspectives of their injury and treatment are decidedly different from adults.

You know it's in their best interest because they need to have it done from a medical perspective, but you also know from their perspective they don't get that. All they're experiencing is the noxiousness and the pain of it. So I wonder if that's why we're a little bit more inclined to give [children] a slab of something like ketamine that makes them care a bit less.... It's a tricky one because [with ketamine sedation] children have conflicting needs, physical and emotional...it's like being a parent. Sometimes what the child wants and what the child needs aren't the same thing. (Flo, RN)

Flo's reference to using "a slab of something like ketamine" so that children might "care a bit less" relates to the desire to protect. Reference to a "slab" as a metaphor for ketamine, however, also carries with it a sense of weight and immovability, of being unforgiving: a slab of concrete, or something that is immovable, overpowering. It seems to reflect the weight of responsibility that HCPs feel when administering drugs to the young.

Flo locates her own sense of compassion and empathy for children, identifying with their fear and pain and wanting to remove it. She is suggesting that ketamine is used primarily as a means to protect them from both fear and suffering and their own limited understandings of their circumstances. She likens the experience to that of being a parent and the tension of being 'between a rock and a hard place,' of having to make decisions in the best interests of the child while balancing physical and emotional needs.

Flo's direct acknowledgement of children's 'defenceless' nature makes visible that, in the eyes of HCPs, children are vulnerable and that HCPs have a duty to protect them, one that is even greater than with adults. She believes that children are defenceless because they are in essence powerless. Children do not always have the means to wilfully effect change and are thus perceived as powerless for a number of reasons, not the least of which is their diminutive physical size, but also because they are often unable to rationalise treatment options or to make decisions around the implementation or withholding of care.

Young children aren't able to rationalise that kind of process [medical treatment]. They've got no concept of things they haven't experienced before. So yeah you can say to them, 'You'll feel better once this is out.' But they don't really understand it in the same way that an adult understands it. So you just get on with it. (Flo, RN)

Flo indicates that when children fail to cooperate or are less likely to be able to understand and willingly accept the discomfort of treatment, HCPs "just get on with it". This can seem paternalistic but is consistent with her earlier comparison between choosing to use ketamine sedation and the challenging decisions that parents must make on behalf of their children. Most parents have unconditional love for their children as well as an inherent duty to keep them safe. Flo implies that HCPs take action and choose ketamine sedation for compassionate reasons, placing children's needs alongside or above their own in much the same way as parents. This makes visible the dilemma that HCPs face when determining what treatment to provide. It suggests that uppermost is that any decisions should be in the child's best interest, even when they may involve short-term discomfort.

Flo tries to balance benefit and harm by claiming that causing distress is an inevitable aspect of an unenviable role, that HCPs frequently cause pain, fear, and distress in order to repair children's physical selves despite very much wanting to protect them from any and all suffering. She refers to this dilemma as a "tricky" situation. Inherent in these

situations is the fact that HCPs do not always know the best thing to do because context is dynamic and balancing risk and benefit is constant and changeable.

[Because of the risks of emergence phenomena] I was very very anti-ketamine up until about...well, until I was really relieved that they had managed to come up with something to manage a baby's pain. The baby had been suffering on and on for days, and no one could get on top of it. This could be bad...but ketamine worked really well and having seen that child suffer for two whole days! You know? It is part of our role to stop suffering. So it was good that it stopped...whether there were other potentially negative issues or not. Thing is, I just don't know whether it's just that we sedated and removed the ability for [the baby] to express fear and pain behaviour.... If we separate the mind and body, how would we ever know? I want to know, but how could we know? (Flo, RN)

Flo articulates a newfound respect for ketamine's ability to protect an infant from suffering, although it is impossible to ignore her initial anti-ketamine stance and her uncertainty as to what ketamine actually achieves. She seems torn between the benefits and risks of ketamine, yet she now sees it as having such potential for positive outcomes.

While Flo is relieved that ketamine seemed to end the baby's suffering, she tries to balance concepts of benefit and harm. Despite her experience with ketamine sedation, uncertainty remains, and she openly expresses her own sense of not knowing and the notion that it is impossible to know with certainty what is occurring within the baby's mind. Babies use crying to communicate what they are experiencing. This leaves a sense of dissonance and tension. Was ketamine the best possible treatment to reduce this baby's suffering? What does she mean by "other potentially negative issues"? Flo's implication that ketamine may not actually stop a child's suffering but only hide it by removing the ability to outwardly express suffering raises a significant question. How, in the face of this uncertainty, can HCPs ever be certain or 'know' they have met or can meet their duty to protect children?

4.6 Conclusion

HCPs practice in an ever-changing and often chaotic context. The chaos is multifactorial, encompassing human physiological and psychological reactions to trauma and treatment as well as broader environmental pressures. Within this context, HCPs are continually seeking to control the chaos in order to protect children from any avoidable suffering, and ketamine is a tool that they use to achieve this. It provides children with relief from pain, fear, and suffering by removing their awareness or consciousness of the situation. It reduces the chaos, giving children, their families, and HCPs respite. It provides children with relief from pain and suffering, and equally it provides HCPs relief from having to witness that suffering while giving them the space to make treatment decisions. This raises the question: whose benefit is the driving force behind the decision to use ketamine sedation? The answer seems to be both. Regardless of the motivation, the participants all demonstrate a desire to protect children. They see children as vulnerable and different from adults. This warrants them extra consideration and yet also confounds efforts to truly understand them. There is a strong sense of questioning and uncertainty relating to ketamine use in children.

CHAPTER FIVE: WORKING IN THE DARK

5.1 Introduction

The dominant discourse of healthcare practice is one of ‘knowing’ and is usually informed by quantitative, scientific assurances of cause and effect. HCPs are expected to have answers for ill health, pain, and the promotion of longevity. Society expects that HCPs know.

However, doubt relating to the risks and benefits of ketamine use in children creates uncertainty, bringing tension and a sense of unease into HCPs’ practice and decision making. They are uncertain as to the extent of benefit or harm they may be achieving and often work without fully knowing the impending outcomes. This section explores the theme of working in the dark through four subthemes: (1) uncertainty and partial knowing, (2) worrying about emergence phenomena, (3) being brought into the fold, and (4) dream-seeding.

5.2 Uncertainty and partial knowing

Society expects that HCPs will both know what to do and take action to achieve it. However, what does it mean to know? The process of coming to know is complex, multifaceted, and without end. This fits the hermeneutic notion that understanding is an ever-changing contextual horizon. As they shared views on the potential benefit, risk, and harm of ketamine sedation, the participants frequently expressed uncertainty, that they “don’t know” whether their own practice is adequate or right. The ‘I don’t know’ statement often came as they reflected on what they perceived as the ideal approach or outcome. This uncertainty reveals the moral tensions that HCPs experience as they try to meet societal expectations of knowing alongside their own sense of the impossibility to fully know.

Roger talks about doubt and uncertainty relating to the non-physiological risks of paediatric ketamine sedation:

If the thing that you want to measure is pain, ketamine seems to do a good job at managing pain, preserving respiratory function and blood pressure.... When it comes to measuring long term effects, or comes to measuring other things like what it does to the experience of that child from that period? You know, like what is their experience of emergence or experience psychologically? They're things that aren't measured well. We don't know these things. (Roger, paramedic)

Roger suggests that ketamine serves the physical nature of treatment well. It is predictable, and the tools that HCPs have to measure physiological responses are readily available. Respiratory rates, blood pressures, and so on are all measured in numbers that can be counted, tallied and checked. Physiological responses can be measured and thus confirmed as 'known'. However, Roger cannot easily explain children's psychological experience during the sedation itself or into the future. He accepts that it is not easy to measure a child's experience outside of observing their physical responses, and to some degree HCPs are resigned to working in this ambiguity.

Daniel likewise describes HCPs' limitations when it comes to 'knowing' about non-physiological effects of ketamine sedation:

In regards to longitudinal risk, benefit or harm, I am obviously a pretty blunt sort of instrument when it comes to assessing those sort of things. It's not easy to assess the psychological impact and long term effects of ketamine...I've got such a short snapshot in time that I'm very reliant on finding that sort of information from others.... I only feel happy procedurally sedating children when I know...or I have pretty good reasonable belief, that I'm doing a reduction in harm overall and that reduction could be pain, physical, psychological or other.... If I don't know, I won't go, right? (Daniel, doctor)

Daniel cannot account for all of the potential outcomes of ketamine sedation. Listening to him refer to himself as a "pretty blunt sort of instrument" was initially unsettling.

How could a physician responsible for the choice to use ketamine sedation acknowledge such uncertainty? Daniel infers a need to balance benefit versus potential harm, both now and into the future. His approach of "if I don't know, I won't go" accepts uncertainty while trying to limit the creation of greater uncertainty. He appears focused

on removing doubt wherever possible and increasing his knowledge through others' experiences in the hopes of achieving the best possible outcome.

Jenny also points out the impossibility of fully knowing the best approach to paediatric ketamine sedation and the impact of emergence phenomena:

We are supposed to know – But of course we don't know. How can we? How do you measure any of it? You can't know every possible outcome [of your actions]....I suppose it's the experiential knowledge that you've built up as you look after children having ketamine....The trouble is, drugs aren't tested in children, you know? (Jenny, RN)

Jenny's supposition that knowing is related to experiential knowledge is vital to understand how HCPs build their knowledge. To have knowledge is to have facts, information, and skills acquired through experience or education. Despite Jenny's substantial clinical experience, she recognises that knowing with absolute certainty is an impossibility. In particular, when referring to how the drugs used on children are not always tested on them, Jenny is making reference to the practice reality that drugs are often used 'off label' in paediatric practice. In other words, children's experiences of sedation have not been researched but only extrapolated from research undertaken in adults.

Ken raises concerns about not knowing the implications of emergence phenomena in children:

They used it [on soldiers] during the Vietnam war and things like that. We know the problems they had with it, you know, the psychotic events and psychosis post anaesthesiology? In adults we know this, so are we doing the same [with children]? Are we going to have the same problems or aren't we? Right? I mean aren't we? Why not? Has it been studied? How well has it been looked at? A lot of paramedics don't know anything about that stuff. So they're quite oblivious to it and then won't take it into account, they'll just use it....

But if you have been involved in some serious trauma then "you know" because you will have seen the effects of emergence. As a result, I think ketamine should be given with caution in some instances. As for children...well, I don't know. I don't know the effects. I don't know enough about it. Basically it's hard to know what is happening for them.... Children cry. So I think we often accept those tears as oh they're frightened or they're in pain, but what we don't know is what are they frightened of, what's happening,

*what is their world experience or what is their lived experience or whatever?
But do we actually want to know? Depends...not if it takes it away. (Ken,
paramedic)*

There is a tension in Ken's rhetorical questioning. He knows that some adults have negative psychological experiences when emerging from ketamine sedation yet cannot confirm or deny that children also experience such events. He questions whether knowledge of children's experiences of emergence phenomena is in fact possible yet at the same time 'knows' that some potential risk exists. He seems uncomfortable with not knowing and in particular that the potential for such events is not even considered by some practitioners.

Ken also raises an interesting point regarding HCPs' perceptions of children. Crying is a normal part of childhood, but the perception that it is normal for children to cry may result in a dismissal of children's fear or pain. In essence, it becomes a normalisation of the abnormal. This assumption and the unquestioning acceptance of children's tears has Ken wondering whether more needs to be known about their experience.

While Ken seems to be suggesting that HCPs need to know, at the same time he is not sure that he wants to know because such knowing could impact on the way he and others currently deliver care. During the telling of this story, he was animated and strongly defended the use of ketamine. A sense of moral tension was clear as he is torn between having a responsibility to know the impacts of ketamine treatment but only wanting to know if that does not remove the option to use ketamine.

Rebecca similarly is unsure that she really wants to know:

*Do I want to know more about emergence phenomena? ...I don't know. I don't know if I can take it...I think that knowing might be scarier than not knowing.
(Rebecca, play specialist)*

Rebecca is uncertain whether she wants to know more about the impact of emergence phenomena or not. She is fearful of what that 'knowing' could bring. There is the sense that she is worried that ketamine may sometimes cause more harm than good. Her

hesitancy, like Ken's, reflects the moral tensions associated with a practice that can never have absolute certainty about outcomes or experience.

5.3 Worrying about emergence phenomena

Despite the sense of not knowing and thus having to work in the dark, all of the participants recognised children's vulnerability to emergence phenomena and worried about the consequences. Jason explains:

I've had some kids who've been obviously distressed for usually quite a relatively brief period of time, during the wakeup period, where things were clearly uncomfortable for them. ... Yeah, and interestingly one child who showed no signs of distress at all but afterwards when it wore off said, 'Hey, by the way, I'd rather not ever have that again. It was pretty weird and freaky.'
(Jason, doctor)

Jason provides some insight into children's experiences as he reflects on the distress he has observed in some children as they emerge from sedation. Furthermore, he realises that the ketamine sedation experience is not necessarily positive even when there are no outward signs of distress, describing a boy who, seemingly fine following the sedation, went on to say "*I'd rather not ever have that again. It was pretty weird and freaky.*"

Roger regards any report that says that children do not experience negative emergence events with scepticism, because he has witnessed it in his practice:

I know they say kiddies don't have emergence phenomena, but that's not my experience. I don't know how robust it [reporting of adverse events] is because when you consider a new toy that's in your toolbox you may have a vested interest in keeping that toy, so I'm not saying that's the case but I'm taking everything with a grain of salt. (Roger, paramedic)

Based on experience, Roger worries that emergence phenomena in children may be under-reported and therefore the impact underestimated. Daniel, is also clear in his scepticism regarding reports that emergence phenomena in children is non-existent, rare or insignificant.

What changes in kids to adults? We've both still got a brain that sees and works and things, so why wouldn't they experience it [emergence]? It may be different, and children, well you know, young ones, probably can't make sense of it, but a mind is a mind, it will be doing something. (Daniel, doctor)

To some extent, Daniel is re-affirming the uniqueness of a child's perspective and acknowledging their difference, but he does this without dismissing them as wholly different. He believes it is obvious that children will at times be experiencing emergence phenomena but stops short of describing these as either positive or negative.

Flo's hesitancy to celebrate the successes of ketamine (discussed in section 4.5) stems from her knowledge that some children do not experience the intended relief from suffering that ketamine is meant to deliver. She remembers watching children experience what she calls "terror."

Sometimes you get these swings—and it's terror. It's real terror. I've seen kids and they're lying in their bed and they're talking about spiders or whatever and they're looking around wildly. They have extremes of emotion. When they have a bad reaction to ketamine, you can see that they are just full of terror. Like really, really crying and distressed and sobbing but not really there. I've seen a number of older kids like this, and in my experience it tends to be more girls that seem to have these bad experiences or they describe...well, they just have these very, very frightening dreams.

You can see that they are hallucinating and they're seeing things and they look terrified. I've had one child just screaming "spiders! spiders! spiders!", but it's really interesting, because quite a lot of them do it where they're grabbing things that aren't there and it's something like an arm's length in front of their face and they're kind of [Swiping gesture made with both arms]...and you can see from their eyes that they can actually see things but clearly they're not there. You can see that they're not there at all but there is no convincing them, there's nothing you can do. The thing with it is, [the children are] gone, and we sent them off. You don't know that it's gonna happen like this, it just does. You can see that they're not there and all. [The children] are just off their face and psycho. (Flo, RN)

There is a distinct feeling of discomfort in Flo's description of children's experiences of emergence phenomena. She describes a loss of control that is at odds with the expectation that ketamine will deliver control. Instead of an expected benefit, it leads to a feeling of helplessness. As Flo explains, "there is nothing you can do...they're gone." Flo suggests that not only has she failed her responsibility to protect but she has directly contributed to their terror. She feels responsible ("we sent them off"). Having to witness children "off their face and psycho" weighs heavily. The moral tension in inadvertently causing terror while trying to protect children from pain and fear is tangible. Flo worries

about the extremes of emotion, the unpredictability of the response, and the fact that she can “see they’re not there at all.”

The capacity for ketamine to provide a physical separation of mind and body is an aspect of ketamine sedation that was previously described as desirable. However, Flo’s insight into emergence phenomena brings a realisation that the very thing being done to protect children may at times do the opposite. Paediatric emergence phenomena can induce negative experiences. These concerns are also expressed in Roger’s account of witnessing emergence reactions:

Ketamine will never be my go to drug for children. It’s got its place, but during emergence from ketamine sedation, I’ve seen that anxiety look, almost that frightful look. You just look at the child and you see that they appear to be terrified. There seems to be something wrong, you know? Ketamine is very potent and that potency removes the pain, but then seems to have the potential to do that, sucking of the life juice out of that child. For the period that you’ve got them it removes the person. Eyes open, not talking, not crying not interacting with the environment...a complete transformation of that child. I’m not saying zombie like in nature, but it’s almost as if you’ve sucked the life-juice out of them...like somebody had just suddenly sucked all the life-juice out of this little kiddy...almost as if they are in la la land, in a different space, you know? In a different place. (Roger, paramedic)

The power that ketamine has to remove pain meets with Roger’s general approval, but he is wary that it is also capable of causing suffering. He worries about the use of ketamine, describing its potential to “suck the life juice out of that child” or to send them to “la la land.” Both of these statements conjure up images of supernatural events, with “la la land” used as a colloquial reference to a place where things believed to be impossible can actually happen. Jenny had previously referred to the magical nature of ketamine (section 4.3), and Roger is likewise describing children’s experience of ketamine sedation and, more specifically, emergence phenomena as otherworldly. This concerns him. He does not understand what they are experiencing but senses it to be “something wrong.”

The decision of when and when not to use ketamine is the crux of Roger's moral dilemma. He explains that ketamine is not his 'go to' drug for children because he has witnessed those who have been terrified during the emergence phase. He does not explain the specific manifestation of this emergence phenomena, but he leaves no doubt that there "seems to be something wrong." He concedes that it is a powerful and useful drug that does exactly what he needs: it "removes the person" from a horrible and painful situation. However, it does so with such an intense force that it is capable of taking the essence or life juice out of children; the very thing that HCPs set out to protect.

Rebecca also raises this concern:

Children have a life-force...and we can violate that. Everybody has this force...and if [during emergence from ketamine sedation] there is anything like a near death experience, it would impact this. I've said it before, but kids all have a different perspective than us, we need to understand theirs, but often can't. Children can't describe or explain this.

Sometimes children are too young to have the words.... What is a 6-year-old boy who doesn't know what he has just experienced, going to say in a world where he has to be tough...and he has to be brave?

*People are saying that kids don't remember but I have seen kids come out of ketamine looking very sick, very pained, like that sort of...sort of spent...and I'm not a nurse, but as though they've suffered more than they could actually handle under [ketamine]...that going to theatre would have been a kinder option.
(Rebecca, play specialist)*

Rebecca emphasises children's vulnerability. HCPs cannot know how ketamine affects children because many children lack the words to explain or even comprehend the experience. Rebecca is worried about the true impact on these children, who look "very sick, very pained...sort of spent." She is concerned about the effect that ketamine sedation has on some children who seem to have endured "too much." In her view, having a general anaesthetic and going to theatre would be preferable.

Rebecca's use of the term 'violate' is significant because it represents the breaking of rules or a failure to respect an individual's rights. It is in essence associated with

treating children with irreverence or disrespect, which is at odds with the overarching duty that HCPs have to protect children. By using this term to describe what is being done to a child's "life-force", a powerful, nearly spiritual term similar to Roger's "life juice", Rebecca reveals the depth of her concern over the potential impact of ketamine on children.

5.4 Being brought into the fold

The participants' stories describe how they rely on experiential learning to guide their practice and minimise the risk of negative outcomes. Although theory and research inform clinical practice, HCPs also use guidelines, protocols, and colleagues to test out the subtleties of practice. There is a sense that guidelines only form part of the collective knowledge and are not rigid but rather starting points that serve to steer or influence HCPs in terms of how to undertake sedation and what to expect.

Jason appears to have been indoctrinated into a particular approach to paediatric ketamine sedation:

I was brought into the fold...observing ketamine for procedural sedation in children. I came to New Zealand and it seemed to be pretty mainstream using ketamine here, and so I watched. [They] talked me through the pros and cons and obviously I'd read a lot about ketamine. I knew a lot about ketamine use, but had never seen it used and I was really impressed with the quality of sedation and anaesthesia you get with it. Then I did one under supervision, then ended up practising myself. (Jason, doctor)

Jason's reference to being "brought into the fold" is an interesting way to describe the acquisition of clinical knowledge. There is a sense of mystery or of a secret. It also implies induction, as though he was speaking of initiation to a club or fraternity. Being brought into the fold seems like something that he was cajoled into that ensures the continuation of a particular way of practising.

An important distinction is being drawn between the cognitive knowledge that Jason has acquired through concrete experiences and the reflective observations of his own

practice. Being “brought into the fold” highlights the relational nature of practice and learning, making visible the context within which he develops skill and understandings of ketamine sedation. In socially constructed learning such as medical practice, individuals combine and modify knowledge through everyday operations and interactions. They are brought into the fold by adopting and adapting knowledge. Jason is revealing that ‘practice’ is a collective way of knowing and doing (Tagliaventi & Mattarelli, 2006).

Jenny contributes further to the sense that practice experience is vital in order to ‘know’ when treatment is appropriate. She suggests that HCPs come to know from taking scientific understandings and seeing what works in front of their own eyes.

I think with something like ketamine sedation you need experience with what you are looking at. How you expect a child to behave.... How you expect the whole procedure if you like to go? So as you look after that child you are watching for all those things that suggest to you this isn't quite right. 'I need to intervene here'.... 'This is the point where I think this child is going to wake up and to do that.' I think that's an experiential thing learned through trial and error. We talk about how many milligrams per kilograms for x number of minutes or whatever and yes that's important, but you still need to know what you are looking at as those children go to sleep, as they come out of sleep and what happens during the whole process. Because the number of kids that you would have seen gives you a reference.... You also need to know how it works in terms of how it works with children too, because we never do any trials on children really do we? We just take our understanding of adults and work backwards. (Jenny, RN)

Jenny argues that knowledge is nothing without application, while at the same time making clear that for HCPs, the acquisition of their most important knowledge actually comes from learning experienced during the application of other knowledge. It would seem that HCPs learn the intricacies of paediatric ketamine sedation through being brought into the fold or ‘giving it a go.’ They are working in a system that, as Jenny points out, does not always allow for systematic testing of drugs for use on children. The system allows for a trial and error form of practice and trusts that a collective practice will evolve and develop. During the evolution of this collective practice, there is a tension between needing to know and never quite knowing.

Using ketamine despite uncertainty about its non-physiological effects requires the participants to trust in this collective knowledge. As Roger's comments show, it may be a way of distancing themselves to some extent from the responsibility of actually determining the nature of the risk:

I have to trust that what we do is right, I don't know 100%, but I need to believe that we are doing the right thing. I need to believe that we act in best interest, and continue to improve on what we know works. (Roger, paramedic)

Roger is acknowledging that he is not alone. He makes decisions and frames the care he delivers based on a collective professional understanding. This could be seen as shunting responsibility to an incontestable source; however, it could also be seen as a powerful method to balance multiple perspectives.

Ken similarly depends on the knowledge of others:

You know, I'm just a med pleb. I don't have a PhD in anything. I haven't done the research on it so I'm purely guided by their advice. (Ken, paramedic)

He uses a self-deprecating comment to relieve himself of the sole responsibility of knowing: "I'm just a med pleb" seems to unburden him from the responsibility of causing no harm. It implies that he does not have the power to determine risk, instead identifying himself as only a small part of a collective knowledge. He sees himself as delivering care that others more capable than him have determined to be safe.

Flo also situates herself within the context of her professional responsibilities, implying that she lacks the knowledge, time, and even intellect to determine risk or safety with regards to emergence phenomena:

I guess cleverer people than me would need to work out, if you have no conscious recall of something, whether you are still distressed by it? What the physiological effects of what was going on in the moment are, and in the long term if a [child's] consciousness doesn't actually have any recall of it? (Flo, RN)

Flo's comments highlight the doubt that she has about current understanding of emergence phenomena, hinting at the invisible experiences of emergence phenomena in young children. Her suggestion that "cleverer people than me will need to work it out"

seems to be an attempt, like Ken's, to unburden herself from having to know, instead placing responsibility for determining risk and benefit with others (the broader collective).

The participants' stories reflect contradictions of perspective, on the one hand acknowledging doubts about the impact of paediatric emergence phenomena based on their own observations and on the other hand trusting in a collective knowledge to guide their practice. They seem to rely on this collective knowledge to temper the doubt, continually balancing what they believe they know to be true with what they know they do not know. This collective knowledge provides a frame of reference to guide their practice, but it does not preclude them from continually searching for answers, wanting to expand their horizons and finding ways to mitigate the negative effects of emergence phenomena.

5.5 Dream-seeding

Despite the sense that HCPs often work in the dark when it comes to paediatric emergence phenomena, their stories also reveal a partial 'knowing' of these phenomena based on their experiences of trying to avoid them.⁴ HCPs use dream-seeding to mitigate fear and terror associated with negative psychotropic emergence events. All of the participants described using some form of dream-seeding in conjunction with ketamine sedation. They spoke not of eliminating the psychotropic events but rather of trying to control the nature of them. More specifically, each participant used child-centric anxiolytic techniques to mitigate the adverse psychological outcomes that are prevalent in reports of adult practice (Blagrove et al., 2009; Green & Krauss, 2011; Green & Sherwin, 2005; Hudek, 2009; Strayer & Nelson, 2008). Most of the

⁴ The participants all met the inclusion criteria of having witnessed emergence phenomena, so there is consensus of the existence of the phenomena.

participants label the technique ‘dream-seeding’, although the terms ‘guided imagery’ and ‘dream preparation’ were also used to represent the same notion: that of creating a positive dream that preoccupies children’s minds in order to stave off negative and fearful hallucinations.

Hoping to control non-physiological reactions to ketamine, Daniel highlights the importance of planting positive images into children’s minds before administering the drug itself:

The biggest thing I’ve learned to date is that a very scared upset person going to sleep, seemed to be a very very scared, upset person waking up. It’s my general kind of observation. So I personally try to go to efforts to have a very happy, comfortable person going to sleep and if they’re old enough to kind of chat and communicate in a very clear way I’ll often explain that they are likely to have some amazing dreams etc. like that. I usually put a positive light on it, I usually talk about things they love to do. Those sorts of things. It’s sort of like not only trying to make them happy and settled and comfortable, but having them expect to be dreaming. Dream-seeding is having them preloaded or seeded with the idea that it will probably be wonderful, away from the pain and be like going back to their perfect childhood thing, or day. (Daniel, doctor)

Drawing on his own experience, children’s distress prior to sedation can foreshadow even more distress during emergence from it. Daniel therefore attempts to proactively instil children with a sense of positive amazement prior to sedation. By finding ways for children to envision what they love, he believes he can help reduce their immediate fear and any subsequent fear when awaking. Putting a “positive light” on a perceived negative situation, he guides children towards an imaginary but “perfect childhood thing or day”. For Daniel, seeding a dream is a compassionate and pre-emptive attempt to protect the child. It seeks to divert their thoughts away from the moment of pain and suffering and subsequently from the potentially negative hallucinations associated with emergence phenomena. Daniel continues:

I think [dream-seeding] came from the idea that ketamine must be like a dream state. It must be. I’ve heard of people using it to create out of body experiences, so it must be a bright state of being alert but disassociated. Right? It’s a dissociative analgesia, so there must be some consciousness there to understand what’s going on, so maybe the mind is wandering.

Having experienced quite vivid dreams, I can imagine what it feels like to be given a substance that turns you into a dream. So I suppose it's only natural that I try and make any wandering thoughts as pleasant as possible. So we give them a starting point to dream. (Daniel, doctor)

Daniel seems certain that planting a positive idea in a child's mind becomes the starting point that allows for the dissociated mind to continue 'wandering' towards vivid but positive dreams. If the mind is not 'seeded', there is potential for a child's consciousness to wander towards the dark and fearful hallucinations so frequently reported in adult ketamine sedation practice. Daniel's attempts to influence this intangible space by using positive and "amazing" thoughts supports the notion that dream-seeding can move children away from the chaos of their situation by returning them to the memory of a time that was free of pain and fear. This emotional protection and restoration occurs alongside the primary goal of treatment: physical restoration.

Rebecca highlights the need to manage the physical experience alongside the emotional through dream-seeding:

...to control emergence phenomena, firstly I make sure that they are as comfortable as possible physically. You know, so that they are able to absorb information, because if their body is stuck on pain or fear, there is no way they are going to be able to move into receiving information about what's going to be happening. I try and use like guided imagery in the room, talking about what they love, their favourite things or you know suggesting...you know back to 'happy days'. (Rebecca, play specialist)

For Rebecca, shifting the child's mindset back to 'happy days' and his or her own positive memories can restore a previous sense of security and childhood.

Jenny also recognises the importance of calming distress prior to sedation:

And I can think straight away of what happens when you get anything to do with emergence phenomena. It's usually because the child has been distressed before we've started, they haven't had good pre-procedural play, they've had a traumatic experience with the IV going in and then they're still traumatized and people want to get on with the procedure, so they don't give children time to relax or to process what's just happened to them, they just give the ketamine.

...it's those children who end up with emergence phenomena and it's those poor souls who go to sleep screaming and then wake up screaming. They become a little possessed, they'll go to sleep distressed and crying...or whatever, and wake up screaming and crying and calling for their parents.

But for those children where ketamine has been a really pleasant experience...you find that they've had all those good things, [they've had] the play specialist in there working with them and they're off to sleep as they dream about I don't know, the spaceman or monkeys going along the walls [reference to cartoon characters painted on the hospital walls]. They've had good dream preparation. (Jenny, RN)

In Jenny's experience, children who are distressed prior to ketamine administration can emerge from sedation equally or more distressed. Her reference to behaviour akin to possession suggests that the nature of the distress is beyond normal expectations. The report of children becoming "a little possessed" when they experience negative emergence phenomena gives a sense of what is at risk. There is a feeling of frustration in Jenny's description of treatment that is driven by HCPs' needs rather than the child's immediate needs, insinuating that when children's needs are not considered prior to the administration of ketamine, there are potential risks to their psychological well-being. Jenny explains how she employs dream-seeding to remove the possibility of terrifying hallucinations linked to emergence phenomena:

The thing to do to stop the terrifying hallucinations is you talk to children about their favourite place or their favourite thing to do. So I will say, "I really like playing soccer. Do you?" So you get them out there on the soccer field in their heads. I'll say "So when you're playing attack, can you remember the last goal that you did?" Then you take them into that last goal, they get given the ketamine and they're there for the duration of the ketamine if you like and they come out and they'll talk to you again about the goal that they made.

It enables them to be in a space that has got nothing to do with what is actually going on in terms of the treatment or procedure, or whatever and it's a place that they're completely comfortable with. So not only have you perhaps dreamseeded, but you've also taken them to a space that they know and that's the place they like to be. It's like parking their mind until they wake up. (Jenny, RN)

Consistent with the other participants, Jenny uses dream-seeding to shape children's thoughts, restoring their emotional landscape to a previous time and place wholly disconnected with the tensions of the moment. She alludes to a distinct separation of the child from his or her physical state, describing it as a 'parking' of children's consciousness in a space where pain and fear are absent. By planting positive seeds of

thought prior to administering ketamine, Jenny gains confidence in her ability to keep children safe.

However, despite the assurance that dream-seeding can protect children, there are tensions associated with choosing the appropriate dream to seed because of the vivid and variable nature of dreams. What might be one child's favourite thing could be another's nightmare, and trying to find images to seed without a child's input brings its own risks, as Jason explains:

There was a kiddie that had quite a big dog bite to his head, on his scalp, which needed irrigation and then closing. Obviously quite traumatized with the fact he'd had quite a significant dog bite. I was a little bit worried that he might react a little bit to the ketamine when he came around. I thought maybe he might be haunted by the dog attacking him, you know, go back to the trauma of the dog attacking him.

I'd come across the term 'dream-seeding', and I never really thought of what I did as dream-seeding; however, reflecting back, I have done it in practice. I said to the child, "What's your favourite thing? Do you have any favourite TV programmes? Your favourite things to do? I tried to identify something he could concentrate on.

I couldn't really get him to latch onto anything, so I thought maybe he might like cartoons. We were trying to talk about what he might like to watch on television. He didn't say an awful lot. He was very quiet. Anyway, he had the procedure, which was uneventful.

When he emerged from sedation, I asked him 'What did you dream of?' He said, 'Toy Story'. I thought, hmm...that's probably appropriate, but then on second thought, shit that's a bit frightening at times. It's a bit of a dark cartoon. A bit of a dark story, you know...there's a dog in it that's tethered with a collar and if he sees this dog in it, then that's not going to be good is it? ...How do you account for the infinite variables? I mean how can you know which images will stick? Which ones will be positive? Some might be fun but get it wrong and others could make their skin crawl. (Jason, doctor)

Jason's uncertainty regarding the value of seeding positive thoughts relates to how best to control the content of dreams. Dreams are unpredictable and free from the constraints of reality. There is a sense of urgency for Jason as he seeks to find an image or concept powerful enough to hold the boy's thoughts in a positive frame. When Jason ultimately resorts to cartoons, there is a feeling that despite his best efforts, control was lost the moment ketamine was given. He is unable to assess the boy's thoughts during the

procedure or while awaking from it and it was not until later that Jason found out what had been dreamed.

The infinite possibilities for how a child's thoughts may wander from an initial idea creates tension because, despite Jason's efforts to the contrary, he realises that at times he may inadvertently cause fear rather than abate it. The cartoon he chose in an attempt to get the boy to "latch onto" an image had the potential to cause the boy to revisit the trauma of the initial attack. While Jason believes that it did not impact the boy negatively, he is left questioning whether it is ever possible to mitigate all potentially negative outcomes.

While all participants report using dream-seeding, Roger provides some insight into the variable and sometimes absent application of it:

The skill is not in giving the drug, it's in how you give the drug. Any monkey can squirt juice, any idiot can draw up a drug and give it. Some of my colleagues do report that they've had children that they say 'went off' with ketamine, you know suggesting emergence phenomena. Particularly that they've started thrashing about and are frightened as they emerge. I'm not sure if that's not because they haven't seeded that dream like state well. That they haven't considered the child's thoughts going under. I mean I spend a lot of time doing that, using guided imagery and carefully guiding them to good outcomes. (Roger, paramedic)

Balancing the scientific action of a drug with the somewhat immeasurable aspects of dream-seeding is not easily done. Roger asserts that the 'how' of delivering ketamine sedation to children is as important as the drug's action itself. The two are interdependent, and any failure to address the child's experience effectively highlights the partial knowledge HCPs have regarding emergence phenomena. When HCPs do not include the child in the pre-sedation processes or consider the child's thoughts, they risk contributing to, rather than mitigating, negative psychotropic emergence events; in essence, they never quite know whether they may be causing harm and thus working in the dark.

Daniel provides the other perspective, wherein dream-seeding has become standard practice:

So, yeah and has [dream-seeding] made any big differences? Dunno, we try and do that every time. Does it make a big difference? It's hard to know because we try and do it every time. We hope it does. We put them back into their perfect childhood world. You know, what they love, that their mum is here, get mum to talk to them and talk them through it. To be honest it seems to work. We wouldn't not do it without some pretty good rationale. (Daniel, doctor)

Daniel's comments allude to the fact that the use of dream-seeding in paediatric ketamine sedation is not entirely understood. However, he tries to use it within his practice "every time". Similarly, the other participants have adopted it into their practice almost without fail despite only partial and anecdotal evidence of its effectiveness. Why do they knowingly use a technique that is not promoted by their own clinical guidelines and of which there is only partial understanding? In Daniel's case, it "just seems to work." Arguably, the answer may again be because HCPs draw on a collective knowledge that is informed by, but not limited to, research and guidelines. As discussed in the previous section, they come to know through seeing and doing, hands-on training and personal trial and error. Using ketamine sedation and dream-seeding in paediatrics is not an exact science. It is a matter of balancing risk and benefit.

5.6 Conclusion

Ketamine sedation has significant psychological risks for adult patients, and HCPs are uncertain whether the same risks exist for children. This engenders tension and moral conflict. Are HCPs at risk of putting children in harm's way by using ketamine sedation, an act undertaken to protect them? The fact that some children experience emergence phenomena is not in question, but the implications, both in terms of the acute experience and long-term effects, are unknown. It is impossible for HCPs to fully know (much less measure) what children experience during and following ketamine sedation. However, given the well-documented implications in adults, HCPs worry

about its impact on children. They describe witnessing terror, a sense of a violated “life force” and children appearing “pained” and “spent” following ketamine sedation. In the absence of certainty about what children are experiencing, HCPs draw on their own experiences and shared insights from their colleagues. This ‘collective knowledge’ represents their best chance to minimise harm. Dream-seeding is an example of how HCPs use experiential and collectively acquired knowledge to help address their uncertainty. They use dream-seeding to instil happy memories into children’s minds before sedation in the hopes of mitigating negative non-physiological outcomes of ketamine.

CHAPTER SIX: DISCUSSION AND RECOMMENDATIONS

6.1 Introduction

The purpose of this thesis has been to explore the stories that HCPs tell of paediatric ketamine sedation. The narrative hermeneutic approach has facilitated revelation of the tensions that exist within paediatric ketamine sedation practice. This chapter will examine the key findings and consider their fittingness in relation to literature. It will also acknowledge the limitations of the study and, lastly, provide recommendations for further research and practice.

6.2 Discussion

Summary of findings

This thesis has revealed that chaos and uncertainty are endemic aspects of paediatric emergency care provision, particularly in relation to the uncertainty of non-physiological risk and harm associated with emergence phenomena. HCPs view ketamine as a tool capable of calming some aspects of this clinical chaos.

Ketamine's efficacy is measured in relation to physiological outcomes, and the current understanding of risks in paediatric ketamine sedation is predominantly governed by a physiological paradigm. HCPs express uncertainty as to whether ketamine itself may bring risk in the form of emergence phenomena and related non-physiological harm. They are, however, aware of the risks posed by emergence phenomena in adult ketamine sedation and question whether the same effects may occur in children.

Further, HCPs view children as 'different', vulnerable and requiring additional protection. They believe they have a duty to protect children from any avoidable harm. In light of this duty to protect, HCPs often use ketamine to protect children from pain and suffering. However, they remain uncertain as to whether the very use of ketamine

may at times inadvertently cause, rather than diminish, harm. In other words, they question whether ketamine sedation might sometimes fail to protect children as intended. While ketamine is seen to reduce children's acute physical suffering and offer control over some aspects of clinical chaos, this thesis has revealed that HCPs at times use ketamine sedation to reduce the burden of having to witness children's suffering. This raises questions as to the driving force behind the decision to use ketamine sedation.

This thesis also provides narrative evidence that children do at times experience emergence phenomena and reveals that HCPs worry about the nature and implications of such outcomes. The HCPs in this study are concerned that they do not 'know' the extent of non-physiological risk. They further indicate that absolute 'knowing' may always be elusive, meaning that they are often 'working in the dark'.

The descriptions of their own limited understanding of ketamine sedation reveal the multifactorial ways that HCPs acquire knowledge. They are simultaneously contributing to and assimilating a 'collective knowledge' that informs future practice. In this way, HCPs are 'brought into the fold' and acculturated into the subtleties of paediatric ketamine sedation.

The collective knowledge of paediatric ketamine sedation extends beyond the formal teachings of the healthcare professions. HCPs learn how to undertake paediatric ketamine sedation practice through a combination of training based on scientific knowledge and trial and error experiences. This is exemplified by the widespread adoption of dream-seeding (guided imagery) techniques, despite the absence of these techniques in formal policies and guidelines. HCPs believe that dream-seeding helps to protect children from experiencing negative psychotropic events during emergence from

ketamine sedation and are committed to its continued use to protect children from negative emergence events.

Relating the findings to other studies

The chaotic nature of care provision revealed in this thesis contributes to the broader narrative work and typologies established by Frank (2010b), Charon and Montello (2002), and Charon et al. (1995), particularly the idea that both illness and medical practice are composed of chaos and innumerable moral and ethical tensions. Chaos, by nature, is multifactorial, inclusive of physiological, psychological, and environmental pressures, and it is these pressures that bring competing moral tensions into HCPs' practice decisions. In the case of paediatric ketamine sedation, chaos associated with the physical trauma and care environment often surrounds the treatment. However, little is known about the psychological impact of paediatric ketamine sedation, the potential for emergence phenomena, and the ways in which this may contribute to further chaos.

HCPs make decisions based on perceptions of risk and harm that are governed more by the easily measured physiological risks than the lesser known non-physiological risks associated with paediatric emergence phenomena. Most studies in the literature review identified that the risks of ketamine sedation were assessed in a predominantly physiological manner and that the non-physiological risks associated with emergence phenomena are of a "so what" (Treston et al., 2009, p. 320) and inconsequential nature in paediatric practice (Angheliescu et al., 2011; Corazza, 2008; Corazza & Schifano, 2010; Duda, 1996; Gorelick et al., 2007; Green & Krauss, 2011; Green & Sherwin, 2005; Kost & Roy, 2010). This thesis concurs that HCPs' current understandings of potential risk and harm in paediatric ketamine sedation are usually based on physiological measures. However, it also provides evidence that HCPs are aware that emergence phenomena and non-physiological risk make children vulnerable to potentially negative outcomes.

By identifying chaos in clinical practice and HCPs' desire to control or mitigate that chaos in order to protect children, this study complements the work done by Rasmussen (2011), who explored the stories that families tell to describe care they receive in hospital. Rasmussen makes visible the narratives of chaos and restitution in children's and family's experiences of hospitalisation and treatment. These 'chaos' stories depict healthcare from the perspective of the child and patient, revealing the confusion experienced by those receiving care. This thesis adds the perspective of HCPs to the broader narrative of chaos in healthcare, suggesting a degree of congruence between patients and practitioners.

There is recognition in this thesis that ketamine sedation, at times, benefits HCPs as much as the children being treated. Ketamine is considered by HCPs to be a valuable tool to control children's response to pain and fear and other chaotic aspects of the environment. It is a tool that removes HCPs' need to physically restrain children, thus allowing time and space to accomplish the task of physical repair. This finding is consistent with the literature, which suggests that ketamine absolves HCPs of the need to employ physical force (Craven, 2007; Green & Krauss, 2004a; Haley-Andrews, 2006; Howes, 2004; Karapinar et al., 2006; Krauss & Green, 2006; Lin & Durieux, 2005; Loryman et al., 2006; Meredith et al., 2011; Morton, 2008; Treston et al., 2009).

This thesis has found that when HCPs witness a child's suffering, they feel a duty to protect that child yet they are uncertain whether ketamine sedation is the best response. Balancing the potential benefit of ketamine against the potential risk of emergence phenomena creates a sense of unease because HCPs do not 'know' the implications of children's experiences of emergence. Using physical force against children is equally distressing and thus they experience moral dilemma.

Lutzen, Dahlqvist, Erikson, and Norberg (2006) define a moral dilemma as being concerned with making decisions between competing principles, duties and obligations. Some HCPs wrestle with the uncertainty of potential harm that emergence phenomena might bring. For these HCPs, using paediatric ketamine sedation despite believing that paediatric emergence phenomena may occur creates moral tension and even, for some, a tangible sense of distress. This leads some HCPs to seek to ‘unburden’ themselves of the responsibility of having to determine the extent of this risk. They distance themselves from the sole responsibility and trust that a collective knowledge guided by ‘others’ more qualified can guide them and keep them and their patients safe.

It was not a goal of this thesis to determine whether ketamine sedation is predominantly chosen as a treatment modality for a child’s benefit or for HCPs’ benefit; however, the findings have revealed that there are times in which ketamine sedation is used to benefit one, the other, or both. Thus, while the ‘for us or for them?’ question can leave HCPs ill at ease, it may be somewhat moot as both HCPs’ and children’s interests are inextricably linked, with mutual benefits potentially gained in either instance.

Finding the language to communicate effectively with children in order to reduce their fear can be difficult. With more limited life experiences, children’s horizons of understanding are different than adults. Furthermore, because children, particularly those who are nonverbal, do not have the same ability to communicate their experiences, it can be difficult to ascertain their horizons of understanding. This can prevent a ‘fusion’ of horizons. This study’s findings provide an example of how children who “are too young to have the words” (chapter five, p. 83) to describe their experience were deemed to be at risk. HCPs view children as particularly vulnerable and in need of protection because their limited life experience does not grant an adult understanding of injury or the consequences of treatment. HCPs are aware of their own limited ability to engage in a shared understanding with children, specifically in relation

to avoiding misunderstandings or misinterpretations, which can then translate into fear. The story of the boy who did not want to be ‘put to sleep’ because he associated that phrase with being put to death is an example of the risks created in the absence of a shared language or understanding.

Children live an embodied existence rather than a cognitive one, and their consciousness develops along a continuum as they gather experiences through perceptions of sight, sound and touch (Merleau-Ponty, 1962). Childhood is the time for developing language and forming associations with cause and effect (Piaget & Inhelder, 2000). Children’s experiences of these associations go on to form schemas or behavioural patterns that guide their future reactions and responses to events (Kohler, 2008; Piaget & Inhelder, 2000). The findings of this study have revealed that HCPs view children as vulnerable because children have fewer of these associations and schemas from which to respond or make sense of their situation.

The perception of children as ‘different’ aligns with Heidegger’s philosophical notion that childhood is a unique and special time (Heidegger, 1971). He suggests that childhood is only abandoned or transitioned when an experience (psychological and or physiological) forces the child from it. Children transition from childhood to adulthood as a result of change attributable to time and experience. These concepts are interdependent, and labels of ‘child’ and ‘childhood’ are temporal constructs within a sociality in which children are framed (Saevi & Husevaag, 2009). Experiences of the adult world (brought about by time within it) force children from childhood, placing them somewhere along a continuum that stretches from infancy to adulthood (Hatab, 2000). It may be that a child’s place on this continuum is what HCPs are trying to protect. Perhaps they are subconsciously trying to prevent children being forced to ‘transition’ from childhood prematurely. Thus, this may be why they use ketamine sedation and why they also worry about using it.

This study suggests that there is limited follow-up of children after ketamine sedation and, more broadly, that there is a lack of children's voices in the literature. The literature review identified no qualitative research relating to children's experience of ketamine sedation. This means that HCPs have only a partial understanding of children's experiences during and following ketamine sedation. HCPs themselves admit to 'not knowing' about children's experiences, and in some cases of being afraid to find out for fear of learning that they could be causing harm.

The absence of child-centric understanding of ketamine sedation and associated emergence phenomena aligns with Bricher's (2000) exploration of the powerless and often absent voices of children during hospital care. It is also congruent with Carter's (2009) identification of children's exclusion from research. This absence of information is important because the omission of non-physiological risk in most paediatric ketamine studies renders paediatric emergence phenomena largely invisible. Most of the identified research measures outcomes based on observations of children's experiences (made predominantly by HCPs as "proxies") rather than directly from children's accounts of their experiences. Since they can never fully 'know' what these children experience, there is an element of uncertainty that further accentuates children's vulnerability. This thesis therefore contributes to the broader narrative of children's vulnerability in healthcare and aligns with Carter's (2009) and Dickinson, Wrapson and Water's (2014) work, which suggests that children are frequently marginalised and their experience of care disregarded or not investigated.

HCPs believe that there is little fundamental physiological difference between a child's brain and an adult's brain, suggesting that it is not possible to pinpoint a specific age at which children can be deemed at greater or lesser risk for emergence events. Broad generalisations remain the point of measure, suggesting that the older children are, the more likely it is that they will (or will be seen to) experience emergence phenomena.

This is supported by several studies in the literature review, which suggest that by the time children reach adolescence their risk of emergence phenomena becomes similar to that of adults (McQueen et al., 2009; Meredith et al., 2011; Wathen et al., 2000).

Perhaps this is because with age comes increasing capacity for verbal language.

Treston et al. (2009) refer to children's naïve minds or lack of life experience from which to build negative hallucinations as a reason to not worry about paediatric emergence phenomena. However, given uncertainty about the visibility of risk and Bricher's (2000) observations of the absence of children's voices in their treatment, the occurrence of emergence events in younger children who do not yet have the ability to communicate what they are experiencing may be greater than direct observation acknowledges.

HCPs are essentially 'working in the dark' when it comes to understanding the frequency and nature of paediatric emergence phenomena. They do not know the implications of emergence events and are thus trapped between the need and expectation that they must 'know' and the pragmatic reality that they can never fully know. They carry this tension as part of their everyday working experience, trying to balance benefit and harm. Charon and Wyer (2008) suggest that these tensions cannot be fully described let alone solved and can only be endured in the pursuit of positive outcomes:

Medical practice is poised astride insoluble tensions between the known and the unknown (or at least the knowable and the unknowable), the universal and the particular, and the body and the self. Nested, these tensions beget and amplify one another. The unwary physician, caught in the headlights of one of them, usually succumbs to the paralysing effects of all three, often without knowing what waylaid him or her on the country road to begin with. The tensions have yet to be adequately captured in language. (Charon & Wyer, 2008, p. 921)

This thesis has revealed that HCPs experience the uncertainty described in the above quotation. They accept that knowing anything completely is impossible and have asked directly "How can we [know]? How do you measure any of it?" (chapter five, p. 78).

This is an ‘insoluble tension’ because knowing can be attained or measured from any number of perspectives. Knowledge can be procedural (sometimes called competence or ‘know-how’), personal (lived) or propositional (knowledge of facts) (Pigliucci, 2012; Williams, 2007). It is propositional knowledge that is most notable in the philosophical pursuits of understandings because it grounds itself to the epistemological position of fact: that something is or is not true. In the contextual environment of paediatric practice and non-physiological risk, propositional fact (children do or do not experience emergence phenomena) may not be easily ascertained because of the impossibility of fully knowing children’s lived experience.

The concept of knowing within the context of paediatric ketamine sedation arguably relies on a combination of many forms of knowing. The scientific method employs empirically based hypothesis testing, while other forms of knowing inform the application of that knowledge in a “synthesis of logic and empiricism” (Tauber, 2000). It is accepted by HCPs that ketamine sedation is capable of separating a mind and body, but reasoned logic and empirical evidence have also identified numerous inconsistencies and potential unknowns within their stories of practice. HCPs stories have shown that, for them, coming to ‘know’ paediatric ketamine sedation is a process of assimilation: bringing together scientific and experiential learning. They are ‘brought into the fold’ and then commit their subsequent experience to a collective knowledge that is formed through a combination of procedural, personal and propositional knowledge.

HCPs’ use of dream-seeding (guided imagery) is a salient example. This study has revealed that HCPs often use dream-seeding despite its absence in clinical guidelines. The literature review identified that the early work of one of the most published authors on paediatric ketamine sedation essentially determined its safety and concluded that emergence phenomena are rare and inconsequential (Green & Krauss, 2004a, 2004b;

Green et al., 2000; Green & Li, 2000; Green et al., 1998; Green & Sherwin, 2005). A later article revealed that the author used dream-seeding in all of these studies, though it was not declared within the study designs or reported findings (Gorelick et al., 2007). These studies formed the basis of support for increasing use of paediatric ketamine sedation. Perhaps not surprisingly, clinical guidelines relating to paediatric sedation are variable (Borland, Esson, Babl, & Krieser, 2009) and have not included the practice of dream-seeding, nor has the practice been widely researched in relation to ketamine sedation.

This thesis has revealed that HCPs question reports that paediatric emergence phenomena are rare and insignificant because they have witnessed children experiencing fear and terror as a result of emergence phenomena. The HCPs in this study try to avoid actions that might contribute to emergence phenomena and use dream-seeding to protect children being sedated. They learned the technique through the collective knowledge of practice and ‘trial and error’, rather than from guidelines or protocols. They see dream-seeding as a tool to meet their goal of restoring children both psychologically and physiologically back to their pre-injured selves.

Despite anecdotal reports within this study of success with dream-seeding, tensions remain. The variable and vivid nature of dreams may be hard to constrain, and what might be one child’s ‘happy place’ could trigger another’s nightmare. Thus, while seeding dreams may alter the nature of emergence phenomena, it may also bring its own risks. The absence of research that explores dream-seeding in paediatric practice means that there is little guidance from research or clinical guidelines as to how to undertake this practice. Dream-seeding techniques are therefore variable and, in essence, invisible beyond those familiar with its use in paediatric ketamine sedation.

6.3 Recommendations

At the crux of any practice or clinically focussed research is a desire to make conclusive and specific recommendations for practice. As a result of this study, I have two specific recommendations: further research and HCP education.

Research

Further research into paediatric ketamine sedation should be undertaken, including:

- Children's experiences of ketamine sedation and emergence phenomena, with specific consideration of any longitudinal impact and inclusive of qualitative exploration of their lived experiences.
- The use of dream-seeding for anxiolysis, inclusive of delivery techniques, efficacy and children's perspectives.

With a lack of available research to qualify children's experiences of paediatric ketamine sedation, and particularly children's experiences of emergence phenomena, there is uncertainty relating to the potential risk of non-physiological harm as a result of emergence phenomena. Research into this topic would help to confirm or deny reports that emergence phenomena in children are rare or inconsequential. In particular, I recommend that this research consider longitudinal risks (such as reports of increased occurrence of mood swings, nightmares, etc.), because the participants have identified that follow-up after procedures is rare. Furthermore, it is essential that the research include children's voices to the greatest extent possible.

The findings of this study have identified the anecdotal efficacy of dream-seeding (guided imagery) to reduce negative experiences of emergence phenomena. While the participants are confident of the usefulness of dream-seeding to reduce negative emergence phenomena (and shared many examples), the literature review found no research that specifically measured the effects of dream-seeding. Many guidelines for paediatric ketamine sedation have not adopted or recommended dream-seeding (guided

imagery) as an adjunct to practice, and the literature review did not identify any guidelines for how to approach the practice itself. While the HCPs in this study undertook some form of dream-seeding, they reported it as variable and done without specific guidance. I therefore recommend undertaking research that investigates the efficacy of dream-seeding, techniques for delivery and children's experiences. This would help to address the invisibility and variability of this practice.

Education for HCPs

Education that makes visible the potential for harm as a result of non-physiological risk should be made available to those undertaking paediatric ketamine sedation. Provided that the research recommended above supports it, this education should also include the development of specific clinical guidelines for undertaking dream-seeding in the presentation phase of ketamine sedation. This education should include ongoing in-service, online and specialist courses targeting staff who carry out paediatric ketamine sedation in any context. It should cover skills for assessing children's state of mind and potentially training in how to induce a positive dream state. This education should be offered to all those who care for children following ketamine sedation to ensure an awareness of the potential risk for negative non-physiological harm. Information about wraparound services such as pain services and child mental health services would also be a welcome inclusion.

6.4 Study limitations

This study, undertaken in partial fulfilment of the requirements for the degree of Master of Philosophy, interpreted the stories of seven HCPs. Within the scope of a master's level project, data collection was deemed sufficient to analyse and offer beginning insights. The hermeneutic paradigm recognises that interpretation is always ongoing and never complete. While I believe the sample size was sufficient to allow sustained

interaction with the data to enable the emergent themes to achieve a robust depth and richness, there is a possibility that a larger number of participants could have produced additional findings and re-enforced the findings identified.

This study relied on individuals' stories, brought together into a narrative that incorporated a range of HCP voices. However, the study only makes visible professional perspectives of paediatric ketamine sedation and may silence the voices of others. Including the perspectives of children experiencing ketamine sedation and their families would undoubtedly bring additional insights, as well as potential counter-narratives.

The participants in this study were recruited through professional networking and, as a result, the makeup of participants is limited to those networks. All participants currently practice within the same two district health boards, and all but two were trained in paediatric ketamine sedation in the same hospital and acute settings within New Zealand. Such homogeneity is insufficient for the development of robust guidelines.

The participants were senior practitioners with extensive clinical experience and four had worked with me directly during ketamine sedations up to two years before I undertook this study. They were thus aware of my interest in, and experience with, paediatric ketamine sedation prior to their engagement in the study and this may have influenced the stories they chose to share. Had broader geographical and greater experiential diversity been achieved during recruitment, the stories may have brought greater depth and richness to the findings.

Ethnicity was not a recruitment consideration, and I did not seek gender balance. While the participants may be a reasonable representation of real-world practice in New Zealand, the group is a homogenous one, and addressing this could have yielded different stories and altered findings given different perspectives and interpretations.

It is the nature of hermeneutic narrative research that no singular or ultimate truth is ever discovered, but rather only versions and interpretations that bring understandings specific to the storyteller who is sharing. The telling of any story is a situated event, and the content of sharing is influenced by many things, not least of which include location, timing, past events, and speculation for the future. Because of the situated nature of the stories shared in this study, the understandings that have emerged cannot be considered a complete or all-encompassing exploration of paediatric ketamine sedation. Instead, they represent a small piece of a much larger and more complex narrative. It is therefore not possible to claim that this study's findings would be transferable to all contexts of paediatric ketamine sedation practice.

6.5 Closing thoughts

There is no trust more sacred than the one the world holds with children. There is no duty more important than ensuring that their rights are respected, that their welfare is protected, that their lives are free from fear and want and that they can grow up in peace. (Kofi Annan, cited in Bellamy, 2000)

Like the participants in this study, and many of my colleagues and fellow researchers, I identify strongly with a sense of duty to protect children from preventable suffering.

When I set out to make visible HCPs' stories of paediatric ketamine sedation, I thought I knew what I would find. I had begun the process from the roots of my practice, frustrated with my own lack of understanding and with a strong bias and belief that HCPs did not know enough about the potential risks and harms of paediatric ketamine sedation.

Reflecting on the processes I have undertaken, I have gained more awareness and understanding than I could have imagined. I have developed a renewed faith, despite the unknowns, that HCPs are acting with children's interests at heart. In this I feel part of something, and together in purpose.

The participants have given insight into their determination to achieve positive outcomes for the children and families that they serve. Their willingness to expose perceived understandings while also openly admitting to their uncertainties and fallibilities is heartening, and I am hopeful that future research will inform even more enlightened practice.

Yet I also now understand that in finding answers to questions, we in turn generate even more questions. This is the ongoing conversation that we have with our world, engaging in a dialogue from the past that will then carry us into the future (Gadamer, 1993). If this is true, HCPs are duty bound to continue asking questions and engaging in conversations, so that we look beyond the horizons of our understanding and see what we currently cannot. Endeavours such as these help to free us from being wrong and guard against our wronging of others.

*We work in the dark—we do what we can—we give what we have.
Our doubt is our passion and our passion is our task.
The rest is the madness of art.*
(James, as cited in Oates, 1996, p. 262)

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APPENDICES

Appendix A

MEMORANDUM

Auckland University of Technology Ethics Committee (AUTEC)

To: Tineke Water
From: Charles Grinter, Ethics Coordinator
Date: 12 July 2012
Subject: Ethics Application Number **12/147 Paediatric Ketamine Sedation: Stories from healthcare professionals.**

Dear Tineke

Thank you for providing written evidence as requested. I am pleased to advise that it satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC) at their meeting on 25 June 2012 and the Chair of AUTEC has approved your ethics application. This delegated approval is made in accordance with section 5.3.2.3 of AUTEC's *Applying for Ethics Approval: Guidelines and Procedures* and is subject to endorsement by AUTEC at its meeting on 13 August 2012.

Your ethics application is approved for a period of three years until 12 July 2015.

I advise that as part of the ethics approval process, you are required to submit the following to AUTEC:

- A brief annual progress report using form EA2, which is available online through <http://www.aut.ac.nz/research/research-ethics/ethics>. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 12 July 2015;
- A brief report on the status of the project using form EA3, which is available online through <http://www.aut.ac.nz/research/research-ethics/ethics>. This report is to be submitted either when the approval expires on 12 July 2015 or on completion of the project, whichever comes sooner;

It is a condition of approval that AUTEC is notified of any adverse events or if the research does not commence. AUTEC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are reminded that, as applicant, you are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

Please note that AUTEC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to make the arrangements necessary to obtain this. Also, if your research is undertaken within a jurisdiction outside New Zealand, you will need to make the arrangements necessary to meet the legal and ethical requirements that apply within that jurisdiction.

To enable us to provide you with efficient service, we ask that you use the application number and study title in all written and verbal correspondence with us. Should you have any further enquiries regarding this matter, you are welcome to contact me by email at ethics@aut.ac.nz or by telephone on 921 9999 at extension 6902. Alternatively you may contact your AUTEC Faculty Representative (a list with contact details may be found in the Ethics Knowledge Base at <http://www.aut.ac.nz/research/research-ethics/ethics>).

On behalf of AUTEC, I wish you success with your research and look forward to reading about it in your reports.

Yours sincerely

Charles Grinter
On behalf of Dr Rosemary Godbold, Executive Secretary
Auckland University of Technology Ethics Committee

Cc: Michael Neufeld mneufeld@aut.ac.nz, Rosemary Godbold



AUTEC
SECRETARIAT

Participant Information Sheet



Date Information Sheet Produced:

June 11, 2012

Project Title

Paediatric Ketamine Sedation: Stories from Healthcare Professionals

An Invitation

Hello,

My name is Michael Neufeld and I am undertaking a narrative research study to explore healthcare professionals stories of their experiences of paediatric ketamine procedures.

I would like to extend an invitation for you to participate in this study. Your decision to participate in this study is entirely voluntary

What is the purpose of this research?

From its inception, ketamine sedation has been identified with emergence phenomena that can be traumatic for patients, family members and staff. In recent years, there has been an increasing use of paediatric ketamine sedation and although there is a body of research regarding children's physiological responses during ketamine sedation, less is known about emergence phenomenon and the context of care provision in relation to it.

This proposed study seeks to gain insight into ketamine sedation through an exploration of the stories that healthcare professionals tell of their experiences in clinical practice. Healthcare professionals' stories will provide a greater understanding of the particular context of paediatric care from which they make decisions and provide care to children and families.

How was I identified and why am I being invited to participate in this research?

You have been identified Through professional networking as having clinical experience in paediatric ketamine sedation and have observed a child or children experiencing emergence phenomena. You are being invited to participate because I would like to hear your stories and discuss your experience and perceptions of paediatric ketamine sedation.

This information sheet has been provided so that you can decide whether you would be interested in participating. This method has been used to allow you the freedom to decline the offer.

What will happen in this research?

You will be asked to share your stories with me in a conversational interview, lasting approximately 60 to 90 minutes. Our conversation will be recorded (audio) and be kept confidential. I will ask you open-ended questions around your experiences and observations of being involved in situations where children received ketamine sedation. We can negotiate where you would like to be interviewed – this could either be in a public place or a room at AUT. Once your interview has been transcribed I will examine aspects of your story for thematic and structural elements and then create a narrative that is intended to highlight and capture particular aspects of your story. I will return the transcript to you so that you have the opportunity to remove or correct any information. Your story will be developed alongside others' stories to gain insight into the practice of ketamine sedation and the context within which it occurs. If you would like additional meetings, these can be arranged upon your request. You may also withdraw from the study at any time up to the completion of data collection.

What are the discomforts and risks?

I am asking you to share stories of your clinical practice, which, for some individuals, can feel unsettling. Reflecting on practice can elicit strong emotional responses, particularly when related to potentially negative experiences or poor outcomes for others. There is a risk that in your sharing, you may uncover or re-experience negative emotions that you had not expected. This reflective nature of storytelling may bring pleasant or unpleasant feelings.

How will these discomforts and risks be alleviated?

The process for hearing your story will be one of unconditional support. There is no judgement of you, your actions or your feelings. There is no right way to tell a story, and this study will make certain that you have a supportive environment from which to speak. You may choose not to answer any questions, pause in the interview, or end the interview at any time. Should you wish, 3 free counselling sessions are available to you through AUT counselling services.

What are the benefits?

Participants: It is difficult to say what direct benefit participating in this study may have for you. It may be an opportunity for you to share your experiences and insights into paediatric practice.

Healthcare practice: This study aims to make visible hidden aspects of healthcare professionals' practice. It is hoped that the exploration of participants' stories will deliver a greater understanding of what occurs for staff, children and families during ketamine sedation. It may bring insight into the pressures and challenges that healthcare professionals face when making decisions regarding care provision.

The researcher: This study will benefit me by meeting the requirements for my Master of Philosophy.

How will your privacy be protected?

All information shared with me will be kept confidential, and any distinct identifiable details such as names and places within your story or stories will be altered to maintain confidentiality. Any information you do not wish to be included will be removed up until the completion of data collection. Signed consent forms will be secured in a locked filing cabinet located at the University. Upon completion of the study, digital information will be encrypted and kept in a secure location for 6 years after which time it will be destroyed.

What are the costs of participating in this research?

The only cost to you will be your time. There will be a 60 to 90 minute interview and potentially a follow-up interview should any aspects of your story require clarification.

What opportunity do I have to consider this invitation?

Please let me know within 3 weeks of your willingness to participate. If you have any questions or would like further clarification, please feel free to contact me or my supervisor Dr Tineke Water via phone or email listed in the contact details below. .

How do I agree to participate in this research?

If you would like to participate, please call or email me to confirm. We will discuss a time and location for the interview that will suit you. I will ask you to bring the signed consent form (Appendix B) to the interview.

Will I receive feedback on the results of this research?

Yes. You may indicate on the consent form if you would like to receive a summary of the findings. I am happy to answer any questions you may have regarding these findings. The findings will also be presented via journal articles, professional forums and conference presentations. A copy of the completed thesis will also be held within the AUT library.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Tineke Water, at (9) 921 9999 ext. 7335

Concerns regarding the conduct of the research should also be notified to the Director of Postgraduate Studies, Madeline Banda, at (9) 921 9999 ext. 8044 Email: madeline.banda@aut.ac.nz

Whom do I contact for further information about this research?

Researcher contact details: Michael Neufeld, mneufeld@aut.ac.nz, (9) 921 9999 ext. 7402 or 021 082 97421

Project Supervisors Contact Details:

Dr Tineke Water, TWATER@aut.ac.nz, (9) 921 9999 ext. 7335

Dr Rosemary Godbold, rosemary.godbold@aut.ac.nz, Phone: (9) 921 9999 ext. 6902

Approved by the Auckland University of Technology Ethics Committee on **28th June 2012**,
AUTEC Reference number **12/147**.

Consent Form



Project title: Paediatric Ketamine Sedation: Stories from Healthcare Professionals.

Project Supervisor: Dr. Tineke Water

Researcher: Michael Neufeld

- I have read and understood the information provided about this research project in the Information Sheet dated 11 June 2012.
- I have had an opportunity to ask questions and to have them answered.
- I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- If I withdraw, I understand that all relevant information including tapes and transcripts, or parts thereof, will be destroyed.
- I agree to take part in this research.
- I wish to receive a copy of the report from the research (please tick one): Yes No

Participant's signature:

Participant's name:

Participant's Contact Details (if appropriate):

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Date:

Approved by the Auckland University of Technology Ethics Committee on *type the date on which the final approval was granted* AUTEK Reference number *type the AUTEK reference number*

Note: The Participant should retain a copy of this form.